

Walt Disney World

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**CAROUSEL  
OF  
PROGRESS**

**SHOW**

**MAINTENANCE  
MANUAL**

**VOLUME 1**

# WED ENTERPRISES

## INTER-OFFICE COMMUNICATION

P-1328-B-1

TO JON SINKINSON

DATE MARCH 1, 1978

FROM BOB BURNS

SUBJECT CAROUSEL OF PROGRESS

The following are the Foot Candles and Exposure Value Readings as of February 1, 1978 in the Carousel of Progress.

### ACT I

E.V. (100 ASA)  
EQUIVALENT

T/T - BOY: 200 FT. CANDLES (NOSE)	9.8
CAT: 100 FT. CANDLES (TOP OF HEAD)	8.8
FLOWERS: AVERAGE 75 FT. CANDLES	8.3
T/T - GIRL: 70 FT. CANDLES (TOP OF HEAD) and	8.3
25 FT. CANDLES (NOSE)	6.8
T/T - MOTHER: 75 FT. CANDLES (NOSE)	8.3
LITTLE GIRL: 90 FT. CANDLES (NOSE)	8.6
T/T - GRANDMA: 100 FT. CANDLES (NOSE)	8.8
PARROT: 100 FT. CANDLES (TOP OF HEAD)	8.8
NARRATOR: 190 FT. CANDLES (NOSE)	9.7
DOG: 60 FT. CANDLES (FACE)	8.0

### ACT II

T/T - ORVILLE: 300 FT. CANDLES (NOSE)	10.4
T/T - GRANDPA: 150 FT. CANDLES (NOSE)	9.3
BOY: 200 FT. CANDLES (NOSE)	9.8
T/T - MOTHER: 70 FT. CANDLES (NOSE) and	8.2
200 FT. CANDLES (TOP OF HEAD)	9.8
T/T - GIRL: 150 FT. CANDLES (SIDE OF HEAD)	9.3
NARRATOR: 110 FT. CANDLES (NOSE)	8.9
DOG: 70 FT. CANDLES (NOSE)	8.2

### ACT III

T/T - GIRL: 350 FT. CANDLES (TOP OF HEAD) and	10.5
200 FT. CANDLES (NOSE)	9.8
T/T - GRANDPA: 100 FT. CANDLES (NOSE)	8.8
GRANDMA: 100 FT. CANDLES (NOSE)	8.8
T/T - MOTHER: 300 FT. CANDLES (LEFT SIDE OF FACE)	10.4
T/T - BOY: 190 FT. CANDLES (RIGHT FOREHEAD)	9.7
NARRATOR: 95 FT. CANDLES (NOSE)	8.7
DOG: 85 FT. CANDLES (NOSE)	8.5

### ACT IV

MOTHER: 45 FT. CANDLES (LEFT SIDE OF FACE)	7.6
FATHER: 150 FT. CANDLES (NOSE)	9.3
SON: 80 FT. CANDLES (NOSE)	8.4
DOG: 50 FT. CANDLES (BACK OF HEAD)	7.8
GRANDMA: 40 FT. CANDLES (NOSE)	7.4
GIRL: 30 FT. CANDLES (NOSE)	7.0
GRANDPA: 40 FT. CANDLES (NOSE)	7.4
CLOCK: 3 FT. CANDLES (FACE) (BEHIND GRANDPA)	3.7
XMAS TREE: 30 FT. CANDLES (AVERAGE)	7.0

Doc - P, 28



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DATE June 30, 1975  
SUBJECT MAINTENANCE MANUAL - G.E. CAROUSEL  
SHOW

ENCLOSURE (1):  
MAINTENANCE MANUAL  
VOLUME 1 OF 2  
CAROUSEL SHOW  
DISNEY WORLD

- ENCLOSURE (1) IS DESIGNED TO SERVE AS AN AID/TOOL IN THE MAINTENANCE AND REPAIR OF THE G.E. CAROUSEL SHOW REPRESENTED AT WALT DISNEY WORLD.
- YOUR EVALUATION AND CONSIDERATION OF THE CONTENTS OF THIS MANUAL, AS WELL AS SUGGESTIONS AND "CONSTRUCTIVE" CRITICISM, IS REQUESTED.

MONTE HOULT  
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BUTYRATE Solvent  
 \* Cement  
 (Super Glue)

50-PARTS BUTYRATE THINNER  
 20-PARTS METHYL Cellasolve  
 10-PARTS ACETONE  
 10-PARTS METHylene chLoride  
 10-PARTS ETHylene Dichloride

00007

Doc 67-208



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CAROUSEL  
OF  
PROGRESS  
SHOW

Walt  Disney World

SHOW MAINTENANCE

VOLUME 1

PREFACE  
MAINTENANCE MANUAL  
G.E. CAROUSEL OF PROGRESS SHOW  
WALT DISNEY WORLD  
VOLUME I

THIS DOCUMENT IS PREPARED AS A READY REFERENCE/MAINTENANCE MANUAL FOR USE IN THE REPAIR AND MAINTENANCE OF FIGURES AND SUPPORT EQUIPMENT USED IN THE G.E. CAROUSEL OF PROGRESS SHOW - WALT DISNEY WORLD.

DETAIL DRAWINGS/DOCUMENTS APPLYING TO THE MECHANICAL (SECTION 2) EQUIPMENT AND NOT APPEARING IN THIS MANUAL ARE AVAILABLE UPON REQUEST FROM THE MECHANICAL ENGINEERING DEPARTMENT HEAD AT MAPO.

DETAIL DRAWINGS/DOCUMENTS APPLYING TO THE ELECTRICAL (SECTION 3) EQUIPMENT AND NOT APPEARING IN THIS MANUAL ARE AVAILABLE UPON REQUEST FROM THE ELECTRICAL ENGINEERING DEPARTMENT HEAD AT MAPO.

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Movie Houser

APPROVED:

E. Chisholm

APPROVED:

[Signature]

*revised*

MAINTENANCE MANUAL  
G.E. CAROUSEL OF PROGRESS SHOW  
WALT DISNEY WORLD  
VOLUME 1

INTRODUCTION

INFORMATION, ILLUSTRATIONS, AND SPECIFICATIONS CONTAINED IN THIS DOCUMENT ARE BASED ON THE LATEST PRODUCT INFORMATION AVAILABLE AT THE TIME OF PUBLICATION APPROVAL.

SOME OF THE MATERIAL CONTAINED HEREIN HAS BEEN TAKEN VERBATIM FROM THE APPLICABLE MANUFACTURERS CATALOGUES/FIELD MAINTENANCE MANUALS.



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# SECTION 1

**EQUIPMENT  
LOCATION**

# SECTION 1

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
















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# SYMBOLS & DESIGNATIONS













UNLESS OTHERWISE SPECIFIED




## CONDUIT & WIRE

## LIGHTING (CONT)














	CABLE OR PORTABLE CORD - ARROW INDICATES PLUG - CONNECTION
	HOMERUN TO PANEL LA-CKTS #1-3-5
	CONDUIT EXPOSED
	CONDUIT CONCEALED
	CONDUIT IN OR BELOW FLOOR SLAB
	3/4" C - 2 #12, UNLESS OTHERWISE NOTED
	1" C - 9 #12 - HATCHMARKS INDICATE QUANTITY OF #12 CONDUCTORS - CONDUIT SIZE AS REQUIRED BY N.E.C.
	3 #10 CONDUCTORS IN CONDUIT - NUMBER INDICATES CONDUCTOR SIZE - CONDUIT SIZE AS REQUIRED BY N.E.C.
	TELEPHONE SYSTEM CONDUIT - 3/4" C.O. UNLESS OTHERWISE NOTED
	INTERCOM SYSTEM CONDUIT
	SOUND SYSTEM CONDUIT
	MICROPHONE SYSTEM CONDUIT
	EMERGENCY SYSTEM CONDUIT
	EXISTING CONDUIT RUN
	CONDUIT STUB-OUT
	CONDUIT DOWN
	CONDUIT UP
	FLEXIBLE CONDUIT-SIZE AS NOTED

## LIGHTING













	FLUORESCENT FIXTURE - RECESSED
	FLUORESCENT FIXTURE - SURFACE MOUNTED - DOTS INDICATE PENDENT MOUNTING.
	FLUORESCENT FIXTURE - WALL MOUNTED
	FLUORESCENT FIXTURE - WALL MOUNTED VERTICAL
	CHARACTER FIXTURE WITH DESIGNATION
	INCANDESCENT FIXTURE - RECESSED
	INCANDESCENT FIXTURE - SURFACE MOUNTED
	INCANDESCENT FIXTURE - WALL MOUNTED
	INCANDESCENT FIXTURE WITH 3-WIRE GROUNDING OUTLET - WALL MOUNTED
	FLOODLIGHT - ARROW INDICATES FOCUS DIRECTION
	EXIT - SINGLE FACE - RECESSED, ARROWS (IF SHOWN) INDICATE DIRECTION
	EXIT LIGHT - DOUBLE FACE - WALL MOUNTED

	EXIT LIGHT-CEILING MOUNTED - SHADING DENOTES SINGLE OR DOUBLE FACE
	PHOTO ELECTRIC CELL
	PULL BOX



## SWITCH AND MOTOR CONTROL

	SWITCH - SPST - "A" DENOTES OUTLETS CONTROLLED - AT +4' - 6" UNLESS OTHERWISE NOTED
	SWITCH - DPST
	SWITCH - 3 WAY
	SWITCH - 4 WAY
	SWITCH WITH PILOT LIGHT
	MANUAL MOTOR STARTER
	DIMMER SWITCH OR MOTORIZED DIMMER
	MOTOR STARTER- MAGNETIC
	COMBINATION MOTOR STARTER & DISCONNECT SWITCH
	DISCONNECT SWITCH- NON FUSED
	DISCONNECT SWITCH - FUSED
	START-STOP PUSH BUTTON STATION
	STOP PUSH BUTTON STATION

## LIGHTING PROTECTION & GROUNDING

	LIGHTNING PROTECTION CABLE - EXPOSED - #2 B.C. UNLESS OTHERWISE NOTED
	GROUND CABLE AT 3' - U" BELOW GRADE #1/0 B.C. UNLESS OTHERWISE NOTED
	EXISTING LIGHTNING PROTECTION CABLE
	EXISTING GROUND CABLE
	AIR TERMINAL
	PITCHBOX
	BONDING PLATE
	GROUND ROD - "W" INDICATES WITH WELL ASSEMBLY FOR CABLE ACCESSIBILITY
	GROUND BUS ASSEMBLY
	BOLTED LUG OR CLAMP CONNECTION
	CADWELDED CONNECTION
	EQUIPMENT GROUND

## OUTLETS

	SINGLE RECEPTACLE - WALL MOUNTED
	DUPLEX RECEPTACLE - WALL MOUNTED AT +12" UNLESS OTHERWISE NOTED

SYMBOL LIST (CONT.)  
UNLESS OTHERWISE SPECIFIED

OUTLETS (CONT)

INSTRUMENTATION & CONTROL

- ⊙ FLOOR OUTLET
- ⊕ 30A 120V SINGLE RECEPTACLE ARROW  
HART #6330 OR EQUAL
- ⊕ 208V 3W 2P
- ⊕ PLUGMOLD
- ⊕ 30A 3P 4W 480V OUTLET
- ⊕ 60A 3P 4W 480V OUTLET
- ⊕ J-BOX-CEILING MOUNTED
- ⊕ J-BOX - WALL MOUNTED
- ▽ INTERCOM OUTLET AT +12" UNLESS  
OTHERWISE NOTED
- ▽ INTERCOM OUTLET - DACS
- ▽ TELEPHONE OUTLET AT +12" UNLESS  
OTHERWISE NOTED
- ▽ TELEPHONE OUTLET - PUBLIC
- ⊕ MICROPHONE OUTLET AT +12" UNLESS  
OTHERWISE NOTED
- ⊕ THERMOSTAT
- ⊕ SPEAKER OUTLET - WALL MOUNTED
- ⊕ SPEAKER OUTLET - RECESSED
- ⊕ CLOCK OUTLET
- ⊕ DUPLEX RECEPTACLE WITH DIMMER IN  
COMMON ENCLOSURE (F.B.O.)

MISCELLANEOUS

- 100AF  
100AT [ ] ENCLOSED CIRCUIT BREAKER WITH FRAME  
& TRIP SIZE INDICATED
- [ T ]<sub>25</sub> TRANSFORMER AND KVA RATING
- ( S ) MOTOR AND HORSEPOWER RATING
- ( I ) IONIZATION DETECTOR
- [ ] LIGHTING PANEL - FLUSH MOUNTED
- [ ] LIGHTING PANEL - SURFACE MOUNTED
- [ ] DISTRIBUTION PANEL - POWER
- [ MCC ] MOTOR CONTROL CENTER - 2 SECTION
- [ ] TELEPHONE BACKBOARD
- [ ] SOUND, ANIMATION & MONITOR CABLE OR  
CONDUIT DESIGNATION NUMBER
- [ ] PLAN REFERENCE DESIGNATION
- [ ] DETAIL, SECTION & ELEVATION  
REFERENCE DESIGNATION
- [ ] MECHANICAL EQUIPMENT DESIGNATION  
SYMBOL
- [ ] SPECIAL NOTE AS INDICATED ON  
DRAWINGS
- + 4' 6" INDICATES ELEVATION TO CENTERLINE  
OF OUTLET FROM FINISHED FLOOR
- [ ] CLOSE CIRCUIT INFRA-RED TV CAMERA
- [ ] FLOW SWITCH

- ( PSP )<sub>2</sub> SUMP PUMP (AUXILIARY CONTACT)  
NUMBER INDICATION (TYP.)
- ( SPA ) SUMP PUMP ALARM
- ( TCS ) TURNSTILE COUNTER SWITCH
- ( ATS ) AUTOMATIC TRANSFER SWITCH
- ( AHS ) AIR HANDLER STATUS
- ( ARC ) AIR HANDLER COIL (REMOTE START)
- ( FAS ) DIRTY FILTER ALARM SWITCH  
(A/C PANEL)
- ( LAS ) AIR LOSS ALARM SWITCH (A/C PANEL)
- ( RTD ) RESISTANCE TEMPERATURE DEVICE
- ( SEA ) SEWAGE EJECTOR ALARM
- ( PSE ) SEWAGE EJECTOR
- ( CSR ) FIRE CONTROL PANEL (1 ZONE - NO HORN)
- ( CT2 ) FIRE CONTROL PANEL (1 OR 2 ZONES)
- ( EFA ) FIRE CONTROL PANEL (4 ZONES)
- ( IPR ) INTERPOSING RELAY
- ( IDC ) IONIZATION DETECTOR
- ( IDB ) IONIZATION DETECTOR
- ( IDF ) IONIZATION DETECTOR
- ( IDE ) IONIZATION DETECTOR
- ( IDA ) IONIZATION DETECTOR
- ( IDD ) IONIZATION DETECTOR
- ( SFS ) SPRINKLER FLOW SWITCH
- ( ZVS ) ZONE DETECTOR VALVE SWITCH
- ( PVS ) POST INDICATOR VALVE SWITCH
- ( DCE ) DRY CHEMICAL EXTINGUISHER (ANSUL)
- ( SLA ) SEWER LIFT ALARM
- ( PSL ) PUMP SEWER LIFT AXILIARY CONTACT
- ( RAS ) REFRIGERATOR ALARM SWITCH
- ( FLS ) FUEL LOADING KEY SWITCH
- ( FLP ) FUEL PUMP PILOT LIGHT ON

# ABBREVIATIONS

AVAC	AIR VACUUM SOLID WASTE DISPOSAL SYSTEM	PB	PUSH BUTTON
ABB	ANIMATION BREAK-OUT BOX	RC	RECESSED CEILING LIGHT
ASSY	ASSEMBLY	RTU	REMOTE TERMINAL UNIT
AM & CS	AUTOMATIC MONITORING AND CONTROL SYSTEM	SHT	SHEET
ATS	AUTOMATIC TRANSFER SWITCH	SIM	SIMILAR
AUX	AUXILIARY	SBB	SOUND BREAK-OUT BOX
BC	BARE COPPER	SW	SWITCH
BLR	BLOWER	TELE	TELEPHONE
BL	BORDER LIGHTS	TTC	TELEPHONE TERMINAL CABINET
B	BROGGIE (LV)	TC	TIME CLOCK CONTROL
CAB	CABINET	T	TORCH
CABR	CANDELABRA	TP	TWISTED PAIR (CABLE)
CA	CANDLE	TYP	TYPICAL
CLG	CEILING	UV	ULTRA VIOLET FLOOD
C	CENTERLINE	UVS	ULTRA VIOLET SPOT
CF	CHARACTER FIXTURE	UW	UNDER WATER
CH	CHANDELIER	WS	WALL SCOUNCE
CKT	CIRCUIT (S)	WW	WALL WASHER
COL	COLUMN	WP	WEATHERPROOF
CUC	COMMON USERS CABLE	W/	WITH
CO	CONDUIT ONLY	WC	WORK LIGHTS CONTROL
C	CONDUIT TRADE SIZE AS NOTED	I/C	INTERCOM
CV	COVE LIGHT		
CP	CEILING PENDANT		
CRY. DIM	CRYDOM DIMMER		
CR	CURTAIN LIGHTS		
DACS	DIGITAL ANALOGUE CONTROL SYSTEM		
DISC	DISCONNECT		
DN	DOWN		
DWG	DRAWING		
DF	DRINKING FOUNTAIN		
X	EXIT SIGNS		
F	FLUORESCENT FIXTURE		
FL	FOOTLIGHT		
FB0	FURNISHED BY OTHERS		
FP	FLUORESCENT PENDANT		
GRD	GROUND		
HP	HORSE POWERED		
LN	LANTERN		
L	LEKO		
LTG	LIGHTING		
MIC	MICROPHONE		
MM	MINIMOLE		
MISC	MISCELLANEOUS		
ML	MOLENSER		
MCC	MOTOR CONTROL CENTER		
MT	MOUNT		
MH	MOUNTING HEIGHT		
MD	NON-DETERMINED		
NA	NON-AUTOMATIC		
NF	NOT FUSED		
NIC	NOT IN CONTRACT		
NTS	NOT TO SCALE		
OC	ON CENTER		
OS	OPEN STROBE		
OLS	OVERLOADS		
PNL	PANEL		
PVC	POLYVINYL CHLORIDE		
PWR	POWER		
P	PROJECTOR		
PROT	PROTECTION		
PC	PULL CHAIN		

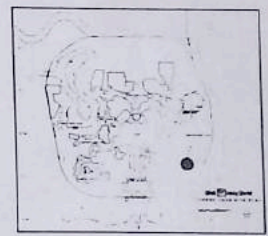
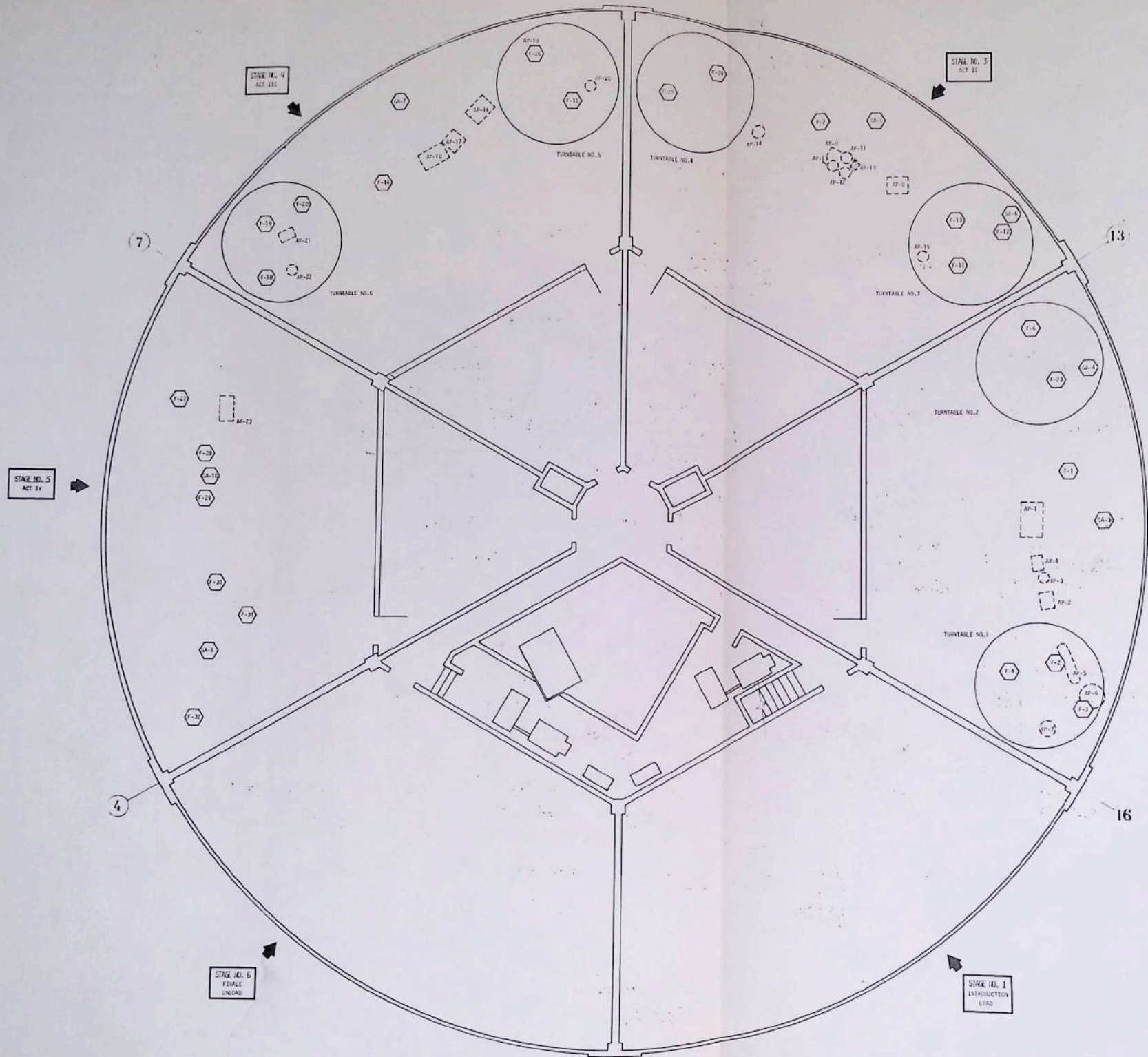
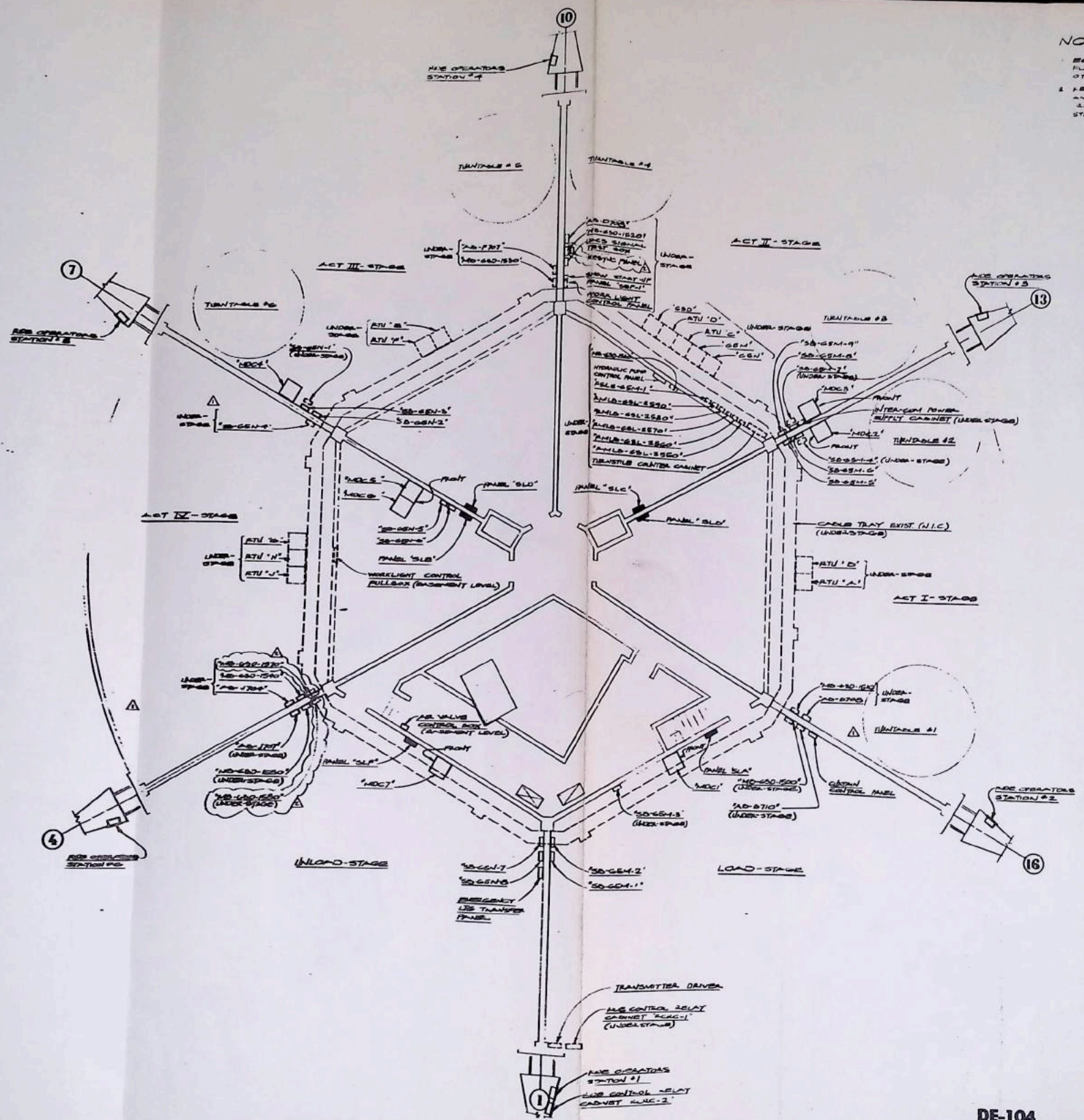


ILLUSTRATION NO. 1  
ANIMATED FIGURE LOCATOR

**NOTES:**

- 1. EQUIPMENT SHOWN IS LOCATED IN FIRST FLOOR OR STAGE LEVEL EXCEPT WHERE OTHERWISE NOTED.
- 2. REFER TO FACILITY DRAWINGS P-48-221, P-48-222 AND P-48-201 FOR LOCATION (REVISED FOR 2000) LEGS AND AIR OPERATORS STATION #1 THROUGH #6.



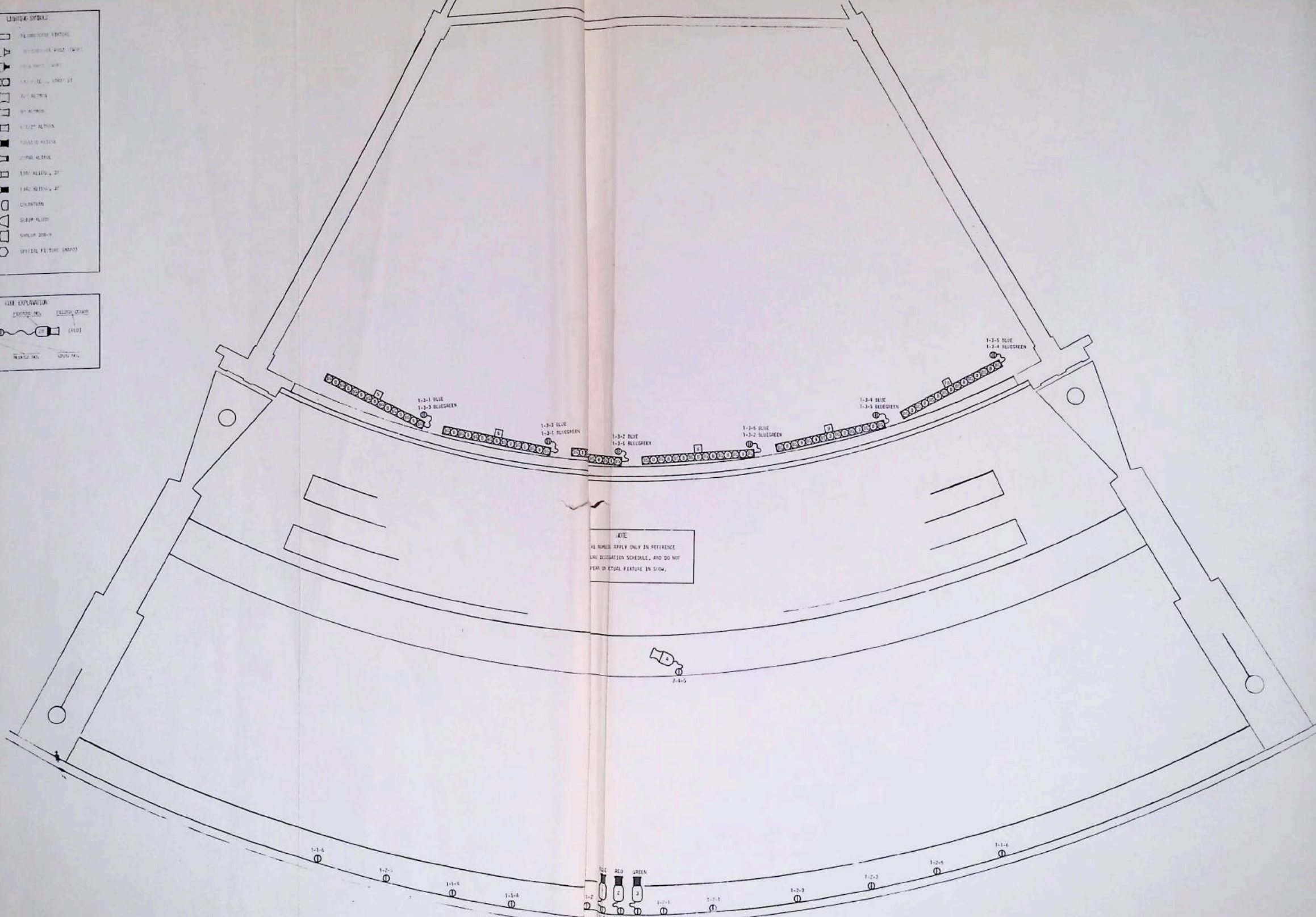
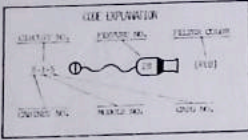
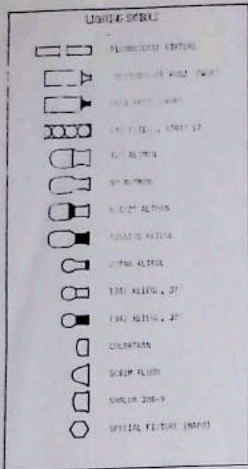
**DE-104  
EQUIPMENT LOCATION PLAN**

# SECTION 1.1

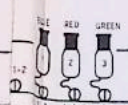
## LIGHTING

8/24/0  
1/24/0





**NOTE**  
THESE NUMBERS APPLY ONLY IN REFERENCE TO THE ILLUMINATION SCHEDULE, AND DO NOT PERTAIN TO THE ACTUAL FIXTURE IN SHOW.



**ILLUSTRATION NO. 2**  
**LIGHTING PLAN, INTRODUCTION LOAD**  
10

### FIXTURE DESIGNATION SCHEDULE

FIXTURE NUMBER	TYPE OF FIXTURE	LAMP REPLACEMENT		OPERATING VOLTAGE/ RAMP TIME	FILTER COLOR	CIRCUIT NO.	LAMP FOCUSED ON
		WATTS	PART NO. & MFR				
1	13551/8 KLIEGL	750	EHG <del>EGG</del>	ANALOG	BLUE	1-1-1	LOGO
2	13551/8 KLIEGL	750	EHG <del>EGG</del>	ANALOG	RED	1-1-3	LOGO
3	13551/8 KLIEGL	750	EHG <del>EGG</del>	ANALOG	GREEN	1-1-5	LOGO
4	12" ALTMAN	500	EGE <del>EGE</del>	70V	(UN-1040)	7-4-5	HOSTESS
5	610 KLIEGL, STRIP LT	100	(15) A21, 130V	2sec + 4sec +	BLUEGREEN	1-3-3	CURTAINS
				2sec + 4sec +	BLUE	1-3-1	CURTAINS
6	610 KLIEGL, STRIP LT	100	(15) A21, 130V	2sec + 4sec +	BLUEGREEN	1-3-1	CURTAINS
				2sec + 4sec +	BLUE	1-3-3	CURTAINS
7	610 KLIEGL, STRIP LT	100	(15) A21, 130V	2sec + 4sec +	BLUEGREEN	1-3-6	CURTAINS
				2sec + 4sec +	BLUE	1-3-2	CURTAINS
8	610 KLIEGL, STRIP LT	100	(15) A21, 130V	2sec + 4sec +	BLUEGREEN	1-3-2	CURTAINS
				2sec + 4sec +	BLUE	1-3-6	CURTAINS
9	610 KLIEGL, STRIP LT	100	(15) A21, 130V	2sec + 4sec +	BLUEGREEN	1-3-5	CURTAINS
				2sec + 4sec +	BLUE	1-3-4	CURTAINS
10	610 KLIEGL, STRIP LT	100	(15) A21, 130V	2sec + 4sec +	BLUEGREEN	1-3-4	CURTAINS
				2sec + 4sec +	BLUE	1-3-5	CURTAINS
11	12" ALTMAN	750	EGE <del>EGG</del>	90V (DIG)		1-21	LOGO - LETTERS VERY SLOW UP RAMP ON CARD. TO MATCH CURTAINS OPENING.

- LIGHTING SYMBOLS
- FLUORESCENT FEATURE
  - KALEIDOSCOPE PROJ. (ADP)
  - TRIS PROJ. (ADP)
  - 830 KALEID. STAFF LT
  - 12" ALTIMA
  - 9" ALTIMA
  - 6-1/2" ALTIMA
  - 22051/8 KALEID.
  - 22780 KALEID.
  - 1341 KALEID. 37"
  - 1342 KALEID. 31"
  - COLORSCAN
  - SCREEN FLUO.
  - SHALGA 300-9
  - SPECIAL FEATURE (MARC)

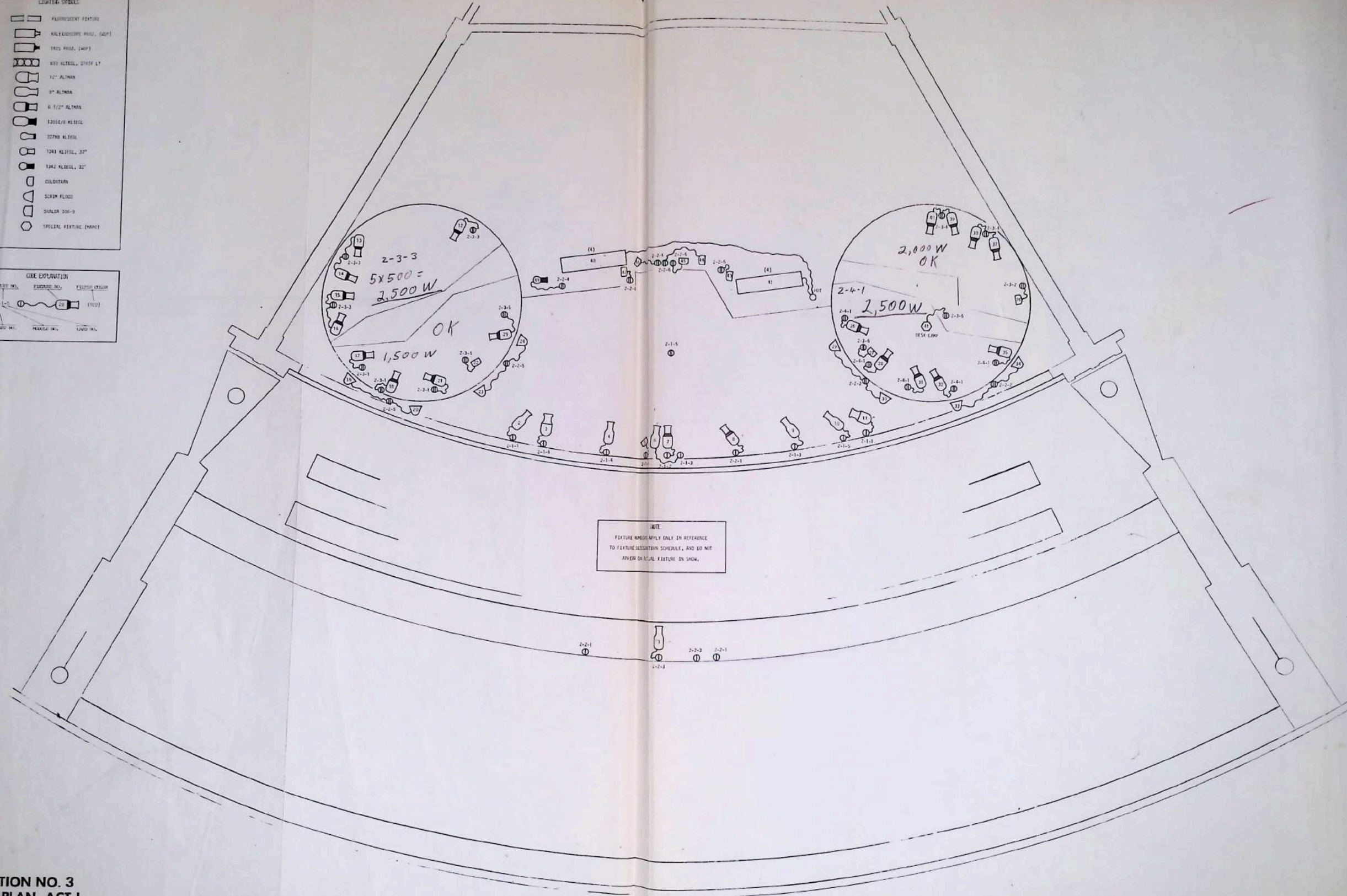
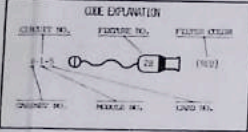
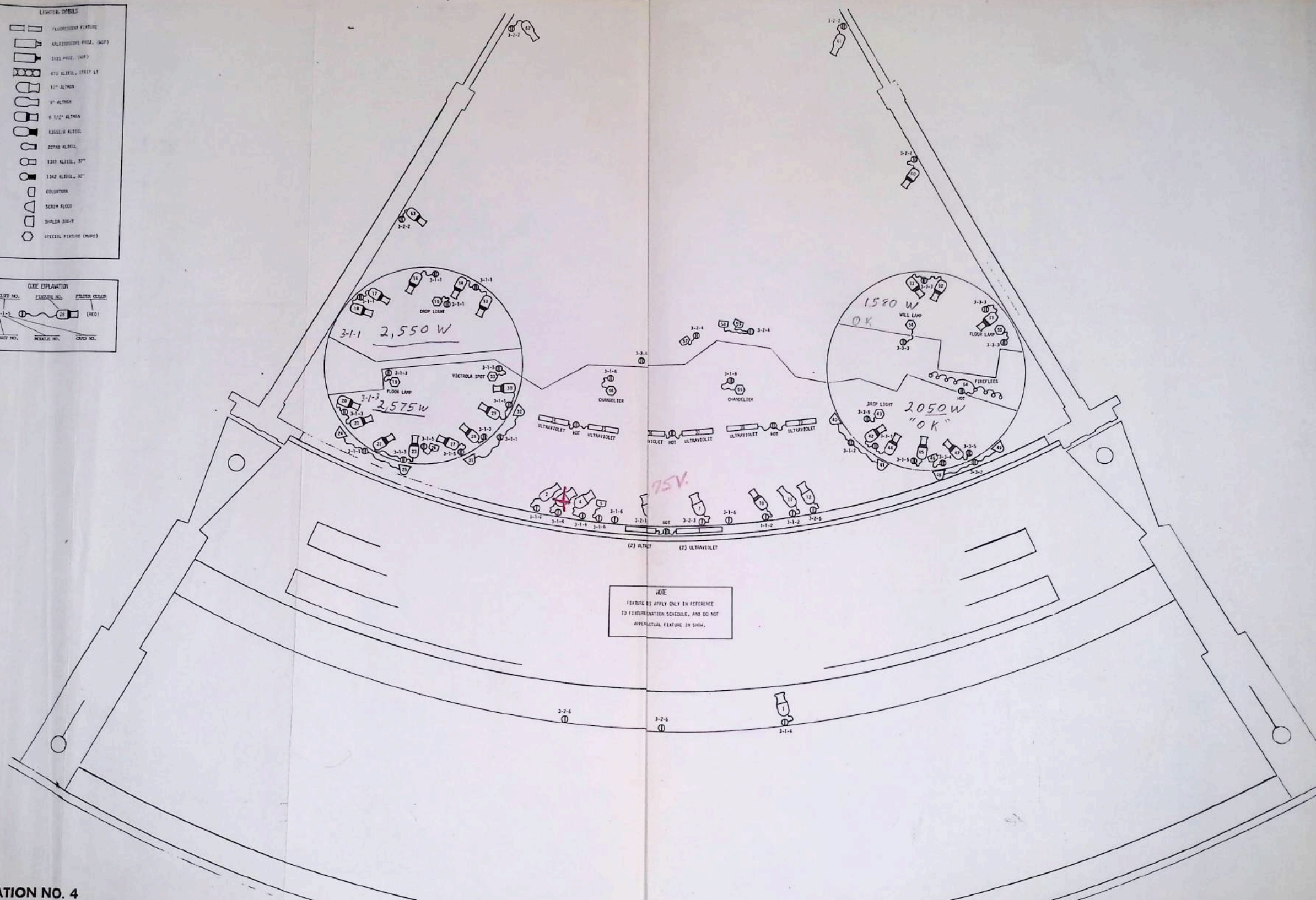
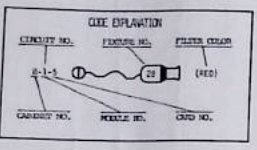


ILLUSTRATION NO. 3  
LIGHTING PLAN, ACT I  
12

### FIXTURE DESIGNATION SCHEDULE

FIXTURE NUMBER	TYPE OF FIXTURE	LAMP REPLACEMENT		OPERATING VOLTAGE/ RAMP TIME	FILTER COLOR	CIRCUIT NO.	LAMP FOCUSED ON
		WATTS	PART NO. & MFR				
1	9" ALTMAN	<del>750</del>	EGG 250	ANALOG		2-2-3	NARRATOR ✓
2	9" ALTMAN	<del>750</del>	EGG 500	ANALOG		2-1-1	NARRATOR ✓
3	12" ALTMAN	750	EGG	110V		2-1-6	ICE BOX
4	9" ALTMAN	750	EGG	110V		2-1-4	PUMP
5	COLORTRAN	400	Q400T4/CL	ANALOG		2-1-5	SET FILL
6	9" ALTMAN	750	EGG	ANALOG		2-1-3	NARRATOR ✓
7	6 1/2" ALTMAN	750	EGG	110V		2-1-2	STOVE
8	6 1/2" ALTMAN	500	EGE	ANALOG		2-2-1	DOG ✓
9	9" ALTMAN	<del>750</del> 500	EGG EGE	ANALOG		2-1-3	NARRATOR ✓
10	9" ALTMAN	750	EGG	ANALOG		2-1-5	SINK AREA
11	12" ALTMAN	750	EGG	ANALOG		2-1-1	DOG ✓
12	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-3-3	GRANDMA
13	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-3-3	PARROT
14	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-3-3	GRANDMA
15	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-3-3	SET FILL
16	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-3-3	PARROT
17	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-3-1	GIRL & WALL
18	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-3-1	MOTHER
19	SCRIM FLOOD	400	Q400T4/CL	75V		2-2-5	SET FILL
20	SCRIM FLOOD	400	Q400T4CL	75V		2-2-5	SET FILL
21	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-3-1	GIRL
22	COLORTRAN	300	EHP	110V		2-3-5	MOTHER
23	SCRIM FLOOD	400	Q400T4/CL	75V		2-2-5	SET FILL
24	SCRIM FLOOD	400	Q400T4/CL	75V		2-2-5	SET FILL
25	6 1/2" ALTMAN	500	EGE	110V		2-3-5	MOTHER & GIRL
26	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-4-1	DESK & CAT
27	COLORTRAN	300	EHP	110V		2-3-6	BOY
28	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-4-1	BOY
29	SCRIM FLOOD	400	Q400T4/CL	75V		2-2-2	SET FILL
30	SCRIM FLOOD	400	Q400T4/CL	75V		2-2-2	SET FILL
31	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-4-1	BOY
32	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-4-1	BOY
33	SCRIM FLOOD	400	Q400T4/CL	75V		2-2-2	SET FILL
34	SCRIM FLOOD	400	Q400T4/CL	75V		2-2-2	SET FILL
35	6 1/2" ALTMAN	250	250T12/8 130V	110V		2-4-1	WALL
36	COLORTRAN	300	EHP	1sec+ 90V		2-3-2	GIRL
37	6 1/2" ALTMAN	250	250T12/8 130V	1sec+ 110V		2-3-4	GIRL
38	6 1/2" ALTMAN	250	250T12/8 130V	1sec+ 110V		2-3-4	HAT
39	6 1/2" ALTMAN	250	250T12/8 130V	1sec+ 110V		2-3-4	GIRL
40	6 1/2" ALTMAN	250	250T12/8 130V	1sec+ 110V		2-3-4	WALL
41	DESK LAMP	100	A21, 130V	110V		2-3-6	SET FILL
42	FLUORESCENT	40	(4) F48T12/CW/HO			HOT	LIGHTNING STROBE
43	COLORTRAN	300	EHP	ANALOG		2-2-6	ON WASH
44	COLORTRAN	300	EHP	ANALOG		2-2-6	SET FILL
45	COLORTRAN	300	EHP	ANALOG		2-2-6	SET FILL
46	COLORTRAN	300	EHP	ANALOG		2-2-6	SET FILL
47	COLORTRAN	300	EHP	ANALOG		2-2-4	ROBINS
48	FLUORESCENT	40	(4) F48T12/CW/HO			HOT	LIGHTING STROBE
49	1342 KLIEGL	300	EHP	ANALOG		2-2-4	ROBINS

- LIGHTING SYMBOLS**
- FLUORESCENT FIXTURE
  - MICROSCOPE PROJ. (MPP)
  - SPOT PROJ. (SPP)
  - STRIP LIGHT
  - 12" ALUMIN.
  - 8" ALUMIN.
  - 6 1/2" ALUMIN.
  - 3555 1/8 RECESSED
  - 22760 RECESSED
  - 3341 RECESSED, 37°
  - 3342 RECESSED, 32°
  - COLUMBAN
  - SCREEN FLOOD
  - SHIELDA 300-R
  - SPECIAL FEATURE (MPP)



**NOTE**  
 FEATURE BS APPLY ONLY IN REFERENCE  
 TO FIXTURE SCHEDULE, AND DO NOT  
 APPEAR AS FEATURE IN SHOW.

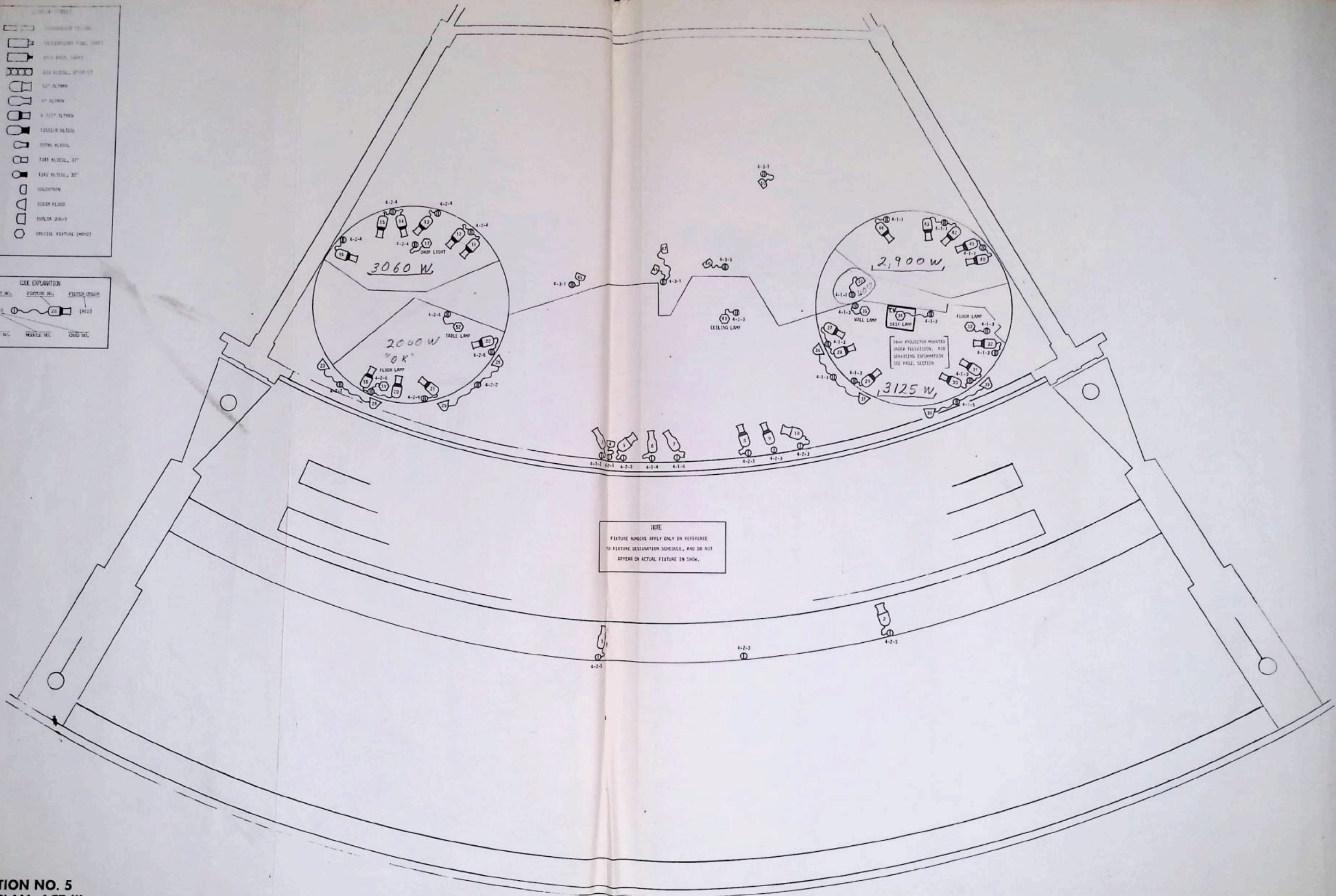
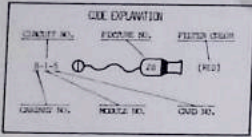
**ILLUSTRATION NO. 4**  
**LIGHTING PLAN, ACT II**

## FIXTURE DESIGNATION SCHEDULE

FIXTURE NUMBER	TYPE OF FIXTURE	LAMP REPLACEMENT		OPERATING VOLTAGE/ RAMP TIME	FILTER COLOR	CIRCUIT NO.	LAMP FOCUSED ON
		WATTS	PART NO. & MFR				
1	12" ALTMAN	750	EGG	ANALOG		3-1-4	NARRATOR
2	9" ALTMAN	500	EGE	ANALOG		3-1-2	<del>NARRATOR</del> & DOG <i>SWAY</i>
3	12" ALTMAN	500	EGE	ANALOG		3-1-4	NARRATOR <i>REMOVED - 100%</i>
4	12" ALTMAN	<del>500</del> <i>250</i>	EGE	ANALOG	<i>NOTE LAMP CH</i>	3-1-6	NARRATOR
5	COLORTRAN	400	Q400T4/CL	ANALOG		3-1-6	SET FILL -
6	12" ALTMAN	750	EGG	<del>110V</del> <i>75VAC</i>		3-2-1	REFRIGERATOR
7	12" ALTMAN	750	EGG	110V		3-2-3	TOASTER
8	FLUORESCENT (UV)	40	(2) F40/BL			HOT	SET FILL
9	FLUORESCENT (UV)	40	(2) F40/BL			HOT	SET FILL
10	6 1/2" ALTMAN	500	EGE	ANALOG		3-1-2	NARRATOR
11	9" ALTMAN	750	EGG	ANALOG		3-1-2	DOG
12	12" ALTMAN	750	EGG	110V		3-2-5	SEWING MACHINE
13	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-1	SET FILL
14	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-1	ORVILLE
15	DROP LIGHT	50	ABCO 03790	110V		3-1-1	SET FILL
16	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-1	SET FILL
17	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-1	ORVILLE
18	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-1	ORVILLE & FAN
19	FLOOR LAMP	75	(2) A19, 130V	110V		3-1-3	SET FILL
20	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-3	GRANDPA
21	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-3	TABLE
22	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-3	BOY
23	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-3	WALL
24	SCRIM FLOOD	400	Q400T4/CL	75V		3-3-1	SET FILL
25	SCRIM FLOOD	400	Q400T4/CL	75V		3-3-1	SET FILL
26	COLORTRAN	300	EHP	110V		3-1-5	SET FILL
27	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-5	GRANDPA
28	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-3	WALL -
29	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-5	BOY
30	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-1-5	TABLE
31	SCRIM FLOOD	400	Q400T4/CL	75V		3-3-1	SET FILL
32	SCRIM FLOOD	400	Q400T4/CL	75V		3-3-1	SET FILL
33	VICTROLA SPOT	30	30R20	110V		3-1-5	BOY
34	FLUORESCENT UV	15	F15T8/BL			HOT	SET FILL
35	FLUORESCENT UV	15	F15T8/BL			HOT	SET FILL
36	FLUORESCENT UV	15	F15T8/BL			HOT	SET FILL
37	FLUORESCENT UV	15	F15T8/BL			HOT	SET FILL
38	FLUORESCENT UV	15	F15T8/BL			HOT	SET FILL
39	FLUORESCENT UV	15	F15T8/BL			HOT	SET FILL
40	SCRIM FLOOD	400	Q400T4/CL	75V		3-3-2	SET FILL
41	SCRIM FLOOD	400	Q400T4/CL	75V		3-3-2	SET FILL
42	6 1/2" ALTMAN	250	250T12/8 130V	<del>110V</del> <i>60V</i>		3-3-5	WALL
43	DROP LIGHT	50	ABCO 03780	<del>110V</del> <i>60V</i>		3-3-5	SET FILL
44	6 1/2" ALTMAN	250	250T12/8 130V	<del>110V</del> <i>60V</i>		3-3-5	MOTHER
45	6 1/2" ALTMAN	250	250T12/8 130V	<del>110V</del> <i>60V</i>		3-3-5	MOTHER
46	COLORTRAN	300	EHP	<del>110V</del> <i>60V</i>		3-3-4	MOTHER
47	6 1/2" ALTMAN	250	250T12/8 130V	<del>110V</del> <i>60V</i>		3-3-5	WINDOW & SHIRTS
48	SCRIM FLOOD	400	Q400T4/CL	75V		3-3-2	SET FILL
49	SCRIM FLOOD	400	Q400T4/CL	75V		3-3-2	SET FILL
50	FLOOR LAMP	40	A19, 130V	110V		3-3-3	SET FILL
51	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-3-3	GIRL
52	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-3-3	RAINCOAT
53	6 1/2" ALTMAN	250	250T12/8 130V	110V		3-3-3	GIRL
54	WALL LAMP	40	A19, 130V	110V		3-3-3	SET FILL
55	CHANDELIER	50	ABCD 03780	ANALOG		3-1-6	SET FILL
56	CHANDELIER	50	ABCD 03780	ANALOG		3-1-6	SET FILL
57	COLORTRAN	300	EHP	ANALOG		3-2-4	BACKGROUND
58	COLORTRAN	300	EHP	ANALOG		3-2-4	BACKGROUND
59	COLORTRAN	300	EHP	ANALOG		3-2-4	BACKGROUND
60	6 1/2" ALTMAN	500	EGE	ANALOG		3-2-2	BACKGROUND



- 1.5' ALUMINUM TUBING
- 2.0' ALUMINUM TUBING
- 3.0' ALUMINUM TUBING
- 4.0' ALUMINUM TUBING
- 5.0' ALUMINUM TUBING
- 6.0' ALUMINUM TUBING
- 7.0' ALUMINUM TUBING
- 8.0' ALUMINUM TUBING
- 9.0' ALUMINUM TUBING
- 10.0' ALUMINUM TUBING
- 11.0' ALUMINUM TUBING
- 12.0' ALUMINUM TUBING
- 13.0' ALUMINUM TUBING
- 14.0' ALUMINUM TUBING
- 15.0' ALUMINUM TUBING
- 16.0' ALUMINUM TUBING
- 17.0' ALUMINUM TUBING
- 18.0' ALUMINUM TUBING
- 19.0' ALUMINUM TUBING
- 20.0' ALUMINUM TUBING
- 21.0' ALUMINUM TUBING
- 22.0' ALUMINUM TUBING
- 23.0' ALUMINUM TUBING
- 24.0' ALUMINUM TUBING
- 25.0' ALUMINUM TUBING
- 26.0' ALUMINUM TUBING
- 27.0' ALUMINUM TUBING
- 28.0' ALUMINUM TUBING
- 29.0' ALUMINUM TUBING
- 30.0' ALUMINUM TUBING
- 31.0' ALUMINUM TUBING
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- 40.0' ALUMINUM TUBING
- 41.0' ALUMINUM TUBING
- 42.0' ALUMINUM TUBING
- 43.0' ALUMINUM TUBING
- 44.0' ALUMINUM TUBING
- 45.0' ALUMINUM TUBING
- 46.0' ALUMINUM TUBING
- 47.0' ALUMINUM TUBING
- 48.0' ALUMINUM TUBING
- 49.0' ALUMINUM TUBING
- 50.0' ALUMINUM TUBING



**ILLUSTRATION NO. 5  
 LIGHTING PLAN, ACT III**



### FIXTURE DESIGNATION SCHEDULE

FIXTURE NUMBER	TYPE OF FIXTURE	LAMP REPLACEMENT		OPERATING VOLTAGE/ RAMP TIME	FILTER COLOR	CIRCUIT NO.	LAMP FOCUSED ON
		WATTS	PART NO. & MFR				
1	9" ALTMAN	750	EGG	ANALOG		4-2-5	NARRATOR & DOG
2	12" ALTMAN	750	EGG	ANALOG		4-2-5	NARRATOR
3	9" ALTMAN	750	EGG	70V		4-1-2	REFRIGERATOR
4	COLORTRAN	300	EHP	ANALOG		4-2-1	SINK AREA
5	12" ALTMAN	500	EGE	ANALOG		4-2-3	NARRATOR
6	9" ALTMAN	750	EGG	110V		4-1-4	STOVE
7	9" ALTMAN	750	EGG	90V		4-1-6	DISHWASHER
8	6 1/2" ALTMAN	500	EGE	ANALOG		4-2-1	BREAKFAST HOOK
9	6 1/2" ALTMAN	500	EGE	ANALOG		4-2-3	NARRATOR
10	12" ALTMAN	750	EGG	ANALOG		4-2-3	DOG
11	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-2-4	MOTHER
12	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-2-4	MOTHER
13	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-2-4	MIXER
14	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-2-4	MOTHER & WALL
15	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-2-4	WALL
16	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-2-4	MOTHER
17	DROP LIGHT	60	A19, 130V	110V		4-2-4	SET FILL
18	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-2-6	BED & WALL
19	FLOOR LAMP	150	A21, 130V	110V		4-2-6	SET FILL & BOY
20	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-2-6	WALL
21	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-2-6	WINDOW
22	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-2-6	BOY
23	SCRIM FLOOD	400	Q400T4/CL	75V		4-2-2	SET FILL
24	SCRIM FLOOD	400	Q400T4/CL	75V		4-2-2	SET FILL
25	SCRIM FLOOD	400	Q400T4/CL	75V		4-2-2	SET FILL
26	SCRIM FLOOD	400	Q400T4/CL	75V		4-2-2	SET FILL
27	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-1-3	GRANDPA
28	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-1-3	GRANDPA
29	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-1-3	GRANDMA
30	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-1-3	GRANDPA & WALL
31	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-1-3	WALL
32	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-1-3	GRANDMA
33	FLOOR LAMP	60	A19, 130V	110V		4-1-3	SET FILL
34	DESK LAMP	25	A19, 130V	110V		4-1-3	SET FILL
35	WALL LAMP	40	A19, 130V	110V		4-1-3	SET FILL
36	SCRIM FLOOD	400	Q400T4/CL	75V		4-1-5	SET FILL
37	SCRIM FLOOD	400	Q400T4/CL	75V		4-1-5	SET FILL
38	SCRIM FLOOD	400	Q400T4/CL	75V		4-1-5	SET FILL
39	SCRIM FLOOD	400	Q400T4/CL	75V		4-1-5	SET FILL
40	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-1-1	GIRL
41	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-1-1	MACHINE WINDOW
42	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-1-1	GIRL
43	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-1-1	TABLE & WALL
44	6 1/2" ALTMAN	250	250T12/8 130V	110V		4-1-1	GIRL
45	COLORTRAN	400	Q400T4/CL	ANALOG		4-3-1	BACKGROUND
46	COLORTRAN	400	Q400T4/CL	ANALOG		4-3-1	BACKGROUND
47	COLORTRAN	400	Q400T4/CL	ANALOG		4-3-1	BACKGROUND
48	COLORTRAN	400	Q400T4/CL	ANALOG		4-3-3	BACKGROUND
49	CEILING LIGHT	60	A19, 130V	ANALOG		4-2-3	SET FILL
50	COLORTRAN	500	B5-29F	ANALOG		4-3-1	TREE & WINDOW
51	COLORTRAN	400	Q400T4/CL	110V		4-1-1	SET FILL
52	TABLE LAMP	40	A19, 130V	110V		4-2-6	SET FILL

- LIGHTING SYMBOLS
- FLUORESCENT FIXTURE
  - 4000K FLUORESCENT FIXTURE
  - 5000K FLUORESCENT FIXTURE
  - 6500K FLUORESCENT FIXTURE
  - 8000K FLUORESCENT FIXTURE
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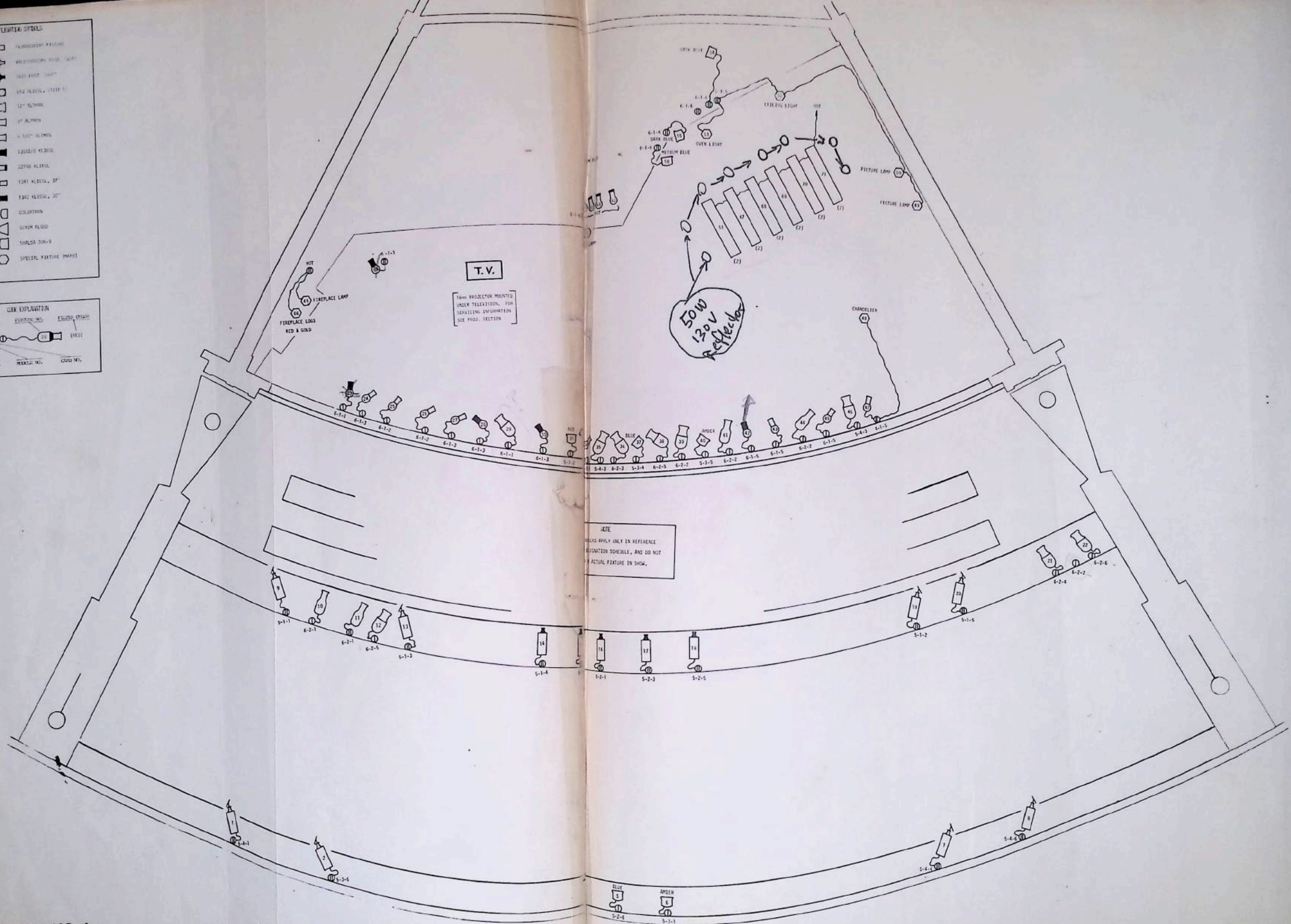
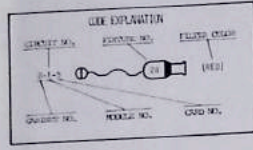
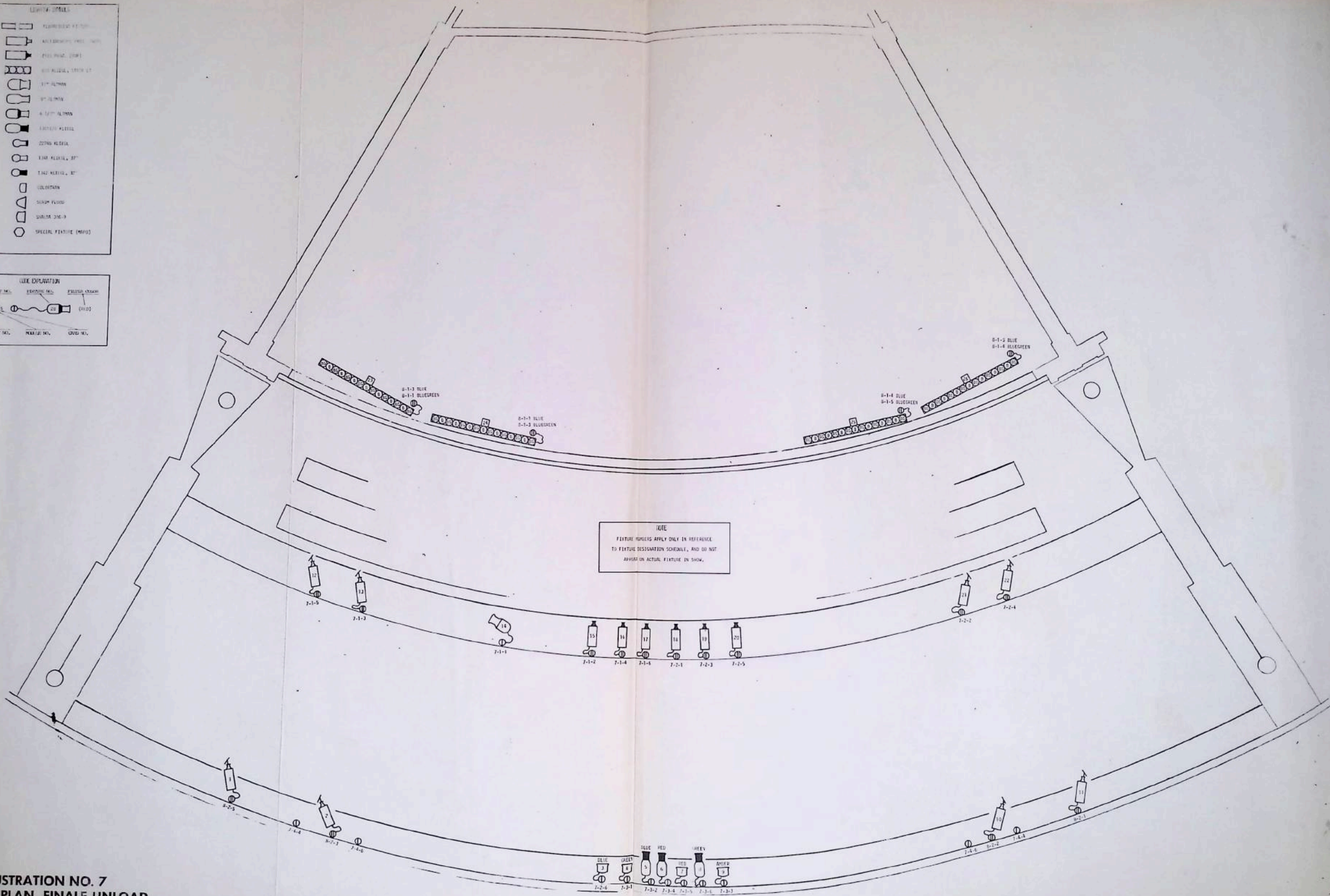
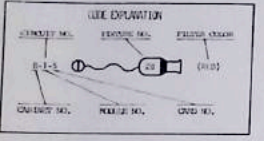
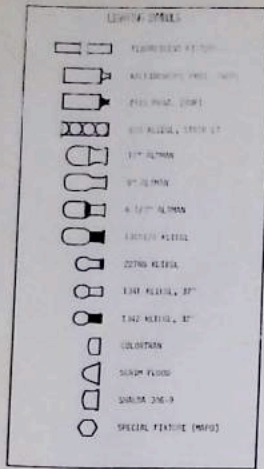


ILLUSTRATION NO. 6  
LIGHTING PLAN, ACT IV  
20

### FIXTURE DESIGNATION SCHEDULE

FIXTURE NUMBER	TYPE OF FIXTURE	LAMP REPLACEMENT		OPERATING VOLTAGE/ RAMP TIME	FILTER COLOR	CIRCUIT NO.	LAMP FOCUSED ON
		WATTS	PART NO. & MFR				
1	KALEIDOSCOPE PROJ.	1000	BRR	110V		5-4-1	& CONSTANT
2	KALEIDOSCOPE PROJ	1000	BRR	110V		5-3-6	& CONSTANT
3	SHALDA 306-9	300	300PAR56/WFL	110V	RED	5-2-2	FIREWORKS
4	SHALDA 306-9	300	300PAR56/WFL	110V	GREEN	5-2-4	FIREWORKS
5	SHALDA 306-9	300	300PAR56/WFL	110V	BLUE	5-2-6	FIREWORKS
6	SHALDA 306-9	300	300PAR56/WFL	110V	AMBER	5-3-1	FIREWORKS
7	KALEIDOSCOPE PROJ.	1000	BRR	110V		5-4-4	& CONSTANT
8	KALEIDOSCOPE PROJ.	1000	BRR	110V		5-4-6	& CONSTANT
9	KALEIDOSCOPE PROJ.	1000	BRR	110V		5-1-1	& CONSTANT
10	9" ALTMAN	500	EGE	ANALOG		6-2-1	GRANDPA ✓
11	9" ALTMAN	500	EGE	ANALOG		6-2-1	GIRL
12	12" ALTMAN	750	EGG	ANALOG		6-2-5	GRANDMA ✓
13	KALEIDOSCOPE PROJ.	1000	BRR	110V		5-1-3	& CONSTANT
14	IRIS PROJ.	1000	BRR	110V		5-1-4	& CONSTANT
15	IRIS PROJ.	1000	BRR	110V		5-1-6	& CONSTANT
16	IRIS PROJ.	1000	BRR	110V		5-2-1	& CONSTANT
17	IRIS PROJ.	1000	BRR	110V		5-2-3	& CONSTANT
18	IRIS PROJ.	1000	BRR	110V		5-2-5	& CONSTANT
19	KALEIDOSCOPE PROJ.	1000	BRR	110V		5-1-2	& CONSTANT
20	KALEIDOSCOPE PROJ.	1000	BRR	110V		5-1-5	& CONSTANT
21	12" ALTMAN	750	EGG	ANALOG		6-2-4	DOG FILL
22	12" ALTMAN	750	EGG	ANALOG		6-2-6	MOTHER FILL ✗
23	1342 KLIEGL, 32°	300	EHP	ANALOG		6-1-1	TREE
24	1341 KLIEGL, 37°	300	EHP	ANALOG		6-1-3	COFFEE TABLE
25	1341 KLIEGL, 37°	300	EHP	ANALOG		6-1-2	MACRAME WALL
26	1341 KLIEGL, 37°	300	EHP	ANALOG		6-1-2	BOY AREA ✗
27	1341 KLIEGL, 37°	300	EHP	ANALOG		6-1-3	DOG AREA ✗
28	1342 KLIEGL, 32°	300	EHP	ANALOG		6-1-3	FIREPLACE ✗
29	12" ALTMAN	750	EGG	ANALOG		6-1-1	TREE SPOT
30	1342 KLIEGL, 32°	300	EHP	ANALOG		6-1-3	TREE AREA
31	SHALDA 306-9	300	300PAR56/WFL	110V	RED	5-3-2	FIREWORKS
32	9" ALTMAN	500	EGE	ANALOG		6-2-3	GRANDPA ✗
33	SHALDA 306-9	300	300PAR56/WFL	110V	GREEN	5-3-3	FIREWORKS
34	1341 KLIEGL, 37°	300	EHP	ANALOG		6-1-5	COUNTER AREA ✗
35	12" ALTMAN	500	EGE	<del>110V</del> ANALOG		5-4-3	FATHER
36	12" ALTMAN	500	EGE	ANALOG		6-2-3	GIRL ✗
37	SHALDA 306-9	300	300PAR56/WFL	110V	BLUE	5-3-4	FIREWORKS
38	12" ALTMAN	750	EGG	ANALOG		6-2-5	GIRL & GRANNY ✗
39	12" ALTMAN	500	EGE	ANALOG		6-2-2	BOY
40	SHALDA 306-9	300	300PAR56/WFL	110V	AMBER	5-3-5	FIREWORKS
41	9" ALTMAN	500	EGE	ANALOG		6-2-2	DOG
42	1342 KLIEGL, 32°	300	EHP	ANALOG	FRONT OF COUNTELL	6-1-5	MACRAME WALL
43	1341 KLIEGL, 37°	300	EHP	ANALOG		6-1-5	COFFEE POT
44	9" ALTMAN	500	EGE	ANALOG		6-2-2	MOTHER
45	1341 KLIEGL, 37°	300	EHP	ANALOG		6-1-5	SHELVES
46	12" ALTMAN	500	EGE	<del>110V</del> ANALOG	?	5-4-3	FATHER
47	1341 KLIEGL, 37°	300	EHP	ANALOG		6-1-5	SHELVES
48	CHANDELIER	60	(2) A19, 130V	ANALOG		6-1-5	SET FILL
49	PICTURE LAMP	25	25T10	<del>110V</del> ANALOG	?	5-4-5	PICTURE
50	PICTURE LAMP	25	25T10	110V	"	5-4-5	PICTURE
51	FLUORESCENT	40	(2) F40CW			HOT	OVER KITCHEN
52	CEILING LAMP	75	A19, 130V	<del>110V</del> ANALOG	?	5-4-5	SET FILL
53	OVEN LIGHT	60	A19, 130V	<del>110V</del> ANALOG		5-4-5	OVEN
54	SHALDA 306-9	300	300PAR56/WFL	ANALOG	DARK BLUE	6-1-6	BACKGROUND ✓
55	SHALDA 306-9	300	300PAR56/WFL	ANALOG	DARK BLUE	6-1-6	BACKGROUND ✓
56	SHALDA 306-9	300	300PAR56/WFL	ANALOG	MEDIUM BLUE	6-1-6	BACKGROUND ✓
57	SHALDA 306-9	300	300PAR56/WFL	ANALOG	MEDIUM BLUE	6-1-6	BACKGROUND ✓
58	227NB KLIEGL	250	250 Q/CL			HOT	BACK WINDOWS
59	227NB KLIEGL	250	250 Q/CL			HOT	BACK WINDOWS
60	227NB KLIEGL	250	250 Q/CL			HOT	BACK WINDOWS





**NOTE**  
 FEATURE NUMBERS APPLY ONLY IN REFERENCE  
 TO FEATURE DESIGNATION SCHEDULE, AND DO NOT  
 APPEAR ON ACTUAL FIXTURE IN SHOW.

**ILLUSTRATION NO. 7**  
**LIGHTING PLAN, FINALE UNLOAD**  
 24

### FIXTURE DESIGNATION SCHEDULE

FIXTURE NUMBER	TYPE OF FIXTURE	LAMP REPLACEMENT		OPERATING VOLTAGE/ RAMP TIME	FILTER COLOR	CIRCUIT NO.	LAMP FOCUSED ON
		WATTS	PART NO. & MFR				
1	KALEIDOSCOPE PROJ.	1000	BRR	110V		8-2-5	& CONSTANT
2	KALEIDOSCOPE PROJ.	100	BRR	110V		8-2-3	& CONSTANT
3	SHALDA 306-9	300	300PAR56/WFL	<del>110V</del> 100V	BLUE RED	7-2-6	FIREWORKS
4	SHALDA 306-9	300	300PAR56/WFL	<del>110V</del> 100V	GREEN	7-3-1	FIREWORKS
5	13551/8 KLIEGL	750	EHG	ANALOG	BLUE	7-3-2	LOGO
6	13551/8 KLIEGL	750	ENG	ANALOG	RED	7-3-4	LOGO
7	SHALDA 306-9	300	300PAR56/WFL	110V 100V	RED	7-3-5	FIREWORKS SEE BELOW
8	13551/8 KLIEGL	750	EHG	<del>ANALOG</del>	GREEN	7-3-6	LOGO
9	SHALDA 306-9	300	300PAR56/WFL	<del>ANALOG</del> 110V	AMBER	7-3-3	FIREWORKS
10	KALEIDOSCOPE PROJ.	1000	BRR	110V		8-2-2	& CONSTANT
11	KALEIDOSCOPE PROJ.	1000	BRR	110V		8-2-1	& CONSTANT
12	KALEIDOSCOPE PROJ.	1000	BRR	110V		7-1-5	& CONSTANT
13	KALEIDOSCOPE PROJ.	1000	BRR	110V		7-1-3	& CONSTANT
14	12" ALTMAN	500	EGE	<del>110V</del> 60V		7-1-1	HOSTESS
15	IRIS PROJ.	1000	BRR	110V		7-1-2	& CONSTANT
16	IRIS PROJ.	1000	BRR	110V		7-1-4	& CONSTANT
17	IRIS PROJ.	1000	BRR	110V		7-1-6	& CONSTANT
18	IRIS PROJ.	1000	BRR	110V		7-2-1	& CONSTANT
19	IRIS PROJ.	1000	BRR	110V		7-2-3	& CONSTANT
20	IRIS PROJ.	1000	BRR	110V		7-2-5	& CONSTANT
21	KALEIDOSCOPE PROJ.	1000	BRR	110V		7-2-2	& CONSTANT
22	KALEIDOSCOPE PROJ.	1000	BRR	110V		7-2-4	& CONSTANT
23	610 KLIEGL, STRIP LT	100	(15) A21, 130V	2sec+ 4sec+ 110V/100V	BLUEGREEN	8-1-1	CURTAINS
				2sec+ 4sec+ 110V 100V	BLUE	8-1-3	CURTAINS
24	610 KLIEGL, STRIP LT	100	(15) A21, 130V	2sec+ 4sec+ 110V 100V	BLUEGREEN	8-1-3	CURTAINS
				2sec+ 4sec+ 110V 100V	BLUE	8-1-1	CURTAINS
25	610 KLIEGL, STRIP LT	100	(15) A21, 130V	2sec+ 4sec+ 110V 100V	BLUEGREEN	8-1-5	CURTAINS
				2sec+ 4sec+ 110V 100V	BLUE	8-1-4	CURTAINS
26	610 KLIEGL, STRIP LT	100	(15) A21, 130V	2sec+ 4sec+ 110V 100V	BLUEGREEN	8-1-4	CURTAINS
				2sec+ 4sec+ 110V 100V	BLUE	8-1-5	CURTAINS
				100V 2T 4V		8-1-2	LOAD
				100V 2T 4V		8-1-6	LOAD
				100V		7-4-1	HOUSE LIGHTS
				100V		7-4-2	HOUSE LIGHTS
				100V		7-4-3	HOUSE LIGHTS
				LOAD 60V		7-4-5	HOSTESS
7	12" ALTMAN	750	EGE	90V		7-3-5	LOGO-LETTERS

# **SECTION 1.2**

**SOUND**

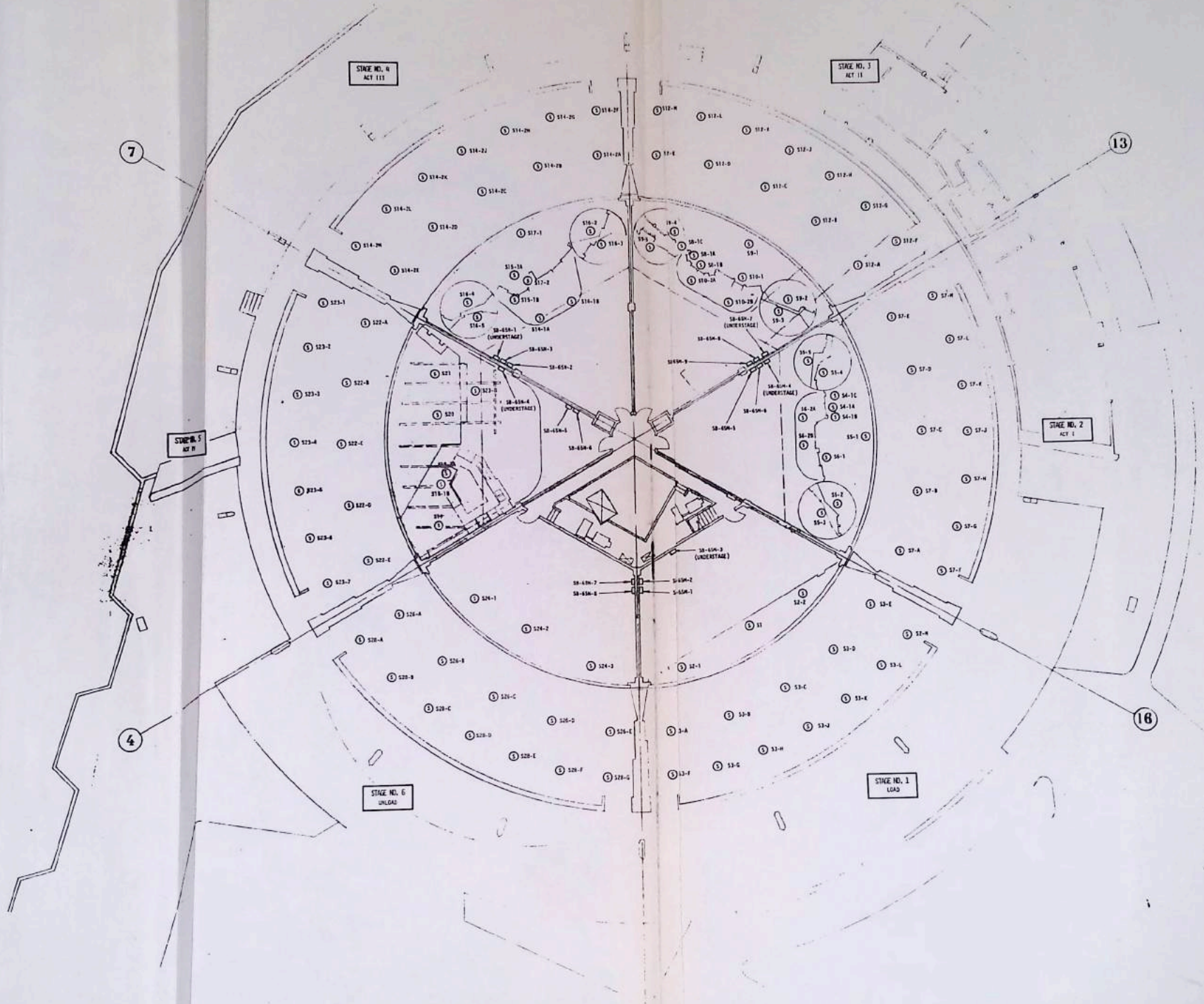


ILLUSTRATION NO. 8  
SPEAKER LOCATION PLAN



# SPEAKER LIST

SPEAKER		TYPE	ENCLOSURE	GRILL	TRANS	WATT	AREA
S1		AL 604E	AL 614		15066	16	LOAD
S2	-1	AL 604E	AL 614	<i>Fig 1</i>	15066	16	
S2	-2	AL 604E	AL 614		15066	16	
S3	-A	AL 891			15065	8	
	-B						
	-C						
	-D						
	-E	AL 891					
	-F	EV SP12B	CP10 12	RS12			
	-G						
	-H						
	-J						
	-K						
	-L						
S3	-M	EV SP12B	CP10 12	RS12			LOAD
S4	-1A	JBL 2105	IN FIG.		15065	8	ACT I
S4	-1B	AL 887			15066	16	
S4	-1C	AL 887			15066	16	
S5	-1	EV LR4SAT			BLTIN	15	
	-2	AL 887			15066	16	
	-3	EV MC8	IN SET		15065	8	
	-4	AL 887			15066	16	
S5	-5	AL 887				16	
S6	-1	AL 887				32	
S6	-2A	EV SP12B	AL 614			16	
S6	-2B	EV SP12B	AL 614		15066	16	
S7	-A	AL 891			15065	8	
	-B						
	-C						
	-D						
	-E	AL 891					
	-F	EV SP12B	CP 1012	RS12			
	-G						
	-H						
	-J						
	-K						
	-L						
S7	-M	EV SP12B	CP 1012	RS12	15065	8	ACT I

# SPEAKER LIST

SPEAKER		TYPE	ENCLOSURE	GRILL	TRANS	WATT	AREA
S8	-1A	JBL 2105	IN FIG.		15065	8	ACT II
S8	-1B	AL 887			15066	16	
S8	-1C	AL 887			15066	16	
S9	-1	EV MC8	PROP.		15065	8	
	-2	AL 755E	PROP.		15065	8	
	-3	AL 887			15066	16	
	-4						
S9	-5						
S10	-1	AL 887					
S10	-2A	EV SP12B	AL 614				
S10	-2B	EV SP12B	AL 614		15066	16	
S12	-A	AL 891			15065	8	
	-B						
	-C						
	-D						
	-E	AL 891					
	-F	EV SP12B	CP 1012	RS12			
	-G						
	-H						
	-J						
	-K						
	-L						
S12	-M		CP 1012	RS12	15065	8	ACT II
S14	-1A		AL 614		15066	16	ACT III
	-1B	EV SP12B	AL 614		15066	16	
	-2A	AL 891			15065	8	
	-2B						
	-2C						
	-2D						
	-2E	AL 891					
	-2F	EV SP12B	CP 1012	RS12			
	-2G						
	-2H						
	-2J						
	-2K						
	-2L						
S14	-2M	EV SP12B	CP 1012	RS12			
S15	-1A	JBL 2105	IN FIG.		15065	8	ACT III

# SPEAKER LIST

SPEAKER		TYPE	ENCLOSURE	GRILL	TRANS	WATT	AREA
S15	-1B	AL 887			15066	16	ACT III
S16	-2						
	-3						
	-4	AL 887			15066	16	
S16	-5	EV MC8			15065	8	
S17	-1	EV LR4SAT			BLTIN	15	
S17	-2	AL 887			15066	16	ACT III
S18	-1A						ACT IV
S18	-1B						
S19							
S20							
S21		AL 887			15066	16	
S22	-A	AL 891			15065	8	
	-B						
	-C						
	-D						
S22	-E						
S23	-1						
	-2						
	-3						
	-4						
	-5						
	-6						
	-7	AL 891					
S23	-8	JENSEN 5X7	(2) IN T.V		15065	8	ACT IV
S24	-1	AL 604E	AL 614		15066	16	UNLOAD
S24	-2	AL 604E	AL 614		15066	16	
S24	-3	AL 604E	AL 614		15066	16	
S26	-A	AL 891			15065	8	
	-B						
	-C						
	-D						
S26	-E						
S28	-A						
THRU	-G	AL 891			15065	8	UNLOAD
S30	-1	EV SP12B	CP1012	RS12	15065	8	HOLDING AREA
THRU	-8	EV SP12B	CP1012	RS12	15065	8	HOLDING AREA

## SPEAKER CONNECTION SCHEDULE

T/P NO.	FROM			TO			CABLE TYPE	REMARKS
	EQUIP.	TERM. BLK.	LOCATION	SPEAKER	SPKR. TYPE	LOCATION		
1	SB-65M-1		LOAD	S1	AL 604E	LOAD	1 T/P #16	STAGE (NARRATOR)
2				S3-A	AL 891			AUDIENCE OVERHEAD
3				S3-B				
4				S3-C				
5				S3-D				
6				S3-E	AL 891			AUDIENCE OVERHEAD
7				S2-1	AL 604E			STAGE RIGHT
8				S2-2	AL 604E	LOAD	1 T/P #16	STAGE LEFT
9 & 10	SB-65M-1		LOAD	SPARES				
1	SB-65M-2		LOAD	S3-F	EV SP12B	LOAD	1 T/P #16	AUDIENCE OVERHEAD
2				S3-G				
3				S3-H				
4				S3-J				
5				S3-K				
6				S3-L				
7				S3-M	EV SP12B	LOAD	1 T/P #16	AUDIENCE OVERHEAD
8-10	SB-65M-2		LOAD	SPARES				
1	SB-65M-3		LOAD BSMT	S30-1	EV SP12B	SPARE	1 T/P #16	INSTALLED
2				S30-2		HOLDING AREA		
3				S30-3		HOLDING AREA		
4				S30-4		SPARE		INSTALLED
5				S30-5		HOLDING AREA		
6				S30-6				
7				S30-7				
8				S30-8	EV SP12B	HOLDING AREA	1 T/P #16	
9 & 10	SB-65M-3		LOAD BSMT	SPARES				
1	SB-65M-4		ACT I BSMT	S4-1A,B,C		ACT I	1 T/P #16	STAGE (NARRATOR)
2				S5-1	EV LR4SAT			STAGE (DOG)
3				S5-2	AL 887			STAGE (T. TABLE #1)
4				S5-3	EV MC8			STAGE (T. TABLE #1)
5				S5-4	AL 887			STAGE (T. TABLE #2)
6				S5-5	AL 887			STAGE (T. TABLE #2)
7				S6-1	AL 887			STAGE (MUSIC)
8				S6-2A & B	EV SP12B	ACT I	1 T/P #16	STAGE (EFFECTS)
9 & 10	SB-65M-4		ACT I BSMT	SPARES				
1	SB-65M-5		ACT I	S7-A	AL 891	ACT I	1 T/P #16	AUDIENCE OVERHEAD
2				S7-B				
3				S7-C				
4				S7-D				
5				S7-E	AL 891	ACT I	1 T/P #16	AUDIENCE OVERHEAD
6-10	SB-65M-5		ACT I	SPARES				
1	SB-65M-6		ACT I	S7-F	EV SP12B	ACT I	1 T/P #16	AUDIENCE OVERHEAD
2				S7-G				
3				S7-H				
4				S7-J				
5				S7-K				
6				S7-L				
7	SB-65M-6		ACT I	S7-M	EV SP12B	ACT I	1 T/P #16	AUDIENCE OVERHEAD
1	SB-65M-7		ACT II BSMT	S8-1A,B,C		ACT II	1 T/P #16	STAGE (NARRATOR)
2				S9-1	EV MC8			STAGE (DOG)
3				S9-2	AL 755E			STAGE (T. TABLE #3)
4				S9-3	AL 887			STAGE (T. TABLE #3)
5	SB-65M-7		ACT II BSMT	S9-4	AL 887	ACT II	1 T/P #16	STAGE (T. TABLE #4)

## SPEAKER CONNECTION SCHEDULE

T/P NO.	FROM			TO			CABLE TYPE	REMARKS
	EQUIP.	TERM. BLK.	LOCATION	SPEAKER	SPKR. TYPE	LOCATION		
6	SB-65M-7		ACT II BSMT	S9-5	AL 887	ACT II	1 T/P #16	STAGE (T. TABLE #4)
7				S10-1	AL 887	ACT II	1 T/P #16	STAGE (MUSIC)
8				S10-2A & B	EV SP12B	ACT II	1 T/P #16	STAGE (EFFECTS)
9 & 10	SB-65M-7		ACT II BSMT	SPARES				
1	SB-64M-8		ACT II	S12-A	AL 891	ACT II	1 T/P #16	AUDIENCE OVERHEAD
2				S12-B				
3				S12-C				
4				S12-D				
5				S12-E	AL 891	ACT II	1 T/P #16	AUDIENCE OVERHEAD
6-10	SB-65M-8		ACT II	SPARES				
1	SB-65M-9		ACT II	S12-F	EV SP12B	ACT II	1 T/P #16	AUDIENCE OVERHEAD
2				S12-G				
3				S12-H				
4				S12-J				
5				S12-K				
6				S12-L				
7				S12-M	EV SP12B	ACT II	1 T/P #16	AUDIENCE OVERHEAD
8-10	SB-65M-9		ACT II	SPARES				
1	SB-65N-1		ACT III BSMT	S14-1A & B	EV SP12B	ACT III	1 T/P #16	STAGE (MUSIC)
2				S15-1A & B		ACT III	1 T/P #16	STAGE (NARRATOR)
3				SPARE				
4				S16-2	AL 887	ACT III	1 T/P #16	STAGE (T. TABLE #5)
5				S16-3	AL 887			STAGE (T. TABLE #5)
6				S16-4	AL 887			STAGE (T. TABLE #6)
7				S16-5	EV MCB			STAGE (T. TABLE #6)
8				S17-1	EV LR4SAT			STAGE (DOG)
9				S17-2	AL 887	ACT III	1 T/P #16	STAGE (EFFECTS)
10	SB-65N-1		ACT III BSMT	SPARE				
1	SB-65N-2		ACT III	S14-2A	AL 891	ACT III	1 T/P #16	AUDIENCE OVERHEAD
2				S14-2B				
3				S14-2C				
4				S14-2D				
5				S14-2E	AL 891	ACT III	1 T/P #16	AUDIENCE OVERHEAD
6-10	SB-65N-2		ACT III	SPARES				
1	SB-65N-3		ACT III	S14-2F	EV SP12B	ACT III	1 T/P #16	AUDIENCE OVERHEAD
2				S14-2G				
3				S14-2H				
4				S14-2J				
5				S14-2K				
6				S14-2L				
7				S14-2M	EV SP12B	ACT III	1 T/P #16	AUDIENCE OVERHEAD
8-10	SB-65N-3		ACT III	SPARES				
1	SB-65N-4		ACT IV BSMT	S18-1A & B	AL 887	ACT IV	1 T/P #16	(NAR., SON, DOG)
2				SPARE				
3				S19	AL 887	ACT IV	1 T/P #16	STAGE (MOTHER)
4 & 5				SPARES				
6				S20	AL 887	ACT IV	1 T/P #16	G. MOTHER/GIRL
7				S21	AL 887	ACT IV	1 T/P #16	G. FATHER
8				S23-8	JENSEN 5X7	ACT IV	1 T/P #16	STAGE (TV)
9 & 10	SB-65N-4		ACT IV BSMT	SPARES				
1	SB-65N-5		ACT IV	S22-A	AL 891	ACT IV	1 T/P #16	AUDIENCE OVERHEAD
2	SB-65N-5		ACT IV	S22-B	AL 891	ACT IV	1 T/P #16	AUDIENCE OVERHEAD
3	SB-65N-5		ACT IV	S22-C	AL 891	ACT IV	1 T/P #16	AUDIENCE OVERHEAD



## **SECTION 1.3**

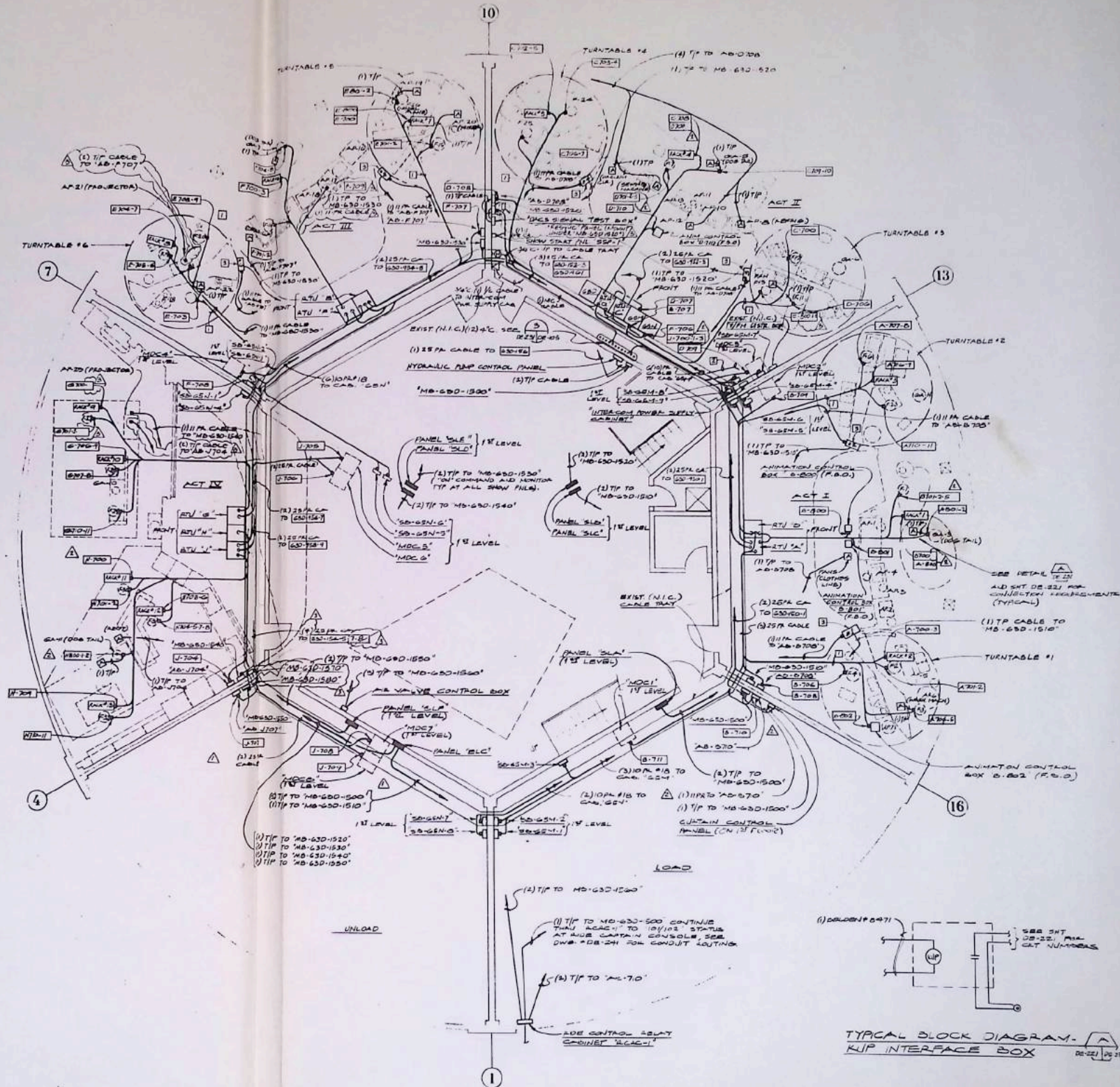
### **ANIMATION & MONITOR**

**SPECIAL NOTES**

- 1 CABLES FOR CONNECTIONS TO ANIMATED FIGURES ON TURNABLES SHALL BE INSTALLED TO ALLOW FOR MAXIMUM ROTATION OF EQUIPMENT. CABLES SHALL BE RACKED TOGETHER WITH CABLES OF OTHER SYSTEMS WITH BLOCK SPACERS FURNISHED BY MAPO AND SUPPORTED ON TURNABLES WITH PORCELAIN INSULATORS. SEE TYPICAL DETAIL DE-231-100.
- 2 INSTALL BROADBAND COAXIAL CABLE TO EXIST (N.I.C.) TV FM DISTRIBUTION BOX FOR TERMINATIONS BY OTHERS.
- 3 CONTRACTOR TO INSTALL TURNABLE CONTROL BOX ON TURNABLE FRAME AND MAKE REQUIRED CONNECTIONS.

**GENERAL NOTES**

- 1 ALL 25PR AND 10 PR CABLE FOR CONNECTION TO RTI CABINETS, BREAK-OUT BOXES AND ANIMATED FIGURES ARE FURNISHED BY MAPO WITH ELCO CONNECTORS AT EACH END FOR 'PLUG-IN' CONNECTION. CABLES SHALL BE INSTALLED IN TRAY OR SUPPORTED FROM BLDG. STRUCTURE WITH U-SHAPED AND MINOR STRAPS 3/16" DIA.
- 2 [Symbol] REPRESENTS CABLE IDENTIFICATION NUMBER. LETTER (A) INDICATES CABINET FROM WHICH CABLE ORIGINATES (RTU-A), NUMBERS (101-2) REPRESENTS FEMALE CONNECTOR NUMBERS (101 & 102) IN CABINET TO WHICH CABLE IS ATTACHED.
- 3 FOR AUDIO AND ANIMATION BLOCK DIAGRAMS SEE REFERENCE DRAWINGS 15830-105996 AND 16021-105999.
- 4 ALL TWISTED PAIR CABLE (T/P), BELOW #8471 SHALL BE HARDWIRED BY CONTRACTOR, AND SHALL BE RUN EXPOSED EXCEPT WHERE NOTED IN CONDUIT.
- 5 REFER TO SCHEDULES FURNISHED WITHIN MONITOR AND ANIMATION BREAK-OUT BOXES FOR TERMINAL NUMBERS OF TWISTED PAIR CABLES.
- 6 CONTRACTOR SHALL INSTALL MAPO FURNISHED RUP INTERFERENCE BOXES (B) AND ANIMATION CONTROL BOXES ON SETS, EXCEPT ON TURNABLES. TURNABLES TO BE FURNISHED BY MAPO PER WIRING AS SHOWN ON DETAIL DE-231-100.



TYPICAL BLOCK DIAGRAM - KIP INTERFACE BOX  
DE-231-100-211



## ANIMATION BREAK-OUT BOX SCHEDULE

T/P NO.	FROM			TO			CABLE TYPE	REMARKS
	EQUIP.	CONN.	LOCATION	EQUIP.	CONN.	LOCATION		
1	ABB-B-708		ACT I BSMT	T TABLE #1	J1 (A)	ACT I	11 PR #22	COMMAND (CW)
2					J1 (C)			PARITY (CW)
3					J1 (E)			COMMAND (CCW)
4				T TABLE #1	J1 (H)			PARITY (CCW)
5				T TABLE #2	J2 (A)			COMMAND (CW)
6					J2 (C)			PARITY (CW)
7					J2 (E)			COMMAND (CCW)
8				T TABLE #2	J2 (H)		11 PR #22	PARITY (CCW)
9				BALLAST			1 T/P #16	RMT CONT BOX #1
10				BALLAST			1 T/P #16	RMT CONT BOX #2
11				FANS		ACT I	1 T/P #16	CLOTHES LINE
12-22				SPARE				
23				INTERCOM		ACT I		RING
24				INTERCOM		ACT I		LISTEN
25	ABB-B-708		ACT I BSMT	INTERCOM		ACT I		TALK
1	ABB-B-710		LOAD BSMT	CARROUSEL		LOAD	1 T/P #16	ROTATE (COMMAND)
2				CARROUSEL				ROTATE (PARITY)
3				DOORS				UNLOAD-OPEN COMMAND
4				DOORS		LOAD	1 T/P #16	LOAD-OPEN COMMAND
5-9				SPARE				
10				CURTAIN	J1 (A)	LOAD	11 PR #22	BOX 1-OPEN COMMAND
11				CURTAIN	J1 (C)			BOX 1-OPEN PARITY
12				CURTAIN	J1 (E)			BOX 1-CLOSE COMMAND
13				CURTAIN	J1 (H)	LOAD	11 PR #22	BOX 1-CLOSE PARITY
14-22				SPARE				
23				INTERCOM		LOAD		RING
24				INTERCOM		LOAD		LISTEN
25	ABB-B-710		LOAD BSMT	INTERCOM		LOAD		TALK
1	ABB-D-708		ACT II BSMT	T TABLE #3	J1 (A)	ACT II	11 PR #22	COMMAND (CW)
2					J1 (C)			PARITY (CW)
3					J1 (E)			COMMAND (CCW)
4				T TABLE #3	J1 (H)			PARITY (CCW)
5				T TABLE #4	J2 (A)			COMMAND (CW)
6					J2 (C)			PARITY (CW)
7					J2 (E)			COMMAND (CCW)
8				T TABLE #4	J2 (H)			PARITY (CCW)
9				FIREFLY	J3 (A)			CONT. BOX (CKT. 1)
10					J3 (C)			CONT. BOX (CKT. 2)
11					J3 (E)			CONT. BOX (CKT. 3)
12					J3 (H)			CONT. BOX (CKT. 4)
13					J3 (K)			CONT. BOX (CKT. 5)
14					J3 (M)			CONT. BOX (CKT. 6)
15					J3 (P)			CONT. BOX (CKT. 7)
16				FIREFLY	J3 (S)		11 PR #22	CONT. BOX (CKT. 8)
17				AP-9			1 T/P #16	STOVE SW.
18				AP-14				VACUUM SW.
19				AP-15				ELEC. FAN SW.
20				AP-				SEWING MACH. SW.
21				AP-8				REFRIGERATOR SW.
22				DACS			1 T/P #16	SIGNAL TEST COMMAND
23				INTERCOM				RING
24				INTERCOM				LISTEN
25	ABB-D-708		ACT II BSMT	INTERCOM		ACT II		TALK

## ANIMATION BREAK-OUT BOX SCHEDULE

T/P NO.	FROM			TO			CABLE TYPE	REMARKS
	EQUIP.	CONN.	LOCATION	EQUIP.	CONN.	LOCATION		
1	ABB-F-707		ACT III BSMT	T TABLE #5	J1 (A)	ACT III	11 PR #22	COMMAND (CW)
2					J1 (C)			PARITY (CW)
3					J1 (E)			COMMAND (CCW)
4				T TABLE #5	J1 (H)			PARITY (CCW)
5				T TABLE #6	J2 (A)			COMMAND (CW)
6					J2 (C)			PARITY (CW)
7					J2 (E)			COMMAND (CCW)
8				T TABLE #6	J2 (H)		11 PR #22	PARITY (CCW)
9				16mm PROJ.	(TV)		1 T/P #16	DOUSER OPEN (CMD)
10				16mm PROJ.	(TV)	ACT III	1 T/P #16	START (COMMAND)
11-22				SPARE				
23				INTERCOM		ACT III		RING
24				INTERCOM		ACT III		LISTEN
25	ABB-F-707		ACT III BSMT	INTERCOM		ACT III		TALK
1-5	ABB-J-702		UNLOAD BSMT	SPARE		UNLOAD	1 T/P #16	T/P INSTALLED
6				IRIS. PROJ.				U-19 MIRROR (A)
7								U-20 MIRROR (A)
8								U-21 MIRROR (A)
9								U-22 MIRROR (A)
10								U-23 MIRROR (A)
11				IRIS. PROJ.		UNLOAD	1 T/P #16	U-24 MIRROR (A)
12-22				SPARE				
23				INTERCOM		UNLOAD		RING
24				INTERCOM		UNLOAD		LISTEN
25	ABB-J-702		UNLOAD BSMT	INTERCOM		UNLOAD		TALK
1	ABB-J-704		ACT IV BSMT	FLOUR LGT	J1 (A)	ACT IV	11 PR #22	REMOTE DIM. CAB.
2				IRIS PROJ.			1 T/P #16	IV-14 FAN (D)
3								IV-14 IRIS (D)
4								IV-15 FAN (D)
5								IV-15 IRIS (D)
6								IV-17 FAN (D)
7								IV-17 IRIS (D)
8								IV-18 FAN (D)
9								IV-18 IRIS (D)
10								IV-19 FAN (D)
11				IRIS PROJ.				IV-19 IRIS (D)
12				16mm PROJ.	(TV)			DOUSER OPEN
13				16mm PROJ.	(TV)			START (COMMAND)
14				KAL. PROJ.				IV-1 FAN (D)
15								IV-2 FAN (D)
16								IV-7 FAN (D)
17								IV-8 FAN (D)
18								IV-9 FAN (D)
19								IV-13 FAN (D)
20								IV-20 FAN (D)
21				KAL. PROJ.		ACT IV	1 T/P #16	IV-21 FAN (D)
22				SPARE				
23				INTERCOM		ACT IV		RING
24				INTERCOM		ACT IV		LISTEN
25	ABB-J-704		ACT IV BSMT	INTERCOM		ACT IV		TALK
1	ABB-J-707		UNLOAD BSMT	IRIS PROJ.		UNLOAD	1 T/P #16	U-19 FAN (D)
2	ABB-J-707		UNLOAD BSMT	IRIS PROJ.		UNLOAD	1 T/P #16	U-19 IRIS (D)
3	ABB-J-707		UNLOAD BSMT	IRIS PROJ.		UNLOAD	1 T/P #16	U-20 FAN (D)



## MONITOR BREAK-OUT BOX SCHEDULE

T/P NO.	FROM			TO			CABLE TYPE	REMARKS
	EQUIP.	CONN.	LOCATION	EQUIP.	CONN.	LOCATION		
1	MBB63D-1500		LOAD BSMT	PNL. 'SLA'		LOAD	1 T/P #16	ON COMMAND
2				PNL. 'SLA'				MONITOR
3				PNL. 'ELC-1'				MONITOR (C1)
4				CSL 101/102				STATUS (TB2-22,23)
5				WK LT FLASH				ON (KUP1)-STG 1-3
6				WK LT FLASH				OFF (KUP2)-STG 1-3
7				WK LT FLASH				ON (KUP3)-STG 4-6
8				WK LT FLASH				OFF (KUP4)-STG 4-6
9				CURT BOX 1				(AUTO/POWER) MON.
10				CSL-SHOW		LOAD	1 T/P #16	PAUSE SW. TB1-25,26
11-22				SPARE				
23				INTERCOM		LOAD		RING
24				INTERCOM		LOAD		LISTEN
25	MBB63D-1500		LOAD BSMT	INTERCOM		LOAD		TALK
1	MBB63D-1510		ACT I BSMT	PNL 'SLB'		ACT I	1 T/P #16	ON COMMAND
2				PNL 'SLB'				MONITOR
3				PNL ELC-3				MONITOR (C3)
4				T TABLE #1				POWER/ON-MON.
5				T TABLE #2		ACT I	1 T/P #16	POWER/ON-MON.
6-20				SPARE				
21				SER SWITCH		ACT I	1 T/P #16	HYDRAULIC PUMP
22				SER SWITCH				AIR VALVE
23				INTERCOM				RING
24				INTERCOM				LISTEN
25	MBB63D-1510		ACT I BSMT	INTERCOM		ACT I		TALK
1	MBB63D-1520		ACT II BSMT	T TABLE #3		ACT II	1 T/P #16	POWER/ON-MON.
2				T TABLE #4				POWER/ON-MON.
3				PNL 'SLC'				ON COMMAND
4				PNL 'SLC'				MONITOR
5				PNL ELC-5				MONITOR (C5)
6				DACS		ACT II	1 T/P #16	SIGNAL TEST (MON.)
7-9				SPARE				
10				LCL RESYNC	J1 (A)	ACT II	11 PR #22	PUSH BUTTON
11				LCL RESYNC	J1 (C)			SYSTEM POWER
12				LCL RESYNC	J1 (E)			BOX PROJ. #AP21
13				LCL RESYNC	J1 (H)	ACT II	11 PR #22	BOX PROJ. #AP23
14-20				SPARE				
21				SER SWITCH		ACT II	1 T/P #16	HYDRAULIC PUMP
22				SER SWITCH				AIR VALVE
23				INTERCOM				RING
24				INTERCOM				LISTEN
25	MBB63D-1520		ACT II BSMT	INTERCOM		ACT II		TALK
1	MBB63D-1530		ACT III BSMT	16mm PROJ.	J1 (A)	ACT III	11 PR #22	(TV) READY-STOPPED
2					J1 (C)			(TV) POWER MONITOR
3					J1 (E)			(TV) LAMP MONITOR
4				16mm PROJ.	J1 (H)	ACT III	11 PR #22	(TV) START TAPE
5-6				SPARE				
7				16mm PROJ.	J1 (P)	ACT III	11 PR #22	(TV) RESYNC
8				T TABLE #5			1 T/P #16	POWER/ON MON.
9				T TABLE #6				POWER/ON MON.
10				PNL 'SLD'				ON COMMAND
11				PNL 'SLD'				MONITOR
12	MBB63D-1530		ACT III BSMT	PNL ELC-6		ACT III	1 T/P #16	MONITOR (C7)

## MONITOR BREAK-OUT BOX SCHEDULE

T/P NO.	FROM			TO			CABLE TYPE	REMARKS
	EQUIP.	CONN.	LOCATION	EQUIP.	CONN.	LOCATION		
13-20	MBB63D-1530		ACT III BSMT	SPARE				
21				SER SWITCH		ACT III	1 T/P #16	HYDRAULIC PUMP
22				SER SWITCH			1 T/P #16	AIR VALVE
23				INTERCOM	J1 (S)		11 PR #22	RING
24				INTERCOM	J1 (U)		11 PR #22	LISTEN
25	MBB63D-1530		ACT III BSMT	INTERCOM	J1 (W)	ACT III	11 PR #22	TALK
1	MBB63D-1540		ACT IV BSMT	16mm PROJ.	J1 (A)	ACT IV	11 PR #22	(TV) READY STOPPED
2					J1 (C)			(TV) POWER MONITOR
3					J1 (E)			(TV) LAMP MONITOR
4				16mm PROJ.	J1 (H)	ACT IV	11 PR #22	(TV) START TAPE
5 & 6				SPARE				
7				16mm PROJ.	J1 (P)	ACT IV	11 PR #22	(TV) RESYNC
8				IRIS PROJ.	2 PR. CA			IV-14 LAMP ON
9								IV-14 LAMP CHANGE
10								IV-15 LAMP ON
11								IV-15 LAMP CHANGE
12								IV-17 LAMP ON
13								IV-17 LAMP CHANGE
14								IV-18 LAMP ON
15								IV-18 LAMP CHANGE
16								IV-19 LAMP ON
17				IRIS PROJ.	2 PR. CA			IV-19 LAMP CHANGE
18				PNL 'SLE'			1 T/P #16	ON COMMAND
19				PNL 'SLE'			1 T/P #16	MONITOR
20				PNL ELC-4				MONITOR (C9)
21				SER SWITCH				HYDRAULIC PUMP
22				SER SWITCH			1 T/P #16	AIR VALVE
23				INTERCOM	J1 (S)		11 PR #22	RING
24				INTERCOM	J1 (U)		11 PR #22	LISTEN
25	MBB63D-1540		ACT IV BSMT	INTERCOM	J1 (W)	ACT IV	11 PR #22	TALK
1	MBB63D-1550		UNLOAD BSMT	IRIS PROJ.	2 PR. CA	UNLOAD		U19 - LAMP ON
2								U19 - LAMP CHANGE
3								U20 - LAMP ON
4								U20 - LAMP CHANGE
5								U21 - LAMP ON
6								U21 - LAMP CHANGE
7								U22 - LAMP ON
8								U22 - LAMP CHANGE
9								U23 - LAMP ON
10								U23 - LAMP CHANGE
11								U24 - LAMP ON
12				IRIS PROJ.	2 PR. CA			U24 - LAMP CHANGE
13				PNL 'SLF'			1 T/P #16	ON COMMAND
14				PNL 'SLF'			1 T/P #16	MONITOR
15				PNL ELC-2		UNLOAD	1 T/P #16	MONITOR (C11)
16-22				SPARE				
23				INTERCOM		UNLOAD		RING
24				INTERCOM		UNLOAD		LISTEN
25	MBB63D-1550		UNLOAD BSMT	INTERCOM		UNLOAD		TALK
1	MBB63D-1560		CTR CORE BSMT	MAIN PUMP		CENTER CORE	1 T/P #16	UNITS 1 & 2 - RUN
2				MAIN PUMP				PRESSURE + RUN MON
3				AIR VALVE				'ON' VALVE OPEN
4	MBB63D-1560		CTR CORE BSMT	AIR VALVE		CENTER CORE	1 T/P #16	PRESSURE MON

# MONITOR BREAK-OUT BOX SCHEDULE

T/P NO.	FROM			TO			CABLE TYPE	REMARKS
	EQUIP.	CONN.	LOCATION	EQUIP.	CONN.	LOCATION		
5	MBB63D-1560		CTR CORE BSMT	AIR VALVE		CENTER CORE	1 T/P #16	POSITION MON
6				CARROUSEL		CENTER CORE	1 T/P #16	POWER-ON COMMAND
7				CARROUSEL		CENTER CORE	1 T/P #16	POWER-MONITOR
8-22				SPARE				
23				INTERCOM		CENTER CORE		RING
24				INTERCOM		CENTER CORE		LISTEN
25	MBB63D-1560		CTR CORE BSMT	INTERCOM		CENTER CORE		TALK
1	MBB63D-1570		ACT IV BSMT	KAL. PROJ.	2 PR CA	ACT IV		IV-1 LAMP ON
2								IV-1 LAMP CHANGE
3								IV-2 LAMP ON
4								IV-2 LAMP CHANGE
5								IV-7 LAMP ON
6								IV-7 LAMP CHANGE
7								IV-8 LAMP ON
8								IV-8 LAMP CHANGE
9								IV-9 LAMP ON
10								IV-9 LAMP CHANGE
11								IV-13 LAMP ON
12								IV-13 LAMP CHANGE
13								IV-20 LAMP ON
14								IV-20 LAMP CHANGE
15								IV-21 LAMP ON
16				KAL. PROJ.	2 PR CA	ACT IV		IV-21 LAMP CHANGE
17-25	MBB63D-1570		ACT IV BSMT	SPARE				
1	MBB63D-1580		UNLOAD BSMT	KAL. PROJ.	2 PR CA	UNLOAD		U1 LAMP ON
2								U1 LAMP CHANGE
3								U3 LAMP ON
4								U3 LAMP CHANGE
5								U13 LAMP ON
6								U13 LAMP CHANGE
7								U15 LAMP ON
8								U15 LAMP CHANGE
9								U16 LAMP ON
10								U16 LAMP CHANGE
11								U17 LAMP ON
12								U17 LAMP CHANGE
13								U25 LAMP ON
14								U25 LAMP CHANGE
15								U26 LAMP ON
16				KAL. PROJ.	2 PR CA	UNLOAD		U26 LAMP CHANGE
17-25	MBB63D-1580		UNLOAD BSMT	SPARE				



# **SECTION 1.4**

**POWER**





# SECTION 2

**MECHANICAL**

FOR ADDITIONAL DETAILED ENGINEERING AND PARTS ORDERING INFORMATION  
ON ASSEMBLIES/SUB-ASSEMBLIES APPEARING IN THE MECHANICAL SECTION  
OF THIS MANUAL CONTACT: DEPARTMENT HEAD - MECHANICAL ENGINEERING -  
MAPO.

# SECTION 2

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## **SECTION 2.1**

**AUDIO-ANIMATRONIC FIGURE  
STANDARD FUNCTION CODE**



## AUDIO-ANIMATRONIC FIGURE STANDARD FUNCTION CODE

SECT: 2.1

DATE: April 10, 1969

PAGE: 1 OF 8

REV. A APRIL 30, 1975

The following will be standard A.A. animation for Walt Disney Prods. The function number will always remain the same; i.e., Function #1 will always be "Mouth", Function #8 will always be "Right Elbow", etc.

These numbers will appear on:

1. Feedback lines at the actuator and at the Elco connector on the figure base.
2. Mechanical feedback actuator control lines at the plug and at the Elco connector on the figure base.
3. All hydraulic lines at the actuator and at the manifold at the figure base.
4. Hydraulic lines from control rack at the figure base.
5. Servo 1st stages along with function abbreviations.
6. Air lines to Skinner and Asco valves, at the valve and at the actuator.

All lines and wires will be marked with Electrovert "Z" markers.





# AUDIO-ANIMATRONIC FIGURE STANDARD FUNCTION CODE

SECT: 2.1

DATE: April 10, 1969

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## AUDIO-ANIMATRONIC FIGURES STANDARD FUNCTION ABBREVIATIONS

### HUMAN TYPE FIGURES

<u>FUNCTION</u> <u>NO.</u>	<u>NAME</u>	<u>CODE</u>	<u>FUNCTION</u> <u>NO.</u>	<u>NAME</u>	<u>CODE</u>
1	Mouth	M	26	Knee Bend	KB
2	Head Nod	HN	27	Chair Move	C
3	Head Turn	HT	28	Right Thumb	RT
4	Head Tilt	HTLT	29	Right Forefinger	RF
5	Rt. Arm Forward	RAF	30	Right Middle	RM
6	Rt. Arm Out	RAO	31	Right Ring	RR
7	Rt. Arm Swing	RAS	32	Right Little	RL
8	Rt. Elbow	RE	33	Left Thumb	LT
9	Left Arm Forward	LAF	34	Left Forefinger	LF
10	Left Arm Out	LAO	35	Left Middle	LM
11	Left Arm Swing	LAS	36	Left Ring	LR
12	Left Elbow	LE	37	Left Little	LL
13	Rt. Wrist In & Out	RWIO			
14	Rt. Wrist Forward & Back	RWFB		<u>HEAD FUNCTION</u>	
15	Rt. Wrist Twist	RWT	38	Eye Blink	EB
16	Left Wrist In & Out	LWIO	39	Eye Right	ER
17	Left Wrist Forward & Back	LWFB	40	Eye Left	EL
18	Left Wrist Twist	LWT	41	Mouth Pinch Right	MPR
19	Torso Forebend	TF	42	Mouth Pinch Left	MPL
20	Torso Sidebend	TS	43	Smile Right	SR
21	Torso Twist	TT	44	Smile Left	SL
22	Pelvis	P	45	Frown Left	FL
23	Body Side Sway	BS	46	Frown Right	FR
24	Body Twist	BT	47	Eyebrow Raise Right	ERR
25	Body Foresway	BF	48	Eyebrow Raise Left	ERL
			49	F - Sound	FS
			50	Foot Tap	FT



# AUDIO-ANIMATRONIC FIGURE STANDARD FUNCTION CODE

SECT: 2.1

DATE: April 10, 1969

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## AUDIO-ANIMATRONIC FIGURES

### STANDARD FUNCTION ABBREVIATIONS

#### ANIMAL/BIRD/SEA CREATURE FIGURES & ELECTRICAL

<u>FUNCTION NO.</u>	<u>NAME</u>	<u>CODE</u>	<u>FUNCTION NO.</u>	<u>NAME</u>	<u>CODE</u>
	<u>ANIMALS</u>			<u>ELECTRICAL</u>	
51	Neck Raise	NR	72	Speaker Switching	
52	Neck Turn	NT	73	Relay Coil	
53	Tail	T	74	Relay, Solid State	
54	Left Ear	EL	75		
55	Right Ear	ER	76		
			77		
			78		
			79		
	<u>BIRDS</u>			<u>SEA CREATURES</u>	
56	Beak or Mouth	B or M	80	Right Claw	
57	Head Nod	HN	81	Left Claw	
58	Head Rotate Right	HRR	82	Right Pincer	
59	Head Rotate Left	HRL	83	Left Pincer	
60	Chest Out	CO	84	Right Front Flipper	
61	Body Back or Up	BB	85	Left Front Flipper	
62	Wing Flip	WF	86	Right Rear Flipper	
63	Tail Flip	TF	87	Left Rear Flipper	
64					
65					
66					
67					
68					
69					
	<u>ELECTRICAL</u>				
70	Lighting Digital				
71	Lighting Analog				

NOTE: Any special functions will be labeled S1, S2, etc.



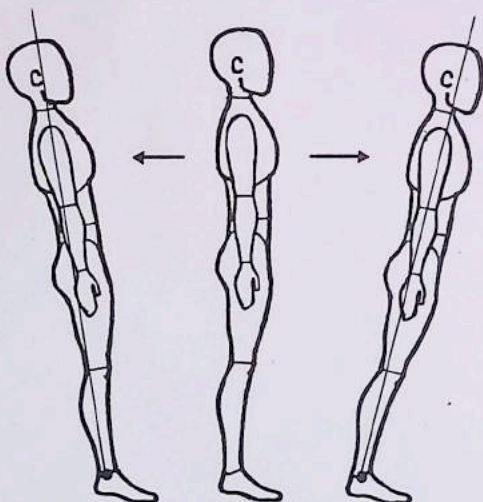
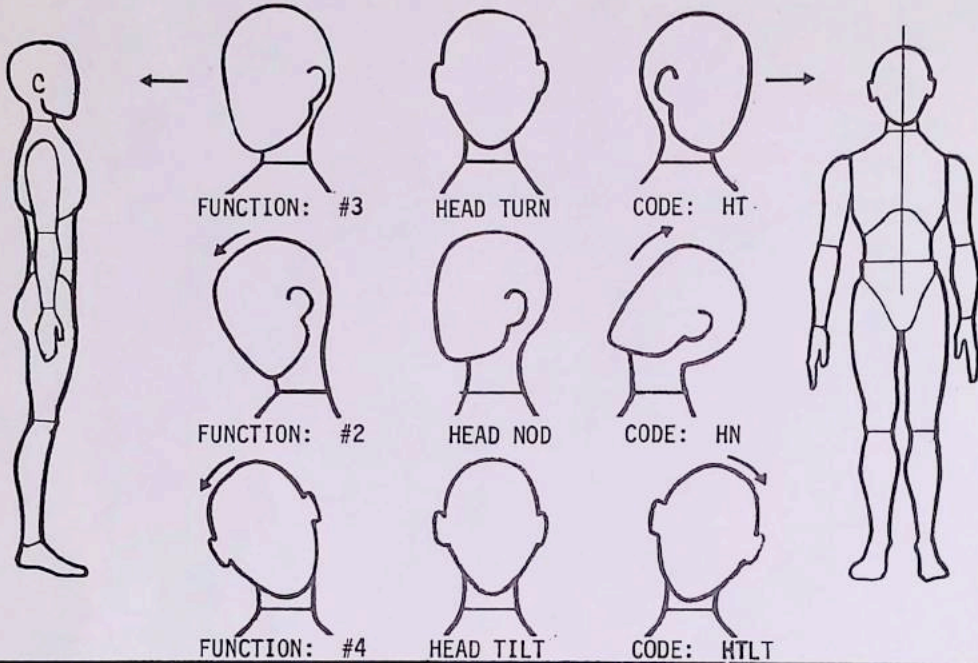
**AUDIO-ANIMATRONIC FIGURE  
STANDARD FUNCTION CODE**

SECT: 2.1

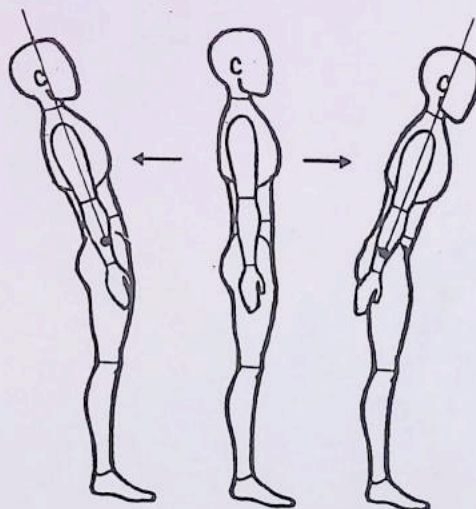
DATE: April 10, 1969

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GLOSSARY OF TERMS  
FOR  
AUDIO ANIMATRONIC BODY MOVEMENTS



BODY FORESWAY  
FUNCTION: #25 CODE: BF



PELVIS BEND  
FUNCTION: #22 CODE: P

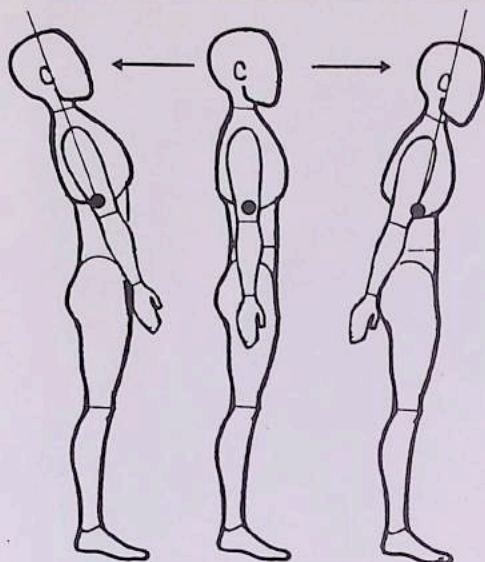


**AUDIO-ANIMATRONIC FIGURE  
STANDARD FUNCTION CODE**

SECT: 2.1

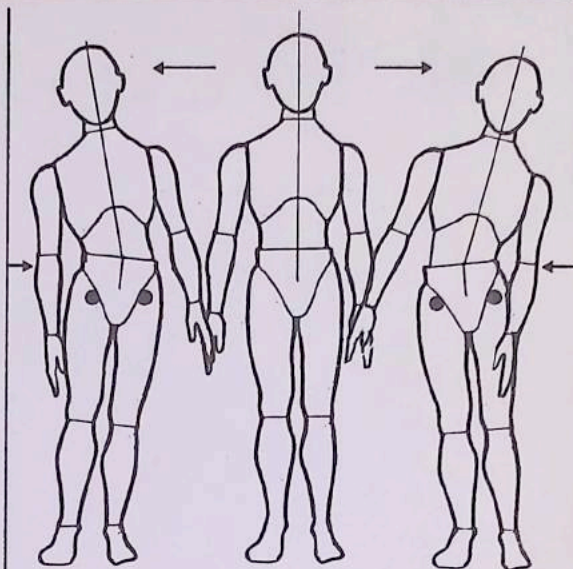
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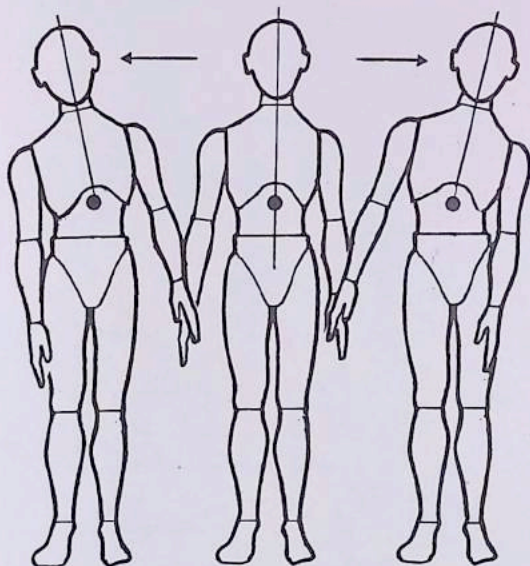
TORSO FOREBEND

FUNCTION: #19 CODE: TF



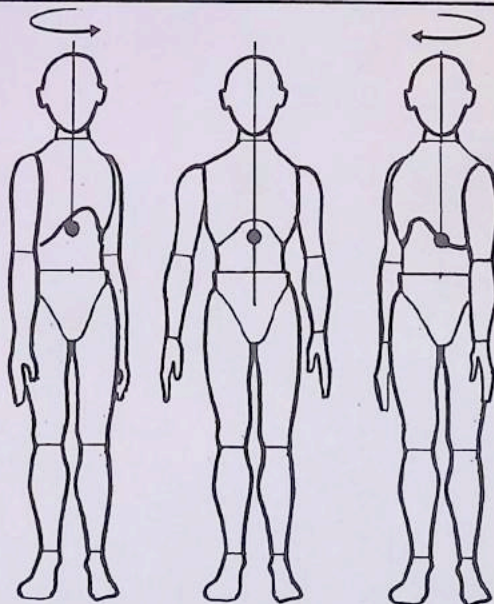
BODY SIDESWAY

FUNCTION: #23 CODE: BS



TORSO SIDEBEND

FUNCTION: #20 CODE: TS



TORSO TWIST

FUNCTION: #21 CODE: TT

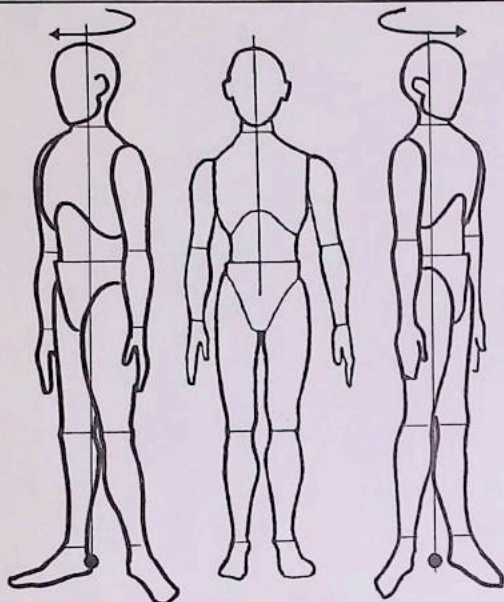


**AUDIO-ANIMATRONIC FIGURE  
STANDARD FUNCTION CODE**

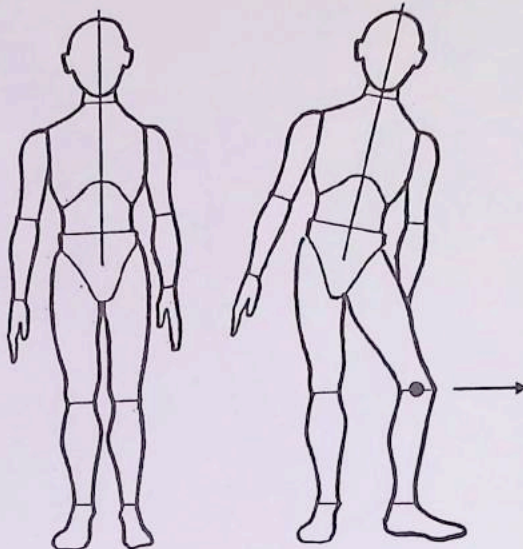
SECT: 2.1

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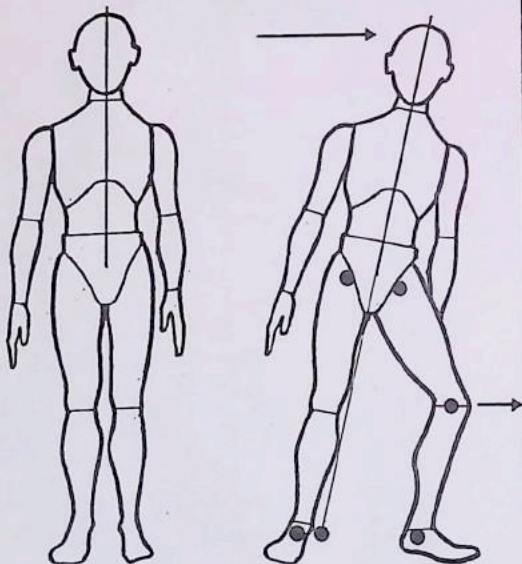


**BODY TWIST**  
BODY ROTATES FROM ANKLES  
FUNCTION: #24 CODE: BT

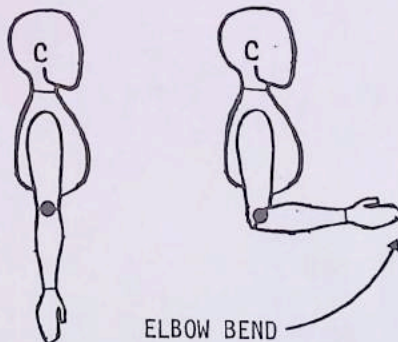


**KNEE BEND**

FUNCTION: #26 CODE: KB



FUNCTION: #26 KNEE BEND CODE: KB  
WITH  
FUNCTION: #23 BODY SIDESWAY CODE: BS



**ELBOW BEND**

RIGHT: FUNCTION: #8 CODE: RE  
LEFT: FUNCTION: #12 CODE: LE

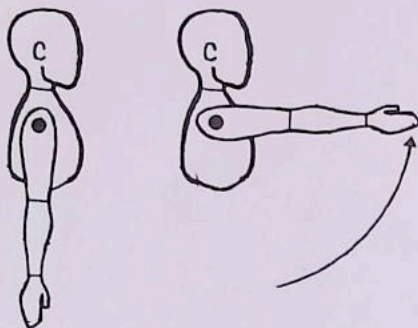


# AUDIO-ANIMATRONIC FIGURE STANDARD FUNCTION CODE

SECT: 2.1

DATE: April 10, 1969

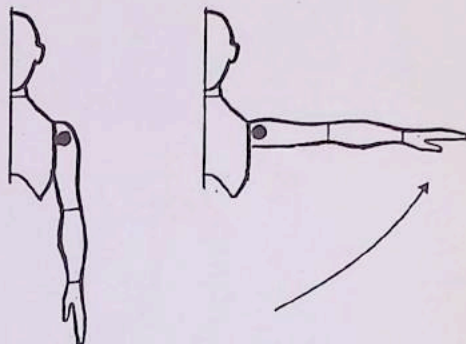
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ARM FOREWARD

LEFT: FUNCTION: #9 CODE: LAF

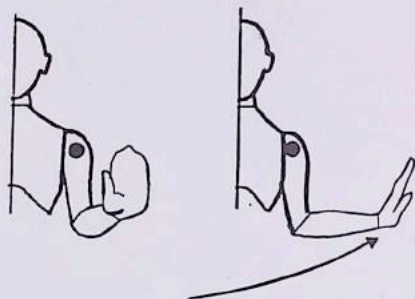
RIGHT: FUNCTION: #5 CODE: RAF



ARM OUT

LEFT: FUNCTION: #10 CODE: LAO

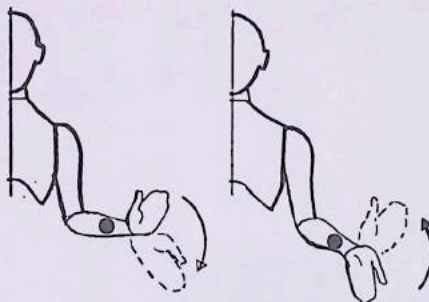
RIGHT: FUNCTION: #6 CODE: RAO



ARM SWING

LEFT: FUNCTION: #11 CODE: LAS

RIGHT: FUNCTION: #7 CODE: RAS



WRIST TURN

LEFT: FUNCTION: #18 CODE: LWT

RIGHT: FUNCTION: #15 CODE: RWT

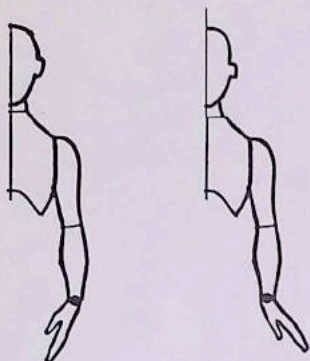


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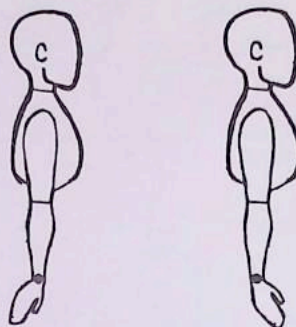
DATE: April 10, 1969

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### WRIST IN AND OUT

LEFT: FUNCTION: #16 CODE: LWIO  
RIGHT: FUNCTION: #13 CODE: RWIO



### WRIST FOREWARD AND BACK

LEFT: FUNCTION: #17 CODE: LWFB  
RIGHT: FUNCTION #14 CODE: RWFB

## **SECTION 2.2**

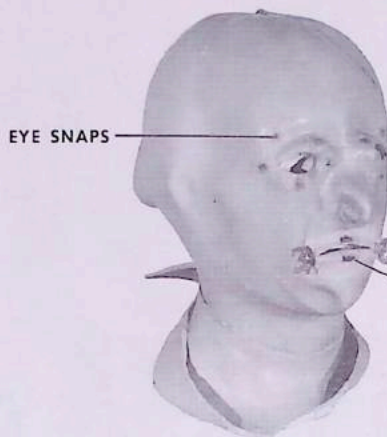
### **DISASSEMBLY PROCEDURE**





COMPLETE HEAD ASSEMBLY

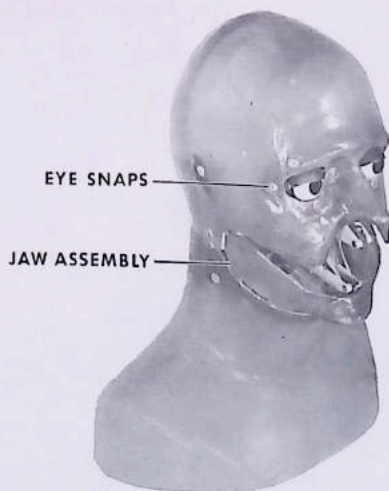
- 1 TO OPEN SKIN FOR REMOVAL FROM SKULL, BEGIN CUTTING AT TOP CENTER OF HEAD (SEE ARROW) AND CONTINUE IN A STRAIGHT LINE DOWN THE BACK OF HEAD



OUTER SKIN TURNED INSIDE OUT  
(FOR CLARITY)

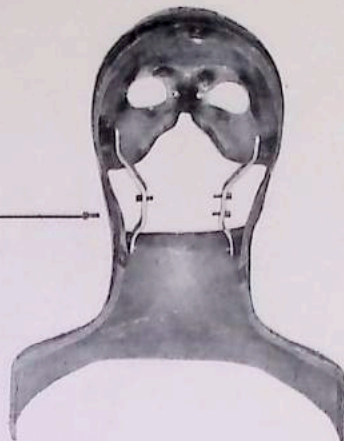
**IMPORTANT:**

USING A SMALL SCREWDRIVER, CAREFULLY PRY OFF SNAPS AROUND EYES

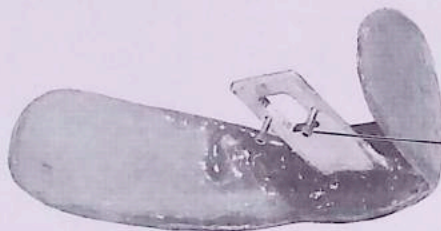


OUTER SKIN REMOVED

- 6 HEAD ASSEMBLY IS DISASSEMBLED BY REMOVING FOUR SIDE MOUNT SCREWS



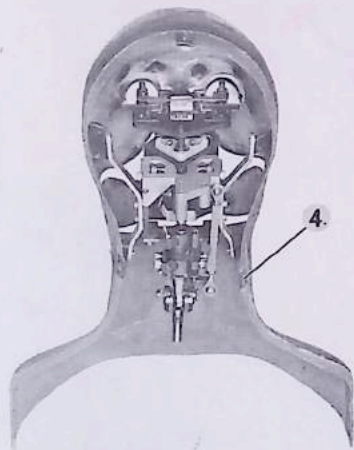
SKULL WITH HEAD ASSEMBLY REMOVED



- 5 DISASSEMBLE JAW BY REMOVING SCREWS ON BOTTOM OF THE BRACKET

JAW ASSEMBLY

- 4 REMOVE SCREWS HOLDING BACK OF SKULL IN PLACE



BACK OF SKULL REMOVED

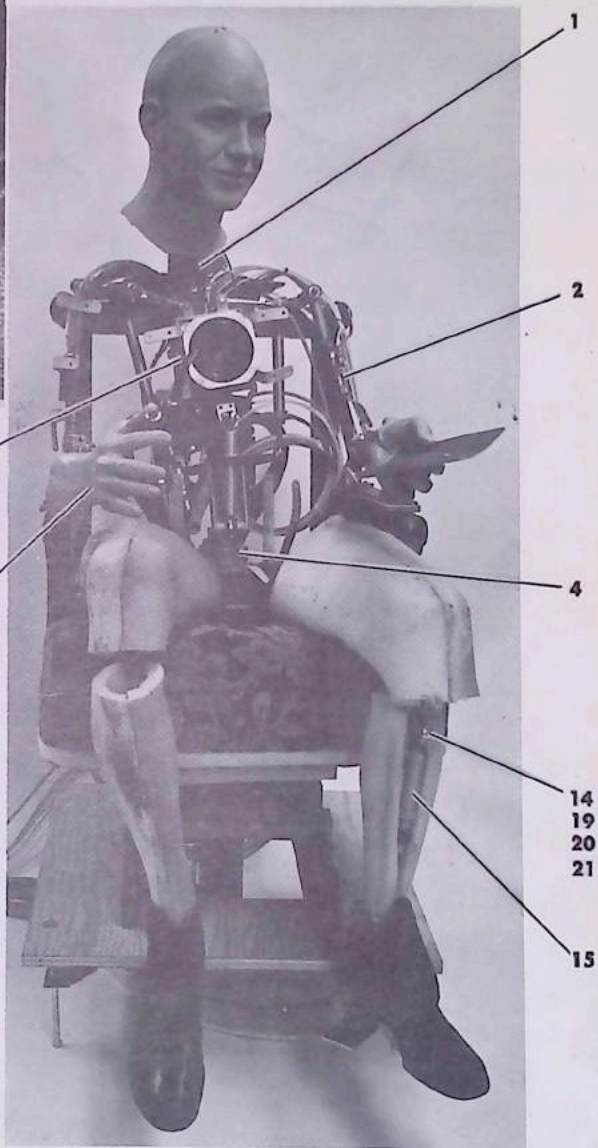
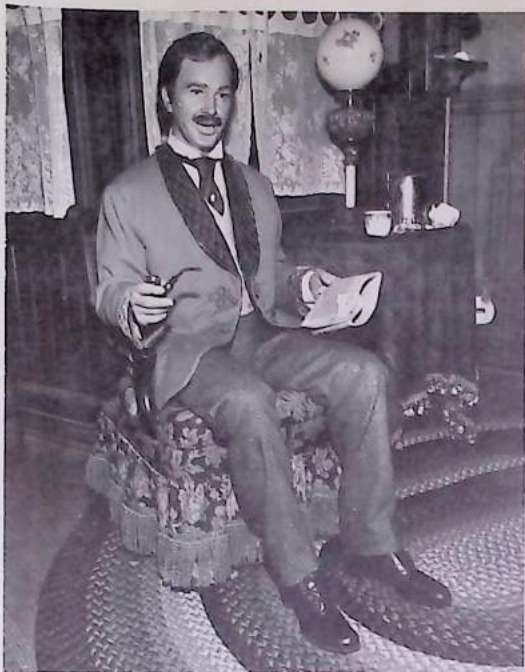
## BASIC HEAD ASSEMBLY DISASSEMBLY PROCEDURE

SHEET 2 OF 2

## **SECTION 2.3**

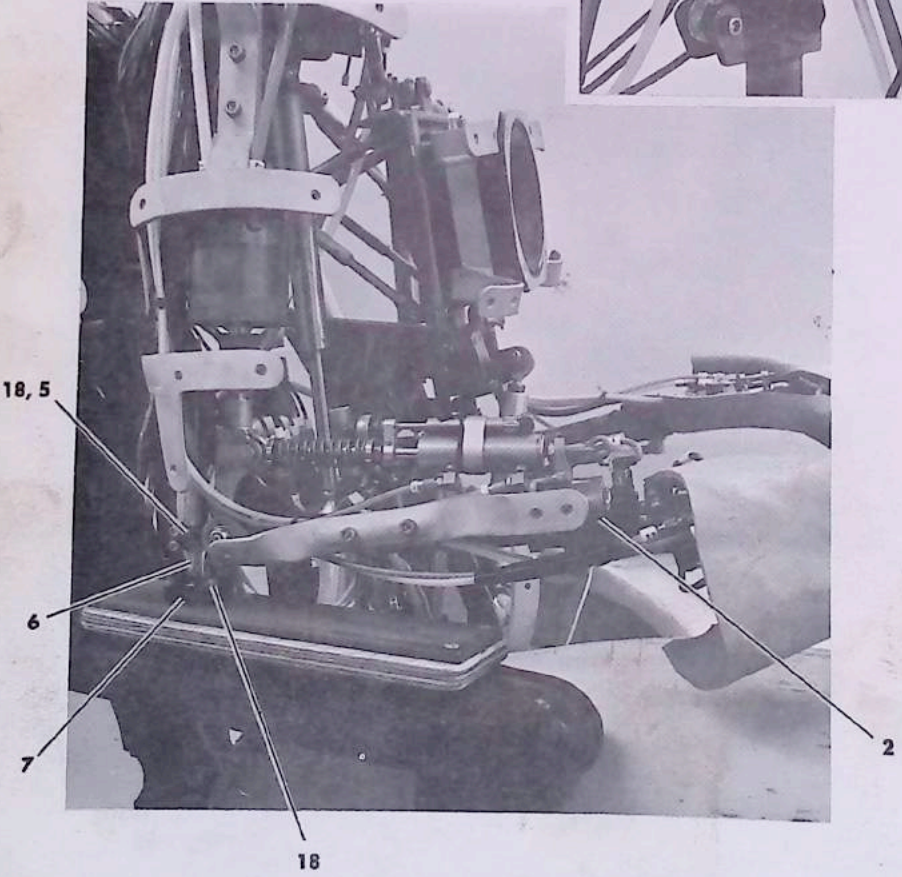
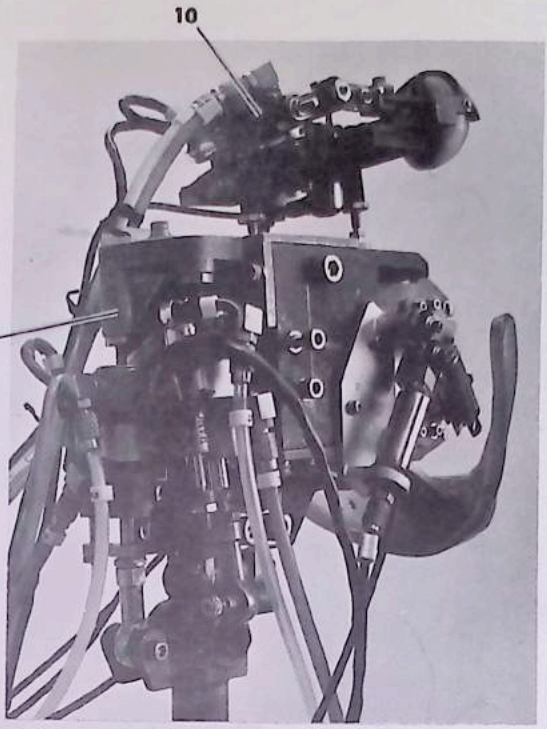
### **ANIMATED FIGURES AND PROPS**

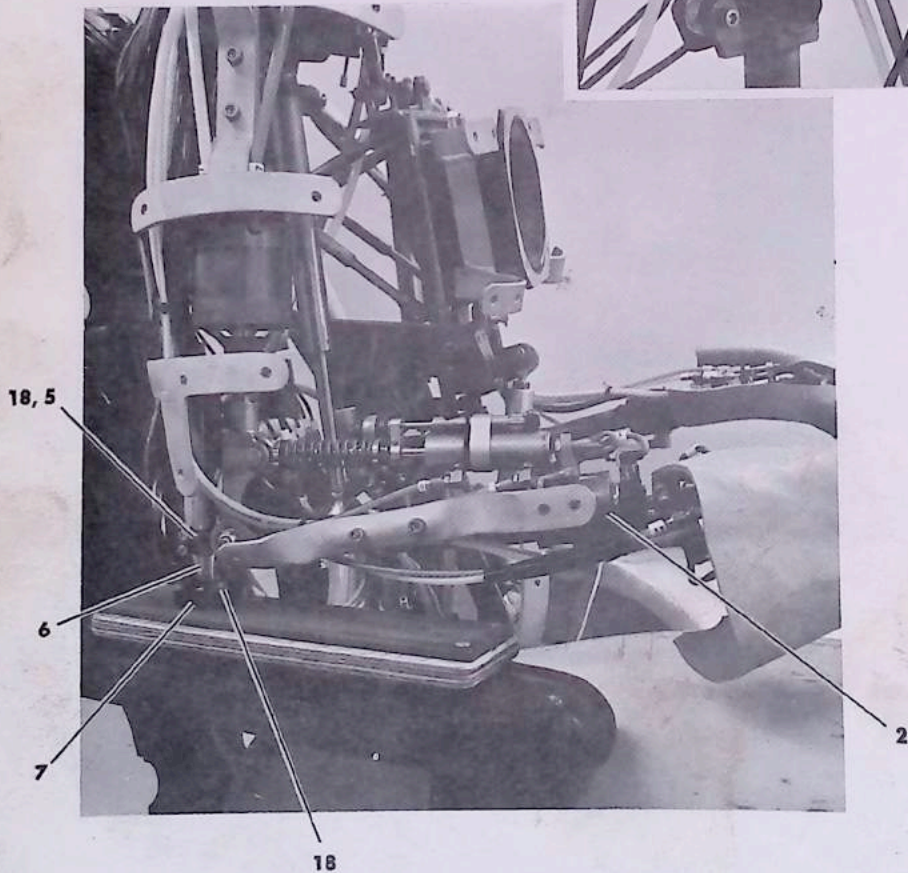
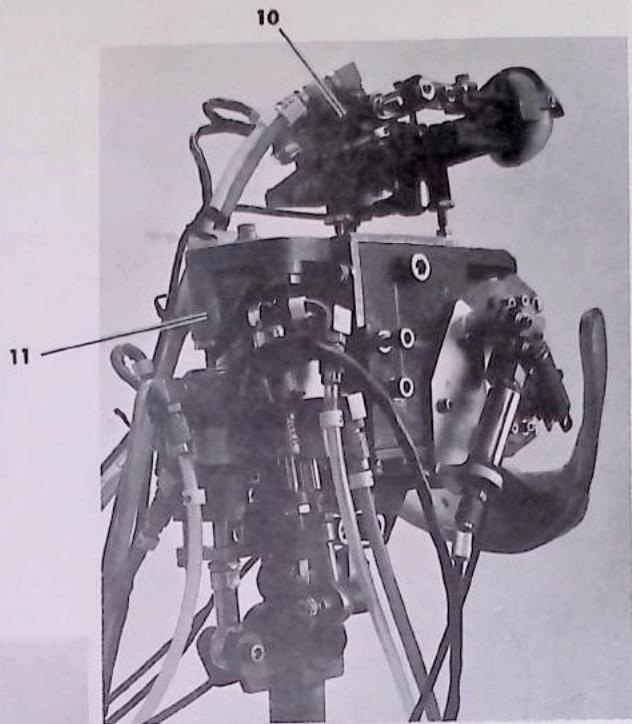
**ACT 1**



FUNC.	ANIMATION	PWR.
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
7	RT ARM SWING	A
8	RT ELBOW	A
12	LT ELBOW	A
13	RT WRIST IN-OUT	A
14	RT WRIST FWD-BK	A
15	RT WRIST TWIST	A
16	LT WRIST IN-OUT	A
17	LT WRIST FWD-BK	A
18	LT WRIST TWIST	A
20	TORSO SIDEBEND	A
21	TORSO TWIST	A
22	PELVIS	A
38	EYE BLINK	D
39	EYE RT-LT	A
41	MOUTH PINCH RT-LT	D
43	SMILE RT-LT	D
49	"F" SOUND	D
50	FOOT TAP	D
S-1	3 FINGERS	D
S-2	CHAIR ROTATE	A

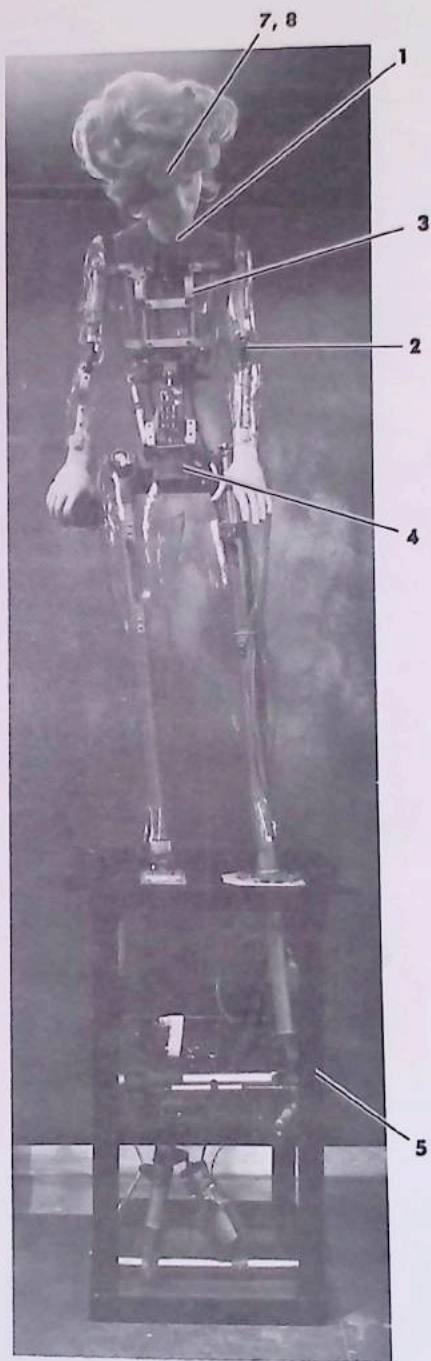
F1  
FATHER SEATED  
SHEET 1 OF 2











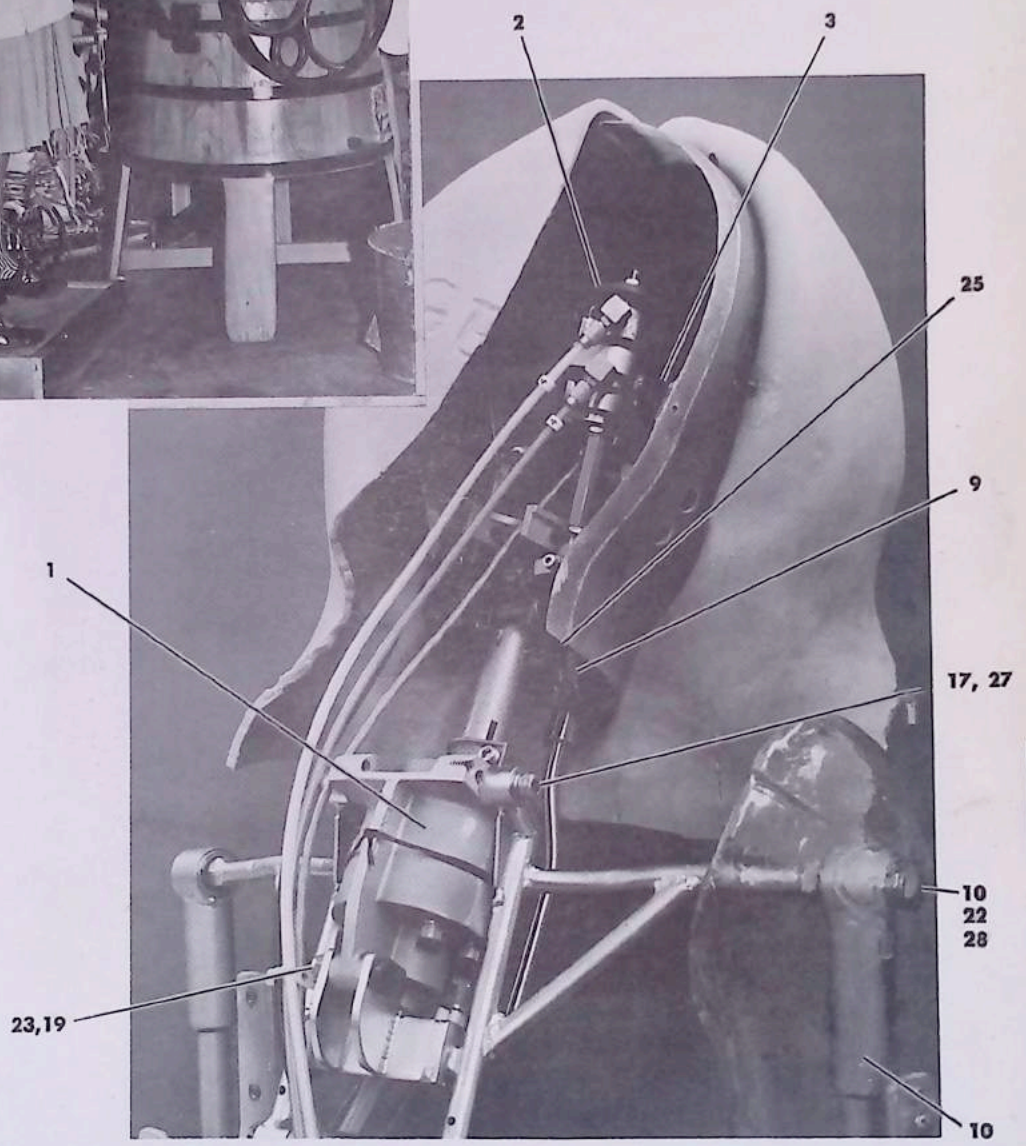
FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
19	TORSO FOREBEND	A
23	BODY SIDESWAY	AM
38	EYE BLINK	D
39	EYE RT-LT	D
41	MOUTH PINCH RT-LT	D
49	"F" SOUND	D
S-1	IRON DRIVE	A

F2  
MOTHER IRONING

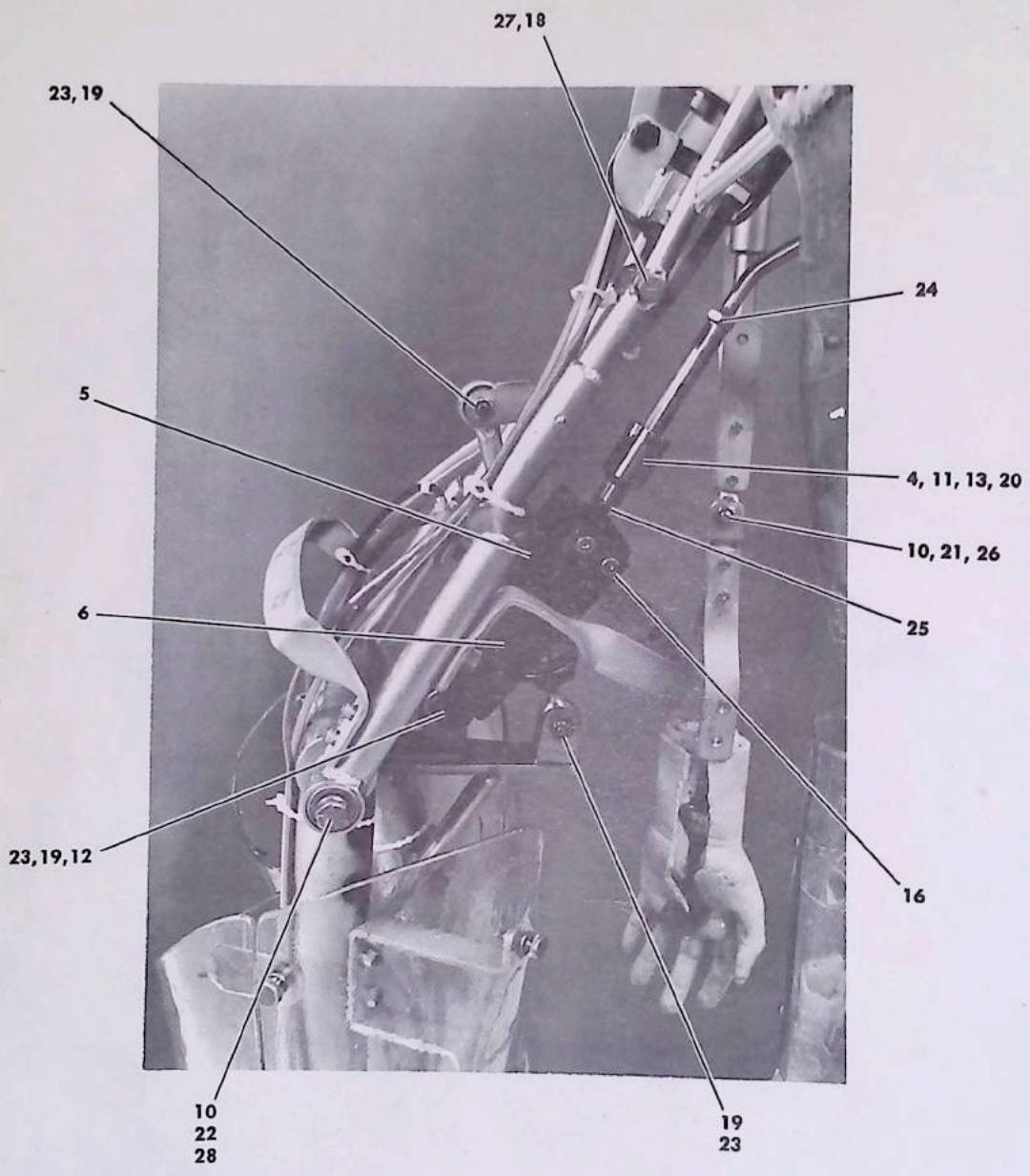




FUNC.	ANIMATION	PWR
3	HD TURN	A
4	HD TILT	A
22	PELVIS	A
38	EYE BLINK	D
S-1	WASHER DRIVE	D



F3  
GIRL WASHING  
SHEET 1 OF 2

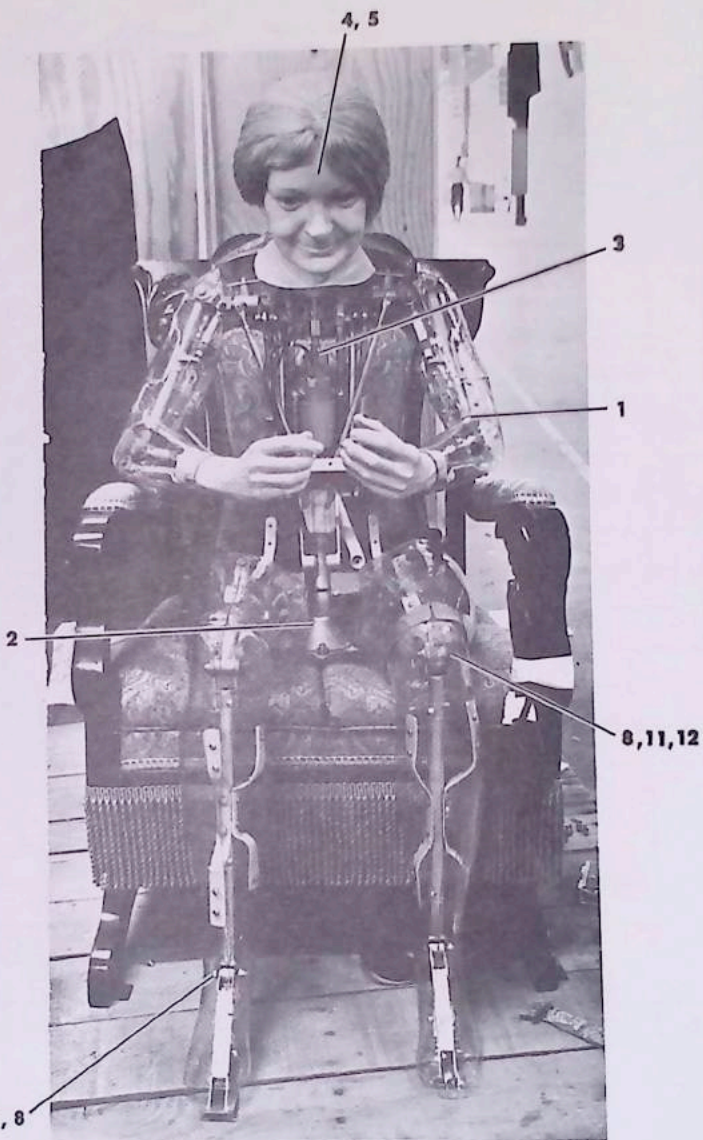


DWG.

F3

## GIRL WASHING

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2110-401017	A1-12-A15	HEAD ACTUATION ASSY	1
2.	2110-401199	A1-11-A171	HEAD ASSEMBLY	1
3.	2110-401208	A1-11-S180	EYETURN MECH	1
4.	3040-210534	UH35	ROTATOR, HEAD NOD	1
5.	3010-200247	CY-4-250-3	ACTUATOR ASSY, 1" B X 1 1/2" S	1
6.	3130-200279	CY-7-279-1	BRACKET, BEARING	1
7.				
8.				
9.		BC3	UNIVERSAL JOINT PIC DESIGN CORP.	1
10.		DW4K2	BEARING FAFNIR	4
11.				
12.		DSP3	BEARING FAFNIR	1
13.		5000-62H	RING, RETAINING TRUARC	1
14.				
15.				
16.		10-32 X 3/8"	SCREW, SOC HD	4
17.		10-32 X 3/4"	SCREW, SOC HD	2
18.		10-32 X 7/8"	BOLT, HEX HD	2
19.		AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32")	4
20.		1/4-28 X 3/4"	SCREW, SOC HD, SELF LOCKING	1
21.		1/4-28 X 1"	BOLT, HEX HD	2
22.		1/4-28 X 1 1/4"	BOLT, HEX HD	4
23.		10-32	NUT, LOCK	4
24.		10-32	NUT, HEX	1
25.		1/4-28	NUT, JAM	2
26.		1/4-28	NUT, LOCK	2
27.		#10	WASHER, SPLITLOCK	4
28.		1/4	WASHER, SPLITLOCK	4



FUNC.	ANIMATION	PWR
2	HD NOD	AM
3	HD TURN	AM
38	EYE BLINK	D
S-1	CHAIR ROCK	

12,11, 8

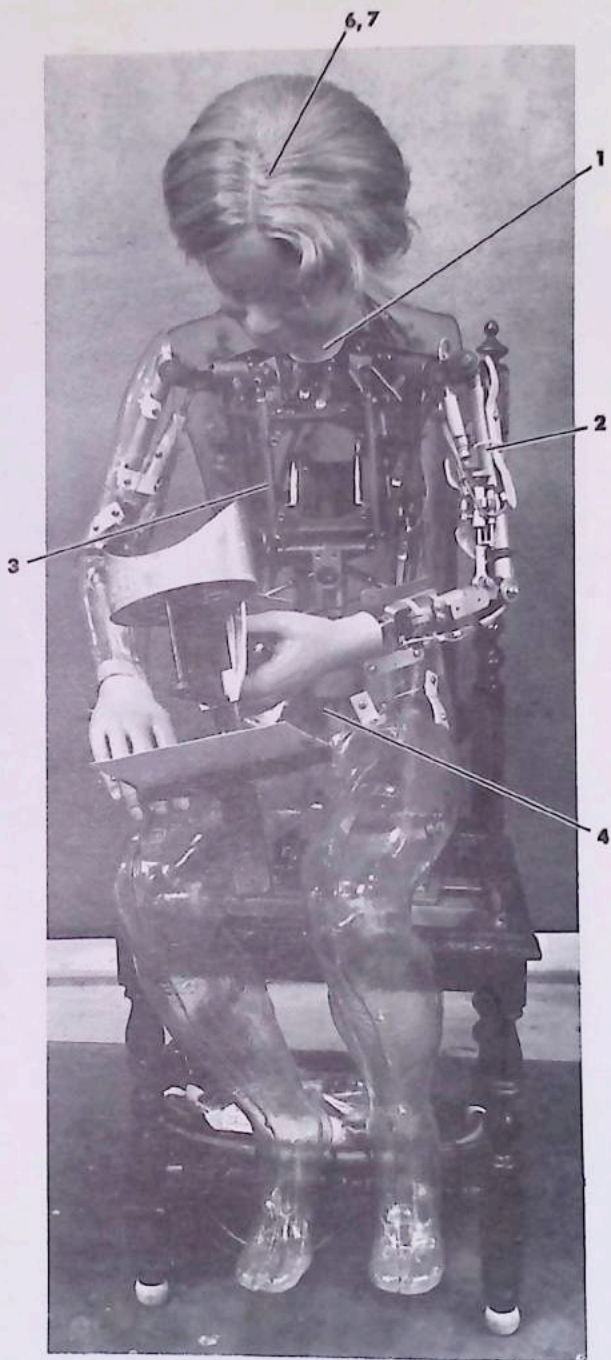
F4  
GRANDMOTHER SEATED

DWG.

F4

GRANDMOTHER SEATED

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2130-401020	A1-13-A16-2	ARM ASSY NON-OPERATIVE	2
2.	2125-401023	A1-15-A18-2	PELVIS ASSY W/O ROTATION	1
3.	3010-401120	A1-18-A101	TORSO ASSEMBLY	1
4.	2110-401208	A1-11-S180	EYETURN MECH.	1
5.	2110-401291	A1-11-A256	HEAD ASSY.	1
6.				
7.				
8.		DW5	BEARING	FAFNIR 4
9.				
10.				
11.		5/16-24 X 1 1/4	BOLT, HEX HD	4
12.		5/16-24	NUT, LOCK	4

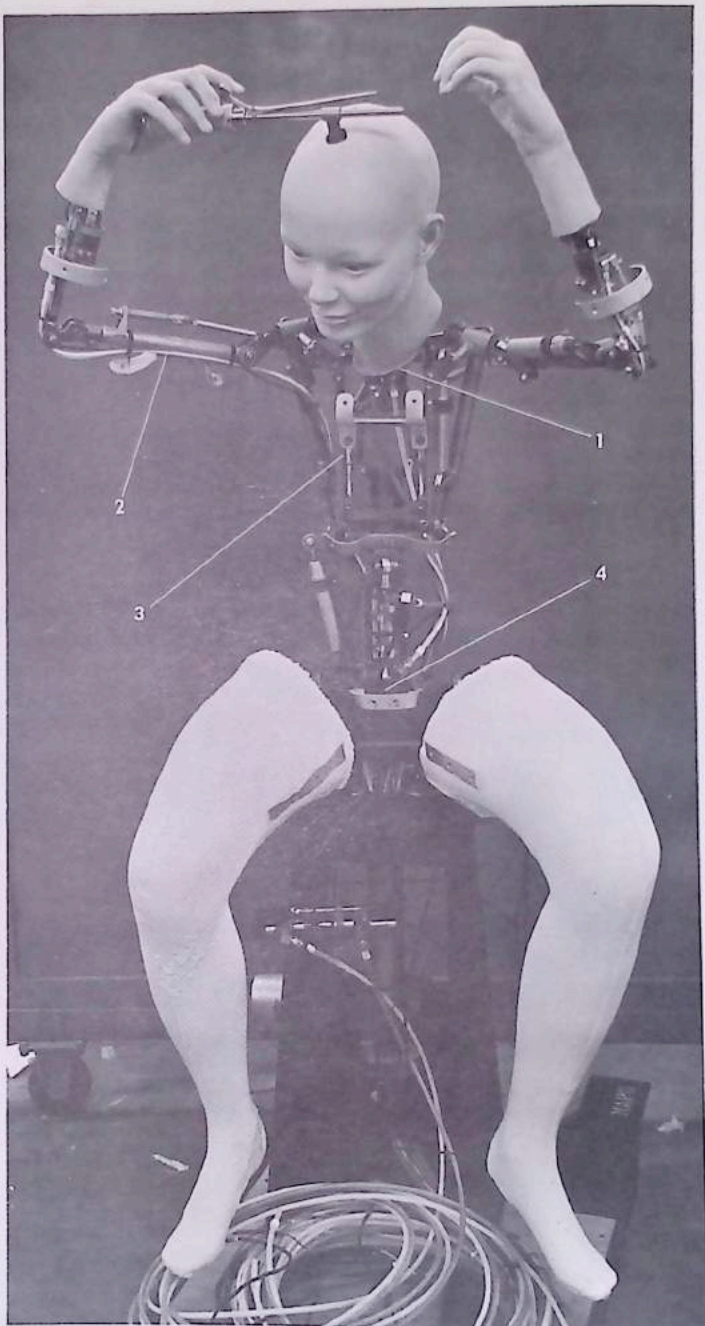


FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
9	LT ARM FWD	A
12	LT ELBOW	A
18	LT WRIST TWIST	A
38	EYE BLINK	D
39	EYE RT-LT	D

F23  
BOY SEATED W/VIEWER

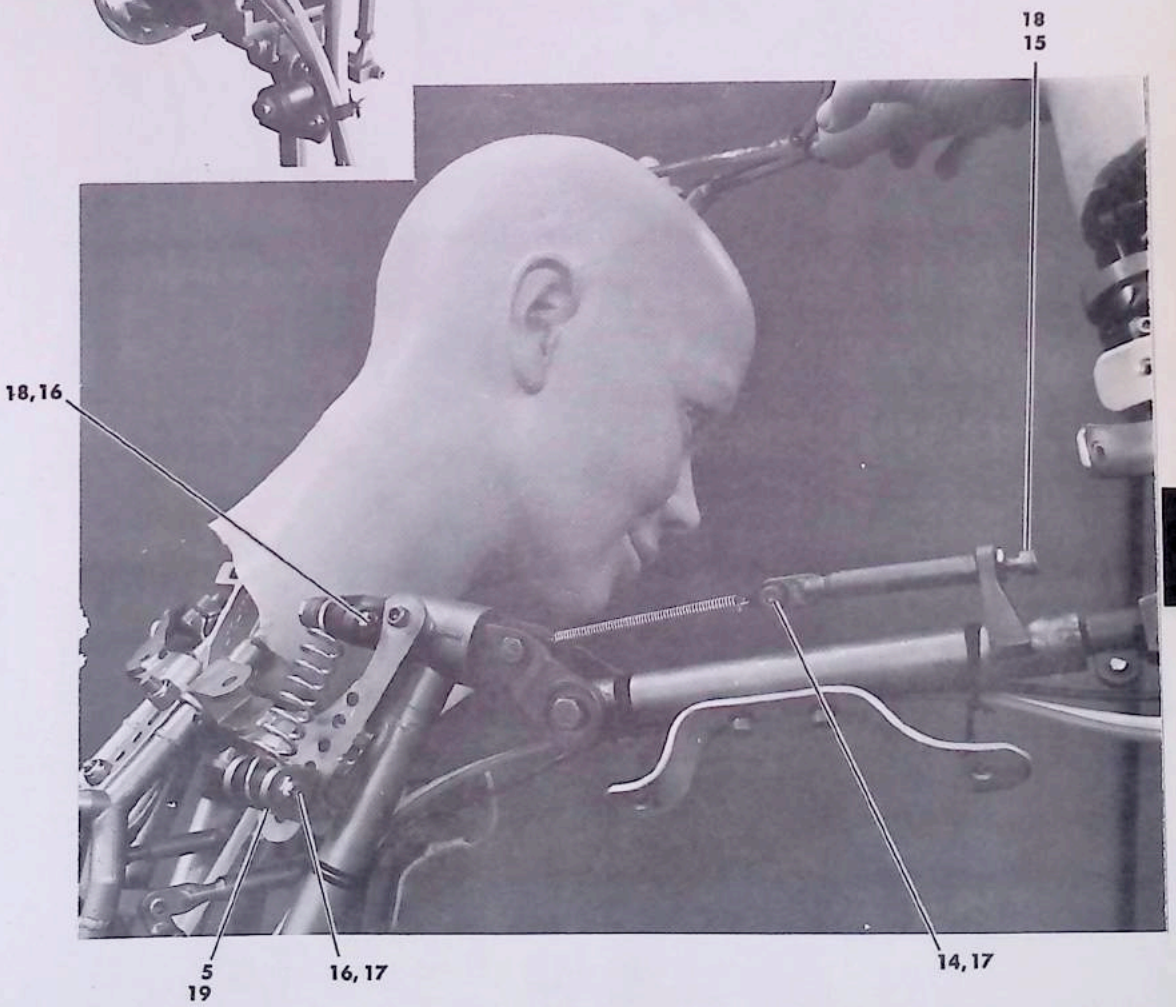
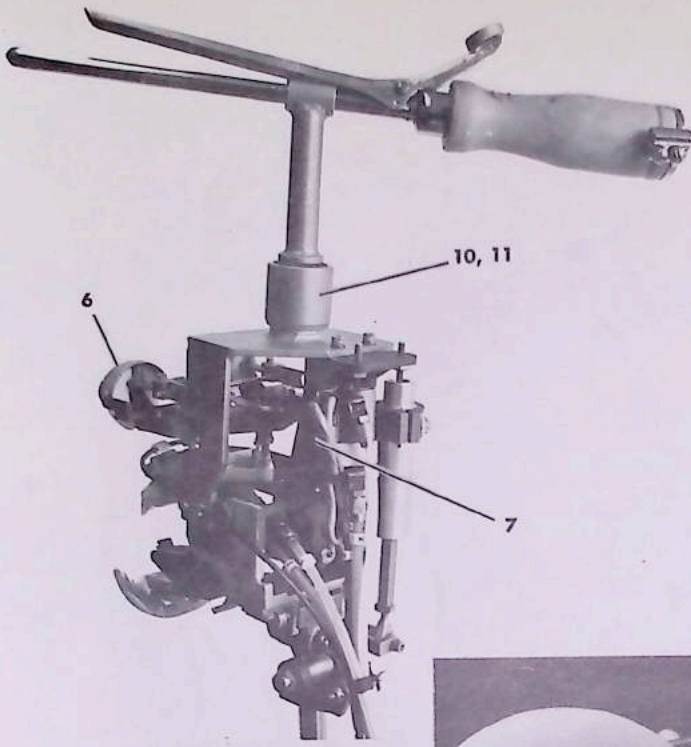






FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
15	RT WRIST TWIST	A
18	LT WRIST TWIST	A
19	TORSO FOREBEND	A
21	TORSO TWIST	A
38	EYE BLINK	D
S-1	CHAIR TURN	A
	FIGURE ROTATE	A

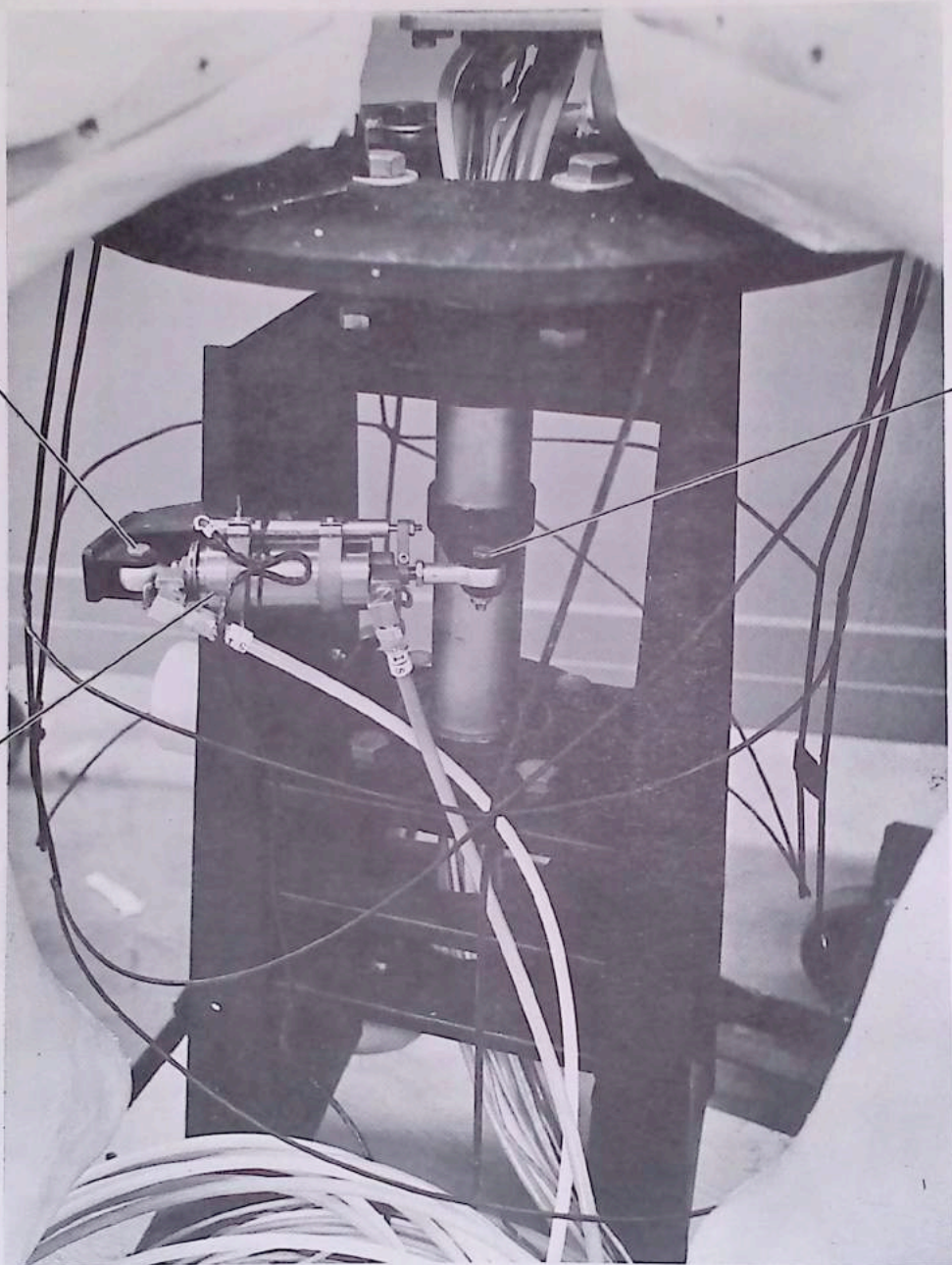
F6  
GIRL SEATED CURLING HAIR  
SHEET 1 OF 3



17, 16

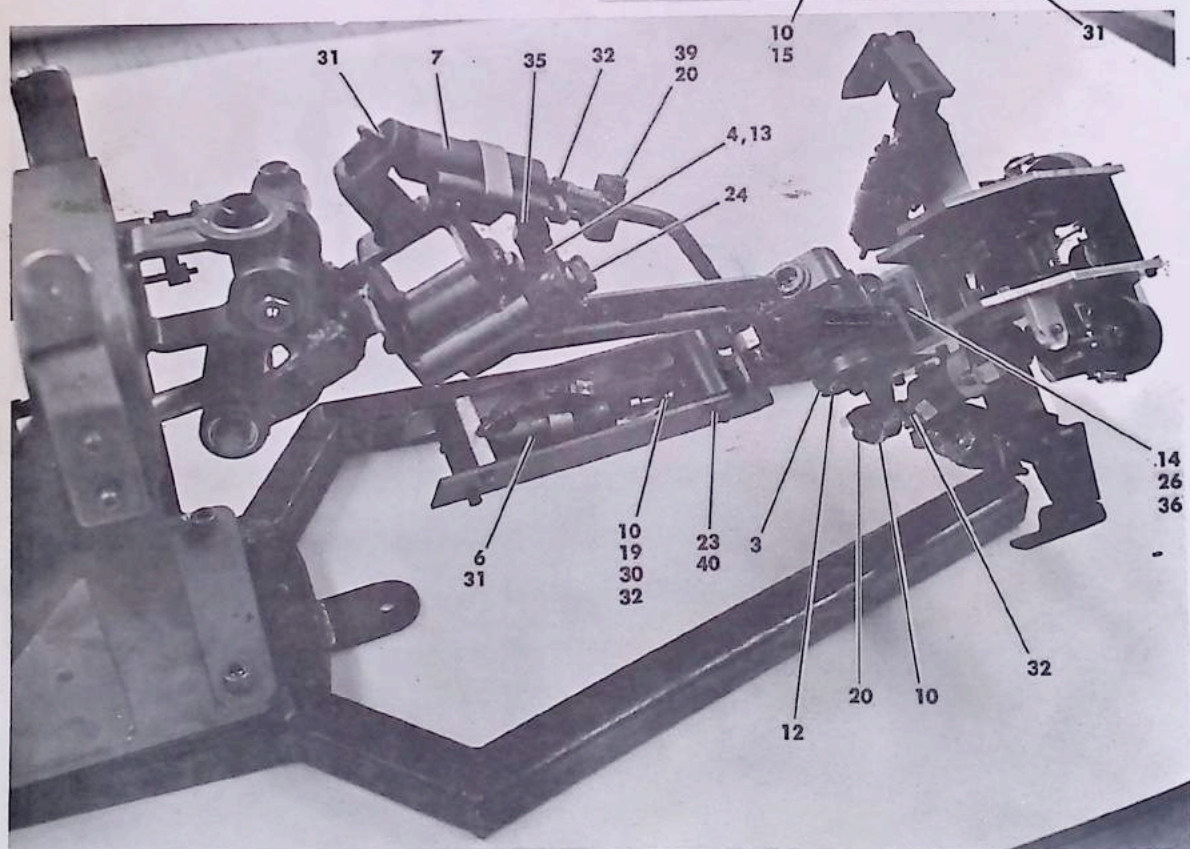
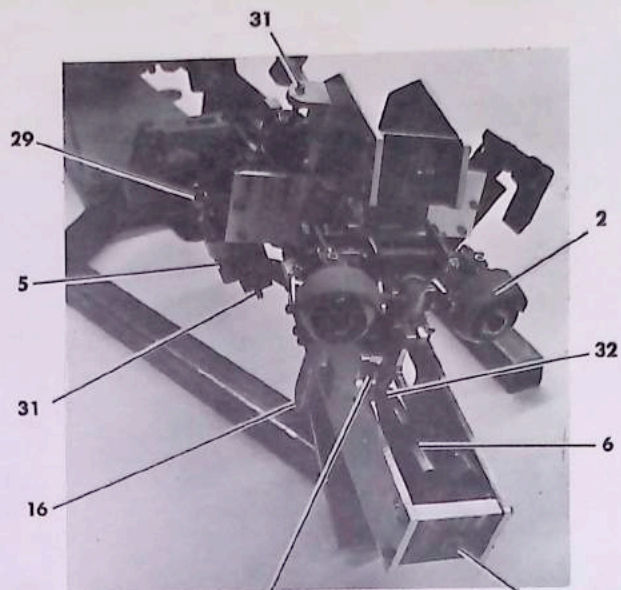
16, 17

8

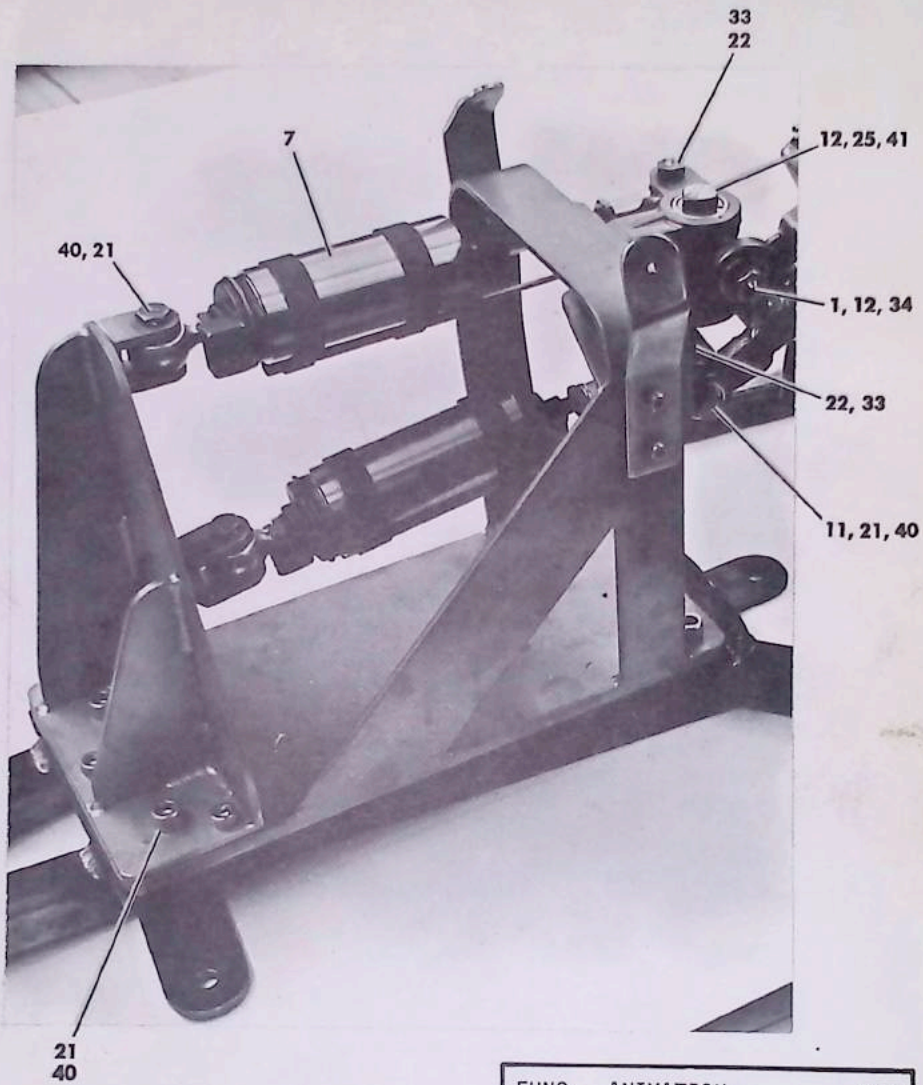


GIRL SEATED CURLING HAIR

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2110-401017	A1-12-A15	HEAD ACTUATION ASSY	1
2.	2130-401019	A1-13-A16-1	ARM ASSY	2
3.	2120-401021	A1-14-A17	TORSO ASSY	1
4.	2125-401022	A1-15-A18-1	PELVIS ASSEMBLY W/ROTATION	1
5.	5340-401090	A1-18-C71-9	CLEVIS (MODIFIED SHAFT LENGTH)	1
6.	2110-401208	A1-11-S180	EYETURN MECH.	1
7.	2110-401291	A1-11-A256	HEAD ASSY	1
8.	3010-201069	CY-1-154-4	ACTUATOR	1
9.				
10.		DW5	BEARING	1
			FAFNIR	
11.		N5000-87	RING, RET.	1
			TRUARC	
12.				
13.				
14.		10-32 X 1/2"	SCREW, SOC HD	1
15.		10-32 X 3/4"	SCREW, SOC HD	1
16.		10-32 X 1"	BOLT, HEX HD	4
17.		10-32	NUT, LOCK	4
18.		10-32	NUT, HEX	2
19.		1/4-28	NUT, LOCK	1



GA3  
DOG  
SHEET 1 OF 2

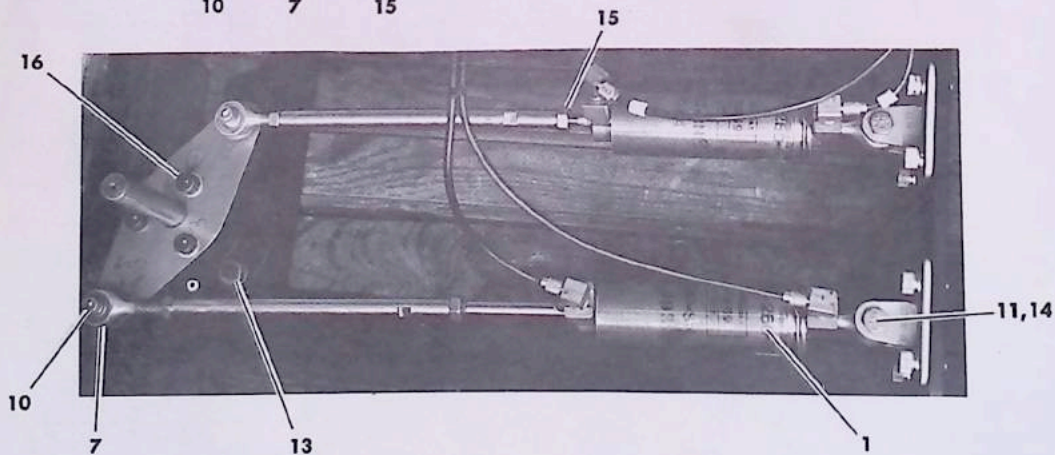
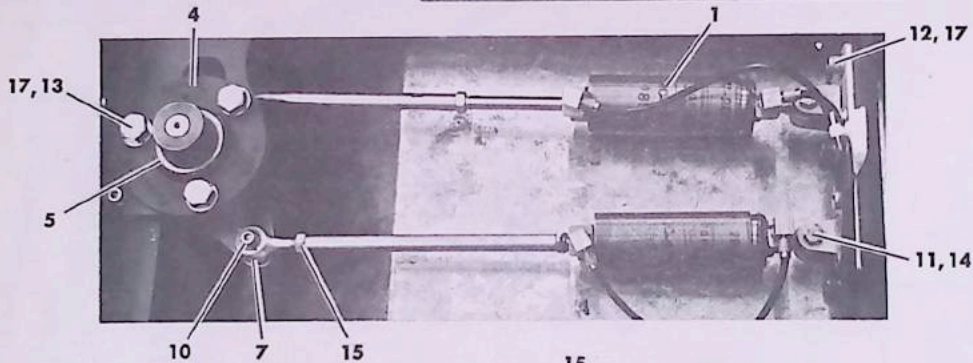
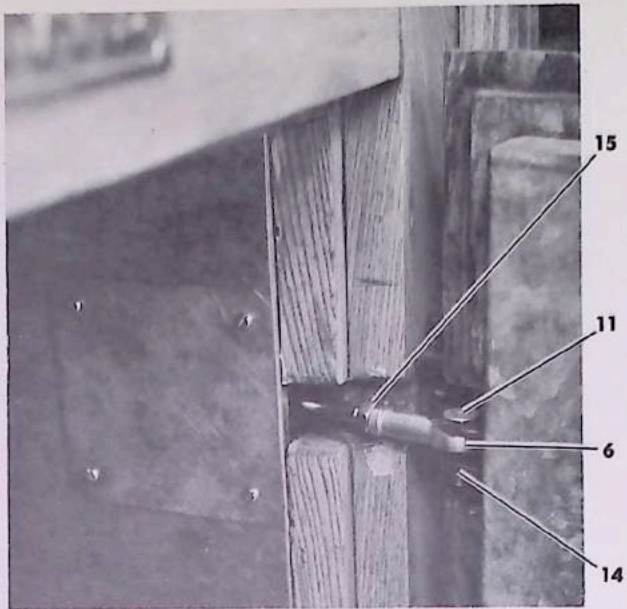
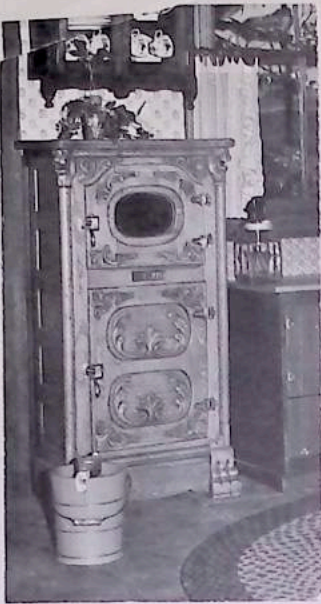


FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
38	EYE BLINK	D
39	EYE RT-LT	D
50	NECK RAISE	A
51	NECK TURN	A
53	TAIL	D
54	LT EAR	A
	RT EAR	A

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	5340-210123	A1-18-C71-10	CLEVIS, ROTATING	1
2.	2110-401208	A1-11-S180	EYETURN ASSY	1
3.	3010-401586	A2-14-C183	UNIVERSAL HALF	1
4.	3130-401814	A3-77-C201	HOUSING, BEARING	1
5.	3010-201014	CY-1-15-1	ACTUATOR ASSY, 5/16" B X 3/8" S	2
6.	3010-201043	CY-1-42-2	ACTUATOR ASSY, 1/2" B X 3/4" S	4
7.	3010-201069	CY-1-154-4	ACTUATOR ASSY, 1" B X 2" S	2
8.				
9.				
10.		HF2	ROD END	HEIM 4
11.		KP3A	BEARING	FAFNIR 2
12.		KP4A	BEARING	FAFNIR 8
13.		DW4K2	BEARING	FAFNIR 1
14.		DW5	BEARING	FAFNIR 1
15.		5133-12H	RING, RETAINING, "E" TYPE	TRUARC A/R
16.		5555-12H	RING, RETAINING, "E" TYPE	TRUARC A/R
17.				
18.				
19.		5-40 X 5/8"	SCREW, SOC HD	1
20.		5-40 X 3/4"	SCREW, SOC HD	2
21.		10-32 X 7/8"	BOLT, HEX HD	4
22.		10-32 X 1"	BOLT, HEX HD	2
23.		10-32 X 1 3/8"	SCREW, SOC HD	1
24.		AN174C10A	BOLT, AIRCRAFT (1/4-28 X 1 1/32)	1
25.		1/4-28 X 1 7/8"	BOLT, HEX HD	3
26.		5/16-24 X 1 1/4"	BOLT, HEX HD	1
27.				
28.				
29.		4-40	NUT, HEX	2
30.		5-40	NUT, LOCK	1
31.		5-40	NUT, HEX	6
32.		6-32	NUT, HEX	5
33.		10-32	NUT, LOCK	2
34.		1/4-28	NUT, LOCK	3
35.		1/4-28	NUT, JAM	1
36.		5/16-24	NUT, LOCK	1
37.				
38.				







FUNC.	ANIMATION	PWR
S-1	ICE BOX CHEST DOOR	D
S-2	ICE BOX FOOD COMPARTMENT DOOR	D

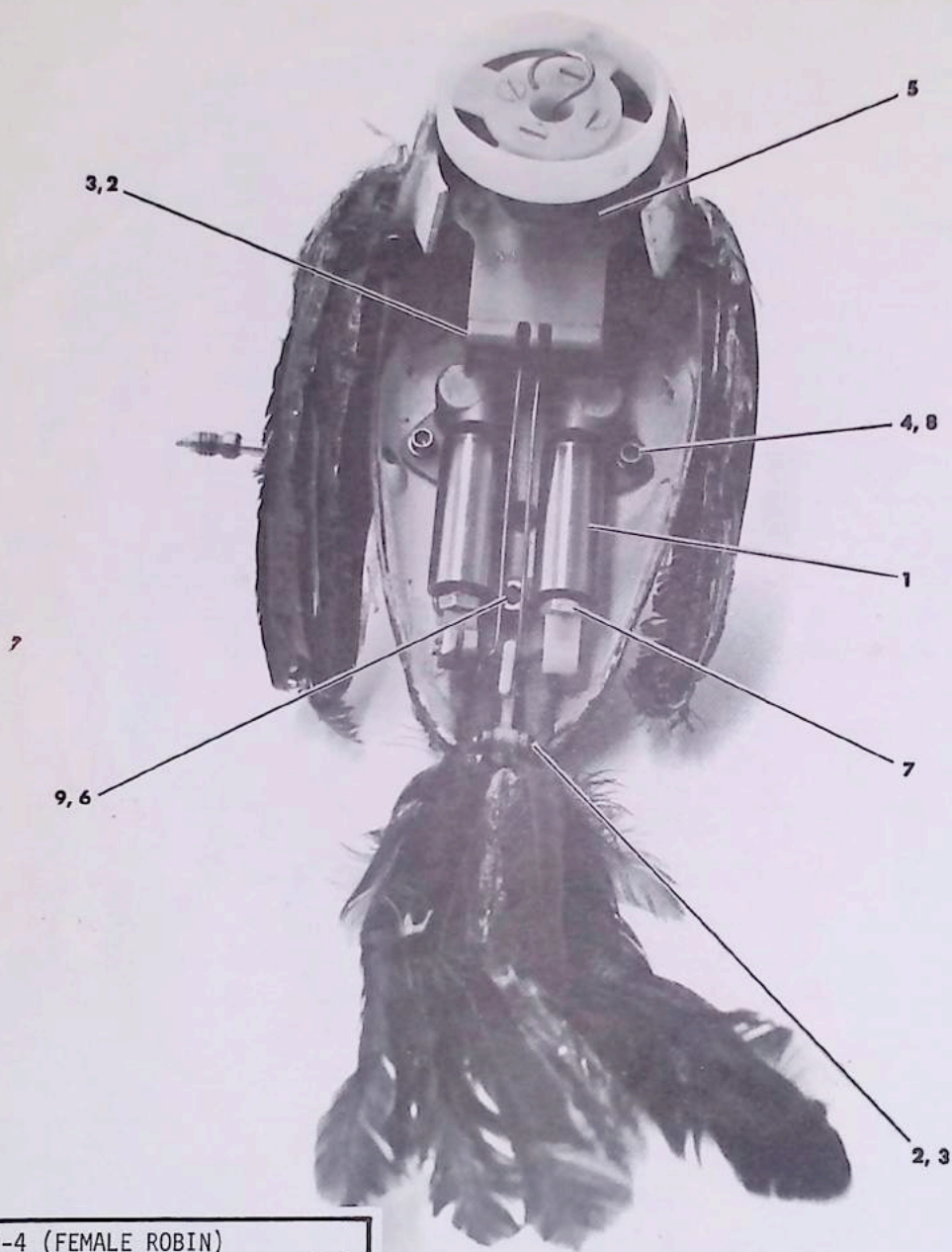
AP2  
ICE BOX

DWG.

AP2

ICE BOX

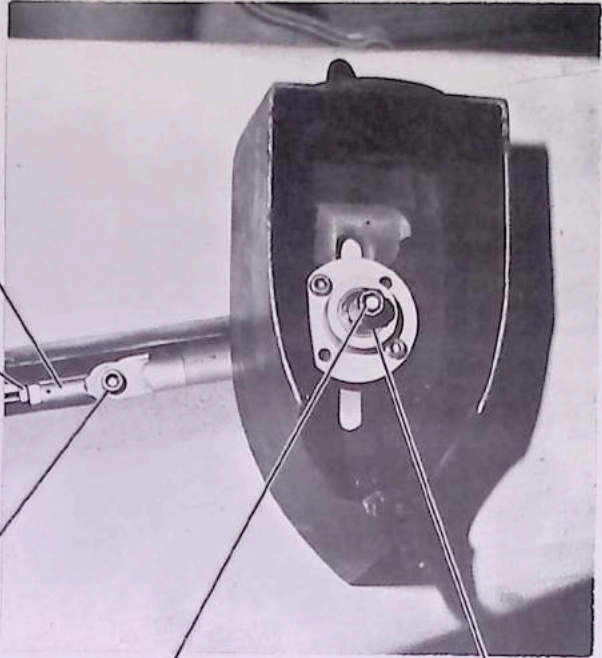
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3010-200249	CY-4-250-5	ACTUATOR, ASSY (1 B X 2 1/2 S)	4
2.				
3.				
4.		40MSC1	BEARING FAFNIR	1
5.		FL3C3	BEARING FAFNIR	2
6.		REP3F4	ROD END FAFNIR	2
7.		REP3M4-6	ROD END FAFNIR	4
8.				
9.				
10.		10-32 X 1	SCREW, SOC HD	2
11.		10-32 X 1	BOLT, HEX HD	6
12.		1/4-28 X 5/8	SCREW, SOC HD	8
13.		1/4-28 X 5/8	BOLT, HEX HD	6
14.		10-32	NUT, LOCK	4
15.		1/4-28	NUT, JAM	10
16.		1/4	WASHER, LOCK, INTERNAL TOOTH	6
17.		1/4	WASHER, SPLIT LOCK	11



AP-4 (FEMALE ROBIN)		
FUNC.	ANIMATION	PWR
1	BEAK & TAIL	D
3	HD ROTATE RT-LT	D
AP-4 (MALE ROBIN)		
1	BEAK & WING FLIP	D
3	HD ROTATE RT-LT	

AP4  
BIRD, ROBIN

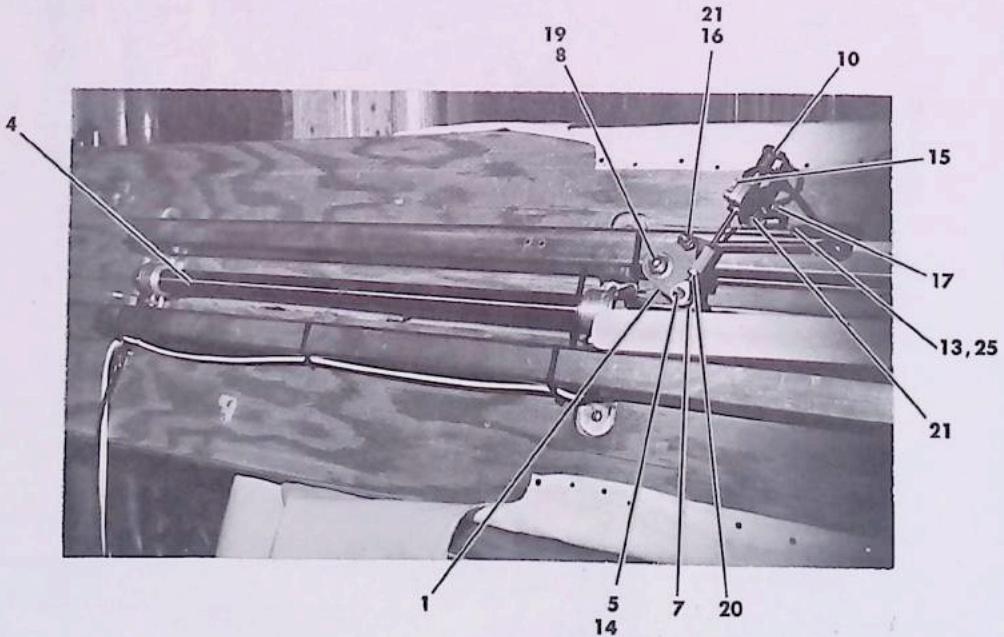




22, 21, 18

23

8



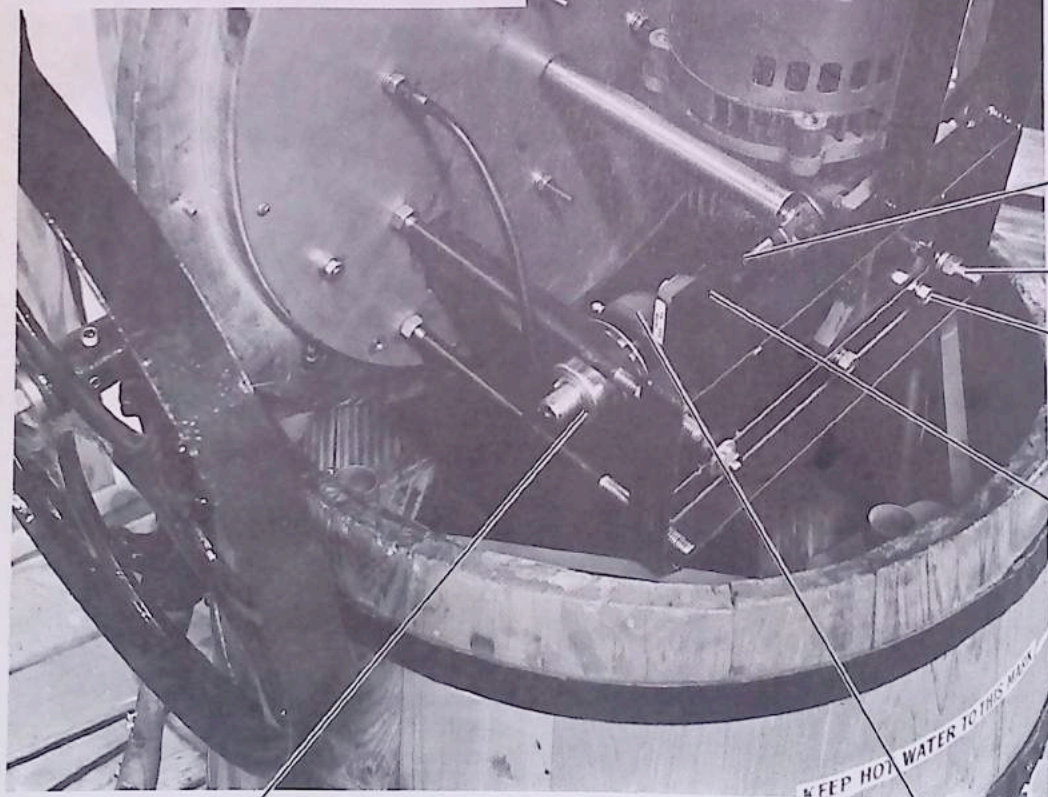
AP5  
IRONING BOARD W/IRON

DWG.

AP5

## IRONING BOARD W/IRON

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-210154	A6-12-C103	CRANK, ROD END-HEAD TURN	1
2.				
3.				
4.		04-14-DP	CYLINDER (3/4 B X 12 S)	BIMBA 1
5.		HM2	ROD END	HEIM 1
6.		RA3F4-2	ROD END	FAFNIR 1
7.		KP3A	BEARING	FAFNIR 1
8.		DW4K2	BEARING	FAFNIR 2
9.		DW5	BEARING	FAFNIR 1
10.			TRANSDUCER	1
11.				
12.				
13.		5-40 X 3/8	SCREW, SOC HD	4
14.		5-40 X 3/4	SCREW, SOC HD	1
15.		6-32 X 3/8	SCREW, SOC HD	2
16.		10-32 X 1/2	SCREW, PAN HD	2
17.		10-32 X 1/2	SCREW, SOC HD	2
18.		10-32 X 7/8	SCREW, SOC HD	1
19.		1/4-28 X 3/4	SCREW, SOC HD	1
20.		6-32	NUT, HEX	1
21.		10-32	NUT, LOCK	4
22.		10-32	NUT, HEX	1
23.		1/4-28	NUT, LOCK	1
24.		1/4-28	NUT, JAM	1
25.		#5	WASHER, SPLIT LOCK	4



3

4

2

9, 12

8

7

8

10

11

AP6  
HAND WASHING MACHINE



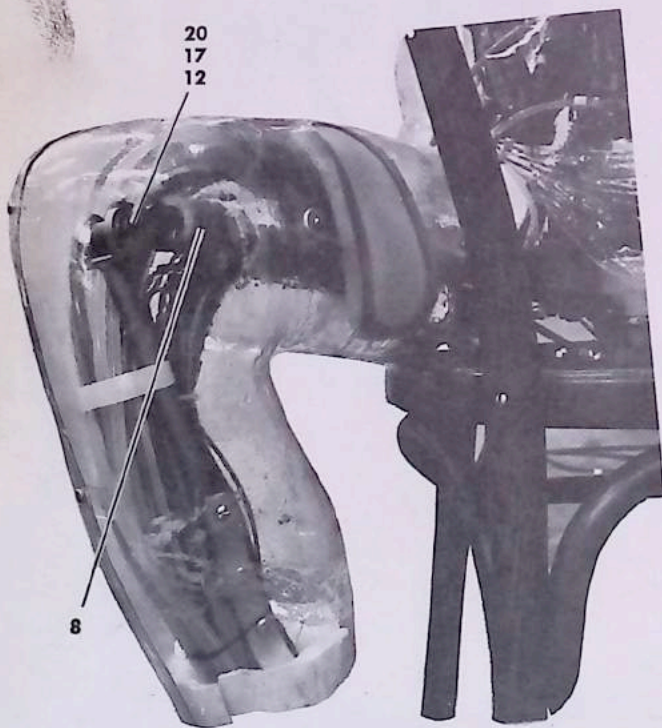
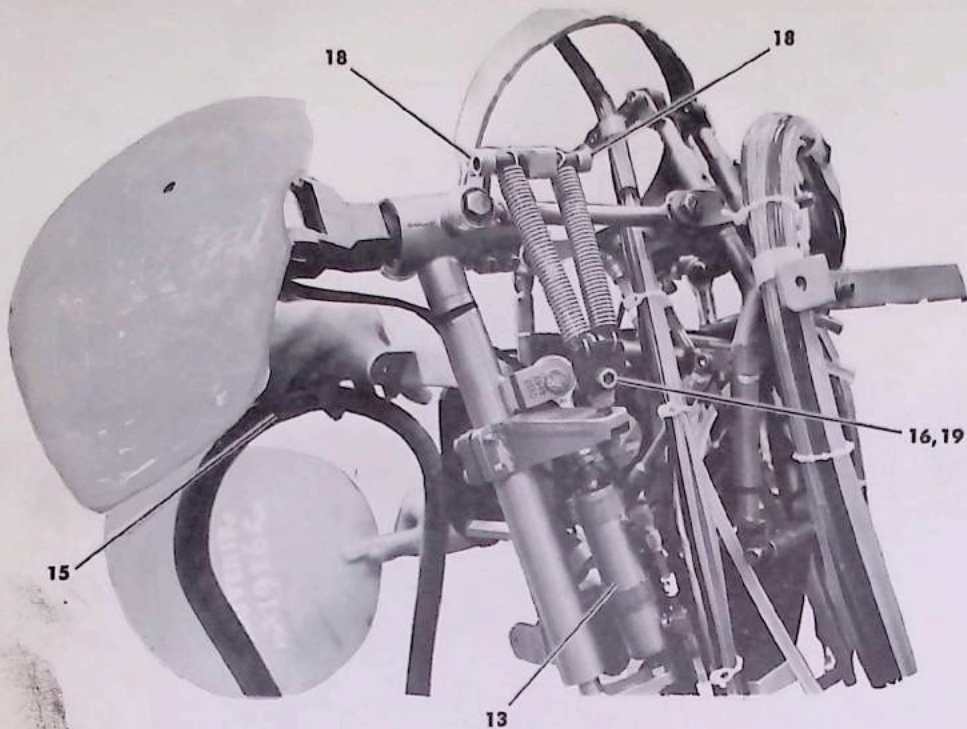


**ACT 2**



FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
5	RT ARM FWD	A
6	RT ARM OUT	A
7	RT ARM SWING	A
8	RT ELBOW	A
13	RT WRIST IN-OUT	A
14	RT WRIST FWD-BK	A
15	RT WRIST TWIST	A
19	TORSO FOREBEND	A
20	TORSO SIDEBEND	A
21	TORSO TWIST	A
22	PELVIS	A
38	EYE BLINK	D
39	EYE RT-LT	A
41	MOUTH PINCH RT-LTD	
43	SMILE RT-LT	D
49	"F" SOUND	D
50	FOOT TAP	D
S-2	4 FINGERS LT HND	D
S-3	RT KNEE SPREAD	A

F7  
FATHER SEATED  
SHEET 1 OF 2

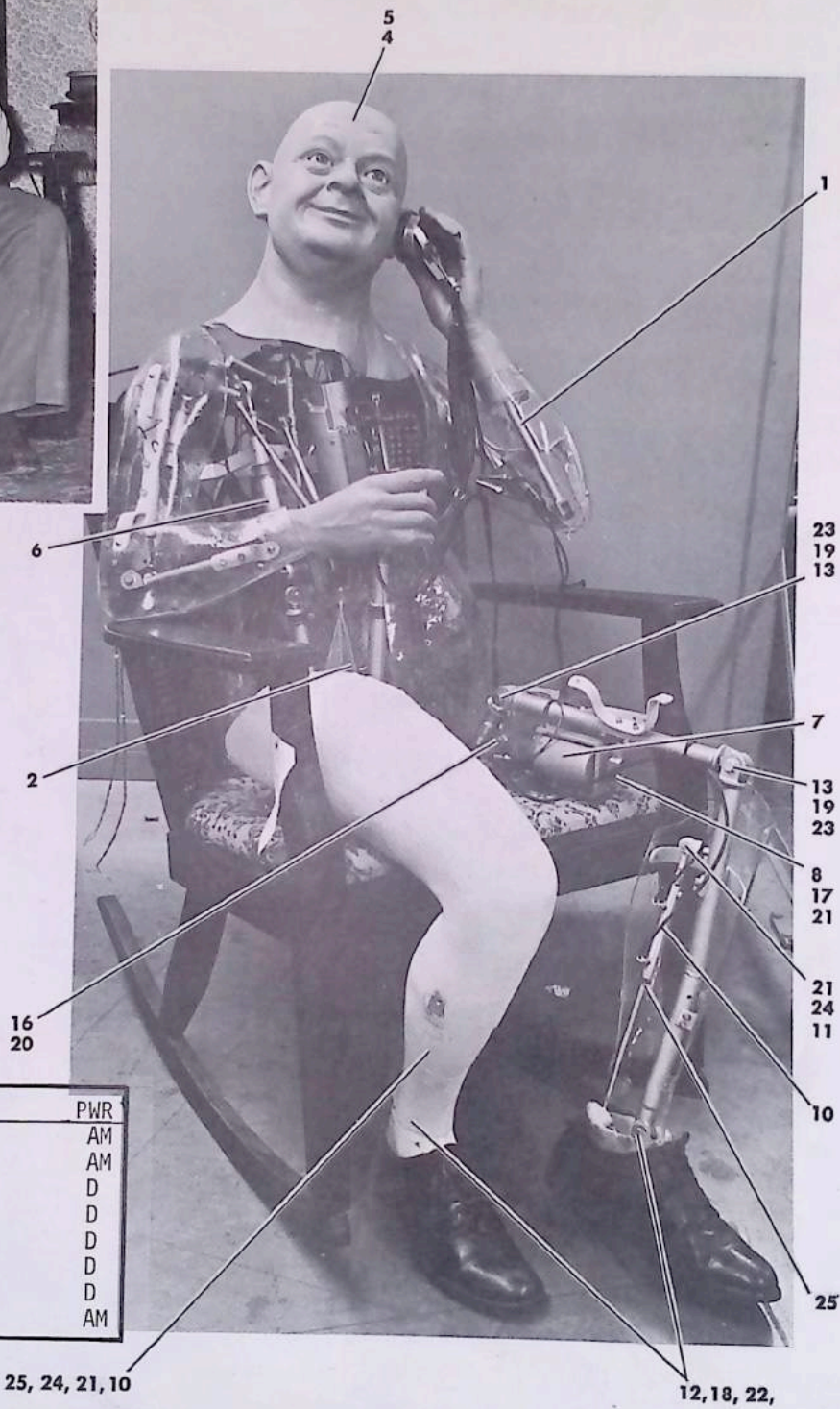


DWG.

F7

## FATHER SEATED

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2110-401017	A1-12-A15	HEAD ACTUATION ASSY	1
2.	2130-401019	A1-13-A16-1	ARM ASSEMBLY OPERATIVE	1
3.	2130-401020	A1-13-A16-2	ARM ASSEMBLY NON OPERATIVE	1
4.	2120-401021	A1-14-A17	TORSO ASSEMBLY	1
5.	2125-401022	A1-15-A18-1	PELVIS ASSEMBLY W/ROTATION	1
6.				
7.	2140-401189	A1-13-A161	ANIMATED HAND ASSY	1
8.	3010-401551	A2-13-S149	ACTUATOR, DUMMY	1
9.	2110-401208	A1-11-S180	EYETURN MECH	1
10.	2110-401291	A1-11-A256	HEAD ASSEMBLY	1
11.	3010-201042	CY-1-42-1	ACTUATOR ASSEMBLY	1
12.		DW5	BEARING	2
			FAFNIR	
13.	3010-201128	CY-1-125-4	ACTUATOR ASSEMBLY	1
14.				
15.		8-32 X 5/8	SCREW, SOC HD	4
16.		10-32 X 1/2	SCREW, SOC HD	1
17.		5/16-24 X 1 1/4	BOLT, HEX HD	2
18.		1/4-28 X 3/4	SCREW, SOC HD	2
19.		1/4-28	NUT, LOCK	1
20.		5/16-24	NUT, LOCK	2



FUNC.	ANIMATION	PWR
2	HD NOD	AM
3	HD TURN	AM
4	HD TILT	D
38	EYE BLINK	D
39	EYE RT-LT	D
S-1	FOOT TAP RT	D
S-2	FOOT TAP LT	D
S-3	CHAIR ROCK	AM

25, 24, 21, 10

12, 18, 22,

F12  
GRANDFATHER SEATED

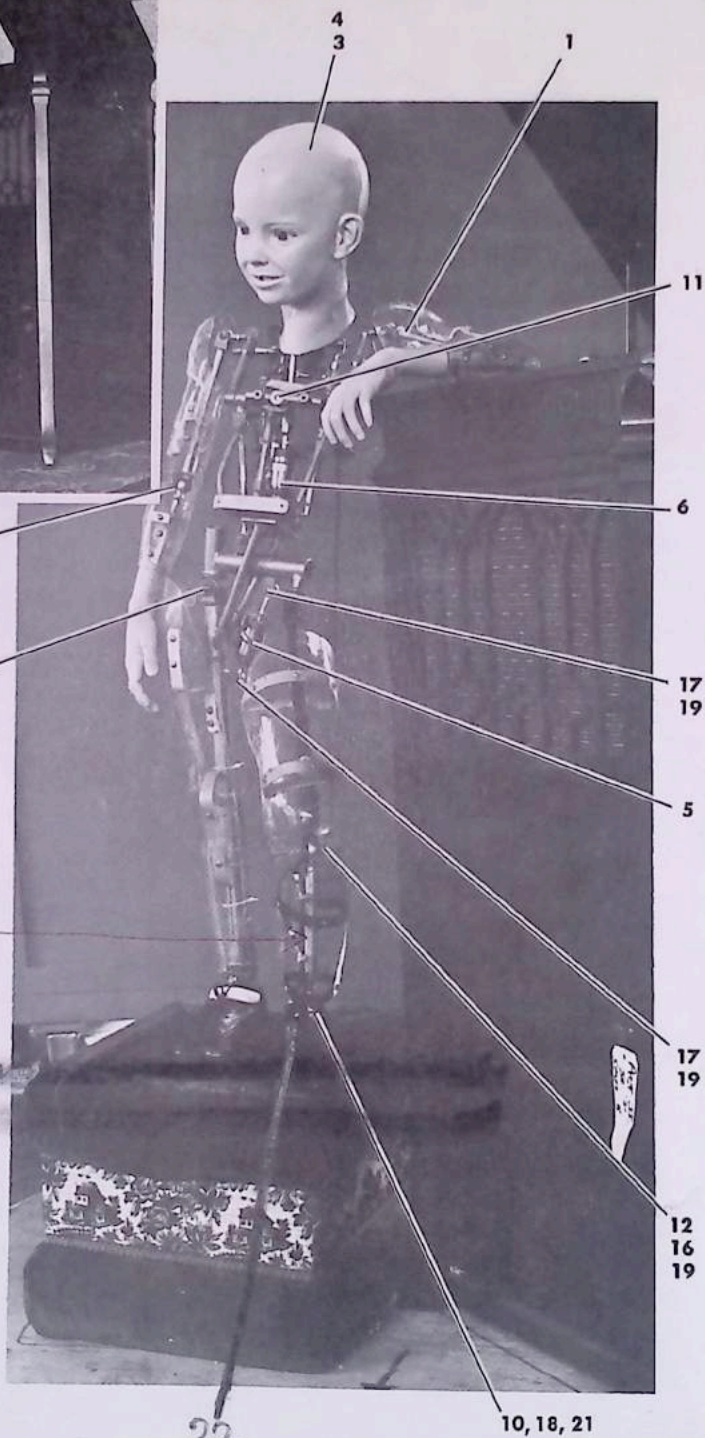
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2130-401020	A1-13-A16-2	ARM ASSEMBLY NON OPERATIVE	2
2.	2125-401023	A1-15-A18-2	PELVIS ASSEMBLY W/OUT ROTATION	1
3.				
4.	2110-401208	A1-11-S180	EYETURN ASSY	1
5.	2110-401291	A1-11-A256	HEAD ASSY	1
6.	2120-210533	A6-14-A101	TORSO ASSEMBLY	1
7.	3010-200514	CY-4-509	ACTUATOR ASSEMBLY	1
8.	3130-200279	CY-7-279-1	BRACKET, BEARING	1
9.				
10.		9CD	CYLINDER 1"STROKE	1
11.		REP3F4	ROD END	1
12.		DW4K2	BEARING	2
13.		DW5	BEARING	2
14.				
15.				
16.		8-32 X 3/8	SCREW, SOC HD	1
17.		10-32 X 1/2	BOLT, HEX HD	1
18.		1/4-28 X 1 1/2	BOLT, HEX HD	2
19.		5/16-24 X 1 1/2	BOLT, HEX HD	2
20.		8-32	NUT, LOCK	1
21.		10-32	NUT, LOCK	1
22.		1/4-28	NUT, LOCK	2
23.		5/16-24	NUT, LOCK	2
24.		AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32)	2
25.		1/4-28	NUT, JAM	2



20, 19, 16, 13

21, 18, 11

04-4-250-1  
 Installed by  
 Swat 1-22-91 — 23



FUNC.	ANIMATION	PWR
2	HD NOD	AM
3	HD TURN	AM
38	EYE BLINK	D
S-1	FOOT TAP	D
S-2	BODY BOUNCE	AM

F13  
 BOY STANDING

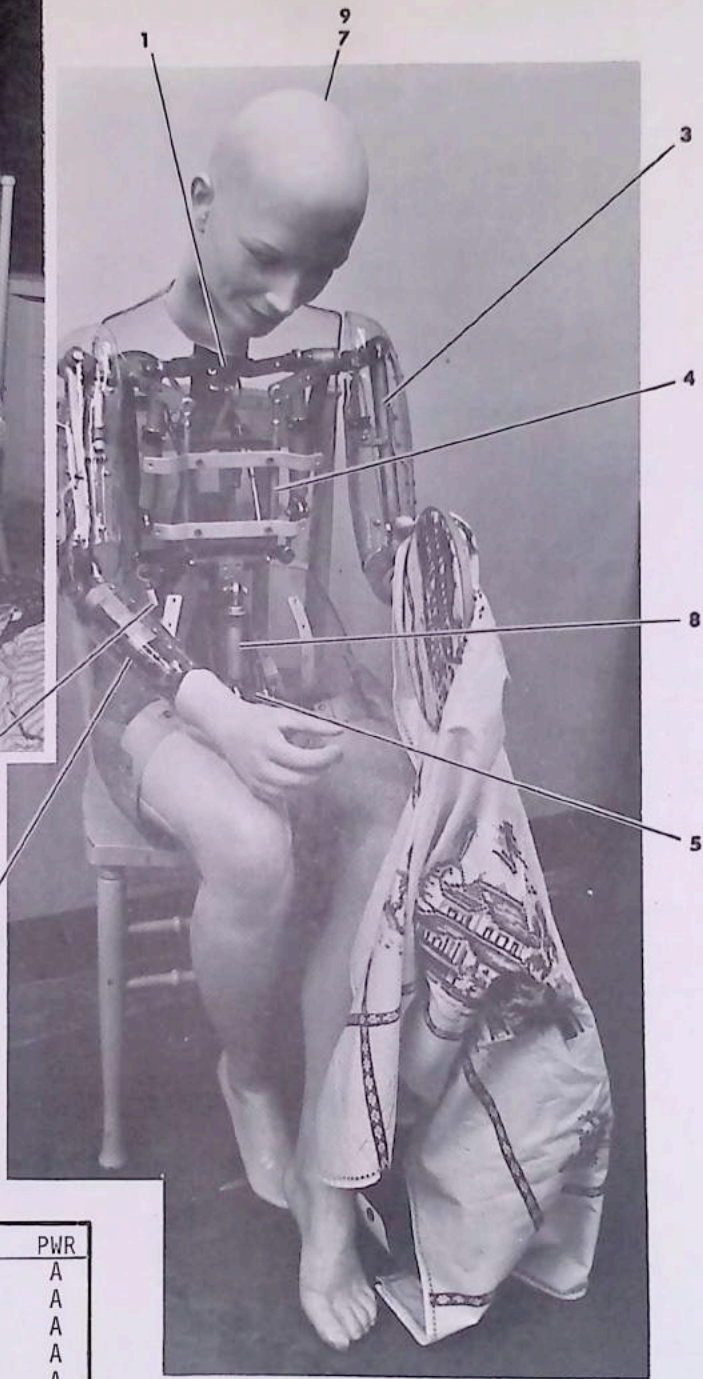


DWG.

F13

BOY STANDING

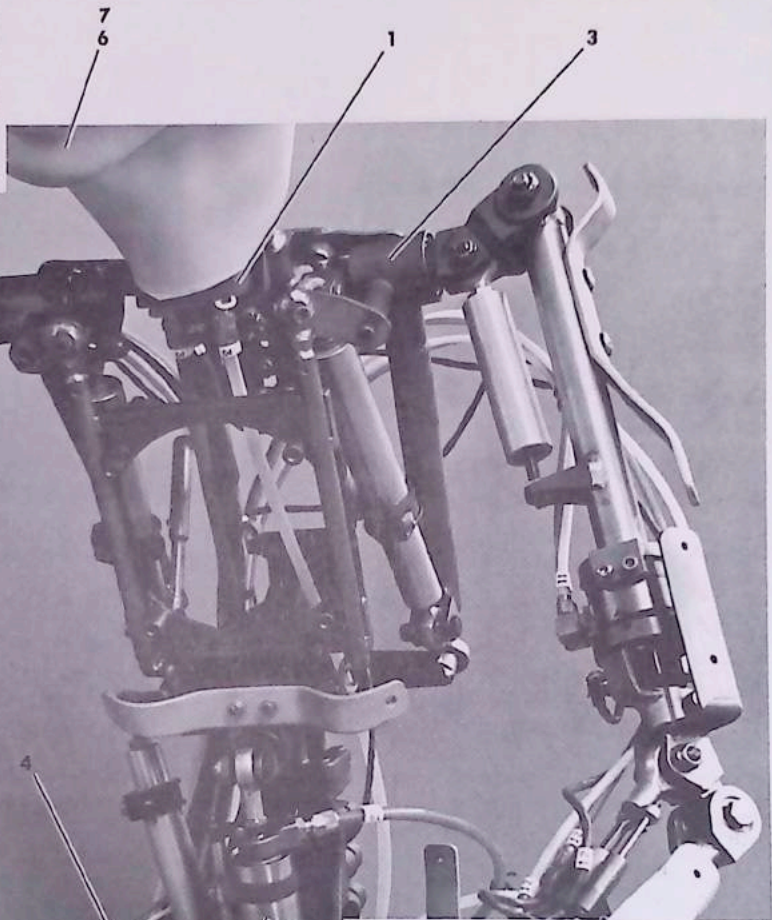
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2130-401020	A1-13-A16-2	ARM ASSEMBLY NON OPERATIVE	1
2.				
3.	2110-401208	A1-11-S180	EYETURN ASSY	1
4.	2110-401291	A1-11-A256	HEAD ASSEMBLY	1
5.	3010-200247	CY-4-250-3	ACTUATOR, 1 B X 1 1/2 S	1
6.	3010-200245	CY-4-250-1	ACTUATOR, 1 B X 3/4 S (MOD)	1
7.				
8.				
9.				
10.		DW4K2	BEARING	FAFNIR 1
11.		DW5	BEARING	FAFNIR 1
12.		RA3M4-2	ROD END	FAFNIR 1
13.		HM2	ROD END	HEIM 1
14.				
15.				
16.		10-32 X 1	BOLT, HEX HD	2
17.		AN173C10A	BOLT, AIRCRAFT	2
18.		5/16-24 X 1 3/4	BOLT, HEX HD	2
19.		10-32	NUT, LOCK	4
20.		10-32	NUT, HEX	1
21.		5/16-24	NUT, LOCK	2
22.		KPSA	BEARING-ANGLE	MCS-FAFNIR 2
23		CY-4-250-1	Actuator 1/2" stop	



FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
8	RT ELBOW	A
15	RT WRIST TWIST	A
38	EYE BLINK	D

F24  
MOTHER SEATED SEWING





FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
7	RT ARM SWING	A
8	RT ELBOW	A
12	LT ELBOW	A
14	RT WRIST FWD-BK	A
19	TORSO FOREBEND	A
21	TORSO TWIST	A
22	PELVIS	A
38	EYE BLINK	D
39	EYE RT-LT	D

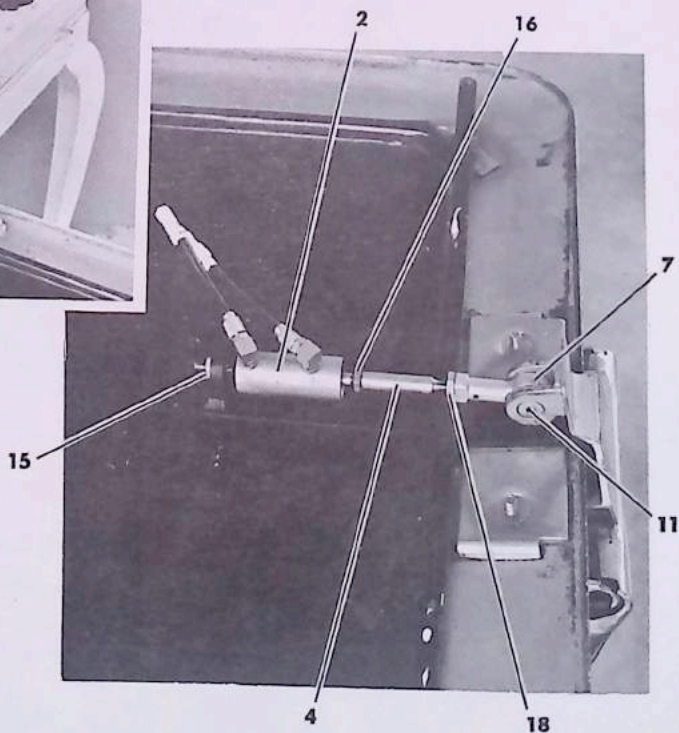
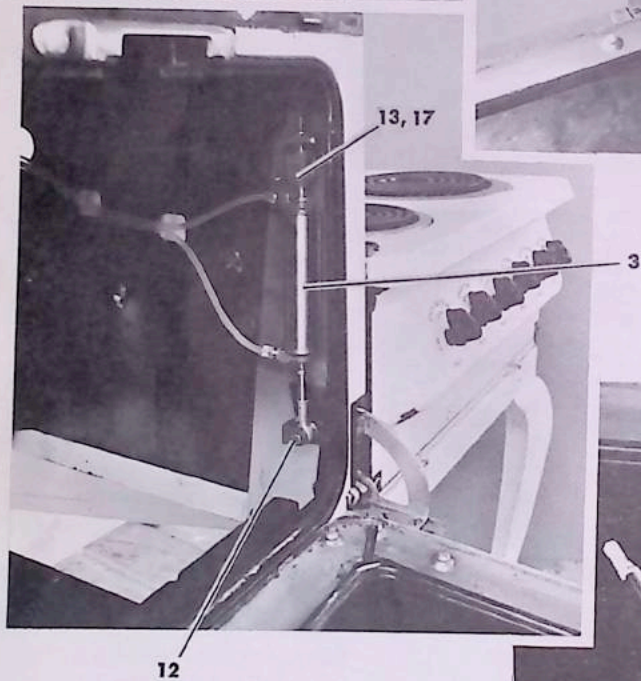
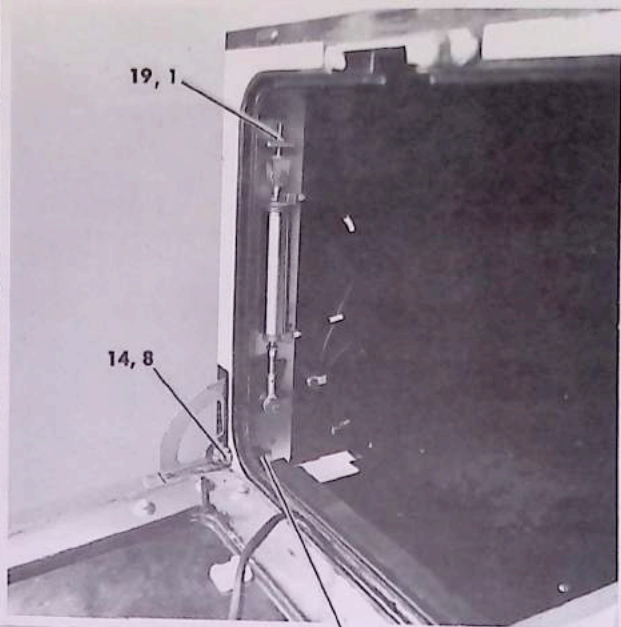
F25  
GIRL SEATED W/MIRROR





FOR MECHANICAL BREAKDOWN SEE PAGE 88

GA5  
DOG

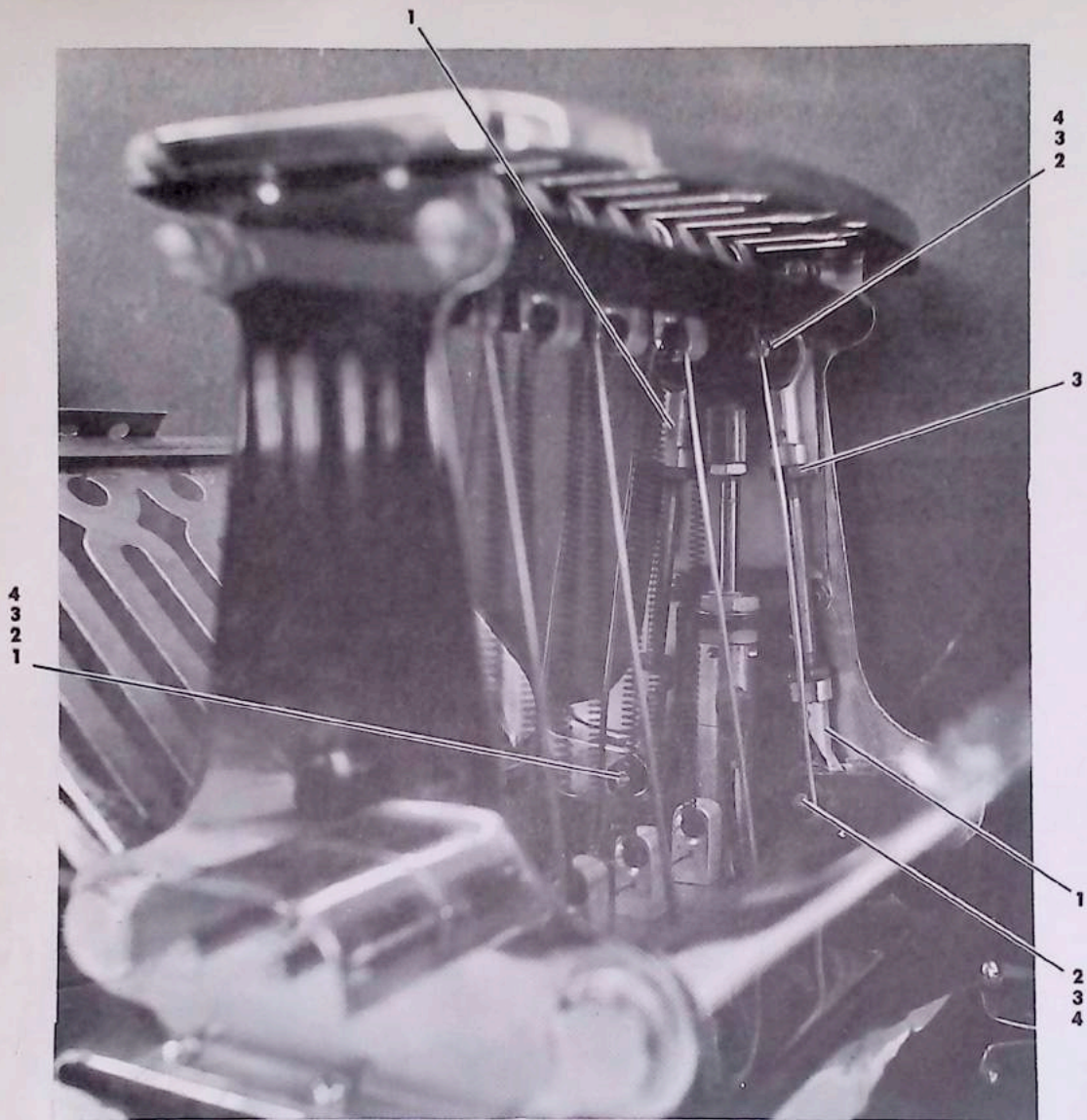


FUNC.	ANIMATION	PWR
	OVEN DR LATCH	D
	OVEN DR	D

AP9  
STOVE



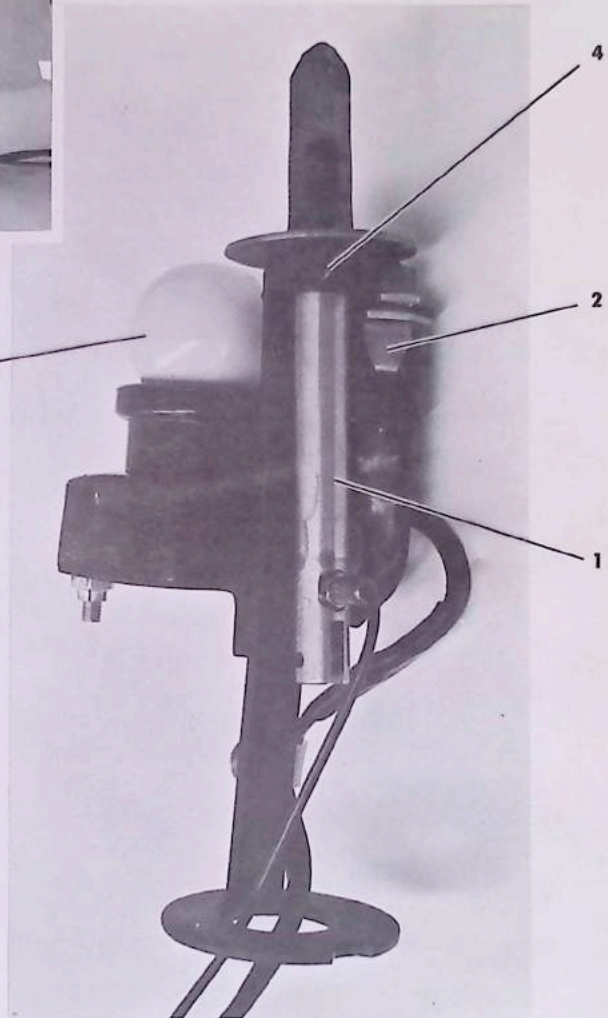




ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		HF3	ROD END	HEIM 4
2.		10-32 X 3/4	SCREW, FLT HD	4
3.		10-32	NUT, HEX	8
4.		#10	WASHER, FLAT	4
5.				

FUNC.	ANIMATION	PWR
	TOASTER	D

AP10  
TOASTER

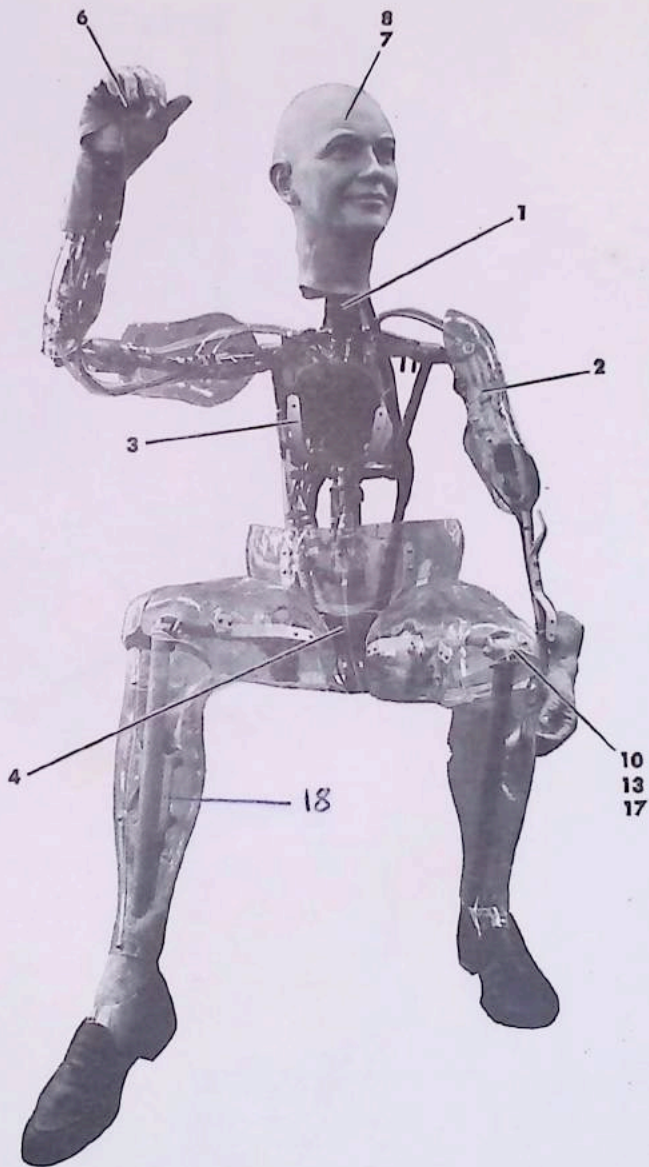


FUNC.	ANIMATION	PWR
	COFFEE POT	D

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		3CS	CYLINDER (1 STROKE) CLIPPARD	1
2.			SWITCH, MOMENTARY NORM. ON 1/4-3/4 AMP	1
3.			BULB, FROSTED, 7 1/2 WATTS	1
4.		4-40 X 3/8	SCREW, SOC HD	1

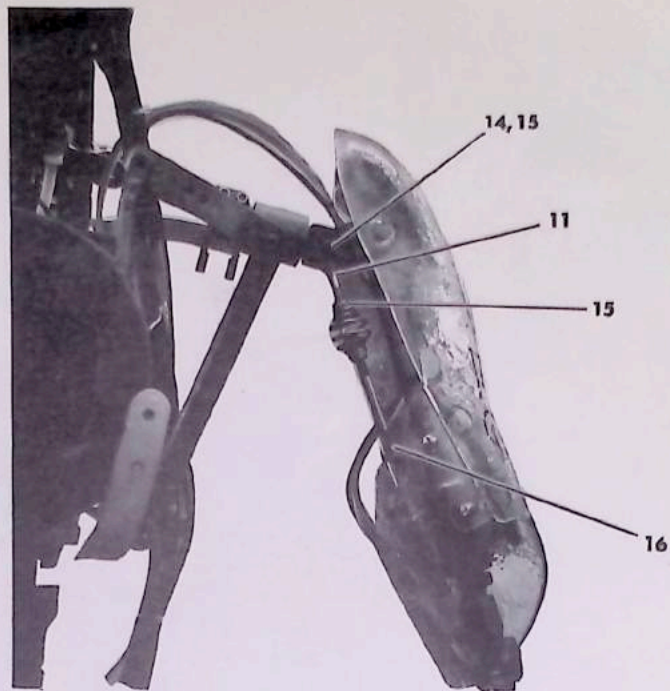
AP12  
COFFEE POT

**ACT 3**



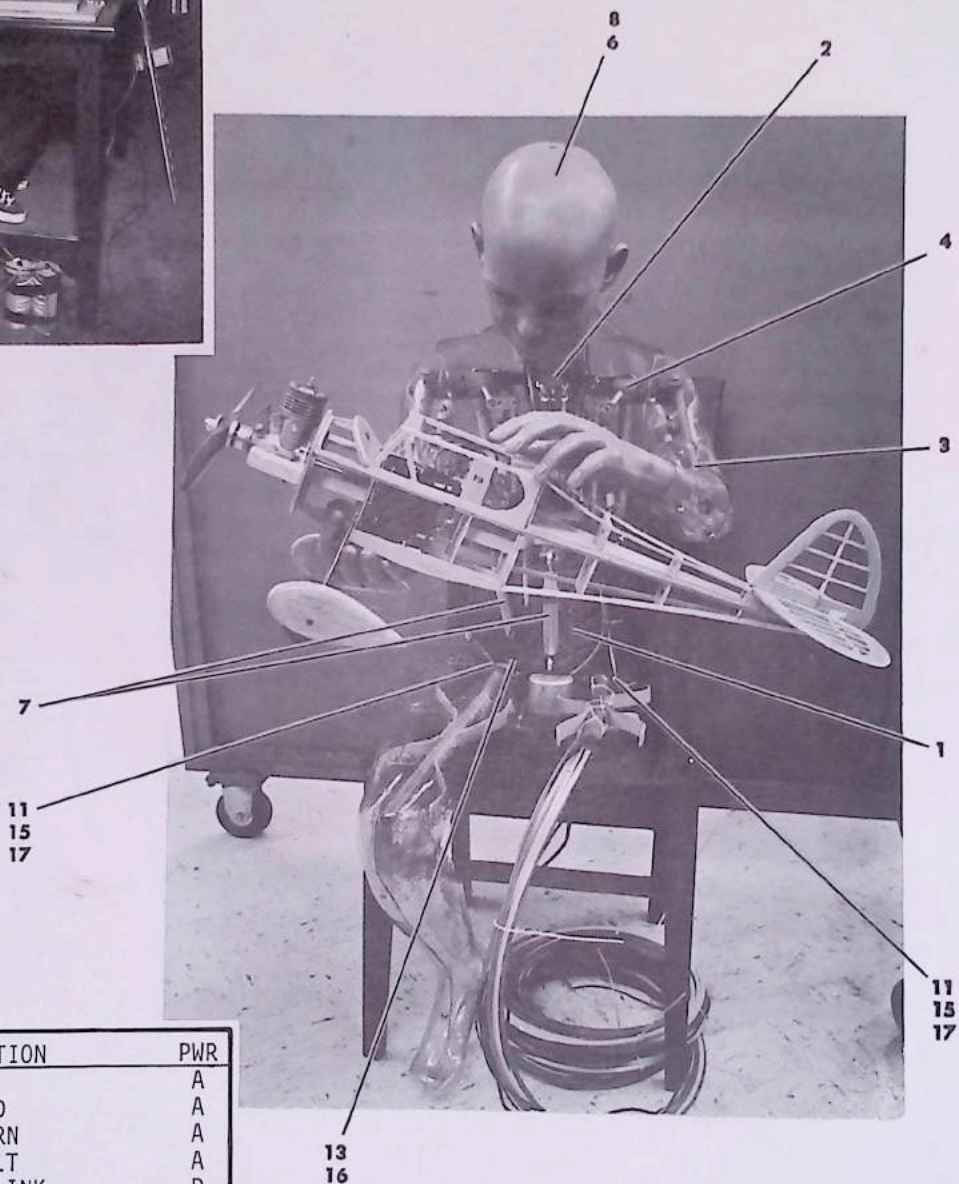
FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
5	RT ARM FWD	A
6	RT ARM OUT	A
7	RT ARM SWING	A
8	RT ELBOW	A
13	RT WRIST IN-OUT	A
14	RT WRIST FWD-BK	A
15	RT WRIST TWIST	A
16	LT WRIST IN-OUT	A
19	TORSO FOREBEND	A
20	TORSO SIDEBEND	A
21	TORSO TWIST	A
38	EYE BLINK	D
39	EYE RT-LT	A
41	MOUTH PINCH RT-LT	D
43	SMILE RT-LT	D
49	"F" SOUND	D
50	FOOT TAP	D
S-1	FINGERS	D

F14  
FATHER SEATED  
SHEET 1 OF 2



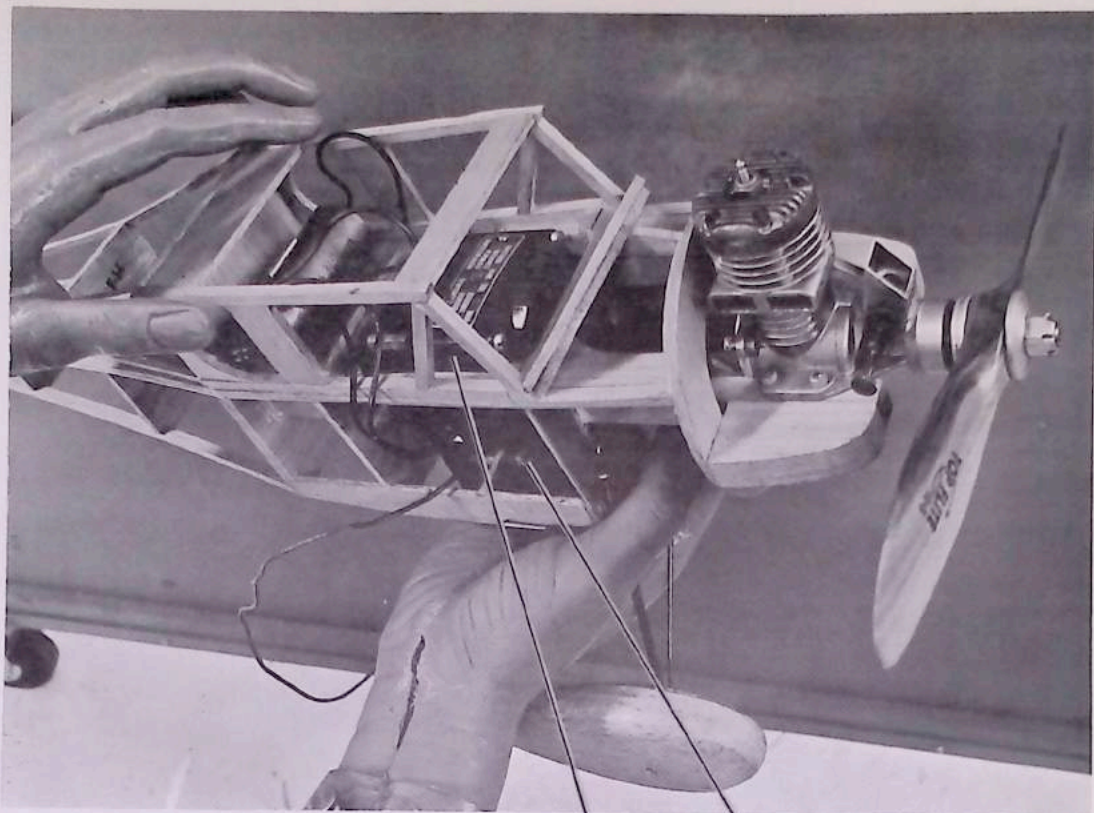
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2110-401017	A1-12-A15	HEAD ACTUATION ASSY	1
2.	2130-401019	A1-13-A16-1	ARM ASSEMBLY, OPERATIVE	2
3.	2120-401021	A1-14-A17	TORSO ASSEMBLY	1
4.	2125-401022	A1-15-A18-1	PELVIS ASSEMBLY, W/ROTATION	1
5.				
6.	2140-401189	A1-13-A161	ANIMATED HAND ASSY	1
7.	2110-401208	A1-11-S180	EYETURN ASSY	1
8.	2110-401291	A1-11-A256	HEAD ASSEMBLY	1
9.				
10.		DW4	BEARING	FAFNIR 2
11.		REP3M4	ROD END	FAFNIR 1
12.				
13.		5/16-24 X 1 1/4	BOLT, HEX	2
14.		AN173C10A	BOLT, AIRCRAFT	1
15.		10-32	NUT, LOCK	2
16.		10-32	NUT, HEX	1
17.		5/16-24	NUT, LOCK	2
18.		7D-1	CYLINDER	CLIPPARD 1

→ FOOT TAP SAME AS ACT. I.



FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
38	EYE BLINK	D
S-1	PLANE MOTOR	D

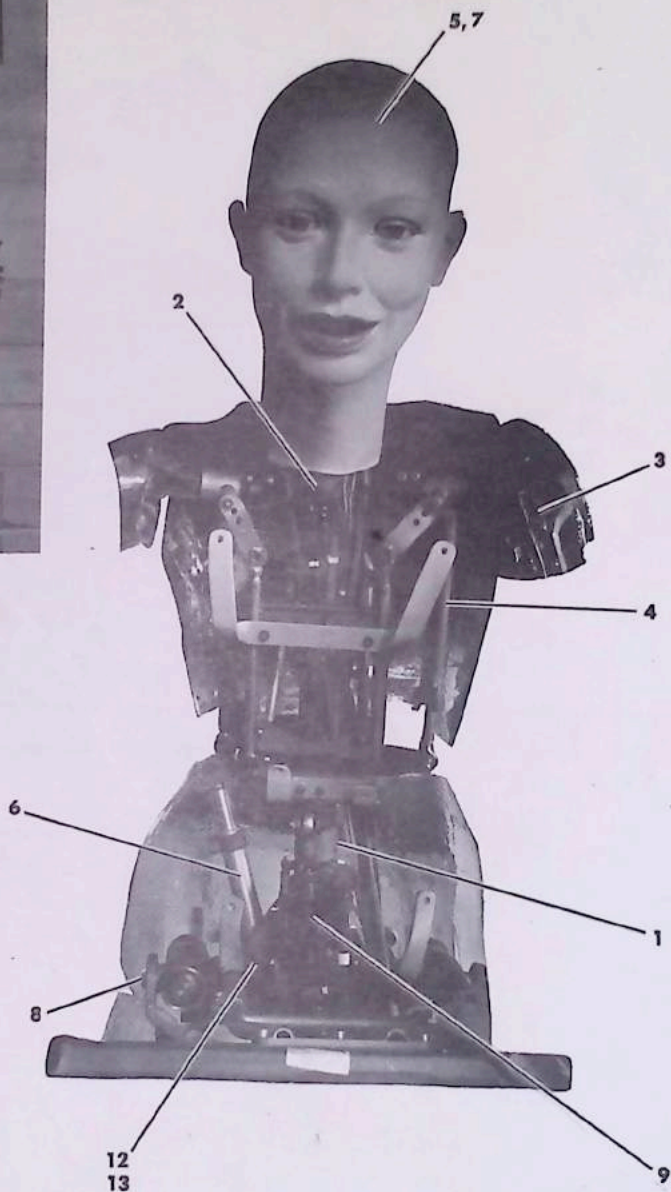
F26  
 BOY SEATED W/MODEL PLANE  
 SHEET 1 OF 2



10

14

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-401013	A1-15-C11	SERVO MOUNT	1
2.	2110-401017	A1-12-A15	HEAD ACTUATION ASSY	1
3.	2130-401020	A1-13-A16-2	ARM ASSEMBLY, NON-OPERATIVE	2
4.	2120-401021	A1-14-A17	TORSO ASSEMBLY	1
5.				
6.	2110-401208	A1-11-S180	EYETURN MECH.	1
7.	3010-401258	A1-18-S227	ACTUATOR, DUMMY	2
8.	2110-401291	A1-11-A256	HEAD ASSEMBLY	1
9.				
10.		KYC24A1	MOTOR, 1800 RPM (W/CAPACITOR)	BODINE 1
11.		DW5	BEARING	FAFNIR 2
12.				
13.		AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32)	4
14.		10-32 X 1 1/2	BOLT, HEX HD	4
15.		AN175C14A	BOLT, AIRCRAFT (5/16-24 X 1 19/32)	2
16.		10-32	NUT, LOCK	4
17.		5/16-24	NUT, LOCK	2



FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
9	LT ARM FWD (BRUSH ACTUATOR)	A
19	TORSO FOREBEND	A
21	TORSO TWIST	A
38	EYE BLINK	D
39	EYE RT-LT	A
S-1	LADDER SWAY	A
S-3	FOOD MIXER	A

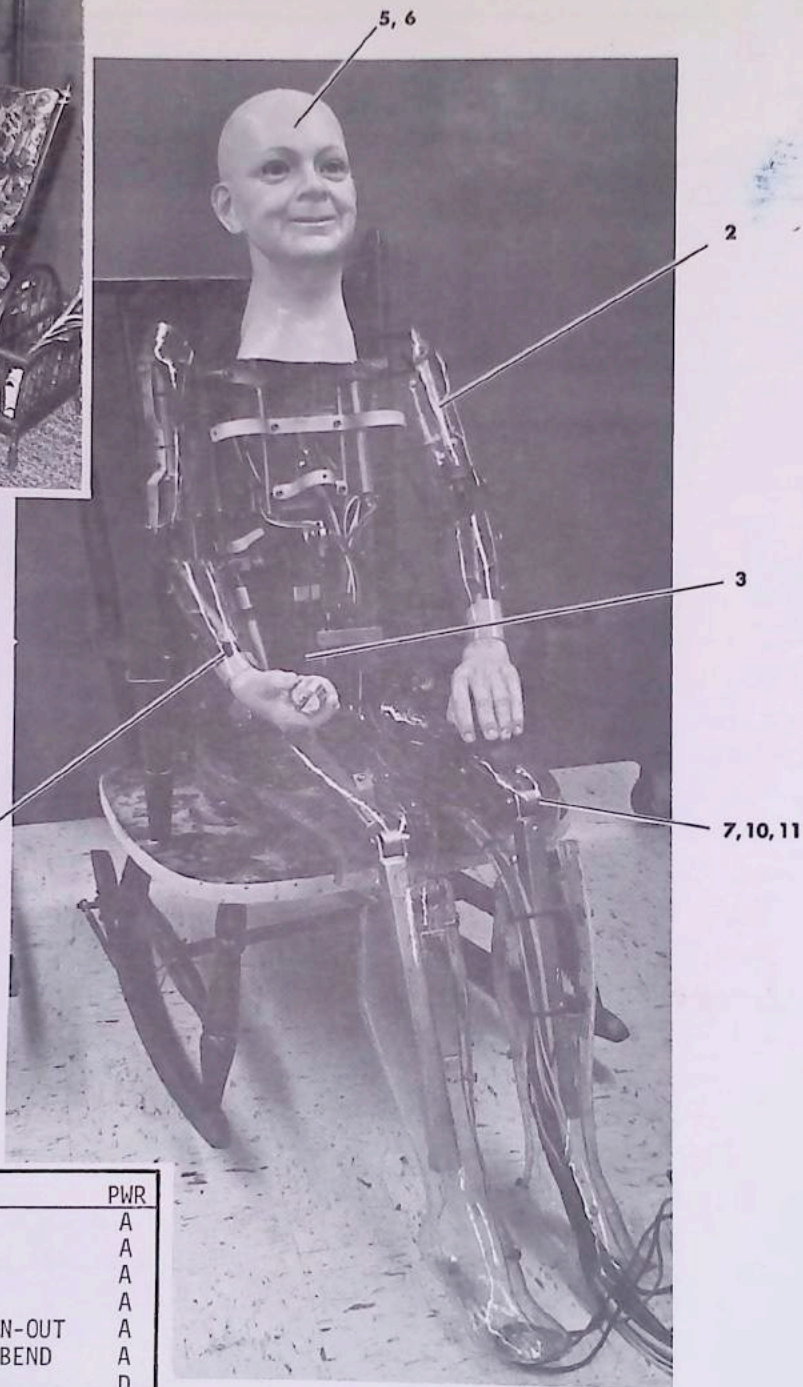
F15  
MOTHER ON LADDER



DWG. F15

MOTHER ON LADDER

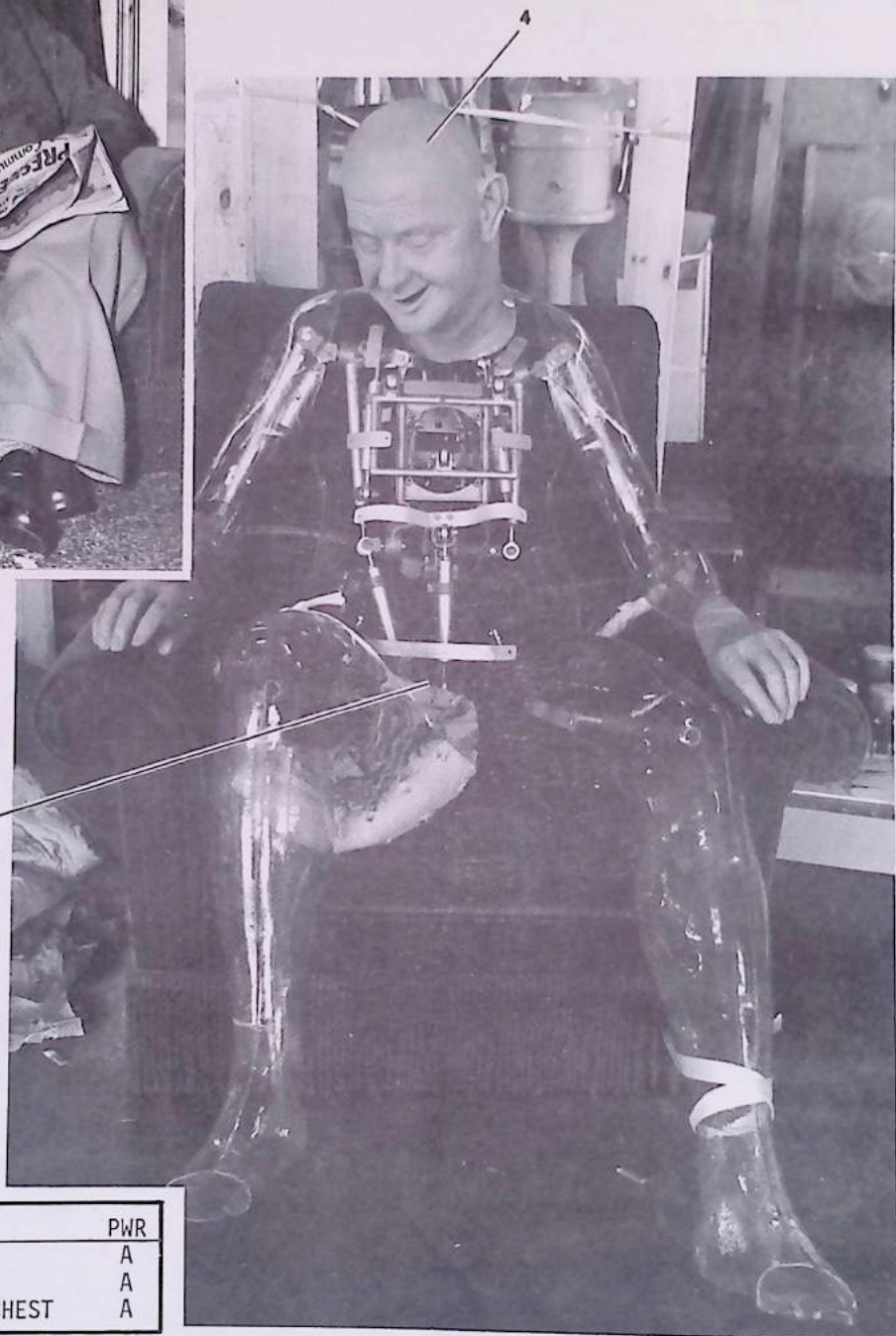
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-401013	A1-15-C11	SERVO MOUNT	1
2.	2110-401017	A1-12-A15	HEAD ACTUATION ASSY	1
3.	2130-401020	A1-13-A16-2	ARM ASSEMBLY, NON-OPERATIVE	2
4.	2120-401021	A1-14-A17	TORSO ASSEMBLY	1
5.	2110-401208	A1-11-S180	EYETURN MECH	1
6.	3010-401258	A1-18-S227	ACTUATOR, DUMMY	1
7.	2110-401291	A1-11-A256	HEAD ASSEMBLY	1
8.	2125-210541	A6-15-A110	PELVIS ASSEMBLY W/TORSO TWIST	1
9.	3010-201069	CY-1-154-4	ACTUATOR ASSEMBLY 1" B X 2" S	1
10.				
11.				
12.		AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32)	4
13.		10-32	NUT, LOCK	4
14.				



FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
13	RT WRIST IN-OUT	A
19	TORSO FOREBEND	A
38	EYE BLINK	D

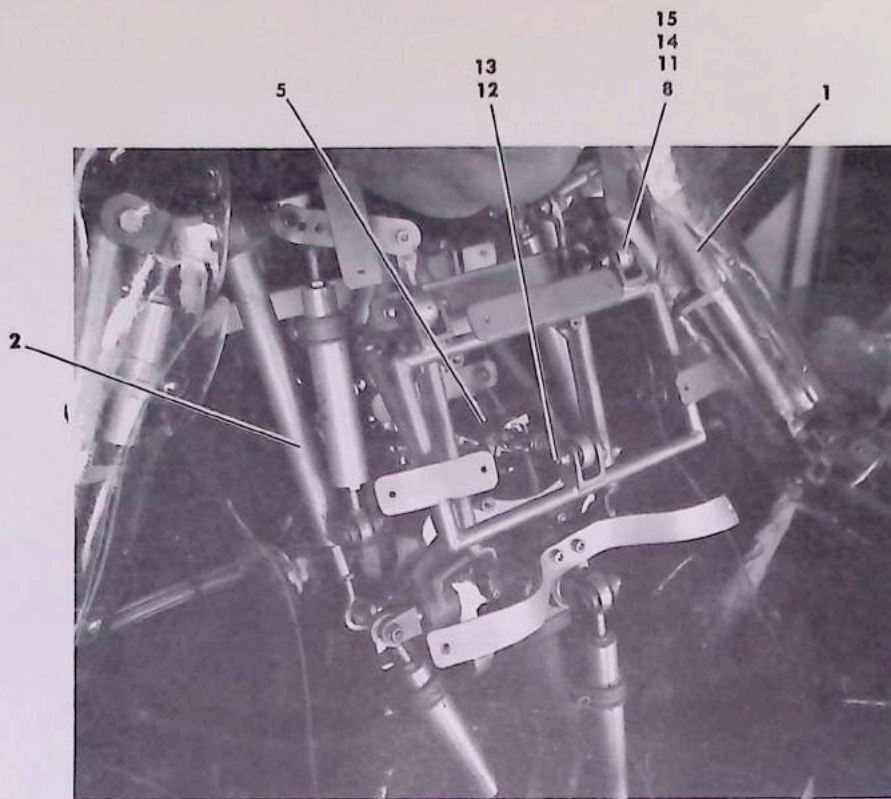
F19  
GRANDMOTHER SEATED



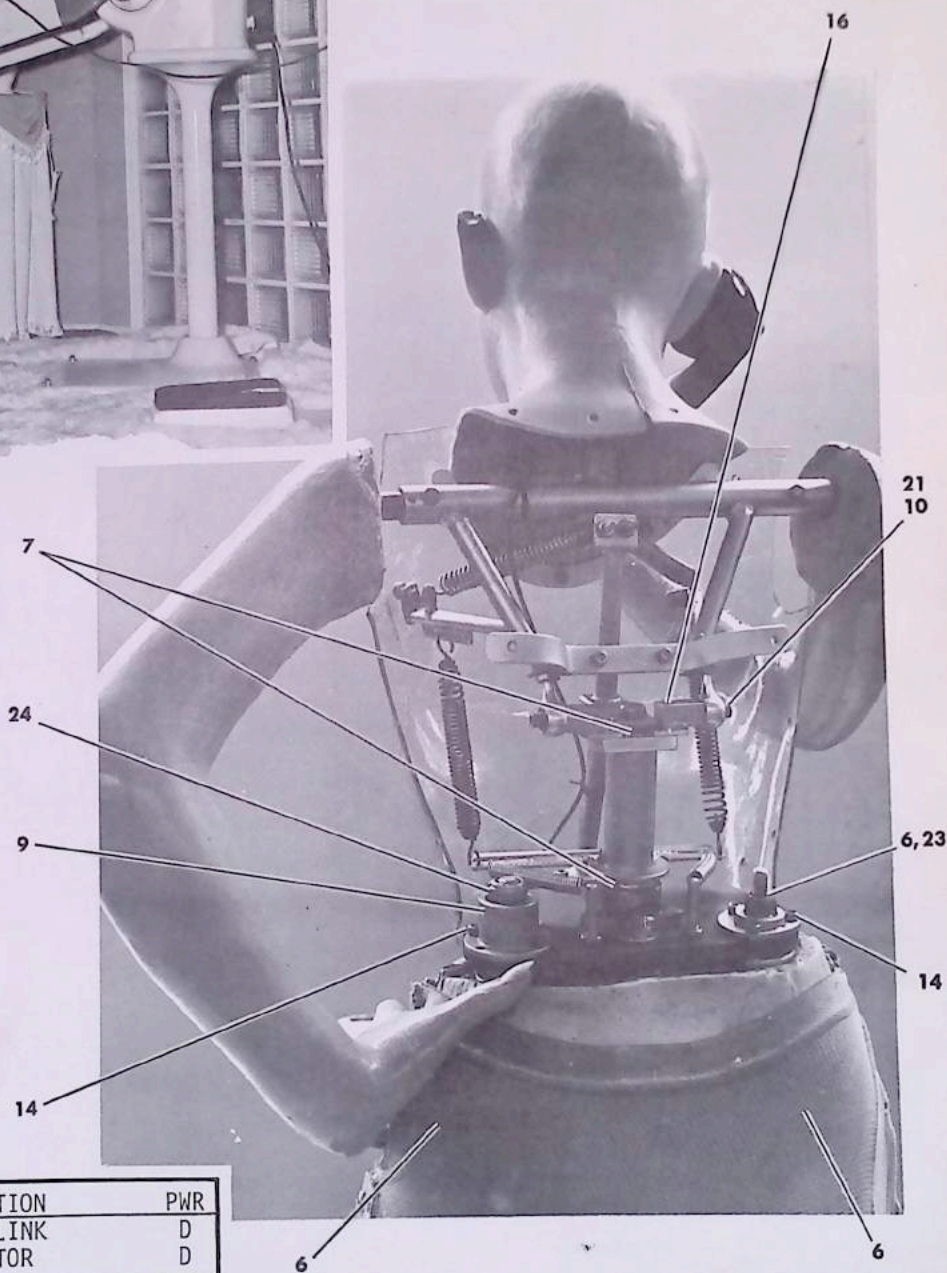
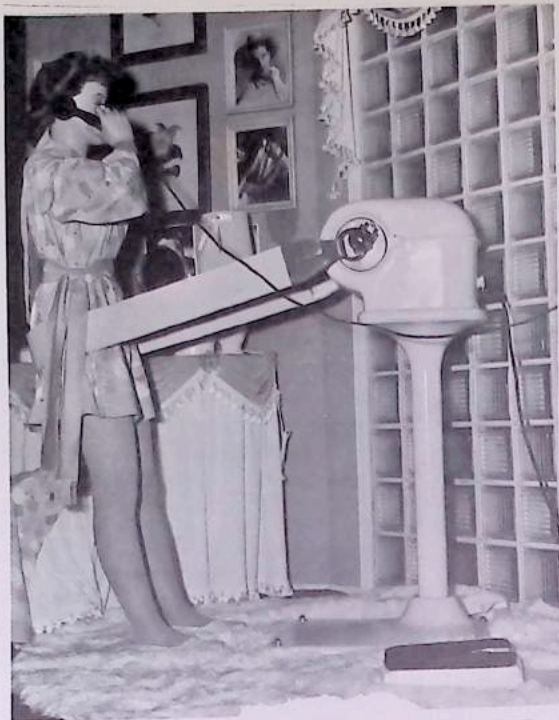


FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
S-1	BREATHING CHEST	A

F20  
GRANDFATHER SEATED  
SHEET 1 OF 2

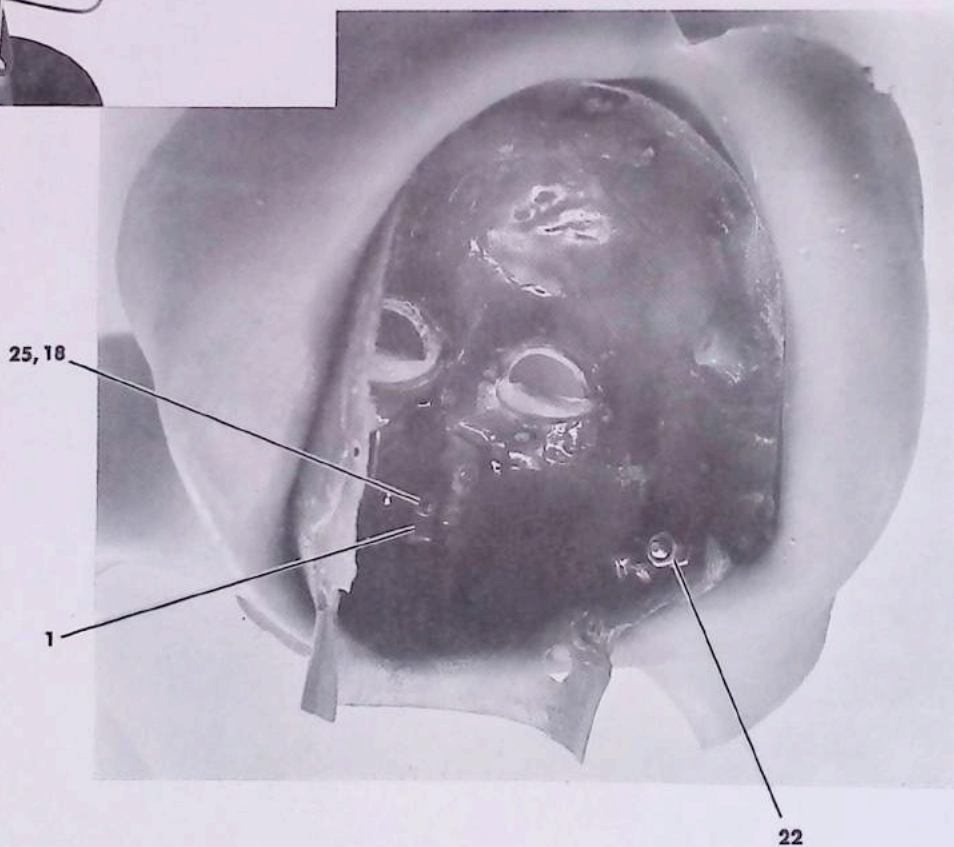
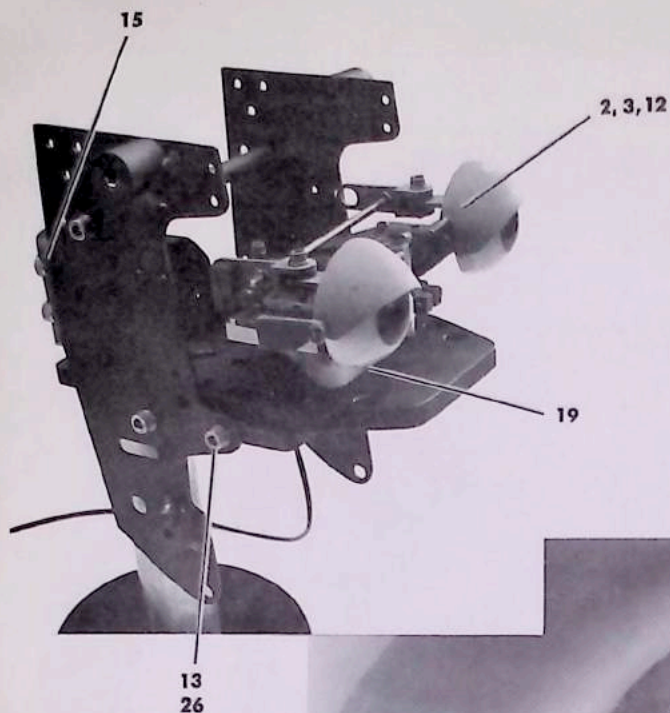


ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2130-401020	A1-13-A16-2	ARM ASSEMBLY, NON-OPERATIVE	2
2.	2120-401021	A1-14-A17	TORSO ASSEMBLY	1
3.	2125-401023	A1-15-A18-2	PELVIS ASSEMBLY, W/OUT ROTATION	1
4.	2110-401291	A1-11-A256	HEAD ASSEMBLY	1
5.	3010-201128	CY-1-125-4	ACTUATOR ASSEMBLY 5/8" B X 1 1/2" S	1
6.				
7.				
8.		RA3M4-2	ROD END	FAFNIR 2
9.				
10.				
11.		10-32 X 1	BOLT, HEX HD	2
12.		AN173C10A	BOLT, AIRCRAFT	1
13.		10-32	NUT, LOCK	3
14.		1/4-28	NUT, JAM	1



FUNC.	ANIMATION	PWR
38	EYE BLINK	D
	VIBRATOR	D

F18  
GIRL IN VIBRATOR  
SHEET 1 OF 2



DWG.

F18

## GIRL IN VIBRATOR

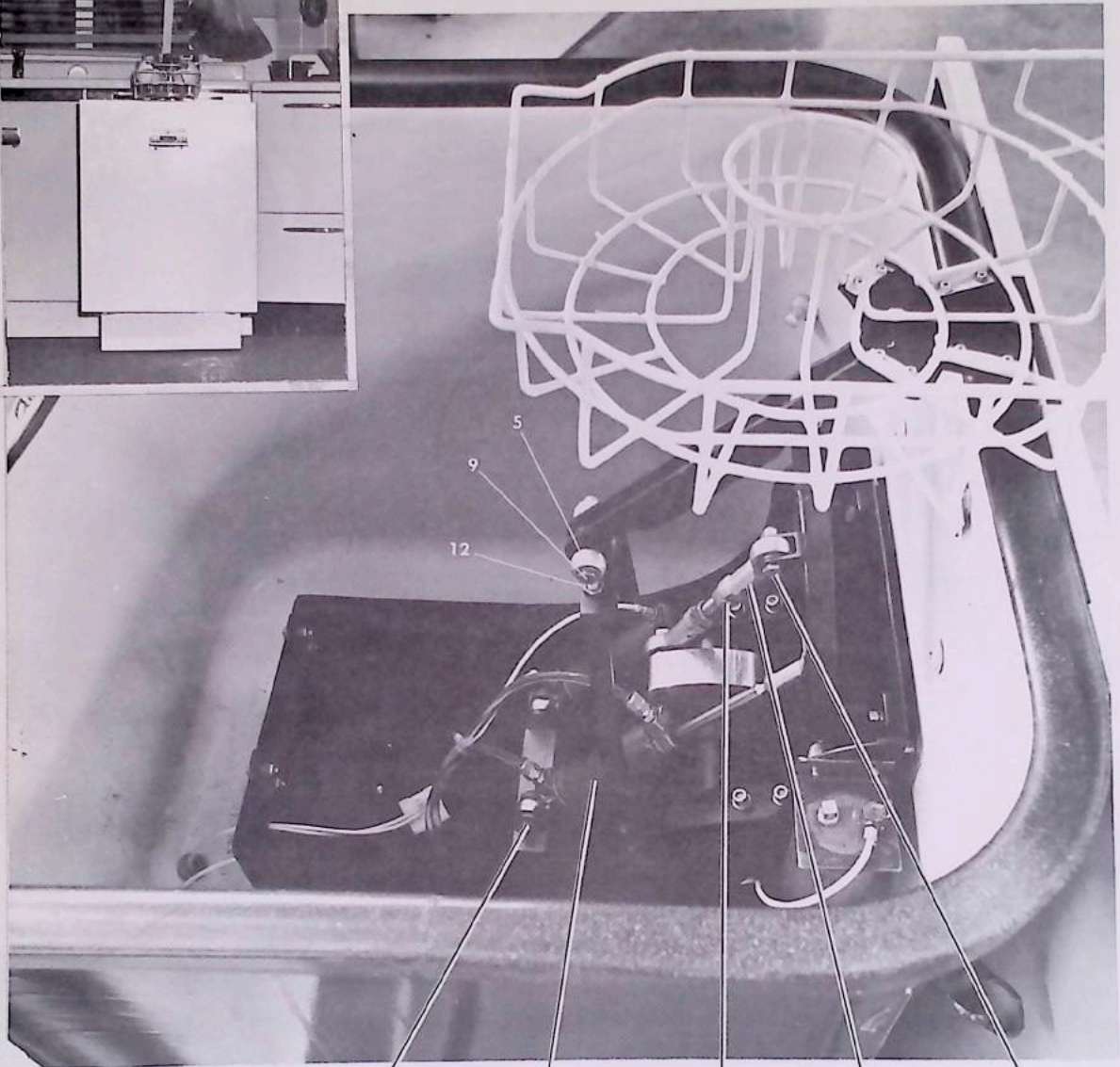
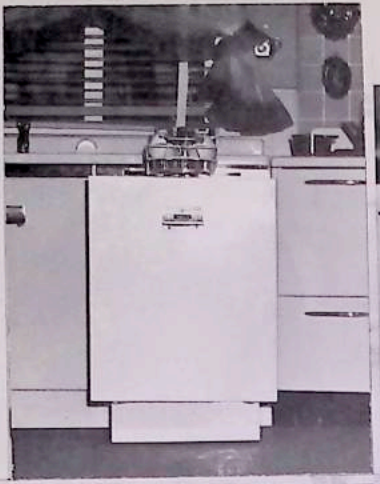
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2120-401133	A1-14-C114	ANGLE LUG	1
2.	2110-401208	A1-11-S180	EYE TURN ASSY, W/EYE TURN LOCK OFF	1
3.	5305-401238	A1-11-D209	BALL END, EYE MOUNTING	3
4.				
5.				
6.		BSSN7003G	BEARING	SPHERCO 4
7.		FS3KDD	BEARING	FAFNIR 1
8.		S5NPP	BEARING	FAFNIR 1
9.		KP8A	BEARING	FAFNIR 2
10.		RA3M4-2	ROD END	FAFNIR 2
11.				
12.		2-56 X 3/8	SCREW, SOC HD	2
13.		6-32 X 1/4	SCREW, SOC HD	6
14.		10-32 X 1/2	SCREW, SOC HD	6
15.		10-32 X 3/4	SCREW, SOC HD	3
16.		10-32 X 7/8	SCREW, SOC HD	2
17.				
18.		5-40	NUT, LOCK	2
19.		6-32	NUT, HEX	3
20.				
21.		1/4-28	NUT, JAM	2
22.		1/4-28	NUT, HEX	2
23.		7/16-14	NUT, LOCK	1
24.		1/2-20	NUT, LOCK	1
25.		#5	WASHER, FLAT	2
26.		#6	WASHER, SPLIT LOCK	6





FOR MECHANICAL BREAKDOWN SEE PAGE 88

GA7  
DOG



4  
9  
10

1

11

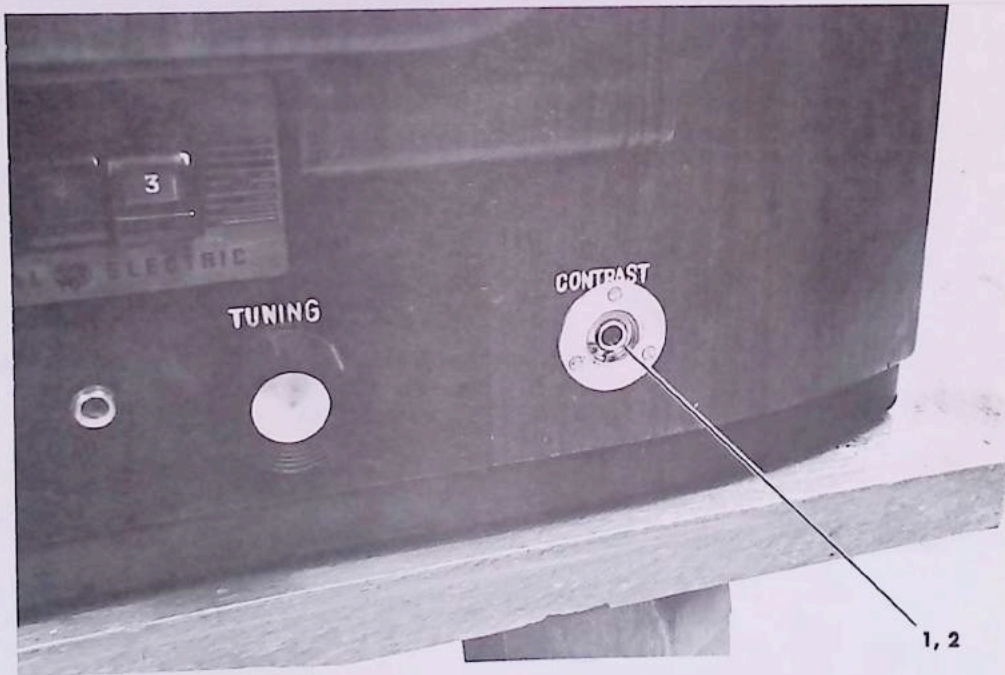
6

9

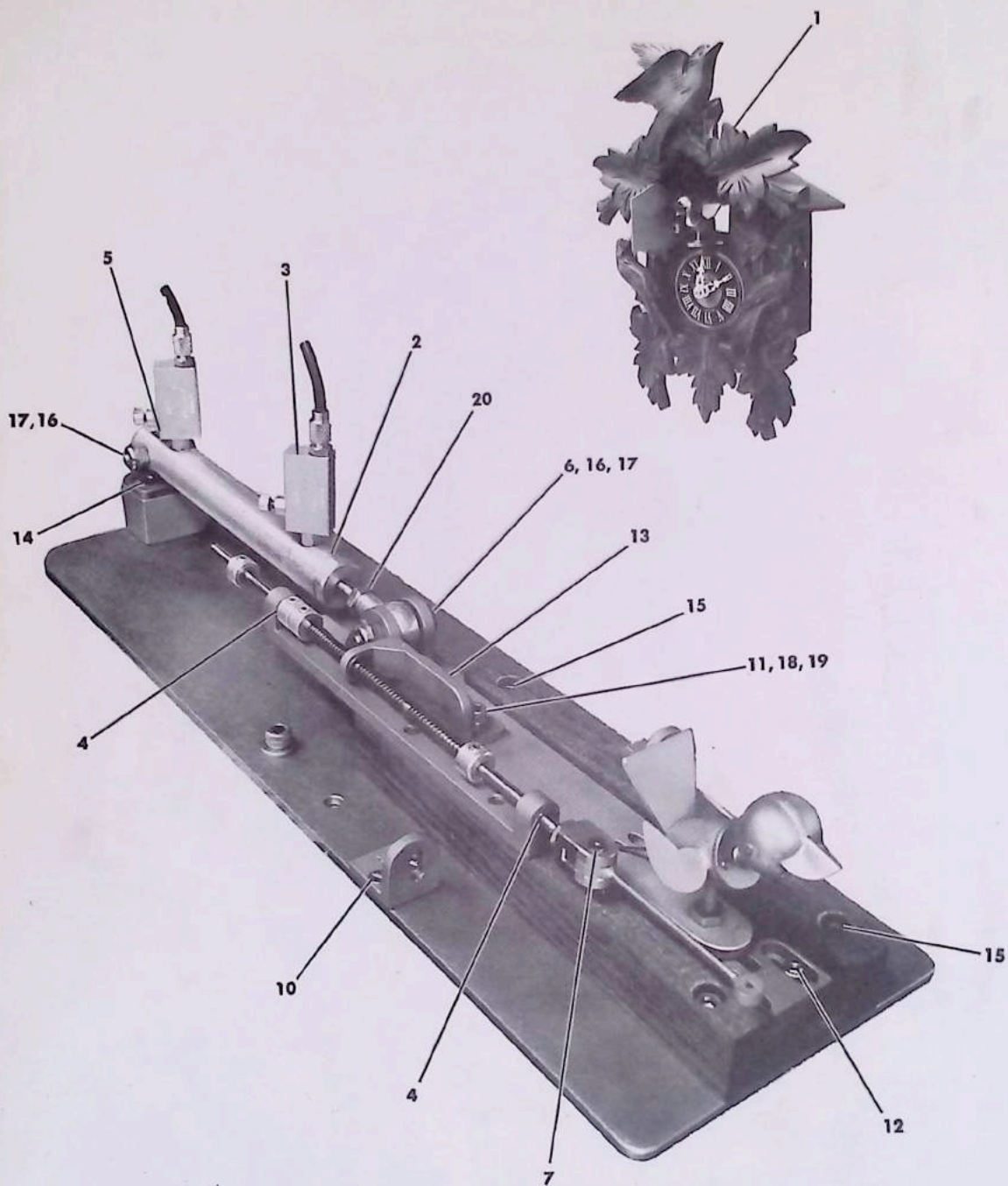
10

AP17  
DISHWASHER





ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		DW4K2	BEARING	FAFNIR 1
2.		N5000-62	RING, RETAINING	TRUARC 1



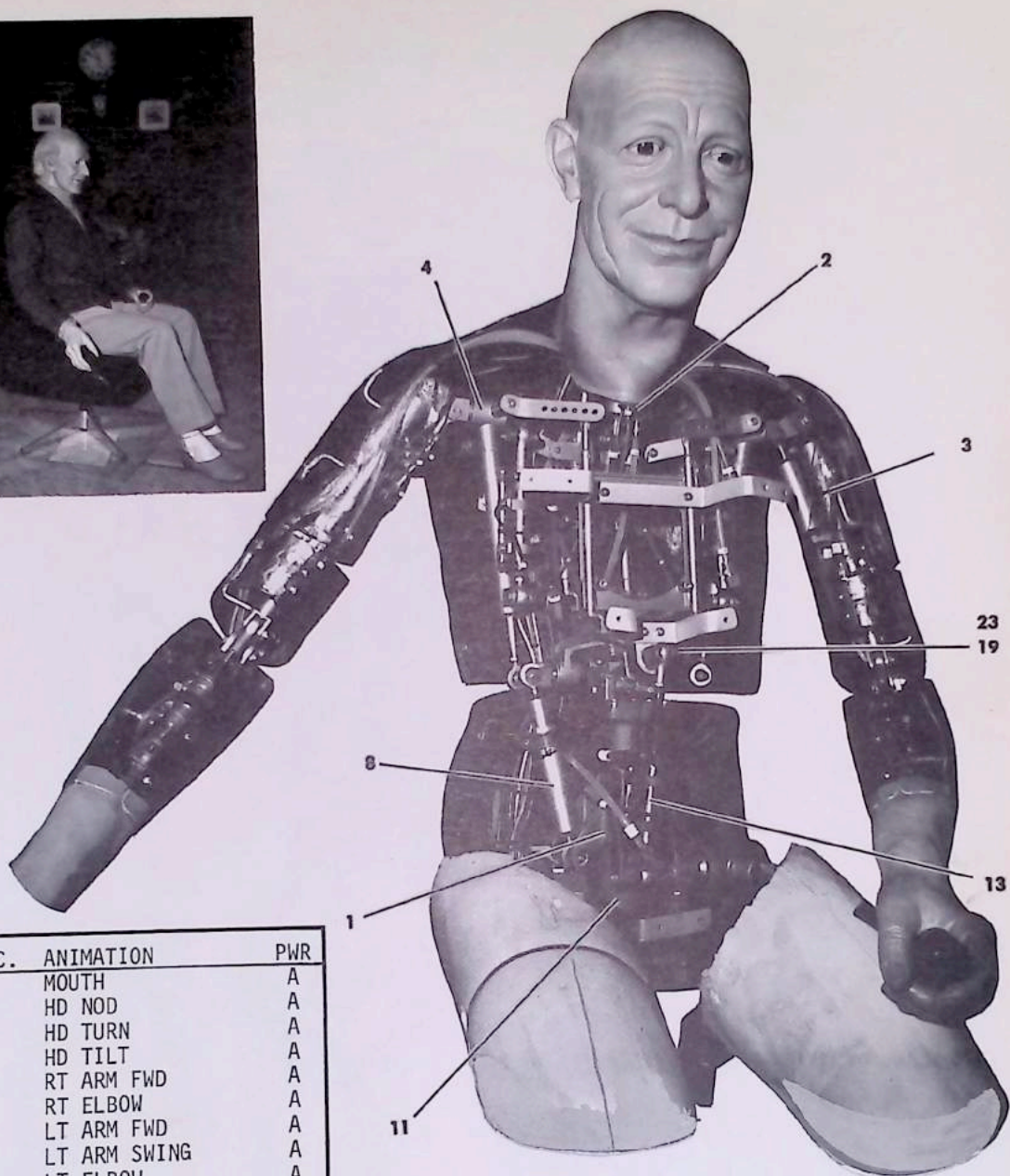
CUCKOO CLOCK

DWG.

CUCKOO CLOCK

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		430	CLOCK HOUSING CUCKOO CLOCK MFG. CO.	1
2.		9CD	CYLINDER 2" STROKE CLIPPARD	1
3.		MFC-2	FLOW CONTROL CLIPPARD	2
4.		AA-101-2	BEARING OILITE	2
5.		AA-226-1	BEARING OILITE	1
6.		HF3	ROD END HEIM	1
7.		5133-9	RING, RETAINING TRUARC	2
8.				
9.				
10.		4-40 X 1/4	SCREW, FLAT HD	1
11.		6-32 X 3/8	SCREW, SOC HD	2
12.		6-32 X 1/2	SCREW, SOC HD	2
13.		8-32 X 1/4	SCREW, FLAT HD	2
14.		8-32 X 3/8	SCREW, FLAT HD	4
15.		8-32 X 5/8	SCREW, SOC HD	6
16.		10-32 X 1	BOLT, HEX HD	2
17.		10-32	NUT, LOCK	2
18.		#6	WASHER, SPLITLOCK	4
19.		#6	WASHER, FLAT	4
20.		10-32	NUT, HEX	1

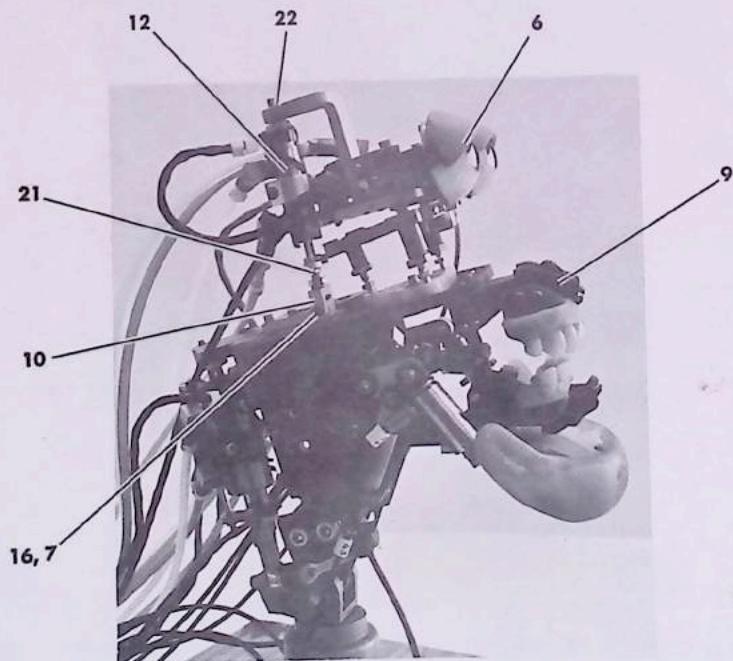
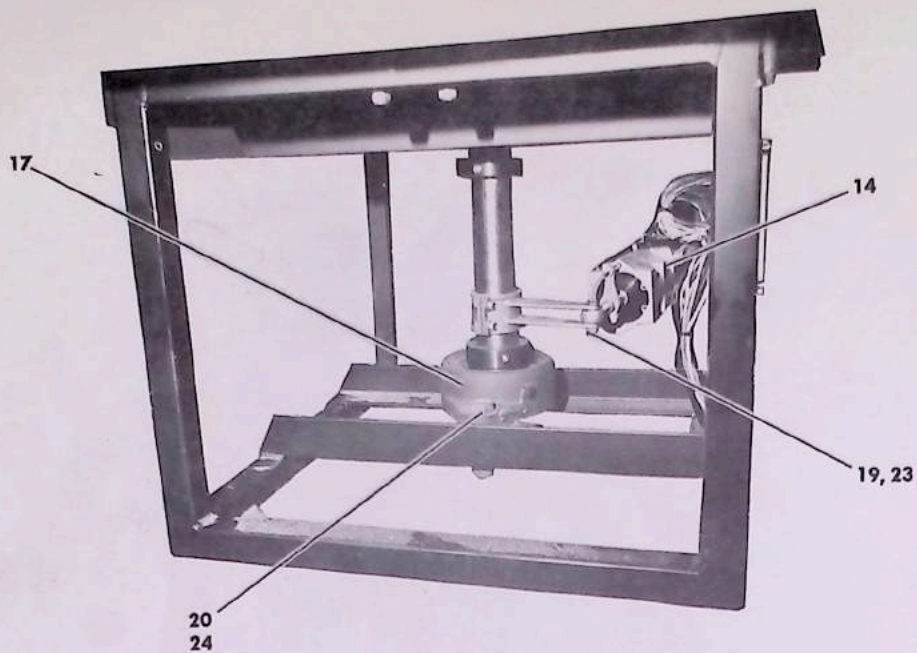
**ACT 4**



FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
5	RT ARM FWD	A
8	RT ELBOW	A
9	LT ARM FWD	A
11	LT ARM SWING	A
12	LT ELBOW	A
14	RT WRIST FWD-BK	A
16	LT WRIST IN-OUT	A
19	TORSO FOREBEND	A
21	TORSO TWIST	A
27	CHAIR MOVE	AM
28	RT THUMB	D
38	EYE BLINK	A
39	EYE RT-LT	A
41	MOUTH PINCH RT-LT	D
43	SMILE RT-LT	D
49	"F" SOUND	D
S-1	EYES UP-DN Deleted	A

F27  
**GRANDFATHER SEATED**  
 SHEET 1 OF 2

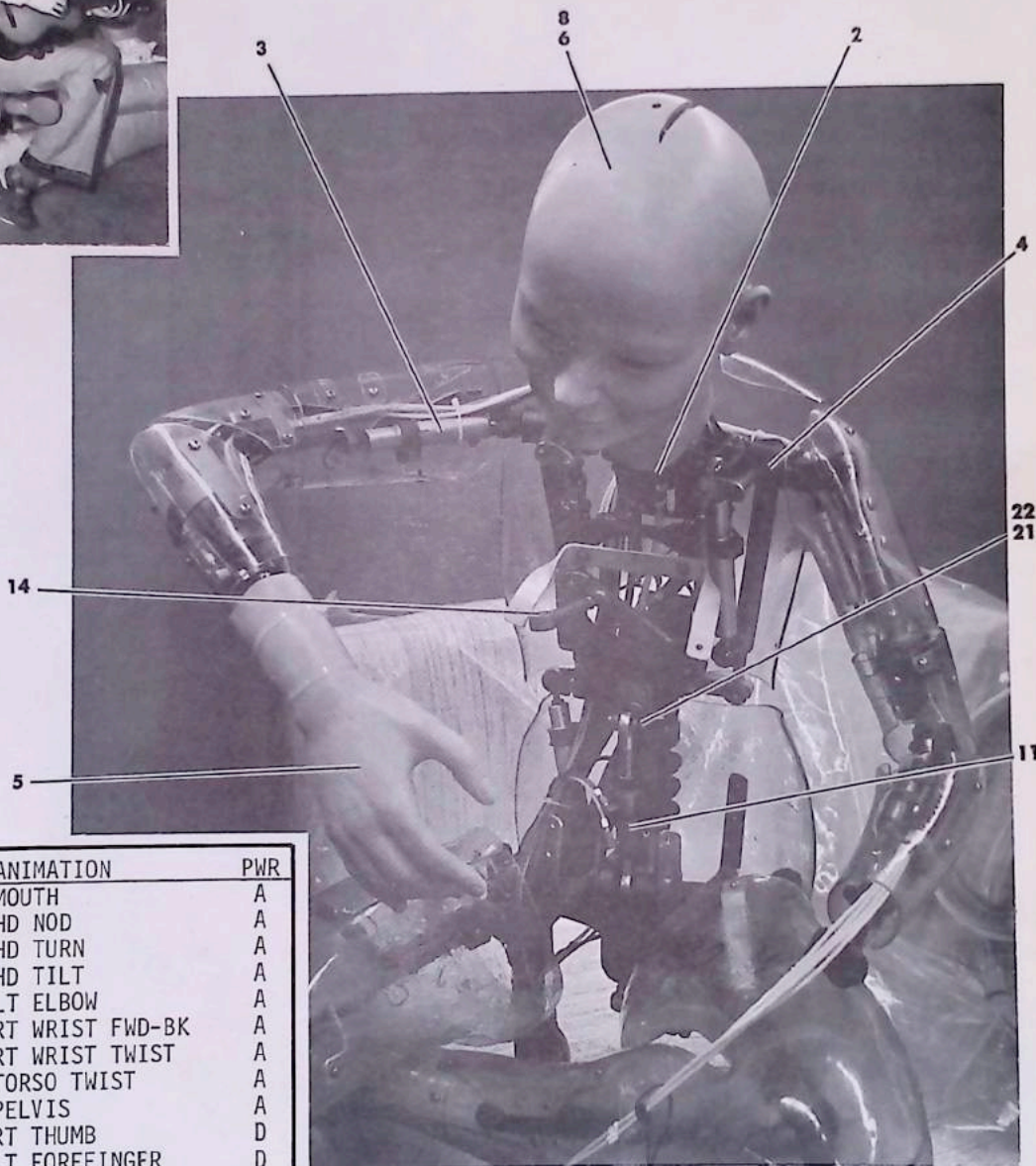




DWG. F27

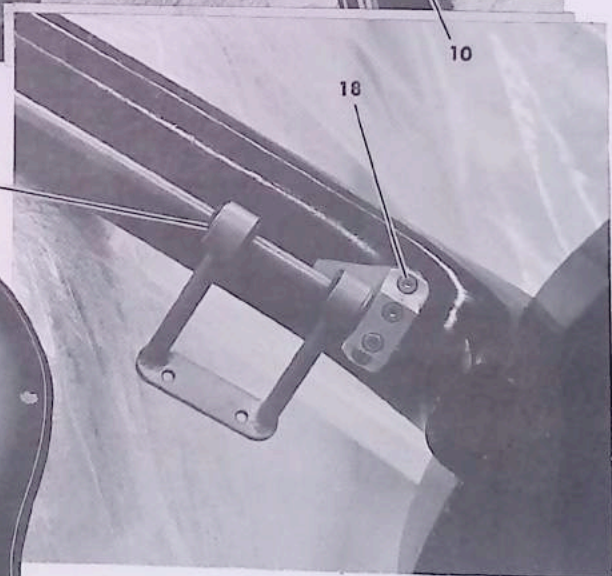
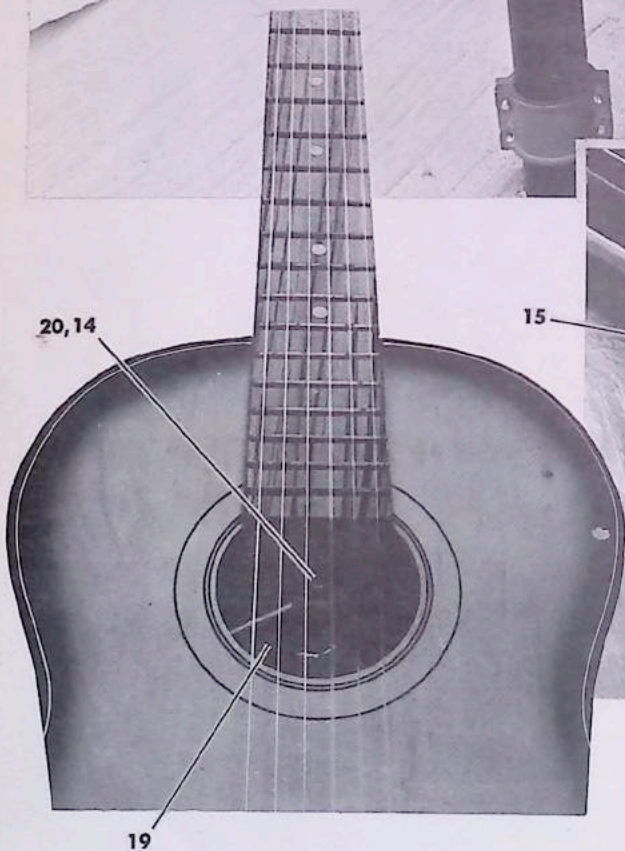
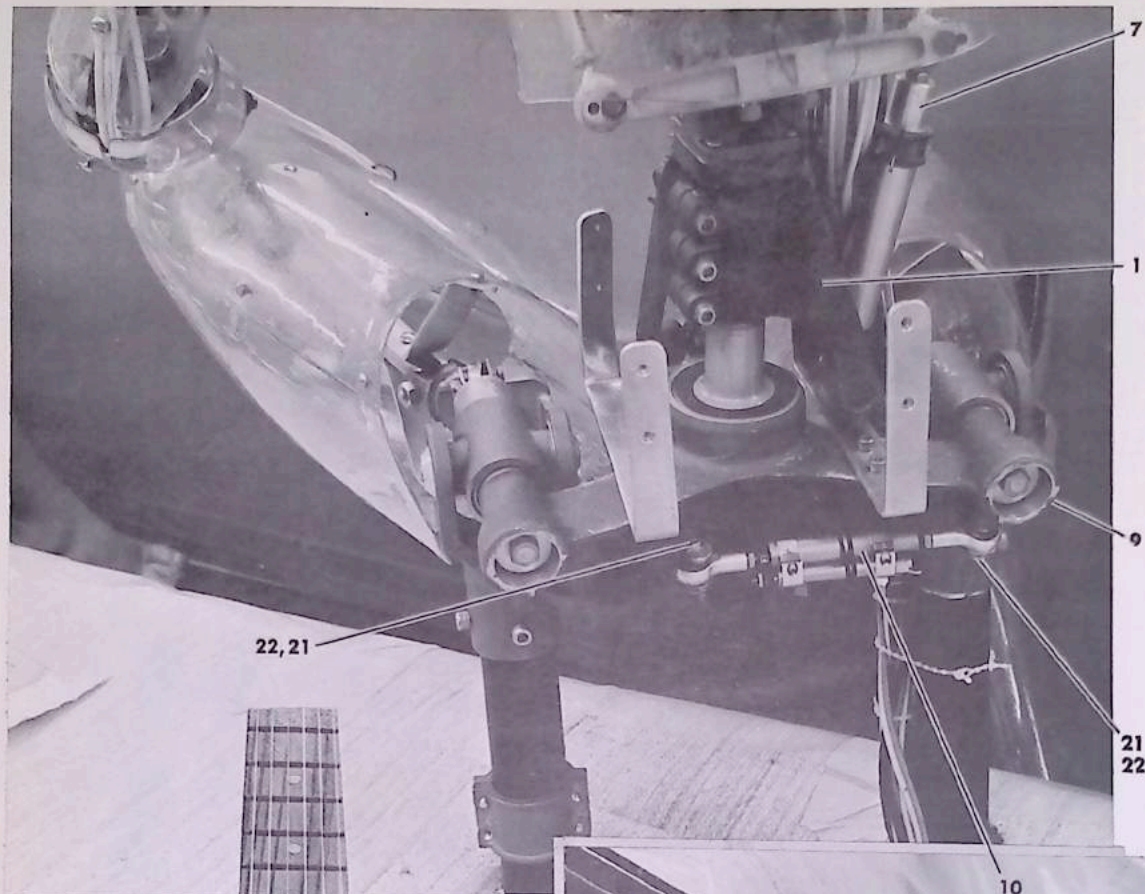
## GRANDFATHER SEATED

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		A1-15-C11	SERVO MOUNT	1
2.	2110-401017	A1-12-A15	HEAD ACTUATION ASSY	1
3.	2130-401019	A1-13-A16-1	ARM ASSEMBLY, OPERATIVE	2
4.	2120-401021	A1-14-A17	TORSO ASSEMBLY	1
5.				
6.	2110-401208	A1-11-S180	EYETURN MECH	1
7.	3040-401226	A1-11-D198	LINK, SMILE ACTUATOR CONNECTING	1
8.	3010-401258	A1-18-S227	ACTUATOR, DUMMY	1
9.	2110-401291	A1-11-A256	HEAD ASSEMBLY	1
10.		A4-31-C33	CLEVIS	1
11.	2125-210541	A6-15-A110	PELVIS ASSEMBLY W/TORSO TWIST	1
12.	3010-201015	CY-1-15-2	ACTUATOR ASSEMBLY (5/16 B X 1/2 S)	1
13.	3010-201069	CY-1-154-4	ACTUATOR ASSEMBLY (1 B x 2 S)	1
14.	3010-200177	CY-4-302-1	ACTUATOR ASSEMBLY (2 B x 2 S)	1
15.				
16.		5133-12	RING, RETAINING	TRUARC 2
17.		RCJT 1 1/2	PILLOW BLOCK	FAFNIR 2
18.				
19.		AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32)	6
20.		1/2-13 X 1 1/2	BOLT, HEX HD	4
21.		4-40	NUT, HEX	1
22.		5-40	NUT, HEX	1
23.		10-32	NUT, LOCK	6
24.		1/2-13	NUT, LOCK	4



FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
12	LT ELBOW	A
14	RT WRIST FWD-BK	A
15	RT WRIST TWIST	A
21	TORSO TWIST	A
22	PELVIS	A
28	RT THUMB	D
34	LT FOREFINGER	D
36	LT RING FINGER	D
38	EYE BLINK	D
39	EYE RT-LT	D
41	MOUTH PINCH RT-LT	D
43	SMILE RT-LT	D
49	"F" SOUND	D
S-1	LT HAND SLIDE	

F28  
 GIRL SEATED W/GUITAR  
 SHEET 1 OF 2

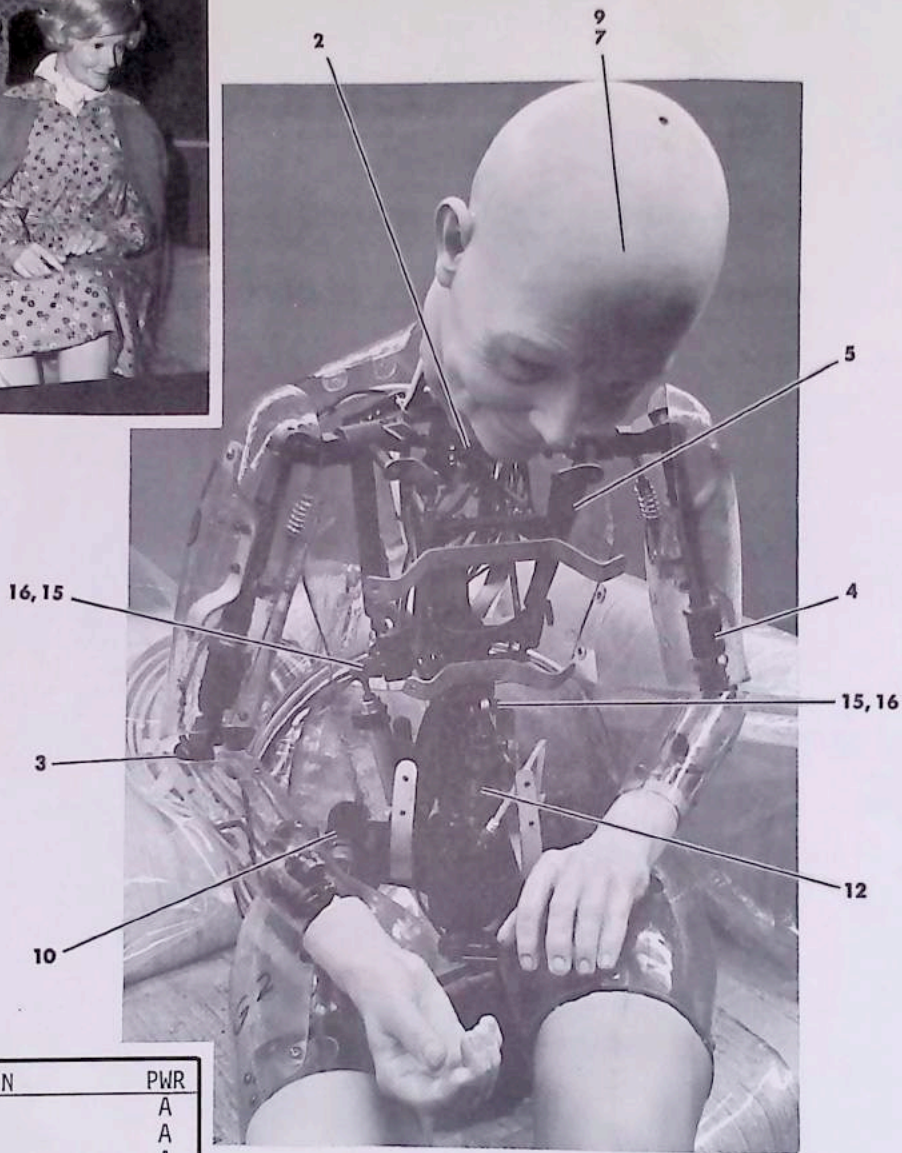


DWG.

F28

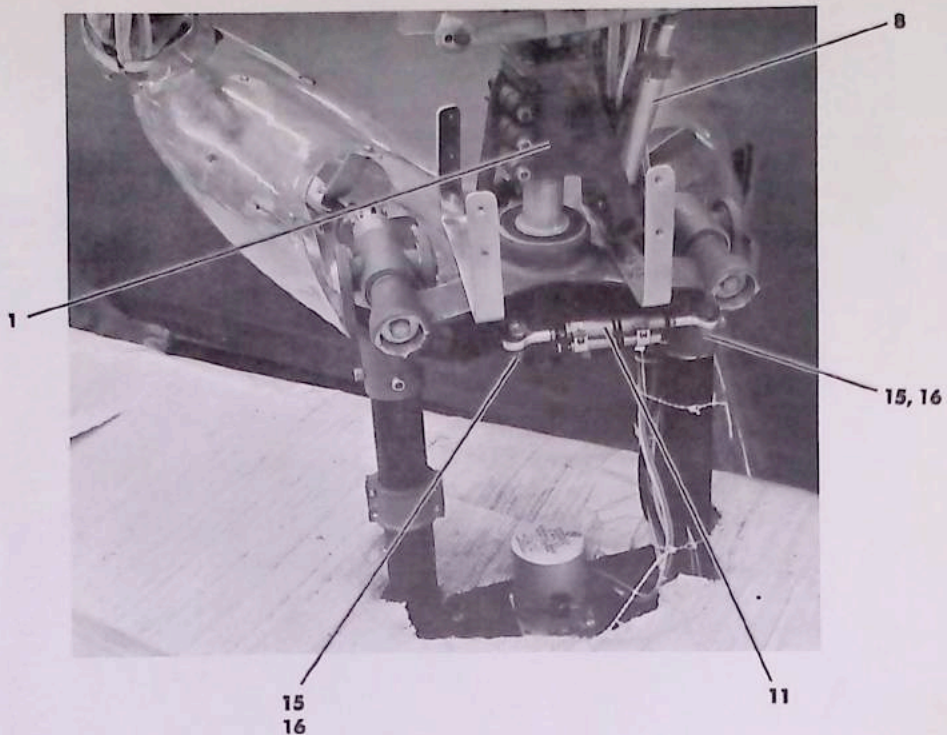
GIRL SEATED W/GUITAR

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-401013	A1-15-C11	SERVO MOUNT	1
2.	2110-401017	A1-12-A15	HEAD ACTUATION ASSY	1
3.	2130-401019	A1-13-A16-1	ARM ASSEMBLY, OPERATIVE	2
4.	2120-401021	A1-14-A17	TORSO ASSEMBLY	1
5.	2140-401189	A1-13-A161	ANIMATED HAND ASSY	2
6.	2110-401208	A1-11-S180	EYETURN MECH	1
7.	3010-401258	A1-18-S227	ACTUATOR ASSEMBLY, DUMMY	1
8.	2110-401291	A1-11-A256	HEAD ASSEMBLY	1
9.	2125-210541	A6-15-A110	PELVIS ASSEMBLY W/TORSO TWIST	1
10.	3010-201127	CY-1-125-3	ACTUATOR ASSEMBLY, 5/8 B X 1 S	1
11.	3010-201069	CY-1-154-4	ACTUATOR ASSEMBLY, 1 B X 2 S	1
12.				
13.				
14.		DW4K2	BEARING	FAFNIR 2
15.		5100-43	RING, RETAINING	TRUARC 2
16.				
17.				
18.		6-32 X 1/4	SCREW, SOC HD	8
19.		10-32 X 1/4	SCREW, SOC HD	4
20.		1/4-28 X 7/8	SCREW, SOC HD	1
21.		AN173C10A	BOLT, HEX HD, (10-32 X 1 1/32)	6
22.		10-32	NUT, LOCK	6



FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
15	RT WRIST TWIST	A
19	TORSO FOREBEND	A
21	TORSO TWIST	A
38	EYE BLINK	D
39	EYE RT-LT	A
41	MOUTH PINCH RT-LT	D
43	SMILE RT-LT	D
49	"F" SOUND	D

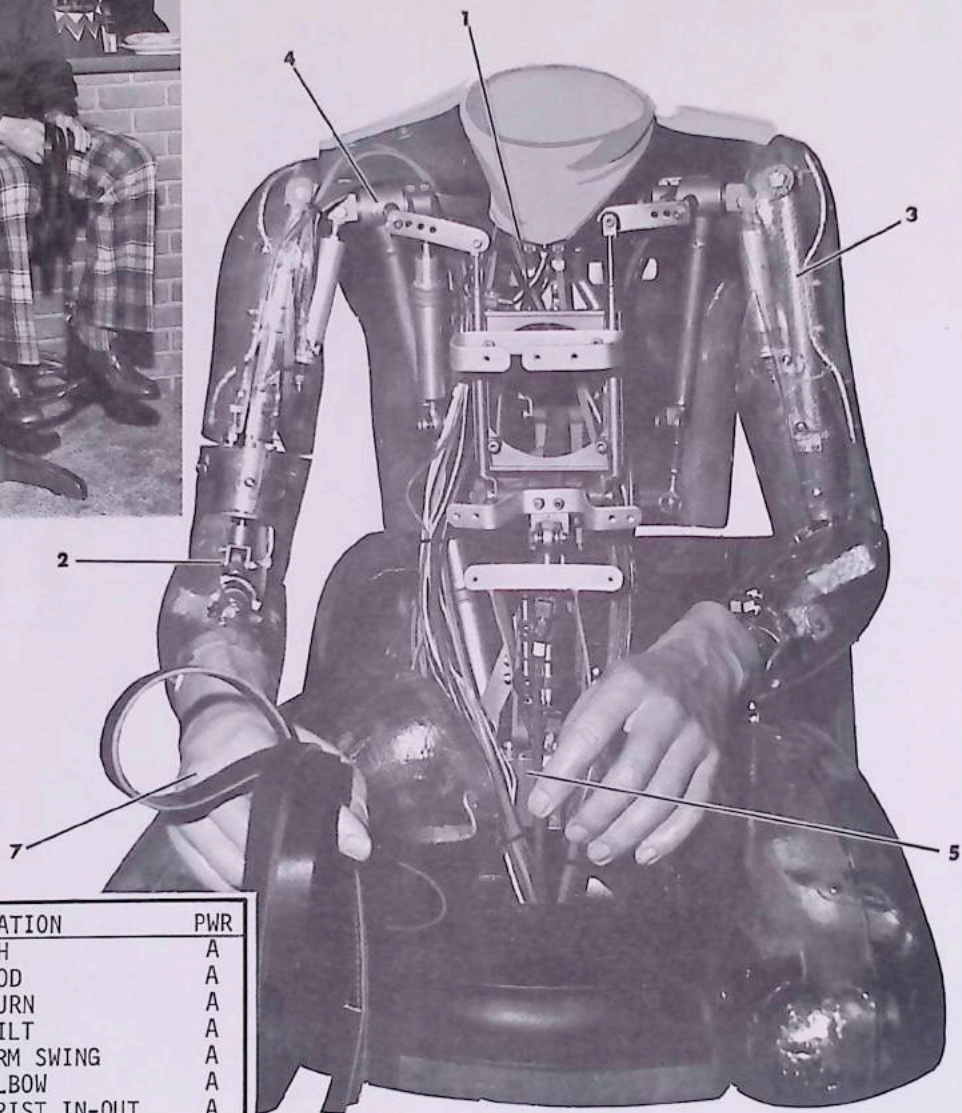
F29  
**GRANDMOTHER SEATED**  
 SHEET 1 OF 2



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-401013	A1-15-C11	SERVO MOUNT	1
2.	2110-401017	A1-12-A15	HEAD ACTUATION ASSY	1
3.	2130-401019	A1-13-A16-1	ARM ASSEMBLY, OPERATIVE	1
4.	2130-401020	A1-13-A16-2	ARM ASSEMBLY, NON-OPERATIVE	1
5.	2120-401021	A1-14-A17	TORSO ASSEMBLY	1
6.				
7.	2110-401208	A1-11-S180	EYETURN ASSY	1
8.	3010-401258	A1-18-S227	ACTUATOR, DUMMY	1
9.	2110-401291	A1-11-A256	HEAD ASSEMBLY	1
10.	2125-210541	A6-15-A110	PELVIS ASSEMBLY W/TORSO TWIST	1
11.	3010-201127	CY-1-125-3	ACTUATOR ASSEMBLY (5/8 B X 1 S)	1
12.	3010-201069	CY-1-154-4	ACTUATOR ASSEMBLY (1 B X 2 S)	1
13.				
14.				
15.		AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32)	6
16.		10-32	NUT, LOCK	6



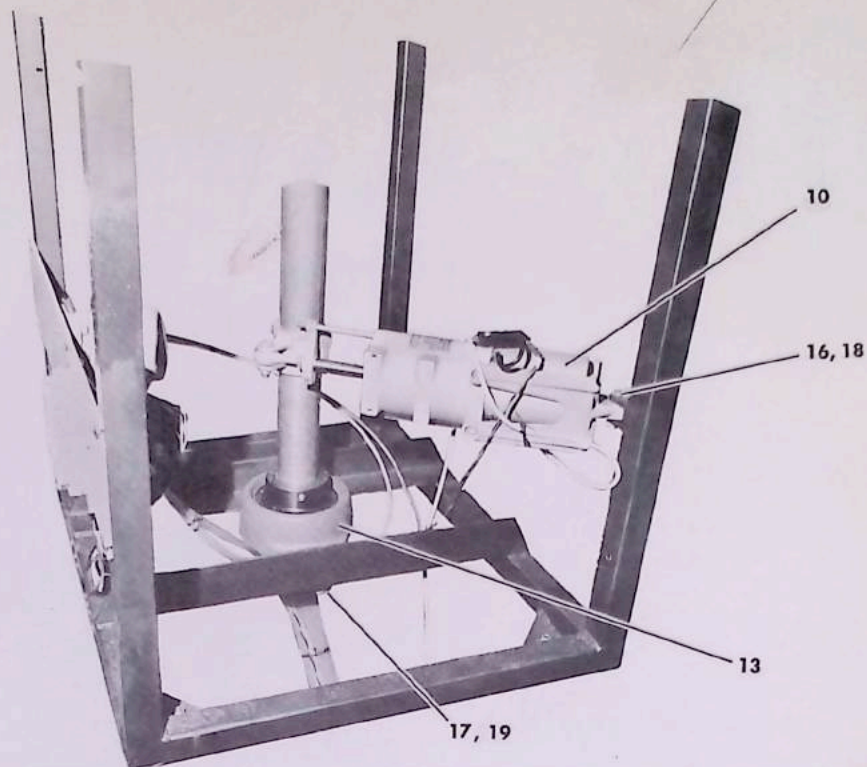
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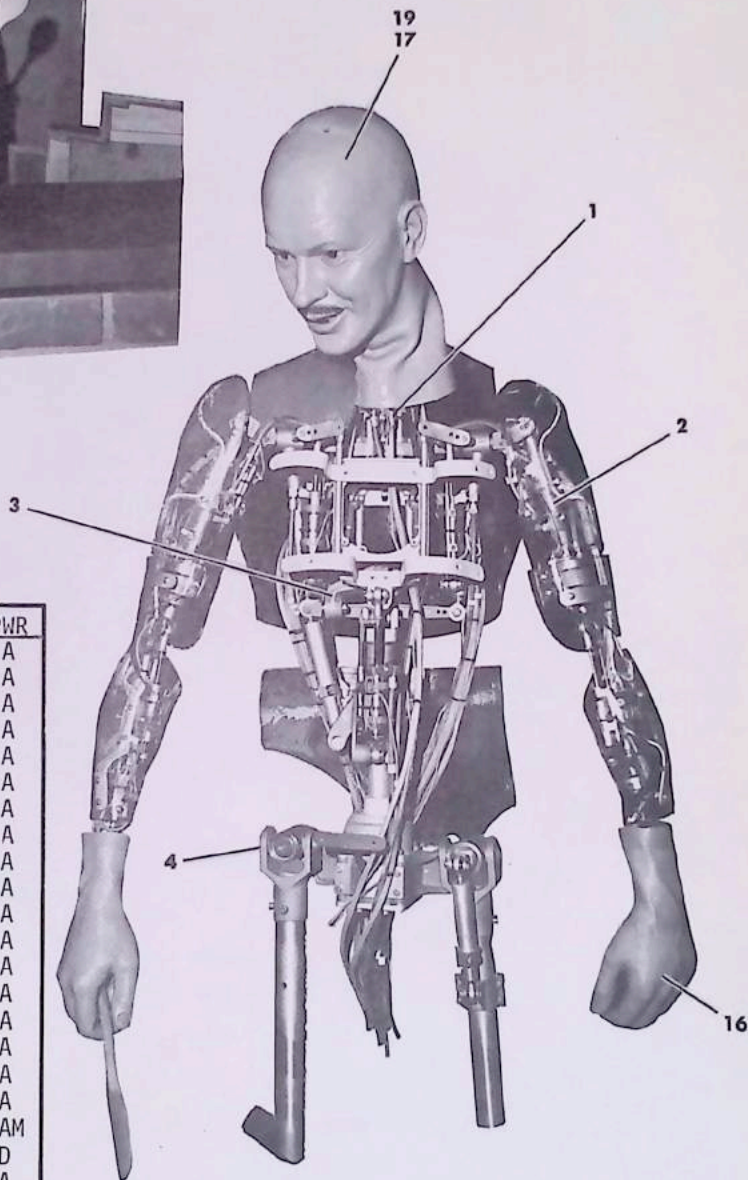
FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
7	RT ARM SWING	A
8	RT ELBOW	A
13	RT WRIST IN-OUT	A
19	TORSO FOREBEND	A
27	CHAIR MOVE	AM
38	EYE BLINK	D
39	EYE RT-LT	A
41	MOUTH PINCH RT-LT	D
43	SMILE RT-LT	D
49	"F" SOUND	D
18	LT WRIST TWIST	A

F30  
BOY SEATED ON STOOL  
SHEET 1 OF 2



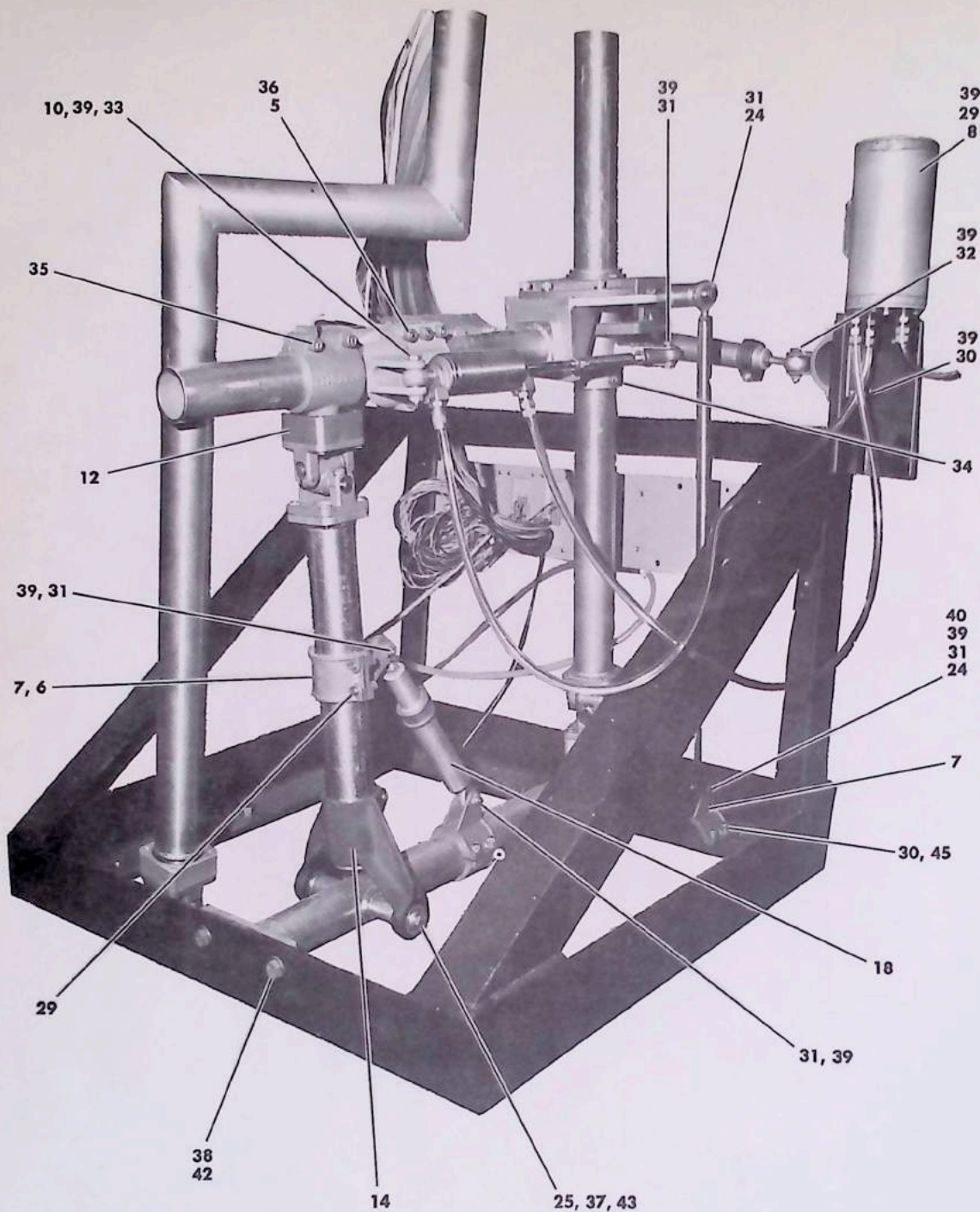


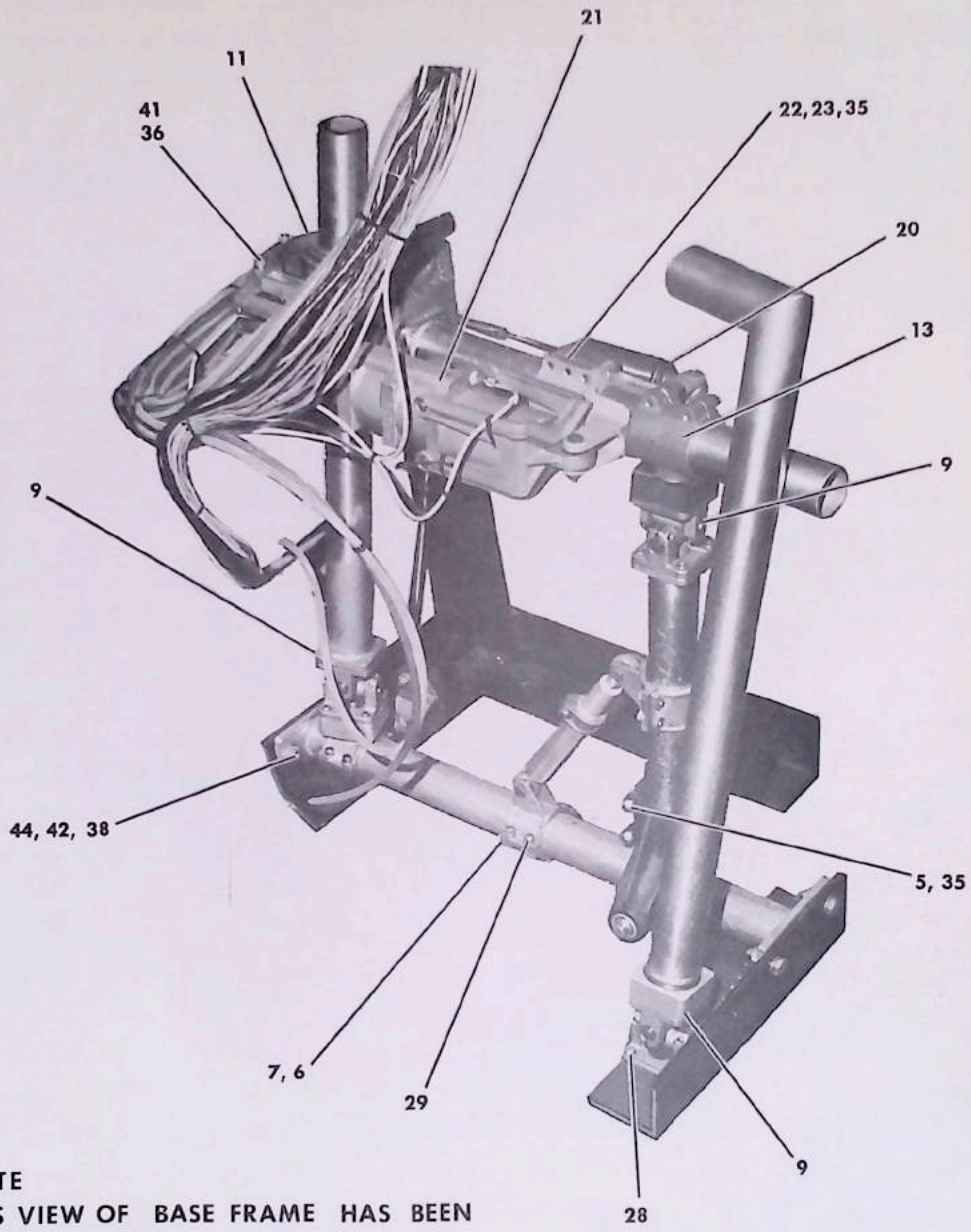
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2110-401017	A1-12-A15	HEAD ACTUATION ASSY	1
2.	2130-401019	A1-13-A16-1	ARM ASSEMBLY, OPERATIVE	1
3.	2130-401020	A1-13-A16-2	ARM ASSEMBLY, NON-OPERATIVE	1
4.	2120-401021	A1-14-A17	TORSO ASSEMBLY	1
5.	2125-401022	A1-15-A18-1	PELVIS ASSEMBLY W/ROTATION	1
6.				
7.	2140-401189	A1-13-A161	ANIMATED HAND ASSY	1
8.	2110-401208	A1-11-S180	EYETURN MECH	1
9.	2110-401291	A1-11-A256	HEAD ASSEMBLY	1
10.	3010-200177	CY-4-302-1	ACTUATOR ASSEMBLY (2 B X 2 S)	1
11.				
12.				
13.		RCJT-1 1/2	PILLOW BLOCK	FAFNIR 2
14.				
15.				
16.		AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32)	2
17.		1/2-13 X 1 1/2	BOLT, HEX HD	4
18.		10-32	NUT, LOCK	2
19.		1/2-13	NUT, LOCK	4



FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
5	RT ARM FWD	A
6	RT ARM OUT	A
7	RT ARM SWING	A
8	RT ELBOW	A
9	LT ARM FWD	A
10	LT ARM OUT	A
11	LT ARM SWING	A
12	LT ELBOW	A
13	RT WRIST IN-OUT	A
15	RT WRIST TWIST	A
16	LT WRIST IN-OUT	A
18	LT WRIST TWIST	A
19	TORSO FOREBEND	A
21	TORSO TWIST	A
24	BODY TWIST	AM
38	EYE BLINK	D
39	EYE RT-LT	A
41	MOUTH PINCH RT-LT	D
43	SMILE RT-LT	D
49	"F" SOUND	D
51	LT FINGERS	D
S-2	BODY SIDE MOVE	A

F31  
FATHER STANDING  
SHEET 1 OF 3

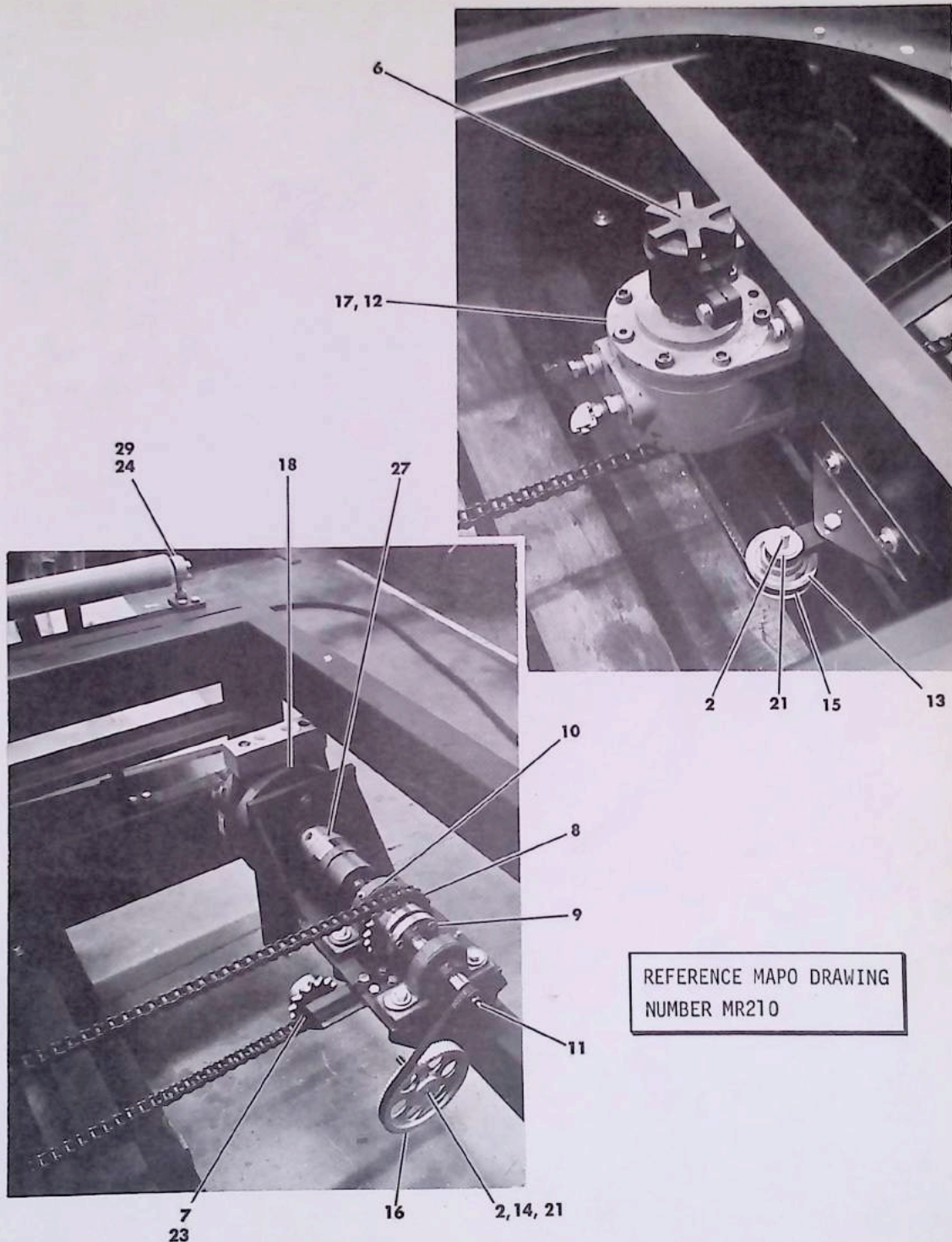




**NOTE**  
 THIS VIEW OF BASE FRAME HAS BEEN  
 CUT AWAY AND ROTATED 90°

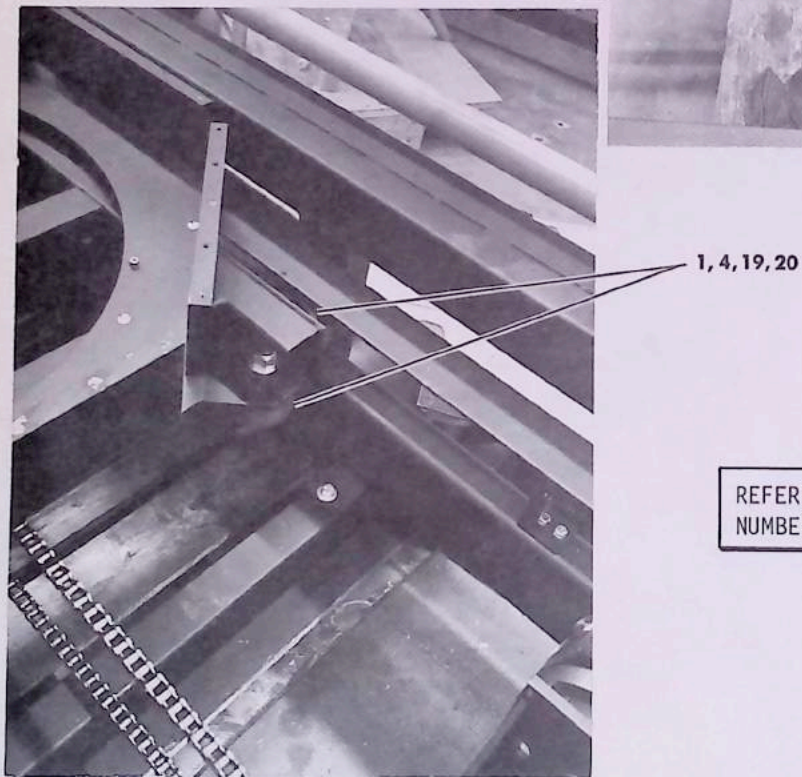
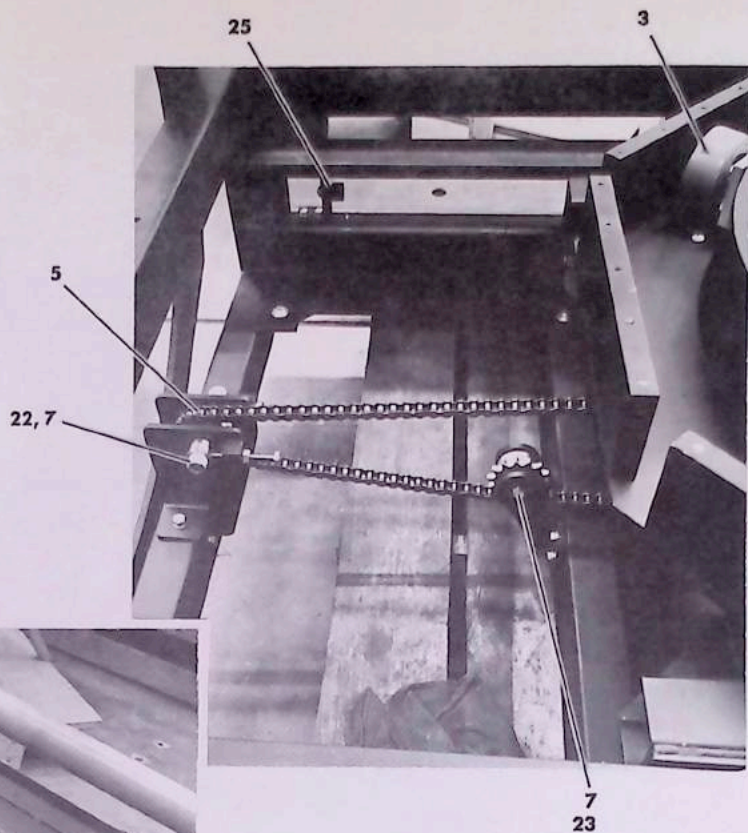
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2110-401017	A1-12-A15	HEAD ACTUATION ASSY	1
2.	2130-401019	A1-13-A16-1	ARM ASSEMBLY, OPERATIVE	2
3.	2120-401021	A1-14-A17	TORSO ASSEMBLY	1
4.	2125-401022	A1-15-A18-1	PELVIS ASSEMBLY, W/ROTATION	1
5.	5310-401080	A1-18-D70	WASHER, SPECIAL, 1/4	2
6.	5340-401091	A1-18-C72	CLAMP, CLEVIS	2
7.	5340-401092	A1-18-C73	CLEVIS	3
8.	3010-401108	A1-16-W89	DASHPOT ACCUMULATOR	1
9.	3010-401120	A1-18-A101	UNIVERSAL JOINT ASSY	2
10.	5310-401136	A1-18-D116	WASHER, SPECIAL, #10	2
11.	2135-401155	A1-17-S131	ANKLE GIMBLE ASSY	1
12.	3040-401157	A1-17-S133	TUBE PIVOT JOINT ASSY	1
13.	3040-401164	A1-17-C139	UNIVERSAL JOINT MOUNT AND CLAMP	1
14.	2135-401168	A1-17-C143	PIVOT CASTING, SIDE SWAY	1
15.				
16.	2140-401189	A1-13-A161	ANIMATED HAND ASSY	1
17.	2110-401208	A1-11-S180	EYETURN MECH	1
18.	3010-401258	A1-18-S227	ACTUATOR, DUMMY	2
19.	2110-401291	A1-11-A256	HEAD ASSEMBLY	1
20.	3010-201069	CY-1-154-4	ACTUATOR ASSEMBLY (1 B X 2 S)	1
21.	3010-200177	CY-4-302-1	ACTUATOR ASSEMBLY (2 B X 2 S)	1
22.	3010-401170	A1-17-C145-1	MOUNT, CYLINDER CASTING TOP SECTION	1
23.	3010-401171	A1-17-C145-2	MOUNT, CYLINDER CASTING, BOTTOM SECTION	
24.		REP3F4	ROD END	FAFNIR 2
25.		DSP4	BEARING	FAFNIR 2
26.				
27.				
28.		10-32 X 3/8	SCREW, SOC HD	12
29.		10-32 X 5/8	SCREW, SOC HD	16
30.		10-32 X 3/4	SCREW, SOC HD	8
31.		AN173C10A	BOLT, AIRCRAFT (10-32 X 1)	5
32.		10-32 X 1	BOLT, HEX HD	2
33.		AN173C12A	BOLT, AIRCRAFT (10-32 X 1 9/32)	1
34.		1/4-20 X 3/8	SCREW, SOC HD	3
35.		1/4-20 X 7/8	SCREW, SOC HD	10
36.		1/4-28 X 1	SCREW, SOC HD	6
37.		AN174C11A	BOLT, AIRCRAFT (1/4-28 X 1 5/32)	2
38.		5/16-24 X 1	BOLT, HEX HD	4





REFERENCE MAPO DRAWING  
 NUMBER MR210

**MOVING BASE ASSEMBLY**  
 SHEET 1 OF 2



REFERENCE MAPO DRAWING  
NUMBER MR210



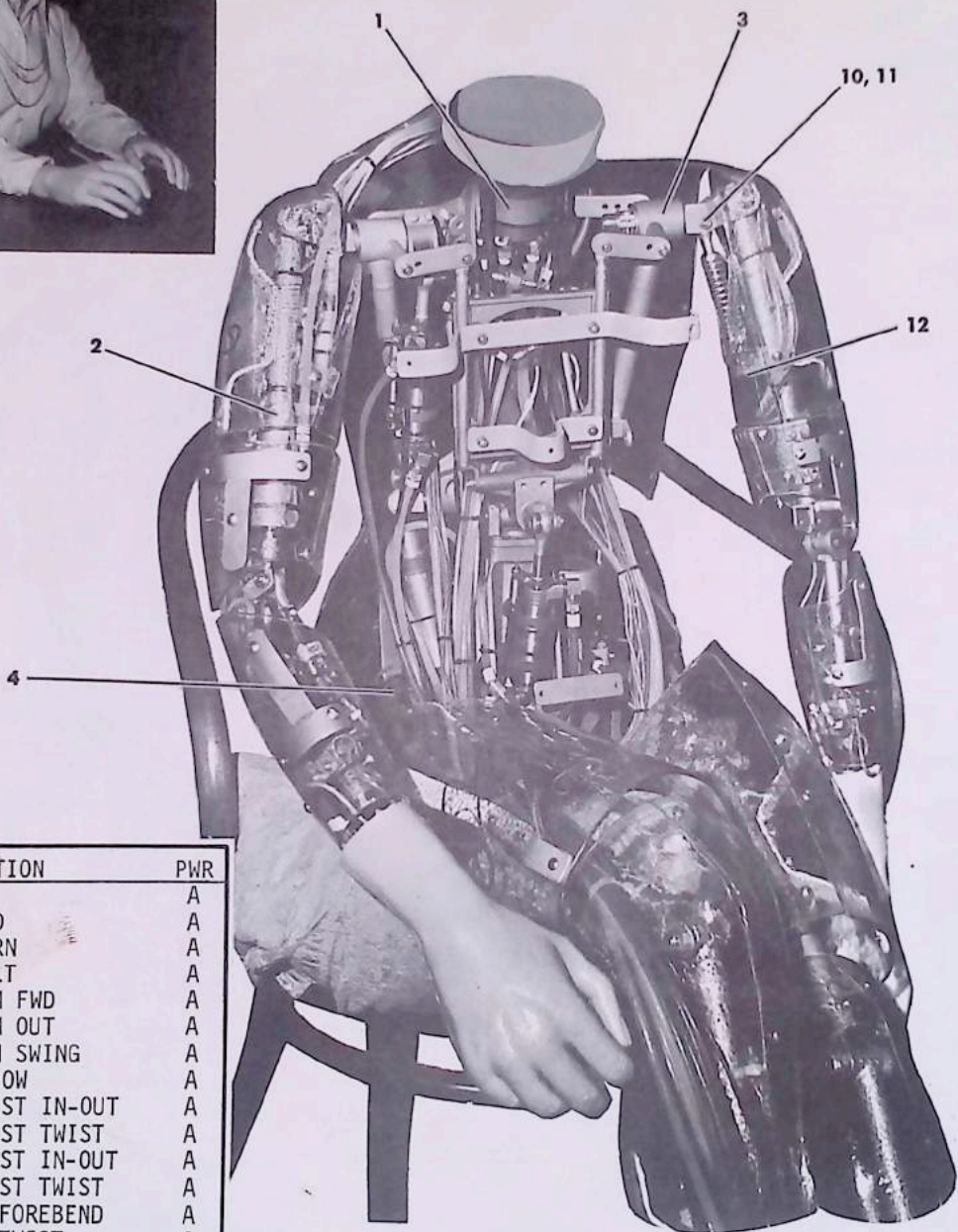
DWG.

## MOVING BASE ASSEMBLY

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		OM842	WHEEL	11
2.		10175-1	TRANSDUCER	2
3.		2.75 DIA	AXLE, ALLOY STL	3
4.		5/8-18 X 3	SCREW, SOC HD	8
5.		40SL	ROLLER, CHAIN	BOSTON A/R
6.		FCR25-1 1/4	COUPLING, MOD	BOSTON 1
7.		KSB14-1	SPROCKET	BOSTON 3
8.		BKSB20-1	SPROCKET	BOSTON 1
9.		20S14	BUSHING	BOSTON 1
10.		06920-5L	PILLOW BLOCK	BOSTON 2
11.		10XL037	PULLEY	MORSE 1
12.		14XL037	PULLEY	DODGE 1
13.		28XL037	PULLEY	DODGE 1
14.		72XL037	PULLEY	DODGE 1
15.		130XL037	BELT	DODGE 1
16.		190XL037	BELT	DODGE 1
17.		HN321V	MOTOR	ROTAC 1
18.		MODEL 25	MOTOR	WASH. SCIENTIFIC IND. 1
19.		N5000-193H	RING, RETAINING	TRUARC 11
20.		DPP10	BEARING	FAFNIR 11
21.		DW4K2	BEARING	FAFNIR 2
22.		KP8A	BEARING	FAFNIR 2
23.		DW5	BEARING	FAFNIR 2
24.		REP5M6	ROD END	FAFNIR 2
25.		J-8350-8	BUMPER, MOD	LORD 4
26.		40SL	ROLLER CHAIN	BOSTON A/R
27.		FCR25-7/8	COUPLING	BOSTON 1
28.				
29.		3/8-24	NUT, JAM	2



6, 7



FUNC.	ANIMATION	PWR
1	MOUTH	A
2	HD NOD	A
3	HD TURN	A
4	HD TILT	A
5	RT ARM FWD	A
6	RT ARM OUT	A
7	RT ARM SWING	A
18	RT ELBOW	A
13	RT WRIST IN-OUT	A
15	RT WRIST TWIST	A
16	LT WRIST IN-OUT	A
18	LT WRIST TWIST	A
19	TORSO FOREBEND	A
21	TORSO TWIST	A
38	EYE BLINK	D
39	EYE RT-LT	A
41	MOUTH PINCH RT-LT	D
43	SMILE RT-LT	D
49	"F" SOUND	D

F32

MOTHER SEATED AT TABLE



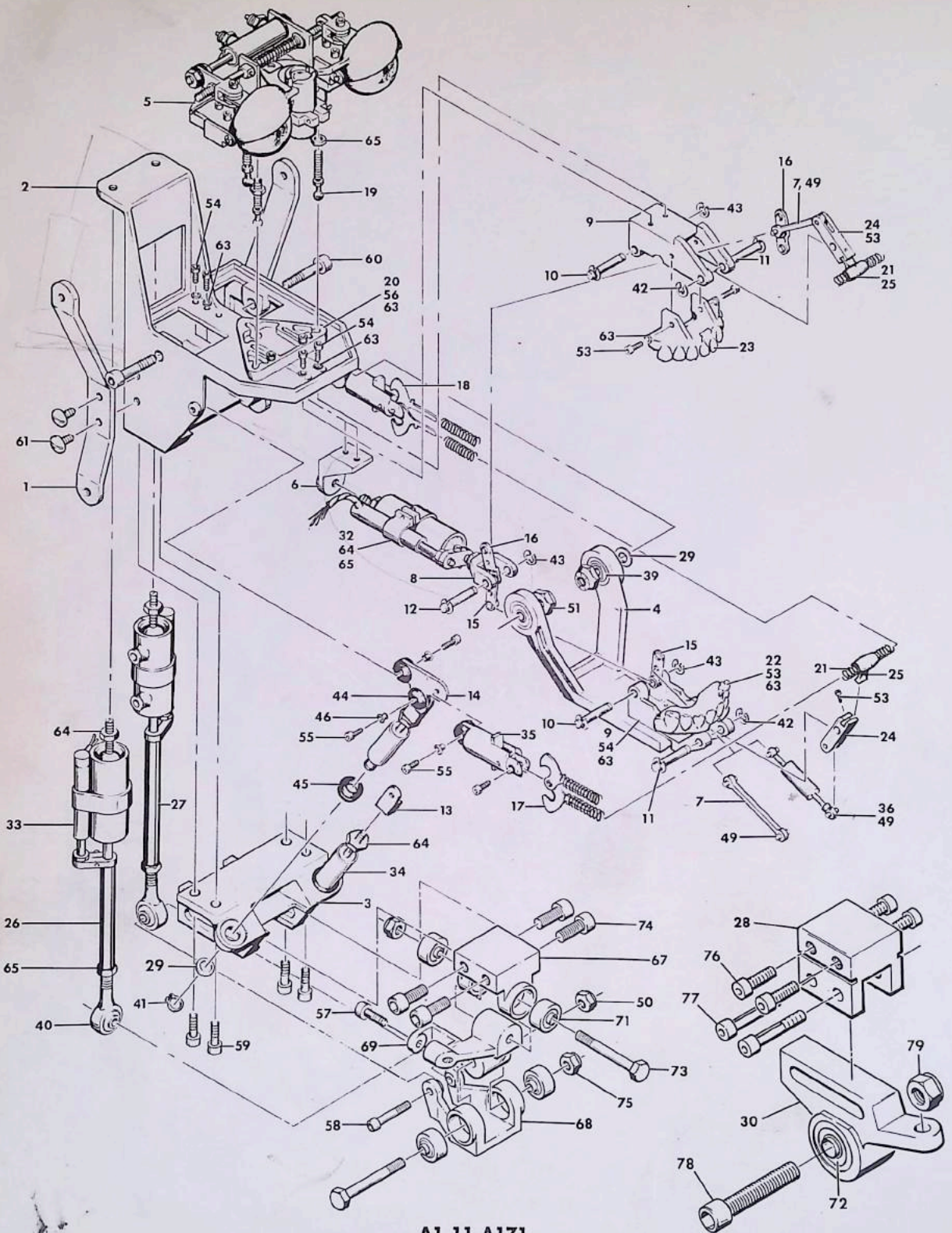


FOR MECHANICAL BREAKDOWN SEE PAGE 88

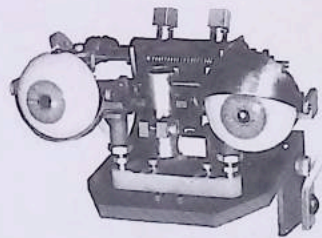
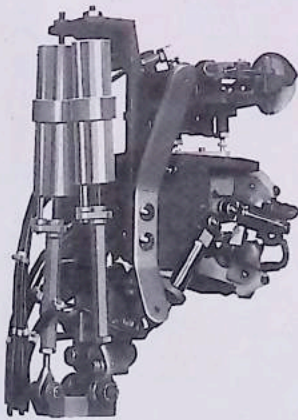
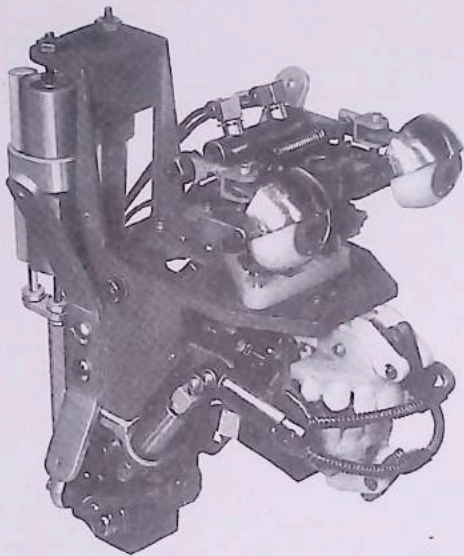
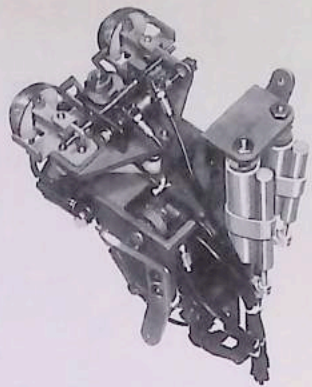
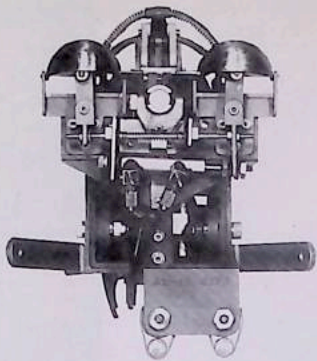
GA11  
DOG

## **SECTION 2.4**

### **STANDARD FIGURE ASSEMBLIES**



A1-11-A171  
 HEAD ASSEMBLY  
 SHEET 1 OF 2



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2110-401200	A1-11-D172	BRACKET, SKULL MTG	2
2.	2110-401201	A1-11-C173	FRAME, HEAD	1
3.	2110-401202	A1-11-C174	MOUNT, FRAME	1
4.	2110-401203	A1-11-C175	FRAME, JAW	1
5.	2110-401208	A1-11-S180	EYETURN ASSEMBLY	1
6.	2110-401211	A1-11-C183	BRACKET, MOUTH ACTUATOR	1
7.	3040-401214	A1-11-C186	LINK, CONNECTING	2
8.	3040-401321	A1-11-C189-2	FORK, END-CONNECTING ROD	1
9.	3040-401218	A1-11-C190	BRACKET, TEETH MTG	2
10.	3040-401223	A1-11-D195	SHAFT, REAR-LIP PIVOT	2
11.	3040-401224	A1-11-D196	SHAFT, FRONT-LIP PIVOT	2
12.	3040-401225	A1-11-D197	SHAFT, FORK PIVOT	1
13.	3040-401226	A1-11-D198	LINK, CONNECTING-SMILE ACTUATOR	2
14.	3040-401227	A1-11-D199	CRANK, SMILE ACTUATOR	2
15.	3040-401228	A1-11-C200	LINK, LOWER CONNECTING	2
16.	3040-401229	A1-11-C201	LINK, UPPER CONNECTING	2
17.	3040-401233	A1-11-S205	CRANK ASSY, R.H. LIP	1
18.	3040-401234	A1-11-S206	CRANK ASSY, L.H. LIP	1
19.	5305-401238	A1-11-D209	BALL END, EYE MTG	3
20.	2110-401240	A1-11-C211	PLATE, EYE ASSY MTG	1
21.	5360-401241	A1-11-D212	SPRING, LIP	2
22.	6520-401244	A1-11-C215	PLATE, LOWER DENTAL	1
23.	6520-401245	A1-11-C216	PLATE, UPPER DENTAL	1
24.	2110-401248	A1-11-C219	MOUNT, LIP RING	2
25.	2110-401249	A1-11-C220	RING, LIP	2
26.	3040-401250	A1-11-D221-1	EXTENSION, NOD ACTUATOR	1
27.	3040-401251	A1-11-D221-2	EXTENSION, TILT ACTUATOR	1
28.	3040-210300	A6-12-D107	MOUNT, HEAD NOD	1
29.	5310-401136	A1-18-D116	WASHER, SPECIAL	4
30.	3040-210301	UH-67	ROCKER ARM, HEAD NOD	1
31.	3010-401256	A1-18-S225-2	ACTUATOR, DUMMY	A/R
32.	3010-201042	CY-1-42-1	CYLINDER ASSY, 1/2 B X 1/2 S	1
33.	3010-201043	CY-1-42-2	CYLINDER ASSY, 1/2 B X 3/4 S	2
34.	3010-200157	GY-4-55-3	CYLINDER ASSY, 5/16 B X 1/4 S	2
35.	3010-200320	CY-4-320	CYLINDER ASSY, 1/4 B X 3/16 S	2
36.	3010-200290	CY-4-290	CYLINDER ASSY, 1/4 B X 3/32 S	A/R
37.				
38.				



DWG.

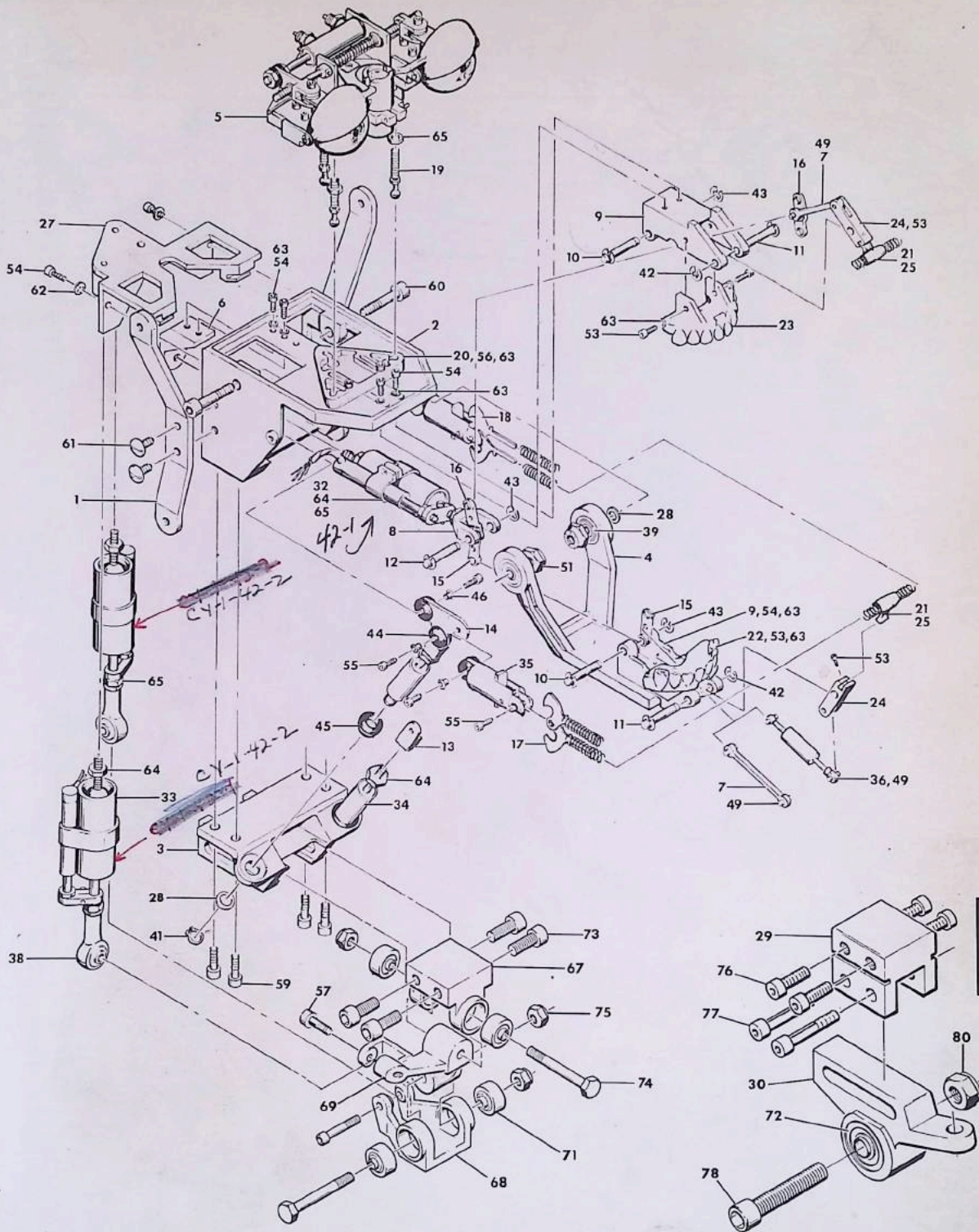
A1-11-171

## HEAD ASSEMBLY

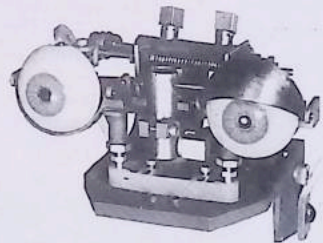
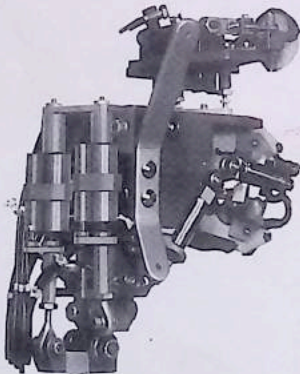
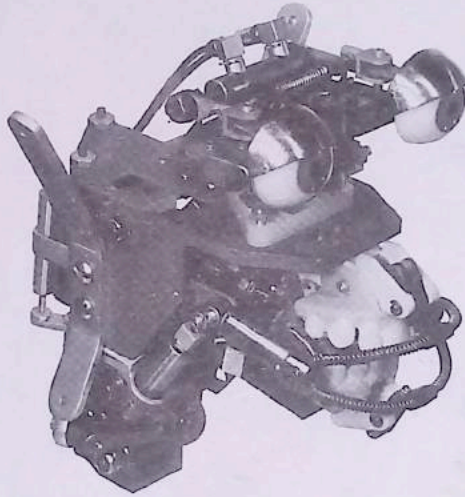
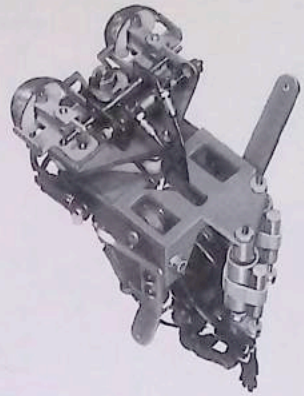
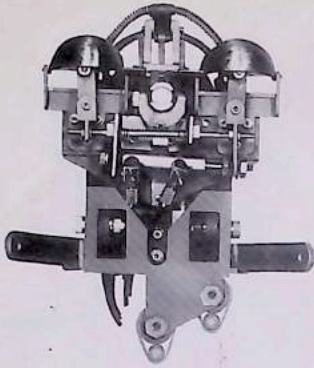
SHEET 2 OF 3

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
39.	3110-560709	SR3PPEEK25	BEARING NEW HAMSHIRE	6
40.	5340-560690	HM-2	ROD END HEIM	2
41.	5365-560628	5100-18-C	RING, RETAINING TRUARC	2
42.	5365-006037	5133-9-H	RING, RETAINING "E" TYPE TRUARC	4
43.	5365-006039	5133-12-H	RING, RETAINING "E" TYPE TRUARC	6
44.	5325-571157	2145	GROMMET H.H. SMITH INC.	6
45.	5325-560625	2146	GROMMET H.H. SMITH INC.	2
46.	5325-572096	SE-46	EYELET UNITED SHOE MACH. CO.	6
47.				
48.				
49.	5315-570366	.094 DIA X .25 LG	DOWEL PIN	4
50.	5310-595965	79NM-50	NUT, LOCK (5-40) ESNA	1
51.	5310-561967	79NM-02	NUT, LOCK (10-32) ESNA	2
52.				
53.	5305-563467	2-56 X 3/16	SCREW, SOC HD, SELF LOCKING	6
54.	5305-563468	2-56 X 1/4	SCREW, SOC HD, SELF LOCKING	6
55.	5305-570008	2-56 X 5/16	SCREW, SOC HD, SELF LOCKING	8
56.	5305-563469	2-56 X 3/8	SCREW, SOC HD, SELF LOCKING	2
57.	5305-570028	5-40 X 1/2	SCREW, SOC HD, SELF LOCKING	1
58.	5305-570030	5-40 X 3/4	SCREW, SOC HD, SELF LOCKING	1
59.	5305-570035	6-32 X 5/16	SCREW, SOC HD, SELF LOCKING	4
60.	5305-565022	10-32 X 3/4	SCREW, SOC HD, SELF LOCKING	2
61.	5305-011596	6-32 X 5/16	SCREW, TRUSS HD, SELF LOCKING	4
62.				
63.	5310-011474	#2	WASHER, FLAT	12
64.	5310-595965	5-40	NUT, HEX	5
65.	5310-561947	6-32	NUT, HEX	6
66.				
67.	3010-401194	A1-12-C166	YOKE, UPPER "U" JOINT	1
68.	3010-401195	A1-12-C167	YOKE, LOWER "U" JOINT	1
69.	3010-401196	A1-12-C168	CROSS, "U" JOINT	1
70.				
71.				
72.	3110-560711	DW4K2	BEARING FAFNIR	1
73.	5306-013195	AN173C13A	BOLT, AIRCRAFT' (10-32 X 1 13/32)	2
74.	5305-567631	10-32 X 1/2"	SCREW, SOC HD	4
75.	5310-561922	10-32	NUT, LOCK	2
76.	5305-563486	10-24 X 1/2"	SCREW, SOC HD	4





**A1-11-A256**  
**HEAD ASSEMBLY**  
**W/NOD & TILT MODIFICATION**  
**SHEET 1 OF 2**



DWG.

A1-11-A256

HEAD ASSY

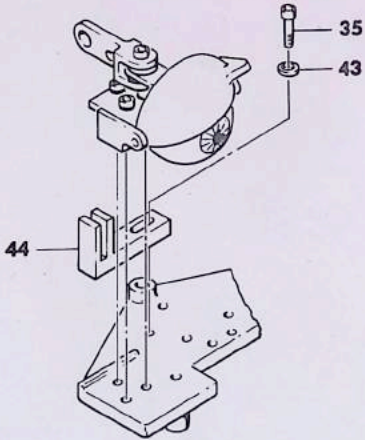
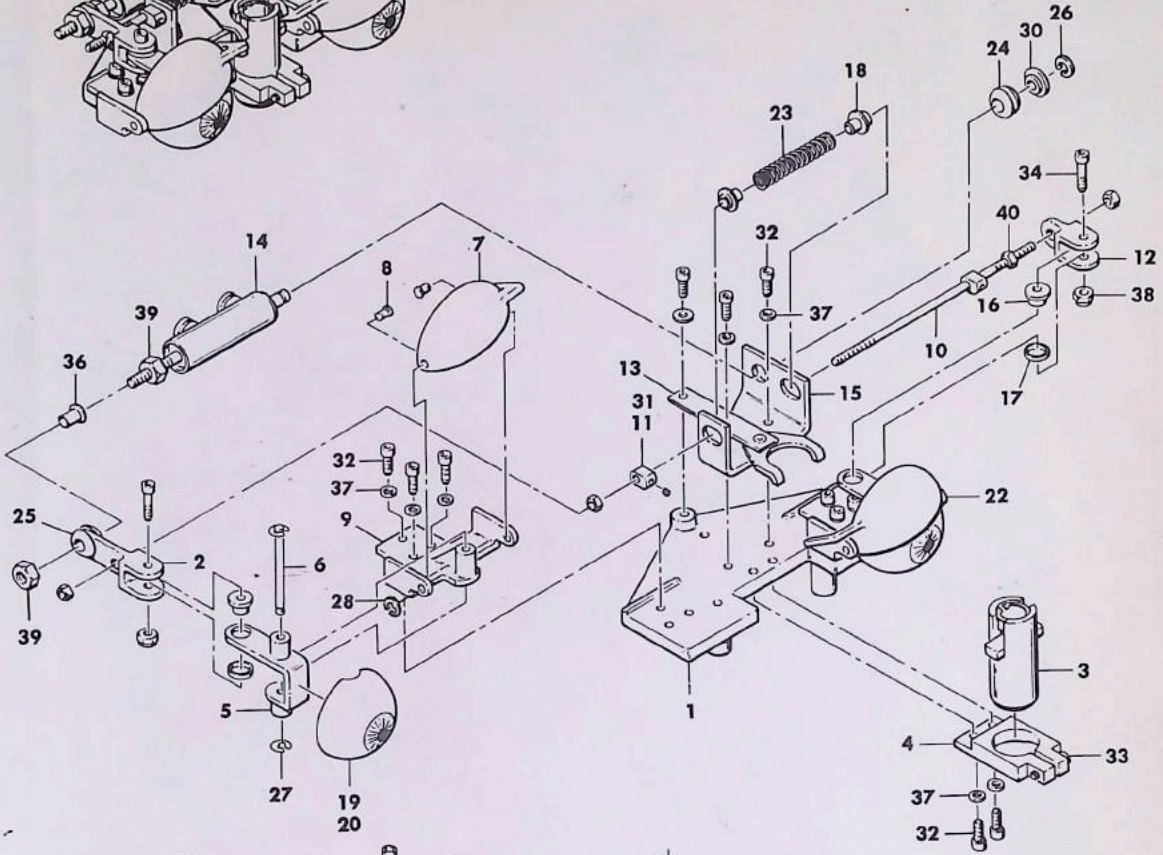
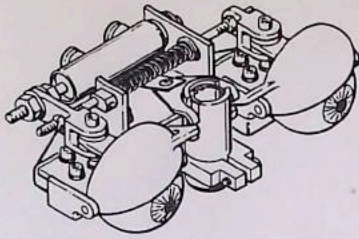
W/NOD &amp; TILT MOD.

SHEET 1 OF 3

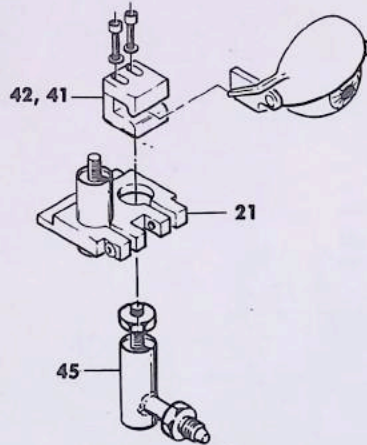
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2110-401200	A1-11-D172	BRACKET, SKULL MTG.	2
2.	2110-401201	A1-11-C173	FRAME, HEAD	1
3.	2110-401202	A1-11-C174	MOUNT, FRAME	1
4.	2110-401203	A1-11-C175	FRAME, JAW	1
5.	2110-401208	A1-11-S180	EYETURN ASSEMBLY	1
6.	2110-401211	A1-11-C183	BRACKET, MOUTH ACTUATOR	1
7.	3040-401214	A1-11-C186	LINK, CONNECTING	2
8.	3040-401321	A1-11-C189-2	FORK, END-CONNECTING ROD	1
9.	3040-401218	A1-11-C190	BRACKET, TEETH MTG.	2
10.	3040-401223	A1-11-D195	SHAFT, REAR LIP PIVOT	2
11.	3040-401224	A1-11-D196	SHAFT, FRONT LIP PIVOT	2
12.	3040-401225	A1-11-D197	SHAFT, FORK PIVOT	1
13.	3040-401226	A1-11-D198	LINK, CONNECTING-SMILE ACTUATOR	2
14.	3040-401227	A1-11-D199	CRANK, SMILE ACTUATOR	2
15.	3040-401220	A1-11-D200	LINK, LOWER CONNECTING	2
16.	3040-401229	A1-11-D201	LINK, UPPER CONNECTING	2
17.	3040-401233	A1-11-S205	CRANK ASSY R.H. LIP	1
18.	3040-401234	A1-11-S206	CRANK ASSY L.H. LIP	1
19.	5305-401238	A1-11-D209	BALL END, EYE MTG.	3
20.	2110-401240	A1-11-C211	PLATE, EYE ASSY MTG.	1
21.	5360-401241	A1-11-D212	SPRING, LIP	2
22.	6520-401244	A1--1-C215	PLATE, LOWER DENTAL	1
23.	6520-401245	A1-11-C216	PLATE, UPPER DENTAL	1
24.	2110-401248	A1-11-C219	MOUNT, LIP RING	2
25.	2110-401249	A1-11-C220	RING, LIP	2
26.				
27.	3040-401306	A1-11-C267	NOD & TILT MOUNT	1
28.	5310-401136	A1-18-D116	WASHER, SPECIAL	4
29.	3040-210300	A6-12-D107	MOUNT, HEAD	1
30.	3040-210301	UH-67	ROCKER ARM, HEAD NOD	1
31.				
32.	3010-201042	CY-1-42-1	CYLINDER ASSY, 1/2 B X 1/2 S *	1
33.	3010-201043	CY-1-42-2	CYLINDER ASSY, 1/2 B X 3/4 S *	2
34.	3010-200157	CY-4-55	CYLINDER ASSY, 5/16 B X 1/4 S	2
35.	3010-200320	CY-4-320	CYLINDER ASSY, 1/4 B X 3/16 S	2
36.	3010-200290	CY-4-290	CYLINDER ASSY, 1/4 B X 3/32 S	A/R
37.				
38.	5340-560606	HF-2	ROD END, FEMALE	HEIM 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
39.	3110-560709	SR3PPEEK25	BEARING NEW HAMPSHIRE	6
40.				
41.	5365-560628	5100-18-C	RING, RETAINING "E" TYPE TRUARC	2
42.	5365-006037	5133-9-H	RING, RETAINING "E" TYPE TRUARC	4
43.	5365-006039	5133-12-H	RING, RETAINING "E" TYPE TRUARC	6
44.	5325-571157	2145	GROMMET H.H. SMITH INC.	6
45.	5325-560625	2146	GROMMET H.H. SMITH INC.	2
46.	5325-572096	SE-46	EYELET UNITED SHOE MACH. CO.	6
47.				
48.				
49.	5315-570366		DOWEL PIN, .094 DIA X .25LG	4
50.	5310-595965	5-40	NUT, PLAIN	1
51.	5310-561967	10-32	NUT, PLAIN	2
52.				
53.	5305-563467	2-56 X 3/16	SCREW, SOC HD	6
54.	5305-563468	2-56 X 1/4	SCREW, SOC HD	8
55.	5305-570008	2-56 X 5/16	SCREW, SOC HD	8
56.	5305-563469	2-56 X 3/8	SCREW, SOC HD	2
57.	5305-570028	5-40 X 1/2	SCREW, SOC HD	1
58.	5305-570030	5-40 X 3/4	SCREW, SOC HD	1
59.	5305-570035	6-32 X 5/16	SCREW, SOC HD	4
60.	5305-565022	10-32 X 3/4	SCREW, SOC HD	2
61.	5305-011596	6-32 X 5/16	SCREW, TRUSS HD	4
62.	5310-562251	2	WASHER, LOCK	2
63.	5310-011474	2	WASHER, FLAT	12
64.	5310-595965	5-40	NUT	5
65.	5310-561947	6-32	NUT	6
66.				
67.	3010-401194	A1-12-C166	YOKE, UPPER "U" JOINT	1
68.	3010-401195	A1-12-C167	YOKE, LOWER "U" JOINT	1
69.	3010-401196	A1-12-C168	CROSS "U" JOINT	1
70.				
71.				
72.	3110-560711	DW4K2	BEARING FAFNIR	1
73.	5305-567631	10-32 X 1/2	SCREW, SOC HD	4
74.	5306-013195	AN173C13A	BOLT, AIRCRAFT (10-32 X 1 13/32)	2
75.	5310-561922	10-32	NUT, LOCK	2
76.	5305-563486	10-24 X 1/2"	SCREW, SOC HD	4





EYETURN LOCK-OFF  
OPTIONAL



EYEWINK  
OPTIONAL

A1-11-S180  
EYETURN ASSEMBLY  
HUMAN TYPE



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2110-401210	A1-11-C182	BRACKET, EYE MOUNTING	1
2.	3010-401212	A1-11-C184	DRIVER, EYE TURN	1
3.	3010-200186	CY-4-186	CYLINDER, EYE BLINK/WINK	1
4.	3040-401242	A1-11-C213	CYLINDER, MOUNT, EYE BLINK	1
5.	2110-401239	A1-11-C210	BRACKET, EYE TURN	2
6.	3040-401230	A1-11-D202	SHAFT, EYE TURN PIVOT	2
7.	2110-401246	A1-11-C217	EYELID, RIGHT	1
8.	2110-401231	A1-11-D203	PIVOT, EYELID	4
9.	2110-401237	A1-11-C208	BRACKET, EYELID	2
10.	5340-401220	A1-11-D192	TIE ROD, EYE TURN	1
11.	5325-401232	A1-11-D204	SPRING STOP, EYE TURN	2
12.	3010-401213	A1-11-C185	ARM, EYE TURN, REWORK	1
13.	5360-401205	A1-11-S177	SPRING, EYELID RETURN ASSY	1
14.	3010-200060	CY-4-60	ACTUATOR	1
15.	3040-401204	A1-11-D176	BRACKET, EYE TURN CYLINDER	1
16.	3120-401222	A1-11-D194	BUSHING, EYE TURN	2
17.	5310-401221	A1-11-D193	WASHER, EYE TURN	2
18.	3120-401219	A1-11-D191	BUSHING, EYE TURN TIE ROD	2
19.	2110-401216	A1-11-D188	EYEBALL (13.5 MM IRIS)	A/R
20.	2110-401215	A1-11-D187	EYEBALL (11.5 MM IRIS)	A/R
21.	3040-401243	A1-11-C214	MOUNT, EYE WINK CYLINDER	1
22.	2110-401247	A1-11-C218	EYELID, LEFT	1
23.	5360-572098	157B	SPRING CALIFORNIA SPRING	1
24.	5325-560625	2146	GROMMET H.H. SMITH	1
25.	5325-571157	2145	GROMMET H.H. SMITH	1
26.	5365-560628	5100-18-C	RETAINING RING TRUARC	1
27.	5365-006037	5133-9-H	RETAINING "E" RING TRUARC	4
28.	5365-006035	5133-6-H	RETAINING "E" RING TRUARC	4
29.				
30.	5310-402473	A4-38-D79	WASHER, SPECIAL	1
31.		1-72 X 1/8	SCREW, SOC SET, CUP POINT	2
32.	5305-563467	2-56 X 5/32	SCREW, SOC HD	1
33.	5305-010472	2-56 X 3/8	SCREW, BUTTON, SOC HD	3
34.	5305-570127	3-48 X 7/16	SCREW, SOC HD	2
35.	5305-570012	3-48 X 5/16	SCREW, SOC HD	1
36.	5325-572099	SE-57	BUSHING UNITED SHOE MACH. CORP.	1
37.	5310-562263	#2	WASHER, INTERNAL TOOTH	11
38.	5310-560390	79NM-38	NUT, LOCK 3-48 ESNA	2

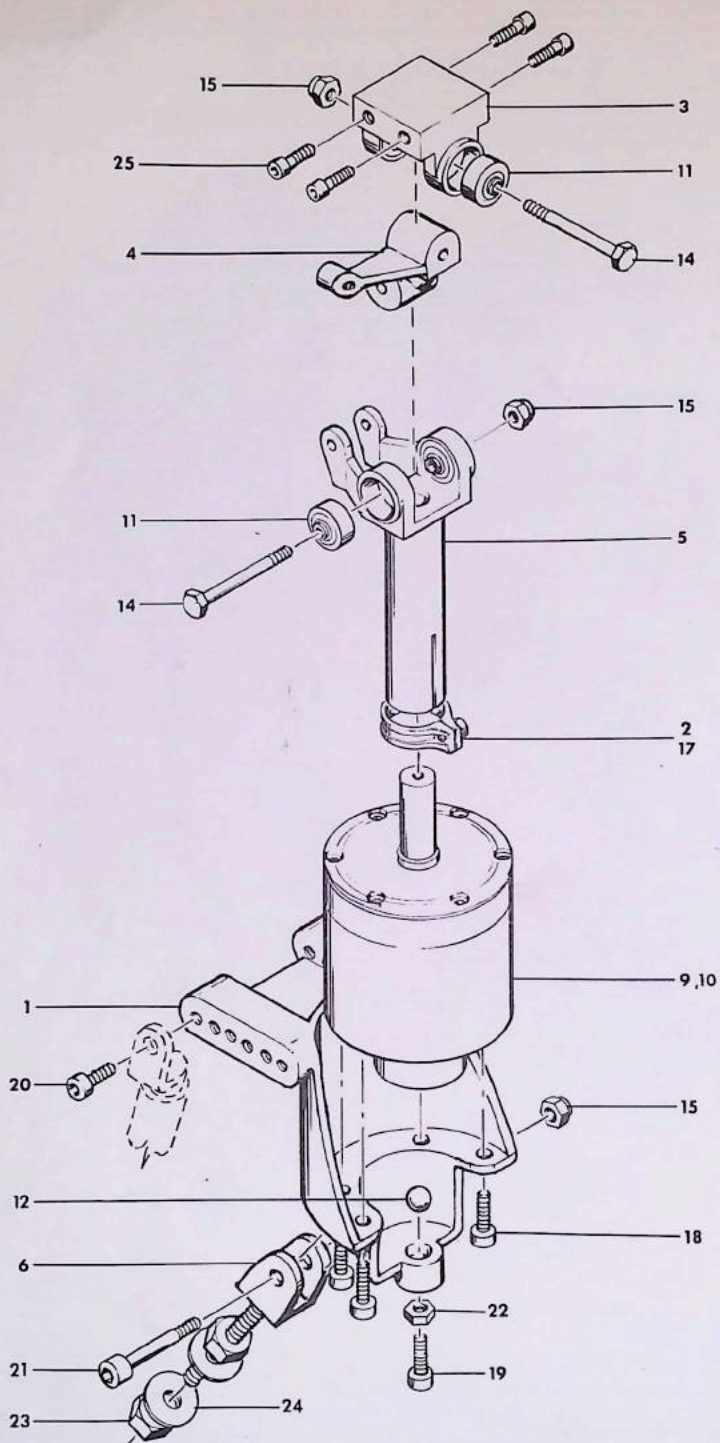
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A1-11-S180

EYE TURN ASSEMBLY, HUMAN TYPE

SHEET 2 OF 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
39.	5310-595965	5-40	NUT, PLAIN	4
40.	5310-561557	3-48	NUT, PLAIN	4
41.	2110-401331	A1-11-A289-2	BRACKET, EYE WINK, LEFT	1
42.	2110-401330	A1-11-A289-1	BRACKET, EYE WINK, RIGHT	1
43.	5310-011476	#3	WASHER, FLAT	1
44.	2110-401292	A1-11-D257	BRACKET, LOCK-OFF	1
45.	3010-200157	CY-4-55-3	ACTUATOR 5/16 B X .250 S	2



A1-12-A15  
 BASIC HEAD ACTUATION ASSEMBLY  
 (LARGE A-A FIGURE)

DWG.

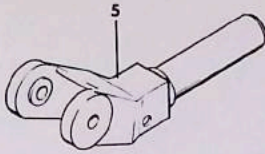
A1-21-A15

## BASIC HEAD ACTUATION ASSEMBLY

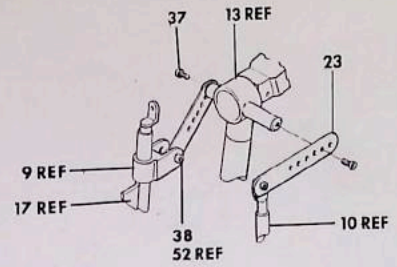
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-401073	A1-12-C67	HOUSING, HD ACTUATOR	1
2.	3010-401175	A1-18-C149	CLAMP, 5/8 I.D.	1
3.	3010-401194	A1-12-C166	YOKE, UPPER-U JOINT	1
4.	3010-401196	A1-12-C168	CROSS, U JOINT	1
5.	3010-401197	A1-12-W169	WELDMENT, YOKE-LOWER	1
6.	5340-401083	A1-18-C71-2	CLEVIS ROTATING	1
7.				
8.				
9.	3010-201318	CY-1-318	ROTARY ACTUATOR ASSEMBLY, 2" DIA	1
10.	3010-201420	CY-1-515	ROTARY ACTUATOR ASSEMBLY, 2" DIA	1
11.	3110-560709	SR3PPEEK25	BEARING NEW HAMPSHIRE	4
12.	3110-560756	1/4 DIA	PRECISION BALL	1
13.				
14.	5306-013195	AN173C13A	BOLT, AIRCRAFT (10-32 X1 13/32)	2
15.	5310-561967	79NM-02	NUT, LOCK (10-32 ) ESNA	3
16.				
17.	5305-570043	8-32 X 7/16	SCREW, SOC HD, SELF LOCKING	1
18.	5305-569255	10-24 X 3/8	SCREW, SOC HD, SELF LOCKING	4
19.	5305-563485	10-24 X 3/8	SCREW, SOC HD	1
20.	5305-563487	10-24 X 5/8	SCREW, SOC HD, SELF LOCKING	2
21.	5305-567633	10-32 X 1	SCREW, SOC HD	1
22.	5310-561949	10-24	NUT, HEX	1
23.	5310-562120	1/4-28	NUT, JAM	2
24.	5310-565029	1/4	WASHER, FLAT	2
25.	5305-567631	10-32 X 1/2	SCREW, SOC HD, SELF LOCKING	4

## NOTE:

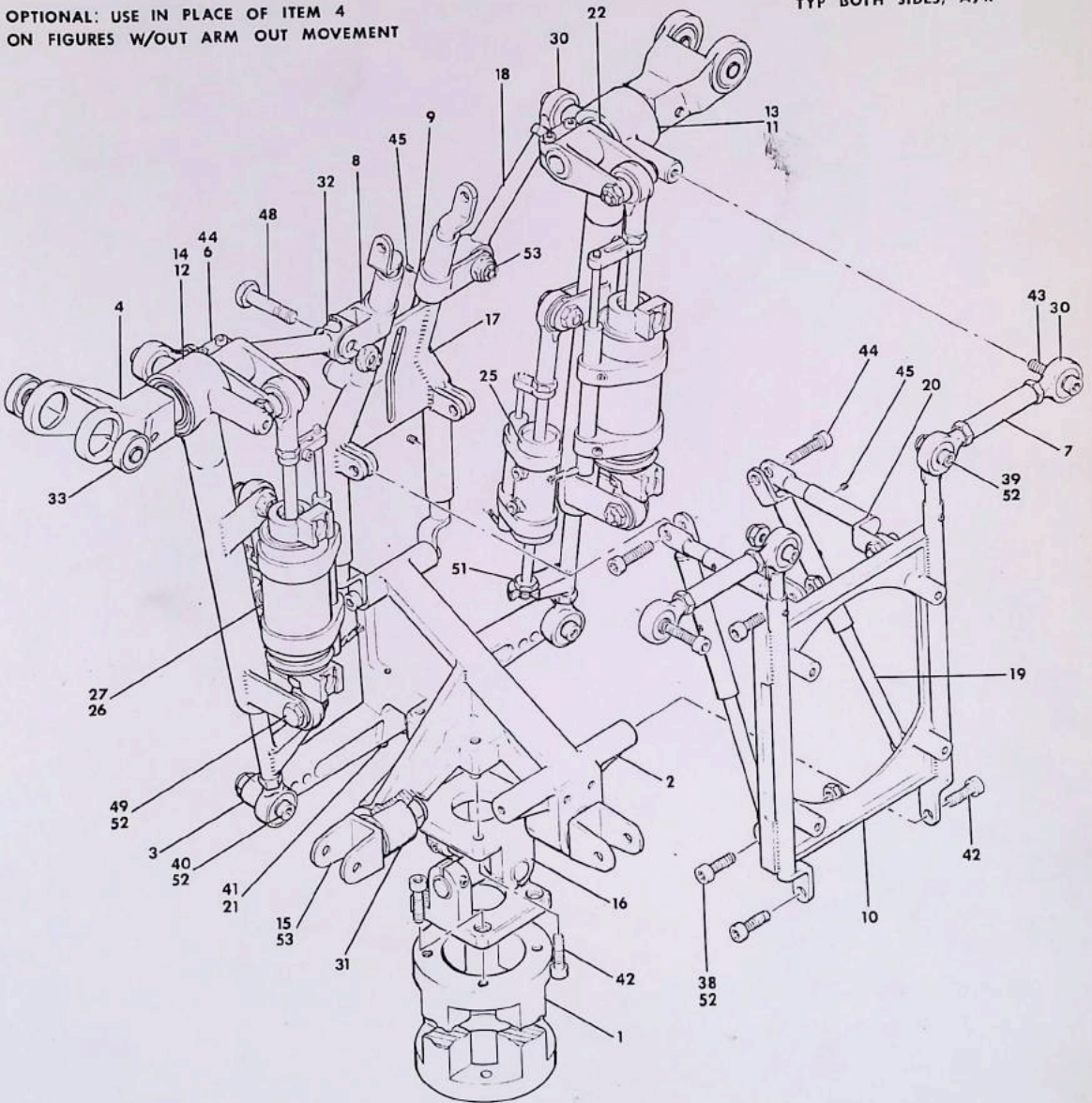
ITEMS 9 & 10 ARE INTERCHANGEABLE  
ON THIS ASSEMBLY. MAINTAINABILITY  
OF ITEM 9 IS LIMITED AS NOTED ON  
DRAWING 201187. USE ITEM #10 FOR  
NEW PRODUCTION.



OPTIONAL: USE IN PLACE OF ITEM 4  
ON FIGURES W/OUT ARM OUT MOVEMENT



TIE OFF-SHOULDER W/OUT SHRUG  
TYP BOTH SIDES, A/R



A1-14-A17  
TORSO ASSEMBLY

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2120-401016	A1-14-D14	EXTENSION SPACER TORSO	A/R
2.	2120-401025	A1-14-C20	SPINE BASE	1
3.	2120-401026	A1-14-C21	STRUT-SHOULDER SUPPORT	1
4.	5340-401028	A1-14-C22-2	CLEVIS, ARM MOUNTING W/ARM OUT MOVEMENT	A/R
5.	5340-401027	A1-14-C22-1	CLEVIS, ARM MOUNTING W/OUT ARM OUT MOVEMENT	A/R
6.	3040-401029	A1-14-C23	LEVER ARM, ARM FORWARD	2
7.	5340-401033	A1-14-D27	TUBE, ROD END CONNECTOR	2
8.	3040-401034	A1-14-C28	ANCHOR, RADIUS ROD R.H.	1
9.	3040-401035	A1-14-C29	ANCHOR, RADIUS ROD L.H.	1
10.	2120-401036	A1-14-W30	CHEST FRAME WELDMENT	1
11.	2120-401039	A1-14-S33	SHOULDER ASSEMBLY W/SHRUG L.H.	A/R
12.	2120-401040	A1-14-S34	SHOULDER ASSEMBLY W/SHRUG R.H.	A/R
13.	2120-401041	A1-14-S35	SHOULDER ASSEMBLY W/OUT SHRUG L.H.	A/R
14.	2120-401042	A1-14-S36	SHOULDER ASSEMBLY W/OUT SHRUG R.H.	A/R
15.	5340-401082	A1-18-C71-1	CLEVIS ROTATING	2
16.	3010-401120	A1-18-A101	UNIVERSAL JOINT ASSEMBLY	1
17.	2120-401121	A1-14-W102	SPINE FRAME WELDMENT	1
18.	2120-401122	A1-14-W103	SHOULDER RADIUS ROD WELDMENT	2
19.	3040-401123	A1-14-W104	TUBE WELDMENT SUPPORT, MALE	6
20.	3040-401124	A1-14-W105	TUBE WELDMENT SUPPORT, FEMALE	8
21.	5310-401080	A1-18-D70	WASHER, SPECIAL, 1/4	2
22.	5365-401030	A1-14-D24	SPACER RING	2
23.	3040-401177	A1-14-D150	STRAP, TIE OFF-SHRUG	A/R
24.				
25.	3010-201128	CY-1-125-4	ACTUATOR ASSEMBLY, 5/8" B X 1 1/2" S	A/R
26.	3010-201069	CY-1-154-4	ACTUATOR ASSEMBLY, 1" B X 2" S	A/R
27.	3010-401258	A1-18-S227	DUMMY ACTUATOR ASSEMBLY	A/R
28.				
29.				
30.	5340-595941	REP3M4-6	ROD END	FAFNIR A/R
31.	3110-560712	DW5	BEARING	FAFNIR 2
32.	3110-560710	DW4K2	BEARING	FAFNIR 2
33.	3110-595391	KP4A	BEARING	FAFNIR A/R
34.				
35.				
36.				
37.	5305-567630	10-32 X 3/8	SCREW, SOC HD	A/R

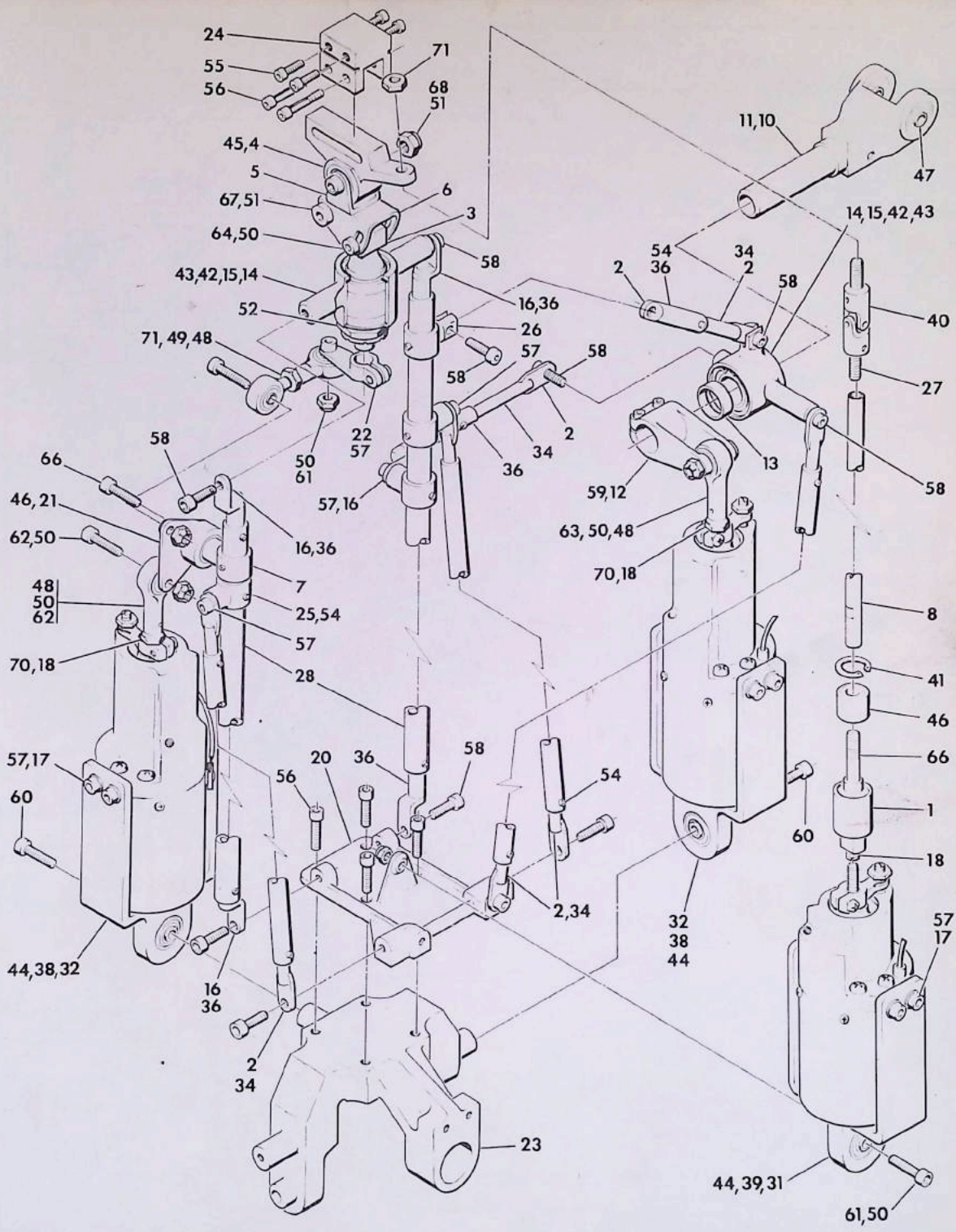
DWG.

A1-14-A17

TORSO ASSEMBLY

SHEET 2 OF 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
38.	5305-565022	10-32 X 3/4	SCREW, SOC HD	A/R
39.	5305-567632	10-32 X 7/8	SCREW, SOC HD	2
40.	5305-567634	10-32 X 1 1/4	SCREW, SOC HD	2
41.	5305-565021	1/4-20 X 1 1/4	SCREW, SOC HD	2
42.	5305-563487	10-24 X 5/8	SCREW, SOC HD	12
43.	5305-567630	10-32 X 3/8	SCREW, SOC HD	4
44.	5305-565041	10-32 X 5/8	SCREW, SOC HD	6
45.	5305-573074	6-32 X 1/8	SCREW, SOC, SET, CUP POINT	12
46.				
47.				
48.	5306-013256	AN174C12A	BOLT, AIRCRAFT (1/4-28 X 1 9/32)	2
49.	5306-013192	AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32)	6
50.				
51.	5310-561967	10-32	NUT, HEX	2
52.	5310-561922	79NM-02	NUT, LOCK (10-32)	ESNA A/R
53.	5310-561923	79NE-048	NUT, LOCK (1/4-28)	ESNA 4
54.				



A6-14-A101  
 TORSO ASSEMBLY



DWG.

A6-14-A101

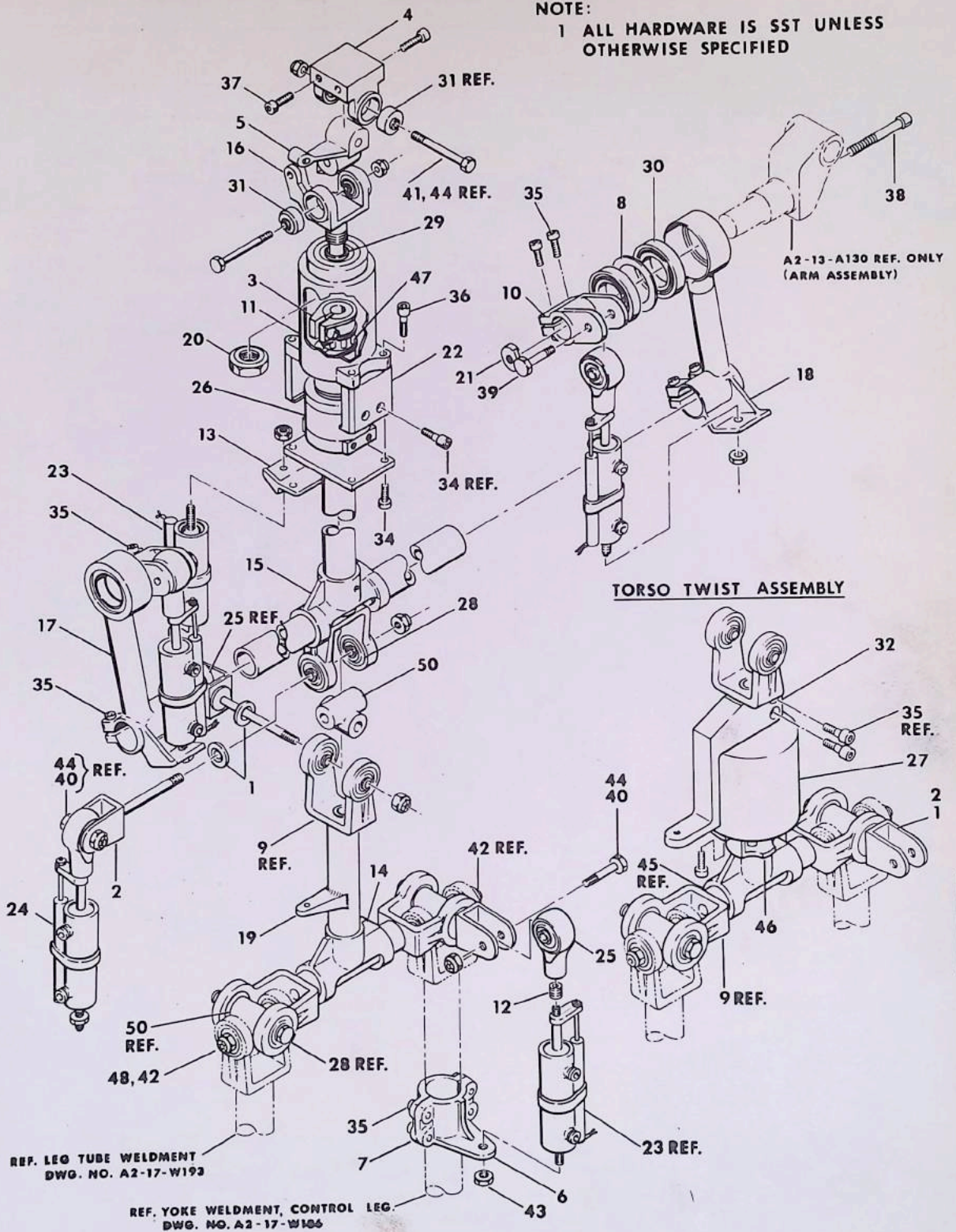
TORSO ASSY

SHEET 1 OF 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-210534	UH-35	ROTATOR, HEAD NOD	1
2.	2120-401131	A1-14-C112	LUG, STRAIGHT	9
3.	3040-210535	UH-53	SHAFT, HEAD TURN	1
4.	3040-210301	UH-67	ROCKER ARM, HEAD NOD	1
5.	5340-210292	UH-68	YOKE, NECK-LINK	1
6.	3040-210536	UH-70	BRACKET, NECK-LINK	1
7.	3040-210293	UT-75	ANCHOR, TUBE (1/4-28 TAP)	1
8.	3040-210537	UH-82	PUSH ROD, HEAD NOJ	1
9.				
10.	5340-401027	A1-14-C22-1	CLEVIS, ARM MNTG-W/O ARM MOVE	A/R
11.	5340-401028	A1-14-C22-2	CLEVIS, ARM MNTG-W/ARM MOVE	A/R
12.	3040-401029	A1-14-C23	LEVER, ARM FWD.	1
13.	5365-401030	A1-14-D24	SPACER RING, ARM FWD.	1
14.	3110-401031	A1-14-D25	SPACER, BEARINGS	2
15.	2120-401045	A1-14-C39	CARRIER, BEARINGS-ARM FWD.	2
16.	2120-401133	A1-14-C114	LUG, ANGLE	5
17.	5310-401136	A1-18-D116	WASHER, SPECIAL #10	12
18.	3040-401402	A2-98-D2	ADAPTER, ACTUATOR (1/4-28 X 10-32)	3
19.				
20.	3040-210286	A6-14-C102	ADAPTER PLATE, TORSO	1
21.	3040-210154	A6-12-C103	CRANK, ROD ENDS-HEAD TURN	1
22.	3010-210359	A6-12-C104	CLAMP, SHAFT-HEAD TURN	1
23.	3040-210288	A6-14-D106	BRACKET, ACTUATOR	2
24.	3040-210300	A6-12-D107	MOUNT, HEAD ADJUST	1
25.	3040-210289	A6-14-C108	ANCHOR, TUBE (10-32 TAP)	3
26.	3040-210290	A6-14-C109	ANCHOR, TUBE (SLOTTED)	1
27.	3040-210538	A6-12-D113	SHAFT, THREADED (1/4-28)	2
28.	3040-210291	A6-14-D117	TUBE, 1/2 O.D.-TORSO	2
29.				
30.				
31.	3130-200279	CY-7-279-1	BRACKET, BEARING	1
32.	3130-200280	CY-7-279-2	BRACKET, BEARING	2
33.				
34.		1/4 O.D.	BAR, TYPE 304 SST	8
35.		3/8 O.D.	BAR, TYPE 304 SST (OPT'N'L:.120W.TUBE)	2
36.		3/8 O.D. X .058W.	TUBE, TYPE 304 SST	9
37.				
38.	3010-210157	10050-1	ACTUATOR 1.5 STROKE HYDR. RESEARCH CO.	2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
39.	3010-200514	10050-2	ACTUATOR 1.0 STROKE HYDR. RESEARCH CO.	1
40.	3010-572125	BC-3	"U" JOINT PIC DESIGN CORP.	1
41.	5365-570145	5000-62H	RETAINING RING TRUARC	1
42.	5365-595954	5008-106H	RETAINING TRUARC	4
43.	3110-560715	B538DD	BEARING FAFNIR	4
44.	3110-560588	DSP3	BEARING FAFNIR	3
45.	3110-560711	DW4K	BEARING FAFNIR	1
46.	3110-560710	DW4K2	BEARING FAFNIR	2
47.	3110-595319	KP4A	BEARING FAFNIR	A/R
48.	5340-571803	RE3F4	ROD END FAFNIR	3
49.	5340-560613	RA3M4-7	ROD END FAFNIR	1
50.	5310-560406	79NM-02	NUT HEX (10-32) ESNA	6
51.	5310-560407	79NE-048	NUT LOCK (1/4-28) ESNA	2
52.	5310-560846	F52NTE-108	NUT LOCK (5/8-18) ESNA	1
53.				
54.	5305-573073	4-40 X 3/16	SOC. SET SCREW CUP POINT	2 17
55.	5305-563486	10-24 X 1/2	SCREW SOC. HD.	4
56.	5305-569260	10-24 X 1	SCREW SOC. HD., SELF LKG	6
57.	5305-569179	10-32 X 3/8	SCREW SOC. HD., SELF LKG	18
58.	5305-569181	10-32 X 1/2	SCREW SOC. HD., SELF LKG	11
59.	5305-569182	10-32 X 5/8	SCREW SOC. HD., SELF LKG	2
60.	5305-569183	10-32 X 3/4	SCREW SOC. HD., SELF LKG	2
61.	5305-565022	10-32 X 3/4	SCREW SOC. HD., SELF LKG	2
62.	5305-567633	10-32 X 1	SCREW SOC. HD.	2
63.	5305-565039	10-32 X 1 1/8	SCREW SOC. HD.	1
64.	5305-567634	10-32 X 1 1/4	SCREW SOC. HD.	1
65.				
66.	5305-569192	1/4-28 X 3/4	SCREW SOC. HD.	2
67.	5305-567640	1/4-28 X 1 1/4	SCREW SOC. HD.	1
68.	5305-567641	1/4-28 X 1 3/8	SCREW SOC. HD.	1
69.				
70.	5310-561967	10-32	NUT, HEX	2
71.	5310-562120	1/4-28	NUT, JAM	2

NOTE:  
 1 ALL HARDWARE IS SST UNLESS  
 OTHERWISE SPECIFIED



A2-14-A187  
 PELVIS, TORSO & HEAD ACTUATION ASSEMBLY  
 SMALL A-A FIGURE

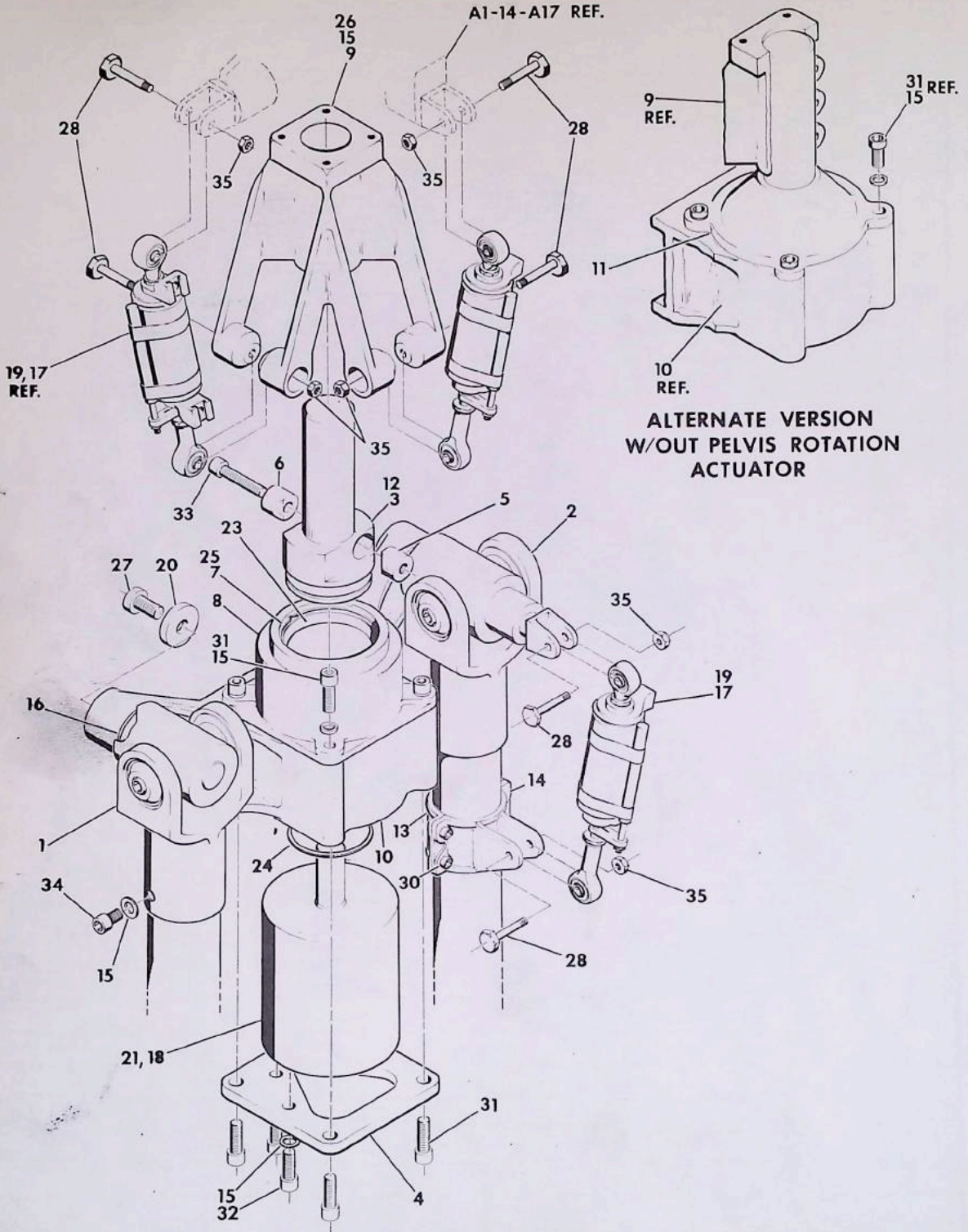
DWG. A2-14-A187

PELVIS, TORSO & HEAD ACTUATION ASSEMBLY  
SMALL A-A FIGURE

SHEET 1 OF 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	5365-401079	A1-15-D69-5	SPACER, WASHER	3
2.	5340-210123	A1-18-C71-10	CLEVIS, ROTATING	3
3.	3010-401176	A1-18-C149-1	CLAMP	2
4.	3010-401194	A1-12-C166	YOKE, UPPER, "U" JOINT	1
5.	3010-401196	A1-12-C168	CROSS, "U" JOINT, TORSO	1
6.	3010-401511	A2-18-C111	CLAMP, LEG, PELVIS BEND	1
7.	3010-401512	A2-18-C112	CLAMP, 3/4 O.D. TUBE	1
8.	5365-401514	A2-14-D114	SPACER, BEARING, ARM FORWARD	2
9.	3010-401586	A2-14-C183	YOKE "U" JOINT	3
10.	5340-401519	A2-14-C119	CLEVIS, ACTUATOR	2
11.	3040-401522	A2-14-C122	MOUNT, ROTARY ACTUATOR 1 5/16	1
12.	5365-401523	A2-18-D123	BUSHING, REDUCER, ROD END	4
13.	3040-401525	A2-14-C125	BRACKET, CYLINDER, TORSO FORBEND	1
14.	3040-401516	A2-14-C116	TEE JOINT, 5/8 DIA TUBE	1
15.	2120-401529	A2-14-W129	WELDMENT, SHOULDER & NECK SUPPORT	1
16.	2110-401533	A2-12-W131	WELDMENT, "U" JOINT HEAD	1
17.	2130-401536	A2-14-W134	WELDMENT, ARM PIVOT, R.H.	1
18.	2130-401537	A2-14-W135	WELDMENT, ARM PIVOT, L.H.	1
19.	3040-401555	A2-13-C153	BRACKET, REWORK	2 1
20.	5310-401566	A2-18-D163	NUT, JAM	1
21.	5310-401582	A2-17-D179	KEEPER, NUT	2
22.	3040-401583	A2-14-C180	BLOCK-CLAMP, ROTARY ACTUATOR	2
23.	3010-201043	CY-1-42-2	CYLINDER ASSEMBLY, 1/2" X 3/4" STROKE	1
24.	3010-201044	CY-1-42-3	CYLINDER ASSEMBLY, 1/2" X 1" STROKE	4
25.	5340-201313	CY-1-313	ROD END, MODIFIED	5
26.	3010-201320	CY-1-317	ACTUATOR, ROTARY ASSEMBLY, 1 5/16" DIA	1
27.	3010-201318	CY-1-318	ACTUATOR, ROTARY ASSEMBLY, 2" DIA	1
28.	3110-595319	KP4A	BEARING, AIRCRAFT	FAFNIR 12
29.	3110-595320	KP6A	BEARING, AIRCRAFT	FAFNIR 1
30.	3110-560715	B538DD	BEARING, AIRCRAFT	FAFNIR 4
31.	3110-560709	SR3PPEEK25	BEARING, BALL	NEW HAMPSHIRE 4
32.	3040-401591	A2-14-D188	BRACKET, ACTUATOR TORSO SIDE BEND	1
33.				
34.	5305-569233	6-32 X 3/8	SCREW, SOC HD, SELF LOCKING	8
35.	5305-569246	8-32 X 1/2	SCREW, SOC HD, SELF LOCKING	12
36.	5305-569247	8-32 X 5/8	SCREW, SOC HD, SELF LOCKING	4
37.	5305-569181	10-32 X 1/2	SCREW, SOC HD, SELF LOCKING	4
38.	5305-569195	1/4-28 X 1 1/4	SCREW, SOC HD, SELF LOCKING	2





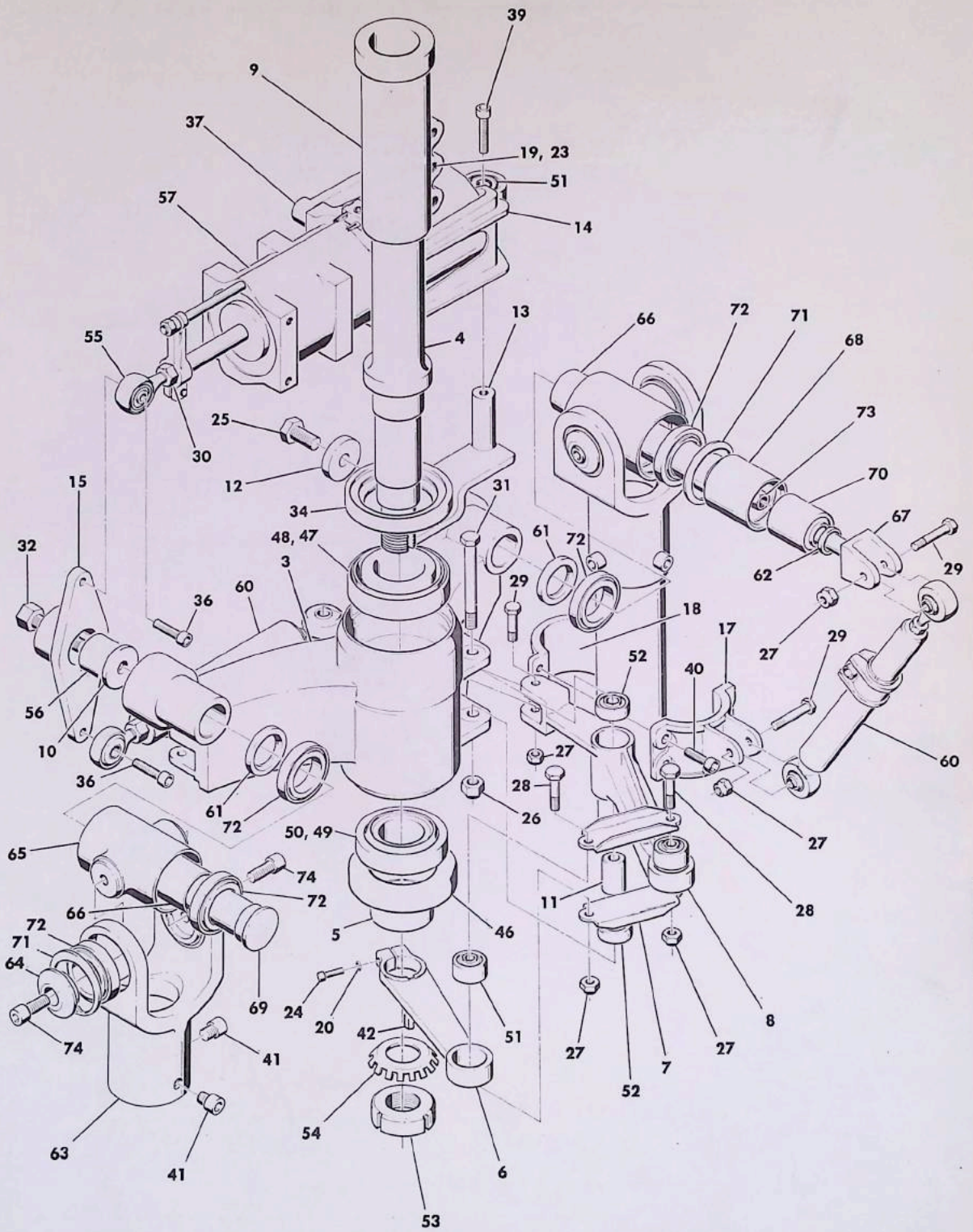
A1-15-A18  
 PELVIS ASSEMBLY

DWG.

A1-15-A18

## PELVIS ASSEMBLY

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2125-401004	A1-15-S4	HIP JOINT ASSEMBLY W/CLEVIS	1
2.	2125-401005	A1-15-S5	HIP JOINT ASSEMBLY W/OUT CLEVIS	1
3.	3040-401006	A1-15-D6-1	PELVIS SHAFT, ROTATING, SHORT	A/R
4.	3040-401008	A1-15-D7	MOUNTING PLATE	A/R
5.	5365-401009	A1-15-D8-1	CLAMP, PLUG, THREADED	A/R
6.	5365-401010	A1-15-D8-2	CLAMP, PLUG	A/R
7.	5365-401011	A1-15-D9	SPACER BEARING	A/R
8.	3040-401012	A1-15-C10	HOUSING, BEARING	A/R
9.	3040-401013	A1-15-C11	SERVO MOUNT	1
10.	2125-401014	A1-15-C12	PELVIS CASTING	1
11.	2125-401015	A1-15-W13	PELVIS SHAFT, WELDMENT	A/R
12.	3040-401007	A1-15-D6-2	PELVIS SHAFT, ROTATING, LONG	A/R
13.	5340-401091	A1-18-C72	CLAMP, CLEVIS	1
14.	5340-401092	A1-18-C73	CLEVIS	1
15.	5310-401080	A1-18-D70	WASHER, SPECIAL	A/R
16.	5365-401075	A1-15-D69-1	SPACER, HIP JOINT	2
17.	3010-201069	CY-1-154-4	ACTUATOR ASSEMBLY, 1" B X 2" S	A/R
18.	3010-201319	CY-1-319	ROTARY ACTUATOR ASSEMBLY W/TRANS 3"	A/R
19.	3010-401258	A1-18-S227	ACTUATOR ASSEMBLY, DUMMY	A/R
20.	5310-401097	A1-15-D78	WASHER, SPECIAL	2
21.	3010-201419	CY-1-514	ROTARY ACTUATOR ASSEMBLY W/TRANS 3"	A/R
22.				
23.	3110-560721	B544DD	BEARING	FAFNIR A/R
24.	5365-569928	US-181S	RING, RETAINING	SPIROLOX A/R
25.	5365-569985	UR-225S	RING, RETAINING	SPIROLOX A/R
26.	5305-567271	1/4-20 X 1	SCREW, SOC HD- SELF LOCKING	3
27.	5305-013440	5/16-18 X 5/8	SCREW, SOC HD, SELF LOCKING	2
28.	5306-013192	AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32)	6
29.				
30.	5305-563486	10-32 X 1/2	SCREW, SOC HD, SELF LOCKING	4
31.	5305-561451	1/4-20 X 3/4	SCREW, SOC HD, SELF LOCKING	8
32.	5305-561468	1/4-20 X 5/8	SCREW, SOC HD, SELF LOCKING	A/R
33.	5305-565021	1/4-20 X 1 1/4	SCREW, SOC HD, SELF LOCKING	A/R
34.	5305-570585	1/4-28 X 3/8	SCREW, SOC HD, SELF LOCKING	4
35.	5310-561922	79NM-02	NUT, LOCK (10-32)	ESNA 6
			NOTE: ITEMS 18 & 21 ARE INTERCHANGEABLE ON THIS ASSY MAINTAIN-	
			ABILITY OF ITEM 18 IS LIMITED AS NOTED ON DWG #201188. USE ITEM 21.	



A6-15-A110  
 PELVIS ASSEMBLY W/TORSO TWIST



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2125-210542	UP-19	HIP-JOINT ASSY W/CLEVIS	1
2.	2125-210544	UP-21	HIP-JOINT ASSY W/O CLEVIS	1
3.	2125-210540	UP-2	PELVIS CASTING	1
4.	3040-210546	UP-3	SHAFT, PELVIS	1
5.	3040-210547	UP-4	SLEEVE PELVIS SEAL	1
6.	3040-210548	UP-5	CRANK ARM	1
7.	3040-210549	UP-7	LINK, TORSO TURN	2
8.	3040-210550	UP-8	BELLCRANK CASTING, OFFSET	1
9.	3040-210287	A6-15-D105	SERVO MOUNT CASTING, MODIFIED	1
10.	5310-210552	A6-15-D111	WASHER, SPACER	1
11.	3120-210551	UP-18	SPACER, BEARING	1
12.	5310-401097	A1-15-D78	WASHER, FLAT	1
13.	3040-210553	A6-15-W115	MOUNT, ACTUATOR	1
14.	3040-200179	CY-7-303-1	MOUNT, CYLINDER	1
15.	3040-210554	A6-15-W112	CRANK, PELVIS TWIST	1
16.				
17.	5340-401092	A1-18-C73	CLEVIS	1
18.	5340-401091	A1-18-C72	CLAMP, CLEVIS	1
19.	5310-401080	A1-18-D70	WASHER, FLAT	3
20.	5310-401137	A1-18-D117	WASHER, FLAT	1
21.				
22.				
23.	5305-565007	1/4-20 X 1"	SCREW, SOC HD	1
24.	5305-563482	8-32 X 3/4"	SCREW, SOC HD	3
25.	5305-565057	5/16-18 X 5/8"	BOLT, HEX HD	1
26.	5310-560407	79NE-048	NUT, HEX (1/4-28)	ESNA 1
27.	5310-560406	79NM-02	NUT, HEX (10-32)	ESNA 5
28.	5306-013191	AN173C7A	BOLT, AIRCRAFT (10-32 X 29/32)	2
29.	5306-013006	AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32)	3
30.	5310-562120	1/4-28	NUT, JAM	1
31.	5306-013264	AN174C22A	BOLT, AIRCRAFT (1/4-28 X 2 9/32)	1
32.	5305-567297	5/16-18 X 1 3/8	BOLT, HEX HD	1
33.				
34.				
35.				
36.	5305-563488	10-24 X 3/4	SCREW, SOC HD, SELF LOCKING	2
37.	5305-567630	10-32 X 3/8	SCREW, SOC HD, SELF LOCKING	4
38.	5305-567631	10-32 X 1/2	SCREW, SOC HD, SELF LOCKING	2

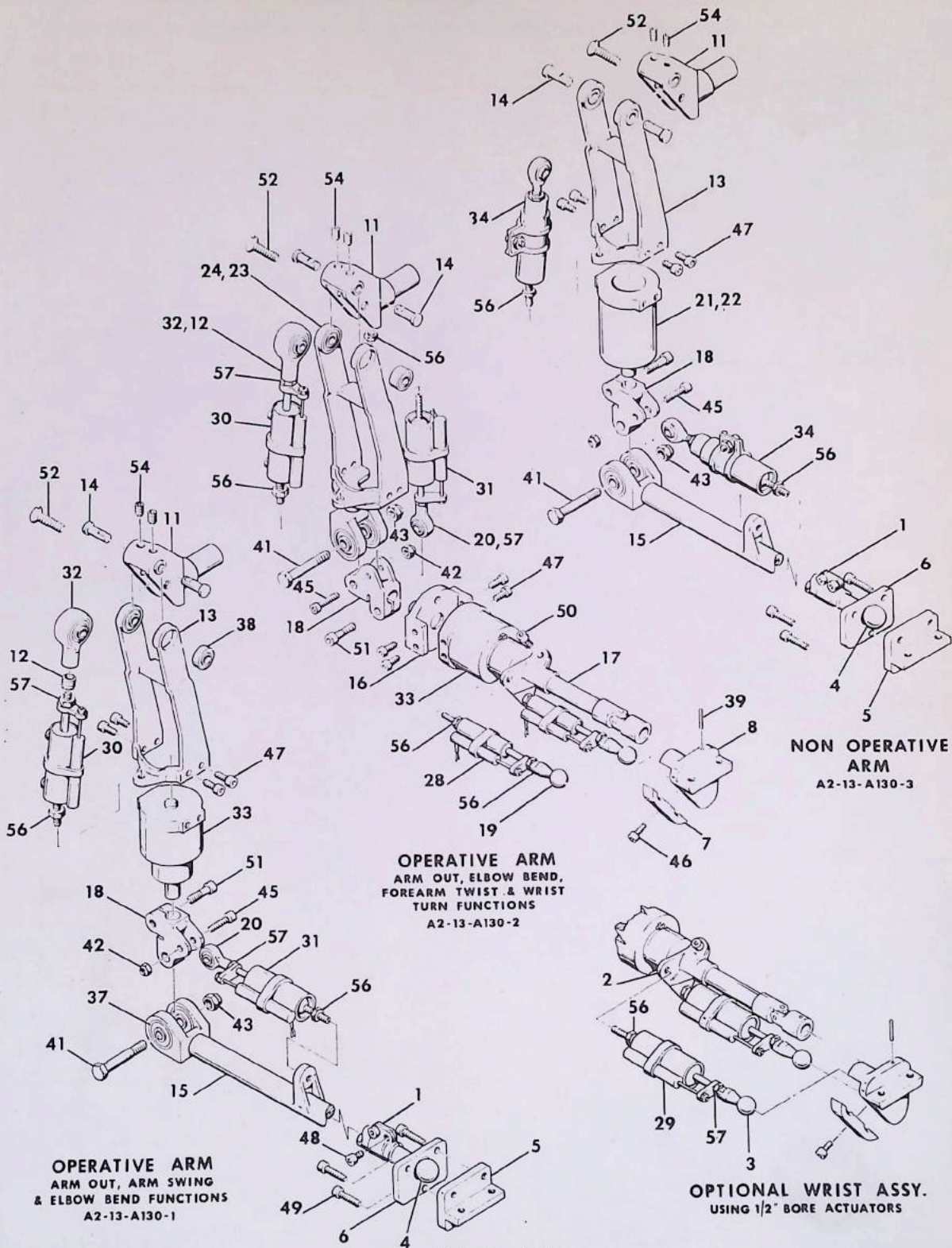
DWG.

A6-15-A110

PELVIS ASSEMBLY, W/TORSO TWIST

SHEET 2 OF 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
39.	5305-565032	10-32 X 7/8	SCREW, SOC HD, SELF LOCKING	1
40.	5305-565041	10-32 X 5/8	SCREW, SOC HD, SELF LOCKING	4
41.	5305-573577	1/4-20 X 1/4	SCREW, SOC HD, SELF LOCKING	4
42.		3/16 X 3/16 X 1	KEY	1
43.				
44.				
45.	5330-572121	40438	SEAL, OIL (TYPE 4L) NATIONAL	1
46.	5330-572120	40169	SEAL, OIL (TYPE 4L) NATION	1
47.	3110-572118	15520	CUP, BEARING TIMKEN	1
48.	3110-572119	15590	CONE, BEARING TIMKEN	1
49.	3110-571867	07196	CUP, BEARING TIMKEN	1
50.	3110-571866	07100	CONE, BEARING TIMKEN	1
51.	3110-560588	DSP3	BEARING FAFNIR	3
52.	3110-595319	KP4A	BEARING FAFNIR	2
53.	5365-568647	TN04	NUT, BEARING LOCK TIMKEN	1
54.	5310-572116	TW104	WASHER, LOCK TIMKEN	1
55.	5340-560611	RA3M4-2	ROD END FAFNIR	1
56.	3110-560712	DW5	BEARING FAFNIR	1
57.	3010-210146	10150	ACTUATOR, PNEU. SERVO HYD. RESEARCH	1
58.				
59.				
60.	3010-401258	A1-18-S227	ACTUATOR ASSEMBLY, DUMMY	1
	THE FOLLOWING PARTS ARE A BREAKDOWN OF ITEMS 1 (UP-19) & 2 (UP-21).			
61.	5365-401075	A1-15-D69-1	SPACER	2
62.	5365-401076	A1-15-D69-2	SPACER	1
63.	5340-401093	A1-15-C74	CLEVIS, THIGH	2
64.	3120-401094	A1-15-D75	SEAT, BEARING	4
65.	2125-401095	A1-15-C76	HIP SWAY CASTING	2
66.	5365-401096	A1-15-D77	SPACER, BEARING	2
67.	5340-401295	A1-18-C259-1	CLEVIS, HIP JOINT	1
68.	3040-210543	UP-11	SHAFT, UNIVERSAL HIP JOINT	1
69.	3040-210545	UP-12	SHAFT, HIP JOINT	1
70.	3110-560713	DW6	BEARING FAFNIR	1
71.	5365-568647	N5001-131H	RING, RETAINING TRUARC	6
72.	3110-572123	TWF14-21U	BEARING MPB	8
73.		59FH-428	NUT, LOCK (1/4-28) FLEXLOC	1
74.	5305-561468	1/4-20 X 5/8	SCREW, SOC HD	4



**A2-13-A130  
ARM ASSEMBLY  
(SMALL A-A FIGURE)**

DWG.

A2-13-A130

ARM ASSEMBLY - SMALL A-A FIGURE

SHEET 1 OF 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3010-401065	A1-13-C59	CLAMP, FOREARM	A/R
2.	2130-401066	A1-13-W60	WELDMNT, WRIST ACTUATOR	↑
3.	3040-401069	A1-13-D63	BALL JOINT, 3/8 DIA (6-32 TAP)	
4.	3040-401179	A1-13-D151	BALL JOINT, 1/2 DIA	
5.	3040-401182	A1-13-C154	SOCKET, HOUSING - WRIST	
6.	3040-401183	A1-13-D155	PLATE, RETAINER	
7.	3040-401184	A1-13-C156	PLATE, RETAINER	
8.	3040-401185	A1-13-C157	SOCKET, HOUSING - WRIST	
9.				
10.				
11.	5340-401520	A2-13-C120	CLEVIS, ARM MOUNTING	
12.	5365-401523	A2-18-D123	BUSHING, REDUCER - ROD END	
13.	3040-401526	A2-13-C126	MOUNT, ACTUATOR - UPPER ARM	
14.	5315-401538	A2-13-D136	PIN, PIVOT - ARM OUT	
15.	2130-401542	A2-13-W140	WELDMNT, FOREARM W/O WRIST TURN	
16.	3040-401543	A2-13-W141	WELDMNT, ACTUATOR MOUNT - WRIST TURN	
17.	2130-401544	A2-13-W142	WELDMNT, WRIST ACTUATOR	
18.	5340-401545	A2-13-C143	CONNECTOR JOINT, ELBOW	
19.	3040-401546	A2-13-D144	BALL JOINT, 3/8 DIA (4-40 TAP)	
20.	5340-401548	A2-13-D146	ROD END MODIFICATION	
21.	3010-401270	A1-13-S238-1	DUMMY ACTUATOR, ROTATING 1 5/16 DIA	
22.	3010-401551	A2-13-S149	DUMMY ACTUATOR, STATIONARY 1 5/16 DIA	
23.	3040-401552	A2-13-W150	WELDMNT, UPPER ARM MOUNT, R.H.	
24.	3040-401553	A2-13-W151	WELDMNT, UPPER ARM MOUNT, L.H.	
25.				
26.				
27.				
28.	3010-201015	CY-1-15-2	ASSEMBLY, CYLINDER 5/16" BORE X 1/2" STROKE	
29.	3010-201042	CY-1-42-1	ASSEMBLY, CYLINDER 1/2" BORE X 1/2" STROKE	
30.	3010-201043	CY-1-42-2	ASSEMBLY, CYLINDER 1/2" BORE X 3/4" STROKE	
31.	3010-201044	CY-1-42-3	ASSEMBLY, CYLINDER 1/2" BORE X 1" STROKE	
32.	5340-201313	CY-1-313	ROD END, MODIFIED	
33.	3010-201320	CY-1-317	ASSEMBLY, ROTARY ACTUATOR 1 5/16 DIA	
34.	3010-401255	A1-18-S225-1	DUMMY CYLINDER	
35.				
36.				
37.	3110-595327	K3L	BALL BEARING	FAFNIR ↓
38.	3110-562287	SR3PPPK25	BALL BEARING	NEW HAMPSHIRE A/R

DWG.

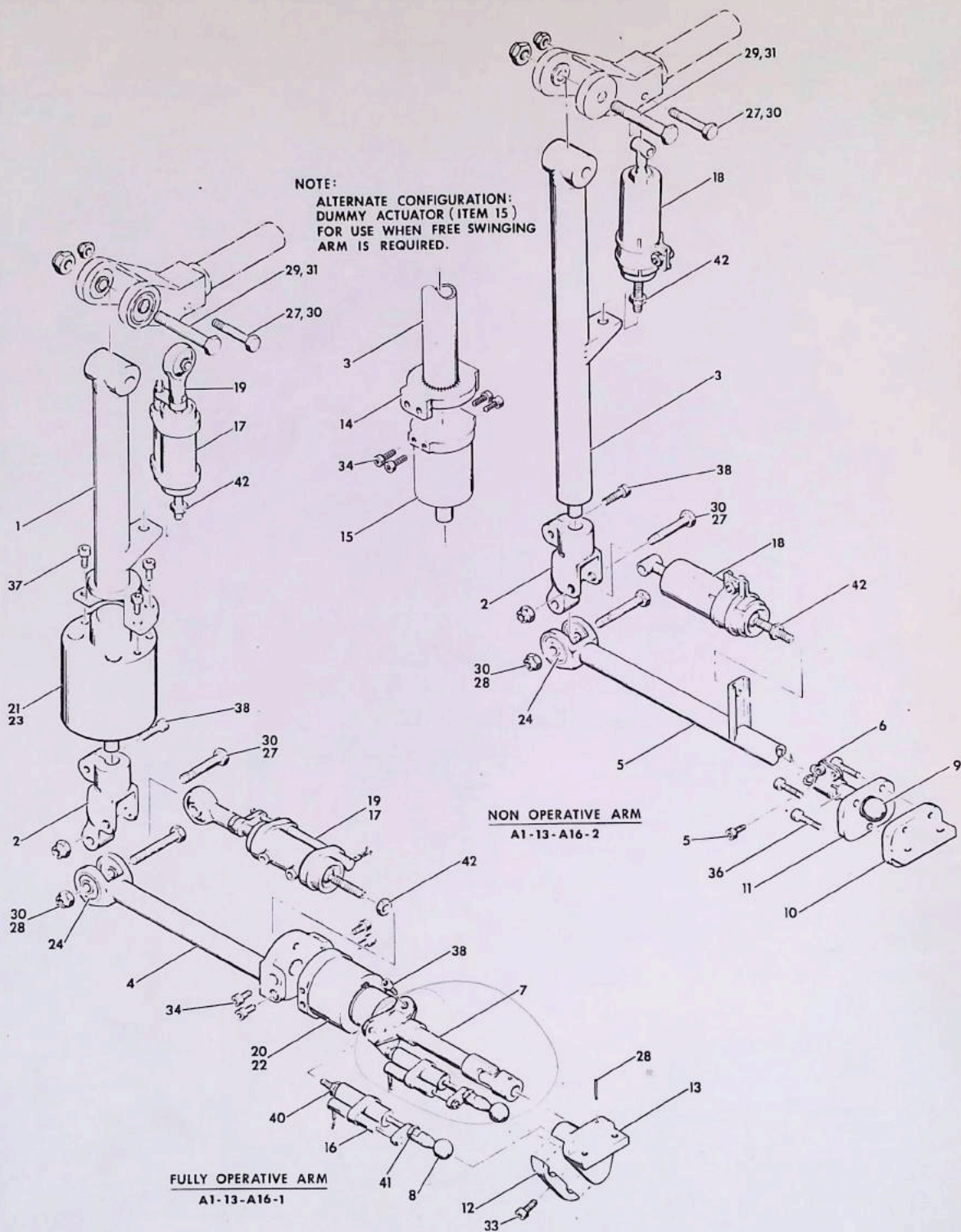
A2-13-A130

ARM ASSEMBLY - SMALL A-A FIGURE

SHEET 2 OF 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
39.		1/16 X 3/4 LG	GROOV-PIN TYPE A COMM'L SST	A/R
40.				↑
41.	5306-013192	AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32) SST	
42.	5310-560392	79NM-50	NUT, LOCK - LIGHT, 5-40 UNC ESNA	
43.	5310-560406	79NM-02	NUT, LOCK LIGHT, 10-32 ESNA	
44.				
45.	5306-570032	5-40 X 1	SCREW, SOC HD CAP	
46.	5305-569231	6-32 X 1/4	SCREW, SOC HD CAP, SELF LOCKING	
47.	5305-569232	6-32 X 5/16	SCREW, SOC HD CAP, SELF LOCKING	
48.	5305-569233	6-32 X 3/8	SCREW, SOC HD CAP, SELF LOCKING	
49.	5305-569235	6-32 X 1/2	SCREW, SOC HD CAP, SELF LOCKING	
50.	5305-569179	10-32 X 3/8	SCREW, SOC HD CAP, SELF LOCKING	
51.	5305-569181	10-32 X 1/2	SCREW, SOC HD CAP, SELF LOCKING	
52.	5305-566112	10-32 X 3/4	SCREW, FLAT HD SOC	
53.				
54.		8-32 X 1/4	SCREW, SOC SET, CUP PT SELF LOCKING	
55.				
56.		5-40	NUT, HEX SST	✓
57.		6-32	NUT, HEX SST	A/R

NOTE:  
 ALTERNATE CONFIGURATION:  
 DUMMY ACTUATOR (ITEM 15)  
 FOR USE WHEN FREE SWINGING  
 ARM IS REQUIRED.



FULLY OPERATIVE ARM  
 A1-13-A16-1

NON OPERATIVE ARM  
 A1-13-A16-2

A1-13-A16  
 ARM ASSEMBLY  
 HUMAN TYPE

DWG.

A1-13-A16

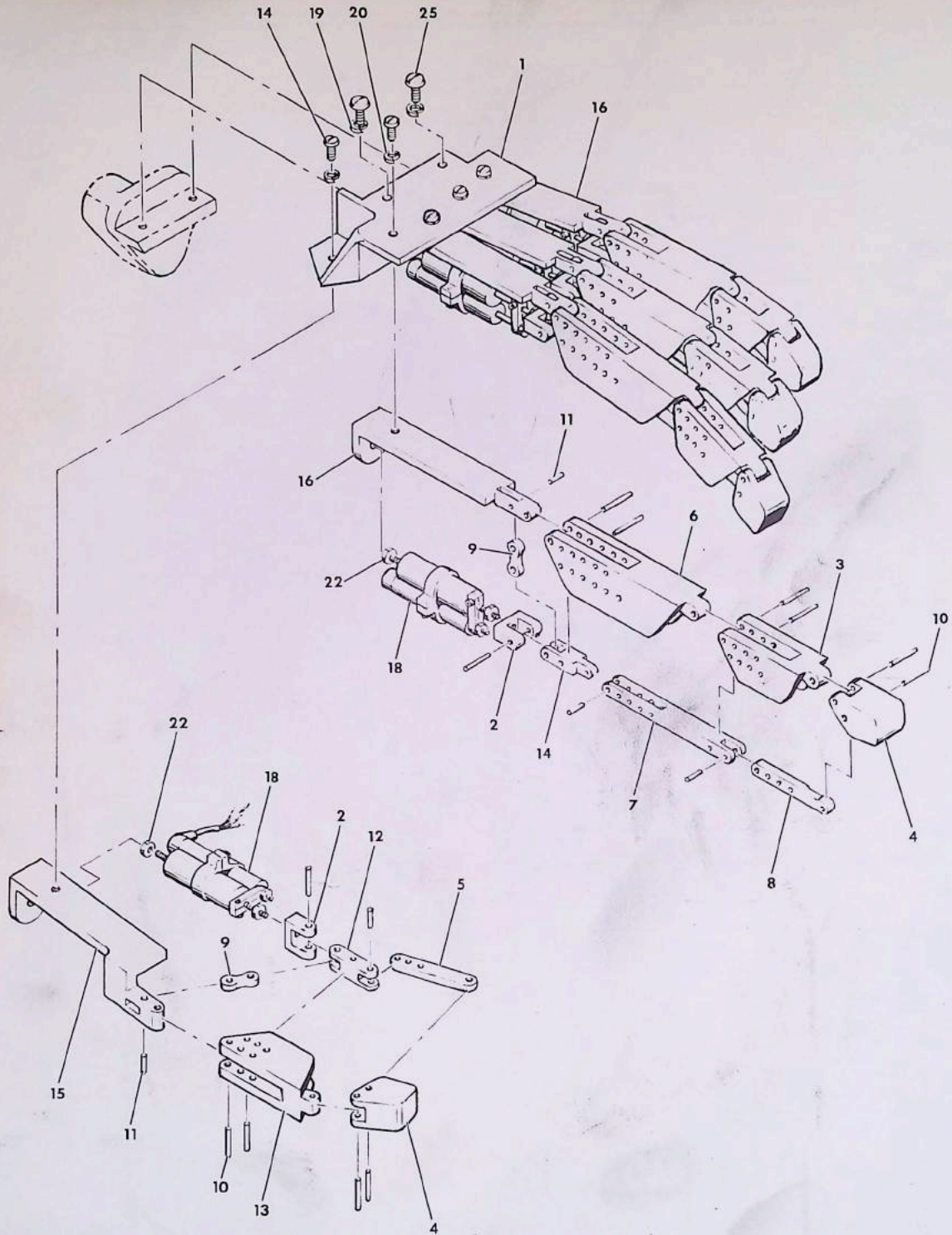
ARM ASSEMBLY, - HUMAN TYPE

SHEET 1 OF 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2130-401053	A1-13-W47	UPPER ARM, W/SWING	A/R
2.	3040-401056	A1-13-C50	CONNECTOR, ELBOW	
3.	2130-401057	A1-13-W51	UPPER ARM, W/O SWING	
4.	2130-401060	A1-13-W54	FOREARM, W/WRIST TURN	
5.	2130-401061	A1-13-W55	FOREARM W/O TURN	
6.	3010-401065	A1-13-C59	CLAMP, FOREARM	
7.	2130-401066	A1-13-W60	WELDMENT, WRIST	
8.	3040-401069	A1-13-D63	BALL JOINT, 3/8 DIA	
9.	3040-401179	A1-13-D151	BALL JOINT, 1/2 DIA	
10.	3040-401182	A1-13-C154	SOCKET HSG., WRIST	
11.	3040-401183	A1-13-D155	RETAINER PLATE	
12.	3040-401184	A1-13-C156	SOCKET	
13.	3040-401185	A1-13-C157	SOCKET HSG., WRIST	
14.	3040-401062	A1-13-C56	MOUNT, ACTUATOR	
15.	3010-401271	A1-13-S238-2	ACTUATOR, DUMMY	
16.	3010-201042	CY-1-42-1	CYLINDER ASSEMBLY, 1/2 STROKE	
17.	3010-201128	CY-1-125-4	CYLINDER ASSEMBLY 1 1/2 STROKE	
18.	3010-401258	A1-18-S227	ACTUATOR, DUMMY, LARGE	
19.	5340-201313	CY-1-313	ROD END, MODIFIED	
20.	3010-201320	CY-1-317	ROTARY ACTUATOR, ASSEMBLY	
21.	3010-201318	CY-1-318	ROTARY ACTUATOR, ASSEMBLY, 2" DIA	
22.	3010-401270	A1-13-S238-1	ACTUATOR, DUMMY	
23.	3010-201420	CY-1-515	ROTARY ACTUATOR ASSEMBLY, 2" DIA	
24.	3110-595327	K3L	BEARING	
25.			GROOV-PIN TYPE A, 1/16 DIA X 3/4 LG	
26.				
27.	5306-013192	AN173C10A	BOLT, AIRCRAFT 10-32 X 1 1/32	
28.	5306-013194	AN173C12A	BOLT, AIRCRAFT 10-32 X 1 9/32	
29.	5306-013261	AN174C17A	BOLT, AIRCRAFT 1/4-28 X 1 29/32	
30.	5310-561967	79NM-02	NUT, LOCK (10-32)	ESNA
31.	5310-561923	79NE-048	NUT, LOCK (1/4-28)	ESNA
32.				
33.	5306-563474	6-32 X 1/4	SCREW, SOC HD, SELF LOCKING	
34.	5305-570035	6-32 X 5/16	SCREW, SOC HD, SELF LOCKING	
35.	5305-563475	6-32 X 3/8	SCREW, SOC HD, SELF LOCKING	
36.	5305-563476	6-32 X 1/2	SCREW, SOC HD, SELF LOCKING	
37.	5305-563486	10-24 X 1/2	SCREW, SOC HD, SELF LOCKING	
38.	5305-569179	10-32 X 3/8	SCREW, SOC HD, SELF LOCKING	A/R







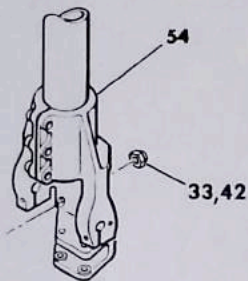
A1-13-A161  
 ANIMATED HAND ASSEMBLY

DWG.

A1-13-A161

## ANIMATED HAND ASSEMBLY

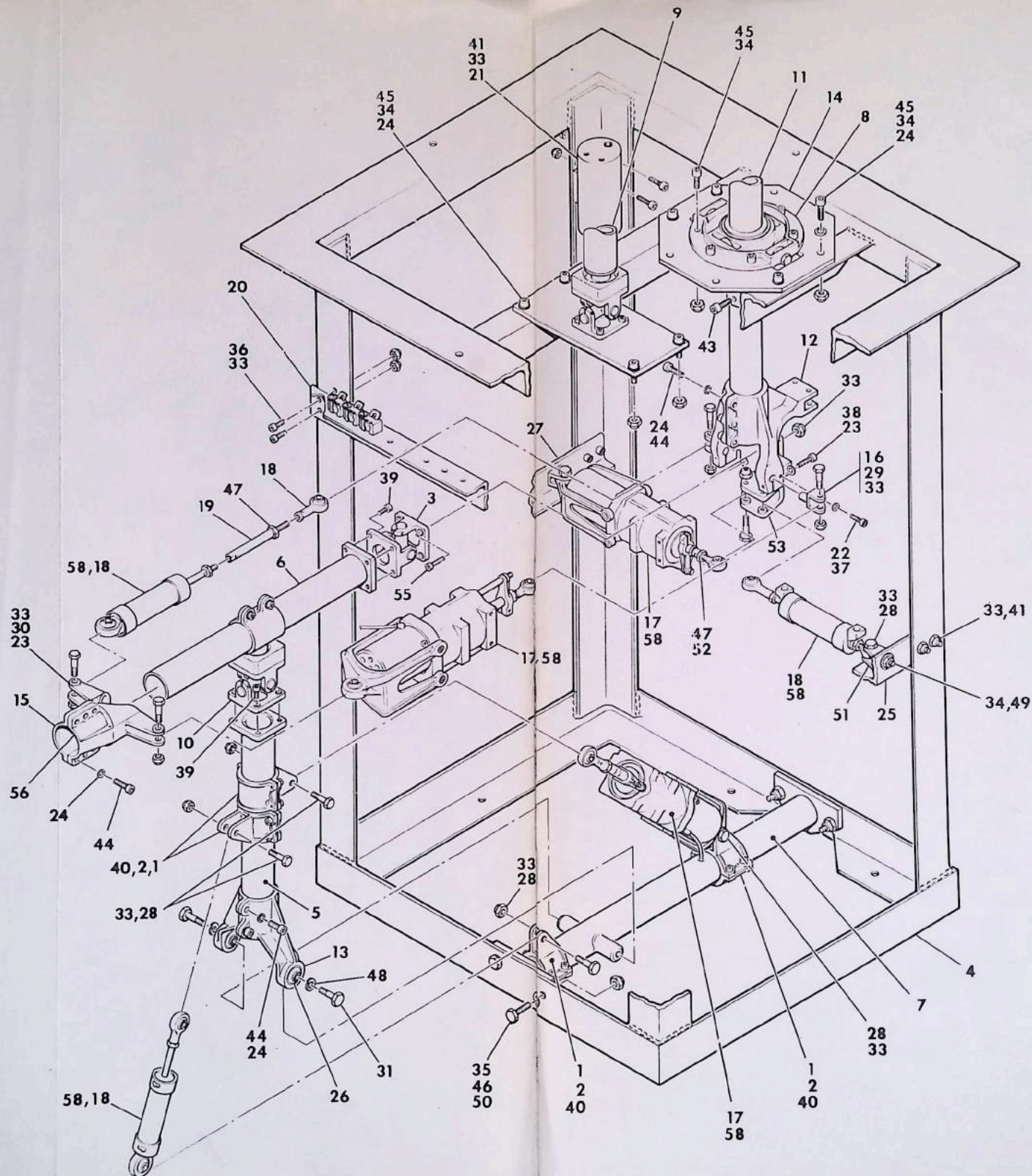
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		NO DWG.	HAND PALM	1
2.	5340-401275	A1-13-D242	CLEVIS, ACTUATOR	5
3.	2140-401276	A1-13-D243	DIGIT, SECOND	4
4.	2140-401277	A1-13-D244	FINGER TIP	5
5.	3020-401278	A1-13-D245	LINK	1
6.	2140-401279	A1-13-D246	DIGIT, FIRST	4
7.	3020-401280	A1-13-D247	LINK, FIRST	4
8.	3020-401281	A1-13-D248	LINK, FINGER TIP	4
9.	3020-401282	A1-13-D249	LINK, PIVOTING CLEVIS	5
10.	5315-401283	A1-13-D250-1	DOWEL PIN .493 LONG	33
11.	5315-401284	A1-13-D250-2	DOWEL PIN .237 LONG	14
12.	5340-401285	A1-13-D251	CLEVIS, PIVOT	1
13.	2140-401286	A1-13-D252	DIGIT FIRST	1
14.	5340-401287	A1-13-D253	CLEVIS, PIVOTING	4
15.	2140-210126	A1-13-D254	BRACKET, THUMB MOUNTING	1
16.	2140-401290	A1-13-D255	BRACKET, FINGER MOUNTING	4
17.				
18.	3010-201015	GY-1-15-2 <i>cy-50</i>	ACTUATOR, 5/16 B X 1/2 S	5
19.	5310-562553	#8	WASHER, SPLIT LOCK	2
20.	5310-562252	#6	WASHER, SPLIT LOCK	5
21.				
22.	5310-595965	5-40	NUT, HEX	5
23.				
24.	5305-562927	6-32 X 3/16	SCREW, PAN HD	5
25.	5305-562939	8-32 X 3/8	SCREW, PAN HD	2



**-3 BASE & LEG ASSY**

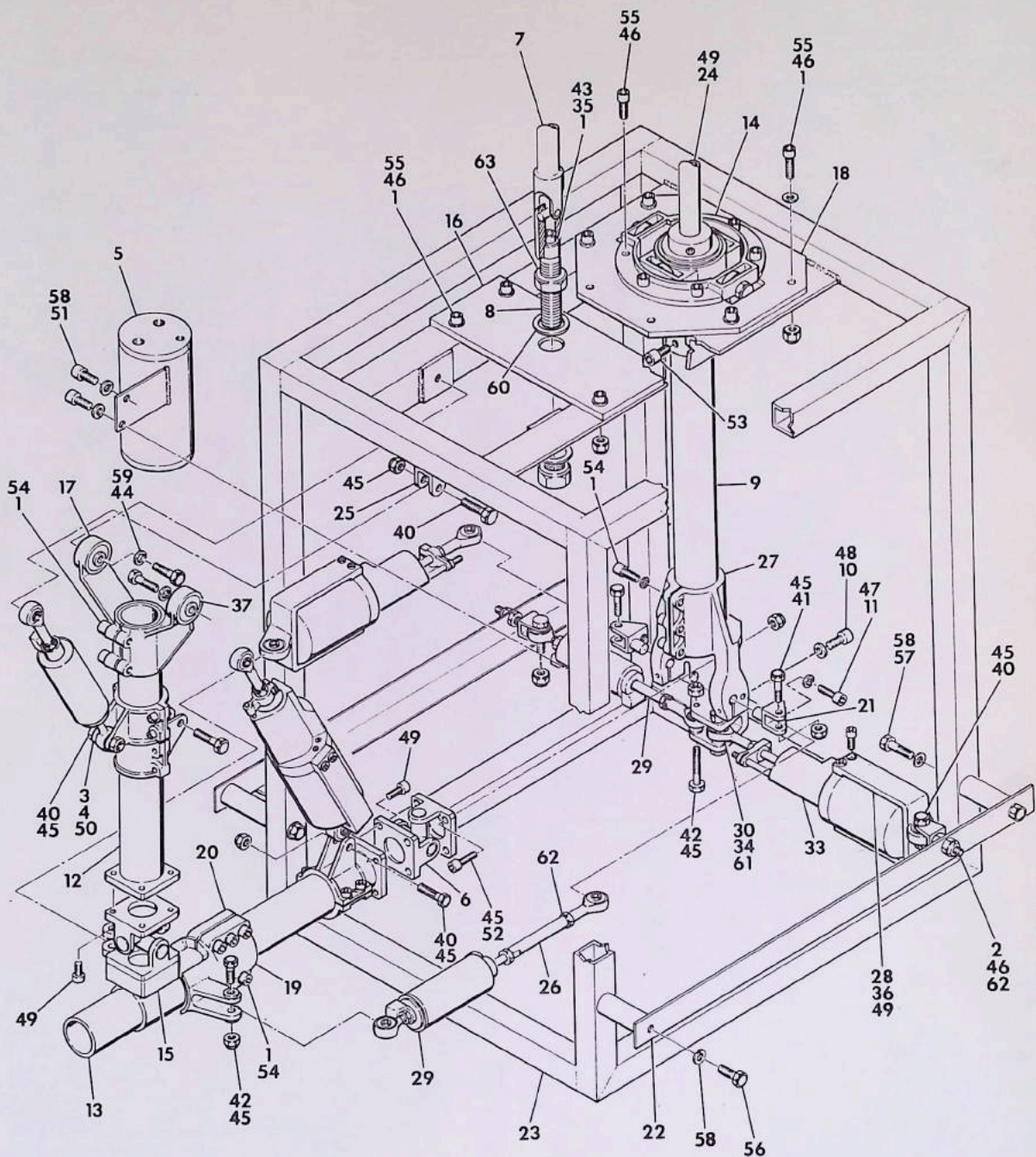
(SAME AS -2 ASSY EXCEPT AS NOTED)

ITEM 54 (LEG TWIST CASTING) IS USED AS A REPLACEMENT IN THE -3 ASSY FOR ITEMS 12 & 53. WHEN CHANGING CASTINGS, ITEM 42 (SCREW) SHOULD BE USED IN PLACE OF ITEM 55 (SCREW).



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	5340-401091	A1-18-C72	CLEVIS CLAMP-KNEE BEND	4
2.	5340-401092	A1-18-C73	CLEVIS-KNEE BEND	4
3.	3010-401120	A1-18-A101	UNIVERSAL JOINT ASSY	1
4.	2135-401141	A1-17-W121	WELDMENT, BASE FRAME	1
5.	3040-401144	A1-17-W124	WELDMENT, VERTICAL TUBE	1
6.	3040-401145	A1-17-W125	WELDMENT, HORIZONTAL TUBE	1
7.	3040-401146	A1-17-W126	WELDMENT, PIVOT ROD & TUBE	1
8.	2135-401155	A1-17-S131	ASSY, ANKLE GIMBAL	1
9.	2135-401156	A1-17-S132	ASSY, ANKLE & LEG TUBE	1
10.	3040-401157	A1-17-S133	PIVOT JOINT ASSY	1
11.	4730-401161	A1-17-D136-2	LEG TUBE, 54 IN.	1
12.	2135-401163	A1-17-C138	CASTING, LEG TWIST	1
13.	2135-401168	A1-17-C143	CASTING, PIVOT-SIDE SWAY	1
14.	3040-401169	A1-17-D144	MOUNTING PLATE, ANKLE GIMBAL	1
15.	3010-401171	A1-17-C145-2	CASTING, CYLINDER MOUNT	1
16.	5340-401172	A1-17-C146	CASTING, LEG TWIST CLEVIS	2
17.	3010-200177	CY-4-302-1	ACTUATOR ASSY 2" B X 2" S	3
18.	3010-201066	CY-154-1	ACTUATOR ASSY 1" B X 3/4" S	3
19.	3040-401297	A1-17-D260	SHAFT, ROD END EXTENSION	1
20.	6110-401111	A1-16-S92	ASSY, HYDRAULIC DISCONNECT PANEL	1
21.	3010-401108	A1-16-W89	DASHPOT ACCUMLATOR	1
22.	5310-401137	A1-18-D117	#8 WASHER, SPECIAL	2
23.	5310-401136	A1-18-D116	#10 WASHER, SPECIAL	6
24.	5310-401080	A1-18-D70	#1/4 WASHER, SPECIAL	19
25.	2135-401317	A1-17-D278	CROSS MEMBER, BASE FRAME	1
26.	3110-560589	DSP4	BALL BEARING, FAFNIR	2
27.	2135-401318	A1-17-D279	CROSS MEMBER, BASE FRAME	1
28.	5306-013192	AN173C10A	HEX BOLT (10-32 X 1 1/32) SST	6
29.	5306-013193	AN173C11A	HEX BOLT (10-32 X 1 5/32) SST	2
30.	5306-013194	AN173C12A	HEX BOLT (10-32 X 1 9/32) SST	4
31.	5306-013255	AN174C11A	HEX BOLT (1/4-28 X 1 5/32) SST	2
32.				
33.	5310-560406	79NM-02	NUT, LOCK-LIGHT (10-32) ESNA, SST	27
34.	5310-560407	79NE-048	NUT, LOCK-LIGHT (1/4-28) ESNA, SST	16
35.	5310-560398	79NE-058	NUT, LOCK-LIGHT (5/16-18) ESNA, SST	4
36.	5305-563486	10-32 X 1/2	SOC, HD. CAP SCREW SST	4
37.	5305-569235	6-32 X 1/2	SOC. HD. CAP SCREW, SELF LKG SST	2
38.	5305-569260	10-24 X 1	SOC. HD. CAP SCREW, SELF LKG SST	2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
39.	5305-569179	10-32 X 3/8	SOC, HD. CAP SCREW, SELF LKG.	SST 8
40.	5305-569182	10-32 X 5/8	SOC, HD. CAP SCREW, SELF LKG.	SST 16
41.	5305-565022	10-32 X 3/4	SOC, HD. CAP SCREW	SST 8
42.	5305-567632	10-320X 7/8	SOC, HD. CAP SCREW	SST 4
43.	5305-569266	1/4-20 X 1/2	SOC, HD. CAP SCREW, SELF LKG.	SST 3
44.	5305-569270	1/4-20 X 1.00	SOC, HD. CAP SCREW, SELF LKG.	SST 11
45.		1/4-28 X 7/8	SOC, HD. CAP SCREW	SST 14
46.	5306-591971	5/16-18 X 1.00	BOLT, HEX HD.	SST 4
47.	5310-562120	1/4-28	JAM NUT	SST 3
48.	5310-565005	1/4"	WASHER, LOCK-SPLIT	SST 2
49.	5310-565029	1/4"	WASHER, PLAIN	SST 2
50.	5310-565030	5/16"	WASHER, PLAIN	SST 4
51.	5340-401086	A1-18-C71-5	CLEVIS ROTATING	2
52.	3040-401565	A2-17-D162-2	EXTENSION SHAFT, ACTUATOR	1
53.	<del>2135</del> - 401316	A1-17-C277	BRACKET, LEG TWIST CASTING	1
54.	2135-401322	A1-17-C281	CASTING, LEG TWIST	A/R
55.	5305-567634	10-32 X 1 1/4	SOC. HD. CAP SCREW	4
56.	3010-401170	A1-17-C145-1	CASTING, CYLINDER MTG.	1
57.				
58.	3010-401258	A1-18-S227	ACTUATOR, DUMMY ASSY (OPT.)	A/R
59.				
60.			ALL HARDWARE IS SST UNLESS OTHER- WISE SPECIFIED.	



**A2-17-A197  
LEG & BASE ASSEMBLY  
W/SPECIAL FRAME**

DWG.

A2-17-A197

LEG & BASE ASSEMBLY  
W/SPECIAL FRAME

SHEET 1 OF 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	5310-401080	A1-18-D70	WASHER, SPECIAL, 1/4"	20
2.	5340-401085	A1-18-C71-4	CLEVIS, ROTATING	2
3.	5340-401091	A1-18-C72	CLEVIS, CLAMP	3
4.	5340-401092	A1-18-C73	CLEVIS	3
5.	3010-401108	A1-16-W89	DASHPOT ACCUMULATOR	1
6.	3010-401120	A1-18-A101	UNIVERSAL JOINT ASSY	1
7.	2135-401503	A2-17-W103	WELDMENT, LEG, TUBE SLAVE	1
8.	3040-401504	A2-17-D104	SUPPORT, "U" JOINT	1
9.	2135-401505	A2-17-W105	TUBE WELDMENT, CONTROL LEG	1
10.	5310-401136	A1-18-D116	WASHER, SPECIAL, #10	2
11.	5310-401137	A1-18-D117	WASHER, SPECIAL, #8	2
12.	3040-401144	A1-17-W124	WELDMENT, VERTICAL TUBE	1
13.	3040-401145	A1-17-W125	WELDMENT, HORIZONTAL TUBE	1
14.	2135-401155	A1-17-S131	ANKLE GIMBAL ASSY	1
15.	3040-401157	A1-17-S133	TUBE PIVOT, JOINT ASSY	1
16.	3040-401165	A1-17-D140	MOUNTING PLATE, ANKLE	1
17.	2135-401168	A1-17-C143	PIVOT CASTING, SIDE SWAY	1
18.	3040-401169	A1-17-D144	MOUNTING PLATE, ANKLE GIMBAL	1
19.	3010-401170	A1-17-C145-1	CYLINDER MOUNT, CASTING	1
20.	3010-401171	A1-17-C145-2	CYLINDER MOUNT, CASTING	1
21.	5340-401172	A1-17-C146	LEG TWIST CASTING	2
22.	2135-401593	A2-17-D190	ANGLE, BASE	2
23.	2135-401594	A2-17-W191	BASE FRAME	1
24.	3010-401597	A2-17-W194	YOKE WELDMENT, CONTROL LEG	1
25.	5340-401087	A1-18-C71-6	CLEVIS, ROTATING	1
26.	3040-401297	A1-17-D260	EXTENSION SHAFT, ROD END	1
27.	2135-401322	A1-17-C281	LEG TWIST CASTING	1
28.	3130-200279	CY-7-279-1	BEARING BRACKET	3
29.	3010-201069	CY-1-154-4	ASSY, HYD ACTUATOR 1" BORE	3
30.	3040-401402	A2-98-D2	ADAPTER, ROD END	3
31.				
32.				
33.	3010-210157	10050-1	SERVO ACTUATOR, PNEUMATIC	
			HYDRAULIC RESEARCH	3
34.	5340-560598	REP3F4	ROD END	FAFNIR 3
35.	3110-560710	DW4K2	BALL BEARING	FAFNIR 1
36.	3110-560588	DSP 3	BALL BEARING	FAFNIR 3
37.	3110-560589	DSP 4	BALL BEARING	FAFNIR 2

DWG.

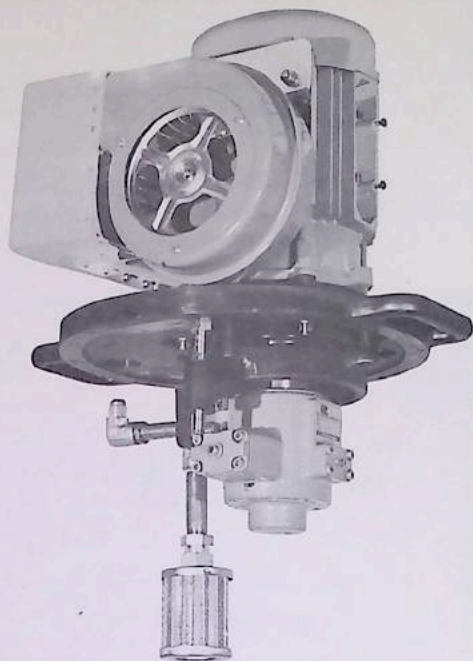
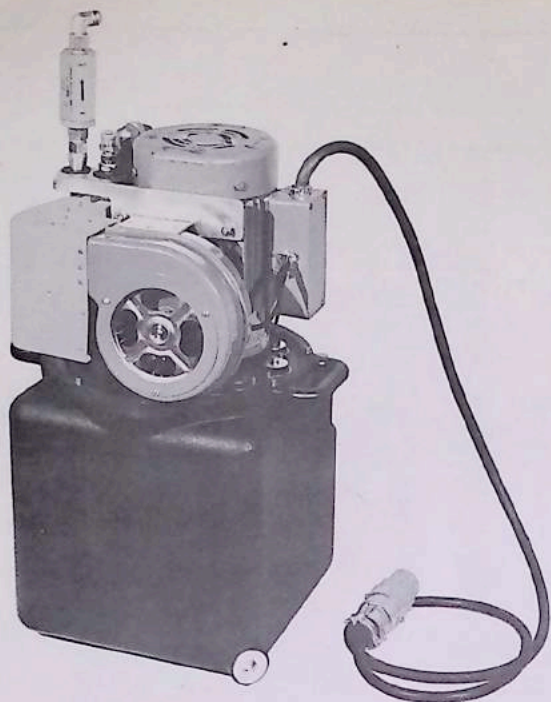
A2-17-A197

LEG & BASE ASSEMBLY  
W/SPECIAL FRAME

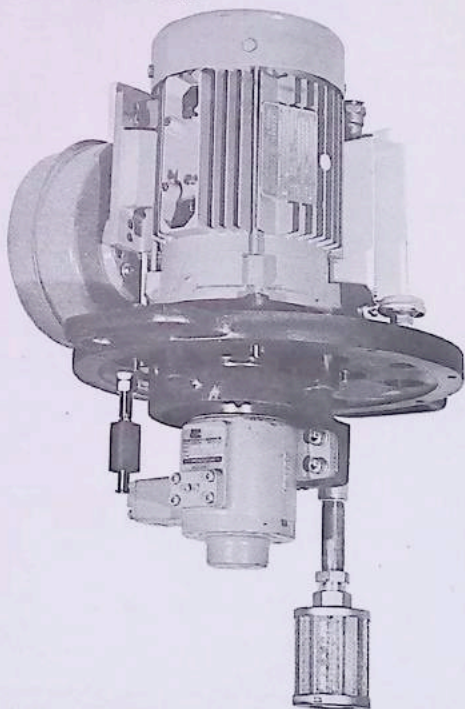
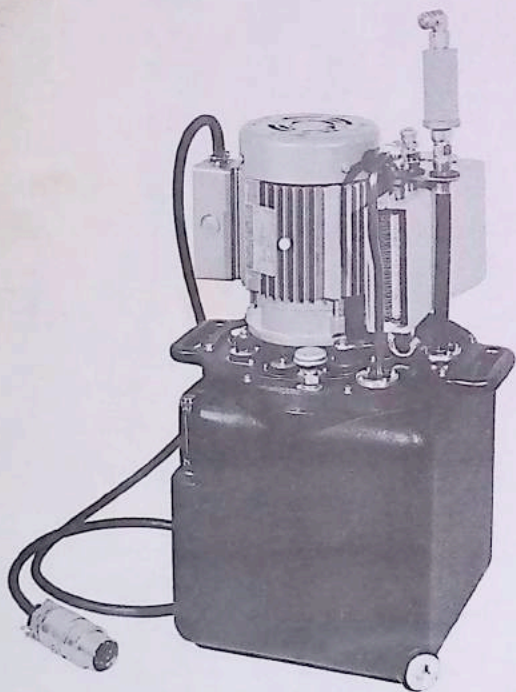
SHEET 2 OF 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
38.				
39.				
40.	5306-013192	AN173C10A	BOLT, AIRCRAFT (10-32 X 1 1/32)	6
41.	5306-013193	AN173C11A	BOLT, AIRCRAFT (10-32 X 1 5/32)	2
42.	5306-013194	AN173C12A	BOLT, AIRCRAFT (10-32 X 1 9/32)	4
43.	5306-013254	AN174C10A	BOLT, AIRCRAFT (1/4-28 X 1 1/32)	1
44.	5306-013255	AN174C11A	BOLT, AIRCRAFT (1/4-28 X 1 5/32)	2
45.	5310-560406	79NM-02	LOCKNUT, LIGHT (10-32)	15
46.	5310-560407	79NE-048	LOCKNUT, LIGHT (1/4-28)	16
47.	5305-569235	6-32 X 1/2	CAP SCREW, SOC HD SELF LKG	2
48.	5305-569260	10-24 X 1	CAP SCREW, SOC HD SELF LKG	2
49.	5305-569179	10-32 X 3/8	CAP SCREW, SOC HD SELF LKG	20
50.	5305-569182	10-32 X 5/8	CAP SCREW, SOC HD SELF LKG	12
51.	5305-569181	10-32 X 1/2	CAP SCREW, SOC HD SELF LKG	2
52.		10-32 X 7/8	CAP SCREW, SOC HD SELF LKG	4
53.	5305-569266	1/4-20 X 1/2	CAP SCREW, SOC HD SELF LKG	3
54.	5305-569270	1/4-20 X 1	CAP SCREW, SOC HD SELF LKG	11
55.		1/4-28 X 7/8	CAP SCREW, SOC HD SELF LKG	14
56.		10-32 X 3/4	BOLT, HEX HD	4
57.		10-32 X 1 1/2	BOLT, HEX HD	4
58.	5310-565026	#10	WASHER-LOCK, SPRING	10
59.	5310-565005	1/4	WASHER-LOCK, SPRING	2
60.	5310-565081	1/2	WASHER, FLAT	2
61.	5310-561967	10-32	NUT, HEX	3
62.	5310-562120	1/4-28	JAM NUT	3
63.	5310-562124	1/2-20	JAM NUT	2
64.				
65.				

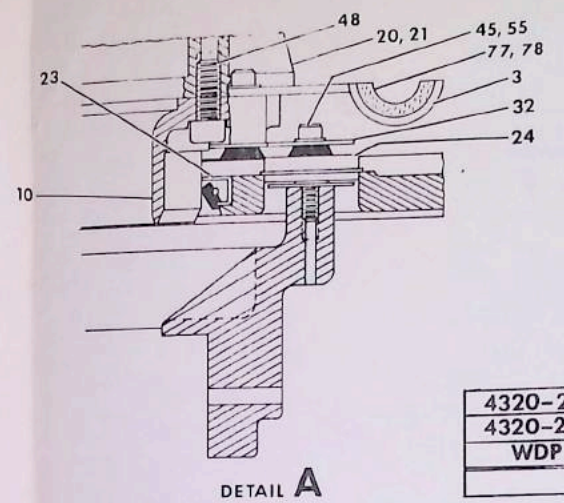
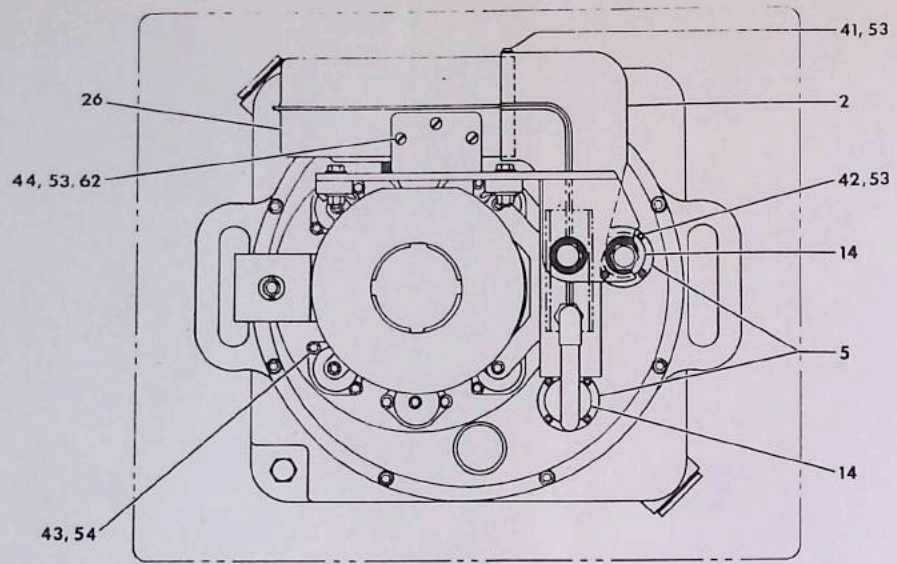




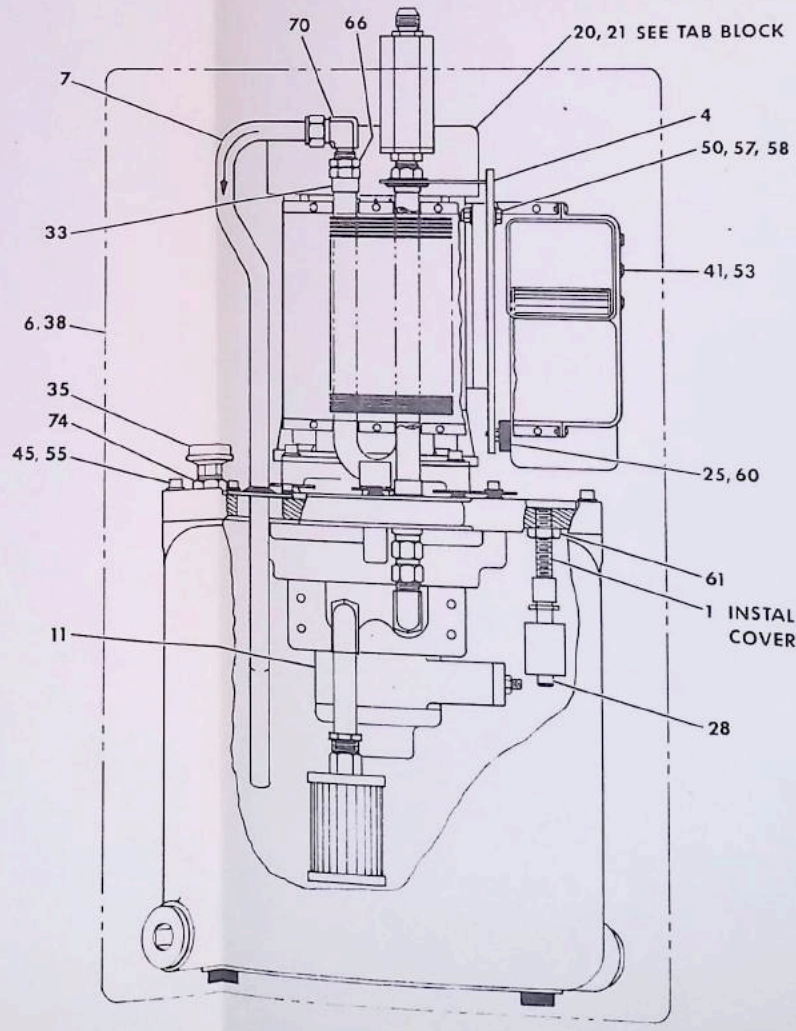
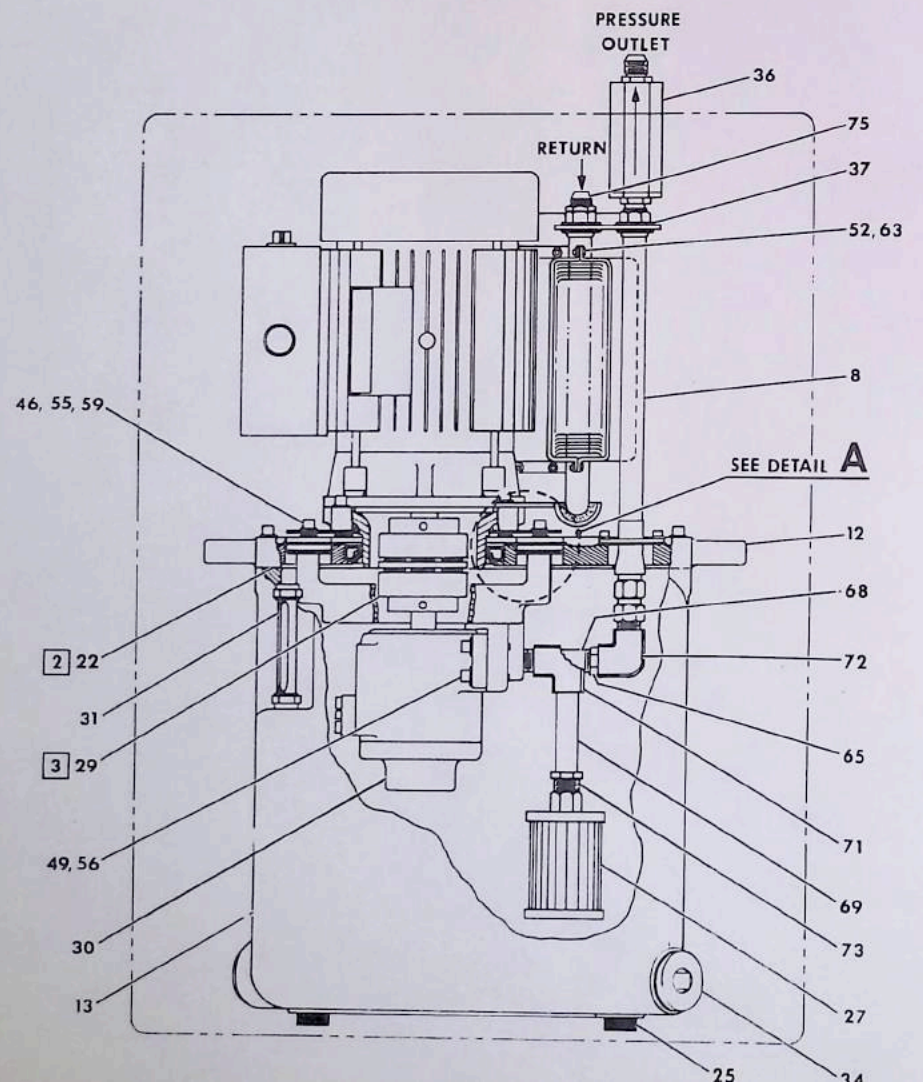
- 5935-103023 CABLE ASSEMBLY
- 4320-103022 MAGNETIC STARTER BOX ASSEMBLY
- 4320-103024 SCHEMATIC DIAGRAM
- 4320-103025 WIRING DIAGRAM



**CY-5020  
HYDRAULIC PUMP ASSEMBLY**



4320-201050	CY-5020-1	5K145-JL 317B	4 GPM (1200 RPM)	20
4320-201044	CY-5020	5K145-JL 2B2	6 GPM (1800 RPM)	21
WDP NO.	ASSY PART NO.	MOTOR NO.	PUMP OUTPUT	ITEM NO.
TABULATION BLOCK				



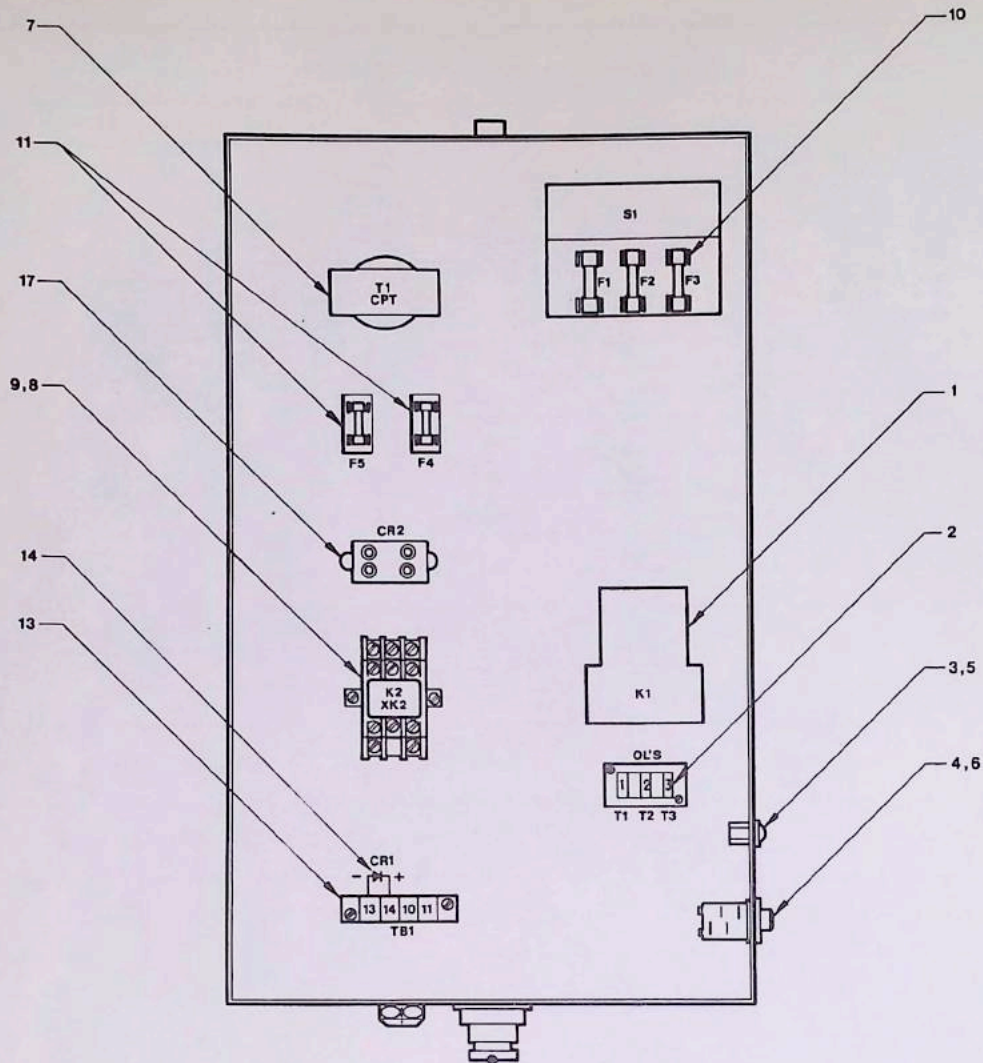
- NOTES:
1. ALL HARDWARE & FASTENERS TO BE STAINLESS STEEL OR CAD PLATED (& BAKED) STEEL.
  2. CUT TO FIT, HEAT & BOND ENDS.
  3. LOCATE AND SECURE HALF OF COUPLING (ITEM 29) FLUSH WITH END OF MOTOR SHAFT - BEFORE ASSEMBLY OF ITEM 10.

1 INSTALL FLUSH WITH COVER AS SHOWN

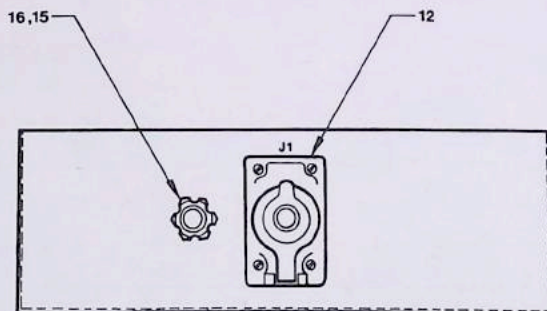
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	5975-201060	CY-3-5012	ADAPTOR, FLOAT SWITCH	1
2.	4140-201053	CY-3-5013	DUCT, OIL COOLER	1
3.	4140-201054	CY-3-5014	BRACKET, OIL COOLER	1
4.	4140-201055	CY-3-5015	BRACKET, BLOWER	1
5.	3040-201056	CY-3-5016	COLLAR, SEAL	2
6.	5340-201057	CY-3-5017	ASSEMBLY, SOUND COVER	1
7.	4710-201058	CY-3-5018	LINE, RETURN	1
8.	4710-201059	CY-3-5019	LINE, PRESSURE	1
9.				
10.	4320-201061	CY-3-5021	MOUNT, PUMP MOTOR	1
11.	4320-201062	CY-3-5022	HANGER, PUMP MOTOR	1
12.	4320-201063	CY-3-5023	LID, PUMP RESERVOIR	1
13.	4320-201064	CY-3-5024	RESERVOIR, PUMP	1
14.	5330-201065	CY-3-5025	SEAL, OIL LINE	4
15.				
16.				
17.				
18.				
19.				
20.	6105-572586	5K145-JL3178	MOTOR, 1 1/2 HP, 1200 RPM 3 PHASE, 230/ 460V, TYPE "C" FACE, DRIPPROOF, FAN COOLED W/FEET GENERAL ELECTRIC	1
21.	6105-572585	5K145-JL282	MOTOR, 2 HP, 1800 RPM 3 PHASE, 230/460V TYPE "C" FACE, DRIPPROOF, FAN COOLED W/ W/FEET GENERAL ELECTRIC	1
22.	5330-572588	MP-1485	2 SEAL, RING, 1/8 DIA MOLDED PROD.	1
23.	5330-572582	CRS1-39922	SEAL CHICAGO RAWHIDE MFG.	1
24.	5340-572565	150PDLK-18	PLATE FORM MOUNT LORD MFG. CO.	8
25.	5306-572564	J4624-2	FLEX BOLT LORD MFG. CO.	5
26.	4140-594500	2C067M	BLOWER (108 CFM) MINARIK ELECTRIC	1
27.	4330-572575	M100	FILTER, SUCTION OIL FILTER CO.	1
28.	6680-572574	5D2-4RLB-DVS	SWITCH, FLOAT LEVEL RACINE HYDRAULICS	1
29.	3010-572573	A-200	COUPLING, 7/8 X 3.4 BORE (NEOPRENE INSERT) MAGNALOY COUPLING	1
30.	4320-572572	PVQ-PNS0-06ER-20	PUMP, VANE, 500 PSI 6 GPM @1800RPM "O" RINGS INCLUDED 4 GPM @1200RPM RACINE HYDRAULICS	1
31.	6680-572571	18013	GAUGE, OIL LEVEL, STYLE VFG GITS BROS.	1

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
32.	5310-572563	J-2049-2	WASHER, SNUBBING (STEEL)LORD MFG. CO.	16
33.	2930-572570	U10209-R	COOLER, OIL HAYDEN TRANS-COOLER	1
34.	4730-572581	20HP50N-S	PLUG (INT. HEX) PARKER-HANNIFIN	2
35.	5340-572611	V-AM-.37	VENT-FILLER (3/8 NPT)	1
			FLEMING METAL FAB.	1
36.	4330-572569	11-11324	ASSEMBLY, FILTER (1/2-37 <sup>0</sup> MALE)	
			HYDRAULIC RESEARCH	1
37.	5325-006433	AN931A12S20	GROMMET	2
38.	4310-572568	02AAF00-211	AIR FILTER (AMER-GLAS 15 X 20 X 1)	
			AMERICAN AIR FILTER	1
39.				
40.				
41.	5305-011561	6 X 3/8 LG	SCREW, PAN HD, SHEET METAL	3
42.	5305-563477	6-32 X 5/8	SCREW, SOC HD	8
43.	5305-563480	8-32 X 1/2	SCREW, SOC HD	16
44.	5305-562931	6-32 X 1/2	SCREW, PAN HD	3
45.	5305-564714	1/4-20 X 2 1/2	SCREW, SOC HD	12
46.	5305-570589	1/4-28 X 2 1/8	SCREW, SOC HD	4
47.				
48.	5305-564689	3/8-16 X 1	BOLT, SOC HD	4
49.	5305-564690	3/8-16 X 1 1/4	BOLT, SOC HD	4
50.	5305-566255	5/16-24 X 1 1/4	BOLT, HEX HD	2
51.				
52.	5310-562397	4	WASHER, FLAT	22
53.	5310-565028	6	WASHER, FLAT	14
54.	5310-562399	8	WASHER, FLAT	16
55.	5310-565029	1/4	WASHER, FLAT	20
56.	5310-565006	3/8	WASHER, FLAT	4
57.	5310-565030	5/16	WASHER, FLAT	4
58.	5310-561968	5/16-24	NUT, HEX	2
59.	5310-565034	1/4-28	NUT, HEX	4
60.				
61.	5310-561970	1/2-20	NUT, HEX	1
62.	5310-561947	6-32	NUT, HEX	3
63.	5320-007009	AD45ABS	RIVET, POP (1/8 DIA X .282 GRIP)	
			USM CORP.	22
64.				
65.	5310-572584	TSE02-38	NUT, 3/8 NPT, TRUE SEAL, MILLER FLUID PWR	1





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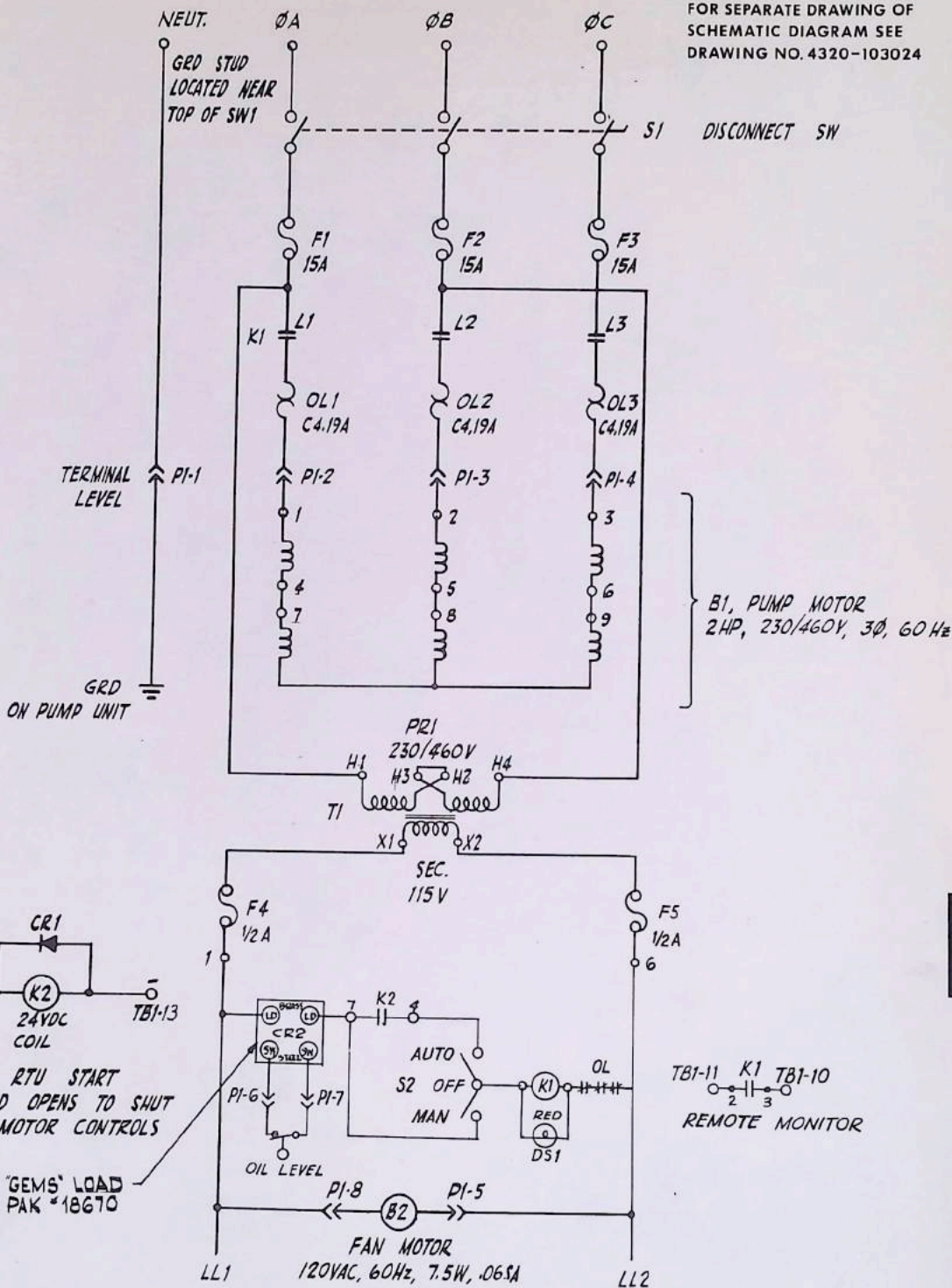


**4320-103022**  
**MAGNETIC STARTER BOX ASSEMBLY**  
 SHEET 1 OF 2

MAIN INPUT  
460VAC, 60 Hz, 3 $\phi$ , 4 WIRE

NOTE:

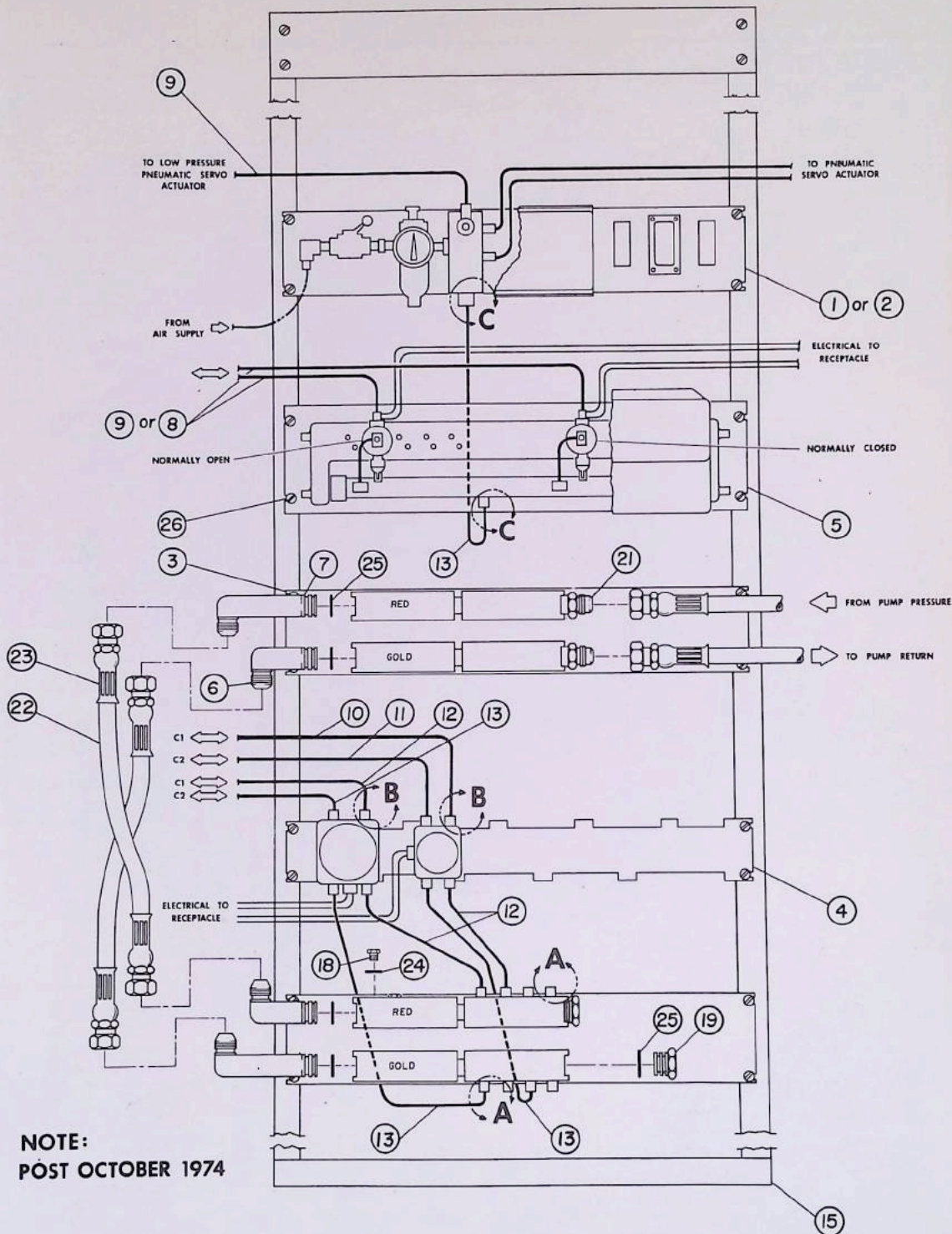
FOR SEPARATE DRAWING OF  
SCHEMATIC DIAGRAM SEE  
DRAWING NO. 4320-103024



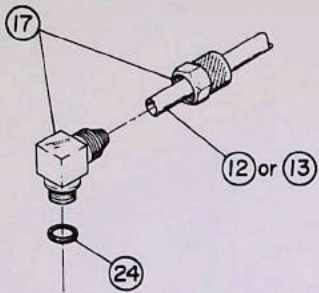
DWG. 4320-103022 MAGNETIC STARTER BOX ASSEMBLY

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	6110-572605	CR241-K403B	STARTER, MAGNETIC RELAY, KI	
			GENERAL ELECTRIC	1
2.	5945-593619	CR123C4.19A	HEATERS, OVERLOAD, S1, T1, T2, T3	
			GENERAL ELECTRIC	1
3.	5975-572600	CR2940UC212B2	HOLDER, LAMP, XDS1	GENERAL ELECTRIC 1
4.	5975-572601	CR2940UB202B	SWITCH, SELECTOR, S2	GENERAL ELECTRIC 1
5.	6240-572606	6S6	LAMP, INCANDESCENT, 110V, DS1	
			GENERAL ELECTRIC	1
6.	4905-572607	NP-118404A	NAMEPLATE	GENERAL ELECTRIC 1
7.	5950-572610	9T55Y44G5	TRANSFORMER 230/460-115V	
			GENERAL ELECTRIC	1
8.	5945-572599	KUP11D1124	RELAY 24VDC, K2	P & B 1
9.	5935-571942	9KU4	RELAY, SOCKET, XK2	P & B 1
10.	5920-572602	FRS-15	FUSE 15A. 600V, F1, F2, F3	BUSS 3
11.	5920-572603	FRN-.5	FUSE 1/2A. 250V, F4, F5	BUSS 2
12.	5935-572609	SKR-8G	RECEPTACLE, 8 PIN, J1	RUSSELL & STOLL 1
13.	5940-572604	4-141	TERMINAL BLOCK, TB1	CINCH JONES 1
14.	5961-591485	S4M	DIODE, CR1	SEMTECH 1
15.	5935-572590	371	CONNECTOR, HUB, 3/4	T & B 1
16.	5310-561231	142	LOCKNUT	T & B 1
17.	5930-572608	18670	SWITCH UNIT, LOAD PAK, CR2	GEMS 1

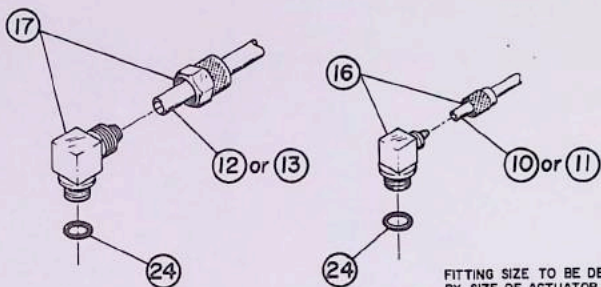




A1-16-A290  
 FLUID CONTROL RACK ASSEMBLY  
 SHEET 1 OF 2

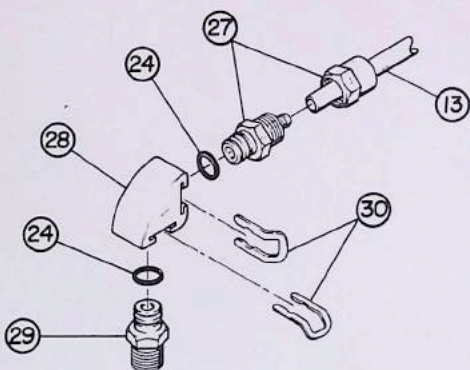


**DETAIL A**



**DETAIL B**

FITTING SIZE TO BE DETERMINED  
BY SIZE OF ACTUATOR.

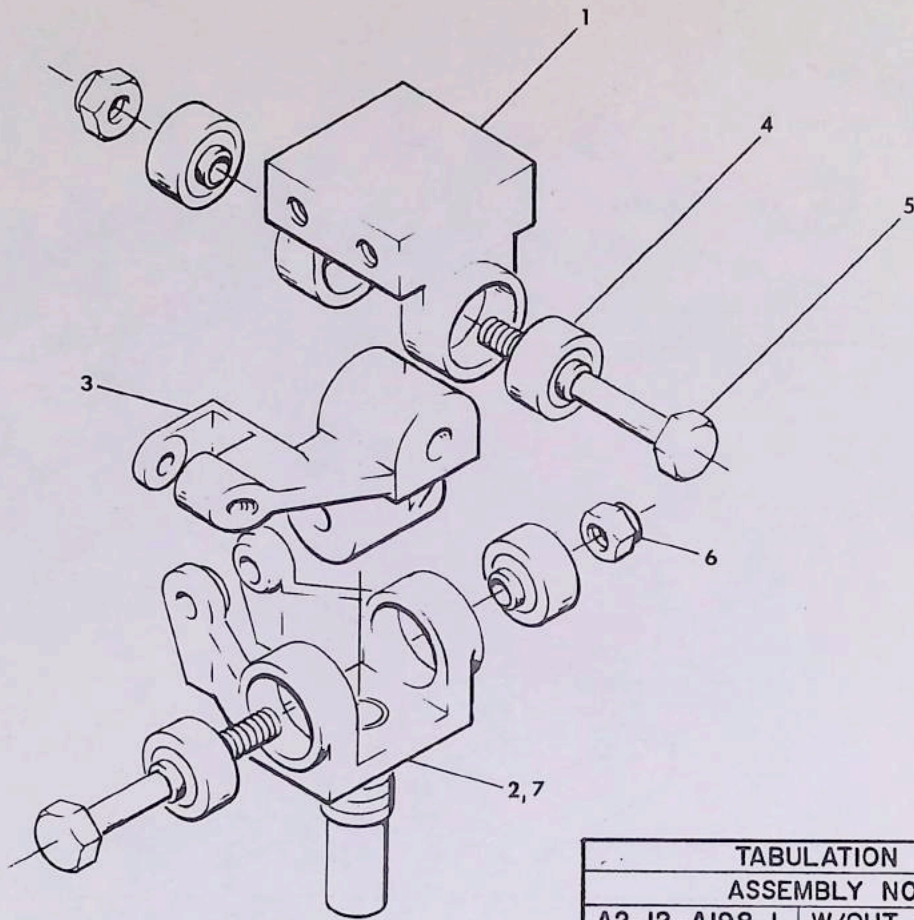


**DETAIL C**

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1	6110-401104	A1-16-S85	FILTER AND CONTROL PANEL ASSEMBLY	A/R
2	6110-210670	CY-6-561	FILTER AND CONTROL PANEL ASSY. W/SILENCING COVER	A/R
3	6110-401109	A1-16-S90	MANIFOLD PANEL ASSEMBLY, HYDRAULIC	A/R
4	6110-401110	A1-16-S91	SOLENOID VALVE ASSEMBLY, HYDRAULIC	A/R
5	6110-401114	A1-16-S95	SOLENOID VALVE ASSEMBLY, PNEUMATIC	A/R
6	4730-401300	A1-16-W263-1	ADAPTOR, MANIFOLD ELBOW (2.31")	A/R
7	4730-401301	A1-16-W263-2	ADAPTOR, MANIFOLD ELBOW (3.31")	A/R
8	4720-200255	CY-6-258-1	TUBING, PNEU., NO.1 (BLACK)	A/R
9	4720-200259	CY-6-259-1	TUBING, PNEU., NO.2 (BLACK)	A/R
10	4720-201206	CY-3-260-1	TUBING, HYD., NO.2 (RED)	A/R
11	4720-201207	CY-3-260-2	TUBING, HYD., NO.2 (NATURAL)	A/R
12	4720-201212	CY-3-261-1	TUBING, HYD., NO.4 (RED)	A/R
13	4720-201213	CY-3-261-2	TUBING, HYD., NO.4 (NATURAL)	A/R
14				
15	5975-591999	RR-1364-HG	RACK, RELAY 71-3/4"x19"	BUD RADIO 1
16	4730-573038	92821	CONNECTOR, ELBOW, (1/8 MALE x #2 TUBE)	GRA-TEC A/R
17	4730-573037	92822	CONNECTOR, ELBOW, (1/8 MALE x #4 TUBE)	GRA-TEC A/R
18	4730-570855	2001	PLUG, 1/8"	GRA-TEC A/R
19	4730-570858	2004	PLUG, 1/2"	GRA-TEC A/R
20				
21	4730-570976	3524	FITTING, MALE (1/2NPT x 1/2" TUBE)	GRA-TEC A/R
22	4720-596170	3700-8	HOSE, HIGH PRESSURE (1/2")	SYNFLEX A/R
23	4730-592174	3903-08548	END COUPLING (3/4-16)	SYNFLEX A/R
24	5330-014728	MS28775-008	O-RING, BUNA-N	PARKER A/R
25	5330-014753	MS28775-016	O-RING, BUNA-N	PARKER A/R
26	5305-562647	10-32 x 5/16"	SCREW, MACHINE, TRUSS H'D CRES	A/R
27	4730-570933	2603	FITTING, CONNECTOR (1/8 MALE x #4 TUBE)	GRA-TEC A/R
28	4730-570905	2801	FITTING, ELBOW, (1/8 FEMALE)	GRA-TEC A/R
29	4730-571003	2201	FITTING, MALE (1/8 NPT x #4 TUBE)	GRA-TEC A/R
30	5075-595973	1901	CLIP, RETAINER, 1/8	GRA-TEC A/R

## **SECTION 2.5**

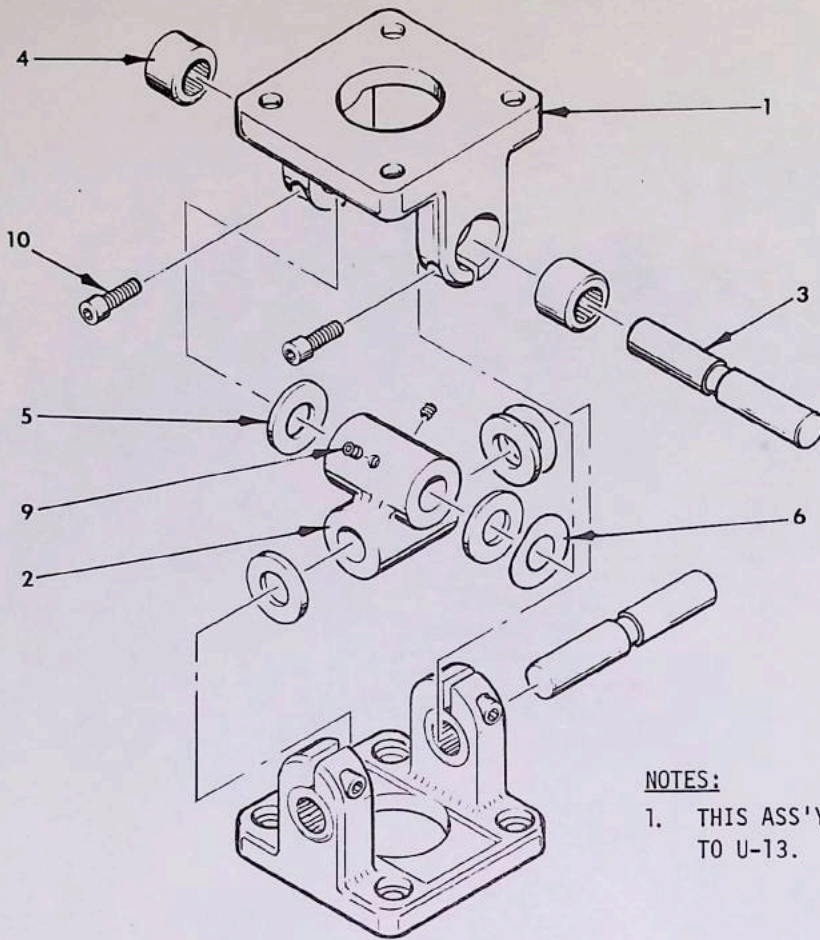
### **STANDARD FIGURE SUB-ASSEMBLIES**



TABULATION	
ASSEMBLY NO.	
A2-12-A198-1	W/OUT NECK SHAFT
A2-12-A198-2	WITH NECK SHAFT

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY. -1	QTY. -2
1.	3010-401194	A1-12-C166	YOKE, UPPER 'U' JOINT	1	1
2.	3010-401195	A1-12-C167	YOKE, LOWER 'U' JOINT	1	
3.	3010-401196	A1-12-C168	CROSS, 'U' JOINT	1	1
4.	3110-560709	SR3PPEEK25	BEARING NEW HAMPSHIRE	4	4
5.	5306-013195	AN173C13A	BOLT, AIRCRAFT (10-32 X 1 13/32")	2	2
6.	5310-561967	10-32	NUT, SELF LOCKING SST	2	2
7.	2110-401533	A2-12-W131	WELDMENT - 'U' JOINT, HD		1

**A2-12-A198  
UNIVERSAL JOINT ASSEMBLY  
HEAD NOD AND TILT**

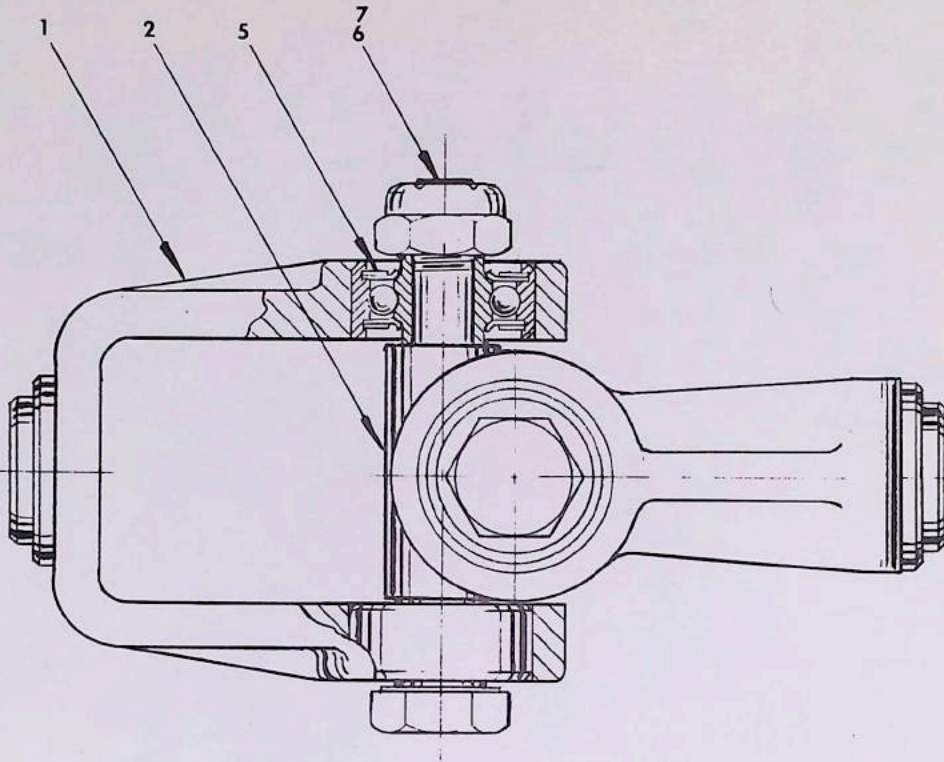


NOTES:

1. THIS ASS'Y IDENTICAL TO U-13.

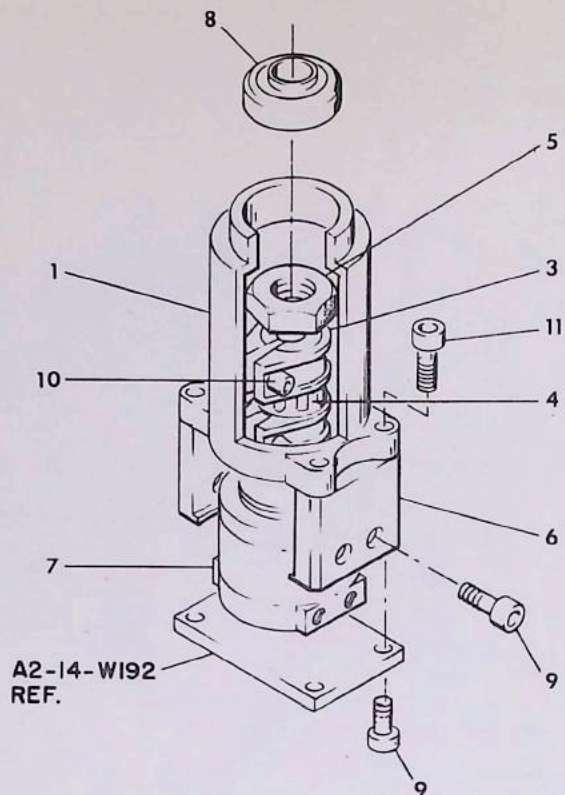
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-401125	A1-18-C106	BASE, MOUNTING UNIVERSAL JOINT	2
2.	3040-401126	A1-18-C107	BLOCK, PIVOT UNIVERSAL JOINT	1
3.	5315-401272	A1-18-D239	PIN, DOWEL-MODIFIED	2
4.	3110-595938	B-56	NEEDLE BEARING, OPEN END, TORRINSTON	4
5.	3120-595937	TT-602	THRUST BEARING (OILITE BRONZE) AMPLEX	4
6.	5310-595936	3502-18-36	SPRING WASHER (5/8 O.D. - 5/16 I.D.)	
			SHAKEPROOF	2
7.				
8.				
9.	5305-573072	4-40 X 1/8	SCREW, SOC HD SET (CONE POINT) SST	4
10.	5305-563475	6-32 X 3/8	SCREW, SOC HD SST	4

**A1-18-A101  
UNIVERSAL JOINT  
ASSEMBLY**



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3010-401521	A2-14-C121	'U' JOINT	2
2.	3010-401515	A2-14-C115	CROSS	1
3.				
4.				
5.	3110-595318	KP3A	BALL BEARING	FAFNIR 4
6.	5306-013197	AN173C15A	BOLT, AIRCRAFT (10-32 X 21/32")	2
7.	5310-560406	79NM-02	NUT, HEX, LT (10-32) SST	ESNA 2

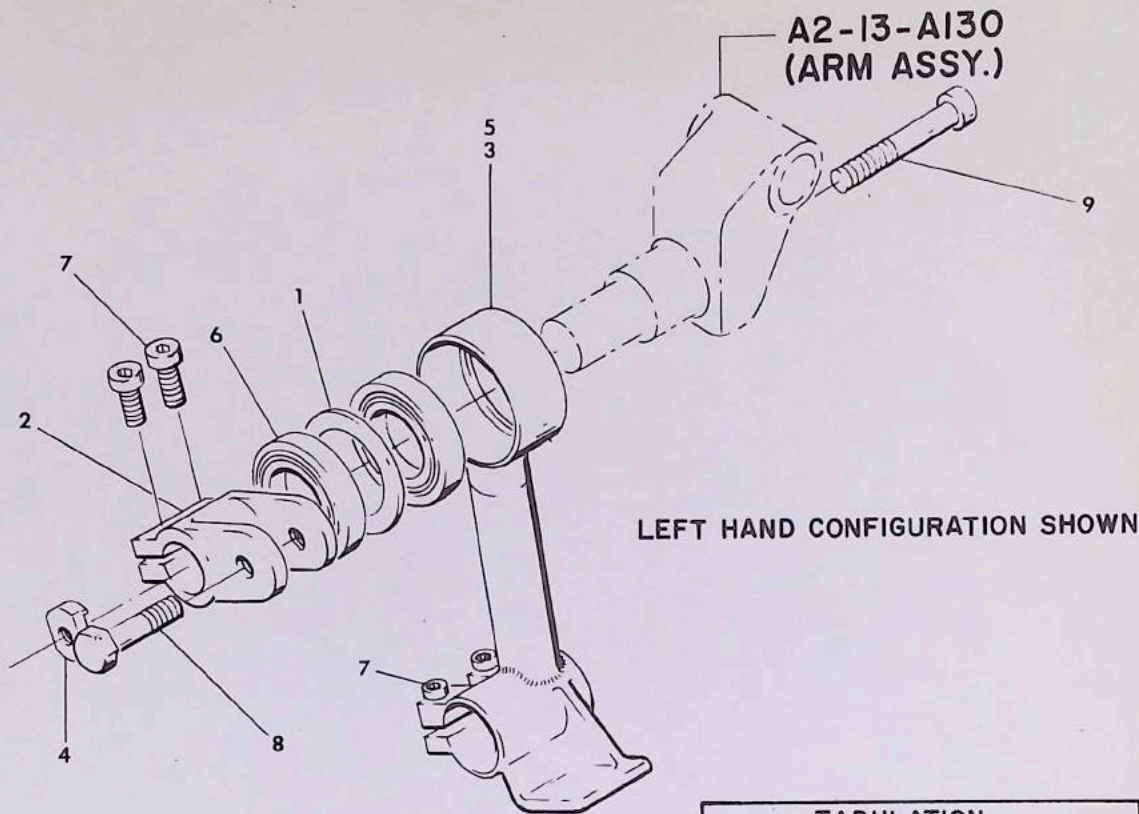
**A2-18-S157  
U-JOINT ASSEMBLY**



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-401522	A2-14-C122	MOUNT, ROTARY ACTUATOR	1
2.				
3.	3010-401176	A1-18-C149-1	CLAMP	2
4.	3010-401563	A2-18-D161	COUPLING	1
5.	5310-401566	A2-18-D163	NUT, JAM	1
6.	3040-401583	A2-14-C180	BLOCK CLAMP, ROTARY ACTUATOR	2
7.	3010-201320	CY-1-317	ACTUATOR, ROTARY	1
8.	3110-595320	KP6A	BEARING	FAFNIR 1
9.	5305-563476	6-32 X 1/2"	SCREW, SOC HD	SST 8
10.	5305-570043	8-32 X 7/16"	SCREW, SOC HD	SST 2
11.	5305-563481	8-32 X 5/8"	SCREW, SOC HD	SST 4

**A2-12-A200  
ACTUATOR ASSEMBLY,  
NECK TURN**

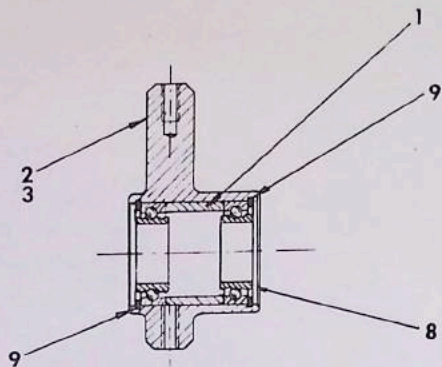
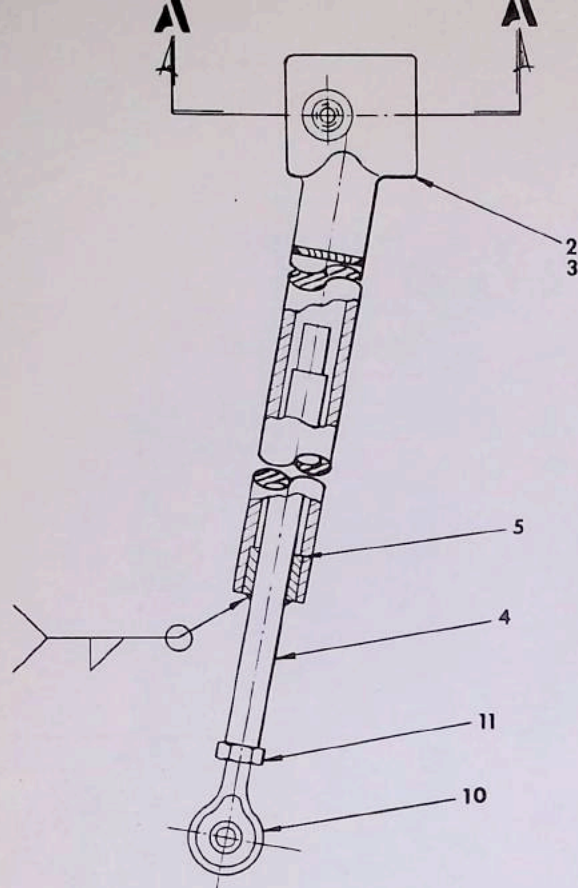




TABULATION	
ASSEMBLY NO.	
A2-13-A199-1	RIGHT HAND
A2-13-A199-2	LEFT HAND

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.	QTY.
				-1	-2
1.	5365-401514	A2-14-D114	SPACER, BEARING	1	1
2.	5340-401519	A2-14-C119	CLEVIS	1	1
3.	2130-401537	A2-14-W135	WELDMENT, L.H.		1
4.	5310-401582	A2-17-D179	NUT, KEEPER	1	1
5.	2130-401536	A2-14-W134	WELDMENT, R.H.	1	
6.	3110-560715	B538DD	BEARING FAFNIR	2	2
7.	5305-563480	8-32 X 1/2"	SCREW, SOC HD	4	4
8.	5306-013190	AN173C6A	BOLT, AIRCRAFT (10-32 X 25/32")	1	1
9.	5305-569195	1/4-28 X 1 1/4"	SCREW, SOC HD, SELF LOCKING	1	1

**A2-13-A199  
SHOULDER ASSEMBLY,  
SMALL FIGURE**



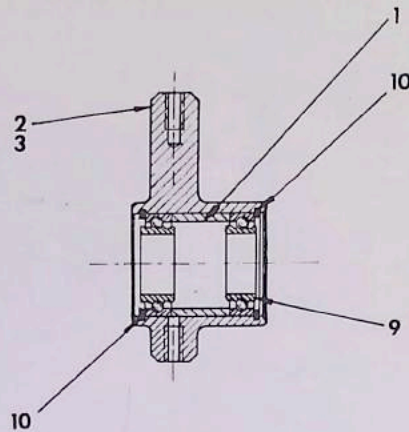
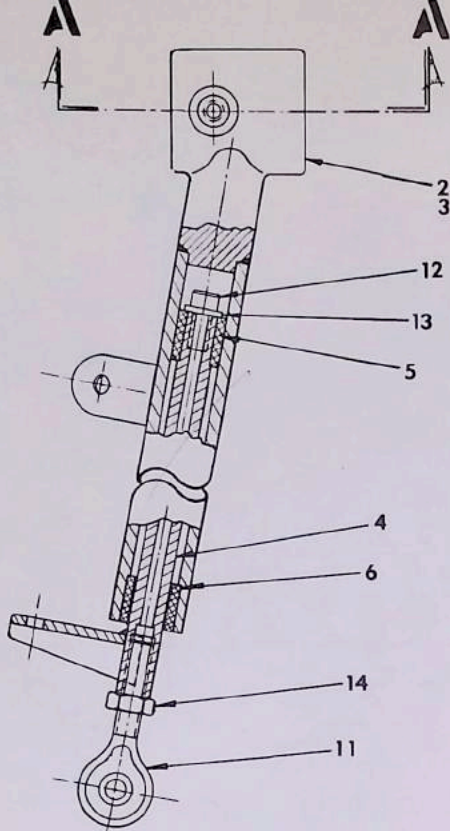
SECTION A-A

LEFT HAND CONFIGURATION SHOWN

TABULATION	
ASSEMBLY NO.	
AI-14-S35	LEFT HAND
AI-14-S36	RIGHT HAND

ITEM	WDP NO.	PART NO.	DESCRIPTION	L.H. QTY.	R.H. QTY.
1.	3110-401031	A1-14-D25	SPACER RING, BEARING	1	1
2.	2120-210119	A1-14-W37-2	SLEEVE WELDMENT L.H.	1	
3.	2120-210120	A1-14-W38-2	SLEEVE WELDMENT R.H.		1
4.	3040-401119	A1-14-D100	SHAFT, PISTON	1	1
5.	3120-401052	A1-14-D46	BUSHING, TIE OFF	1	1
6.					
7.					
8.		B538DD	BEARING	FAFNIR 2	2
9.		5008-106H	RETAINING RING	TRUARC 2	2
10.		REP3M4-6 FS-210	ROD END, MALE	FAFNIR 1	1
11.		1/4-28	JAM NUT-HEX	SST 1	1

**A1-14-S35  
A1-14-S36  
SHOULDER ASSEMBLY  
WITHOUT SHRUG**



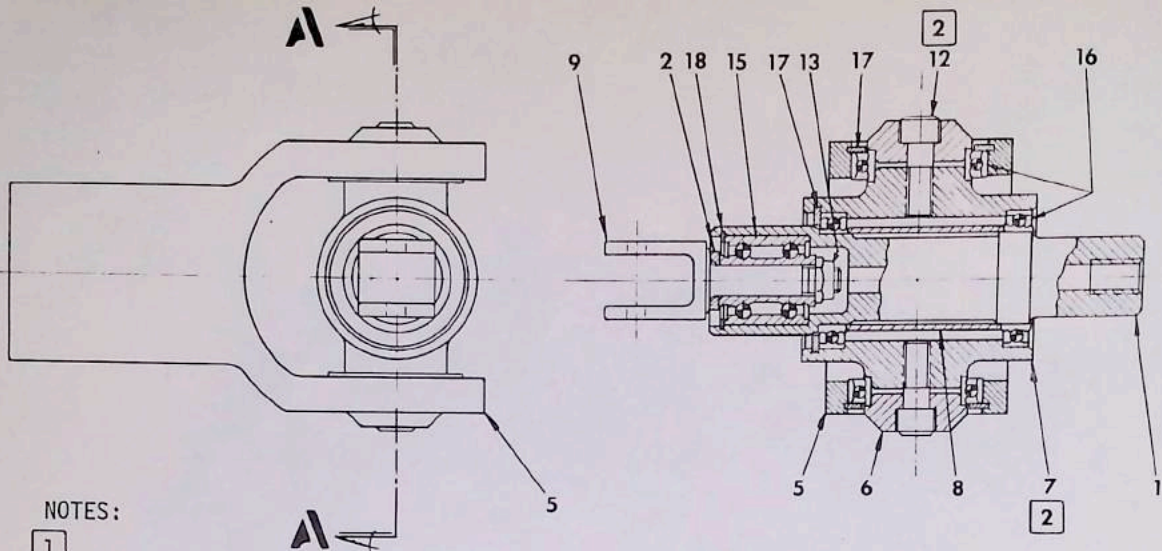
SECTION A-A

LEFT HAND CONFIGURATION SHOWN

TABULATION	
ASSEMBLY NO.	
A1-14-S33	LEFT HAND
A1-14-S34	RIGHT HAND

ITEM	WDP NO.	PART NO.	DESCRIPTION	L.H. QTY.	R.H. QTY.
1.	3110-401031	A1-14-D25	SPACER RING, BEARING	1	1
2.	2120-401043	A1-14-W37-1	SLEEVE WELDMNT L.H.	1	
3.	2120-401044	A1-14-W38-1	SLEEVE WELDMNT R.H.		1
4.	3040-401049	A1-14-W43	PISTON SHAFT, WELDMNT	1	1
5.	3120-401050	A1-14-D44	BUSHING, PISTON	1	1
6.	3120-401051	A1-14-D45	BUSHING, SUPPORT SLIDER	1	1
7.					
8.					
9.	3110-560715	B538DD	BEARING	FAFNIR 2	2
10.	5365-595954	5008-106H	RETAINING RING	TRUARC 2	2
11.	5340-595941	REP3M4-6 FS-210	ROD END	FAFNIR 1	1
12.	5305-563479	8-32 X 3/8 LG	SCREW, SOC HD	SST 1	1
13.	5310-562399	#8	WASHER, PLAIN,	SST 1	1
14.	5310-562120	1/4-28	JAM NUT-HEX,	SST 1	1

A1-14-S33  
A1-14-S34  
**SHOULDER ASSEMBLY  
WITH SHRUG**



NOTES:

1

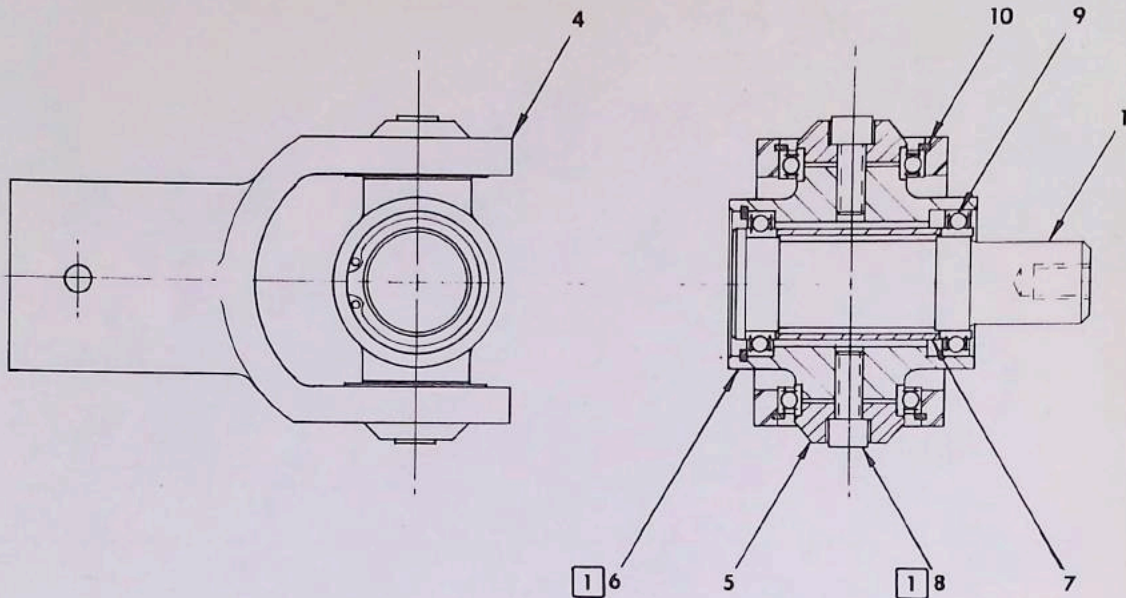
2

CLEAN SURFACE WITH ITEM-19 PRIOR TO APPLYING ITEM-20 TYP. FOR THE FOLLOWING ITEM NOS.-12 & 7.

SECTION A-A

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-401002	A1-15-D2	SHAFT	1
2.	5365-401077	A1-15-D69-3	SPACER	1
3.				
4.				
5.	5340-401093	A1-15-C74	CLEVIS, THIGH	1
6.	3120-401094	A1-15-D75	SEAT, BEARING	2
7.	2125-401095	A1-15-C76	CASTING, BEARING	1
8.	5365-401096	A1-15-D77	SPACER, HIP SWAY	1
9.	5340-401082	A1-18-C71-1	CLEVIS, ROTATING	1
10.				
11.				
12.	5305-561468	1/4-20 X 5/8 LG	SCREW, SOC HD	SST 2
13.	5310-560407	79NE-048	NUT, HEX 1/4-28 (LIGHT)	ESNA 1
14.				
15.	3110-560712	DW5	BEARING	FAFNIR 1
16.	3110-560717	B 540 DD	BEARING	FAFNIR 4
17.	5365-568647	N5001-131H	RING, RETAINING	TRUARC 3
18.	5365-570151	N5000-87H	RING, RETAINING	TRUARC 1
19.			LOCQUIC PRIMER T	LOCTITE
20.			SCREW LOCK	LOCTITE

**A1-15-S4  
HIP JOINT ASSEMBLY  
WITH CLEVIS**

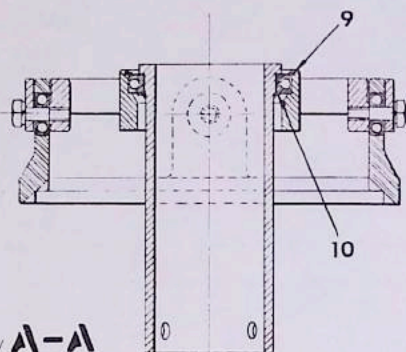
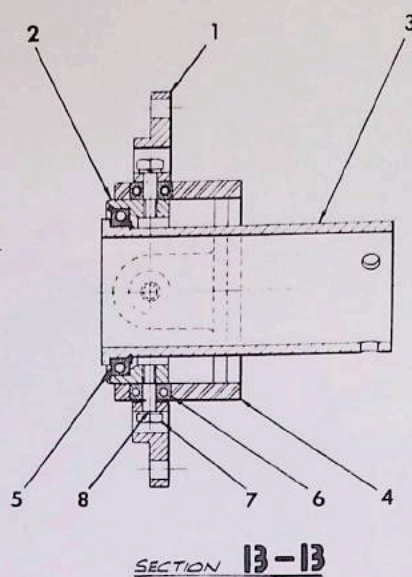
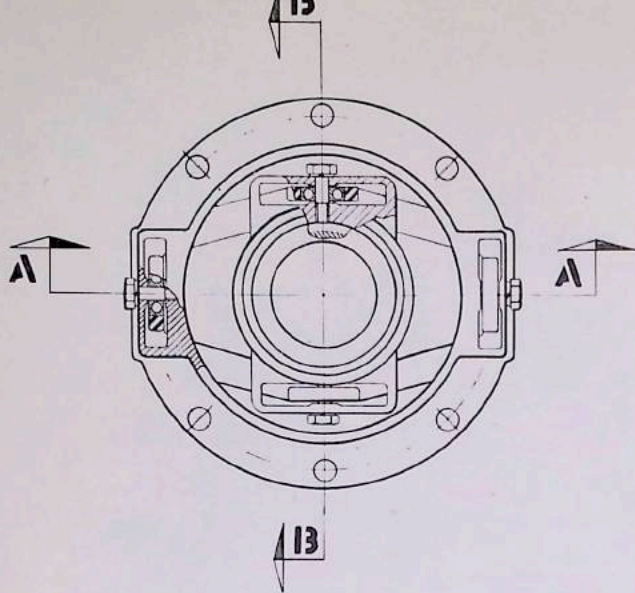


NOTES:

- 1 CLEAN SURFACE WITH ITEM 13 PRIOR TO APPLYING ITEM 14.

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-401003	A1-15-D3	SHAFT, HIP JOINT, W/O CLEVIS	1
2.				
3.				
4.	5340-401093	A1-15-C74	CLEVIS, THIGH	1
5.	3120-401094	A1-15-D75	SEAT BEARING, HIP JOINT	2
6.	2125-401095	A1-15-C76	CASTING, HIP-SWAY	1
7.	5365-401096	A1-15-D77	SPACER, BEARING	1
8.	5305-561468	1/4-20 X 5/8 LG.	SCREW, SOC HD	SST 2
9.	3110-560717	B540DD	BEARING	FAFNIR 4
10.	5365-568647	N5001-131H	RING, RETAINING	TRUARC 3
11.				
12.				
13.			LOCQUIC PRIMER 'T'	1 LOCTITE A/R
14.			SCREW LOCK	1 LOCTITE A/R

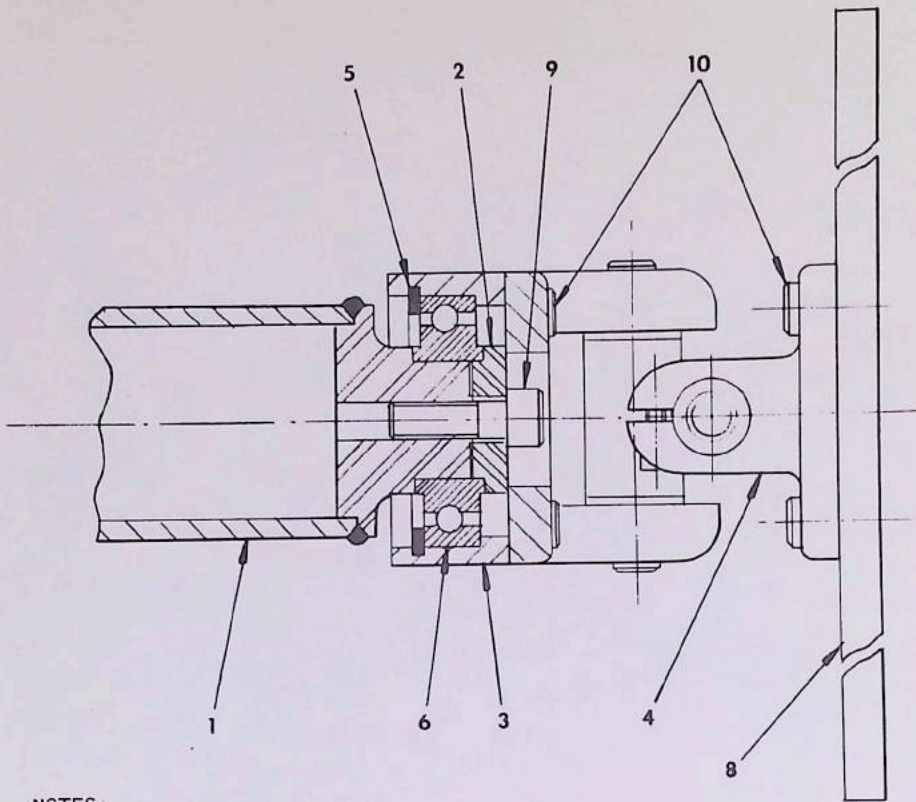
**A1-15-55  
HIP JOINT ASSEMBLY  
WITHOUT CLEVIS**



NOTES:  
THIS ASSEMBLY SIMILAR TO: UL-3

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3040-401143	A1-17-C123	MOUNTING FLANGE	1
2.	3130-401142	A1-17-C122	BEARING HOUSING	1
3.	3040-401158	A1-17-D134	SLEEVE	1
4.	3130-401159	A1-17-C135	BEARING FRAME	1
5.	3110-560721	B544DD	BEARING	FAFNIR 1
6.	3110-595318	KP3A	BEARING	FAFNIR 4
7.	5306-013190	AN173C-6A	BOLT, AIRCRAFT (10-32 X 25/32)	4
8.	5310-565026	#10	LOCKWASHER	SST 4
9.	5365-569985	UR-225S	RING, RETAINING (INT.)	SPIROLOX 1
10.	5365-569928	US-181S	RING, RETAINING (EXT.)	SPIROLOX 1

**A1-17-S131  
ANKLE GIMBAL  
ASSEMBLY**

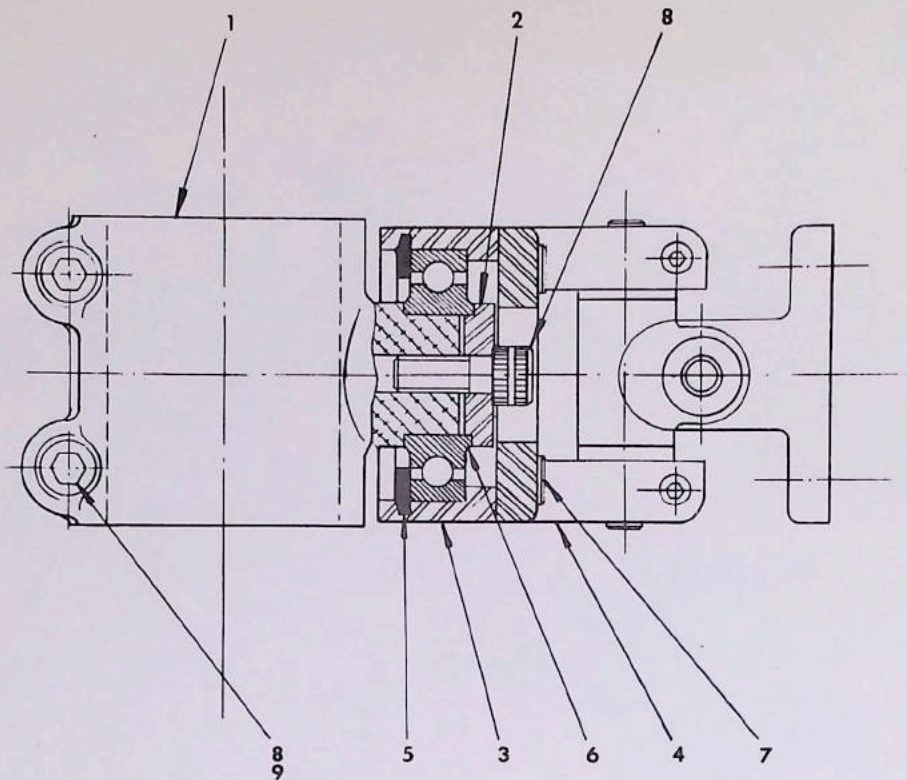


NOTES:

THIS ASSEMBLY SIMILAR TO: UL-36

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	2135-401173	A1-17-W147	LEG TUBE WELDMENT	1
2.	3110-401167	A1-17-D142	U-JOINT PIVOT BEARING RETAINER	1
3.	3130-401166	A1-17-D141	U-JOINT PIVOT BEARING HOUSING	1
4.	3010-401120	A1-18-A101	UNIVERSAL JOINT ASSEMBLY	1
5.	5365-570543	N5002-162H	RING, RETAINING	TRUARC 1
6.	3110-595373	KP12A	BEARING	FAFNIR 1
7.				
8.	3040-401165	A1-17-D140	MOUNTING PLATE ANKLE	1
9.	5305-569192	1/4-28 X 3/4	SCREW, SOC HD	SST 1
10.	5305-569256	10-24 X 1/2	SCREW, SOC HD	SST 8

**A1-17-S132  
ANKLE & LEG TUBE  
ASSEMBLY**



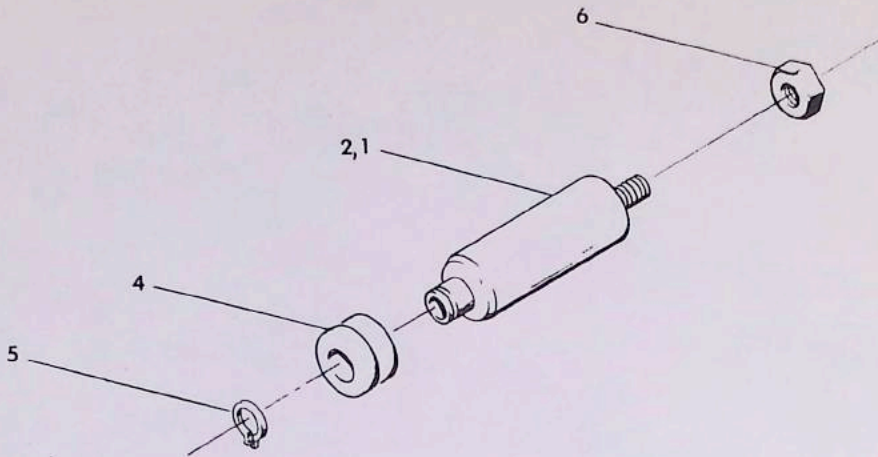
NOTE:

THIS ASSEMBLY SIMILAR TO: UL-23

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	3010-401164	A1-17-C139	U-JOINT MOUNT & CLAMP	1
2.	3110-401167	A1-17-D142	U-JOINT PIVOT BEARING RETAINER	1
3.	3130-401166	A1-17-D141	U-JOINT PIVOT BEARING HOUSING	1
4.	3010-401120	A1-18-A101	UNIVERSAL JOINT ASSEMBLY	1
5.	5365-570543	N5002-162H	RING, RETAINING	TRUARC 1
6.	3110-595323	KP12A	BEARING	FAFNIR 1
7.	5305-569256	10-24 X 1/2"	SCREW, SOC HD	SST 4
8.	5305-569269	1/4-20 X 7/8"	SCREW, SOC HD	SST 3
9.	5310-401080	A1-18-D70	1/4 FLAT WASHER	SST 2

**A1-17-S133  
TUBE PIVOT JOINT  
ASSEMBLY**

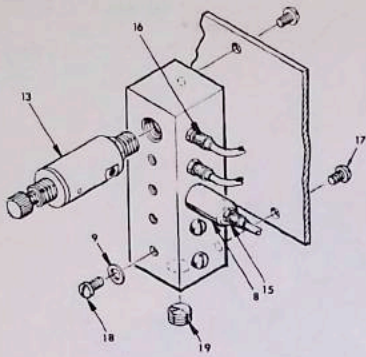




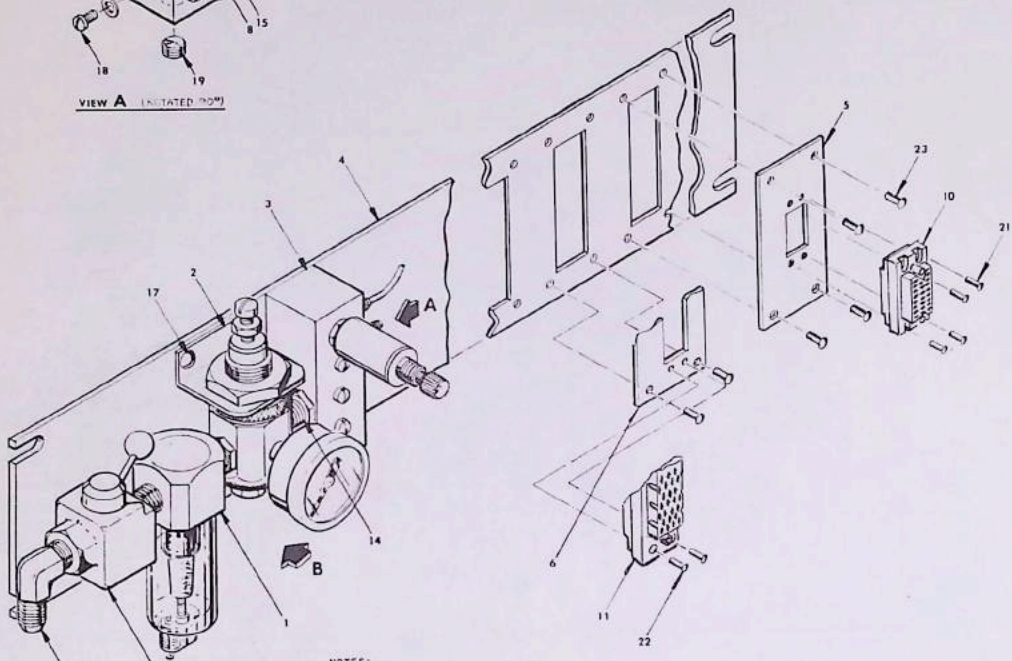
TABULATION	
ASSEMBLY NO.	STROKE LENGTH
CY-4-555-1	.437
CY-4-555-2	.250

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY. -1	QTY. -2
1.	3010-200157	CY-4-55-3	CYLINDER ASSY		1
2.	3010-200155	CY-4-55-1	CYLINDER ASSY	1	
3.					
4.	5325-560625	2146	GROMMET H.H. SMITH	1	1
5.	5365-560628	5100-18C	RING, RETAINING TRUARC	1	1
6.	5310-595965	5-40	NUT, JAM SST	1	1

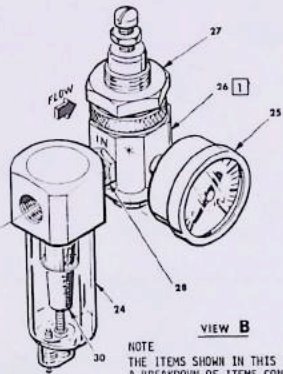
**CY-4-555**  
**ACTUATOR ASSEMBLY, 5/16" DIA.,**  
**W/ATTACHING HARDWARE**



VIEW A (NOTATED 20°)



NOTES:  
 1 #1602 REGULATOR IS SUPPLIED WITH ITEM 31 FOR 0-125 PSIG OUTLET PRESSURE RANGE. FOR 0-50 PSIG RANGE, REPLACE WITH ITEM 32.

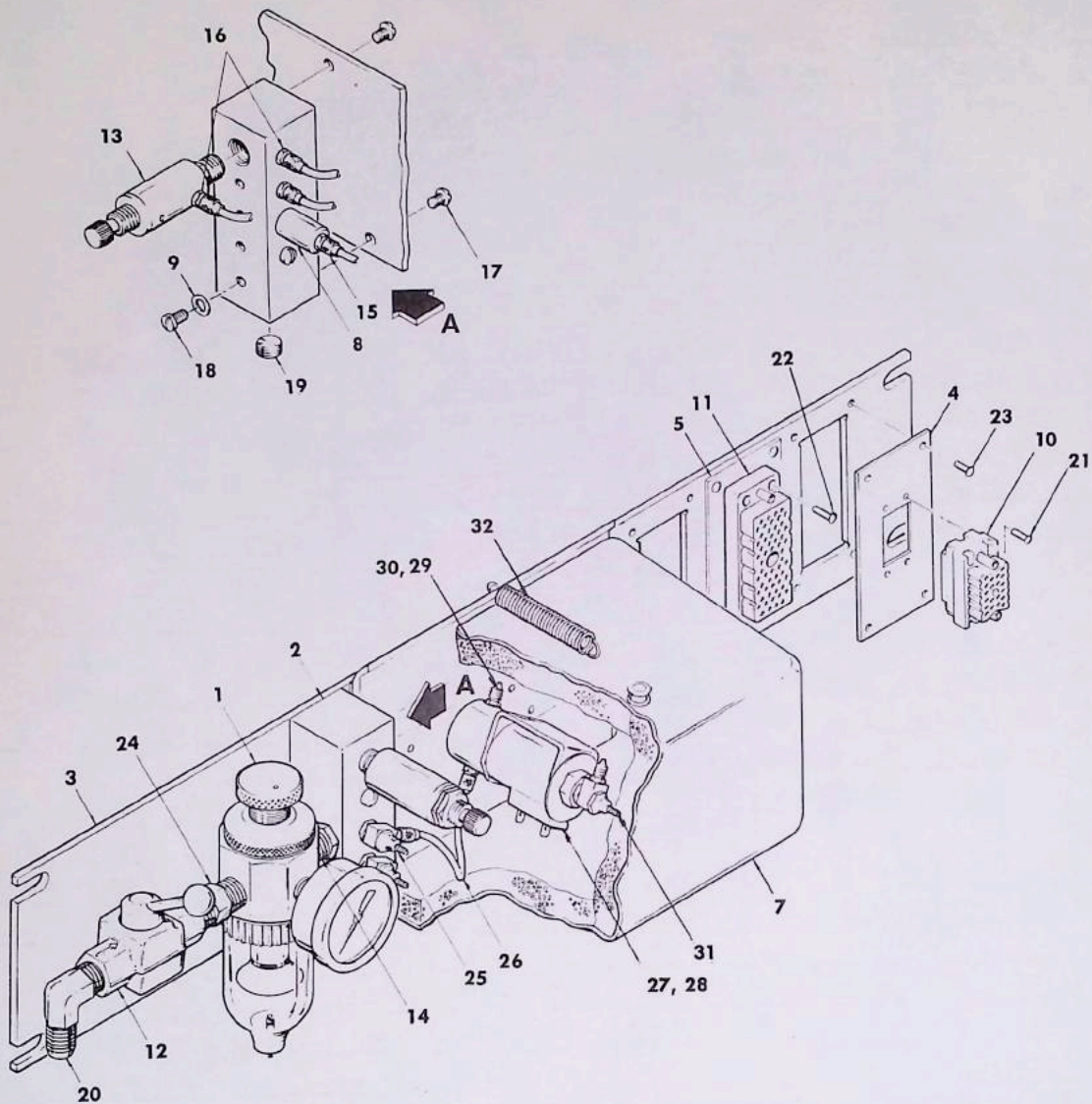


VIEW B

NOTE  
 THE ITEMS SHOWN IN THIS VIEW ARE A BREAKDOWN OF ITEMS CONTAINED IN A1-16-579 REGULATOR AND FILTER ASSY. (ITEM 1) AND ARE SHOWN FOR MAINTENANCE PURPOSES.

**A1-16-S85  
 PNEUMATIC MANIFOLD PANEL ASSEMBLY  
 WITH FILTER AND CONTROLS**

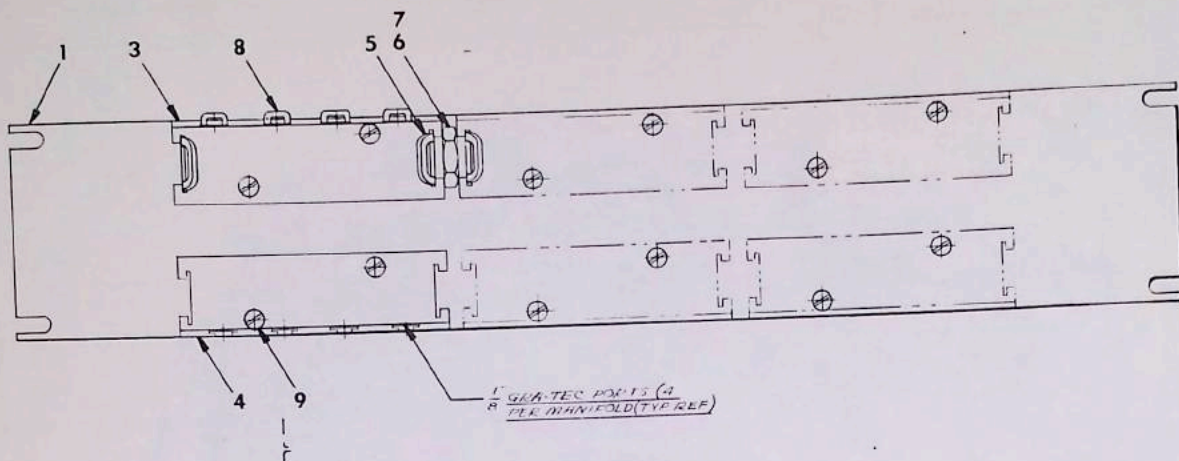
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	4820-401098	A1-16-S79*	REGULATOR & FILTER ASSY	1
2.	5340-401099	A1-16-D80	MOUNTING BRACKET	1
3.	4730-401106	A1-16-D87	MANIFOLD	1
4.	5975-210284	A1-16-D88-2	PANEL	1
5.	5935-401273	A1-16-D240	ADAPTER PLATE, 20 PIN CONN	A/R
6.	5935-401274	A1-16-D241	ADAPTER PLATE, 56 PIN CONN	A/R
7.				
8.	4330-200276	CY-6-276	FILTER ASSY	A/R
9.	5330-200002	CY-6-280-2	GASKET	9
10.	5935-571055	8016-020-000-707	RECEPTACLE (20 CONTACT) ELCO PACIFIC	A/R
11.	5935-571073	8016-056-000-707	RECEPTACLE (56 CONTACT) ELCO PACIFIC	A/R
12.	4820-571047	92598-2PM	SHUTOFF VALVE CIRCLE SEAL	1
13.	4820-592011	MAR-IP	REGULATOR CLIPPARD	1
14.	4730-571004	2202	FITTING 1/8 X 1/4NPT GRATEX	1
15.	4730-570995	3200	NUT, #2 PLASTIC TUBE GRATEX	A/R
16.	4730-570916	0016	FITTING, #2 PLASTIC TUBE GRATEX	A/R
17.	5305-563647	10-32 X 5/16	SCREW, TRUSS HD SST	4
18.	5305-592000	10-32 X 1/4	SCREW, FILLISTER HD BRASS	A/R
19.	4730-571097	1/8-27 NPT	PLUG, INT HEX BRASS	1
20.	4730-592513	37° JIC X 1/4 NPT	90° ELBOW BRASS	1
21.	5320-006449	MS16535-85	RIVET	A/R
22.	5320-006442	MS16535-78	RIVET	A/R
23.	5320-007008	AD-44-ABS	POP-RIVET UNITED SHOE MACHINERY	A/R
	* NOTE: THE	FOLLOWING ITEMS (24 THRU 32) ARE INCLUDED ON A1-16-S79 REGULATOR		
	AND	FILTER ASSY (ITEM #1).		
24.	4310-592002	1702	FILTER ARROW	1
25.	6685-592005	1681	GAUGE, 0-160 PSIG ARROW	1
26.	4820-592003	1602	REGULATOR ARROW	1
27.	5310-561857	3/4-16 X 3/16	NUT (STEEL-CAD PLATE)	1
28.	4730-592735	1/4 FF-B	NIPPLE, PIPE 1/4 NPT PARKER	1
29.				
30.	4310-592004	72040	FILTER ELEMENT ARROW	1
31.	5360-592007	61610	SPRING, 0-125 PSIG ARROW	A/R
32.	5360-592008	61620	SPRING, 0-50 PSIG ARROW	A/R



CY-6-561  
 PNEUMATIC MANIFOLD ASSEMBLY  
 W FILTER, CONTROLS and COVER

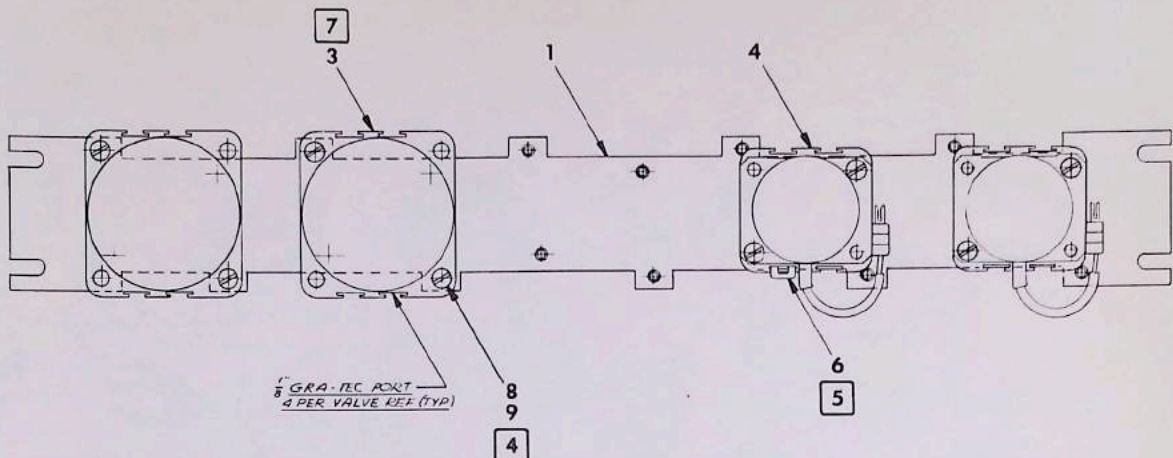
DWG. CY-6-561 PNEUMATIC MANIFOLD ASSEMBLY W/FILTER, CONTROLS and COVER

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	4820-573096	7019-2	REGULATOR AND FILTER WILKERSON	1
2.	4730-401106	A1-16-D87	MANIFOLD	1
3.	5975-210284	A1-16-D88-2	PANEL	1
4.	5935-401273	A1-16-D240	ADAPTOR PLATE, 20 PIN CONNECTOR	A/R
5.	5935-401274	A1-16-D241	ADAPTOR PLATE, 56 PIN CONNECTOR	A/R
6.				
7.	5945-210691	CY-6-560*	SOLENOID VALVE ASSEMBLY	1
8.	4330-200276	CY-6-276	FILTER ASSEMBLY	A/R
9.	5330-200002	CY-6-280-2	GASKET	9
10.	5935-571055	8016-020-000-707	RECEPTACLE (20 CONTACT) ELCO PACIFIC	A/R
11.	5935-571073	8016-056-000-707	RECEPTACLE (56 CONTACT) ELCO PACIFIC	A/R
12.	4820-571047	9259B-2PM	SHUTOFF VALVE CIRCLE SEAL	1
13.	4820-592011	MAR-1P	REGULATOR CLIPPARD	A/R
14.	4730-571004	2202	FITTING, 1/8 X 1/4 NPT GRA-TEC	1
15.	4730-570995	3200	NUT, #2 PLASTIC TUBE GRA-TEC	A/R
16.	4730-570916	0016	FITTING, #2 PLASTIC TUBE GRA-TEC	A/R
17.	5305-563647	10-32 X 5/16	SCREW, TRUSS HEAD SST	4
18.	5305-592000	10-32 X 1/4	SCREW, FILLISTER HEAD SST	A/R
19.	4730-571097	1/8-2 NPT	PLUG, INTERNAL HEX	A/R
20.	4730-592513	6-CTS-B	90° ELBOW, 37° JIC X 1/4 MALE NPT	1
21.	5320-006449	MS16535-85	RIVET	A/R
22.	5320-006442	MS16535-78	RIVET	A/R
23.	5320-007008	AD-44-ABS	POP-RIVET UNITED SHOE MACHINE	A/R
24.	4730-592735	1/4 FF-B	NIPPLE, HEX PARKER	1
25.	4820-592001	1105	FITTING, AIR BLEED GRA-TEC	A/R
26.	4720-200259	CY-6-259-1	TUBING, #2 PNEUMATIC	A/R
	*NOTE: THE FOLLOWING ITEMS ARE INCLUDED ON SOLENOID VALVE ASSY. (ITEM #7).			
27.	4820-573097	B4RX16-24	VALVE, 3 WAY SKINNER	A/R
28.	5305-563550	8-32 X 1/4	SCREW, TRUSS HEAD, SST	A/R
29.	4730-570916	0016	FITTING, #2 PLASTIC TUBE GRA-TEC	A/R
30.	5330-200002	CY-6-280-2	GASKET	A/R
31.	4820-592001	1105	FITTING, AIR BLEED GRA-TEC	A/R
32.	5360-572613	311	SPRING, EXTENSION CENTURY SPRING	2



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	5975-401102	A1-16-D83	MOUNTING PANEL	1
2.				
3.	4730-592010	0079RED	MANIFOLD	GRA-TEC A/R
4.	4730-592009	0079GOLD	MANIFOLD	GRA-TEC A/R
5.	5975-570992	1904	CLIP, RETAINING, 1/2"	GRA-TEC A/R
6.	4730-570885	2110	BLOCK COUPLING, 1/2"	GRA-TEC A/R
7.	5330-570989	1316	"0" RING,	GRA-TEC A/R
8.	5975-595973	1901	CLIP, RETAINING, 1/8"	GRA-TEC A/R
9.	5305-563967	8-32 X 1 1/8 LG	SCREW, ROUND HEAD	SST A/R
10.				

**A1-16-590  
HYDRAULIC MANIFOLD  
PANEL ASSEMBLY**

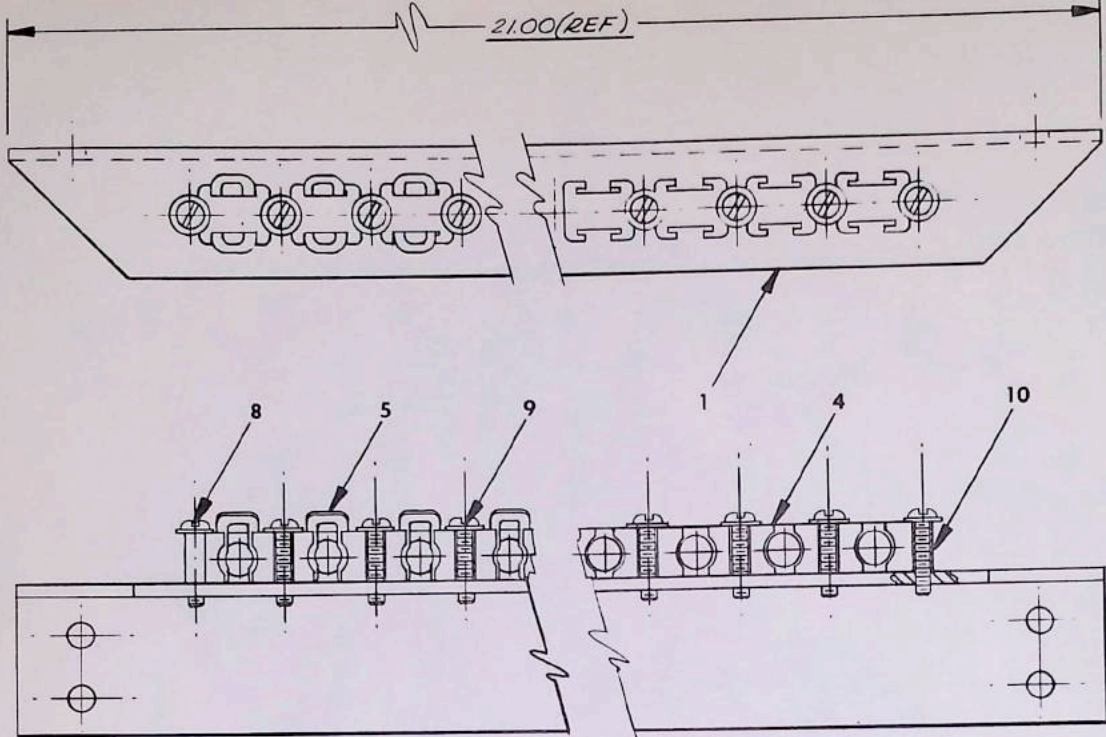


NOTES:

- 1 MATERIAL - SST
- 2 HYDRAULIC RESEARCH & MFG. CO. BURBANK, CALIF.
- 3 GRA-TEC, INC., LOS ALTOS, CALIF.
- 4 TWO SCREWS REQUIRED FOR EACH VALVE. USE ITEM 9 IN PLACE OF ITEM 8 IN LOWER HOLD AS REQUIRED FOR USE IN NEXT ASSEMBLY TO PROVIDE ATTACHMENT FOR INSTALLING WIRE RETAINING CLIPS ON BACK OF PANEL.
- 5 FOUR OF ITEM 6 REQUIRED PER VALVE.
- 6 MAXIMUM OF FIVE VALVES EITHER ITEM 4 OR ITEM 5, OR COMBINATION OF BOTH IN ANY ORDER MAY BE MOUNTED ON PANEL. NOTE DIFFERENT HOLE PATTERN.
- 7 USE DASH NO. OF THIS VALVE AS REQUIRED TO OBTAIN DESIRED G.P.M. FLOW FOR SPECIFIC APPLICATION.

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	5975-401103	A1-16-D84	PANEL, HYD.	1
2.				
3.		10851 (TAB)	VALVE, HYD SERVO (TWO STAGE) 2 7 6	A/R
4.	3010-210201	13001	VALVE, HYD SERVO (SINGLES STAGE) 2 6	A/R
5.				
6.	5975-570990	1902	CLIP, RETAINING, 1/8"	3 5 A/R
7.				
8.	5305-015250	10-32 X 5/8	SCREW, ROUND HEAD	4 1 A/R
9.	5305-015257	10-32 X 1 1/8 LG	SCREW, ROUND HEAD	4 1 A/R

**A1-16-S91  
HYDRAULIC SERVO VALVE  
PANEL ASSEMBLY**



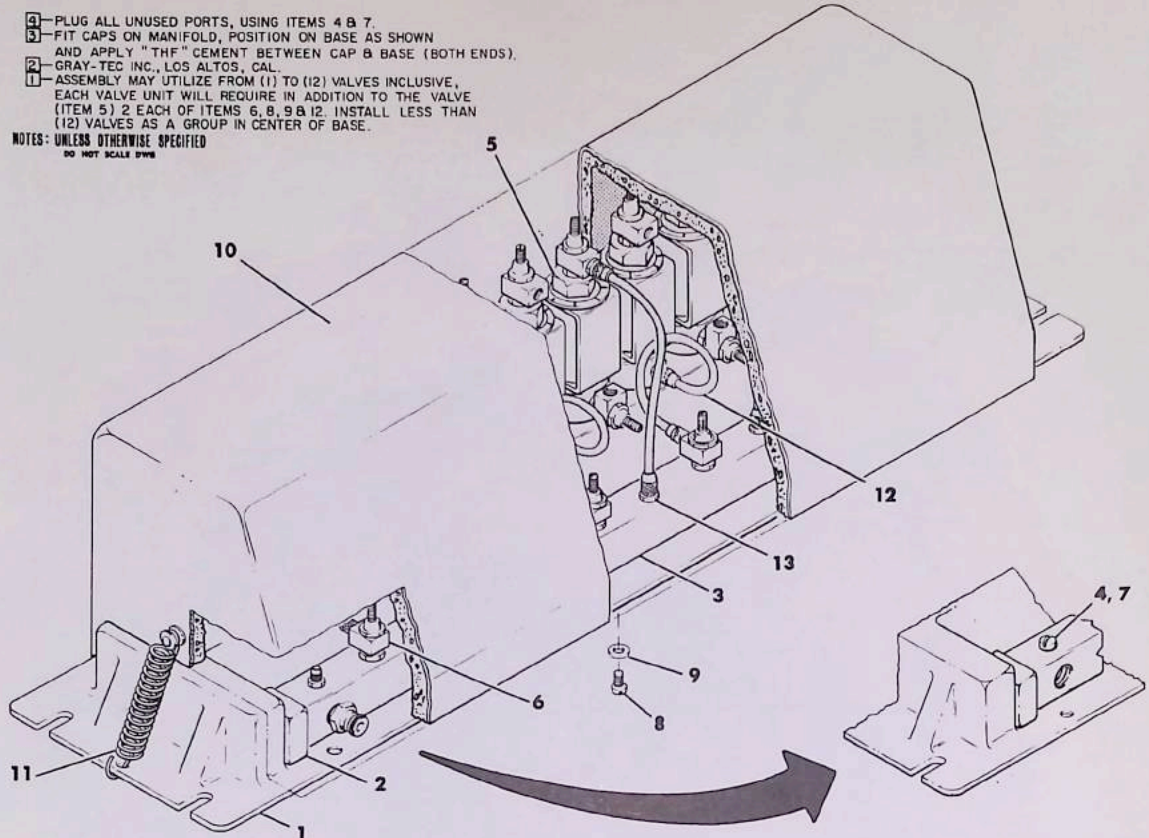
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	5975-401112	A1-16-D93	PANEL, HYDRAULIC DISCONNECT	1
2.				
3.				
4.	5975-595974	2701	CONNECTOR BLOCK, 1/8	GRA-TEC A/R
5.	5975-595973	1901	CLIP, CONNECTOR, 1/8	GRA-TEC A/R
6.				
7.				
8.	5305-573093	6-32 X 3/4	SCREW, PAN HEAD	SST A/R
9.	5310-562252	.14 ID X .38 OD X .040	WASHER	SST A/R
10.		.180 OD X .015 W X .500	SPACER, TUBING	SST 2

**A1-16-592  
HYDRAULIC DISCONNECT  
PANEL ASSEMBLY**



- 4 PLUG ALL UNUSED PORTS, USING ITEMS 4 & 7.  
 5 FIT CAPS ON MANIFOLD, POSITION ON BASE AS SHOWN AND APPLY "THF" CEMENT BETWEEN CAP & BASE (BOTH ENDS).  
 GRAY-TEC INC., LOS ALTOS, CAL.  
 2 ASSEMBLY MAY UTILIZE FROM (1) TO (12) VALVES INCLUSIVE, EACH VALVE UNIT WILL REQUIRE IN ADDITION TO THE VALVE (ITEM 5) 2 EACH OF ITEMS 6, 8, 9 & 12. INSTALL LESS THAN (12) VALVES AS A GROUP IN CENTER OF BASE.  
 1

NOTES: UNLESS OTHERWISE SPECIFIED  
 DO NOT SCALE DRAWING



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.	9540-402822	A4-96-D383	BASE, MOUNTING	1
2.	4730-402061	A3-96-D413	CAP, MANIFOLD	3 2
3.	4730-402823	A4-96-W384	MANIFOLD	1
4.	5330-200002	CY-6-280-2	GASKET, FITTING #10	4 A/R
5.	4810-200098	CY-6-98	VALVE, SOLENOID	1 A/R
6.	4820-592001	1105	VALVE, NEEDLE	1 2 A/R
7.	5305-592000	10-32 X 1/4	SCREW, FILLISTER HEAD	BRASS 4 A/R
8.	5305-561471	8-32 X 1/4	SCREW, RD HD	SST 1 A/R
9.	5310-562399	#8	WASHER, FLAT	SST 1 A/R
10.	2805-210669	A8-80-D47	VALVE COVER ASSEMBLY	A/R
11.	5360-572613	311	SPRING, EXTENSION (3/8 X 2 1/2)	CENTURY A/R
12.	4720-200259	CY-6-259-1	TUBING, PNEUMATIC #2 (BLACK)	1 A/R
13.	4730-570916	0016	FITTING, PLASTIC TUBE	2 A/R

**A1-16-S95  
 PNEUMATIC SOLENOID  
 VALVE ASSEMBLY**

## **SECTION 2.6**

### **ANIMATION CHECK LIST**

## G. E. CAROUSEL SHOW

### DAILY ANIMATION CHECK LIST

CHECKED BY _____	DATE _____	SHIFT _____	TIME _____
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**F1**

- |                                       |  |  |                                       |
|---------------------------------------|--|--|---------------------------------------|
| <input type="checkbox"/> MOUTH        | <input type="checkbox"/> RT WRIST IN-OUT | <input type="checkbox"/> TORSO TWIST       | <input type="checkbox"/> FOOT TAP     |
| <input type="checkbox"/> HD NOD       | <input type="checkbox"/> RT WRIST FWD-BK | <input type="checkbox"/> PELVIS            | <input type="checkbox"/> 3 FINGERS    |
| <input type="checkbox"/> HD TURN      | <input type="checkbox"/> RT WRIST TWIST  | <input type="checkbox"/> EYE BLINK         | <input type="checkbox"/> CHAIR ROTATE |
| <input type="checkbox"/> HD TILT      | <input type="checkbox"/> LT WRIST IN-OUT | <input type="checkbox"/> EYE RT-LT         |                                       |
| <input type="checkbox"/> RT ARM SWING | <input type="checkbox"/> LT WRIST FWD-BK | <input type="checkbox"/> MOUTH PINCH RT-LT |                                       |
| <input type="checkbox"/> RT ELBOW     | <input type="checkbox"/> LT WRIST TWIST  | <input type="checkbox"/> SMILE RT-LT       |                                       |
| <input type="checkbox"/> LT ELBOW     | <input type="checkbox"/> TORSO SIDEBEND  | <input type="checkbox"/> "F" SOUND         |                                       |



**F2**

- |   |                                      |   |                                    |
|---|--------------------------------------|---|------------------------------------|
| <input type="checkbox"/> MOUTH          | <input type="checkbox"/> EYE RT-LT   | <input type="checkbox"/> MOUTH          | <input type="checkbox"/> EYE BLINK |
| <input type="checkbox"/> HD NOD         | <input type="checkbox"/> MOUTH PINCH | <input type="checkbox"/> HD NOD         | <input type="checkbox"/> EYE RT-LT |
| <input type="checkbox"/> HD TURN        | <input type="checkbox"/> RT-LT       | <input type="checkbox"/> HD TURN        |                                    |
| <input type="checkbox"/> HD TILT        | <input type="checkbox"/> "F" SOUND   | <input type="checkbox"/> HD TILT        |                                    |
| <input type="checkbox"/> TORSO FOREBEND | <input type="checkbox"/> IRON SOUND  | <input type="checkbox"/> LT ARM FWD     |                                    |
| <input type="checkbox"/> BODY SIDESWAY  |                                      | <input type="checkbox"/> LT ELBOW       |                                    |
| <input type="checkbox"/> EYE BLINK      |                                      | <input type="checkbox"/> LT WRIST TWIST |                                    |



**F6**

- |                                      |                                     |
|--------------------------------------|-------------------------------------|
| <input type="checkbox"/> MOUTH       | <input type="checkbox"/> NECK TURN  |
| <input type="checkbox"/> HD NOD      | <input type="checkbox"/> TAIL       |
| <input type="checkbox"/> HD TURN     | <input type="checkbox"/> LT EAR     |
| <input type="checkbox"/> RT WRIST T  | <input type="checkbox"/> RT EAR     |
| <input type="checkbox"/> LT WRIST TW | <input type="checkbox"/> EYE BLINK  |
| <input type="checkbox"/> TORSO FOREB | <input type="checkbox"/> EYE RT-LT  |
| <input type="checkbox"/> TORSO TWIST | <input type="checkbox"/> NECK RAISE |

THIS IS AN EXAMPLE OF THE CHECK LIST USED FOR THE G.E. CAROUSEL SHOW. MAINTENANCE PERSONNEL MAY OBTAIN COPIES OF THIS FORM THRU THEIR SUPERVISOR/FOREMAN.



**F3**

- HD TURN
- HD TILT
- PELVIS
- EYE BLINK
- WASHER DRIVE



**F4**

- HD NOD
- HD TURN
- EYE BLINK
- CHAIR ROCK



**AP2**

- CHEST DOOR
- FOOD DOOR



**AP3**

- HANDLE
- WATER



**AP1**

- OVEN DOOR
- WARMER DOOR
- SIDE DOOR
- COPPER POT LID
- PORCELAIN POT LID
- IRON POT LID

**GA4** CAT  TAIL

**AP4** BIRDS IN TREE  BEAK & WING FLIP

BEAK & TAIL  HD ROTATE RT-LT

**AP7** PARROT IN CAGE  BEAK

HEAD NOD  HEAD ROTATE RT-LT

CHEST OUT  BODY BACK

COMMENTS \_\_\_\_\_

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## G.E. CAROUSEL SHOW



### DAILY ANIMATION CHECK LIST



CHECKED BY _____	DATE _____	SHIFT _____	TIME _____
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 <p><b>F7</b></p>	<input type="checkbox"/> MOUTH	<input type="checkbox"/> RT ELBOW	<input type="checkbox"/> PELVIS	<input type="checkbox"/> 4 FINGERS LT HND
	<input type="checkbox"/> HD NOD	<input type="checkbox"/> RT WRIST IN-OUT	<input type="checkbox"/> EYE BLINK	<input type="checkbox"/> RT KNEE SPREAD
	<input type="checkbox"/> HD TURN	<input type="checkbox"/> RT WRIST FWD-BK	<input type="checkbox"/> EYE RT-LT	
	<input type="checkbox"/> HD TILT	<input type="checkbox"/> RT WRIST TWIST	<input type="checkbox"/> MOUTH PINCH RT-LT	
	<input type="checkbox"/> RT ARM FWD	<input type="checkbox"/> TORSO FOREBEND	<input type="checkbox"/> SMILE RT-LT	
	<input type="checkbox"/> RT ARM OUT	<input type="checkbox"/> TORSO SIDEBEND	<input type="checkbox"/> "F" SOUND	
	<input type="checkbox"/> RT ARM SWING	<input type="checkbox"/> TORSO TWIST	<input type="checkbox"/> FOOT TAP	

 <p><b>F25</b></p>	<input type="checkbox"/> MOUTH	<input type="checkbox"/> RT WRIST FWD-BK	<input type="checkbox"/> MOUTH	<input type="checkbox"/> EYE BLINK
	<input type="checkbox"/> HD NOD	<input type="checkbox"/> TORSO FOREBEND	<input type="checkbox"/> HD NOD	
	<input type="checkbox"/> HD TURN	<input type="checkbox"/> TORSO TWIST	<input type="checkbox"/> HD TURN	
	<input type="checkbox"/> HD TILT	<input type="checkbox"/> PELVIS	<input type="checkbox"/> HD TILT	
	<input type="checkbox"/> RT ARM SWING	<input type="checkbox"/> EYE BLINK	<input type="checkbox"/> RT ELBOW	
	<input type="checkbox"/> RT ELBOW	<input type="checkbox"/> EYE RT-LT	<input type="checkbox"/> WRIST TWIST	
	<input type="checkbox"/> LT ELBOW			

 <p><b>F12</b></p>	<input type="checkbox"/> HD NOD	<p>THIS IS AN EXAMPLE OF THE CHECK LIST USED FOR THE G.E. CAROUSEL SHOW. MAINTENANCE PERSONNEL MAY OBTAIN COPIES OF THIS FORM THRU THEIR SUPERVISOR/FOREMAN.</p>	<input type="checkbox"/> MOUTH	<input type="checkbox"/> BIRD
	<input type="checkbox"/> HD TURN		<input type="checkbox"/> RT WRIST TWIST	
	<input type="checkbox"/> HD TILT		<input type="checkbox"/> EYE BLINK	
	<input type="checkbox"/> EYE BLINK		<input type="checkbox"/> EYE RT-LT	
	<input type="checkbox"/> EYE RT-LT		<input type="checkbox"/> FOOT TAP RT	
	<input type="checkbox"/> FOOT TAP RT		<input type="checkbox"/> FOOT TAP LT	
	<input type="checkbox"/> FOOT TAP LT			

 <p><b>GA5</b></p>	<input type="checkbox"/> MOUTH	<input type="checkbox"/> NECK TURN	 <p><b>CUCKOO CLOCK</b></p>
	<input type="checkbox"/> HD NOD	<input type="checkbox"/> TAIL	
	<input type="checkbox"/> HD TURN	<input type="checkbox"/> LT EAR	
	<input type="checkbox"/> HD TILT	<input type="checkbox"/> RT EAR	
	<input type="checkbox"/> EYE BLINK		
	<input type="checkbox"/> EYE RT-LT		
	<input type="checkbox"/> NECK RAISE		

 <p><b>AP9</b></p>	<input type="checkbox"/> OVEN DR LATCH	 <p><b>AP11</b></p>	<input type="checkbox"/> LID
	<input type="checkbox"/> OVEN DR		


<b>GA6</b> CAT <input type="checkbox"/> TAIL	<b>AP14</b> VACCUM <input type="checkbox"/> TURN <input type="checkbox"/> HANDLE
<b>AP8</b> REFRIGERATOR <input type="checkbox"/> DOOR <input type="checkbox"/> ICE TRAY	SEWING MACHINE <input type="checkbox"/> NEEDLE
FAN <input type="checkbox"/> BLADE	

COMMENTS \_\_\_\_\_


## G. E. CAROUSEL SHOW


### DAILY ANIMATION CHECK LIST


CHECKED BY _____	DATE _____	SHIFT _____	TIME _____
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 <b>F14</b>	<input type="checkbox"/> MOUTH <input type="checkbox"/> HD NOD <input type="checkbox"/> HD TURN <input type="checkbox"/> HD TILT <input type="checkbox"/> RT ARM FWD <input type="checkbox"/> RT ARM OUT <input type="checkbox"/> RT ARM SWING	<input type="checkbox"/> RT ELBOW <input type="checkbox"/> RT WRIST IN-OUT <input type="checkbox"/> RT WRIST FWD-BK <input type="checkbox"/> RT WRIST TWIST <input type="checkbox"/> LT WRIST TWIST <input type="checkbox"/> TORSO FOREBEND	<input type="checkbox"/> TORSO TWIST <input type="checkbox"/> EYE BLINK <input type="checkbox"/> EYE RT-LT <input type="checkbox"/> EYE RT-LT WITH PINCH RT-LT <input type="checkbox"/> EYE RT-LT <input type="checkbox"/> "F" SOUND <input type="checkbox"/> FOOT TAP <input type="checkbox"/> FINGERS
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THIS IS AN EXAMPLE OF THE CHECK LIST USED FOR THE G.E. CAROUSEL SHOW. MAINTENANCE PERSONNEL MAY OBTAIN COPIES OF THIS FORM THRU THEIR SUPERVISOR/FOREMAN.


 <b>F15</b>	<input type="checkbox"/> MOUTH <input type="checkbox"/> HD NOD <input type="checkbox"/> HD TURN <input type="checkbox"/> HD TILT <input type="checkbox"/> LT ARM FWD (BRUSH ACTUATOR) <input type="checkbox"/> TORSO FOREBEND
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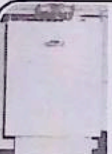
 <b>GA7</b>	<input type="checkbox"/> MOUTH <input type="checkbox"/> HD NOD <input type="checkbox"/> HD TURN <input type="checkbox"/> HD TILT <input type="checkbox"/> EYE BLINK <input type="checkbox"/> EYE RT-LT <input type="checkbox"/> NECK RAISE	<input type="checkbox"/> NECK TURN <input type="checkbox"/> TAIL <input type="checkbox"/> LT EAR <input type="checkbox"/> RT EAR
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 <b>F19</b>	<input type="checkbox"/> MOUTH <input type="checkbox"/> HD NOD <input type="checkbox"/> HD TURN <input type="checkbox"/> HD TILT <input type="checkbox"/> RT WRIST IN-OUT <input type="checkbox"/> TORSO FOREBEND <input type="checkbox"/> EYE BLINK
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 <b>F26</b>	<input type="checkbox"/> MOUTH <input type="checkbox"/> HD NOD <input type="checkbox"/> HD TURN <input type="checkbox"/> HD TILT <input type="checkbox"/> EYE BLINK <input type="checkbox"/> PLANE MOTOR
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 <b>F18</b>	<input type="checkbox"/> EYE BLINK <input type="checkbox"/> VIBRATOR
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 <b>F20</b>	<input type="checkbox"/> MOUTH <input type="checkbox"/> HD NOD <input type="checkbox"/> BREATHING CHEST
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 <b>AP17</b>	<input type="checkbox"/> DRAWER OUT <input type="checkbox"/> BASKET UP
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COMMENTS \_\_\_\_\_

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## G.E. CAROUSEL SHOW DAILY ANIMATION CHECK LIST

CHECKED BY	DATE	SHIFT	TIME
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	<input type="checkbox"/> MOUTH	<input type="checkbox"/> RT ELBOW	<input type="checkbox"/> LT WRIST IN-OUT	<input type="checkbox"/> MOUTH PINCH RT-LT
	<input type="checkbox"/> HD NOD	<input type="checkbox"/> LT ARM FWD	<input type="checkbox"/> LT WRIST TWIST	<input type="checkbox"/> SMILE RT-LT
	<input type="checkbox"/> HD TURN	<input type="checkbox"/> LT ARM OUT	<input type="checkbox"/> TORSO FOREBEND	<input type="checkbox"/> "F" SOUND
	<input type="checkbox"/> HD TILT	<input type="checkbox"/> LT ARM SWING	<input type="checkbox"/> TORSO TWIST	<input type="checkbox"/> LT FINGERS
	<input type="checkbox"/> RT ARM FWD	<input type="checkbox"/> LT ELBOW	<input type="checkbox"/> BODY TWIST	<input type="checkbox"/> BODY SIDE MOVE
	<input type="checkbox"/> RT ARM OUT	<input type="checkbox"/> RT WRIST IN-OUT	<input type="checkbox"/> EYE BLINK	
	<input type="checkbox"/> RT ARM SWING	<input type="checkbox"/> RT WRIST TWIST	<input type="checkbox"/> EYE RT-LT	

**F31**


	<input type="checkbox"/> MOUTH	<input type="checkbox"/> RT ELBOW	<input type="checkbox"/> EYE BLINK	COMMENTS _____ _____ _____ _____ _____ _____
	<input type="checkbox"/> HD NOD	<input type="checkbox"/> RT WRIST IN-OUT	<input type="checkbox"/> EYE RT-LT	
	<input type="checkbox"/> HD TURN	<input type="checkbox"/> RT WRIST TWIST	<input type="checkbox"/> MOUTH PINCH RT-LT	
	<input type="checkbox"/> HD TILT	<input type="checkbox"/> LT WRIST IN-OUT		
	<input type="checkbox"/> RT ARM FWD	<input type="checkbox"/> LT WRIST TWIST		
	<input type="checkbox"/> RT ARM OUT	<input type="checkbox"/> LT ARM FWD		
	<input type="checkbox"/> RT ARM SWING	<input type="checkbox"/> LT ARM SWING		

**F32**


THIS IS AN EXAMPLE OF THE CHECK LIST USED FOR THE G.E. CAROUSEL SHOW. MAIN-TENANCE PERSONNEL MAY OBTAIN COPIES OF THIS FORM THRU THEIR SUPERVISOR/FOREMAN.

	<input type="checkbox"/> MOUTH	<input type="checkbox"/> RT ELBOW	<input type="checkbox"/> RT THUMB	<input type="checkbox"/> EYE BLINK
	<input type="checkbox"/> HD NOD	<input type="checkbox"/> RT WRIST IN-OUT	<input type="checkbox"/> EYE RT-LT	<input type="checkbox"/> MOUTH PINCH RT-LT
	<input type="checkbox"/> HD TURN	<input type="checkbox"/> RT WRIST TWIST	<input type="checkbox"/> SMILE RT-LT	<input type="checkbox"/> "F" SOUND
	<input type="checkbox"/> HD TILT	<input type="checkbox"/> LT WRIST IN-OUT	<input type="checkbox"/> EYES UP-DN	
	<input type="checkbox"/> RT ARM FWD	<input type="checkbox"/> TORSO FOREBEND		
	<input type="checkbox"/> RT ELBOE	<input type="checkbox"/> TORSO TWIST		
	<input type="checkbox"/> LT ARM FWD	<input type="checkbox"/> CHAIR MOVE		


**F27**

	<input type="checkbox"/> MOUTH	<input type="checkbox"/> TORSO TWIST	<input type="checkbox"/> MOUTH PINCH RT-LT
	<input type="checkbox"/> HD NOD	<input type="checkbox"/> PELVIS	<input type="checkbox"/> SMILE RT-LT
	<input type="checkbox"/> HD TURN	<input type="checkbox"/> RT THUMB	<input type="checkbox"/> "F" SOUND
	<input type="checkbox"/> HD TILT	<input type="checkbox"/> LT FOREFINGER	<input type="checkbox"/> LT HAND SLIDE
	<input type="checkbox"/> LT ELBOW	<input type="checkbox"/> LT RING FINGER	
	<input type="checkbox"/> RT WRIST FWD-BK	<input type="checkbox"/> EYE BLINK	
	<input type="checkbox"/> RT WRIST TWIST	<input type="checkbox"/> EYE RT-LT	


**F28**

	<input type="checkbox"/> MOUTH	<input type="checkbox"/> TORSO FOREBEND	<input type="checkbox"/> LT WRIST TWIST
	<input type="checkbox"/> HD NOD	<input type="checkbox"/> CHAIR MOVE	
	<input type="checkbox"/> HD TURN	<input type="checkbox"/> EYE BLINK	
	<input type="checkbox"/> HD TILT	<input type="checkbox"/> EYE RT-LT	
	<input type="checkbox"/> RT ARM SWING	<input type="checkbox"/> MOUTH PINCH RT-LT	
	<input type="checkbox"/> RT ELBOW	<input type="checkbox"/> SMILE RT-LT	
	<input type="checkbox"/> RT WRIST IN-OUT	<input type="checkbox"/> "F" SOUND	

**F30**

	<input type="checkbox"/> MOUTH	<input type="checkbox"/> EYE BLINK	<input type="checkbox"/> MOUTH	<input type="checkbox"/> NECK TURN
	<input type="checkbox"/> HD NOD	<input type="checkbox"/> EYE RT-LT	<input type="checkbox"/> HD NOD	<input type="checkbox"/> TAIL
	<input type="checkbox"/> HD TURN	<input type="checkbox"/> MOUTH PINCH RT-LT	<input type="checkbox"/> HD TURN	<input type="checkbox"/> LT EAR
	<input type="checkbox"/> HD TILT	<input type="checkbox"/> SMILE RT-LT	<input type="checkbox"/> HD TILT	<input type="checkbox"/> RT EAR
	<input type="checkbox"/> RT WRIST TWIST	<input type="checkbox"/> "F" SOUND	<input type="checkbox"/> EYE BLINK	
	<input type="checkbox"/> TORSO FOREBEND		<input type="checkbox"/> EYE RT-LT	
	<input type="checkbox"/> TORSO TWIST		<input type="checkbox"/> NECK RAISE	

**F29**

	<input type="checkbox"/> MOUTH	<input type="checkbox"/> NECK TURN
	<input type="checkbox"/> HD NOD	<input type="checkbox"/> TAIL
	<input type="checkbox"/> HD TURN	<input type="checkbox"/> LT EAR
	<input type="checkbox"/> HD TILT	<input type="checkbox"/> RT EAR
	<input type="checkbox"/> EYE BLINK	
	<input type="checkbox"/> EYE RT-LT	
	<input type="checkbox"/> NECK RAISE	

**GA11**

# SECTION 3

**ELECTRICAL**

FOR ADDITIONAL DETAILED ENGINEERING INFORMATION ON ASSEMBLIES/  
SUB-ASSEMBLIES APPEARING IN ELECTRICAL SECTION OF THIS MANUAL  
CONTACT: DEPARTMENT HEAD - ELECTRICAL/ELECTRONICS - MAPO.



# SECTION 3

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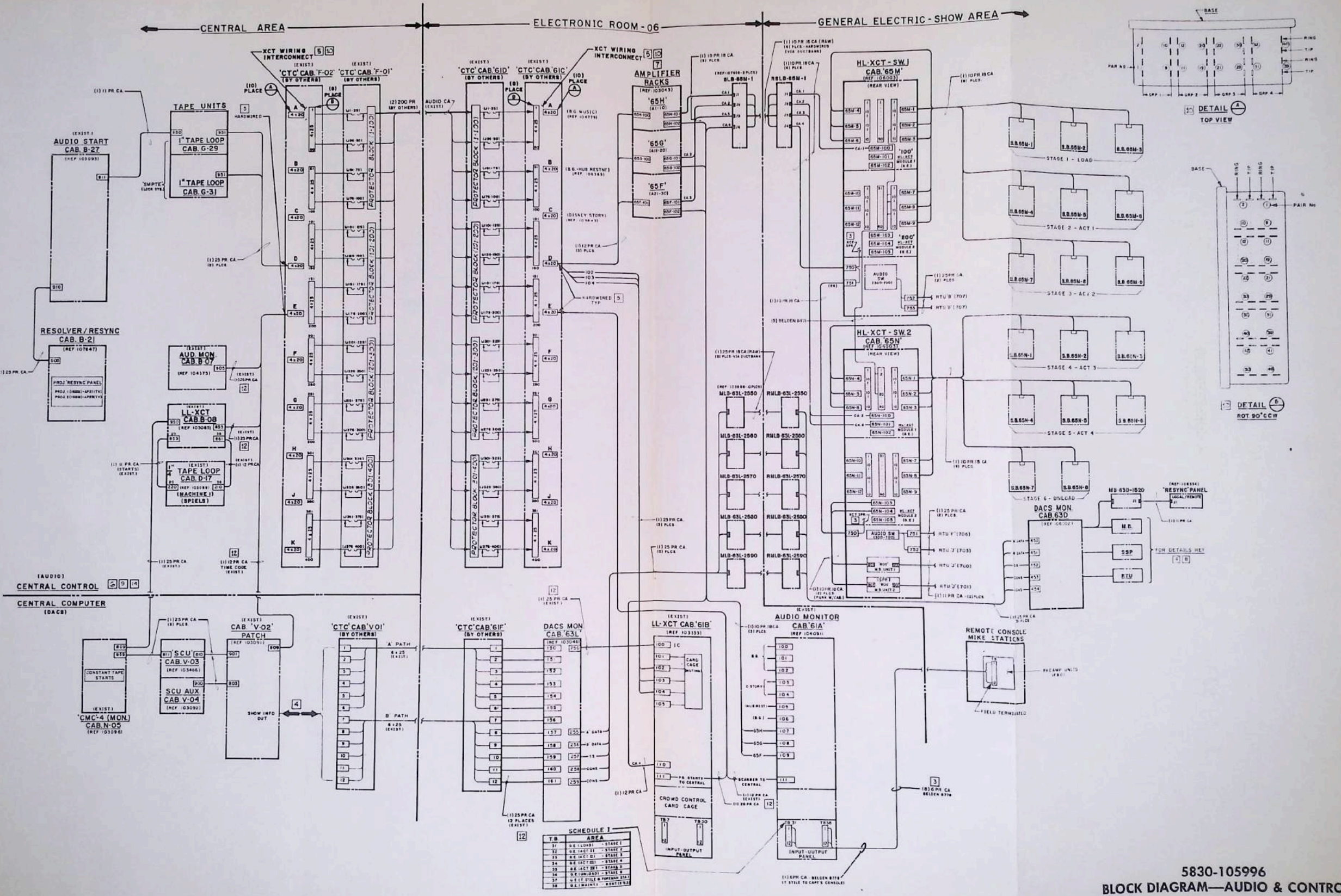
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# **SECTION 3.1**

## **BLOCK DIAGRAMS**

NOTES:

- 1 REF. AUDIO CABLE LAYOUT.
- 2 REF. AUDIO CABLE SCHED. 106000.
- 3 REF. OVERALL P.A. SCHEM. 106004.
- 4 REF. DACS MONITOR BLOCK DIAG. 105998.
- 5 REF. AUDIO WIRELIST - 44 FOR WIRING INTERCONNECT.
- 6 REF. CENTRAL & E.R.-06 EQUIP. LAYOUT DWGS.  
106278 & 106279.
- 7 CABINET NAMEPLATES PER 104298.
- 8 REF. ANIMATION BLOCK DIAG. 105999.
- 9 REF. CONTRACTOR BID INFO. 105995.
- 10 REF. AUDIO 'CTC' I/F CONCEPT BLOCK DIA.  
103098.
- 12 'COMMON' CABLE: PER ELECTRONIC ROOM -06.  
GUIDE PROJECT: (B.G. MUSIC - E.R. -06).

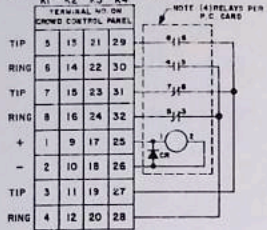


**SCHEDULE 1**

Y.B.	AREA
31	RE-LOAD - STAGE 1
32	RE-LOAD - STAGE 2
33	RE-LOAD - STAGE 3
34	RE-LOAD - STAGE 4
35	RE-LOAD - STAGE 5
36	RE-LOAD - STAGE 6
37	RE-LOAD - STAGE 7
38	RE-LOAD - STAGE 8
39	RE-LOAD - STAGE 9
40	RE-LOAD - STAGE 10
41	RE-LOAD - STAGE 11
42	RE-LOAD - STAGE 12

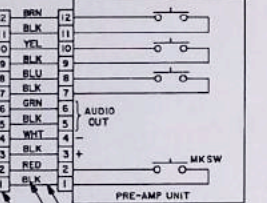
**SCHEDULE I**

(TYP RELAY CURT TO C.C. PANEL 1/2)



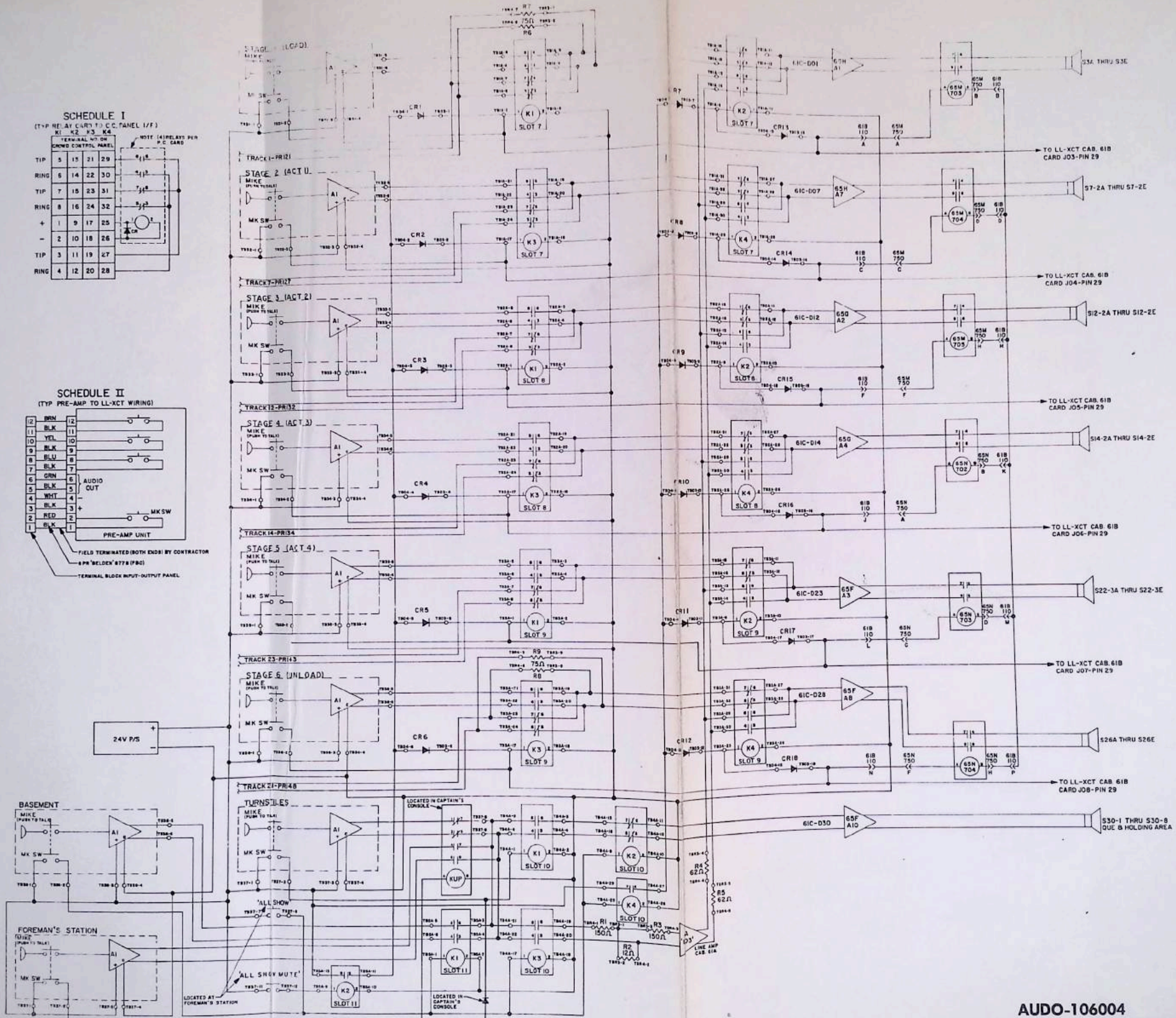
**SCHEDULE II**

(TYP PRE-AMP TO LL-XCT WIRING)

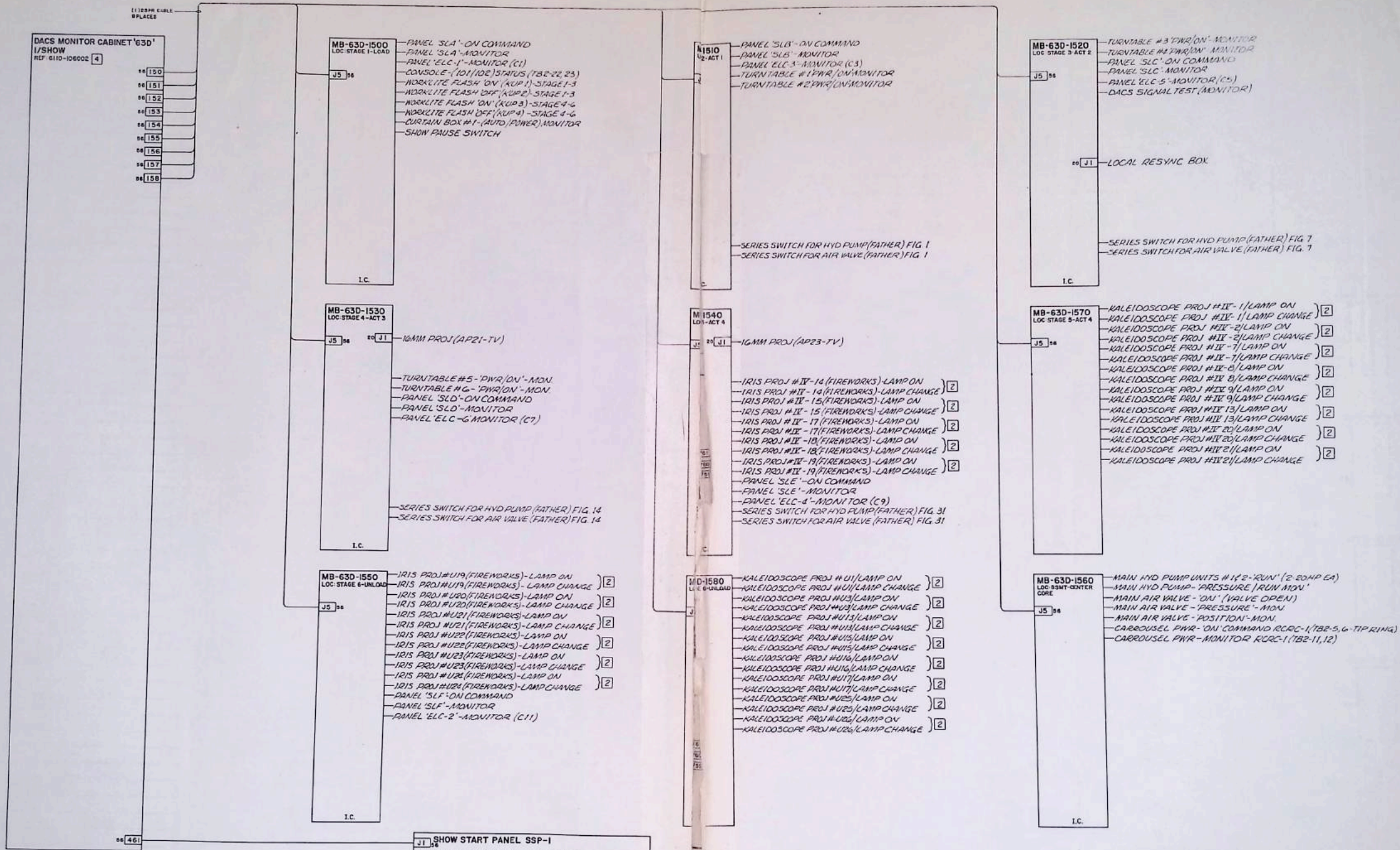


TERMINAL BLOCK INPUT-OUTPUT PANEL

24V P/S



**AUDO-106004**  
**SCHEMATIC—OVERALL P.A. SYSTEM**



NOTES:

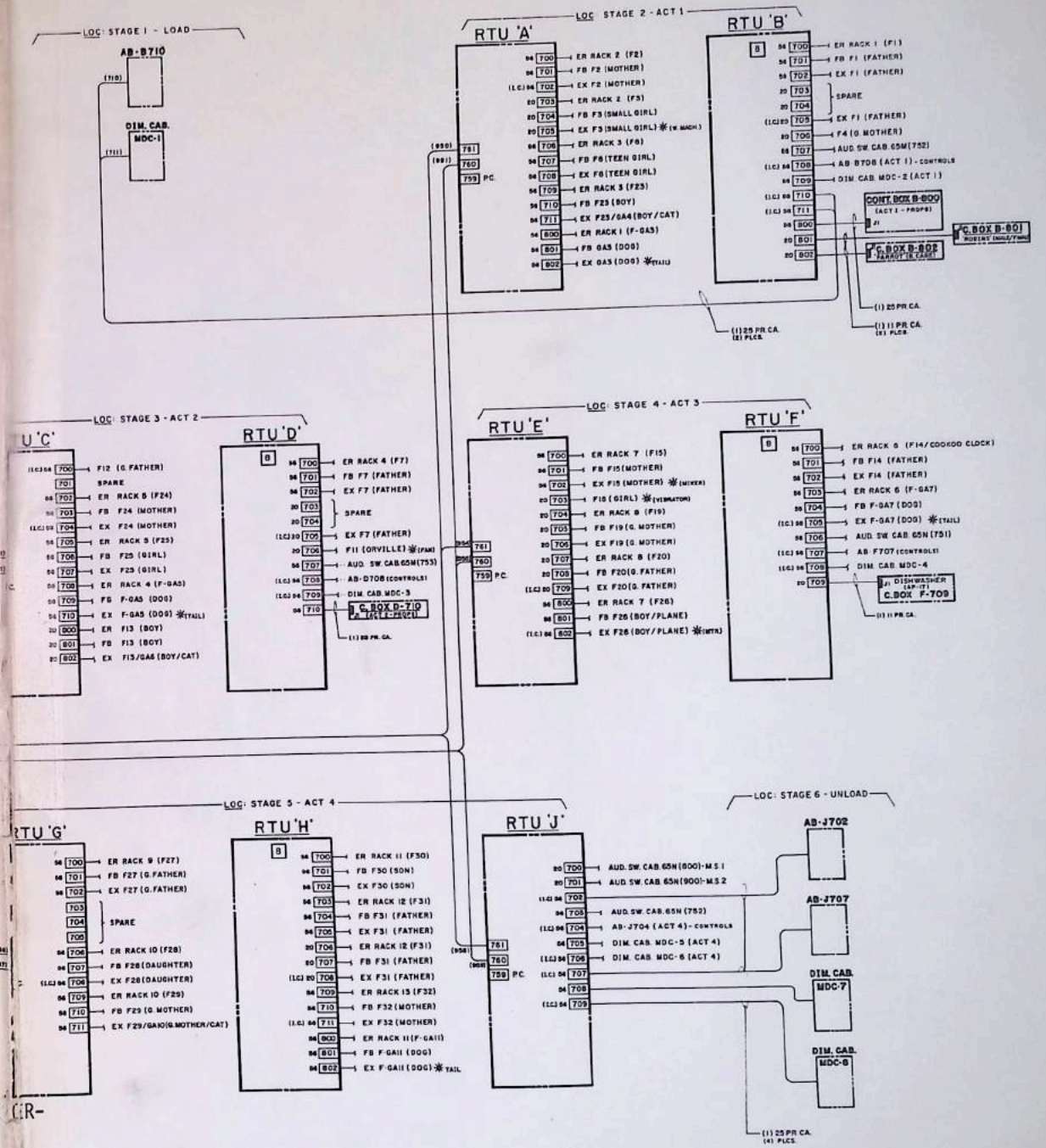
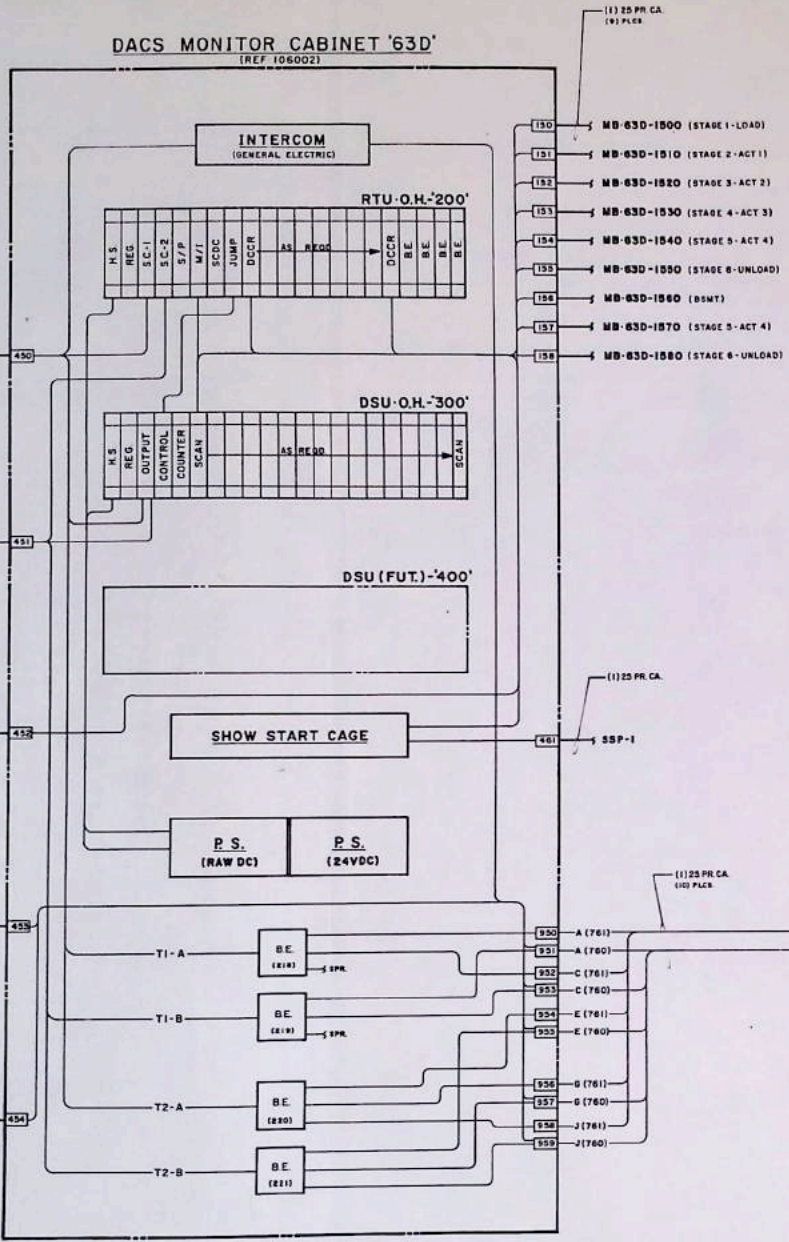
1 REF: FOR AUDIO & CONTROL BLOCK DIAG. SEE DWG. 5830-105996.

2 2 PR CABLE (FURN. W/PROJ.) - BLK/RED (PWR. MON.) GRN./WHT. (LAMP MON.).

3 REF: R MON. CABLE SCHEDULE SEE DWG. CONT-900 SH.2.

4 REF: ANIMATION BLOCK DIAG. SEE DWG. CONT-999.

DACS MONITOR CABINET '63D'  
(REF 106002)



- NOTES:
- REF: AUDIO BLOCK DIAGRAM 105996.
  - REF: DACS MONITOR BLOCK DIAGRAM 105998.
  - REF: CONTRACTOR BID & WIRING INFO. 105995.
  - REF: CABLE SCHEDULE 106000.
  - REF: CABINET NAMEPLATES PER 106001.
  - REF: ANIM. WIRELIST #44 (GENE) FOR WIRING INTERCONNECT.

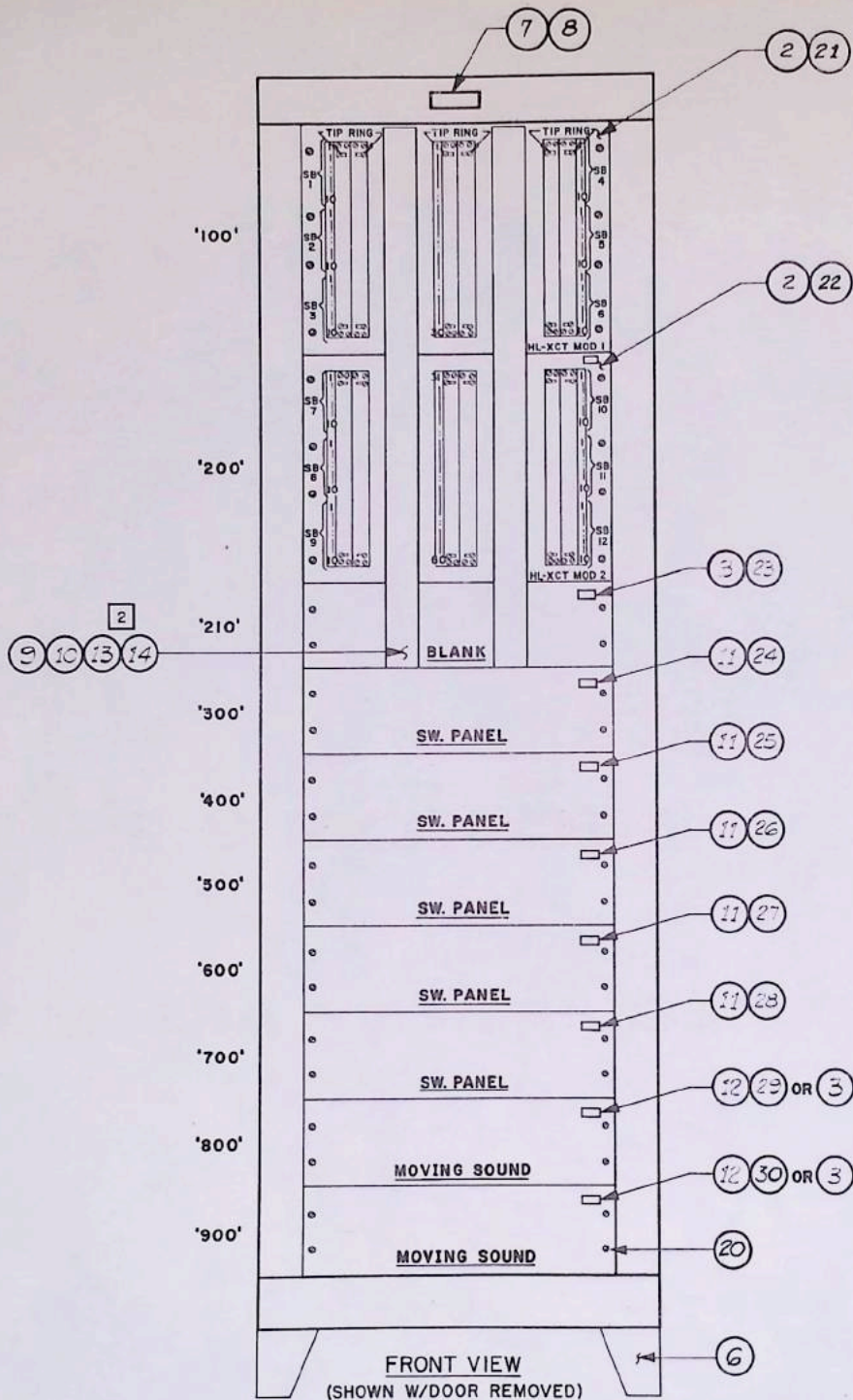
- CAB. 63D & ALL RTU'S 'A' THRU 'J' ARE AIR-HEAD FED.
- RTU 'B' FED FROM A  
RTU 'D' FED FROM C  
RTU 'F' FED FROM E  
RTU 'H' FED FROM G
- LEGEND: \*DENOTES FUNCTIONS CONTROLLED BY KUP I/F (LOC. @ FIG.)

CONT-105999  
BLOCK DIAGRAM—ANIMATION & CONTROLS

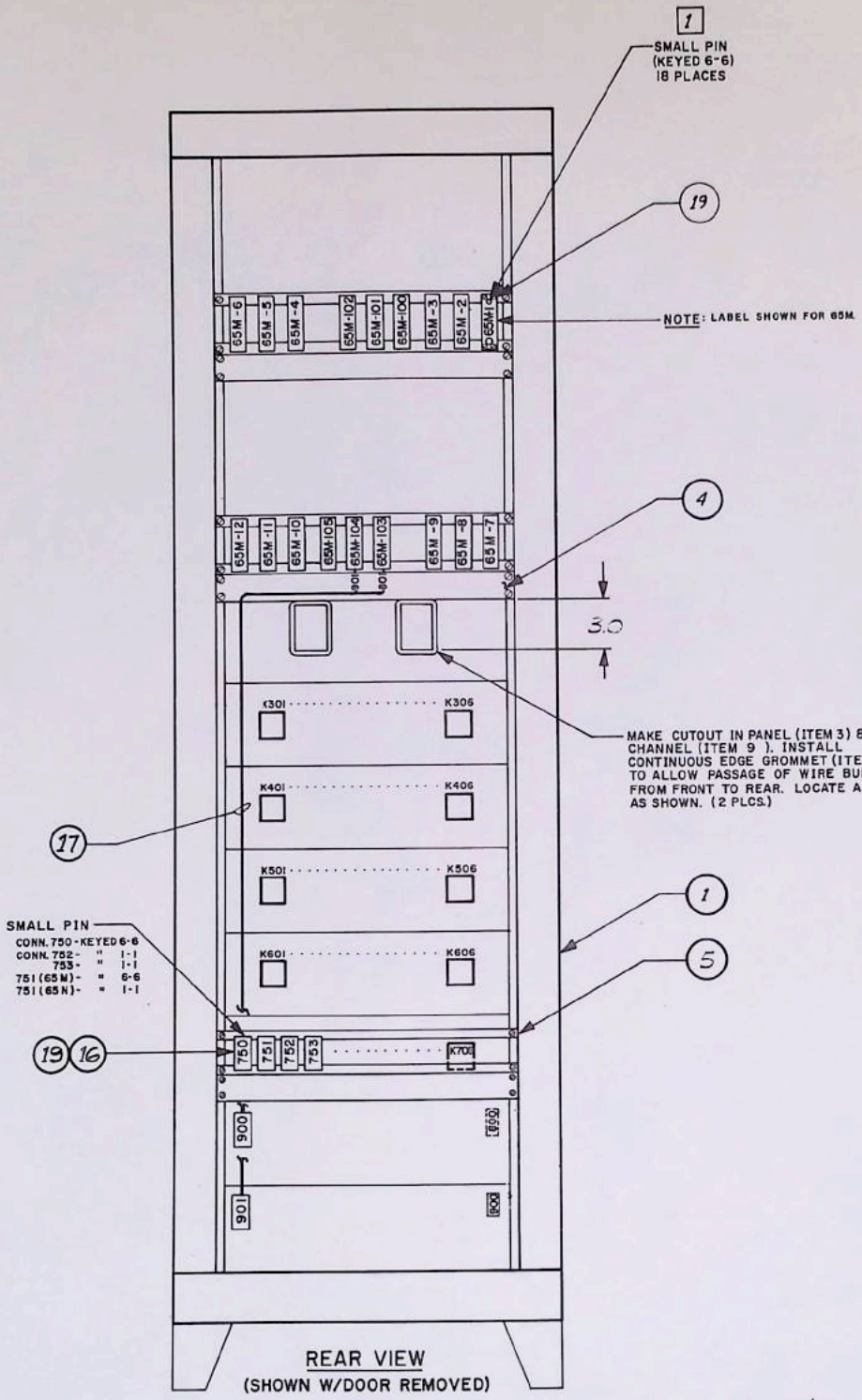
**SECTION 3.2**

**EQUIPMENT ASSEMBLIES**





**AUDO-106003**  
**ASSEMBLY CAB. 65M, 65N**  
**HL-XCT SWITCHING 1 & 2**  
**GENERAL ELECTRIC - WDW**  
**SHEET 1 OF 2**



REAR VIEW  
(SHOWN W/DOOR REMOVED)

DWG.

AUDO-106003

ASSY. CAB. 65M, 65N, HL-XCT SWITCHING 1 &amp; 2

ITEM	WDP NO.	PART NO.	DESCRIPTION	CAB. 65M	CAB. 65N
1.		10350	CABINET	1	1
2.		6110-103040	ASSY, HL-XCT MODULE MTG PLATE	2	2
3.		6110-103410-3	PANEL BLANK (5.25)	3	1
4.		6110-103410-1	PANEL, BLANK (1.75)	3	3
5.		10279	ANGLE, CONN SUPPORT	6	6
6.		5340-103644	CABINET LEGS	4	4
7.		7690-106001 (IT. #21)	CABINET NAMEPLATE	1	-
8.		7690-106001 (IT. #22)	CABINET NAMEPLATE	-	1
9.		E2X2WH6	CHANNEL	2	2
10.		C2WH6	COVER	2	2
11.		5830-104454	RELAY PANEL	5	5
12.		5830-103400	MOVING SOUND UNIT	-	2
13.		8460	WIRE, STRANDED 2COND-18 AWG,BELDEN	A/R	A/R
14.		A535-06	LUG, SPADE ETC	A/R	A/R
15.		WG-301	GROMMET FLEXIBLE WECKESSER	2	2
16.		00-8016-056-000-007	CONNECTOR 56P (RECEPT) ELCO	4	3
17.		5995-102904	CABLE INTERCONNECT (10 PR. 18 X 4')	-	2
18.		MS24671-7	SCREW SOC HD 6-32 UNC-2A X 1/4 LG	-	-
19.		MS16997-10	SCREW, SOC HD 4-40 UNC-2A X 3/8 LG	88	84
20.		MS51958-59	SCREW, PAN HD 10-32 UNF-2A X 1/4LG	72	76
21.		6110-104051-1	ID TAG MODULE (100)	1	1
22.		6110-104051-4	ID TAG MODULE (200)	1	1
23.		6110-104051-5	ID TAG MODULE (210)	1	1
24.		6110-104051-7	ID TAG MODULE (300)	1	1
25.		6110-104051-10	ID TAG MODULE (400)	1	1
26.		6110-104051-13	ID TAG MODULE (500)	1	1
27.		6110-104041-16	ID TAG MODULE (600)	1	1
28.		6110-104051-19	ID TAG MODULE (700)	1	1
29.		6110-104051-21	ID TAG MODULE (800)	1	1
30.		6110-104051-23	ID TAG MODULE (900)	1	1
31.		6110-104051-22	ID TAG MODULE (850)	-	-
32.		MUSE-108000	DETAIL T-BAR MTG PANEL	-	-
33.		801-12CG-24-4WS	RELAY T-BAR	-	-
34.		88601-G76	CONNECTOR T-BAR	-	-

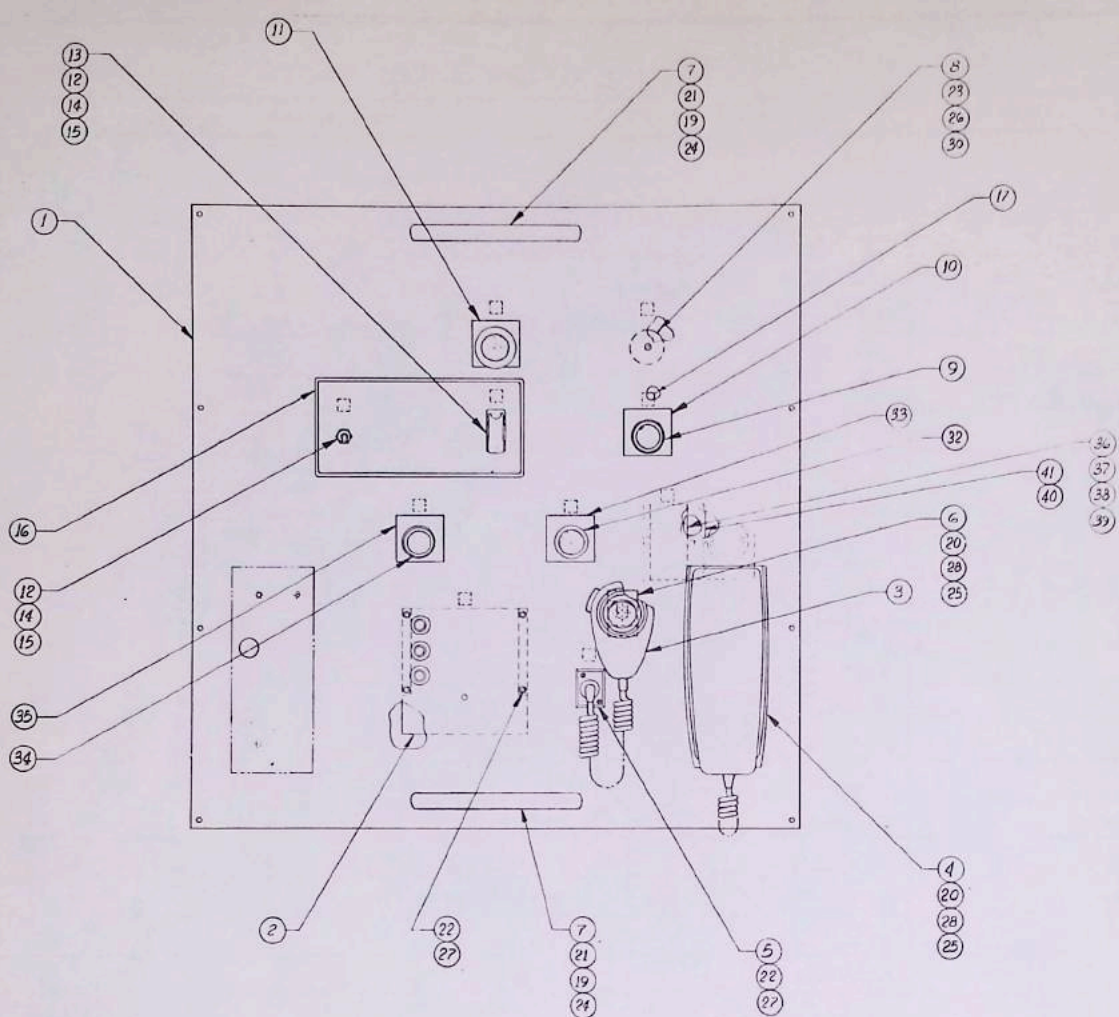
## NOTES:

1

REF: OVERALL AUDIO BLOCK DIAG. 105996.

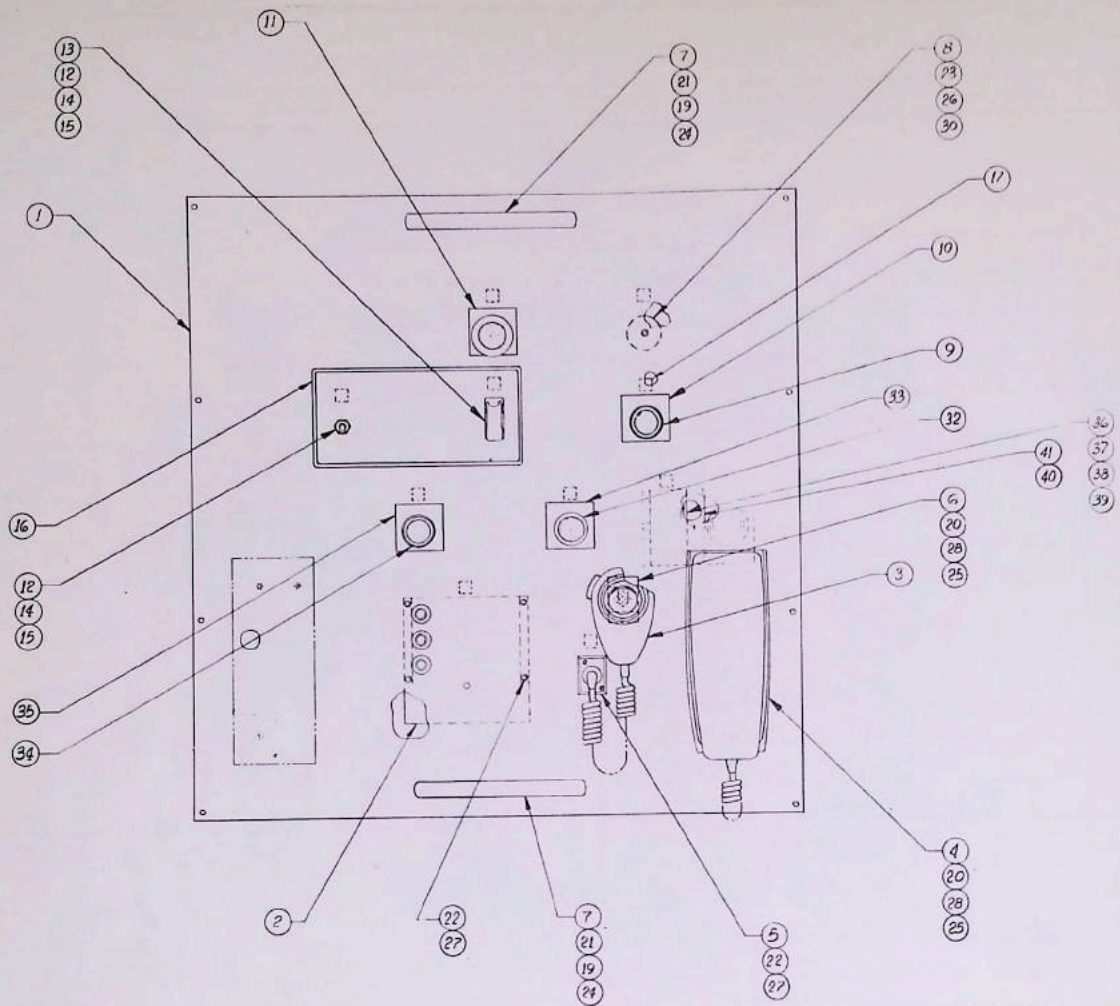
2

REF: COMPUTER WIRELIST (AUDIO 44) FOR  
XCT WIRING.



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		CONT-108289	PANEL, DETAIL	1
2.		5830-105750	AUDIO PRE AMP	1
3.		5965-105577	MICROPHONE AND CONNECTOR	1
4.		5830-104804	TEELPHONE	1
5.		D4F	CONNECTOR, J2	SWITCHCRAFT 1
6.		RK6MB	BRACKET	SHURE 1
7.		2385-3-18	HANDLE	CAMBION 2
8.		240	FLASHER, DS3	TUNG-SOL 1
9.		PTL 2154	PILOT LIGHT (AMBER), DS4	MICROSWITCH 1
10.		PTNC99	NAMEPLATE ENGRAVED "PREWARNING"	MICROSWITCH 1
11.		PTY2213CB04	PUSHBUTTON W/NAMEPLATE "EMERG STOP", PB7	
			MICROSWITCH	1

**CONT-108428  
CONSOLE PANEL ASSEMBLY  
RIDE CAPTAIN'S CONSOLE**



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		CONT-108289	PANEL, DETAIL	1
2.		5830-105750	AUDIO PRE AMP	1
3.		5965-105577	MICROPHONE AND CONNECTOR	1
4.		5830-104804	TEELPHONE	1
5.		D4F	CONNECTOR, J2	SWITCHCRAFT 1
6.		RK6MB	BRACKET	SHURE 1
7.		2385-3-18	HANDLE	CAMBION 2
8.		240	FLASHER, DS3	TUNG-SOL 1
9.		PTL 2154	PILOT LIGHT (AMBER), DS4	MICROSWITCH 1
10.		PTNC99	NAMEPLATE ENGRAVED "PREWARNING"	MICROSWITCH 1
11.		PTY2213CB04	PUSHBUTTON W/NAMEPLATE "EMERG STOP", PB7	
				MICROSWITCH 1

**CONT-108428  
CONSOLE PANEL ASSEMBLY  
RIDE CAPTAIN'S CONSOLE**

DWG.

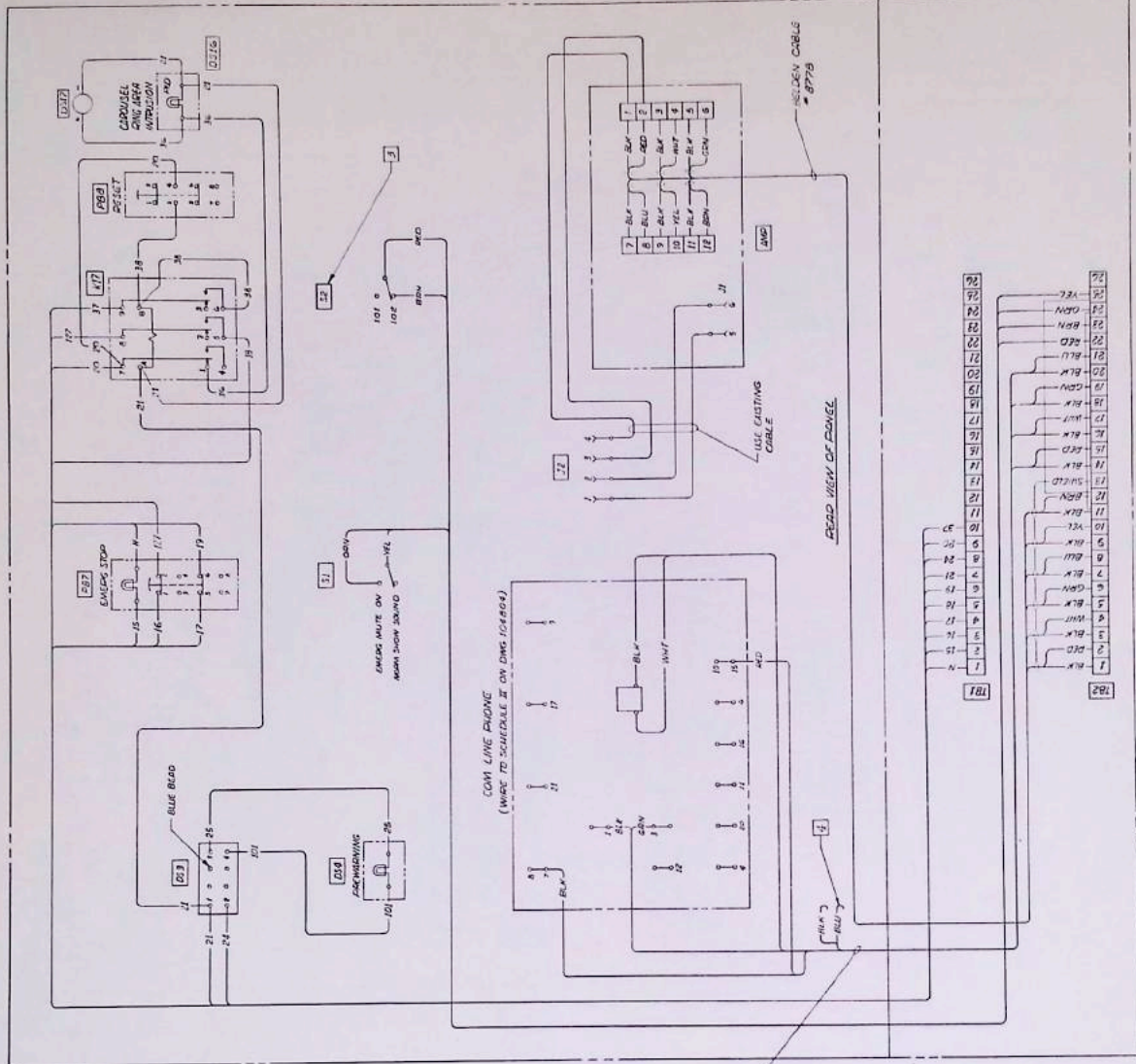
CONT-108428

## CONSOLE PANEL ASSY., RIDE CAPTAINS CONSOLE

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
12.		7564K6	SWITCH, S1, 2 CUTTLER-HAMMER	2
13.		8497K1	GUARD (RED) CUTTLER-HAMMER	1
14.		16-886	WASHER, INTERNAL TOOTH CUTTLER-HAMMER	2
15.		29-761	LOCKING RING CUTTLER-HAMMER	2
16.		CONT-108278	LABEL, METAL-PHOTO	1
17.		WTW-12112	LABEL, "WRITE ON" T & B	7
18.				
19.		AN960-C10	WASHER, FLAT NO. 10 CRES	4
20.		MS51957-45	SCREW, PAN HD 8-32 X 1/2 LG CRES	4
21.		MS51958-9	SCREW, PAN HD, 10-32 X 3/4 LG CRES	4
22.		MS24671-2	SCREW, SOCKET HD FLAT, 4-40 X 3/8 LG CRES	6
23.		MS24671-3	SCREW, SOCKET HD FLAT, 6-32 X 1/2 LG CRES	1
24.		MS35338-138	WASHER, SPRING LOCK, NO. 10 CRES	4
25.		MS35338-137	WASHER, SPRING LOCK, NO. 8 CRES	4
26.		MS35338-136	WASHER, SPRING LOCK, NO. 6 CRES	1
27.		MS35336-5	WASHER, CSK EXTERNAL TOOTH, LOCK, NO. 4	
			CRES	6
28.		AN960-C8	WASHER, FLAT, NO. 8 CRES	4
29.		AN960-C6	WASHER, FLAT, NO. 6 CRES	1
30.		AN340C6	NUT, PLAIN HEX 6-32 CRES	1
31.				
32.		PTP43C	PUSHBUTTON, PB8 MICROSWITCH	1
33.		PTNC23	NAMEPLATE "RESET" MICROSWITCH	1
34.		PTL2213	PILOT LIGHT (RED), DS16 MICROSWITCH	1
35.		PTNC99	NAMEPLATE "CAROUSEL RING AREA INTRUSION"	
			MICROSWITCH	1
36.		KUP14D1524	RELAY 24V COIL, K17 P & B	1
37.		27E121	SOCKET, XK17 P & B	1
38.		20C253	HOLD DOWN CLIP P & B	2
39.		MS51957-30	SCREW, PAN HD 6-32 X 1/2 LG CRES	2
40.		SC628P	SONALERT, DS17 MALLORY	1
41.		CONT-108551	MOUNTING BRACKET (SONALERT)	1

## NOTE:

1 REFERENCE DOCUMENT: WIRING DIAGRAM DWG.  
NO. CONT-108290.

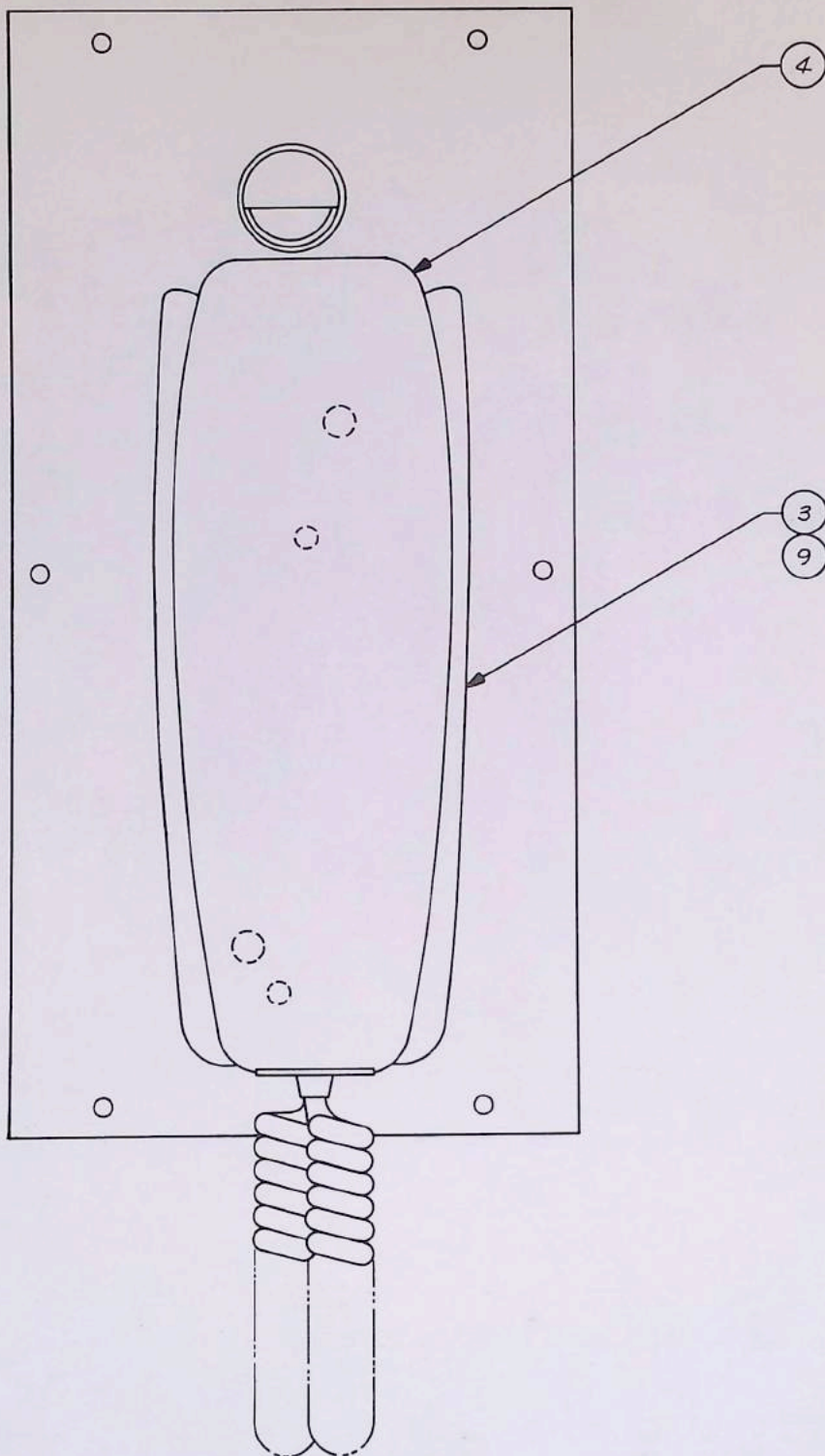


WIRE COLOR	WIRE NO.	COLOR
WHT	1	WHT
BLK	15	BLK
BRN	16	BRN
RED	17	RED
GRY	18	GRY
YEL	19	YEL
GRY	21	GRY
BLU	24	BLU
VIO	25	VIO
CLY	27	CLY
WHT/BRN	36	WHT/BRN
WHT/BLD	37	WHT/BLD
WHT/GRY	38	WHT/GRY
WHT/YEL	28	WHT/YEL

NOTES:

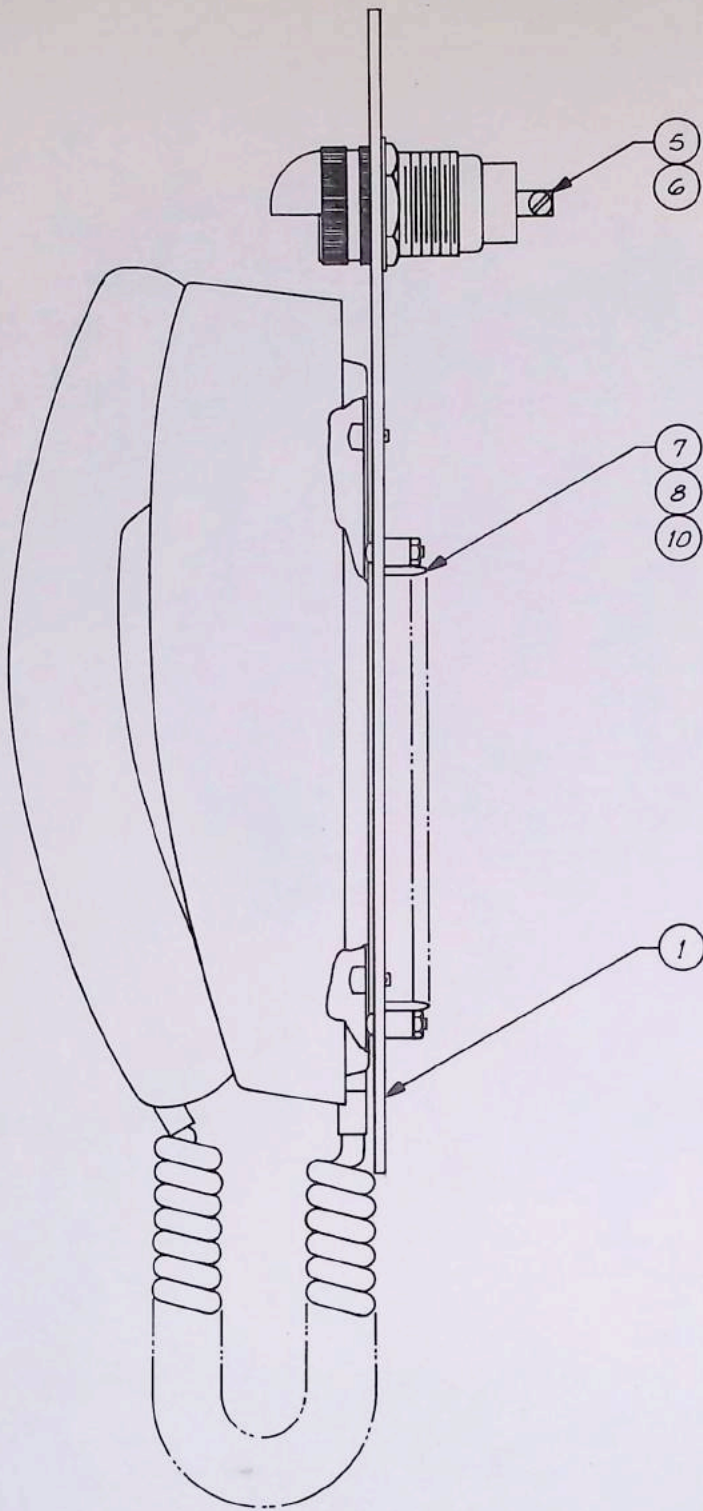
- 1 ALL WIRE TO BE 14 AWG. 600V INSULATION.
- 2 REFERENCE DOCUMENT: ASSEMBLY-PANEL CONT-108428, ASSEMBLY-CONSOLE CONT-108288.
- 4 SPARE PAIR, INSULATE ENDS.

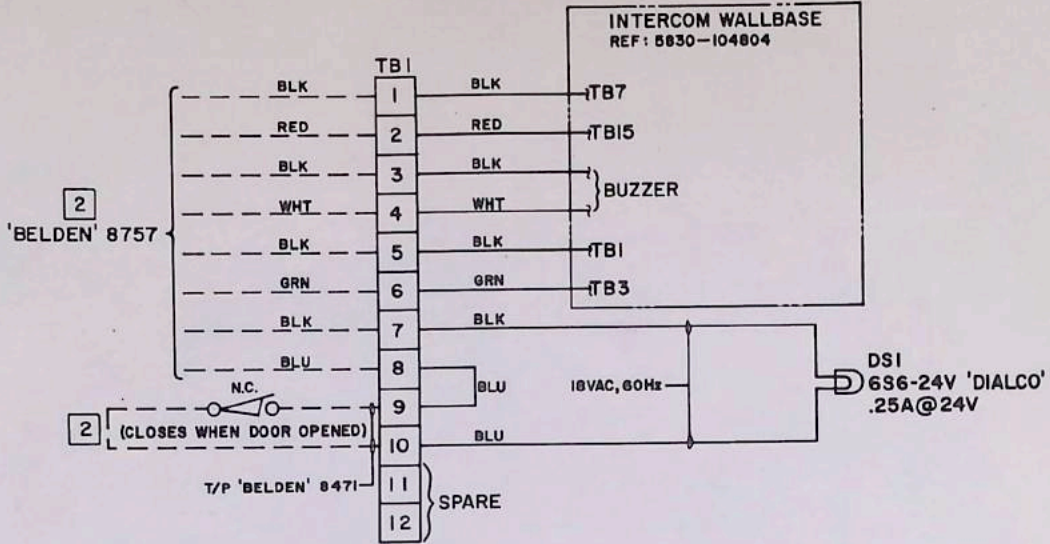
CONT-108290  
WIRING DIAGRAM  
RIDE CAPTAIN'S CONSOLE



AUDO-108580  
ASSEMBLY—OPERATIONS  
INTERCOM MODULE, THEATERS  
SHEET 1 OF 3



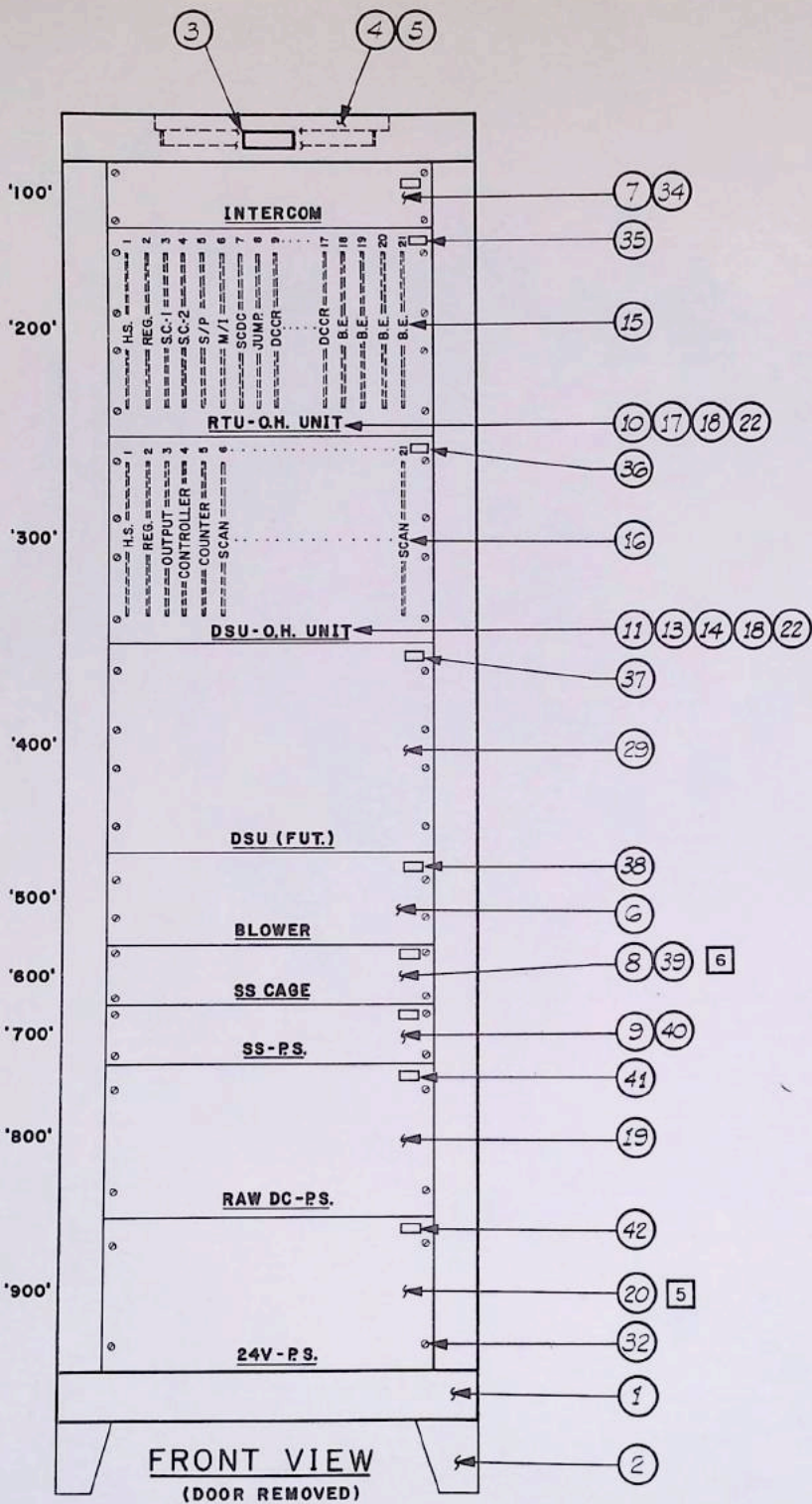




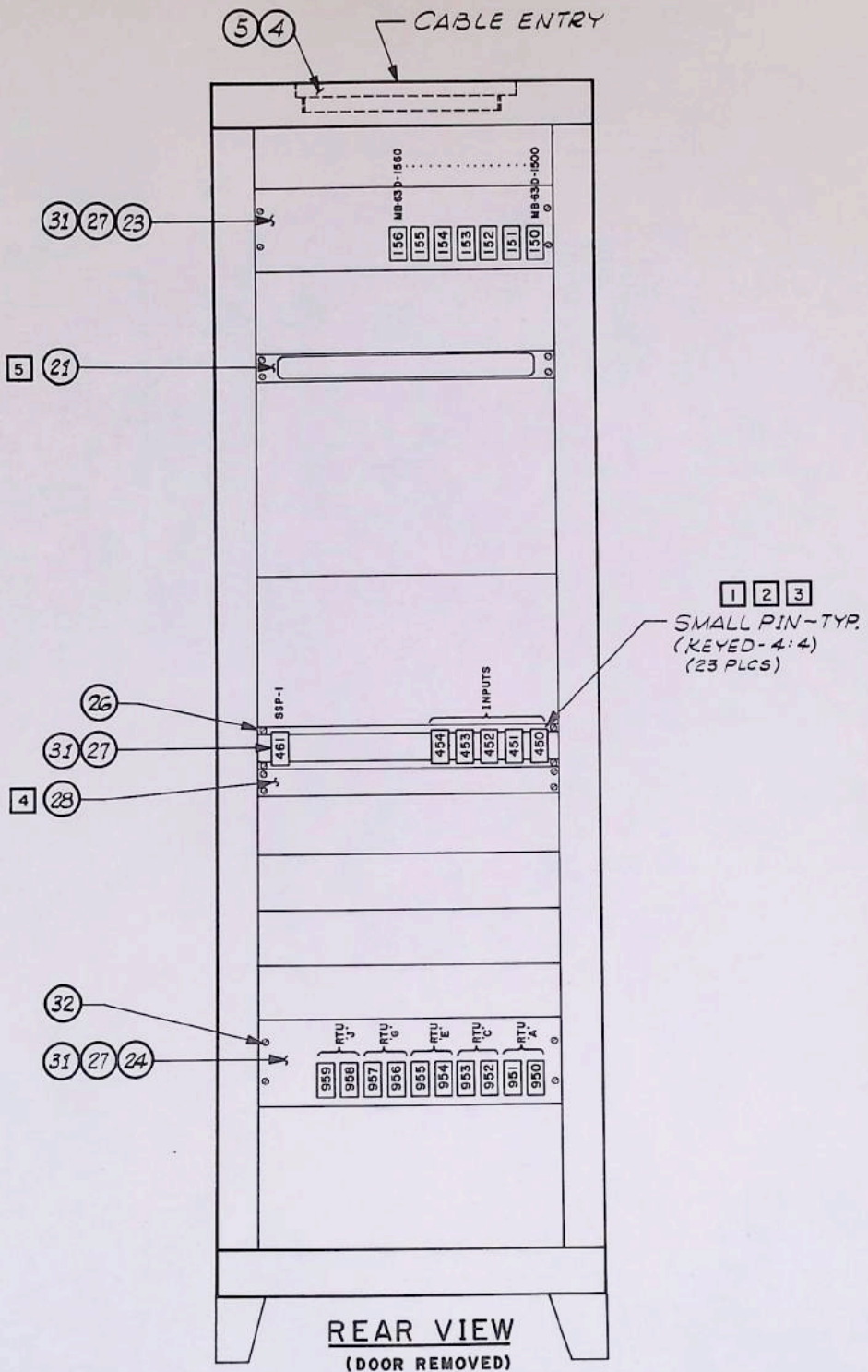
NOTES:

- 1 REF: FOR ARCH DETAILS SEE WED DWG. D-209; FOR ELECT DETAILS SEE WED DWG. DE-201; FOR AUDIO CONTROL BLOCK DIAGRAM SEE DWG. AUDIO-105996.
- 2 - - - - = FIELD WIRING.
- 3 ALL WIRING TO BE 22 AWG STRANDED, PVC INSULATION, COLOR CODED AS SHOWN.
- 4 MODIFY PER DWG. 5830-104804.

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		AUDO-108581	DETAIL, OPERATIONS INTERCOM MODULE	1
2.				
3.		NC982130XXX	BASE AUTOMATIC ELECTRIC 4	1
4.		NC980130MXX	HAND SET AUTOMATIC ELECTRIC 4	1
5.		151-3101-2900-301	SOCKET, LIGHT W/SHIELD LENS CAP, XDST DIALCO	1
6.		6S6-24	LAMP W/CANDELABRA SCREW BASE 24V, DST DIALCO	1
7.		670A-12	TERMINAL STRIP W/MARKER STRIP STYLE 7E, TBI KULKA	1
8.		MS51957-30	SCREW, PAN HD 6-32 X 1/2 LG SST	2
9.		MS51957-41	SCREW, PAN HD 8-32 X 1/4 LG SST	2
10.		AN340C6	NUT, HEX 6-32 SST	2



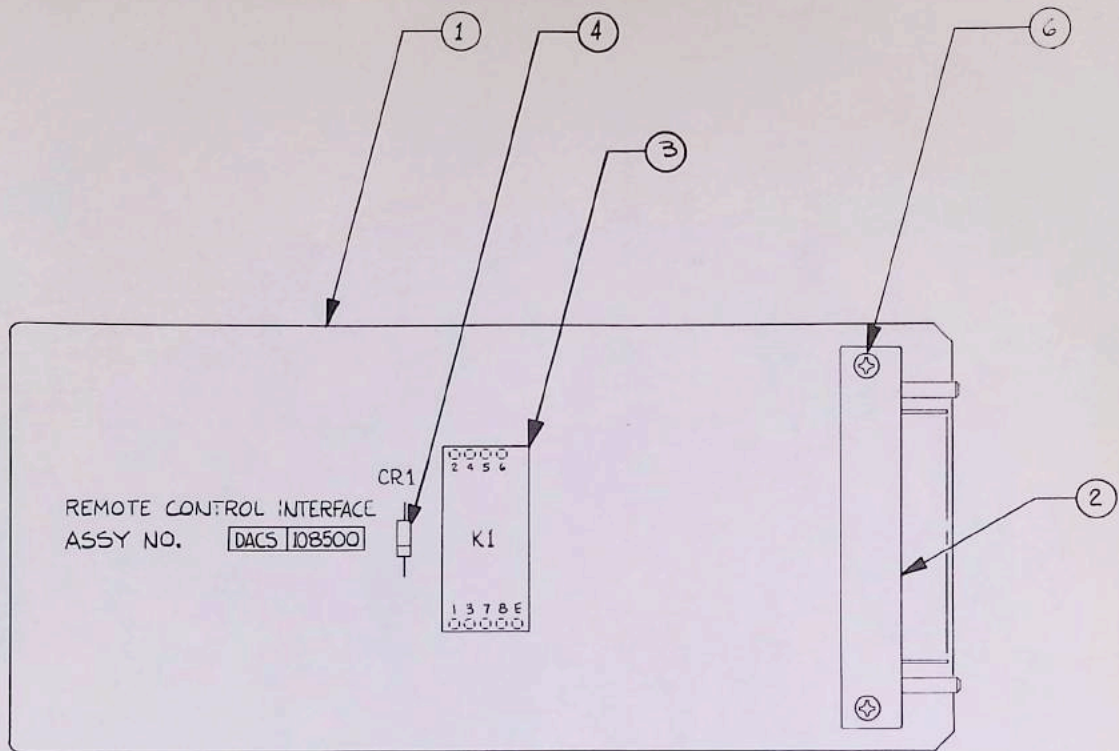
6110-106002  
 ASSEMBLY—I/SHOW  
 DACS MONITOR CABINET  
 SHEET 1 OF 2



**REAR VIEW**  
(DOOR REMOVED)

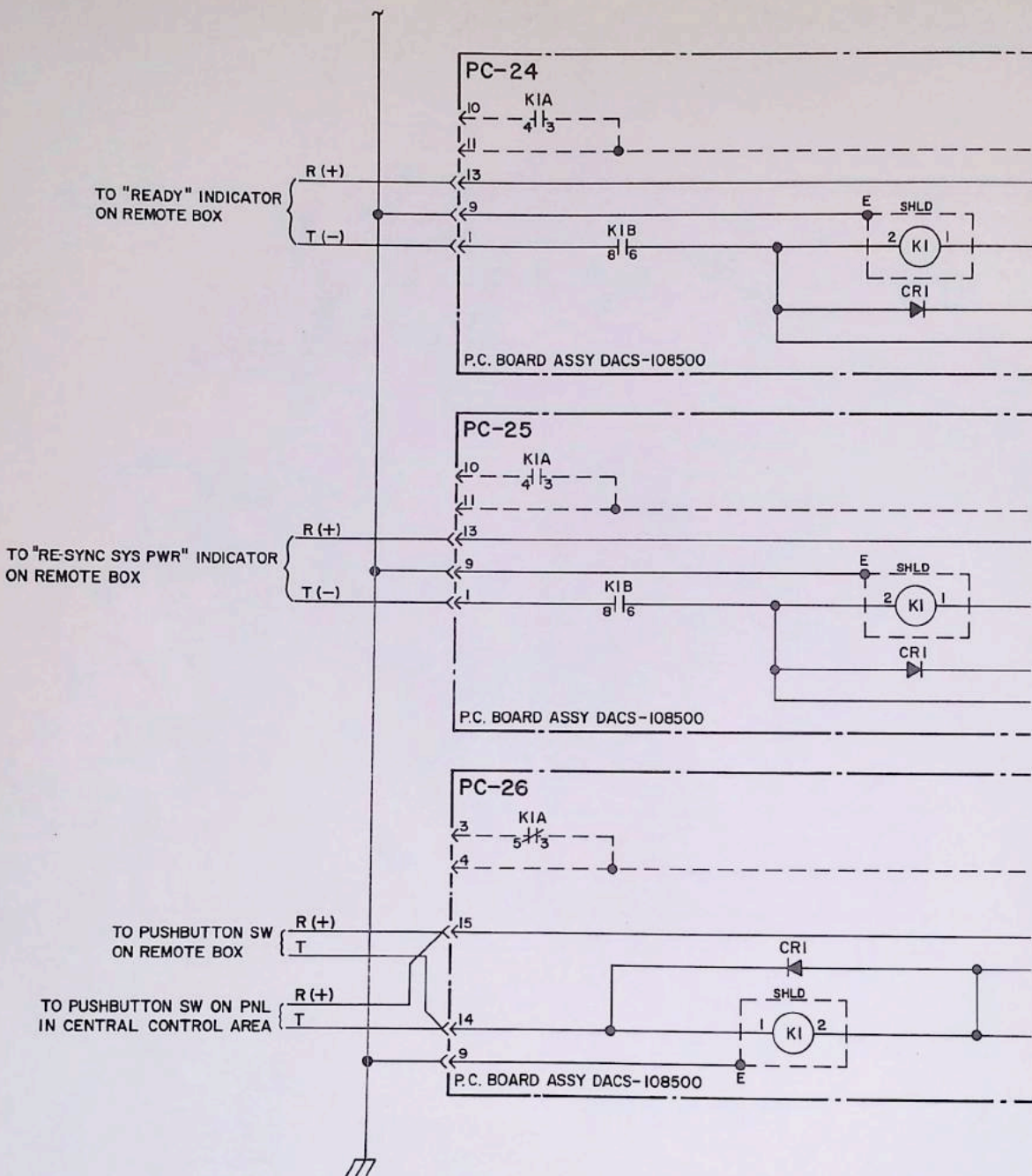
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		10350	CABINET	1
2.		5340-103644	CABINET LEGS	4
3.		7690-106001 (IT. #20)	CABINET, NAMEPLATE	1
4.		1L12	LIGHT FIXTURE W/CORD & SW LUMILINE	2
5.		L40-IF	LAMP G.E.	2
6.		KPC529D	BLOWER (300 CFM-120 VAC) KOOLTRONICS	1
7.		5830-102926	INTERCOM UNIT (1 STA.)	1
8.		6110-105512	SHOW START CAGE	6 1
9.		6110-105519	SHOW START P.S.	1
10.		4705-1159	RTU O.H. UNIT DATUM	1
11.		4705-1161	DSU O.H. UNIT DATUM	1
12.		4705-1160	DSU MODULE DATUM	-
13.		4705-5003	CARD, HEATSINK DATUM	1
14.		4705-5016	CARD, REGULATOR DATUM	1
15.		4705-5010	CARD, BUFFER EXPANDER DATUM	4
16.		4705-5000	CARD, SCANNER DATUM	8
17.		4705-1265	CARD, DCCR (16 CHANNEL) DATUM	2
18.		4705-1113-1	CABLE, RAW DC-P.S. DATUM	2
19.		4705-108	POWER SUPPLY, RAW DC DATUM	1
20.		6110-104557	POWER SUPPLY, 24 VDC	5 1
21.		6110-10555	TERMINAL ASSY, RTU (POWER)	5 1
22.		5935-103995	BRACKET MTG. RTU CAGE	4
23.		6110-106448 (IT. #4)	PANEL CONN MTG 150	1
24.		6110-106448 (IT. #7)	PANEL CONN MTG 950	1
25.				
26.		10279	CONN MTG RAILS	2
27.		00-8016-056-000-007	CONNECTOR, 56P (RECEPT) ELCO	23
28.		6110-103410-1	BLANK PANEL (1.75)	1
29.		6110-103410-7	BLANK PANEL (12.25)	1
30.				
31.		MS16997-10	SCREW, SOCKET HD (4-40 X .38L) CAD. PLT.	92
32.		MS51958-59	SCREW, PAN HD (10-32 X .25L) CAD. PLT.	68
33.				
34.		6110-104051 (IT. #1)	I.D. PLATE (MODULE 100)	1
35.		6110-104051 (IT. #4)	I.D. PLATE (MODULE 200)	1
36.		6110-104051 (IT. #7)	I.D. PLATE (MODULE 300)	1
37.		6110-104051 (IT. #10)	I.D. PLATE (MODULE 400)	1
38.		6110-104051 (IT. #13)	I.D. PLATE (MODULE 500)	1





ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		DACS-108501	PCB, REMOTE CONTROL CONTROL	1
2.		00-7023-017-000-001	CONNECTOR, PLUG, 17 PIN	ELCO 1
3.		RA30142241-01	RELAY, REED (2 FORM C)	ELECTROL 1
4.		S4M	DIODE	SEMTECH 1
5.				
6.		MS51957-17	SCREW, P.H., 4-40 X .50 LG	CRES 2

DACS-108500  
 ASSEMBLY—REMOTE  
 CONTROL PCB, RE-SYNC SYSTEM

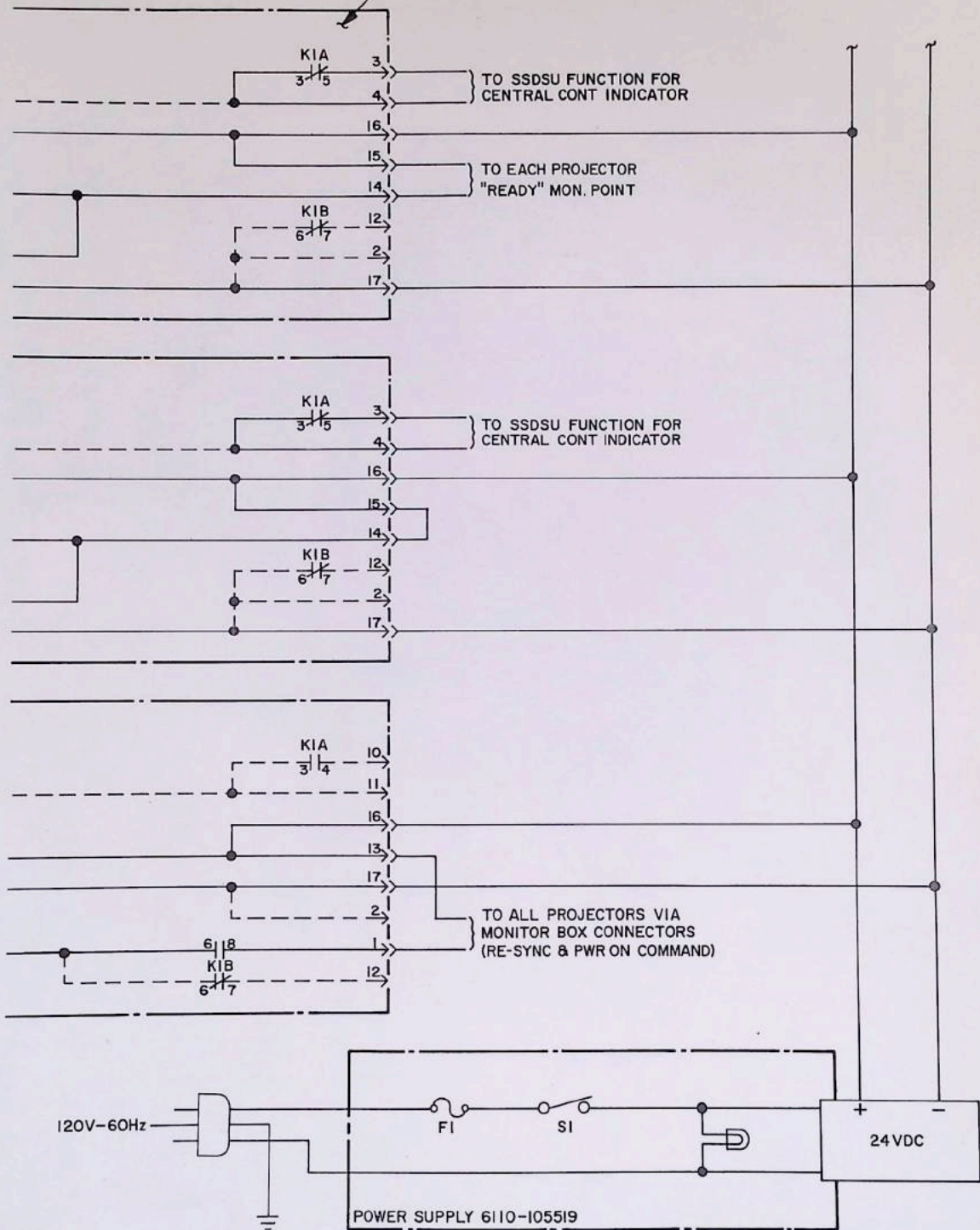


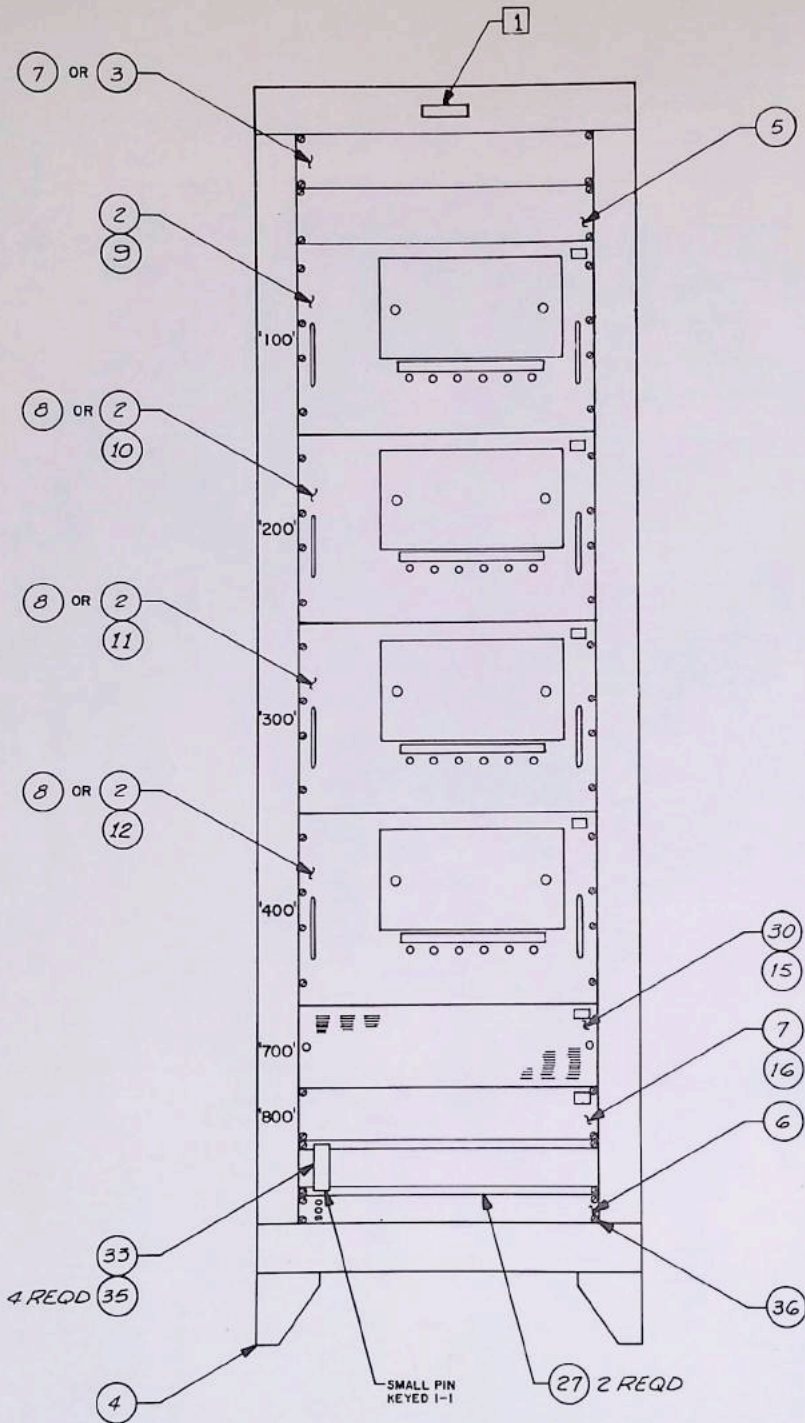
NOTES:

- |   |  |   |   |
|---|--|---|---|
| 1 | REF: FOR CENTRAL AREA WIRING SEE DWG. CONT-108651; FOR REMOTE BOX WIRING SEE DWG. CONT-108339. | 3 | FOR SPECIFIC INTERCONNECT SEE 1/SHOW WIRE LIST BY SHOW. |
| 2 | FOR QTY. SEE 1/SHOW ASSY-W/L ON PER SHOW REQUIREMENTS.   | 4 | - - - - = WIRING ON PCB, NOT USED IN THIS APPLICATION.  |

**CONT-108335**  
**SCHEMATIC—RE-SYNC CONTROL SYSTEM**  
 SHEET 1 OF 2

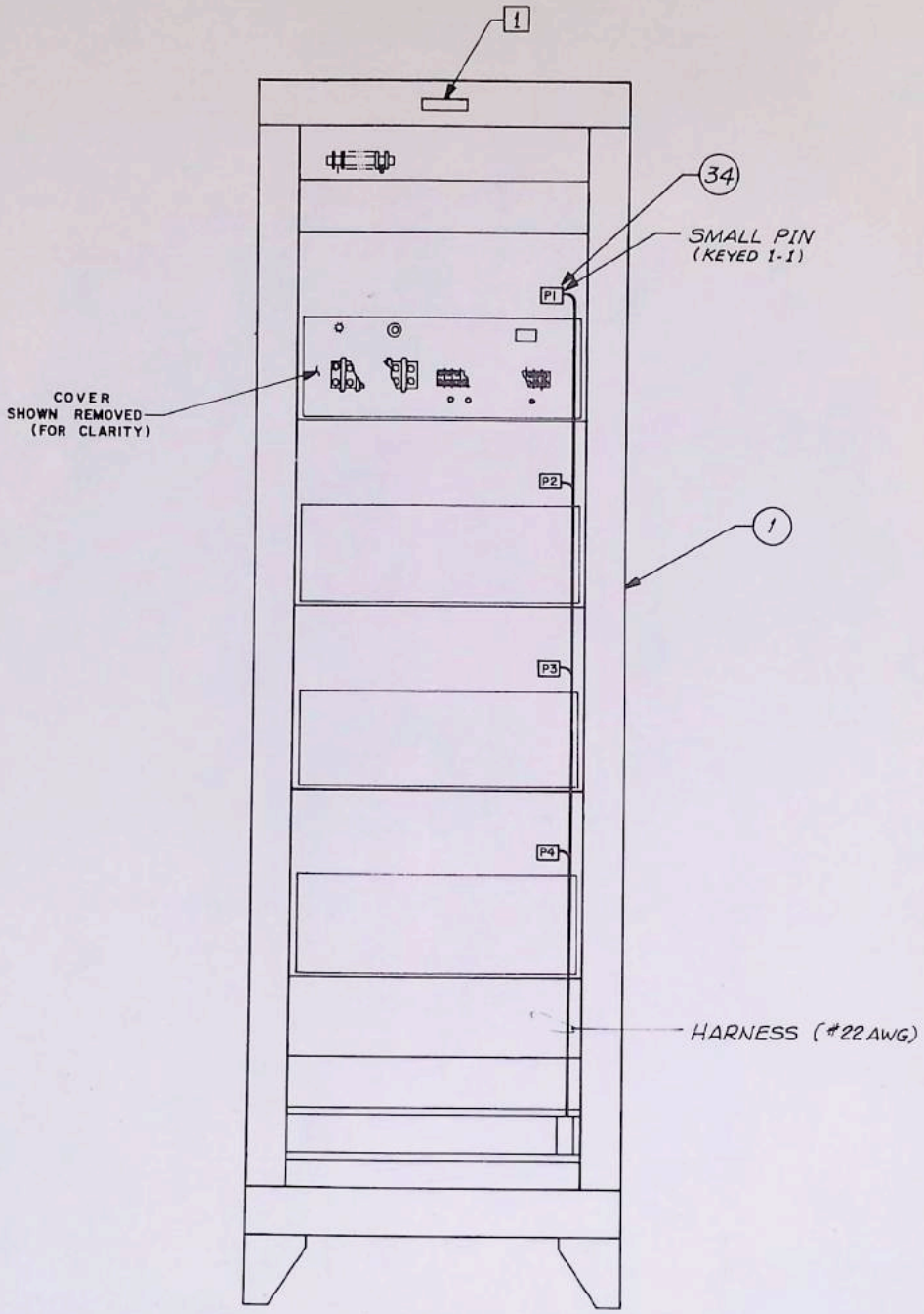






FRONT VIEW  
SHOWN W/DOOR REMOVED

CONT-108554  
 ASSEMBLY—SHOW DIMMER CAB. MDC-1-8  
 GENERAL ELECTRIC-WD  
 SHEET 1 OF 3



REAR VIEW  
SHOWN W/DOOR REMOVED

INPUT CONNECTOR (J-900)			DIMMER INTERFACE WIRING						REMARKS
PAIR	PIN	COLOR	MODULE	SLOT	ANALOG		DISCRETE		
					TIP PIN	RING PIN	TIP PIN	RING PIN	
1	A	WHT	100	1	A		C		
	B	BLU	↑	1		C	B		
2	C	WHT		2	D			F	
	D	ORN		2		F	E		
3	F	WHT		3	H			K	
	H	GRN		3		K	J		
4	J	WHT		4	L			N	
	K	BRN		4		N	M		
5	L	WHT		5	P			S	
	M	SLT		5		S	R		
6	N	RED	↓	6	T			V	
	P	BLU	100	6		V	U		
7	S	RED	200	1	A			C	
	T	ORN	↑	1		C	B		
8	U	RED		2	D			F	
	V	GRN		2		F	E		
9	W	RED		3	H			K	
	X	BRN		3		K	J		
10	Y	RED		4	L			N	
	Z	SLT		4		N	M		
11	a	BLK		5	P			S	
	b	BLU		5		S	R		
12	c	BLK	↓	6	T			V	
	d	ORN	200	6		V	U		
13	e	BLK	300	1	A			C	
	f	GRN	↑	1		C	B		
14	h	BLK		2	D			F	
	j	BRN		2		F	E		
15	k	BLK		3	H			K	
	l	SLT		3		K	J		
16	m	YEL		4	L			N	
	n	BLU		4		N	M		
17	p	YEL		5	P			S	
	r	ORN		5		S	R		
18	s	YEL	↓	6	T			V	
	t	GRN	300	6		V	U		
19	y	YEL	400	1	A			C	
	w	BRN	↑	1		C	B		
20	x	YEL		2	D			F	
	y	SLT		2		F	E		
21	z	VIO		3	H			K	
	AA	BLU		3		K	J		
22	BB	VIO		4	L			N	
	CC	ORN		4		N	M		
23	EE	VIO		5	P			S RING COM	
	FF	GRN		5		S	R	RING	
24	HH	VIO	↓	6	T			V LISTEN (HI)	
	JJ	BRN	400	6		V	U	LISTEN (LO)	
25	KK	VIO	SPARE					TALK (HI)	
	LL	SLT	SPARE					TALK (LO)	

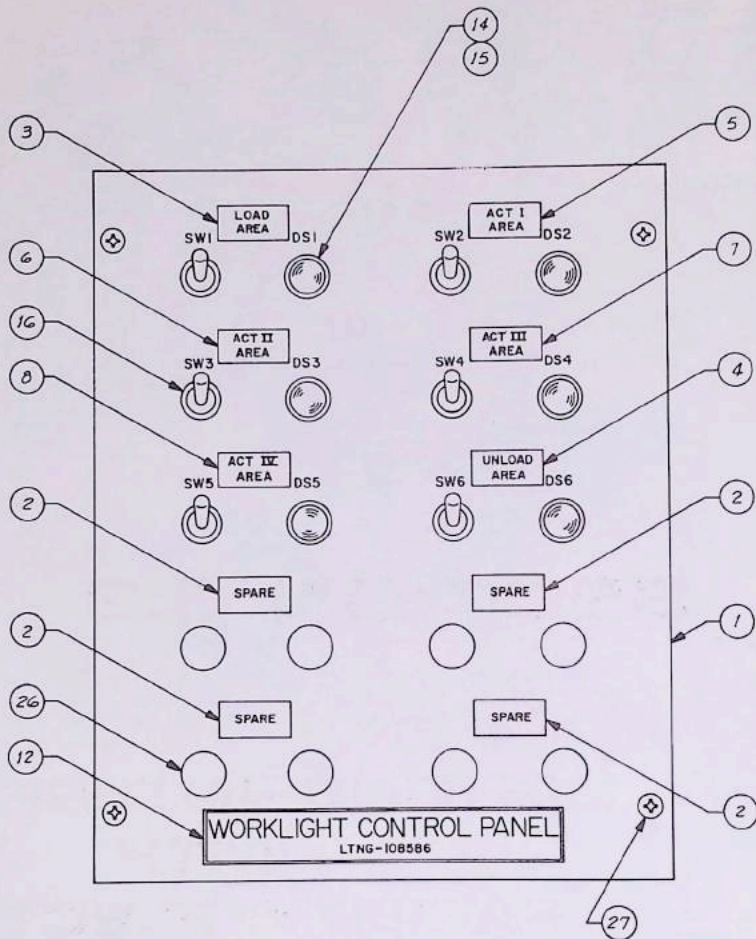
DWG. CONT-108554 ASSY., SHOW DIMMER CAB. MDC. 1-8				DIMMER CABINET AREA							
				STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6		
ITEM	WDP NO.	PART NO.	DESCRIPTION	1	2	3	4	5	6	7	8
1.		10350	ASSY, STANDARD CABINET	1	1	1	1	1	1	1	1
2.		LTNG-106088	ASSY, LIGHTING DIMMER [3]	3	4	3	3	4	2	4	1
3.		5830-102926	ASSY, SINGLE STATION INTERCOM PNL [5]	1	1	1	1	-	1	-	1
4.		6110-105871	DETAIL, CABINET SUPPORT LEG	-	-	-	-	-	-	-	-
5.		6110-106734	ASSY, DIMMER OUTPUT MONITOR PNL [4]	1	1	1	1	1	1	1	1
6.		6110-103410-1	PANEL, BLANK (1.75)	1	1	1	1	1	1	1	1
7.		6110-103410-2	PANEL, BLANK (3.50)	1	1	1	1	2	1	2	1
8.		6110-103410-7	PANEL, BLANK (12.25)	1	-	1	1	-	2	-	3
9.		6110-104051	IDENT PLATE ITEM 1	1	1	1	1	1	1	1	1
10.			▲▲▲ 4	1	1	1	1	1	1	1	1
11.			▲▲▲ 7	1	1	1	1	1	1	1	1
12.			▲▲▲ 10	1	1	1	1	1	1	1	1
13.			▲▲▲ 13	-	-	-	-	-	-	-	-
14.			▲▲▲ 16	-	-	-	-	-	-	-	-
15.			▼▼▼ 19	1	1	1	1	1	1	1	1
16.		6110-104051	IDENT PLATE ITEM 21	1	1	1	1	1	1	1	1
17.		CONT-108555	I.D. LABEL, LIGHTING MODULE	1	-	-	-	-	-	-	-
18.		CONT-108556	▲▲▲	-	1	-	-	-	-	-	-
19.		CONT-108557	▲▲▲	-	-	1	-	-	-	-	-
20.		CONT-108558	▲▲▲	-	-	-	1	-	-	-	-
21.		CONT-108559	▲▲▲	-	-	-	-	1	-	-	-
22.		CONT-108560	▲▲▲	-	-	-	-	-	1	-	-
23.		CONT-108561	▼▼▼	-	-	-	-	-	-	1	-
24.		CONT-108562	I.D. LABEL, LIGHTING MODULE	-	-	-	-	-	-	-	1
25.											
26.											
27.		10279	ANGLE, CONN SUPPORT	2	2	2	2	2	2	2	2
28.											
29.											
30.		MB5200-TYPE '100'	BLOWER UNIT (300 CFM) ROTRON	1	1	1	1	1	1	1	1
31.											
32.											
33.		00-8016-056-000-007	RECPTACLE, CONN, 56 PIN, J90 ELCO	1	1	1	1	1	1	1	1
34.		00-8016-020-000-004	PLUG, CONN, 20 PIN, P1-4 ELCO	3	4	3	3	4	2	4	1
35.		MS16995-10	SCREW, SOC HD 4-40 X 3/8 LG SST	4	4	4	4	4	4	4	4
36.		MS51958-59	SCREW, PAN HD 10-32 X 1/4 LG SST	56	56	56	56	56	56	56	56

NOTES:

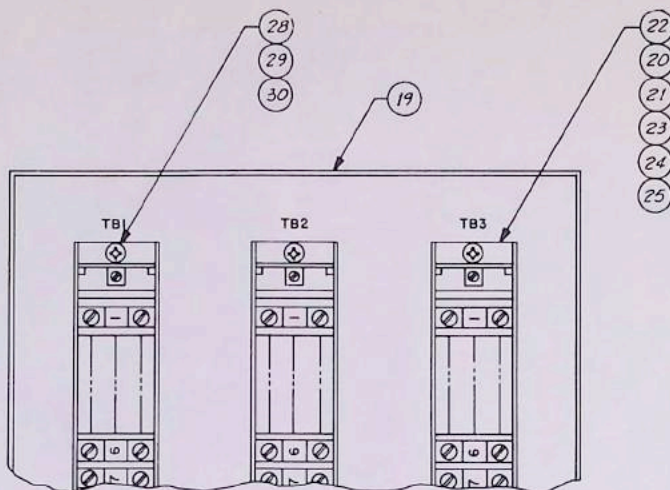
- [2] REF: FOR CABINET I.D. LABELS SEE DWG. NO. 7690-106001.
- [3] REF: FOR DIMMER SCHEMATIC SEE DWG. NO. LTNG-106091.
- [4] REF: FOR DIMMER OUTPUT MONITOR SCHEMATIC SEE DWG. NO. 6110-106737.
- [5] REF: FOR SINGLE STATION INTERCOM SCHEMATIC SEE DWG. NO. 5830-102927.
- [6] INTERCOM WIRING APPLICABLE TO CABINETS W/ INTERCOM UNIT ONLY W/3 MODULES OR LESS.

## **SECTION 3.3**

### **LIGHTING-INTERFACING WITH FACILITY ELECTRICAL**



LTNG-108586  
 ASSEMBLY—WORKLIGHT CONTROL PANEL  
 SHEET 1 OF 2

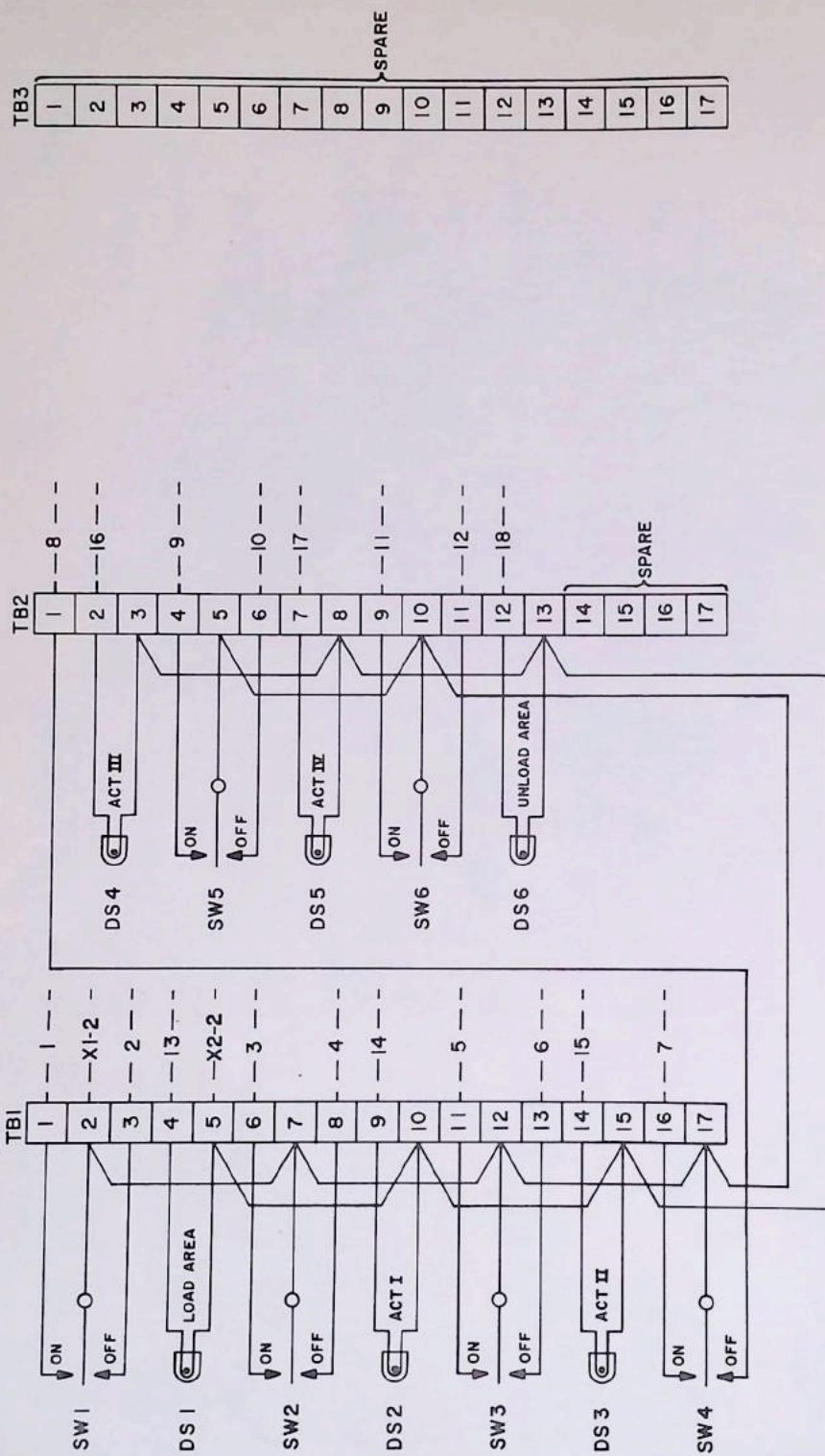


NOTES:

- 1 ITEM 15 MAY BE REPLACED BY AN EQUIV. OF SAME DIMENSIONS.
- 2 ITEM 26 TO BE INSERTED IN EACH UNUSED HOLE.
- 3 REF: FOR SCHEMATIC SEE WED DWG. DE-551; FOR WIRING DIAG. SEE DWG. LTNG-108587.
- 4 DISCARD COVER & SCREWS FURNISHED W/ITEM 19 & REPLACE W/ITEMS 1 & 27.
- 5 MOUNT ITEM 24 IN APPROX. LOCATION SHOWN & IDENTIFY W/BLACK INK. CONSECUTIVELY NUMBER ITEM 20 FROM 1-17, 3 PLACES.
- 7 CUT ITEM 22 INTO 3-8 IN. SECTIONS & DRILL HOLES SUITABLE FOR MOUNTING. LOCATE APPROX. AS SHOWN.
- 8 TYP SWITCH WIRING RELATIONSHIP IS UP='ON'; DOWN='OFF'.







LTNG-108587  
 WIRING DIAGRAM  
 WORKLIGHT CONTROL PANEL

NOTES:

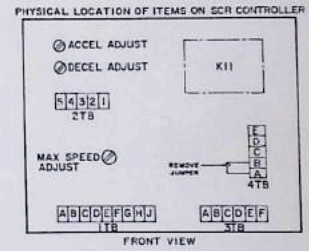
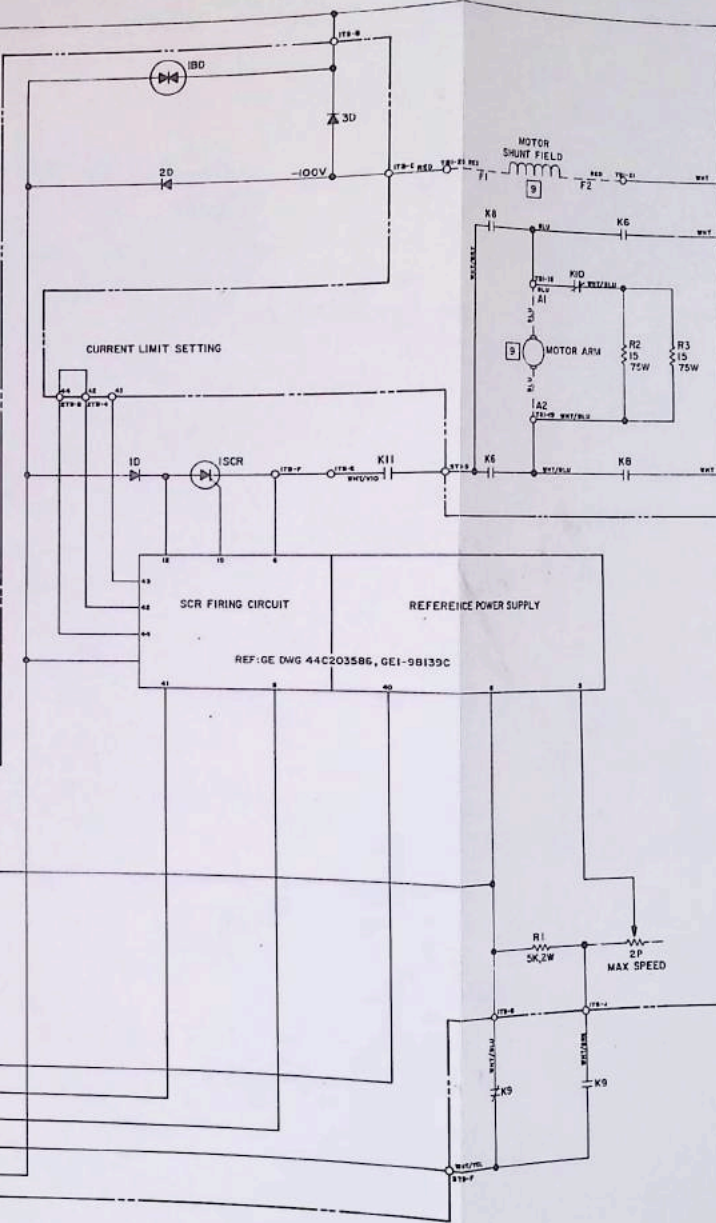
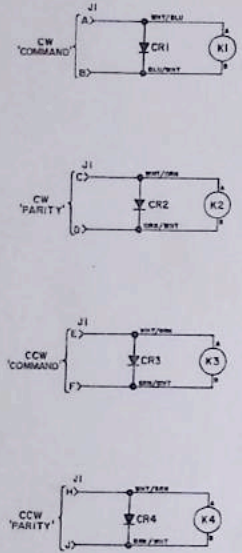
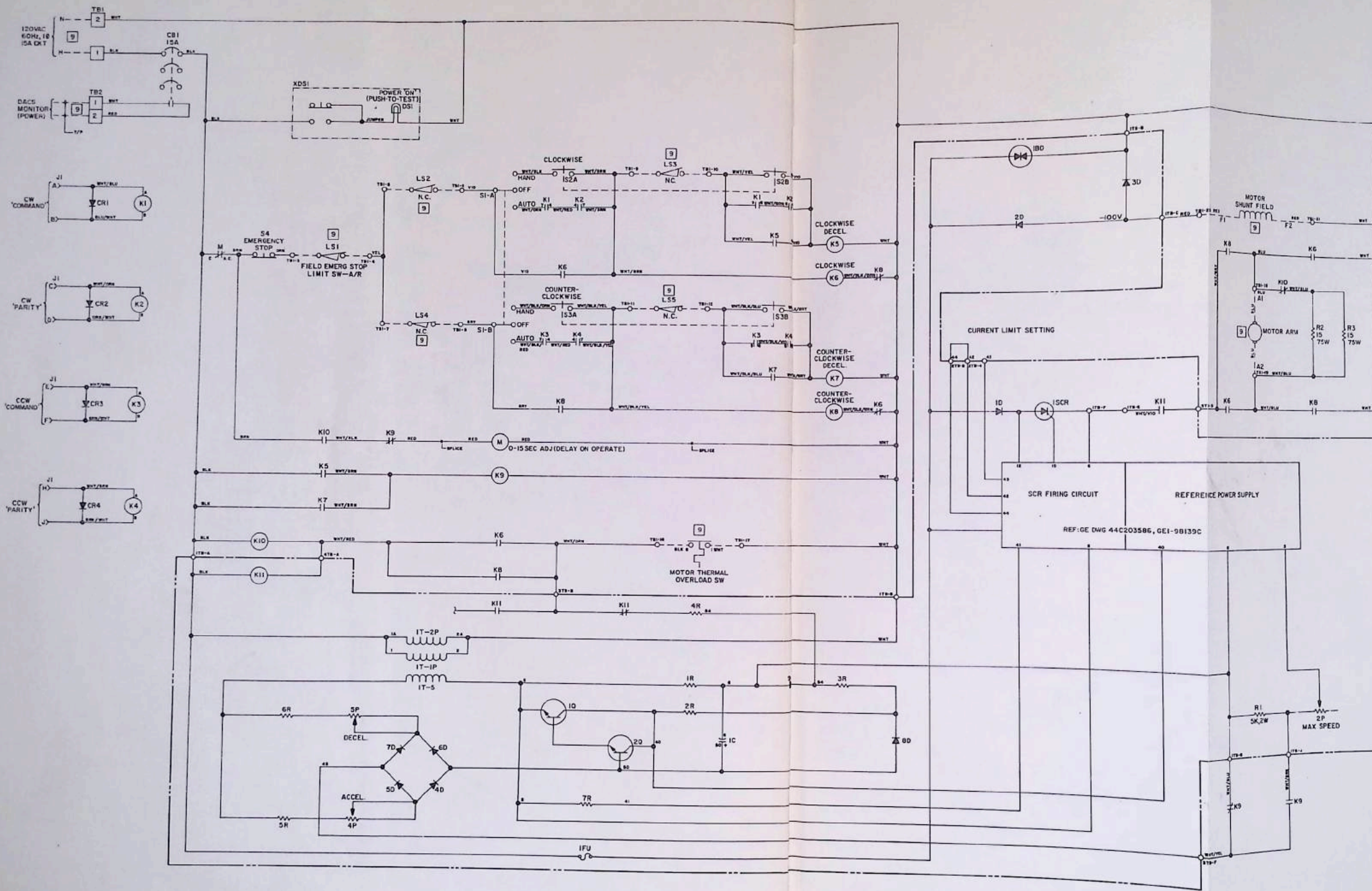
- 1 ALL IWRING TO BE 16 AWG STRANDED, PVC INSULATION, COLOR CODED.
- 2 REF: ASSY. DWG. LTNG-108586; WED DWG. DE-551.
- 3 - - - = FIELD WIRING, ( - - 7 - - ) = TYP WIRE NUMBER.

## **SECTION 3.4**

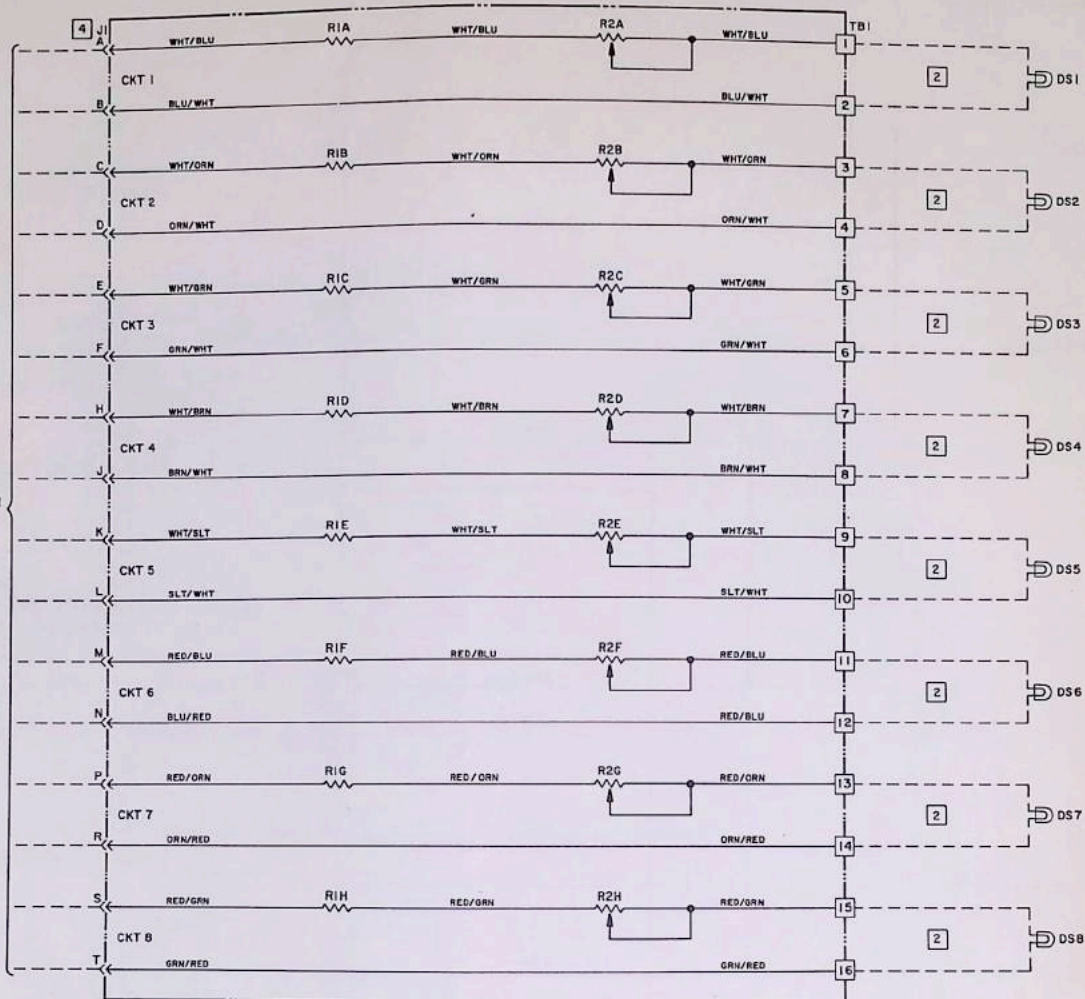
**SHOW AREA CONTROLS**

NOTES:

- 1 WIRING TO J1-KEY 1-1, 22AWG (20 PIN "ELCO" RECEPTACLE).
- 2 ----- = OUTLINE OF "G.E." SCR CONTROL-  
LER WIRING.
- 3 K1-K4 = "P & B" 24VDC, 3PDT KUP NO. KUP14D15-  
24 W/SOCKET & CLIPS.
- 4 K5,7,9,10="P & B" 2FORMC, 20A NO. PR11AY,  
120VAC COIL.
- 5 K6 & K8 = "G.E." REVERSING CONTACTOR  
NO. CR1098002.
- 6 K11 = "P & B" RELAY ON SCR UNIT. SCR CONTROL-  
LER G.E. NO. RT632B1.
- 7 CR1-4 = "SEMTECH" S4M.
- 8 ALL RESISTOR VALUES IN OHMS+5%.
- 9 - - - = FIELD/TURNTABLE TO CONTROL BOX WIRING
- 10 CLOCKWISE & COUNTERCLOCKWISE REFER TO TURN-  
TABLE, NOT MOTOR ROTATION.
- 11 LS1 = TRIP WIRE TYPE LIMIT SW ON FIXED STAGE  
PORTION OF SETPIECE.
- 12 LS2-5 SHOWN W/T. TABLE IN CLOCKWISE POSITION.
- 13 M = MOTOR TIMER "BRISTOL" NO. 5510-153-1-1.
- 14 TB1 = "BUCHANAN" MEDIUM BASE, CHANNEL X 21  
TERMINALS.
- 15 TB2 = "KULKA" 671-4 W/MARKER STRIP STYLE 7E.
- 16 R1 = "OHMITE" NO. 4442, 5K, 2W.
- 17 R2,3 = "OHMITE" NO. 0771, 15 $\Omega$ , 75W.
- 18 ALL WIRING TO BE 14AWG, STRANDED, PVC INSULA-  
TION, COLOR CODED AS SHOWN.
- 19 S1A/B = "G.E." NO. CR104B22202 WITH "G.E."  
NAMEPLATE NO. CR104G694.
- 20 S2A/B, S3A/B = "G.E." NO. CR104B212 WITH  
"G.E." NAMEPLATE NO. CR104G601 W/SPECIAL  
LEGEND (CW-CCW).
- 21 S4 = "G.E." NO. CR104A021 IWTH "G.E."  
NAMEPLATE NO. CR104G657.
- 22 DS1 = "G.E." NO. CR104E3324 WITH "G.E."  
NAMEPLATE NO. CR104G601 W/SPECIAL LEGEND  
(PWR ON-PUSH TO TEST.)
- 23 CB1 = "G.E." NO. TE132015WL - ASA2AB1  
W/SAFETY HANDLE "G.E." NO. TDF-1.
- 24 ENCLOSURE = "HOFFMAN" NO. A-36G3108LP  
W/PANEL A-36P30.



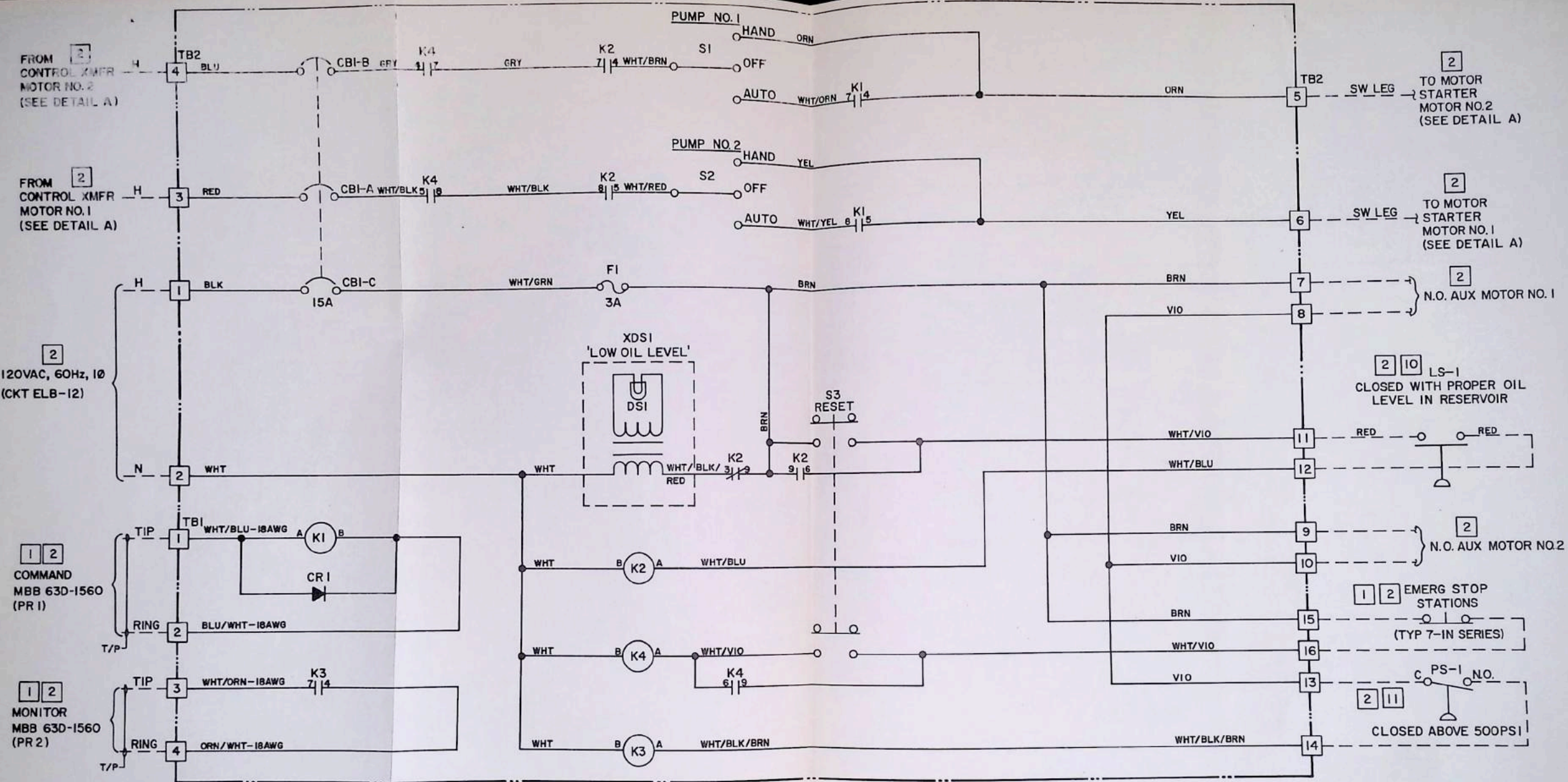
2  
TO ANIMATION  
BOX D-708



NOTES:

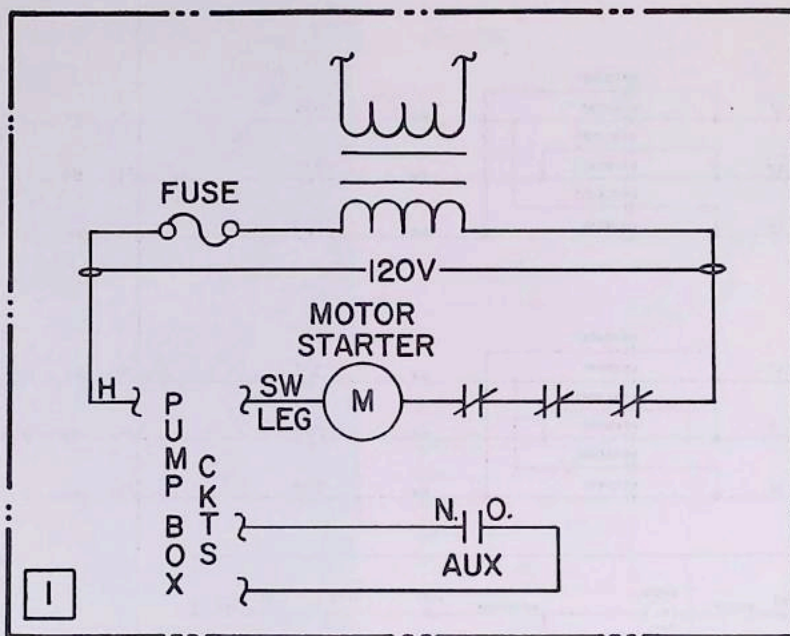
- 1 REF: FOR ANIMATION BLOCK DIAG. SEE DWG. NO. CONT-105999; FOR WED PHYSICAL LOCATION DWG. SEE DE-204.
- 2 - - - - = FIELD WIRING.
- 3 DS1-DS8 EXTERNAL LIGHTS ("GRAIN OF WHEAT" - 5V@115 MA) MOUNTED ON SETPIECE A/R.
- 4 J1 = 20 PIN "ELCO" RECEPTACLE KEYED 1-1.
- 5 ENCLOSURE = "CIRCLE A-W" 10X10X4. PROVIDE VENTS FOR COOLING.
- 6 TB1 = "KULKA" 671-16 W/MARKER STRIP STYLE 7E.
- 7 WIRING TO BE 18 AWG, STRANDED, PVC INSULATION COLOR CODED AS SHOWN.
- 8 R1A-R1H = "SPRAGUE" 243E2215 220Ω±5%, 5W.
- 9 R2A-R2H = "A-B" JAIL0405500UC 50Ω±10%, 2W.

CONT-108600  
SCHEMATIC/PARTS LIST  
FIREFLY EFFECTS CONTROL BOX



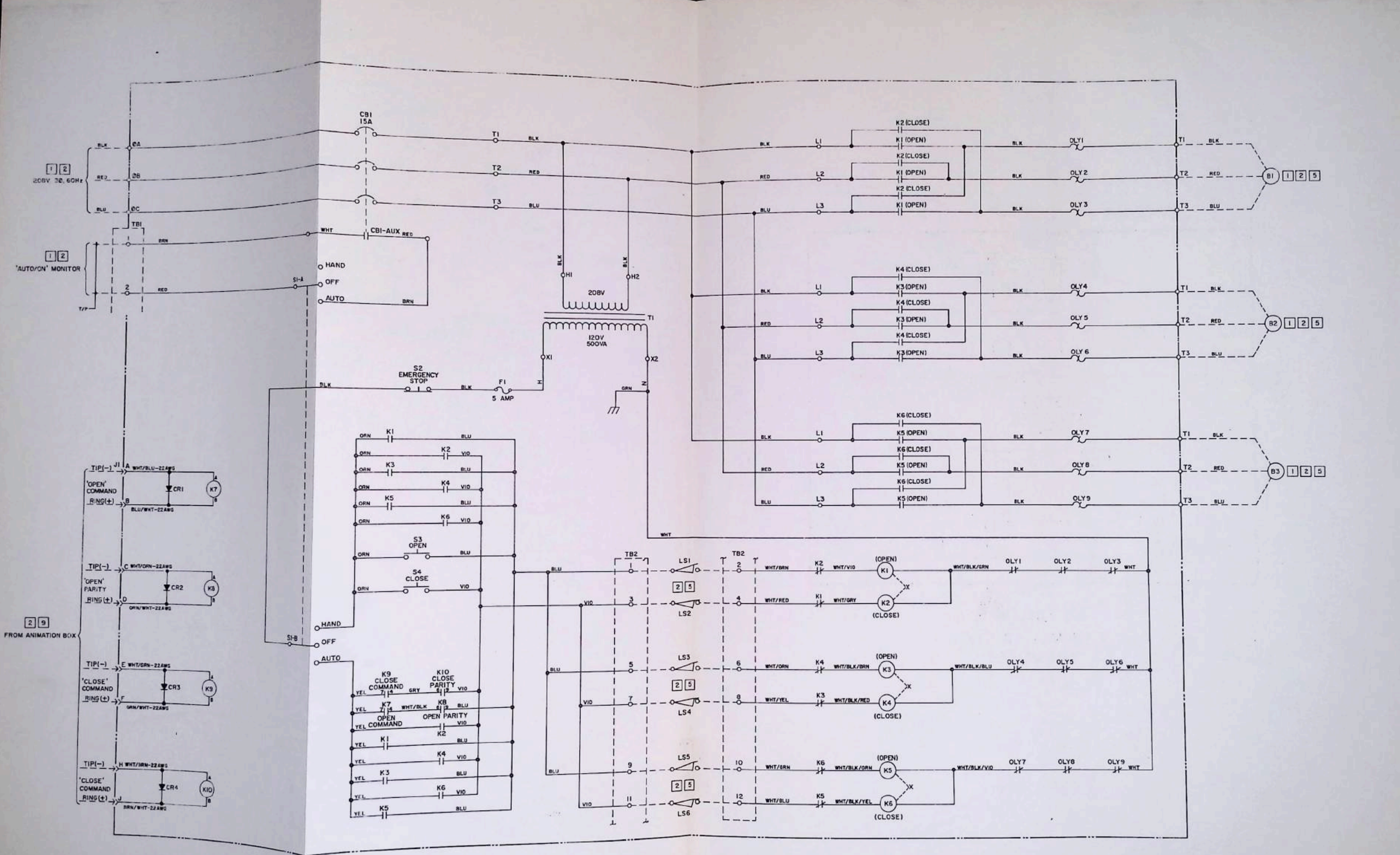
NOTES:

- [1] REF: FOR FACILITY DWG. SEE WED DWG. E-501, DE-221 & DE-231. FOR SHOW MONITOR BLOCK DIAG. SEE DWG. DACS - 105998.
- [2] - - - FIELD WIRING
- [3] ALL WIRING TO BE 14 AWG STRANDED, PVC INSULATION, COLOR CODED AS SHOWN.
- [4] ENCLOSURE = "HOFFMAN" A-24G2508LP W/PANEL A-24P24.
- [5] CBI & DISCONNECT SW="G.E." NO. TE132015WL. SAFETY HANDLE="G.E." TDF-1.
- [6] CR1="SEMTECH" S4M.
- [7] F1="BUSS" BBS-3, XF1="BUSS"3845.
- [8] K1="P & B" KUP14D15-24V, 3PDT, 24VDC RELAY W/SOCKET 27E121 & HOLD DOWN CLIPS 20C253
- [9] K2-K4="P & B" KUP14A15-120V, 3PDT, 120VAC RELAY W/SOCKET 27E121 & HOLD DOWN CLIPS 20C253.
- [10] LS1="GEMS" PART NO. 27193.
- [11] PS1="OILDYNE" OE4-SBH5-3K. SET TO CLOSE ON RISING PRESSURE TO 500 PSI.
- [12] B1 & B2 ARE PUMP MOTORS-PART OF HYDRAULIC PUMP SET, DATA AS FOLLOWS: "G.E." 5K286AK205, 20HP, 1165 RPM, 230/460V, 3Ø, 60Hz, F.L. AMP56/28 (STARTERS PART OF MCC-A).
- [13] S1 & S2="G.E." CR104B22202 W/"G.E." CR104G694 NAMEPLATE.
- [14] S3="G.E." CR104B212 W/"G.E." CR104G636 NAMEPLATE.
- [15] TB1="KULKA" 671-6 W/STYLE 7E MARKER STRIP.
- [16] TB2="BUCHANAN" CHANNEL MTG TYPE, MED BASE X 20 TERM.
- [17] XDS1="ALLEN-BRADLEY" 800T-PS16R.



DETAIL **A**  
 TYP MCC-A CKT  
 (REMOTE)

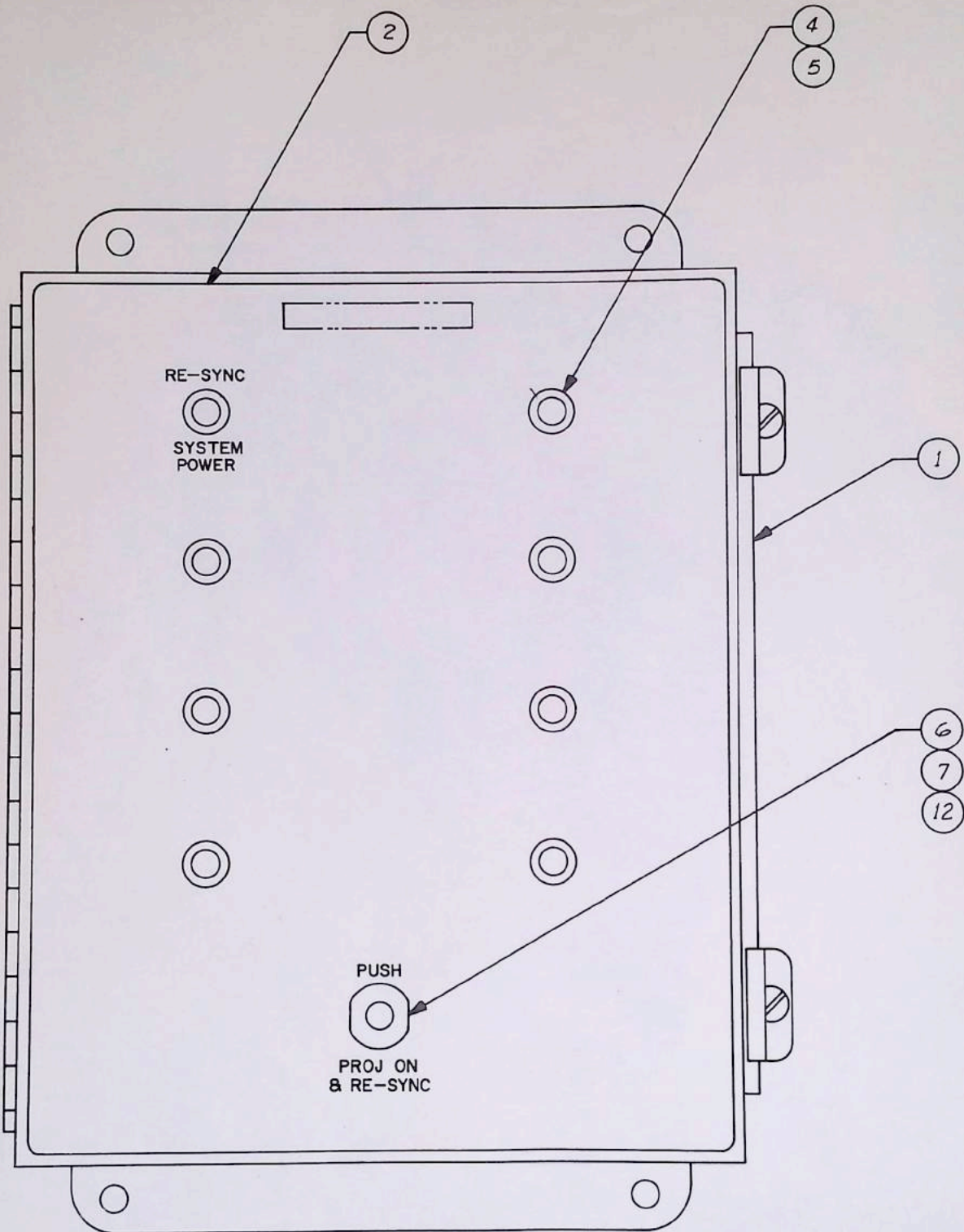




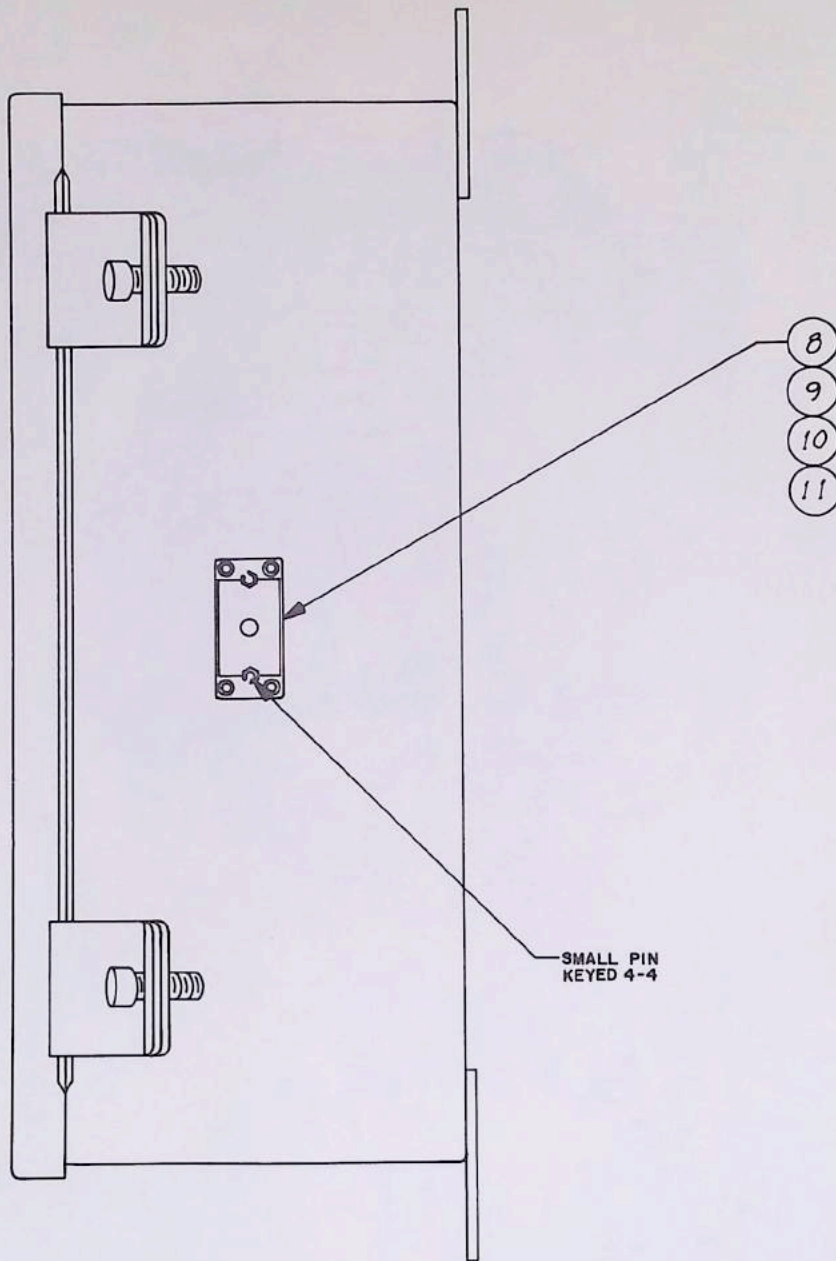
CONT-108602  
 SCHEMATIC/PARTS LIST  
 CURTAIN CONTROL PANEL—LOAD AREA  
 SHEET 1 OF 2

NOTES:

- 1 REF: FOR WED FACILITY ELECTRICAL SEE DWG. DE-104, DE-201 (PHYSICAL LOCATION & CKT); FOR SHOW MONITOR BLOCK DIAG. SEE DWG. DACS-105998.
- 2 - - - - = FIELD WIRING.
- 3 MARK ALL REF. DESIGNATIONS ADJACENT TO EACH COMPONENT. S1-S4 TO HAVE LABELS AS FURNISHED BY ENGINEERING.
- 4 ALL WIRING SHALL BE STRANDED, COLOR CODED AS SHOWN & OF GAGE CONSISTENT WITH ELECTRICAL CODE REQUIREMENTS.
- 5 B1-B3 = 1/4 H.P., 208V, 3 $\phi$ , 60Hz, 1.7 AMPS F.L. AS SUPPLIED BY "TRU-ROLL CORP" GLENDALE CALIF. OLY 1-9 TO BE SIZED ACCORDINGLY. LS1-LS6 FURNISHED AS PART OF MOTOR-TRACK-DRIVE ASSY. LS1, LS3 & LS5 CLOSED @ ALL TIMES EXCEPT @ 'OPEN' POSITION, LS2, LS4 & LS6 OPERATE IN A SIMILAR MANNER, BUT FOR CLOSED POSITION.
- 6 ENCLOSURE = "HOFFMAN" A-36G3108LP W/A-36P30 PANEL.
- 7 CB1 = "G.E." TE132015WL-ASA2AB1 W/TDF-1 SAFETY HANDLE.
- 8 CR1-CR4 = "SEMTECH" S4M DIODE.
- 9 J1 = "ELCO" 20 PIN RECEPTACLE 00-8016-020-000-007, KEYED 1-1.
- 10 K1-K2, K3-K4, K5-K6 = "ALLEN-BRADLEY" 705XBOD REVERSING STARTER, NEMA SIZE 1 W/(2) 1495-F1 AUX KIT EA.
- 11 K7-K10 = "POTTER & BRUMFIELD" KUP14D15-24V RELAY, 3PDT, 24VDC COIL.  
XK7-XK10 = "P & B" 27E121 SOCKET W/RETAINING CLIPS 20C253.
- 12 S1 = "G.E." CR104B22202; S2 = "G.E." CR104A021  
S3,S4 = "G.E." CR104B212.
- 13 T1 = "ALLEN-BRADLEY" 1497-N18, 500VA, 208-120 CONTROL XMFR. XF1, F1 FURNISHED W/T1.
- 14 TB1="KULKA" 671-4 W/MARKER STRIP STYLE 7E.
- 15 TB2 = "BUCHANAN" MEDIUM BASE STYLE, CHANNEL MOUNTING W/ALL HARDWARE X 12 TERMINALS.



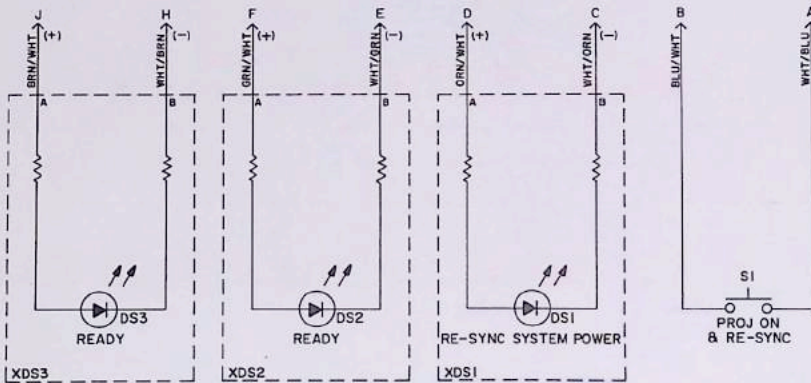
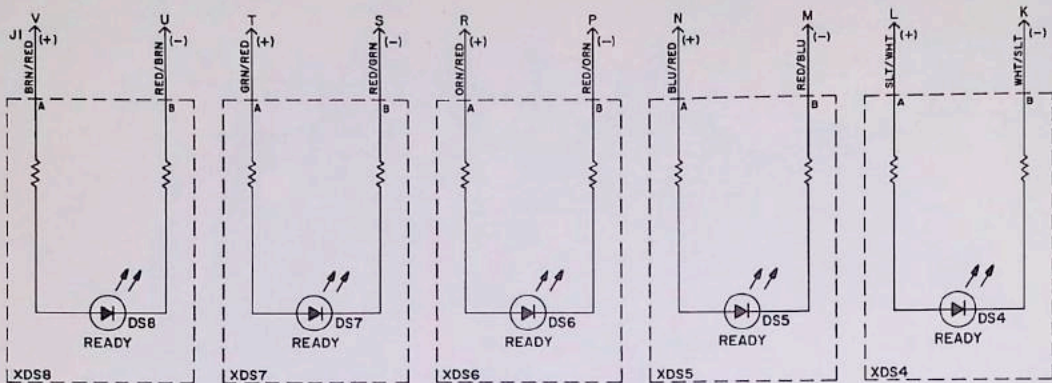
CONT-108334  
 ASSEMBLY—REMOTE  
 PROJECTOR RE-SYNC BOX  
 SHEET 1 OF 2



NOTE:

2 REF: FOR SCHEMATIC SEE DWG. CONT-108339.





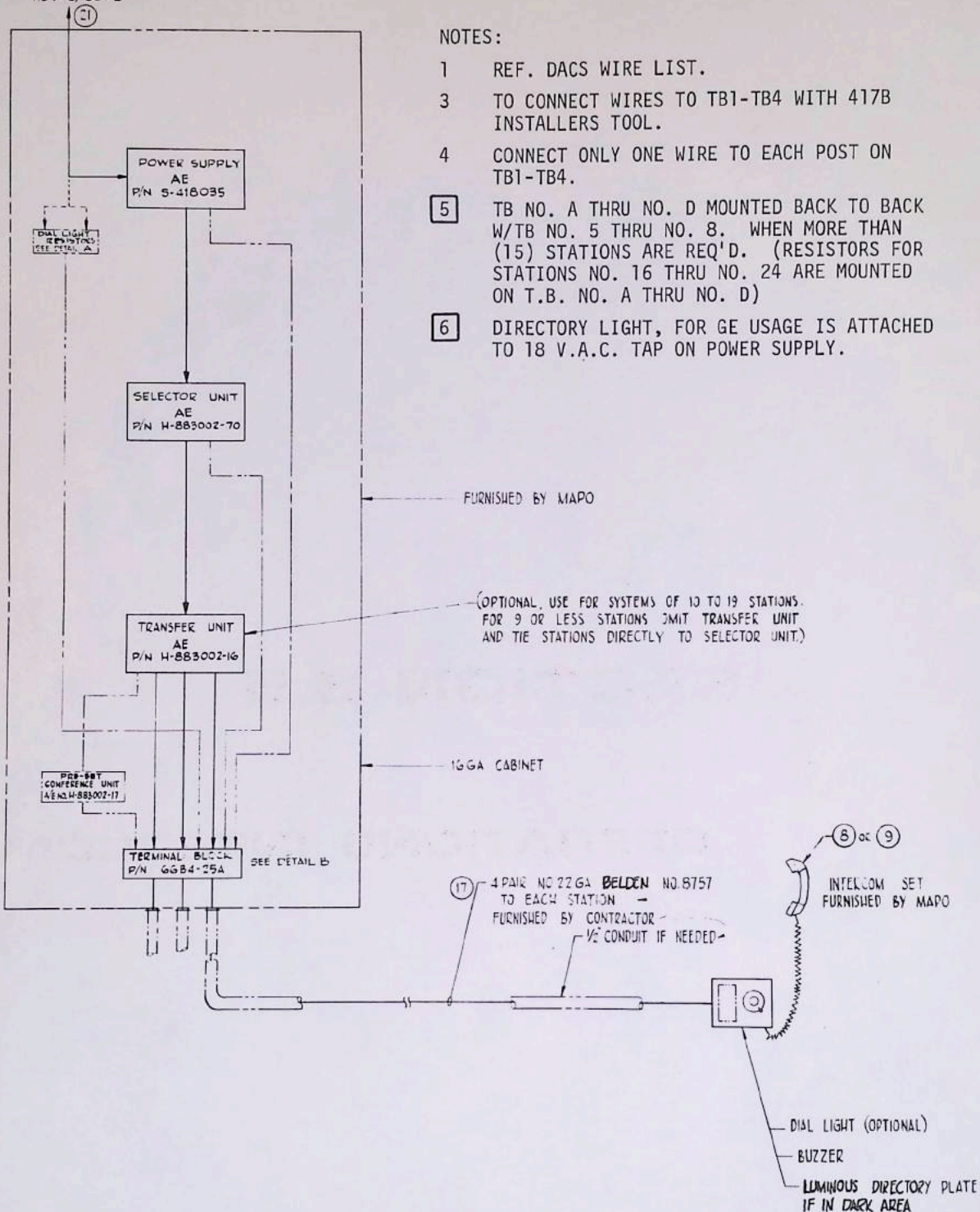
NOTES:

- 1 REF: FOR BOX ASSY. SEE DWG. CONT-108334.
- 2 WIRING TO BE 22 AWG STRANDED, PVC INSULATION, COLOR CODED AS SHOWN.

**CONT-108339**  
**SCHEMATIC WIRING PROGRAM**  
**REMOTE PROJECTOR RE-SYNC BOX**

**SECTION 3.5**

**OPERATIONS INTERCOM**



## NOTES:

- 1 REF. DACS WIRE LIST.
- 2 TO CONNECT WIRES TO TB1-TB4 WITH 417B INSTALLERS TOOL.
- 3 CONNECT ONLY ONE WIRE TO EACH POST ON TB1-TB4.
- 4 TB NO. A THRU NO. D MOUNTED BACK TO BACK W/TB NO. 5 THRU NO. 8. WHEN MORE THAN (15) STATIONS ARE REQ'D. (RESISTORS FOR STATIONS NO. 16 THRU NO. 24 ARE MOUNTED ON T.B. NO. A THRU NO. D)
- 5 DIRECTORY LIGHT, FOR GE USAGE IS ATTACHED TO 18 V.A.C. TAP ON POWER SUPPLY.

FURNISHED BY MAPO

(OPTIONAL, USE FOR SYSTEMS OF 10 TO 19 STATIONS. FOR 9 OR LESS STATIONS OMIT TRANSFER UNIT AND TIE STATIONS DIRECTLY TO SELECTOR UNIT.)

19 GA CABINET

17 4 PAIR NO 22 GA BELDEN NO.8757 TO EACH STATION - FURNISHED BY CONTRACTOR - 1/2\"/>

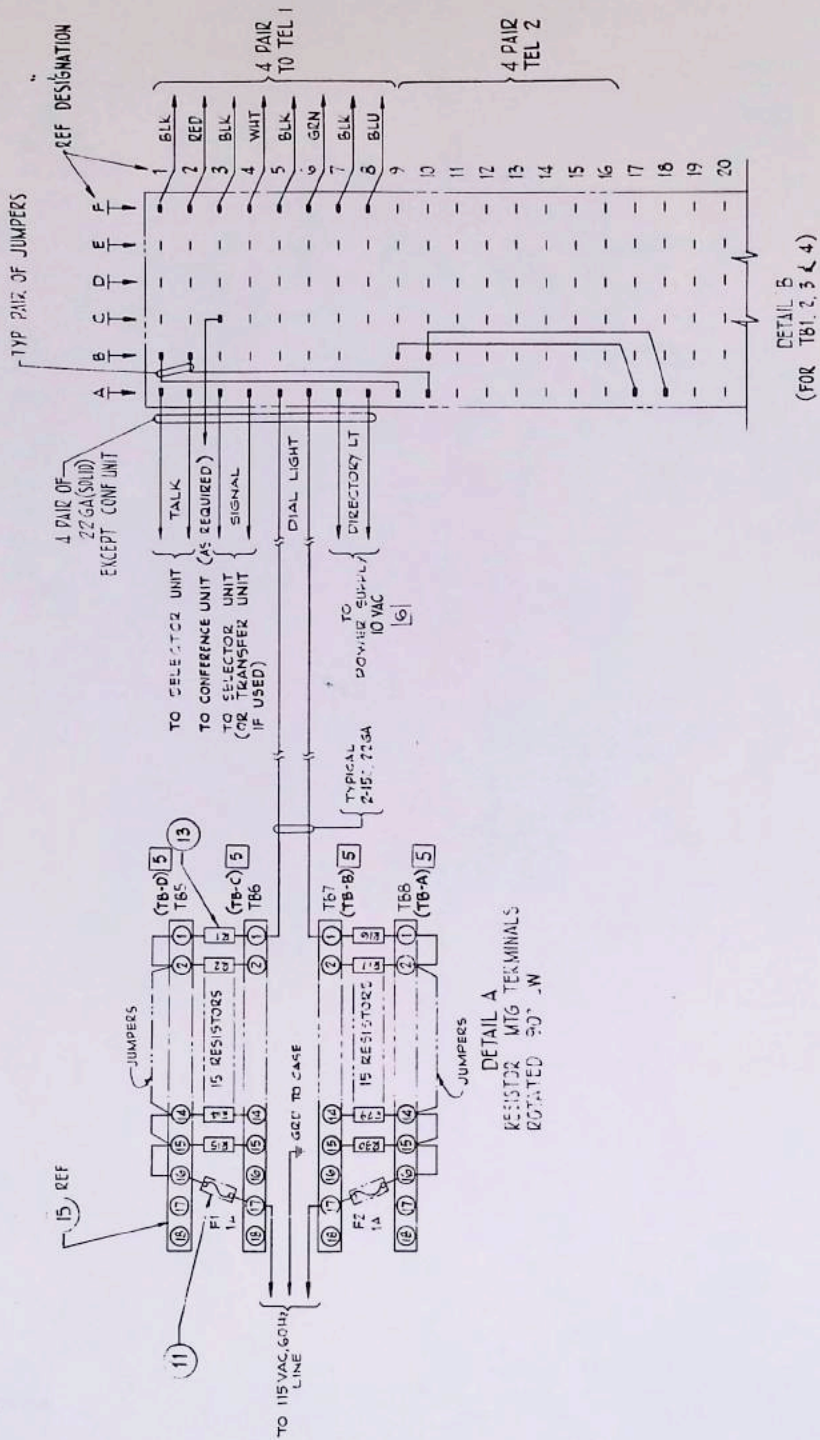
8 or 9  
INTELCOM SET  
FURNISHED BY MAPO

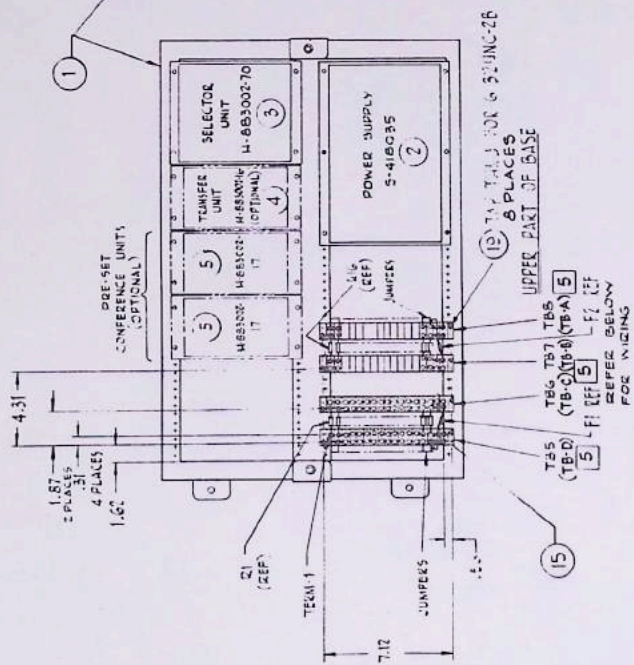
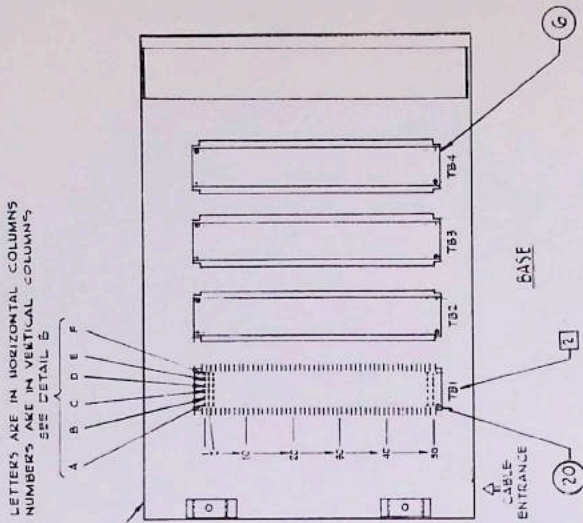
DIAL LIGHT (OPTIONAL)

BUZZER

LUMINOUS DIRECTORY PLATE  
IF IN DARK AREA





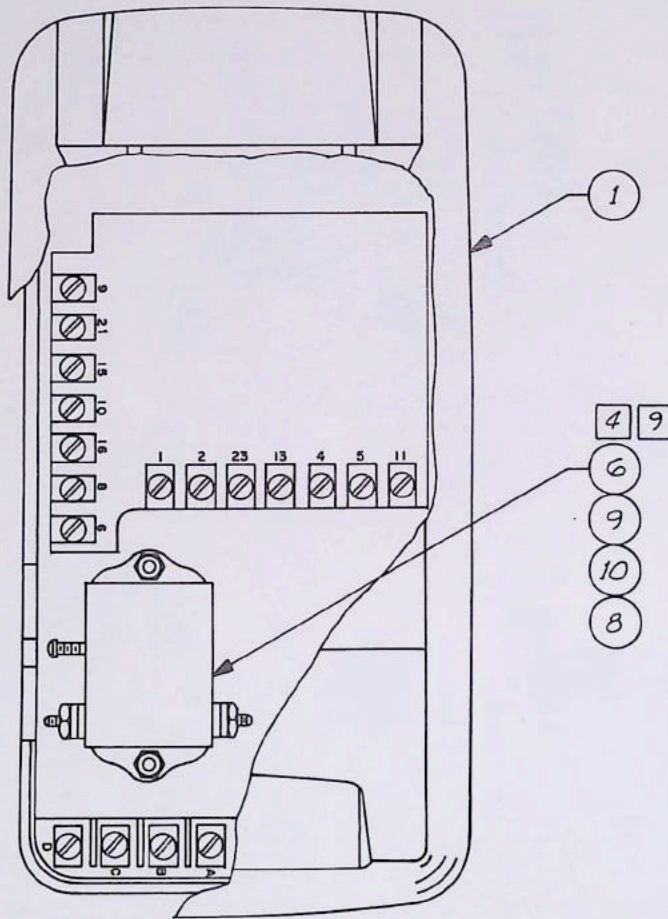


WIRE SCHEDULE			
STATION (ASREQ)	TB'S	4 PAIR OF WIRES	
1	1	1	8
2	1	9	16
3	1	17	24
4	1	25	32
5	1	33	40
6	1	41	48
7	2	1	8
8	2	9	16
9	2	17	24
10	2	25	32
11	2	33	40
12	2	41	48
13	3	1	8
14	3	9	16
15	3	17	24

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		H-886768-1	CABINET AUTOMATIC ELECT	1
2.		S-418035	POWER SUPPLY AUTOMATIC ELECT	1
3.		H-883002-70	SLECTOR UNIT AUTOMATIC ELECT	1
4.		H-883002-16	TRANSFER UNIT AUTOMATIC ELECT	A/R
5.		H-883002-17	PRE-SET CONFERENCE UNIT AUTOMATIC ELECT	A/R
6.		66B4-25A	TERMINAL BLOCK, TB1-TB4 AUTOMATIC ELECT	A/R
7.				
8.		AS SPECIFIED	TELEPHONE AUTOMATIC ELECTRIC NC-920	
9.		AS SPECIFIED	TELEPHONE AUTOMATIC ELECTRIC NC-980	
10.				
11.		275001	FUSE, 1 AMP, F1 & F2 LITTELFUSE	2
12.				
13.		OC4731	RESISTOR, 47K, 1/4W 10%, R1-R30 OHMITE	30
14.				
15.		16018	TERMINAL STRIP, TB5-TB8	
			VERNITRON ELEC COMP [5]	4
16.				
17.		8757	CABLE 4PR-22GA SOLID BELDEN	A/R
18.				
19.		MS35206-232	SCREW MACH. PAN HD. CROSS REC. 6-32 X	
			3/4 LG	8
20.		MS35206-249	SCREW MACH. PAN HD. CROSS REC. 8-32 X	
			1 LG	16
21.		NO. 14GA-3C	POWER CORD W/PLUG FAB IN SHOP	6

SCHEDULE I 2

PAIR NO.	COLOR	DESTINATION
1	BLK	TB8
	RED	TB15
2	BLK	BUZZER
	WHT	
3	BLK	TB A
	GRN	TB B
4	BLK	<span style="border: 1px solid black; padding: 0 2px;">1</span>
	BLU	

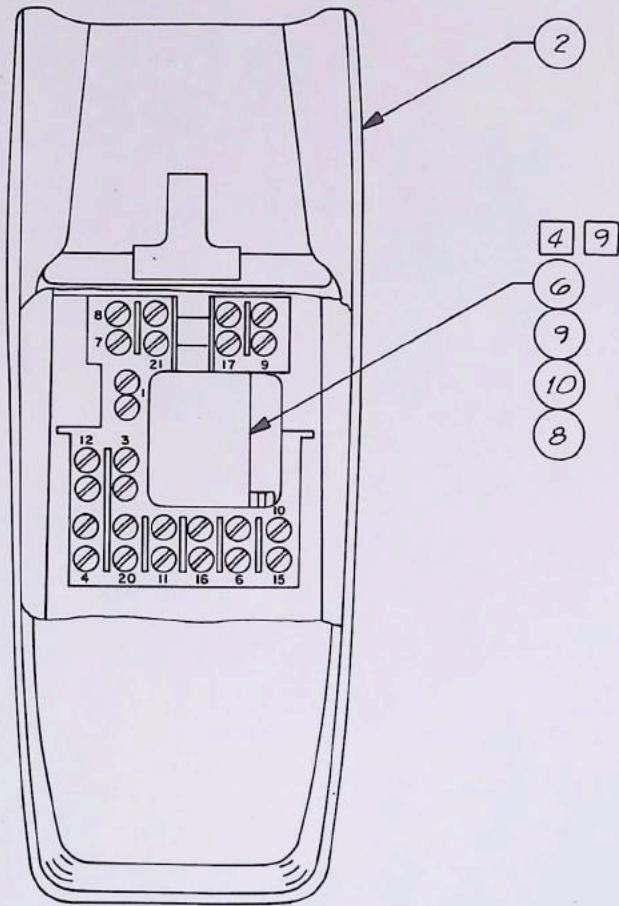


5830-104804  
 ASSEMBLY—INTERCOM INSTALLATION  
 SHEET 1 OF 5

SCHEDULE II 3

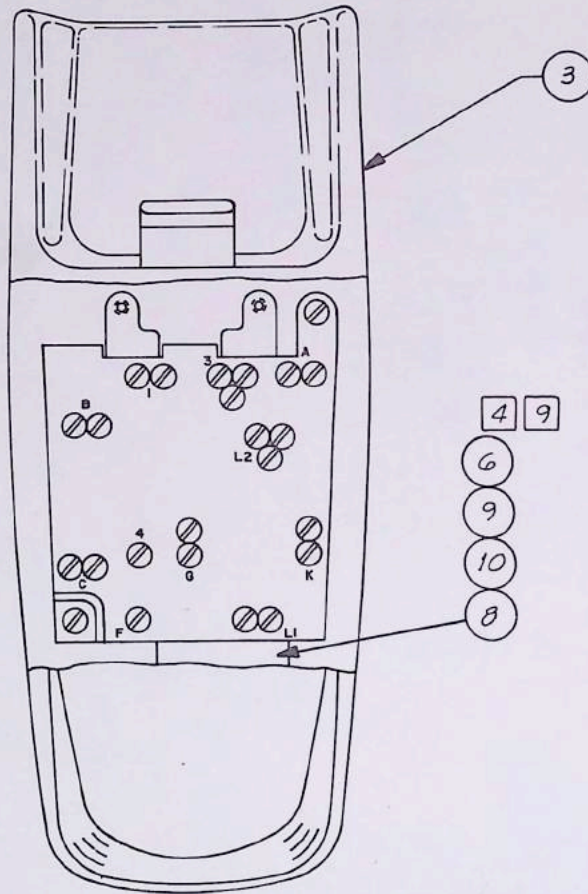
PAIR NO.	COLOR	DESTINATION
1	BLK	TB7
	RED	TB15
2	BLK	BUZZER
	WHT	
3	BLK	TB1
	GRN	TB3
4	BLK	1
	BLU	

10



SCHEDULE III 8

PAIR NO.	COLOR	DESTINATION
1	BLK	L2
	RED	L1
2	BLK	BUZZER
	WHT	TBA
3	BLK	TBK
	GRN	TBF
4	BLK	1
	BLU	





NOTES:

- 1 IF THIS PAIR IS NOT USED, WIRES TO BE TAPED SEPARATELY.
- 2 FOR WIRING OF MODEL NC920 W/BELDEN 8757 SEE SCHEDULE I.
- 3 FOR WIRING OF MODEL NC982 W/BELDEN 8757 SEE SCHEDULE II
- 4 TO MOUNT ITEM 6 APPROX AS SHOWN USE ITEM 9 (INSERTED FROM BOTTOM SIDE THROUGH EXISTING HOLES OF ITEMS 1-3) & ITEM 10.
- 5 MAY BE ANY TWO-DIGIT CODE.
- 6 BUZZERS STOCKED BY AUTOMATIC ELECT UNDER THIS NUMBER
- 7 DISREGARD ANY MANUFACTURER'S INSTALLATION INSTRUCTIONS INCLUDED WITH EQUIPMENT.
- 8 FOR WIRING OF ITEM 3 WITH BELDEN 8757 SEE SCHEDULE III.
- 9 INSTALL ITEM 8 BETWEEN ITEM 6 & BASE OF ITEMS 1-3.
- 10 PHONES WITHOUT INTERNAL WIRING PROVISIONS ARE NOT EQUIPPED WITH TERMINALS AND DIAL LIGHTS. PAIR FROM FIELD CABLE TO BE TAPED SEPARATELY.

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		NC920 5 2-XXX	TELEPHONE, WALL BASE	AE 1
2.		NC982 5 0-XXX	TELEPHONE, WALL BASE	AE 1
3.		25447LR30M	TELEPHONE, WALL BASE	ITT 1
4.				
5.				
6.		422891	BUZZER	6 EDWARDS 3
7.				
8.		MS51859-2	WASHER, FLAT, NO. 4	NYLON 6
9.		MS18211-20C	SCREW, FLAT HD 80°, 4-40 X 3/8 LG NYLON	6
10.		MS51858-2	NUT, HEX, 4-40	NYLON 6



LIST NC 044 RUN 03-13-73 JOB GENERAL ELECTRIC MDM  
 LIST SEQ. PSC Dwg NO. CROSS REF. S TITLE

044	AAAA	CDMT-1086010	D	SCHEM/ASSY., HYDRAULIC PUMP CTRL, PNL, GENE, MDM	
044	AAAA	CDMT-1085990	J	SCHEM, P, L., TUKITABLE CONTROL BOX, GENE, MDM	
044	AAAA	CDMT-1086000	D	SCHEM, P, L., FIREFLY EFFECTS CONTROL BOX, GENE, MDM	
044	AAAA	CDMT-1086020	J	SCHEM, P, L., CURTAIN CTRL, PNL, LOAD AREA, GENE, MDM	
044	0001	6110-105995A	J	BLOCK DIAGRAM CONTRACTOR BID INFO, GE, MDM	
044	0002	5830-105996A	J	BLOCK DIAGRAM AUDIO + CONTROL, G, E., MDM	
044	0003	6110-1059970	J	BLOCK DIAGRAM CONTRAD + CONTROL (SHOW)	
044	0004	6110-1059980	J	BLOCK DIAGRAM DACS MONITOR	
044	0050	CDMT-105999A	J	BLOCK DIAGRAM ANIMATION	
044	0006	5975-1060000	F	CABLE SCHEDULE	
044	0005	6110-1059990	J	BLOCK DIAGRAM ANIMATION	
044	0006	5975-1060000	F	CABLE SCHEDULE	
044	0007	7690-106001A	D	CABINET NAMEPLATES	
044	0008	6110-1060020	D	DACS MONITOR CAB. 63D (GE)	
044	0009	AUCU-106003A	D	HL-XCT CAR 66A, GE, MDM	
044	0010	5830-106003A	J	P.A. SCHEMATIC	
044	0011	-	J	RESERVED R.P.	
044	0012	-	J	RESERVED R.P.	G.E. THEATRE
044	0013	-	J	RESERVED R.P.	G.E. THEATRE
044	0014	-	J	RESERVED R.P.	G.E. THEATRE
044	0015	-	J	RESERVED R.P.	G.E. THEATRE
044	0160	CDMT-108291C	J	SCHEM DIAG AC CONT SHEET 10F2	GE THEATRE
044	0170	CDMT-108291C	J	SCHEM DIAG AC CONT SHEET 20F2	GE THEATRE
044	0180	CDMT-108224B	D	INDEX + LEGEND RIDE CONT SHT60F7	GE THEATRE
044	0190	CDMT-108224B	D	REGULATOR + WIRE HD SYS SHT20F7	GE THEATRE
044	0200	CDMT-108224B	C	SCHEM DIAG AC PWR SHT30F7	GE THEATRE
044	0210	CDMT-108224B	C	SCHEM DIAG DC PWR + CONT SHT40F7	GE THEATRE
044	0220	CDMT-108224B	D	SCHEM DIAG AC CONT SHT50F7	GE THEATRE
044	0230	CDMT-108224B	D	SCHEM DIAG AC CONT SHT60F7	GE THEATRE
044	0240	CDMT-108224B	D	SCHEM DIAG REG + BRAKE SHT70F7	GE THEATRE
044	0250	CDMT-1082260	J	WIRING DIAG SPU VARIATOR SHT10F3	GE THEATRE
044	0026	CDMT-1082260	J	WIRING DIAG SPU VARIATOR SHT20F3	GE THEATRE
044	0027	CDMT-1082260	J	WIRING DIAG SPU VARIATOR SHT30F3	GE THEATRE
044	0028	CDMT-1082270	D	ASSEM SPU VARIATOR	GE THEATRE
044	0029	CDMT-1082290	C	OUTLINE DRIVE MTR W/D TACH	GE THEATRE
044	0030	CDMT-1082300	C	OUTLINE DRIVE MTR W/TACH	GE THEATRE
044	0031	CDMT-1082940	J	SIGNAL LEVEL ASSIGNMENTS	GE THEATRE
044	0320	CDMT-1082280	D	MDD LH DOPR SPU VARIATOR NOT DRAWN	GE THEATRE
044	0330	CDMT-1082310	J	BUS BAR LAYOUT NOT DRAWN	GE THEATRE
044	0340	CDMT-1082320	C	ASSEM RIDE CUNT CONSOLE 1-6	GE THEATRE
044	0345	CDMT-108016A	D	METALPHOTO LABEL CONT, CSL, 1-6, CAROUSEL, GENE, DM	GE THEATRE
044	0350	CDMT-1082750	J	WIRING DIAG OPER STA 1-6	GE THEATRE
044	0360	CDMT-108285B	C	ASSEM RIDE CUNT REL CAB RCRC-2	GE THEATRE
044	0365	CDMT-108317A	D	METALPHOTO LABEL, RCRC1-2, CAROUSEL, GENE, MDM	GE THEATRE

## MAP DRAWING LIST PROGRAM SHEET

DATE RUN 12/04/74

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LIST NC 044 RUN 03-13-73 JOB GENERAL ELECTRIC WDW  
 LIST SEQ. FSC DWG NO. CROSS REF. S TITLE

044	0370	CONT-1082878	J	WIRING DIAG RCRC-2	GE THEATRE
044	0380	CONT-1084298	C	ASSEM STORAGE CAB	GE THEATRE
044	0390	CONT-1082888A	C	ASSEM RIDE CAP CONSOLE	GE THEATRE
044	0400	CONT-1084288A	J	ASSEM CONSOLE PANEL RIDE CAP CONSOLE	GE THEATRE
044	0405	CONT-1086618A	D	METAL-PHOTO LBL.,CAPTAINIS CSL + STOR	CSL,GE,WDW
044	0410	CONT-1082888A	J	PANEL DETAIL RIDE CAP CONSOLE	GE THEATRE
044	0420	CONT-1082900	J	WIRING DIAG RIDE CAP CONSOLEEE	GE THEATRE
044	0043	CONT-1082938	R	PARTS LIST SHT10F2	GE THEATRE
044	0044	CONT-1082938	R	PARTS LIST SHT20F2	GE THEATRE
044	0045	CONT-1082760	R	ASSEM TRANSMITTER COIL	GE THEATRE
044	0046	CONT-1082770	D	DETAIL BOX + PANEL TRANS + REC COIL	GE THEATRE
044	0047	CONT-1082800	J	ASSEM REC COIL	GE THEATRE
044	0048	CONT-1082790	J	STATIONARY BKT TRANS COIL SHT10F3	GE THEATRE
044	0049	CONT-1082790	J	ADJUSTABLE BKT TRANS COIL SHT20F3	GE THEATRE
044	0050	CONT-1082790	J	MOUNTING BKT REC COIL SHT20F3	GE THEATRE
044	0051	CONT-1082810	J	INSTALLATION TRANS + REC COILS	GE THEATRE
044	0570	CONT-1082258	J	WIRING DIAG,FIELD RIDE CONT MOTORS SHT10F3	GE THEATRE
044	0530	CONT-1082258	J	WIRING DIAG,FIELD RIDE CONT ROTATING SHT20F3	GE THEATRE
044	0540	CONT-1082258	J	WIRING DIAG,FIELD RIDE CONT STATIONARY SHT30F3	GE THEATRE
044	0550	CONT-1082828	C	ASSEM RIDE CONT CAB RCRC-1	GE WDW
044	0560	CONT-1082840	C	WIRING DIAG RCRC-1 SHT10F2	GE WDW
044	0570	CONT-1082840	C	WIRING DIAG TRANSMITTER DRIVER SHT20F2	GE WDW
044	0580	CONT-1084300	D	OPERATING PROCEDURE GE THEATRE	GE THEATRE
044	0590	CONT-1082924	J	DWG TREE	GE THEATRE
044	0600	CONT-1082330	J	DETAIL OPERATORS CONSOLE GE THEATRE	GE THEATRE
044	0061	CONT-1082340	J	MOUNTING BRACKETS	GE THEATRE
044	0062	CONT-1082780	C	METAL PHOTO LABEL,RIDE CAPTAIN CONSOLE G.E.	GE THEATRE
044	0630	CONT-1084318	J	BOX + PNL DETL RIDE CONT,RELAY CAB,RCRC 1	GE WDW
044	0640	CONT-1082838	J	BOX + PNL DETL RIDE CONT,RELAY CAB,RCRC-1 GE WDW	GE WDW
044	0650	CONT-1082860	J	BOX + PNL DETL RIDE CONT,RELAY CAB,RCRC 2	GE WDW
044	0056	CONT-1084300		NUT USED	
044	0670				
044	0671	CONT-1085460	C	BRACKET,24V FLASHER MOUNT	GE THEATRE
044	0672	CONT-1085510	C	BRACKET SONALERT MOUNT	GE THEATRE
044	0673	CONT-1085500	C	BRACKET HORN MOUNT	GE THEATRE
044	0680	AUD-1085000	D	ASSY.,OPERATIONS I.C.MODULE,THEATERS,	GENE,WDW
044	0690	AUD-1085000	C	DETL.,OPERATIONS I.C.MODULE,THEATERS,	GENE,WDW
044	0700				
044	0710	AUD-1085820	D	ASSY.,OPERATIONS I.C.PANEL,TICKET BOX ST.GENE,WDW	GENE,WDW
044	0720	AUD-108583A	C	DETL.,OPERATIONS I.C.PANEL,TICKET BOX ST.GENE,WDW	GENE,WDW
044	0730	DST-1085840	C	RESERVED,DPS,I.C.SYS	GENE,WDW
044	0740				
044	0750	CONT-1085510	D	ETAIL-BRACKET,SONALERT MOUNT, CAROUSEL	
044	0760	CONT-1085544	J	ASSY, SHOW DIMMER CABINET MDC,1-8 G.E.	

LIST NO 044 RUN 03-13-73 JOB GENERAL ELECTRIC WDW  
 LIST SEQ. FSC DWG NO. CROSS REF. S TITLE

044	0770										
044	0780	LTRG-1085860	D	ASSY, WORKLIGHT CONTROL PNL, G, E, WDW							
044	0790	LTRG-1085870	C	WIRC, WORKLIGHT CONTROL PNL, G, E, WDW							
044	0800	LTRG-1085880	B	LBL, WORKLIGHT CONTROL PNL, G, E, WDW							
044	0810										
044	0820	CONT-1085980	J	DETL, ASSY, SAFETY DOOR SIGNAL BOX CAROUSEL							
045	0010	6110-1058720	J	BLOCK DIAGRAM CONTRACTOR BID INFO, PIRATE RIDE, WDW							
045	0020	5830-1058730	J	BLOCK DIAGRAM AUDIO/CONTROL, PIRATE RIDE, WDW							
045	0030	6110-1058740	J	BLOCK DIAGRAM SHOW MONITOR, PIRATE RIDE, WDW							
045	0040	6110-1058750	J	BLOCK DIAGRAM WAGS MONITOR, PIRATE RIDE, WDW							
045	0050	6110-1058760	J	BLOCK DIAGRAM ANIMATION, PIRATE RIDE, WDW							
045	0055	6110-1058860	J	BLOCK DIAG, RIDE CTRL, CONCEPT + WIRE INFO, PIRATES							
045	0060	AUDC-1058770	J	P. A. SCHEMATIC, PIRATE RIDE, WDW							
045	0065	SYTH-1075168	D	OVERALL EQ, LAYOUT, VIDEO SYSTEM, PIRATE RIDE, WDW							
045	0066	6110-107486A	J	ELECTRICAL EQUIP. RM, Q24, PIRATE RIDE, WDW							
045	0070										
045	0072	6110-1058870	B	SHOW SAYOUT, ANIMATION + CONTROL LOCATION, PRIDE, DM							
045	0074	6110-1058880	B	SHOW SAYOUT, ANIMATION + CONTROL LOCATION, PRIDE, DM							
045	0074										
045	0080	9905-105878F	E	CABLE SCHEDULE, AUDIO, PIRATE RIDE, WDW							
045	0090	5995-105879E	E	CABLE SCHEDULE, ANIMATION, PIRATE RIDE, (SHT 10F2)							
045	0091	CEMT-1076768	J	CABLE SCHEDULE, RIDE CONTROL PIRATE RIDE, WDW							
045	0095	5995-105881D	E	CABLE SCHEDULE, ANIMATION, PIRATE RIDE, (SHT 20F2)							
045	0097	SYTH-107519B	E	CABLE SCHEDULE, VIDEO SYTH, PIRATE RIDE, WDW							
045	0100										
045	0110	6110-105882C	D	CABINET ASSY, 1/SHOW MON, (33F), PIRATE RIDE, WDW							
045	0120	6110-1058830	D	CABINET ASSY, HL-XCT, CAB (38L), PIRATE RIDE, WDW							
045	0130	6110-105884C	D	CABINET ASSY, MOUTH CTRL (REMOTE), PIRATE RIDE, WDW							
045	0140	6110-105888E	D	CABINET ASSY, MOUTH CTRL (8-31 CENTRAL), PIRATES, WDW							
045	0150	6110-105880B	D	CABINET NAMEPLATES, ER-03, PIRATE RIDE, WDW							
045	0160										
045	0170	6110-1068100	J	CTRL, CAB, ASSY, FLICK FLAME, FC=1, (10F2) PIRATES, WDW							
045	0171	6110-1068100	J	CTRL, CAB, ASSY, FLICK FLAME, FC=1, (20F2) PIRATES, WDW							
045	0172	9905-107077C	J	I. D. LABELS, FLICKER FLAME CABINET, PIRATE RIDE, WDW							
045	0180	6110-1068110	J	CTRL, CAB, ASSY, FLICK FLAME, FC=2, (10F2) PIRATES, WDW							
045	0181	6110-1068110	J	CTRL, CAB, ASSY, FLICK FLAME, FC=2, (20F2) PIRATES, WDW							
045	0182	9905-107078C	J	I. D. LABELS, FLICKER FLAME CABINET, PIRATE RIDE, WDW							
045	0190	6110-1068120	J	CTRL, CAB, ASSY, FLICK FLAME, FC=3, (10F2) PIRATES, WDW							
045	0191	6110-1068120	J	CTRL, CAB, ASSY, FLICK FLAME, FC=3, (20F2) PIRATES, WDW							
045	0192	9905-107079C	J	I. D. LABELS, FLICKER FLAME CABINET, PIRATE RIDE, WDW							
045	0193	6110-1068130	J	CTRL, CAB, ASSY, FLICK FLAME, FC=4, (10F2) PIRATES, WDW							
045	0194	6110-1068130	J	CTRL, CAB, ASSY, FLICK FLAME, FC=4, (20F2) PIRATES, WDW							
045	0195	9905-107080C	J	I. D. LABELS, FLICKER FLAME CABINET, PIRATE RIDE, WDW							
045	0196	6110-1068140	J	CTRL, CAB, ASSY, FLICK FLAME, FC=5, (10F2) PIRATES, WDW							

MAPD DRAWING LIST PROGRAM SHEET

DATE RUNI 12/04/74 PAGE 0056

LIST NO	RUN	03-13-73	JOB	GENERAL	ELECTRIC	WDW
LIST SEQ.	FSC	DWG NO.	CROSS REF.	S	TITLE	
045	0197	6110-1068140	J	CTRL,CAB,ASSY,FLICK	FLAME,FC#5,(20F2)	PIRATES,WDW
045	0198	9905-107081C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0199	6110-1068150	J	CTRL,CAB,ASSY,FLICK	FLAME,FC#6,(10F2)	PIRATES,WDW
045	0200	6110-1068150	J	CTRL,CAB,ASSY,FLICK	FLAME,FC#6,(20F2)	PIRATES,WDW
045	0201	9905-107082C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0202	6110-1068160	J	CTRL,CAB,ASSY,FLICK	FLAME,FC#7,(10F2)	PIRATES,WDW
045	0203	6110-1068160	J	CTRL,CAB,ASSY,FLICK	FLAME,FC#7,(20F2)	PIRATES,WDW
045	0204	9905-107083C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0205	6110-1068170	J	CTRL,CAB,ASSY,FLICK	FLAME,FC#8,(10F2)	PIRATES,WDW
045	0206	6110-1068170	J	CTRL,CAB,ASSY,FLICK	FLAME,FC#8,(20F2)	PIRATES,WDW
045	0207	9905-107084C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0208	6110-1068180	J	CTRL,CAB,ASSY,FLICK	FLAME,FC#9,(10F2)	PIRATES,WDW
045	0209	6110-1068180	J	CTRL,CAB,ASSY,FLICK	FLAME,FC#9,(20F2)	PIRATES,WDW
045	0210	9905-107085C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0211	6110-1068190	J	CTRL,CAB,ASSY,FLICK	FLAME,FC10,(10F2)	PIRATES,WDW
045	0212	6110-1068190	J	CTRL,CAB,ASSY,FLICK	FLAME,FC10,(20F2)	PIRATES,WDW
045	0213	9905-107086C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0214	6110-1068200	J	CTRL,CAB,ASSY,FLICK	FLAME,FC11,(10F2)	PIRATES,WDW
045	0215	6110-1068200	J	CTRL,CAB,ASSY,FLICK	FLAME,FC11,(20F2)	PIRATES,WDW
045	0216	9905-107087C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0217	6110-1068210	J	CTRL,CAB,ASSY,FLICK	FLAME,FC12,(10F2)	PIRATES,WDW
045	0218	6110-1068210	J	CTRL,CAB,ASSY,FLICK	FLAME,FC12,(20F2)	PIRATES,WDW
045	0219	9905-107088C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0220	6110-1068220	J	CTRL,CAB,ASSY,FLICK	FLAME,FC13,(10F2)	PIRATES,WDW
045	0221	6110-1068220	J	CTRL,CAB,ASSY,FLICK	FLAME,FC13,(20F2)	PIRATES,WDW
045	0222	9905-107089C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0223	6110-1068230	J	CTRL,CAB,ASSY,FLICK	FLAME,FC14,(10F2)	PIRATES,WDW
045	0224	6110-1068230	J	CTRL,CAB,ASSY,FLICK	FLAME,FC14,(20F2)	PIRATES,WDW
045	0225	9905-107090C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0226	6110-1068240	J	CTRL,CAB,ASSY,FLICK	FLAME,FC15,(10F2)	PIRATES,WDW
045	0227	6110-1068240	J	CTRL,CAB,ASSY,FLICK	FLAME,FC15,(20F2)	PIRATES,WDW
045	0228	9905-107091C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0229	6110-1068250	J	CTRL,CAB,ASSY,FLICK	FLAME,FC16,(10F2)	PIRATES,WDW
045	0230	6110-1068250	J	CTRL,CAB,ASSY,FLICK	FLAME,FC16,(20F2)	PIRATES,WDW
045	0231	9905-107092C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0232	6110-1068260	J	CTRL,CAB,ASSY,FLICK	FLAME,FC17,(10F2)	PIRATES,WDW
045	0233	6110-1068260	J	CTRL,CAB,ASSY,FLICK	FLAME,FC17,(20F2)	PIRATES,WDW
045	0234	9905-107093C	J	I.D. LABELS,FLICKER	FLAME CABINET,PIRATE	RIDE,WDW
045	0235	6110-1068270	J	CTRL,CAB,ASSY,FLICK	FLAME,FC18,(10F2)	PIRATES,WDW
045	0236	6110-1068270	J	CTRL,CAB,ASSY,FLICK	FLAME,FC18,(20F2)	PIRATES,WDW
045	0237	9905-106753A	D	ASSY, WORKLIGHT CONTROL	PANEL,PIRATE	RIDE,WDW
045	0238	9905-1067540	P	IDENT PLT WORKLIGHT	CONTROL PANEL,PIRATE	RIDE,WDW
045	0239	CTRL-1026940	P	WARNING TAG,WORKLIGHT	CONTROL PANEL,PIRATES,	WDW

LIST NO 044 RUN 03-13-73 JOB GENERAL ELECTRIC WDW  
 LIST SEQ. FSC DWG NO. CROSS REF. \$ TITLE

045	0390	6110-1067748	C	WIR,DIAG WORKLIGHT CONTROL PANEL,PIRATE RIDE,WDW
045	0390			
045	0400	6110-1068074	D	SCHEM-WIR,DIAG HI-PRESS AIR CTRL,BX,PIRATES,WDW
045	0410	6110-1068088	D	SCHEM-WIR,DIAG HI-PRESS H2O CTRL,BX,PIRATES,WDW
045	0415	CONT-107595A	D	SCHEM,DIAG, CHASE SCENE IT. CONT, BOX PIRATES,WDW
045	0420			
045	0430	6110-1068394	D	ASSY,,CANNON BURST CONTROL BOX,PIRATE RIDE,WDW
045	0440	5975-1068400	D	DETL,,BOX,CANNON BURST CTRL,BX,PIRATE RIDE,WDW
045	0450	6110-1068410	D	ASSY,,PANEL,CANNON BURST CTRL,BX,,PIRATE RIDE,WDW
045	0460	5975-1068420	D	DETL,,PANEL,CANNON BURST CTRL,BX,,PIRATE RIDE,WDW
045	0470			
045	0480	6110-1068000	D	ASSY,BUBBLE-BURST UNIT, MULTIUSE, WDW, D/L
045	0490	6110-1074890	J	WELDMENT,BUBBLE-BURST UNIT, M,U, WDW, D/L
045	0500	6110-1074880	C	DETL,RETAIN,RING,BUBBLE-BURST DEVICE,MU,,WDW,D/L
045	0510	6210-1072740	D	ASSY,BUBBLE-BURST LIGHT DEVICE, MU, WDW, D/L
045	0520	6210-1072750	C	DETL,LENS,BUBBLE-BURST LIGHT DEVICE, MU, WDW,D/L
045	0530	6110-1068018	D	SUBASSY,LAMP-SOCKET SEAL,BUBBLE-BURST LIGHT,WDW,D/L
045	0540	6110-1068020	C	HEADER SEAL,BUBBLE BURST LIGHT DEV,, MU, WDW,D/L
045	0550	6110-1068040	C	DETL,POTTING DIXTURE,HEAD,SEAL,LT,DEV,,MU,WDW,D/L
045	0560	6250-1072760	D	DETL,BODY,BUBBLE BURST LIGHT DEVICE, MU,,WDW D/L
045	0570			
045	0580	MUSE-1075254	R	ASSY,,CAMERA,I,R,LAMP UNIT,VIDED SYS,,K,U,,WDW D/L
045	0590	MUSE-1075254	Z	ASSY,CAMERA,I,R,LAMP UNIT,VIDED SYS,,K,U,,WDW D/L
045	0600	MUSE-1075230	D	DETL,MTG,PLT,CAMERA-LAMP UNIT,VIDED SYS,,K,U,
045	0610	MUSE-1075220	D	DETL,MOD,CAMERA MOUNT,VIDED SYS,,MU,,WDW,D/L
045	0620	-1075200		RESERVED,VIDED SYS,,M,U, WDW,D/L
045	0630	-1075210		RESERVED,VIDED SYS,,M,U, WDW,D/L
045	0640	-1075240		RESERVED,VIDED SYS,,M,U, WDW,D/L
045	0650			
045	0651		R	CANNON ASSY, LARGE,
045	0653		R	CANNON ASSY, SMALL,
045	0655	CONT-107700C	D	WIR-SCHEM,CANNON CTRL,BX + ASSY,,
045	0657	CONT-107701B	C	DETL-ASSY,J-BOX(FRONT),CANNON CTRLS,
045	0659	CONT-1077080	D	DETL-ASSY,TERN,BOX(REAR),ANNON CTRLS, PIRATES,DM
045	0661			PIRATES,DM
045	0663	CONT-107699B	J	ASSY,CANNON CONTROL BOX(LARGE-SMALL), PIRATES,DM
045	0665	CONT-1077020	D	DETL,BOX,CANNON CTRLS,
045	0667	CONT-105857C	J	DETL,UPPER,LOWER CTRL,CKT,MTG,PLATES(TABUL),PRIOR
045	0669	CONT-1077030	D	DETL-ASSY,RELAY, RESISTOR,MTG,PLATE, PIRATES,DM
045	0671	CONT-1058590	B	CABEL,DURATION CONTROL,CANNON CTRL,RX, PIRATES,DM
045	0673	CONT-107704A	C	DETL-ASSY,P,C,CONNECT SWIVEL,CANNON BX,PIRATES,DM
045	0675	CONT-1058580	B	DETL-ASSY,P,C,SUPPORT BRKT,, CANNON BX,PIRATES,DM
045	0677	CONT-107706B	J	ASSY,PCB,CANNON EFX,CTRL,CKT,, PIRATES,DM
045	0679	CONT-107705B	D	DETL,PCB,CANNON EFX,CTRL,CKT,, PIRATES,DM

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LIST NC	044	PUN 03-13-73	JOB GENERAL	ELECTRIC	WDW
LIST SEQ.	FSC	DWG NO.	CROSS REF.	S	TITLE
043	0691	CONT=1070778	D	SILK, PCB, CANNON EFX, CTRL, CKT, >	PIRATES, DM
045	0683	CCNT=1058564	C	DETL-ASSY, RESISTOR/DIODE MTG, BRKT, CANNON BX, PRID, >	PIRATES, DM
045	0685	DI -1058600		RESERVED, CANNON CTRLS, >	PIRATES, DM
045	0689	DI -1058620		RESERVED, CANNON CTRLS, >	PIRATES, DM
045	0691	DI -1058630		RESERVED, CANNON CTRLS, >	PIRATES, DM
045	0693	DI -1058640		RESERVED, CANNON CTRLS, >	PIRATES, DM
045	0694				
045	0695	AUCO=107869A	J	ASSY, INSTALLATION, INTERCOM SYSTEM, PIRATE RIDE, WDM	
045	0696	CCNT=1080980	C	I.U. LABEL, OPERATIONS I.C. SYSTEM, PIRATE RIDE, WDM	
045	0698				
045	0700	6110-1073978	J	ASSY, TERM PANEL UNIT MCC CABINETS, PIRATE RIDE, WDM	
045	0710	6110-107398A	J	SUB ASSY, TERM PNL MCC CABINETS, PIRATE RIDE, WDM	
045	0720	6110-107399A	D	DETL, MTG PLATE TERM PNL MCC CABS, PIRATE RIDE, WDM	
045	0730	6110-1070330	D	SILK, TERMIN, PNL, MCC1 CABINETS, PIRATE RIDE, WDM	
045	0740				
045	0750	6110-1070260	C	OUTLINE, G.E., SPD VARIATOR, BOAT UP/AMP, PIRATES, WDM	
045	0760	6110-1070278	D	MODIFICATION, G.E. SPEED VARIATOR, PIRATES, WDM	
045	0770	6110-1070298	J	WIRING DIAG., MODIFIED SPEED VARIATOR, PIRATES, WDM	
045	0780	6110-1070310	D	SCHEM 25HP SPEED VARIATOR REGULATOR, PIRATES, WDM	
045	0790	6110-1070300	D	WIRE 25HP SPEED VARIATOR REGULATOR, PIRATES, WDM	
045	0800	6110-1070320	D	SCHEM 25HP EDDY CURRENT COUPLING, PIRATES, WDM	
045	0810	6110-1070330	D	WIRING DIAG., 25HP SPEED VARIATOR, PIRATES, WDM	
045	0811	6110-107936A	B	LABEL, METAL PHOTO, CROSS REF. DWG. = PIRATE RIDE, WDM	
045	0820				
045	0830	6110-107037A	J	ASSY RIDE CONTROL SENSOR BOX, PIRATE RIDE, WDM	
045	0835	COPT=1079250	C	BONDING PLAN, SENSORS + STBYS, PIRATE RIDE, WDM	
045	0840	6110-107038A	D	DETAIL RIDE CONT. SENSOR BOX, PIRATES, WDM	
045	0850	6110-106806A	D	DETAIL PANEL, RIDE CONTROL SENSOR BOX, PIRATES, WDM	
045	0851	6110-107390A	D	WIRING DIAG., RIDE CONT., SENS BOX, PIRATE RIDE, WDM	
045	0852	6110-1070350	C	METAL PHOTO LABEL, >CAUTION>, PIRATE RIDE, WDM	
045	0860				
045	0870	6110-1070340	C	ASSY SENSOR TERMINAL BOX PIRATES, WDM	
045	0880	6110-107036A	C	DETAIL SENSOR TERMINAL BOX, PIRATES, WDM	
045	0890	6110-1070350	C	PANEL DETAIL, SENSOR TERMINAL BOX, PIRATES, WDM	
045	0894				
045	0900				
045	0910	6110-1074010	J	ASSY, LOGIC CABINET RCC 1, PIRATE RIDE, WDM	
045	0920	6110-1074020	J	ASSY, LOGIC CABINET RCC 2, PIRATE RIDE, WDM	
045	0921	COPT=1075020	D	DETL, CHANNEL SUPPORT, P.S. UNIT, PRID, WDM	
045	0922	COPT=1078660	L	ABEL, CARD SLOT DESIGN, PIRATE RIDE CONTROL, WDM	
045	0923	COPT=1075030	D	DETL, CHASSIS RAIL, P.S. UNIT, PRID, WDM	
045	0925	6110-1078100	D	SILK, >ELCO> CONH, MTG, PNL, PRID, WDM	
045	0927	CONT=1078660	D	LABEL, CARD SLOT DESIGN, PIRATE RIDE, WDM	
045	0930				

LIST NO 044 RUN 03-13-73 JOB GENERAL ELECTRIC WDW  
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045	0932	6110-107941A	D	I.D. LABEL, METAL-PHOTO, LOGIC CAB, (PCB), PRIDE, WDW
045	0934	6110-107942A	D	I.D. LABEL, METAL-PHOTO, LOGIC CAB, (PCB), PRIDE, WDW
045	0936	6110-107943A	D	I.D. LABEL, METAL-PHOTO, LOGIC CAB, (PCB), PRIDE, WDW
045	0938	6110-107944A	D	I.D. LABEL, METAL-PHOTO, LOGIC CAB, (PCB), PRIDE, WDW
045	0940	6110-107945A	D	I.D. LABEL, METAL-PHOTO, LOGIC CAB, (PCB), PRIDE, WDW
045	0942			
045	1850	6110-1074790	J	MODIFICATION RTU CARD CAGE, RIDE CONTROL, PIRATES
045	186C	5975-1074650	D	BRACKET UETL RTU CARD CAGE, RIDE CONTROL, PIRATES
045	1865			
045	187C	6110-1069900	J	ASSY-SLKSCN, STORAGE INLET, PIKATE RIDE, WDW
045	189C	6110-1069910	J	DETAIL, STORAGE INLET, PIRATE RIDE, WDW, SH1+2
045	189C	6110-1069920	J	SCHEM STORAGE INLET, PIRATE RIDE, WDW
045	1960			
045	197C	6110-1069930	J	ASSY-SLKSCN, MONITOR DISPLAY, PIRATE RIDE, WDW
045	198C	6110-1069940	J	DETAIL, MONITOR DISPLAY, PIRATE RIDE, WDW, SH1+2
045	1990	6110-1069950	J	DETAIL, MONITOR DISPLAY, PIRATE RIDE, WDW, SH1+2
045	2000			
045	2010	6110-1069960	J	ASSY-SLKSCN, STORAGE OUT, PIRATE RIDE, WDW
045	2020	6110-1069970	J	DETAIL, STORAGE OUT, PIRATE RIDE, WDW, SH1+2
045	2030	6110-1069980	J	SCHEM STORAGE OUT, PIRATE RIDE, WDW
045	2040			
045	2050	6110-1069990	J	ASSY-SLKSCN, STAGING AREA, PIRATE RIDE, WDW
045	2060	6110-1070000	J	DETAIL, STAGING AREA, PIKATE RIDE, WDW, SH1+2
045	207C	6110-1070010	J	SCHEM STAGING AREA, PIRATE RIDE, WDW
045	208C			
045	209C	6110-1070020	J	ASSY-SLKSCN, UP RAMP SPEED CONT, PIRATE RIDE, WDW
045	2100	6110-1070030	J	DETAIL, UP RAMP SPEED CONT, PIRATE RIDE, WDW
045	211C	6110-1070040	J	SCHEM UP RAMP SPEED CONT, PIRATE RIDE, WDW
045	2115	CONT-107692A	D	WIRING DIAG., BOAT UP RAMP CTRLS, PIRATES, WDW
045	212C			
045	213C	6110-1070050	J	ASSY-SLKSCN, DOWNRAMP, PIRATE RIDE, WDW
045	214C	6110-1070060	J	DETAIL, UP RAMP SPEED CONT, PIKATE RIDE, WDW
045	2150	6110-1070070	J	SCHEM, DOWN RAMP, PIRATE RIDE, WDW
045	216C			
045	2170	6110-1070080	J	ASSY-SLKSCN, UNLOAD AREA, PIRATE RIDE, WDW
045	218C	6110-107009A	J	DETAIL, UNLOAD AREA, PIRATE RIDE, WDW, SH1+2
045	219C	6110-1070100	J	SCHEM, UNLOAD AREA, PIRATE RIDE, WDW
045	220C			
045	221C	6110-1070110	J	ASSY-SLKSCN, LOAD BELT, PIRATE RIDE, WDW
045	2220	6110-1070120	J	DETAIL, LOAD BELT, PIRATE RIDE, WDW, SH1+2
045	2230	6110-1070130	J	SCHEM, LOAD BELT, PIRATE RIDE, WDW
045	224C			
045	2250	6110-1070140	J	ASSY-SLKSCN, SOURCE + DRIVER, PIRATE RIDE, WDW
045	2260	6110-1070150	J	DETAIL, SOURCE + DRIVER, PIRATE RIDE, WDW, SH1+2

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LIST NC	044	RUN 03-13-73	JOB GENERAL	ELECTRIC	WDW
LIST SEQ.	FSC	DWG NO.	CROSS REF.	S	TITLE
045	2270	6110-1070160	J	SCHEM,	SOURCE+ DRIVER, PIRATE RIDE, WDW
045	2280	6110-1070170	J	ASSY-SLKSCN,	BELT MOTOR CKTS, PIRATE RIDE, WDW
045	2300	6110-107018A	J	DETAIL,	BELT MOTOR CKTS, PIRATE RIDE, WDW, SH1+2
045	2310	6110-1070190	J	SCHEM,	BELT MOTOR CKTS, PIRATE RIDE, WDW
045	2320	6110-106978A	J	ASSY-SLKSCN,	MONITOR BOARD, PIRATE RIDE, WDW
045	2330	6110-1069790	J	DETAIL,	MONITOR BOARD, PIRATE RIDE, WDW, SH1+2
045	2350	6110-1069800	J	SCHEM,	MONITOR BOARD, PIRATE RIDE, WDW
045	2360	6110-1075280	J	ASSY-SLKSCN,	DISPATCH BD 1, PIRATE RIDE, WDW
045	2370	6110-1075290	J	DETAIL,	DISPATCH BD 1, PIRATE RIDE, WDW, SH1+2
045	2380	6110-1075300	J	SCHEM,	DISPATCH BD 1, PIRATE RIDE, WDW
045	2400	6110-1075310	J	ASSY-SLKSCN,	DISPATCH BD 2, PIRATE RIDE, WDW
045	2420	6110-1075320	J	DETAIL,	DISPATCH BD 2, PIRATE RIDE, WDW, SH1+2
045	2430	6110-1075330	J	SCHEM,	DISPATCH BD 2, PIRATE RIDE, WDW
045	2450	6110-1075340	J	ASSY-SLKSCN,	DISPATCH BD 3, PIRATE RIDE, WDW
045	2460	6110-1075350	J	DETAIL,	DISPATCH BD 3, PIRATE RIDE, WDW, SH1+2
045	2470	6110-1075360	J	SCHEM,	DISPATCH BD 3, PIRATE RIDE, WDW
045	2490	6110-1075370	J	ASSY-SLKSCN,	BSTR PUMP + SOL CONT CKTS, PIRATES
045	2500	6110-1075380	J	DETAIL,	BSTR PUMP + SOL CONT CKTS, PIRATE RIDE
045	2510	6110-1075390	J	SCHEM,	BSTR PUMP + SOL CONT CKTS, PIRATES
045	2520	6110-1075400	J	ASSY-SLKSCN,	MASTER CONTROL, PIRATE RIDE, WDW
045	2530	6110-1075410	J	DETAIL,	MASTER CONTROL, PIRATE RIDE, WDW, SH1+2
045	2550	6110-1075420	J	SCHEM,	MASTER CONTROL, PIRATE RIDE, WDW
045	2551	6110-107021A	J	ASSY-PCB,	CARD EXTENDER, RTU CAB, PIRATE RIDE, WDW
045	2552	6110-1070200	J	PCB DETAIL,	CARD EXTENDER, RTU CAB, PIRATE RIDE, WDW
045	2553	6110-107868A	B	DEL, ILI BKT,	CARD EXTENDER, PIRATE RIDE, WDW
045	2554	6110-107868A	B	DEL, ILI BKT,	CARD EXTENDER, PIRATE RIDE, WDW
045	2556	6110-107868A	B	DEL, ILI BKT,	CARD EXTENDER, PIRATE RIDE, WDW
045	2560	6110-1079570	J	PCB ASSY,	RESET CONTROL, PIRATE RIDE, WDW
045	2562	6110-107958A	J	PCB DETAIL,	RESET CONTROL, PIRATE RIDE, WDW, SHT 1 + 2
045	2564	6110-107959B	J	PCB SILKSCREEN,	RESET CONTROL, PIRATE RIDE, WDW
045	2566	6110-1079600	J	PCB SCHEMATIC,	RESET CONTROL, PIRATE RIDE, WDW
045	2568	6110-1079600	J	PCB SCHEMATIC,	RESET CONTROL, PIRATE RIDE, WDW
045	2569	6110-107499A	D	ASSY-SILK PCB,	BACK UP POWER TRANSFER, PIRATES, WDW
045	2570	6110-107497A	D	DETAIL,	PCB, BACK UP POWER TRANSFER, PIRATES, WDW
045	2580	6110-107500A	D	SCHEM,	PCB, BACK UP POWER TRANSFER, PIRATES, WDW
045	2590	6110-107500A	D	SCHEM,	PCB, BACK UP POWER TRANSFER, PIRATES, WDW
045	2600	6110-107500A	D	SCHEM,	PCB, BACK UP POWER TRANSFER, PIRATES, WDW



LIST NO	44	RUN 03-13-73	JDB	GENERAL	ELECTRIC	MDW
LIST SEQ.	FSC	DWG NO.	CROSS REF.	S	TITLE	
045	2605	CONT=1075014	J	ASSY,PNL,BACK UP POWER TRANSFER,PIRATES, WDW		
045	2610	CONT=1074950	D	DEL,HEATSINK PLATE,BACKUP POWER TRANS,PNL		
045	2620	CONT=1074960	D	DEL,PNL,BACKUP POWER TRANSFER,PIRATES, WDW		
045	2625	6110-107948A	D	I.O,LABEL,METAL-PHOTO,LOGIC CAB,(PCB),PRIDE, WDW		
045	2630	CONT=107601A	D	SILK,PNL,BACKUP POWER TRANSFER,PIRATES, WDW		
045	2640					
045	2650	CONT=1075050	D	ASSY,PANEL, POWER DISTRIBUTION,PIRATES, WDW		
045	2660	CONT=1075040	D	DETAIL,PANEL,POWER DISTRIBUTION,PIRATES,MDW		
045	2670	CONT=1076000	D	SILK,POWER DISTRIBUTION PANEL,PIRATES, WDW		
045	2680	CONT=1075100	J	SILK,(REF,DESIGN,) POWER DISTRIB, PNL,PIATES,MDW		
045	2690					
045	2700	6110-107405A	J	ASSEMBLY=SOLENOID CONTROL PANEL		
045	2710	6110-107403A	J	DETAIL=SOLENOID CONTROL PANEL		
045	2712	6110-107946A	D	I.O,LABEL,METAL-PHOTO,LOGIC CAB,(PCB),PRIDE, WDW		
045	2714	6110-107947A	D	I.O,LABEL,METAL-PHOTO,LOGIC CAB,(PCB),PRIDE, WDW		
045	2720	6110-1074060	J	SILKSCREEN=SOLENOID CONTROL PANEL		
045	2730	6110-1074040	J	C COVER,PROTECTIVE,SOLENOID CONTROL PANEL		
045	2740	6110-1075910	J	SCHEMATIC DIAGRAM,SOLENOID CONTROL PANEL		
045	2750					
045	2760	5975=107022A	D	BRACKET DETAIL,INDICATOR MOUNTING, PIRATE RIDE		
045	2770					
045	2780	6110-107394C	J	ASSY,BR,+CL,CTL,UN,BCCU-1,3,7,9,11,13,15,17,19,21		
045	2790	6110-1075900	J	DETAIL,BOX,BRAKE + CLUTCH CONT. UNIT,PIRATES,MDW		
045	2800	6110-1075890	J	ASSY B+C CTL,UN,BCCU-2,4,6,8,10,12,14,16,18,20,22		
045	2810	6110-107392A	J	DEL,BOX,BRAKE+CLUTCH CONT.UNIT,PIRATE RIDE,MDW		
045	2815	6110-107391A	J	DETAIL,PNL,BRAKE + CLUTCH CONTRL UNIT,PIRATES,MDW		
045	2817	CONT=1091520	R	METAL PHOTO LABEL, MOD. BCCU,PIRATE RIDE,MDW		
045	2820	6110-107393A	C	ASSY,PCB,BRAKE + CLUTCH CTRL,UNIT,PIRATE RIDE,MDW		
045	2830	6110-1073950	D	DEL,PCB,BRAKE + CLUTCH CONT. UNIT,PIRATE RIDE,MDW		
045	2840	6110-1073960	C	SILK, PCB,BRAKE + CLUTCH CONT. UNIT,PIRATE RIDE		
045	2850	CONT=1076090	D	SCHEM MOD,BRAKE CLUTCH CONT.UNIT BCCU-1THRU 22		
045	2860	CONT=1076088	D	WIR,BR,CTL,UN,BCCU-1,3,5,7,9,11,13,15,17,19,21		
045	2864					
045	2866	CONT=1080940	D	LABL,PORTABLE BRAKE CL.,CONT,UNIT,PIRATE RIDE,MDW		
045	2868					
045	2870					
045	2880	SYTH=1076620	C	ASSY,BOAT STOP NO. 4 CONTROL SWITCH PIRATES,MDW		
045	2890	CONT=1076910	C	WIRING DIAG, BOAT STOP NO. 4 PIRATE RIDE,MDW		
045	2891	CONT=107809A	J	INSTALLATION WEIR DAM LEVEL SW PIRATE RIDE,MDW		
045	2890	CONT=1076950	C	INSTALLATION STILLWELL PIRATE RIDE,MDW		
045	2910	CONT=1076560	D	INSTALLATION WEIR DAM MONITOR SW PIRATE RIDE,MDW		
045	2920	CONT=107696A	D	ASSY, WEIR DAM LEVEL SWITCH PIRATE RIDE,MDW		
045	2930	CONT=1076970	D	ASSY, STILLWELL PIRATE RIDE,MDW		
045	2940	CONT=1077210	C	BRDT, WEIR DAM MONITOR SWITCH PIRATE RIDE,MDW		

## MAPD DRAWING LIST PROGRAM SHEET

DATE RUN 12/04/74

PAGE 0062

LIST NO 044 RUN 03=1373 JOB GENERAL ELECTRIC WDW  
 LIST SEQ. FSC DWG NO. CROSS REF. S TITLE

045	2950	CONT=1076940	D	WIRE,WATER LEVEL + WEIR DAM MON., MOATE RIDE, WDW
045	2951	CONT=1076770		MTC PLATE WEIR DAM WATER LEVEL, PIRATES, WDW
045	2960			
045	2970	CONT=1076680	J	ASSY TOWER CONTROL CONSOLE PIRATE RIDE, WDW
045	2975	CONT=107028A	J	SCHEM, TOWER CONSOLE, PIRATE RIDE, WDW (4 SHEETS)
045	2980	CONT=107734A	J	FRAME TOWER CONTROL CONSOLE PIRATE RIDE, WDW
045	2990	CONT=1077350	J	COVER PNLs, TOWER CONTROL CONSOLE PIRATE RIDE, WDW
045	3000	CONT=1077360	C	DETL, HINGE, TOWER CONTROL CONSOLE PIRATE RIDE, WDW
045	3100	CONT=1077380	J	DETL, PANEL CONTROL TOWER CONTROL CONSOLE, PRIDE
045	3110	CONT=1077390	J	PHOTO LABEL CONTROL TOWER CONTROL CONSOLE, PRIDE
045	3120	CONT=107741A	J	DETL, PANEL, PAGING + PHONES, CONTROL CONSOLE, PRIDE
045	3130	CONT=1077420	J	PHOTO LABEL PAGING + PHONES, CONTROL CONSOLE, PRIDE
045	3140	CONT=1077408	J	ASSY, PANEL, PAGING + PHONES, CONTROL CONSOLE, PRIDE
045	3150	CONT=107737A	J	ASSY, PANEL, CONTROL, CONTROL TOWER CONSOLE, PRIDE
045	3156	CONT=1078870	J	ASSY, PNL, TERM + CON, TOWER CONSOLE, PIRATE RIDE, WDW
045	3157	CONT=1078890	C	DETL, BRKT, PNL MTG, TOWER CONT. CONSOLE, PIRATES, WDW
045	3158	CONT=1078880	J	DETL, PNL, TERM, + CON, TOWER CONSOLE, PIRATES, WDW
045	3160	CONT=1079500	D	ANTHROPOMETRIC DATA, CONT, TOWER CONSOLE, SHT 2 OF 2
045	3162			
045	3164	SYTH=1079510	C	I. D. LABEL, (MONITOR 1), TOWER CONSOLE, PIRATES, WDW
045	3166	SYTH=1079520	C	I. D. LABEL, (MONITOR 2), TOWER CONSOLE, PIRATES, WDW
045	3168	SYTH=1079530	C	I. D. LABEL, (MONITOR 3), TOWER CONSOLE, PIRATES, WDW
045	3170	SYTH=1079540	C	I. D. LABEL, (MONITOR 4), TOWER CONSOLE, PIRATES, WDW
045	3172	SYTH=1079550	C	I. D. LABEL, (MONITOR 5), TOWER CONSOLE, PIRATES, WDW
045	3174	SYTH=1079560	C	I. D. LABEL, (MONITOR 6), TOWER CONSOLE, PIRATES, WDW
045	3176			
045	3180	CONT=1076718	J	ASSY, UNLOAD CONSOLE SHEETS 1 + 2, PIRATE RIDE, WDW
045	3190	CONT=107763A	J	DETL, UNLOAD CONSOLE, PIRATE RIDE, WDW
045	3192	CONT=1070240	R	LABEL, PCB REMOVAL, UNLOAD CONSOLE, PIRATE RIDE, WDW
045	3200	CONT=1077640	J	METAL PHOTO LABEL, UNLOAD CONSOLE, PIRATE RIDE, WDW
045	3210	CONT=1077650	C	BRACKET, OTIDE MTG, UNLOAD CONSOLE, PIRATE RIDE, WDW
045	3220	CONT=107766A	J	SCHEMATIC DIAGRAM, UNLOAD CONSOLE, PIRATE RIDE, WDW
045	3230			
045	3240	CONT=1076698	J	ASSY, LOAD CHANNEL, DISPATCH CONSOLE, PIRATES, WDW
045	3250	CONT=1077800	J	LABEL, LOAD CONSOLE, PIRATE RIDE, WDW
045	3260	CONT=107731A	J	DETL, LOAD CONSOLE, PIRATE RIDE, WDW
045	3270	CONT=1077528	D	SCHEMATIC DIAGRAM, LOAD CONSOLE, PIRATE RIDE, WDW
045	3280			
045	3290	CONT=1076720	J	ASSY, STORAGE ENTRANCE CONSOLE, PIRATE RIDE, WDW
045	3295	CONT=107818A	J	DETL, STORAGE ENTR. + EXIT CONSOLE BOTTOM, PIRATES
045	3300	CONT=1077540	J	METAL PHOTO STORAGE ENTRANCE CONSOLE, PIRATES, WDW
045	3310	CONT=1077530	C	DETAIL, CVR, STORAGE ENTRANCE CONSOLE, PIRATES, WDW
045	3320	CONT=1077550	J	ELCO PLATE DETAIL STORAGE ENTRANCE CONSOLE, PRIDE
045	3330	CONT=107756A	J	SCHEMATIC DIAGRAM STORAGE ENTRANCE CONSOLE, PRIDE

LIST NO 044 RUN 03-13-73 JOB GENERAL ELECTRIC WDW  
 LIST SEQ. FSC DWG NO. CROSS REF. S TITLE

045	334C			J	ASSY, STORAGE EXIT CONSOLE, PIRATE RIDE, WDW
045	3350	CONT-107673B		J	DETL, STORAGE ENTR. + EXIT CONSOLE BOTTOM, PIRATES
045	3355	CONT-107818A		J	METAL PHOTO, STORAGE EXIT CONSOLE, PIRATE RIDE, WDW
045	336C	CONT-1077580		J	DETAIL, CVR, STORAGE EXIT CONSOLE, PIRATE RIDE, WDW
045	3370	CONT-1077570		J	SCHEMATIC DIAGRAM, STORAGE EXIT CONSOLE, PIRATES, WDW
045	338C	CONT-107759A		J	
045	3390			J	ASSY, STATUS BOARD, PIRATE RIDE, WDW
045	340C	SYM-1076650		J	ARTWORK, COVER, STATUS BOARD, PIRATE RIDE, WDW
045	341C	SYM-1077470		R	LABEL, M, PHOTO, STATUS BOARD, PIRATE RIDE, WDW
045	341S	SYM-1078150		C	DETL, COVER PLATE, STATUS BD, PIRATE RIDE, WDW
045	3420	SYM-107750A		J	BRKT, DIODE, STATUS BOARD, PRID, WDW
045	342S	CONT-1077650		C	DETL, MTC PLATE, STATUS BD, PIRATE RIDE, WDW
045	3430	SYM-1077460		J	DETL, ENCLOSURE, STATUS BD, PIRATE RIDE, WDW
045	344C	SYM-1077490		J	WIRING DIAGRAM, STATUS BOARD, PIRATE RIDE, WDW
045	345C	SYM-1077480		J	ASSY, RIDE CONT, DIST. BOX RCC1-1 TO 12, PIRATES, WDW
045	346C			J	WIRING DIAG, BRAKE CLUTCH CONT, UNIT, PIRATE RIDE
045	3470	CONT-1076640		J	WIRING DIAG, I.R. SENS, PIRATE RIDE, WDW
045	3480	CONT-1076890		J	WIRING DIAG, BOAT UP RAMP CONTROLS, PIRATE RIDE, WDW
045	3490	CONT-1076900		J	WIRING DIAG, FLOW SWITCH, PIRATE RIDE, WDW
045	3500	CONT-1076920		B	WIRING DIAG, AIR VALVE, PIRATE RIDE, WDW
045	3510	CONT-1076930		R	WIRING DIAG, WATER LEVEL CONTROLS, PIRATES, WDW
045	3520	CONT-1077230		C	WIRING DIAG, PEOPLE UP-RAMP, PIRATE RIDE, WDW
045	3530	CONT-1077220		C	WIRE, EMERG, STOP, PEOPLE UP-RAMP, PIRATE RIDE, WDW
045	3540	CONT-1077240		C	RESERVED FOR PIRATE RIDE, WDW
045	3542	CONT-1070250		C	RESERVED FOR PIRATE RIDE, WDW
045	4100	-1076700		C	RESERVED FOR PIRATE RIDE, WDW
045	4110	-1076740		C	RESERVED FOR PIRATE RIDE, WDW
045	4120	-1076750		C	RESERVED FOR PIRATE RIDE, WDW
045	4130			C	LABELS ROAT STUPS + CHANNEL SWITCHES, PIRATE RIDE
045	5000	CONT-1070230		D	CABEL(METAL-PHOTO), PC MODULES, PRID, LOGIC, PRID, WDW
045	5002			D	
045	7000	6110-107831A			



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VOLUME 2  
G.E. CAROUSEL SHOW  
WALT DISNEY WORLD

- 47
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CAROUSEL  
OF  
PROGRESS  
SHOW

**PROJECTORS**

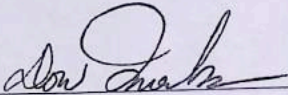
SHOW MAINTENANCE

VOLUME 2

PREFACE  
MAINTENANCE MANUAL  
G.E. CAROUSEL OF PROGRESS SHOW  
WALT DISNEY WORLD  
VOLUME 2

THIS DOCUMENT IS PREPARED AS A READY REFERENCE/MAINTENANCE MANUAL FOR USE IN THE REPAIR AND MAINTENANCE OF THE PROJECTION EQUIPMENT USED IN THE G.E. CAROUSEL OF PROGRESS SHOW - WALT DISNEY WORLD.

DETAIL DRAWINGS/DOCUMENTS APPLYING TO THE PROJECTION EQUIPMENT AND NOT APPEARING IN THIS MANUAL ARE AVAILABLE UPON REQUEST FROM THE MACHINE SHOP DEPARTMENT HEAD AT WALT DISNEY PRODUCTIONS.

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MAINTENANCE MANUAL  
G.E. CAROUSEL OF PROGRESS SHOW  
WALT DISNEY WORLD  
VOLUME 2

INTRODUCTION

INFORMATION, ILLUSTRATIONS, AND SPECIFICATIONS CONTAINED IN THIS DOCUMENT ARE BASED ON THE LATEST PRODUCT INFORMATION AVAILABLE AT THE TIME OF PUBLICATION APPROVAL.

SOME OF THE MATERIAL CONTAINED HEREIN HAS BEEN TAKEN VERBATIM FROM THE APPLICABLE MANUFACTURERS CATALOGUES/FIELD MAINTENANCE MANUALS.



# SECTION 4

**PROJECTORS**

# SECTION 4

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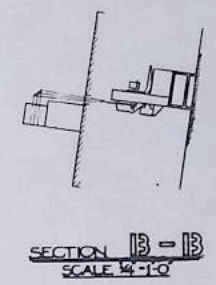
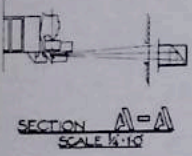
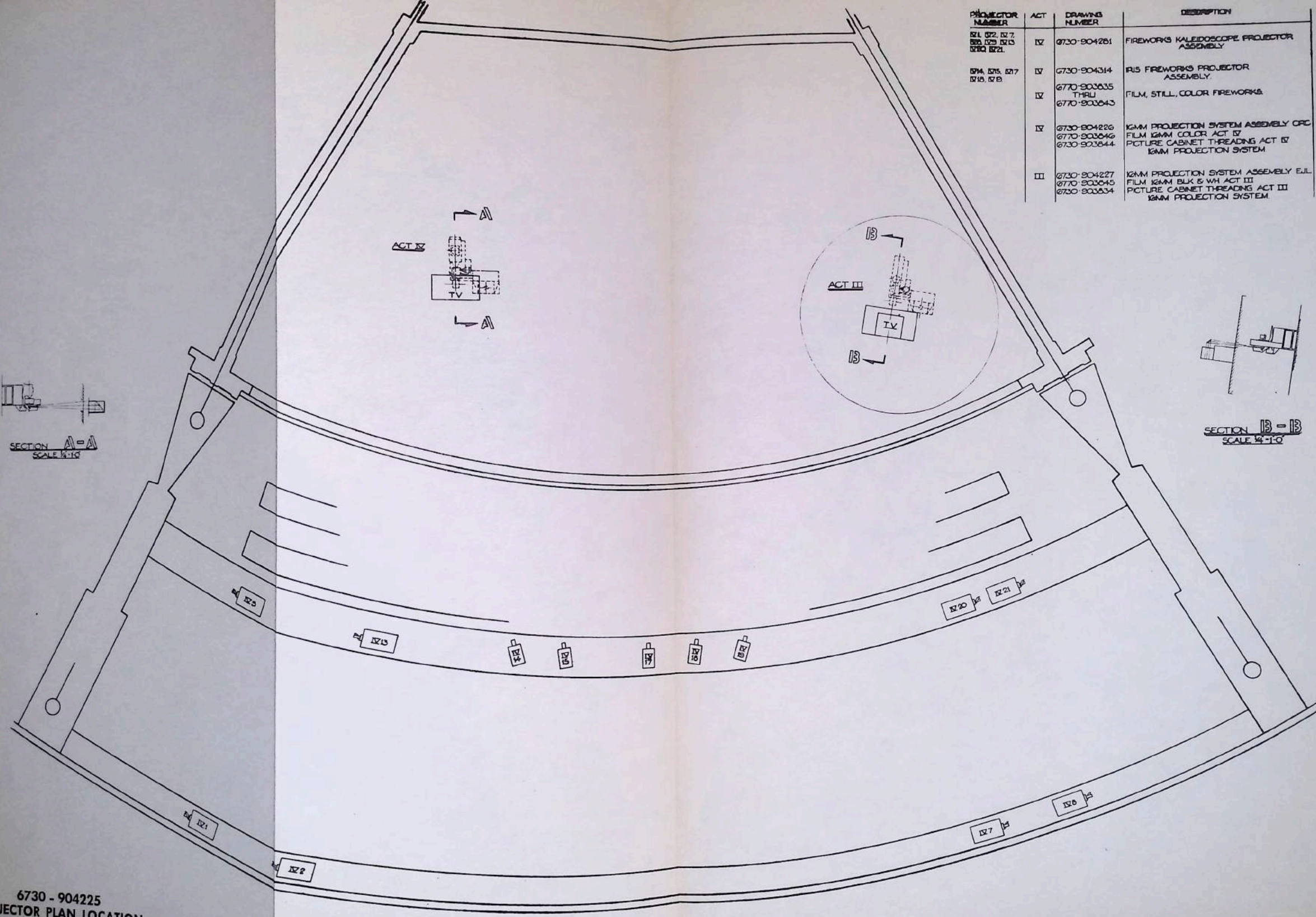
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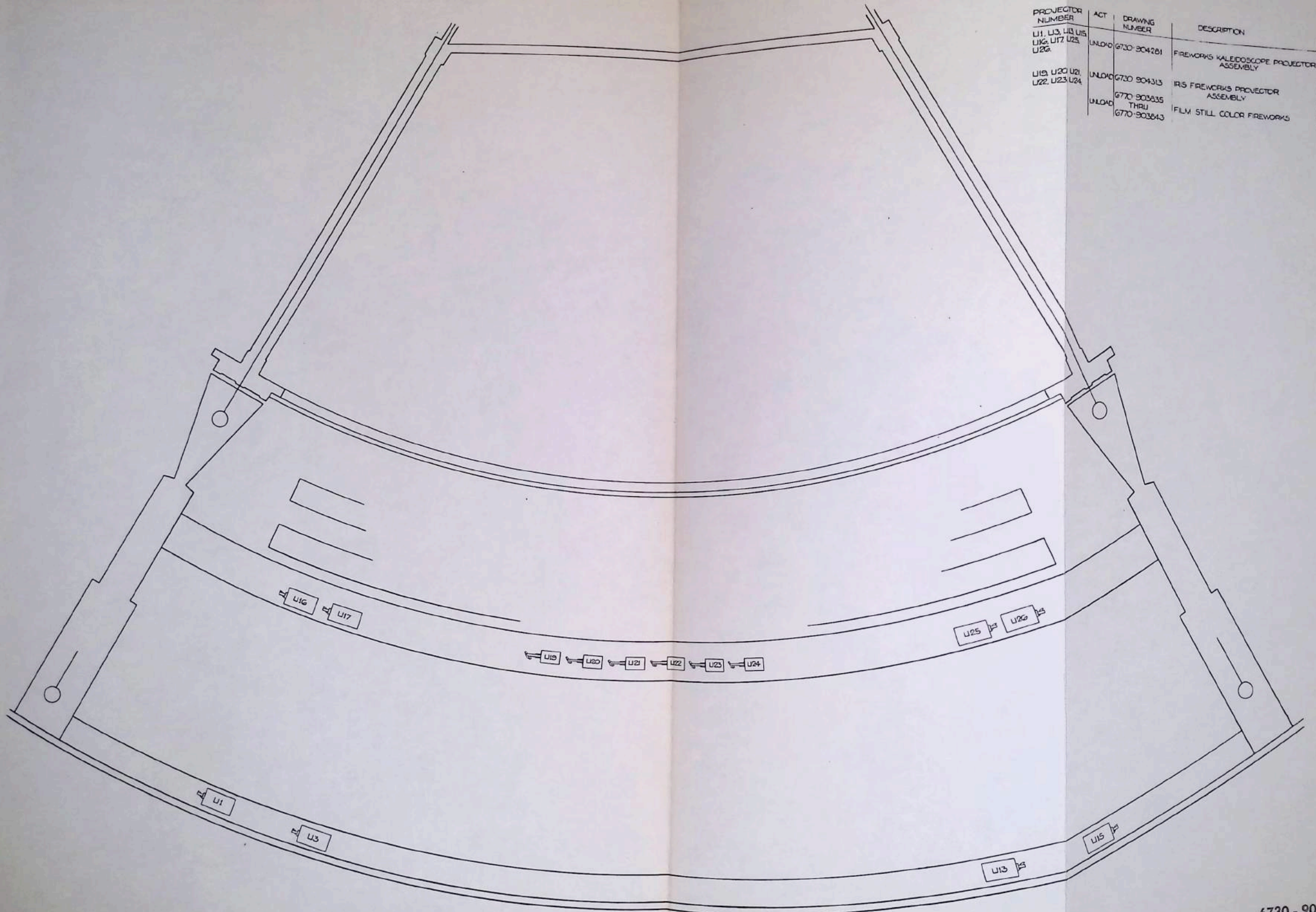
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174, 175, 177 176, 178	IV	6730-904314	175 FIREWORKS PROJECTOR ASSEMBLY
	IV	6770-903635 THRU 6770-903643	FILM, STILL, COLOR FIREWORKS
	IV	6730-904226 6770-903646 6730-903644	16MM PROJECTION SYSTEM ASSEMBLY ORC FILM 16MM COLOR ACT IV PICTURE CABINET THREADING ACT IV 16MM PROJECTION SYSTEM
	III	6730-904227 6770-903645 6730-903634	16MM PROJECTION SYSTEM ASSEMBLY E.J.L. FILM 16MM BLK & WH ACT III PICTURE CABINET THREADING ACT III 16MM PROJECTION SYSTEM

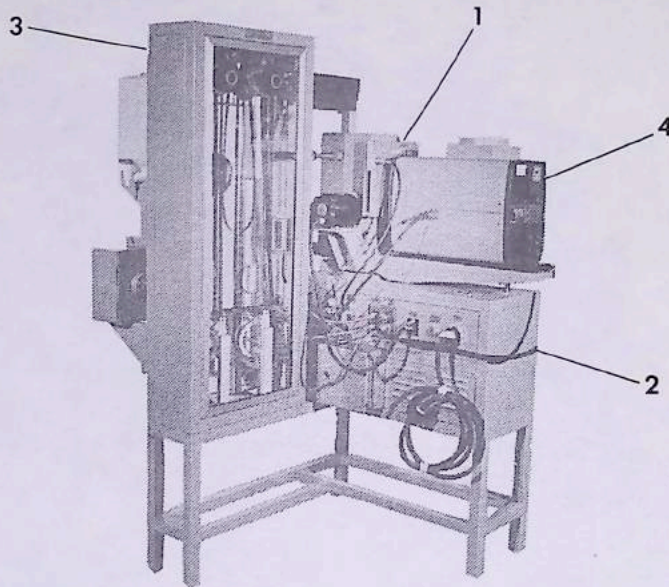


PROJECTOR NUMBER	ACT	DRAWING NUMBER	DESCRIPTION
U1, U3, U3, U5, U16, U17, U25, U26	UNLOAD	6730-904261	FIREWORKS KALEIDOSCOPE PROJECTOR ASSEMBLY
U19, U20, U21, U22, U23, U24	UNLOAD	6730-904313	IRS FIREWORKS PROJECTOR ASSEMBLY
	UNLOAD	6770-903835 THRU 6770-903843	FILM STILL COLOR FIREWORKS



# SECTION 4.1

## 16mm PROJECTOR Service Instructions



### GENERAL DESCRIPTION

The Disney designed 16mm Projection Systems used in the General Electric Show are extremely reliable and relatively maintenance free units providing that the daily routine maintenance and service is carried out per the Maintenance Schedule on page 18 of this section. A Projection System as a whole comprises of four (4) basic units, excluding sound. These are:

1. Projector Head Assembly
2. Projector Stand Assembly
3. Film Cabinet
4. Lamphouse Assembly

## GENERAL DESCRIPTION (cont.)

### 1. Projector Head Assembly

The projector is readily accessible for maintenance, and incorporates a Bell & Howell JAN Projector Intermittent Assembly which is modified for continuous duty operation before assembly into the projector head. The automatic oiler assembly designed to insure an adequate and regular supply of oil to the shuttle and cams is mounted external to the projector head on the Projector Stand Assembly, Fig. 1. In the event of the projector losing it's loop as the film passes through the projector, a small roller under which the film passes, pulls up, trips a Mercury switch and shuts off the projector drive motor to prevent film damage. Projector shut-off also activates the douser assembly to close.

### 2. Projector Stand Assembly

This unit houses the Electrical Relays, and the Proximity Control Amplifier of the Projection System. The control buttons for the system are mounted on the stand front panel as shown in Fig. 3. Essential operating conditions are monitored by DACS through the 20 Pin Elco Receptacle. This receptacle along with the receptacle connections for the power input, projector drive motor, lamphouse power input, accessory and utility (EIL only) oiler, humidifier, douser monitor and lamphouse monitor (ORC only) film cabinet, and projector head, are mounted on the fixed panel at the rear of the unit. The projector horizontal leveling knob protrudes through the Projector Stand Assembly below the projector casting, and no further adjustment need be made once the projected picture and screen are aligned. The Central Control call button and intercom receptacle for the portable intercom phone are mounted in the top of the stand assembly, and the automatic oiler system for the projector head is mounted on the rear panel of the Projector Stand Assembly below the various receptacles.

### 3. Film Cabinet

This enclosure where the film is stored is humidity controlled and requires very little maintenance. After the system is switched on, film travels from the cabinet, through a film tunnel to the projector, and back into the cabinet through another tunnel in an endless loop, Fig. 1. In the event of breakage within the cabinet, a free riding roller (each loop has one) falls, trips a safety lever connected to a Mercury switch and shuts off the projector drive motor to prevent film damage. Periodically, it will be necessary to change



## GENERAL DESCRIPTION (cont.)

the film within the cabinet. Extreme care must be taken to avoid scratching the film during this operation. See applicable picture cabinet threading diagram at section 4.4 of the manual.

4. a. Lamphouse Assembly (ORC)

For information concerning this unit, refer to page 103 in this section of the manual.

b. Lamphouse Assembly (EJL)

For information concerning this unit, refer to page 91 in this section of manual.

## PRELIMINARY OPERATING INSTRUCTIONS

### OPERATING INSTRUCTIONS

1. Insert the respective lamphouse power cord plugs with the LAMPHOUSE receptacles on the rear side of the projector stand assemblies and attach the LAMPHOUSE monitor cable (ORC only) to the lamphouse.
2. The power toggle switch at the rear of the ORC lamphouse should be ON (up).
3. Set the ORC lamp current by adjusting the small black knob at the rear of the lamphouse assembly until a reading of 35 amperes is obtained on the ammeter above the black knob.

### START UP

Approximately five minutes before start of animation:

On show start up panel place switch for show panel "SB" in ON position. Green pilot turns on. Power is now applied to projectors.

On projector RE-SYNC panel to the right, the green "RE-SYNC SYSTEM POWER" should be ON.

Push "PROJ. ON & RE-SYNC" button. Both projectors should turn on and the film loops drive around until a copper foil stop patch on the film is detected by the STOP PROXIMITY CONTROL. The motors will shut off and green "READY" lights will turn on at the projectors and at the remote SYNC PANEL.

(In case of a power failure the projectors can be re-synced from the panel located in cabinet B-21 in Audio Central.)

When the first START command (pulse) is received from DACS, the drive motors will turn on and run until the stop patch on the film is once more detected by the PROXIMITY CONTROL. The motor will then shut off and the film will be in the proper starting position for the next showing.

The douser is programmed by DACS.

The PROXIMITY CONTROL also operates the "FILM RUNS" counter.

#### SHUT DOWN

As long as START pulses are received by the projectors the AUTO SHUT-DOWN time delay relays will be re-set by the commands.

When START commands are no longer received, the relays will time out and the TD contacts in series with K1 relay coils will open and shut off all power to the projectors. The film will stop in a random position.

#### LOCAL OPERATION

Each projector can be re-synced by pushing the green "POWER-ON" button. The lamp will turn on and the film will be driven to the SYNC position and stop. The green READY light will turn on.

For test purposes place the motor switch in the OFF position before pushing the "POWER-ON" button. After the lamp ignites the motor switch may be placed in the MANUAL position. The projectors will continue to run until manually shut off or restored to AUTO operation.

#### PROXIMITY CONTROL AMPLIFIER

The sensitivity adjustment is by means of a 20 turn potentiometer with clutch release at both travel extremes to prevent damage from overturning. Access to the adjustment screw is obtained by removing the hole plug in the top of the plastic case. A miniature screwdriver is required for adjustment.

A red light-emitting diode (LED) inside the plastic case indicates when the relay in the control is energized.

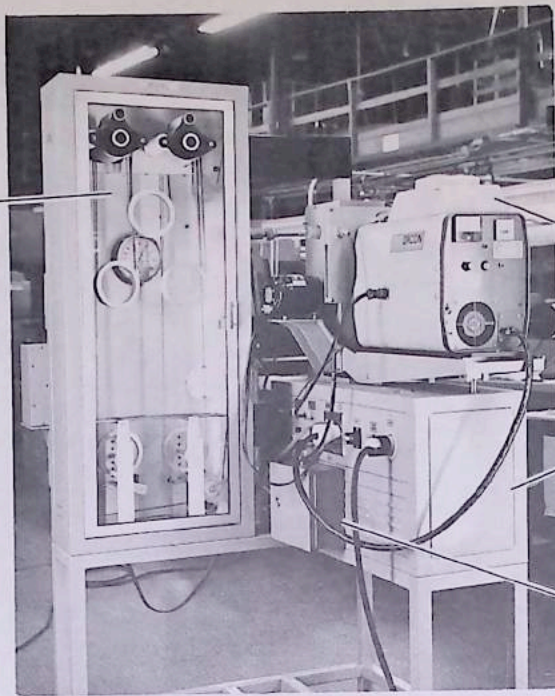
The probe should be as close to the film as possible without touching.

Make up a short test loop of film containing several copper foil targets. Rotate sensitivity control fully counterclockwise as indicated by the clicking of clutch as it slips.

With test loop running in projector advance the sensitivity control clockwise until the relay just starts actuating intermittently. Start counting turns and continue rotating clockwise until the relay remains actuated all of the time.

The control should now be backed off in the counterclockwise direction one half the number of turns it was moved in the previous step. This procedure should adjust the control so that it will be activated by the foil sync targets on the film.

6730-903866  
FILM CABINET  
ASSEMBLY



OPTICAL RADIATION  
LAMPHOUSE ASSEMBLY  
MODEL #1000

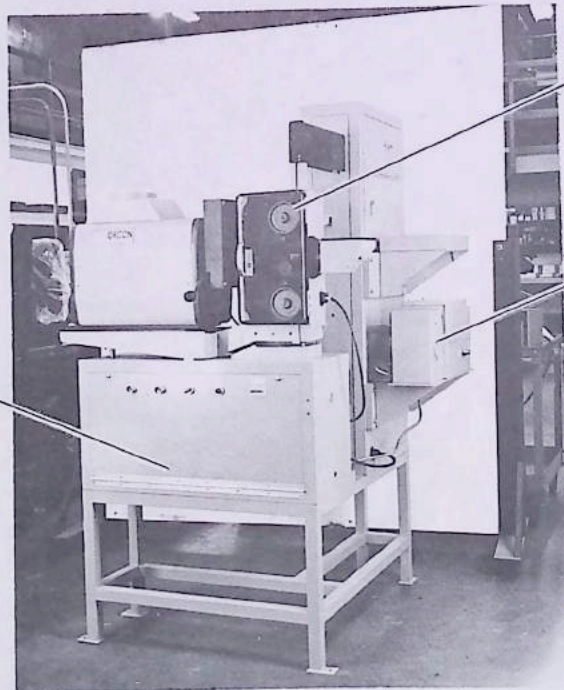
6730-904228  
ORC PROJECTOR  
STAND ASSEMBLY

6730-902687  
AUTOMATIC OILER  
ASSEMBLY.  
(TYPICAL EJL)

FIG. 1

16MM Projector System Assembly ORC 6730-904226

6730-904232  
FRONT PANEL  
ORC PROJECTOR  
STAND ASSEMBLY



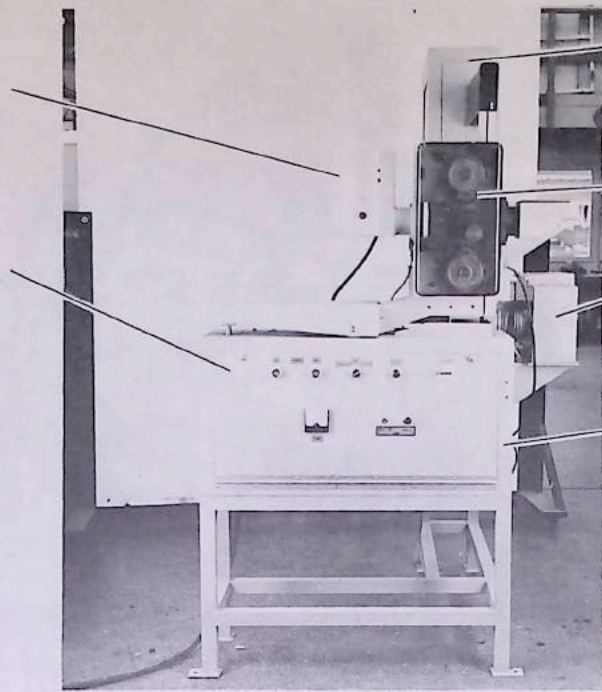
6730-904236  
PROJECTOR HEAD  
ASSEMBLY

6730-902760  
HUMIDIFIER ASSEMBLY

FIG. 2

6730-901420  
EJL LAMPHOUSE  
ASSEMBLY

6730-904233  
FRONT PANEL  
EJL PROJECTOR  
STAND ASSEMBLY



6730-903866  
FILM CABINET  
ASSEMBLY

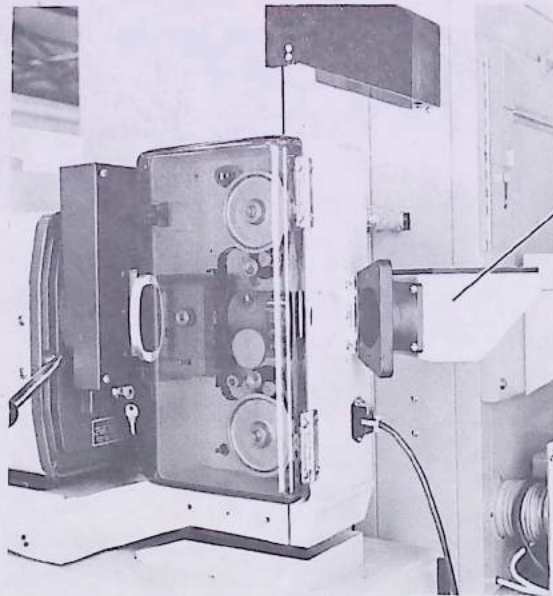
6730-904236  
PROJECTOR HEAD  
ASSEMBLY

6730-902760  
HUMIDIFIER ASSEMBLY

6730-904229  
EJL PROJECTOR  
STAND ASSEMBLY

FIG. 3

16MM Projector System Assembly EJL 6730-904227



6730-902651  
SINGLE MIRROR  
ASSEMBLY  
(TYPICAL EJL)

FIG. 4

6730-902634  
PROJECTOR HORIZONTAL  
LEVELING KNOB.

ELECTRO CORP.  
PROXIMITY CONTROL  
AMPLIFIER #55125

ELECTRO CORP.  
SENSOR #4943

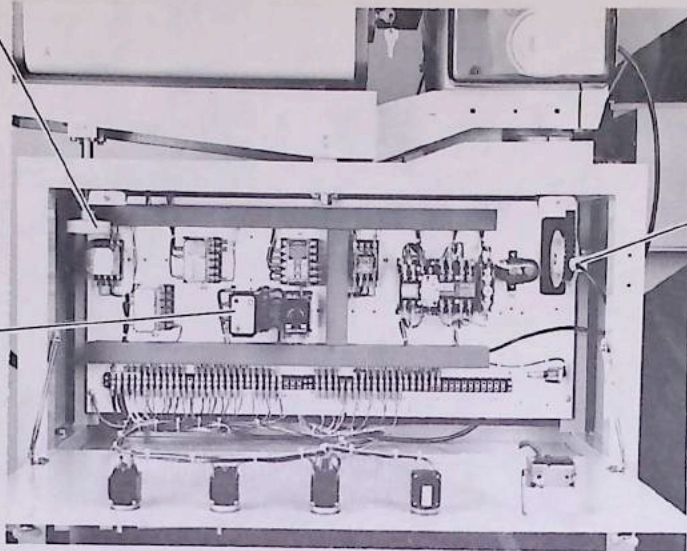


FIG. 5

SHOWING ELECTRICAL RELAY PANEL  
IN THE ORC PROJECTOR STAND ASSEMBLY.

6730-902634  
PROJECTOR HORIZONTAL  
LEVELING KNOB

ELECTRO CORP.  
PROXIMITY CONTROL  
AMPLIFIER #55125

ELECTRO CORP.  
SENSOR #4943

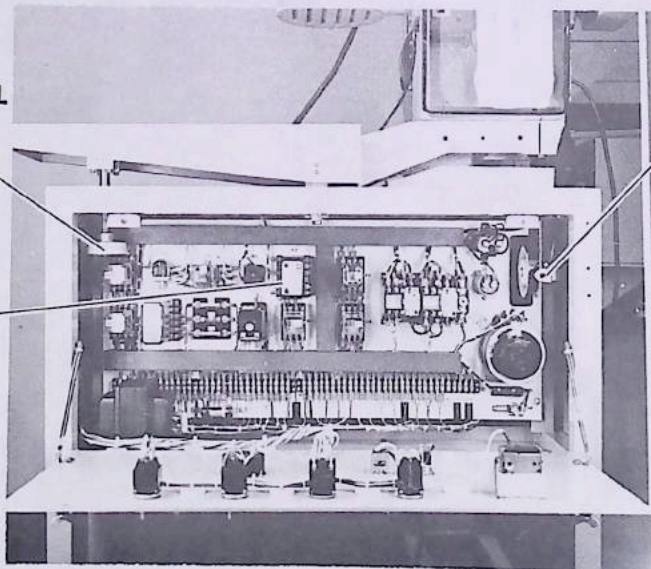
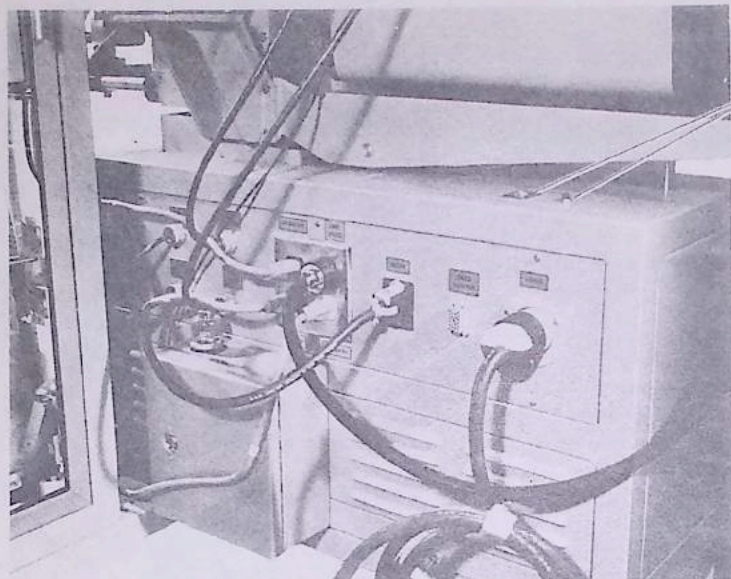


FIG. 6

SHOWING ELECTRICAL RELAY PANEL  
IN THE EJJ PROJECTOR STAND ASSEMBLY.



CENTRAL CONTROL INTERCOM  
RECEPTACLE AND CALL BUTTON  
SWITCHCRAFT #D4F AND #201  
RESPECTIVELY..

FIGURE 7  
SHOWING ELECTRICAL CONNECTION POINTS AT REAR  
OF PROJECTOR BASE ASSEMBLY

## MAINTENANCE FREQUENCY CHART

LUBRICATION POINT	FREQUENCY	REFERENCE
<u>PROJECTOR LUBRICATION</u>		
*Movement Oil Reservoir	**	See Figure 10 Page 41
*Automatic Shuttle Oiler	Check Oiler Reservoir daily.	See Figure 13 Page 44
Projector Silent Chain Drive	Check monthly - lubricate as needed.	50/50 mixture SAE 90 oil and S.T.P.
Motor Gearbox	Check monthly	Houghtons Cosmolube No. 1 grease or equivalent.
<hr/>		
<u>CABINET LUBRICATION</u>		
Drive Chain in rear of film cabinet	Every 6 months or as required.	50/50 mixture SAE 90 oil and S.T.P.
Film Lubrication	Once a week	Use Tuff Coat Special Formula #3-316-3X. Nicholson Products 3403 Cahuenga Blvd. Los Angeles, Ca. 90068 (213) 851-4511
*USE VALVOLINE OIL SAE 20		

\*\* 2-3 drops daily only in the event of a breakdown in the Automatic Oiler System.



## CLEANING INSTRUCTIONS

CLEANING POINTS	FREQUENCY	REFERENCE
Aperture Plate Assembly	Daily	Projectors
Delrin Gate Assembly	Daily	Projectors
Projection Lens	Daily	Projectors
Sprockets and all Rollers	Monthly	Projectors and Film Cabinets
Cabinet Film Spools	Monthly	Film Cabinets
Mirror Assemblies	Monthly	Projector Location Plan Dwg. 6730-904225 SHT. 1

### 1. OPTICAL PARTS:

Clean the front and rear elements of the projection lens. Do not attempt to take the lenses apart for any further cleaning. Clean with any quality glass cleaner and lens cleaning tissue. If, fingerprints, oil, grease or other accumulation of dirt is present, use a quality glass cleaner on the lens surfaces. Then clean thoroughly with lens cleaning tissue.

### 2. FILM CONTACT PARTS:

Film contact parts include aperture plate, delrin gate, film sprockets, rollers and cabinet film spools, over which the film must pass. All of these parts should be cleaned with a soft cloth. If any dirt has accumulated and hardened, dampen the soft cloth with Tuff Coat and rub the dirt off. Follow this by polishing with a dry soft cloth. Do not scratch the film contact surface. If any emulsion has collected, remove it with a toothpick or an orange stick cut to a knife edge. Dirt that may have accumulated between the teeth of film sprockets or around aperture openings should be removed with a small soft brush or soft cloth. Minor scratches or burrs can be removed from parts which contact the film by polishing lightly with crocus cloth.

3. MECHANISM PARTS:

Parts other than those already mentioned, which have been removed during a maintenance operation should be cleaned with alcohol or equivalent to remove old grease and lubricating oil. Dry thoroughly. Where possible, dry with compressed air. Where this method is not convenient, dry with a clean cloth and then allow parts to dry thoroughly in air. Re-lubricate per instructions.

NOTE: Shuttle Mechanism Assembly: Shuttle assembly parts (Drawing 061193 Kit Assembly, Shuttle Cams & Pivot) as shown on assembly Drawing 6730-904245 are supplied as a kit. If any one of these parts become damaged or excessively worn, the complete kit will be replaced.

4. MIRRORS:

If only a slight amount of dust has accumulated on mirror surface, remove with soft brush. If, however, fingerprints, oil, grease or other matter is present, use a quality glass cleaner, soft cloth and light pressure.

5. FILM CLEANING:

The film must be cleaned weekly using Tuff Coat #3-316-3X Film Cleaner Lubricant in lubricator assembly.

6. FILM REPLACEMENT STRIP:

Film replacement strips will be no less than 6" in length. This ensures that the first film splice has cleared the film gate before the second splice moves into the gate. One bad perforation can stop the projector by losing the film loop and actuating the cut-off switch.

NOTE: Replacement strips will be exactly the same length as the removed portion of film in order to maintain sound synchronization.

## RECOMMENDED SPARE PARTS

**PRINT OR PART NUMBER**

**DESCRIPTION**

PROJECTOR HEAD ASSEMBLY (6730-904236)

6730-903284	Primary Idler Gear Assembly
6730-903288	Anti-Backlash Gear Assembly
6730-904238	Secondary Gear Idler Assembly
6730-904248	S.C. Gear Assembly
6730-901326	Shaft, Idler Gear
6730-901336	Shaft, S.C. Drive
6730-904241	Shaft, Secondary Idler Gear
F4DD	Fafnir Bearing
S1KDD7	Fafnir Bearing
33KDD3	Fafnir Bearing
DW4K2	Fafnir Bearing
SFR6FF3CX0G-2	3/8 Dia Bardon Bearing
SFR188SSW3CX0G-2	1/4 Dia Bardon Bearing
SR4FF3CX0G-2	1/4 Dia Bardon Bearing
SR3FF3CX0G-2	3/16 Dia Bardon Bearing
CF376D-0750	Compo Bearing
5602-106-32	Seastrom Washer Fiber
5602-106-45	Seastrom Washer Fiber
5606-28-32	Seastrom Washer, Nylon
5610-68-32	Seastrom Washer, Nylon
AC100-128	Helical Coupling
1106-1212	Helical Coupling
5100-12	Truarc (Cad Plated & Iridite)
5100-25	Truarc (Cad Plated & Iridite)
5100-43	Truarc (Cad Plated & Iridite)
AS419A1	Micro - Mercury Switch
6S6DC	G.E. Lamp 6W 115V
4943	Electro Sensor
SC0305	Morse 3/16" Silent Chain
.062 Dia X 5/16 Long	Roll Pin (SST)
.156 Dia X 1/2 Long	Roll Pin (SST)
.093 Dia X 1/4	Dowel Pin (SST)
0-80 X 1/16	Round Head Machine Screw (SST)
1-72 X 1/8	Round Head Machine Screw (SST)
4-40 X 1/8	Socket Head Set Screw Blk.

## RECOMMENDED SPARE PARTS

**PRINT OR PART NUMBER**

**DESCRIPTION**

INTERMITTENT ASSEMBLY (6730-904245)

6730-901339	Shaft - Rear Cam
6730-901343	Gear - Shutter Shaft
6730-901500	Camshaft - Front
6730-901501	Shaft - Framer
6730-901502	Shaft - Shutter
6730-904375	Pad - Intermittent Oiler
6730-904246	Spacer - Front Cam Shaft
6730-904247	Spacer - Front Cam Shaft Rear
98757	Screw, Special Binder Head
061040	Bracket Assembly - Aperture Plate Mounting
061042	Gear Assembly - Front Cam
061193	Kit Assembly, Shuttle Cams & Pivot
063112	Bar Assembly - Framer Pivot
067399	Plate Assembly, Shuttle Cover Mounting
067402	Cover Assembly, Shuttle
600293	Washer Lock
600789	Washer Lock
611251	Washer - Framer Bar Friction
611285	Washer, Rear Cam Retaining
611302	Ring - Front Cam Gear Lock
611314	Spring Shuttle
611380	Screw - Framer Bar Mounting
611383	Washer, Framer Bar Spring
611453	Nut, Elastic Stop #5-40
611866	Collar, Framer Shaft Lock
611973	Counterweight, Front Cam
611974	Disc, Front Cam Lube
611975	Nut, Special
613210	Screw, Aperture Mounting Bracket
615925	Nut, Cam Lock
620933	Gasket, Shuttle Cover
620937	Bracket, Framer Shaft
5710-36-32	Seastrom Washer (SST)
2-56 X 1/4	Fl. Hd. Screw (SST)

B & H PARTS

## RECOMMENDED SPARE PARTS

### PRINT OR PART NUMBER

### DESCRIPTION

#### INTERMITTENT ASSEMBLY (6730-904245) Continued

2-56 X 5/8	Rd. Hd. Screw (SST)
5-40 X .12	Socket Head Set Scr (Blk)

#### SPROCKET FILM GUIDE ASSEMBLY (6730-901218)

6730-301219	Plate - Base
6730-901220	Shaft - Eccentric
6730-901221	Knob - Eccentric
6730-901222	Roller
6730-901223	Shaft - Roller
6730-901224	Bracket Roller
6730-901643	Screw Eccentric Shaft
6730-901644	Spring - Sprocket Guide
.062 Dia X 1/2	Dowel Pin (SST)
.093 Dia X 5/16	Dowel Pin (SST)
5100-12	Truarc (Cad Plated & Iridite)

#### LENS MOUNT ASSEMBLY (6730-901503)

6730-901505	Spring, Pressure Pl. Release
6730-901508	Rack, Lens Focusing Gear
600833	Screw Rd. Hd.
600950	Screw, Rd. Hd.
611469	Screw, Special Hd.
611520	Button, Lens Holder Friction
611521	Spring, Lens Holder Friction
611645	Washer Spring
611734	Washer, Lock
613451	Spring - Compression
613449	Disc, Release Rod Guide
613457	Spring, Lens Holder Flat
614587	Nut Elastic Stop
4080	Screw, Gear Rack

B & H PARTS

#### APERTURE PLATE ASSEMBLY (6730-901510)

6730-901492	Shoe - Film
6730-901511	Plate, Aperture

## RECOMMENDED SPARE PARTS

PRINT OR PART NUMBER	DESCRIPTION
----------------------	-------------

APERTURE PLATE ASSEMBLY (6730-901510) Continued

2-56 X 1/8		Rd. Hd. Screws (SST)
061150	B & H PARTS	Rail, Sub Assembly Film
061151		Rail, Sub Assembly Film Floating
611482		Spring, Side Tension Bracket
611483		Washer, Side Tension Bracket
611484		Screw, Side Tension Bracket
611499		Screw, Film Guide

DELRIN GATE ASSEMBLY (6730-903706)

6730-903710		Shoe - Upper Gate
6730-903711		Shoe - Center Gate
6730-903712		Shoe - Lower Gate Left
6730-903713		Shoe - Lower Gate Right

## TROUBLESHOOTING CHART

TROUBLE	PROBABLE CAUSE	REMEDY
1. Picture Unsteady	Film not seated in gate properly.	Reseat film, make sure pressure pad is not being tilted by side guide buttons of Aperture Plate. See Figure 12.
	Loss of Pressure Pad tension.	With claw retracted, check pressure of pad by gently pulling film through the closed gate. Tension should be light. Tension can be increased or decreased by adjustable pressure nut. See Figure 3.
	Worn Shuttle Assembly.	Remove movement cover. Turn Shutter Knob until claw protrudes it's maximum. Remove Aperture Plate and with finger tips, check claw pins for up and down play. Claw normally should have no movement at this position. A slight shake should not affect steadiness.
	Excessive play caused by wear between Heart Cam and Shuttle.	If a .002 Feeler Gauge can be inserted between cam and slide, replace assembly.
	The Helical Gear on the back end of the Heart Cam Shaft may be loose.	There should be no rotation between Shaft and Helical Gear. Replace or repair.
	Anti-back lash gear not properly loaded.	See Figure 8.
	Loose Mirror Assembly.	Check retaining screws. (Mirror vibration can cause unsteadiness).
	Loose Lens Mount Assembly.	Check screws retaining lens holder side rail and flat spring retaining plate on Lens Mount.

## TROUBLESHOOTING CHART (cont.)

TROUBLE	PROBABLE CAUSE	REMEDY
2. Loss of loop	Film not seated in gate properly.	Run film through gate by hand, making sure pressure pads are seated and aligned correctly.
	Damaged perforations.	Examine perforations closely for tears, notching, or bad splicing. See Page 20 Paragraph 6.
	Gate tension too light.	Open gate, back off pressure adjusting nut a fraction of turn at a time. See Fig. 3.
3. Projector stops during run. Check initially for electrical power failure.	Overload circuit breaker (O/L C.B.)	On the EJM Stand Assembly Relay Panel, push the O/L C.B. white button to reset C.B. and check C.B. heater element for burn out. Replace if required.
	Lost loop tripping automatic cut-off roller. See Fig. 1.	Examine film for damaged perforations. Replace damaged film section.
	Mercury Switch on cut-off Roller Arm set too close or loose. See Fig. 2.	Remove rear cover of Projector Head, actuate cut-off roller by hand and check action of Mercury Switch.
	Frozen Bearing in Projector Head.	<p>Unthread Projector leaving film loose, disconnect drive between Projector Head and film cabinet, turn shutter knob to determine whether the seizure is in Projector Head. If so, proceed as follows:</p> <p>Inspect flex coupling between motor drive and Projector for breakage or loose set screws. Loosen set screw on projector end of drive coupling and turn motor through the coupling to check possible gear box failure. See Fig. 4.</p> <p>Check outboard Bearing behind shutter knob supporting the shutter shaft.</p>



## TROUBLESHOOTING CHART (cont.)

TROUBLE	PROBABLE CAUSE	REMEDY
<p>3. (Cont'd.)                      Projector stops during run. Check initially for electrical power failure.</p>	<p>Frozen Bearings in Projector Head.</p>	<p>Check Sprocket Drive Chain at rear of Projector. Should have slack. See Fig. 2.</p> <p>Remove Sprocket Drive Chain and spin sprockets to check Oilite Bearings.</p> <p>Remove Shuttle Assembly Cover, check cams and shuttle for seizure due to lack of lubrication. See Fig. 6.</p> <p>Remove Gearbox Cover, see Fig. 8, and inspect for dry bearings, broken gear teeth, loose set screws, lack of shaft end play.</p> <p><u>NOTE:</u> The most likely trouble area is in the Heart Cam Shaft and front and rear Bearings; because it's bearing fit and shaft end play are held to a minimum tolerance</p> <p>As far as shoulder protrusions and shaft fits are concerned, it is important that replacement spacers and bearings be identical with damaged parts.</p>
<p>4. Projector stops during run.</p>	<p>Aluminum roller at bottom loop in film cabinet contacts power cut-off switch.</p> <p>Failure in Film Cabinet Drive Assembly</p>	<p>Check to see if aluminum roller has jumped free of its individual separator in which it revolves at lower film loop.</p> <p>Film cabinet sprocket assemblies and angle gear must turn freely. Check these items as well as Phenolic Drive Gear in Projector Head for stoppage or excessive drag. See Fig. 4.</p> <p>Open covers of Sprocket Drive Assembly (rear of cabinet), and check for broken or jammed chain, frozen bearings in sprocket hubs, loose studs, nuts, set screws, chain links, etc.</p>

## TROUBLESHOOTING CHART (cont.)

TROUBLE	PROBABLE CAUSE	REMEDY
4. (Cont'd.) Projector stops during run.	<p>Failure in Film Cabinet Drive Assembly.</p> <p>The proximity Control Amplifier Magnetic Sensor is set too fine.</p>	<p>Check inner cabinet. Inspect the action of individual keeper roller positions as they apply to their respective film sprockets. Keeper rollers must "straddle" their respective sprockets.</p> <p>Check action of the power trip rods in the cabinet base. These rods should be in the "UP" position. Any restriction holding a rod in the "DOWN" position would cut electrical power by activating the mercury switch assembly which is attached to the rod.</p> <p>Check the positions of the mercury switches in their mounts. The switch mounts on a swivel bracket that is locked down in the operating position. A loose switch bracket could be a trouble source.</p> <p>See Preliminary Operating Instructions Page 12</p>
5. Motor runs, mechanism does not.	Silent chain sprocket loose on shaft.	Tighten silent chain sprocket to shaft. See Fig. 2.
6. Picture not framed.	Framer shaft not adjusted properly.	Turn framer shaft until picture is in frame. See Fig. 10.
7. Fuzz projecting in picture area.	Dirt in aperture opening.	Clean aperture using brush. CAUTION: Projector must be stopped.
8. Picture not sharp on screen. One side or entire picture.	<p>Improperly focused.</p> <p>Projection lens dirty, oily or finger spotted.</p> <p>Pressure plate and/or aperture plate worn.</p>	<p>Focus lens. See Figure 1.</p> <p>Clean lens.</p> <p>Replace defective plates.</p>

## TROUBLESHOOTING CHART (cont.)

TROUBLE	PROBABLE CAUSE	REMEDY
<p>8. (Cont'd.) Picture not sharp on screen. One side or entire picture.</p>	<p>Pressure plate not seated firmly against film in aperture channel.</p> <p>Defective projection lens.</p> <p>Insufficient pressure plate tension.</p>	<p>Check pressure plate seating.</p> <p>Replace lens.</p> <p>Adjust pressure plate tension. See Figure 3.</p>
<p>9. Picture indistinct, illumination low.</p>	<p>Lamp old, black and ready to burn out.</p> <p>Dirty projection lens.</p> <p>Adjustment of lamphouse reflector position incorrect.</p>	<p>Replace lamp.</p> <p>Clean optical elements.</p> <p>Adjust lamphouse reflector. (See Lamphouse Operating Instructions &amp; Optical Radiation Section). Page 103</p>
<p>10. Picture travel ghost. Vertical lines observed on screen above and/or below white objects.</p>	<p>Defective Projection Lamp.</p> <p>Projection Lamp out of adjustment. (ORC)</p> <p>Shutter out of time with intermittent mechanism.</p>	<p>Replace lamp.</p> <p>Adjust lamp to maximum brilliance. (See Lamphouse Operating Instructions &amp; Optical Radiation Section). Page 103</p> <p>Adjust shutter to synchronize with intermittent mechanism. See Figure 7.</p>
<p>11. Picture unsteady; jump or weave.</p>	<p>Improper slitting of film.</p> <p>Improper threading.</p> <p>Pressure plate not seated firmly against film in picture channel.</p>	<p>Check with film known to be in good condition.</p> <p>Rethread Projector correctly.</p> <p>Check pressure plate seating.</p>

## TROUBLESHOOTING CHART (cont.)

TROUBLE	PROBABLE CAUSE	REMEDY
<p>11. (Cont'd.) Picture unsteady; Jump or weave.</p>	<p>Many consecutive film perforations damaged excessively.</p>	<p>Remove damaged section of film and splice. See Page 20      Cleaning Instructions, paragraph</p>
	<p>Poorly made splices.</p>	<p>Check film, remake splice(s). See NOTE above.</p>
	<p>Sprocket not turning properly.</p>	<p>Check screws holding sprockets. Tighten if necessary. Check sprocket gears for defects. Replace defective gears. See Figure 1 .</p>
	<p>Worn parts in intermittent mechanism; broken shuttle tooth or last tooth slapping film.</p>	<p>Replace defective parts. See Figure 10.</p>
	<p>Center shuttle tooth not protruding far enough.</p>	<p>Adjust mechanism as directed Page <u>42</u>, Figure 11.</p>
	<p>Insufficient pressure plate tension.</p>	<p>Check pressure plate seating.</p>
	<p>Worn sprocket teeth.  Excessive emulsion caked on aperture and/or pressure plate.</p>	<p>Replace defective sprocket.  Remove caked emulsion with aperture brush; Tuff Coat, toothpick. See Page Cleaning Instructions.</p>
<p>12. Film scratched.</p>	<p>Dirt or emulsion on aperture and/or pressure plate.</p>	<p>Clean, using aperture brush; Tuff Coat, toothpick. See Page 19      Cleaning Instructions.</p>
	<p>Dirt or emulsion on sprockets, film rollers.</p>	<p>Clean, using aperture brush; Tuff Coat, toothpick. See Page 19      Cleaning Instructions.</p>
	<p>Worn film contact parts; pressure plate, aperture plate, film sprockets, rollers.</p>	<p>Replace worn parts with new ones.</p>

## TROUBLESHOOTING CHART (cont.)

TROUBLE	PROBABLE CAUSE	REMEDY
12. (Cont'd.) Film scratched.	Sticking or binding film rollers.	Remove rollers and clean shaft. If worn or if they still bind, replace with new ones.
	Nicks and scratches on contact surfaces of film path; film rails, rollers, pressure plate, sprockets.	Rub part with crocus cloth. If nick or scratch is deep, replace parts with new ones.
	Film may be loose and rubbing on metal cabinet.	Keep film tight at all times.
	Film lubricator may be scratching film.	Check cleaning pads in lubricator assembly.
Film not running correctly between each individual separator in film cabinet.	Insufficient film lubrication.	
13. Excessive film wear. Torn or damaged film splices. Damaged or torn perforations.	Worn or damaged shuttle teeth.	Examine shuttle teeth for undercut surfaces; if badly worn, replace with new shuttle assembly.
	Sprocket teeth badly worn.	Examine film sprocket teeth for undercut surfaces. Replace if badly worn.
14. Excessively noisy projector operation.	Film slap due to improper pressure plate tension.	Check pressure plate tension. See Figure 3.
	Inherent mechanical noise.	Examine intermittent mechanism for defective parts. Check gears and rotating parts for nicks or worn surfaces. Replace defective parts if needed.

# **MECHANICAL ADJUSTMENTS**

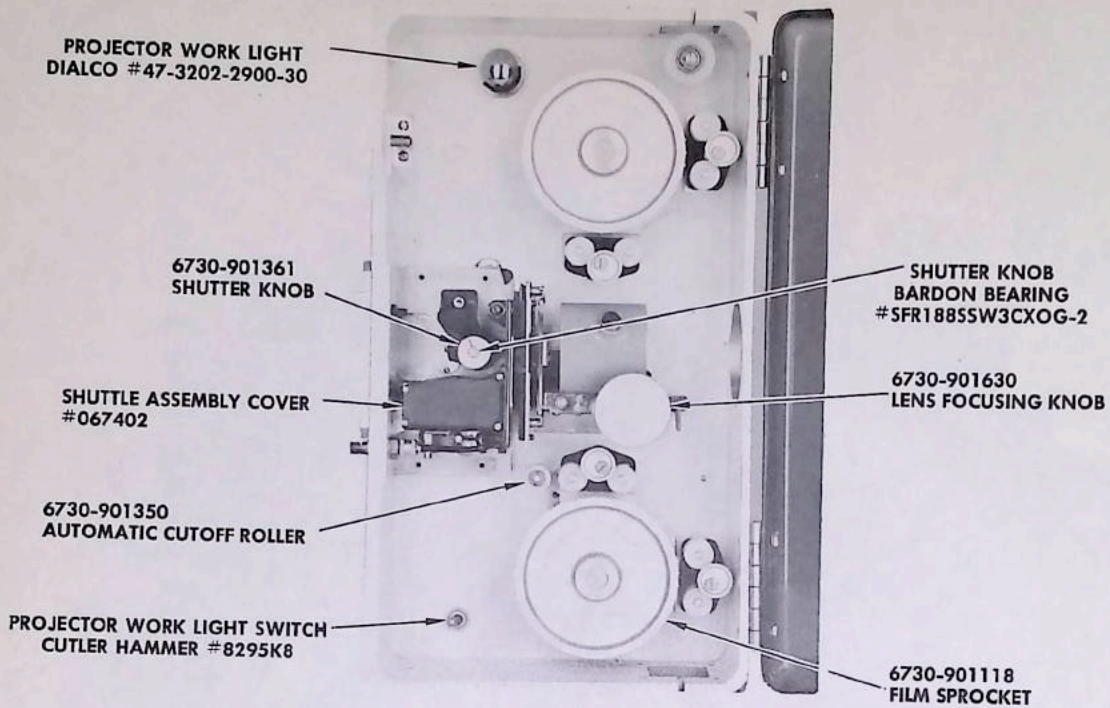


FIGURE 1

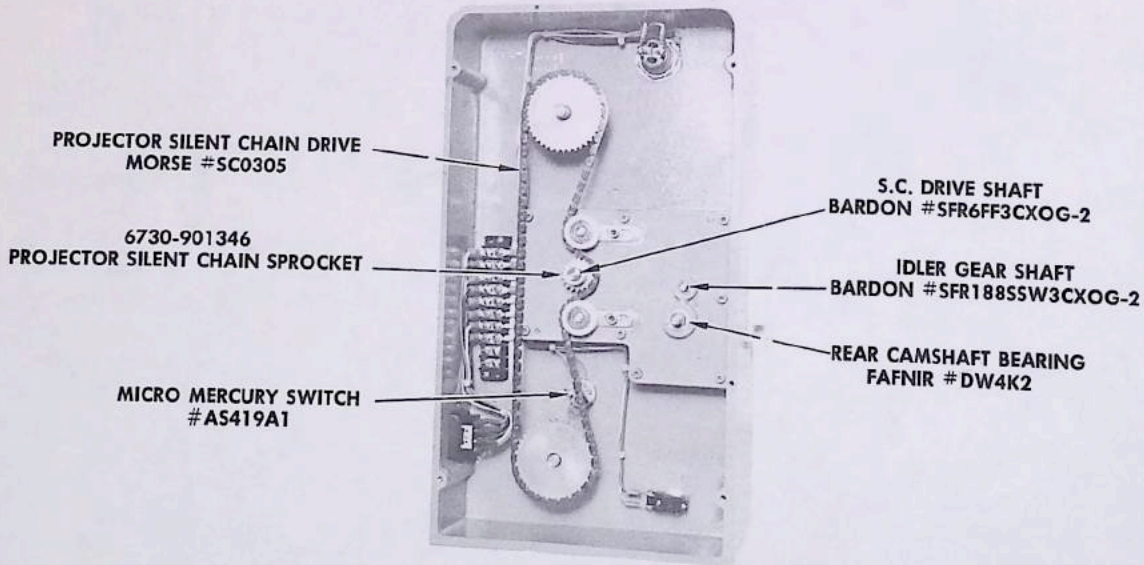


FIGURE 2

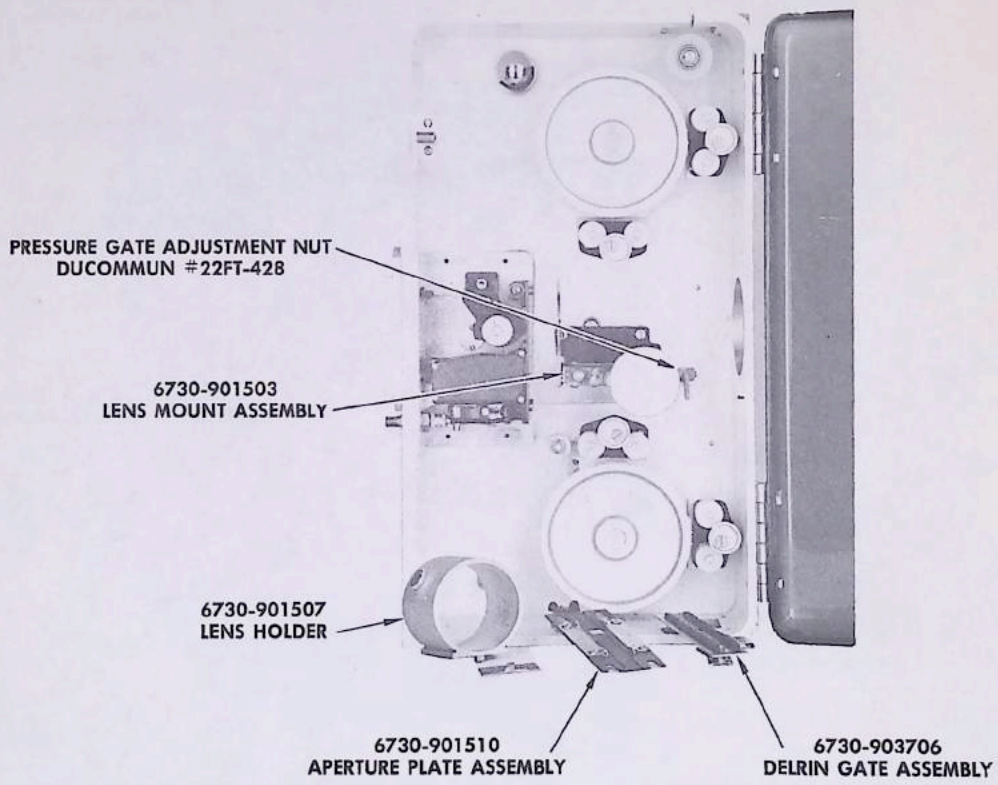


FIGURE 3



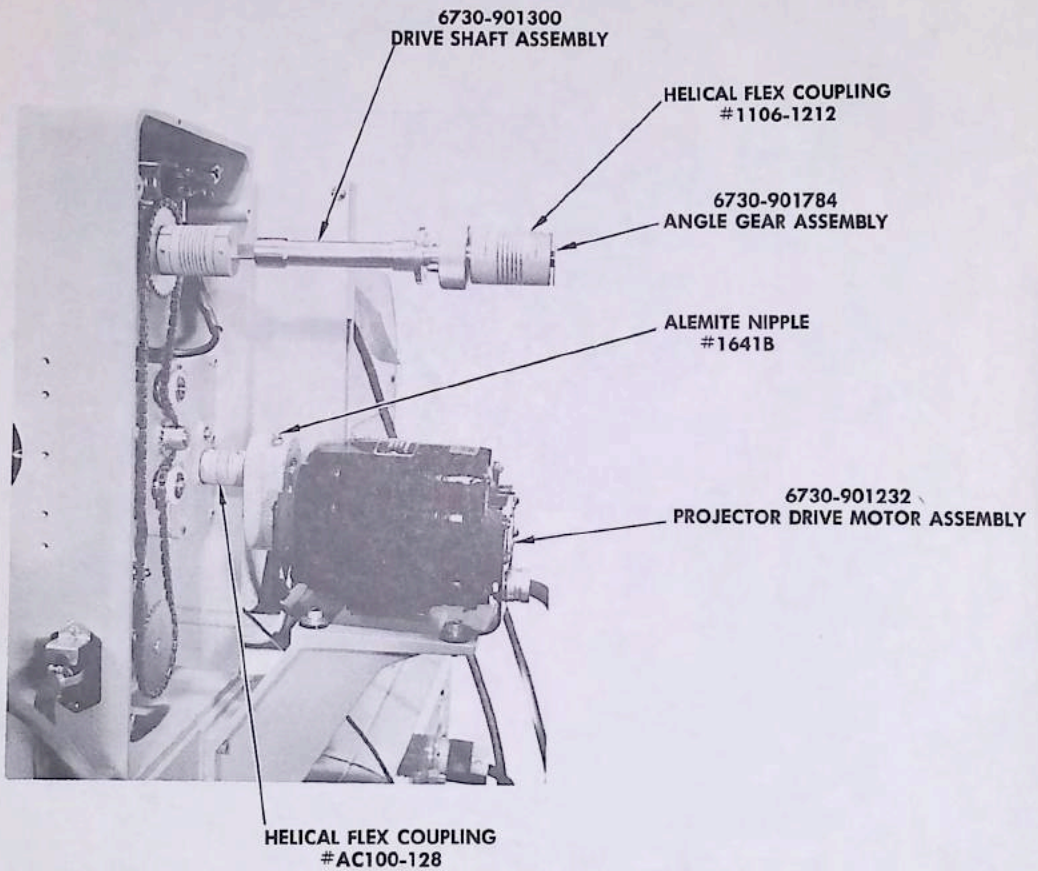


FIGURE 4

## SHUTTLE ALIGNMENT PROCEDURE

### INITIAL SET-UP

The following procedure must be taken before the aperture plate alignment and framer bar setting checks are possible. Remove both film sprockets, the Delrin gate assembly, and the aperture plate assembly. Place projector on a pair of parallel bars (Fig. 5) and zero a height gage on either sprocket shaft. Indicate the other shaft and note any variation. Select shims between the projector and parallel bar on the side with the lower height gage reading. Indicate both shafts and compensate for any difference until identical readings are obtained.

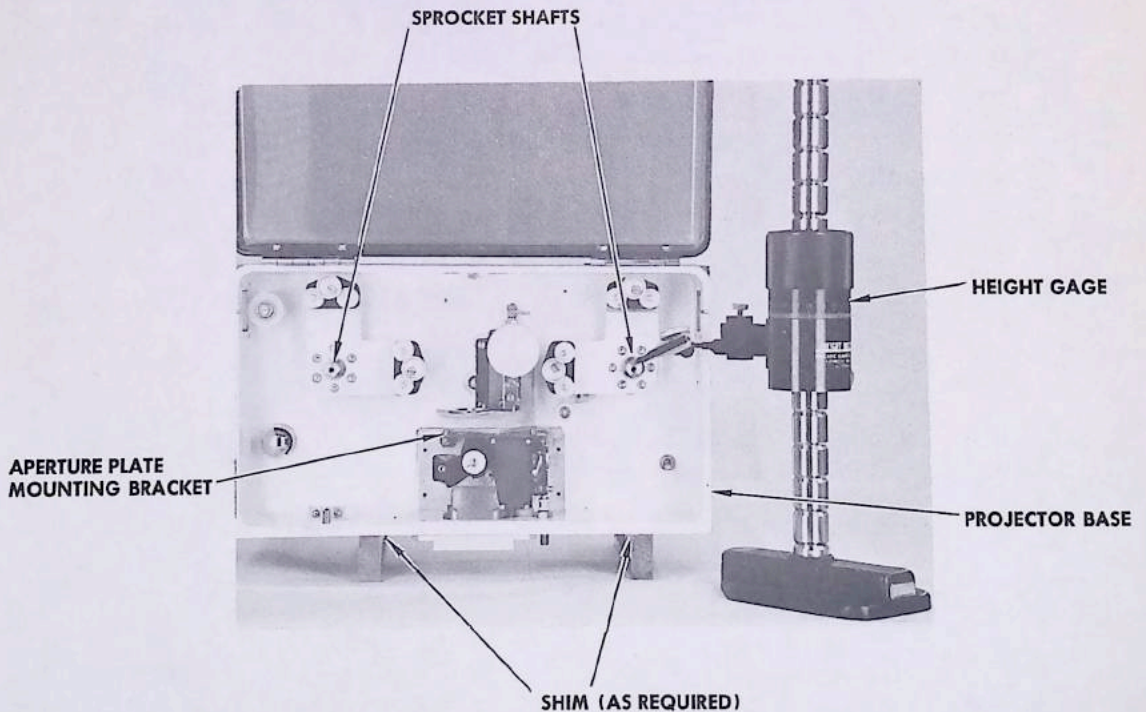


FIGURE 5

## SHUTTER INTERMITTENT SYNCHRONIZATION

Remove the four shutter cover retaining screws and cover. In sequence, remove the elastic stopnut, shuttle pivot bushing washer, shuttle pivot outer spacer, nut cam lock, rear cam retaining washer, special nut, front cam counterweight, front cam lube disc, disengage shuttle spring from shuttle assembly, and remove shuttle assembly, shuttle pivot bushing, shuttle pivot inner spacer, rear horizontal motion cam, and front horizontal motion cam. Loosen the three shutter retaining screws to allow shutter to rotate manually. Rotate shutter knob until the registration pins are to the right of the shafts (Fig. 6) and horizontal to each other. Install the shutter intermittent synchronization tool over the registration pins and lock in position by installing knurled nut (A) on front camshaft. Loosen knurled nut (B) and raise tool bar up against shutter blades in a horizontal position by installing knurled nut (B). Re-tighten the three shutter retaining screws (Fig. 7). The shutter is now synchronized with the intermittent assembly.

NOTE: If the gearbox anti-backlash gear has been removed for any reason, leave the shutter intermittent synchronization tool in place and proceed to gearbox assembly Page 40 . If, however, during this maintenance operation, the gearbox has remained untouched, remove the shutter intermittent synchronization tool and replace the shuttle assembly, etc., in the above reverse order.

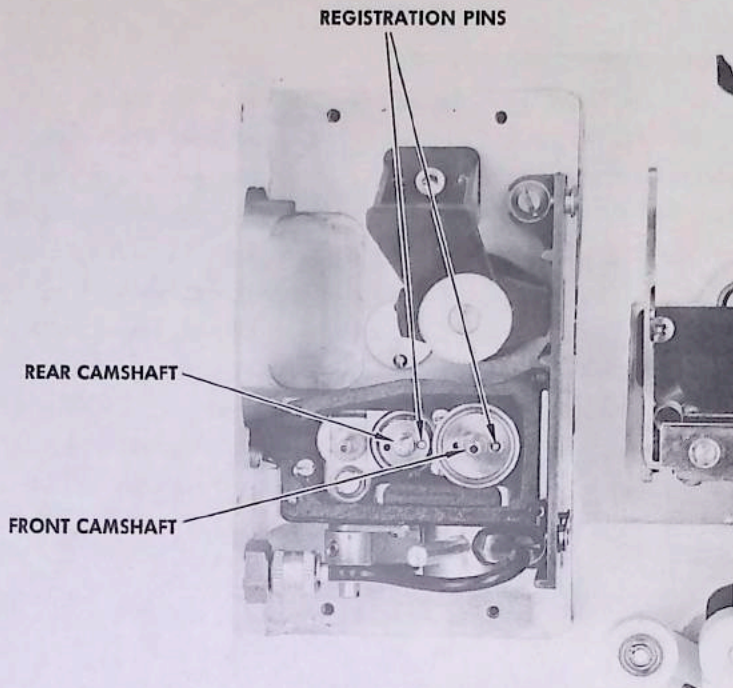


FIGURE 6

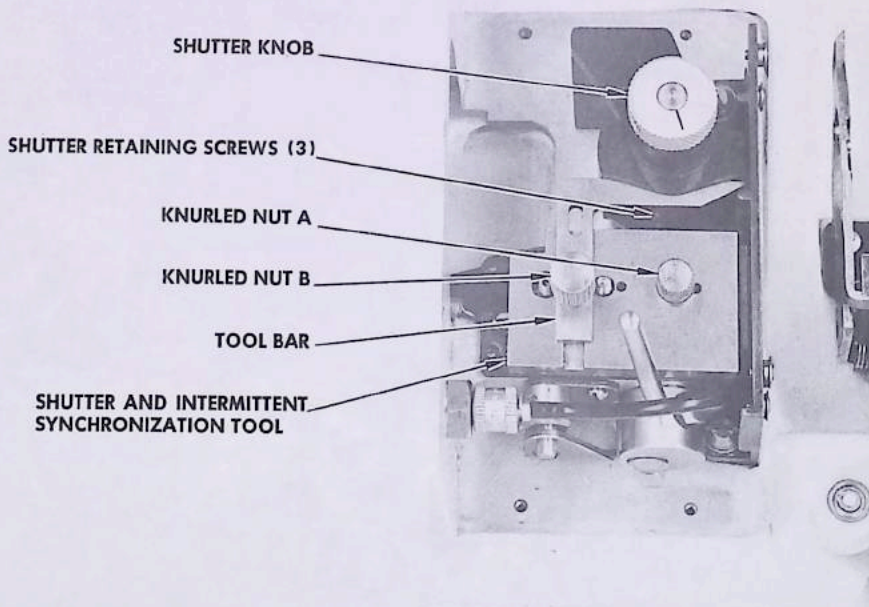
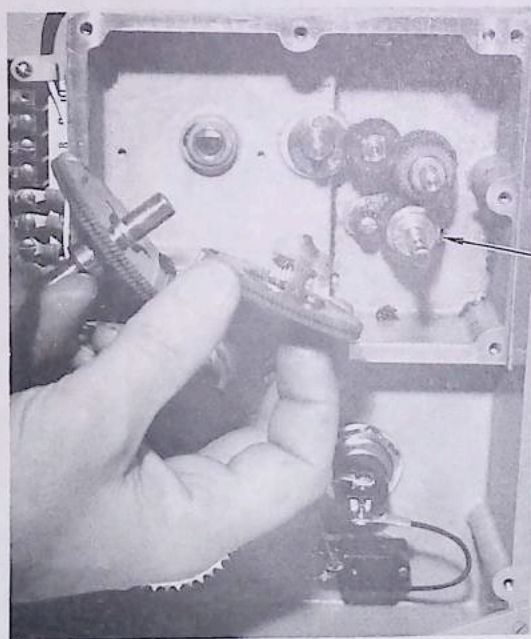


FIGURE 7

## GEARBOX ASSEMBLY

If for any reason the gearbox has to be taken apart, care should be taken in the loading of the anti-backlash gear when the gearbox is re-assembled, otherwise the shuttle intermittent assembly would be out of synchronization with the film. With the shutter intermittent synchronization tool in place, and the (3) shutter retaining screws tight in mid-slot position, (Page 38 ) slide anti-backlash gear assembly onto shaft until first gear is in mesh with steel helical gear. Load anti-backlash gear counter-clockwise to maximum and then back off two teeth. Push gear assembly hard against bearing in projector box. Tighten two set screws. The shutter is now synchronized with the intermittent assembly. Remove the shutter synchronization tool, and replace the shuttle assembly, etc. in reverse order to Page 38 . Secure shutter cover with four retaining screws.

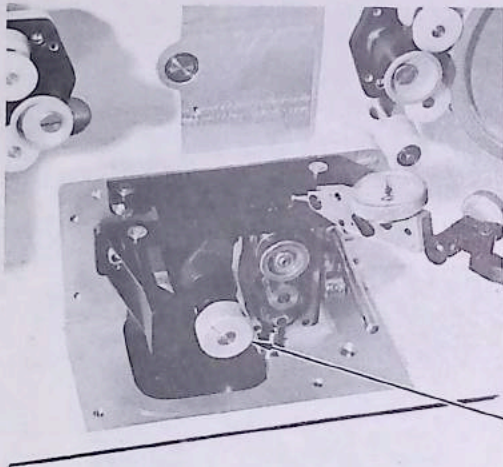


FIBER—ANTI BACKLASH GEAR  
LOAD COUNTER-CLOCKWISE

FIGURE 8

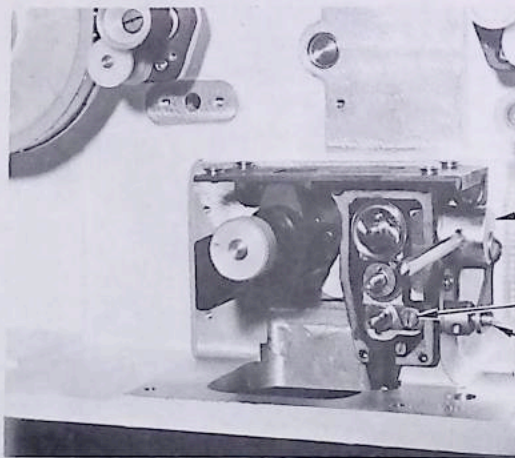
### SETTING FRAMER BAR

With the projector in the initial set-up position, set the height gage on the shuttle center tooth tip and rotate shutter knob until the shuttle is at maximum protrusion. Change the position of the height gage to the tip of the left hand shuttle tooth tip and note any variation. To adjust for any noted variation, loosen the framer bar mounting screw and rotate the framer shaft until indicator reading is approximately between the two limits of left and right hand tooth readings. Repeat sequence until both left and right shuttle teeth are within .001 inch T.I.R. Tighten framer bar mounting screw, and re-check both readings.



SHUTTER KNOB

FIGURE 9



MOVEMENT OILER RESERVOIR

FRAMER BAR MOUNTING SCREW

FRAMER SHAFT

FIGURE 10

#### APERTURE PLATE ALIGNMENT AND SHUTTLE PROTRUSION:

With the projector in the initial setup position, replace the aperture plate assembly in the projector. Rotate the shutter knob until the shuttle is at maximum protrusion and place the height gage on the shuttle center tooth tip. Zero the indicator at this position. Using the height gage indicator, indicate the aperture plate surface end to end within 001" while the center shuttle tooth protrusion is  $0340 \pm .0005$ . To obtain this condition, loosen the two aperture plate mounting bracket screws, and move the mounting bracket in the appropriate direction. Re-tighten the screws, and repeat indicator checks to be sure calibration has not been disturbed.

APERTURE PLATE MOUNTING  
BRACKET SCREWS

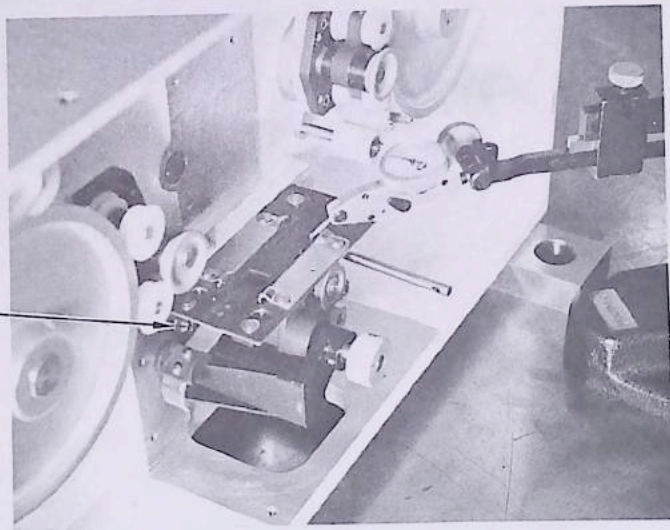


FIGURE 11

#### APERTURE PLATE FILM RAIL ADJUSTMENT

Secure fixed film rail to aperture plate with two screws, tightening screws enough to hold, with film rail free to slide. Place guide rail tool on aperture plate. Press down firmly on tool so that the two alignment pins on back of tool fit snugly into aperture plate mounting holes. Press tool upward (toward aperture plate pull) to lock the pins into mounting holes. Hold fixed film rail up flush against the tool and tighten two screws securely.

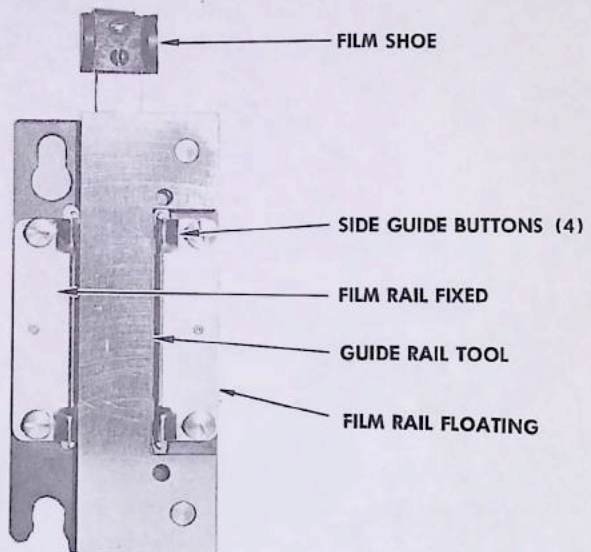


FIGURE 12

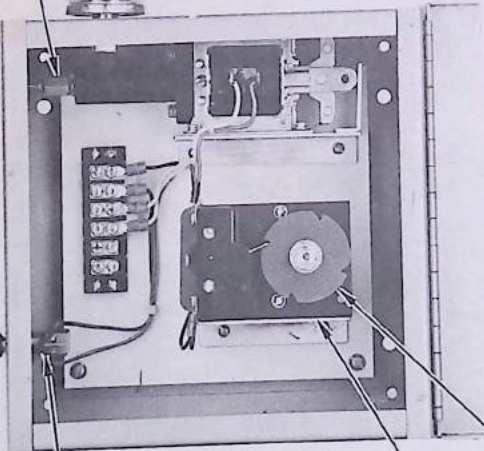


## AUTOMATIC SHUTTLE OILER ASSEMBLY

This assembly (Drawing 6730-902687) contains several basic units. These are a solenoid, timer, cam, manual control button, oil reservoir, ball check, and piston. The timer is a 24 hour unit modified to activate every six hours by four equally spaced notches on the cam. The solenoid moves the piston through a pre-determined travel which in turn forces oil along a tube into the shuttle mechanism of the projector. The amount of piston travel determines the amount of oil injected and can be adjusted by means of the piston travel adjusting screw. The further out the adjusting screw extends, the greater the amount of oil injection. The manual control button can be pressed to activate the solenoid, should the need arise for additional lubrication. The purpose of the ball check at the reservoir end of oiler is to ensure that the oil tube is constantly filled, thereby avoiding air bubbles in the oil tube. NOTE: To ensure that there are no air bubbles in oil tube from automatic oiler to projector, disconnect oil tube at projector, and activate manual control button until oil appears at disconnected end of tube. Re-connect to the projector.

BALL CHECK UNIT  
CLIPPARD #MCV-1

AUTOMATIC SHUTTLE  
OIL RESERVOIR  
GITS #1052-A



6730-902692  
PISTON

6730-903282  
SHUTTLE OILER CAM

MANUAL CONTROL BUTTON  
ARROW. HART #3391-GL

TIMER AND CAM  
MINARIK #1-A-24 HQR.

PISTON TRAVEL  
ADJUSTING SCREW LOCK

PISTON TRAVEL  
ADJUSTING SCREW

6730-902690  
SOLENOID

FIGURE 13

# **MECHANICAL DRAWINGS**

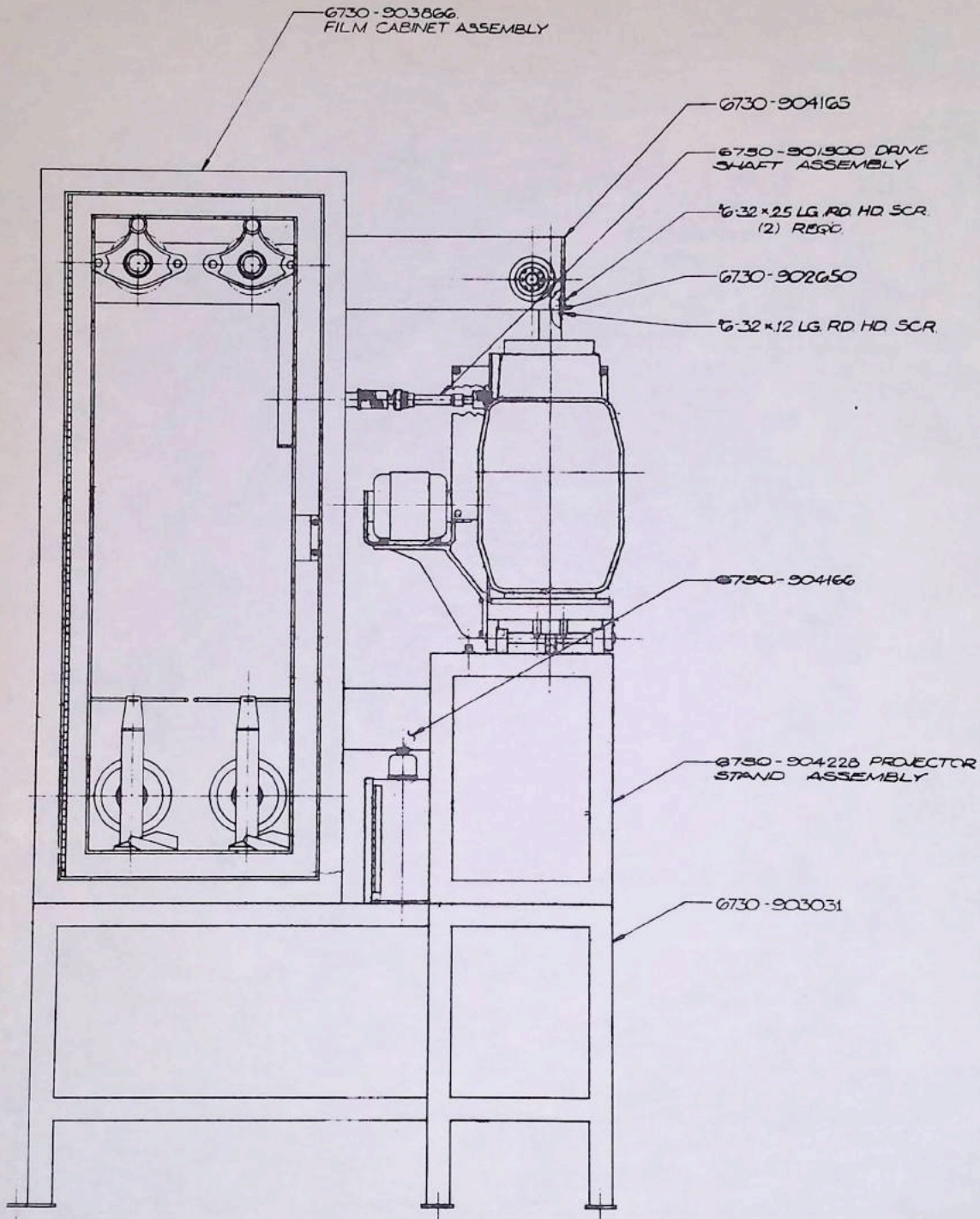
FOR ADDITIONAL DETAILED MECHANICAL INFORMATION ON DOCUMENTS OR  
EQUIPMENT APPEARING IN THE PROJECTOR SECTION OF THIS MANUAL  
CONTACT: DEPARTMENT HEAD - MACHINE SHOP - WALT DISNEY PRODUCTIONS

## MECHANICAL DRAWINGS

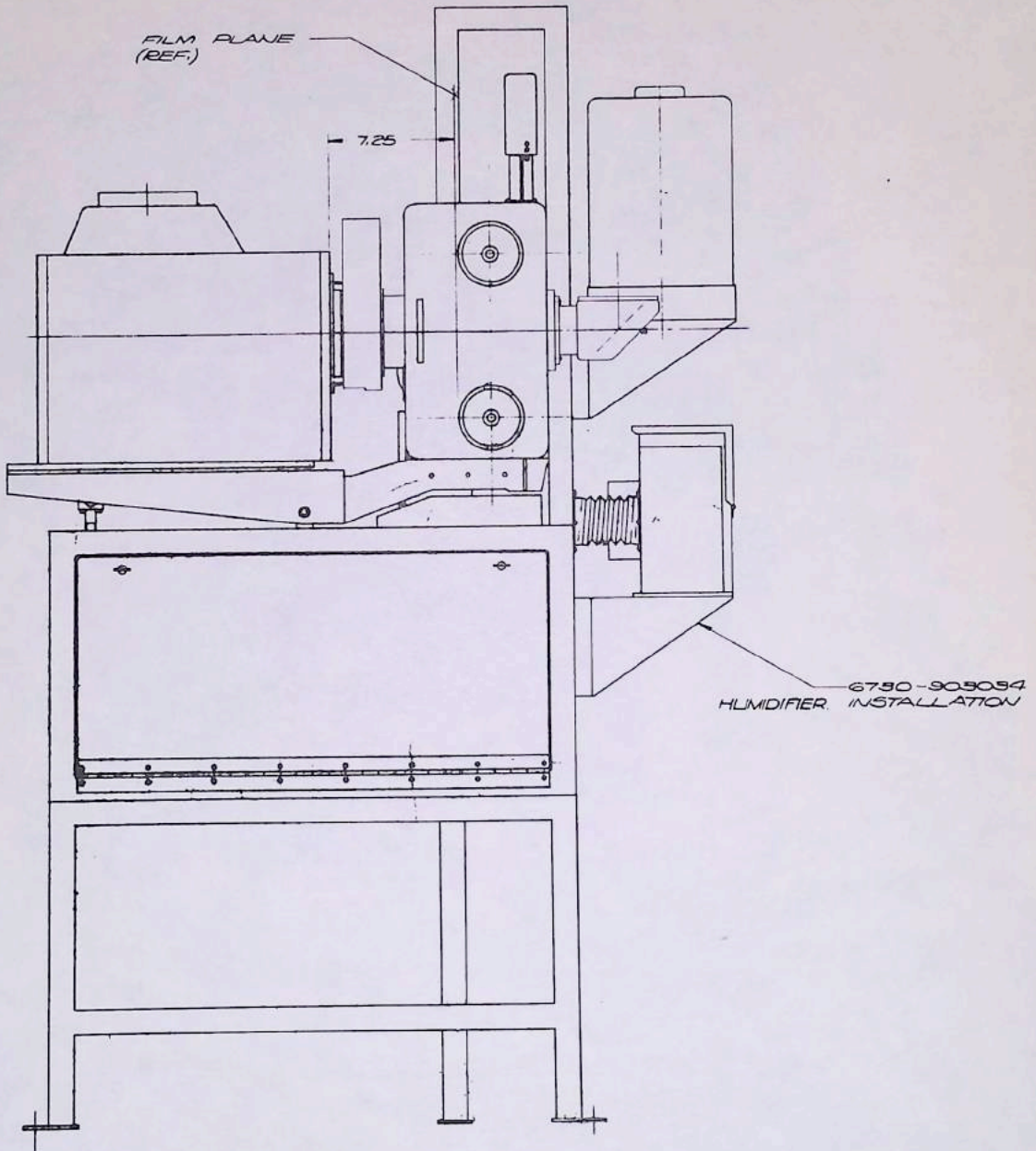
(EXCLUDING SOUND)

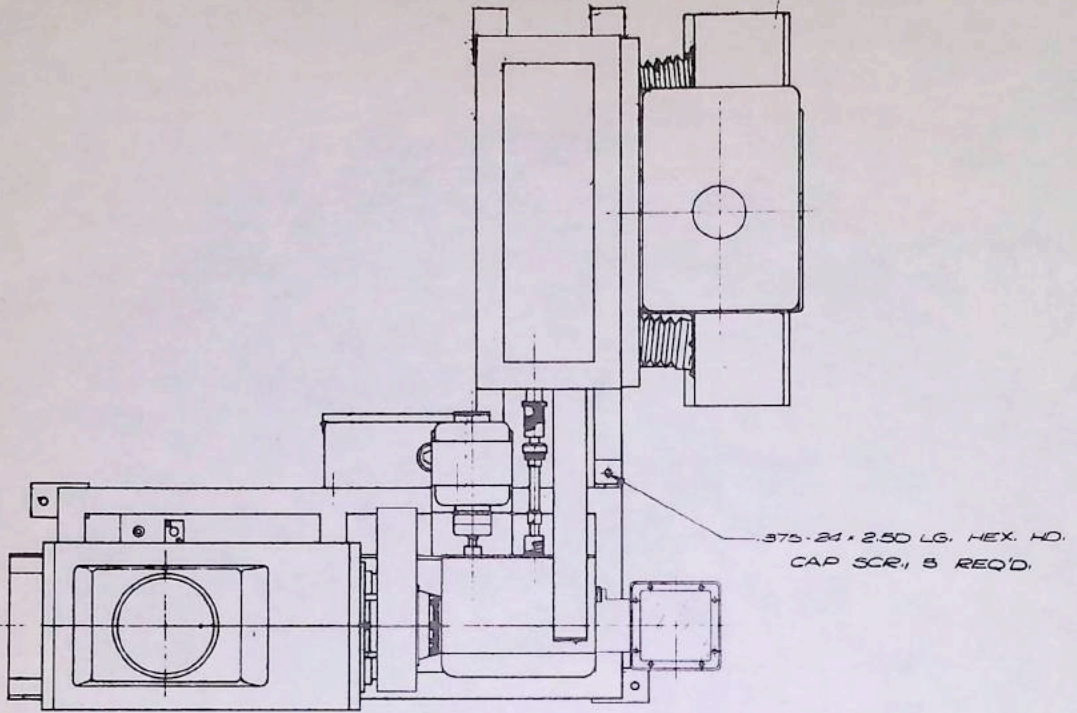
Assembly Title	Drawing Number
Projector System, 16mm (ORC)	*6730-904226
Projector System, 16mm (EJL)	*6730-904227
Short Fixed Idler Roller	6730-901178
Long Fixed Idler Roller	6730-901179
Pivot Idler Roller	6730-901180
Fixed Idler Roller	6730-901181
Chain Idler Fixed	6730-901194
Chain Idler Upper Adj.	6730-901197
Sprocket Film Guide	6730-901218
Projector Drive Motor	6730-901232
Drive Shaft	6730-901300
Flanged Tube	6730-901303
Quartz Lamphouse (EJL)	*6730-901420
Delrin Gate	6730-903706
Intermittent	*6730-904245
Lens Mount	*6730-901503
Aperture Plate	6730-901510
Chain Drive Ang-L-Gear	6730-901784
Film Lubricator	6730-901930
Humidistat	6730-901985
Single Mirror	6730-902651
Projector	6730-904236
Condenser Lens (EJL)	*6730-902677
Shuttle Oiler	*6730-902687
Humidifier	*6730-902760
16mm Splicer	6730-902872
Film Cabinet	*6730-903866
Projector Stand (ORC)	6730-904228
Projector Stand (EJL)	6730-904229
4 Spool	6730-903020
4 Sprocket	6730-903025
4 Loop Safety Switch	6730-903029
Douser (ORC)	6730-903143
Primary Idler Gear	6730-903284
Gear, Secondary Idler	6730-904238
Anti-Backlash Gear	6730-903288
Lubricator Bracket (RH)	6730-903347
Installation Drawing - Humidifier	6730-903034
4" Projection Lens (EJL)	6730-904255
Gear, Silent Chain	6730-904248
16mm Projector Head Assembly (Isometric)	*6730-904249

\*These drawings are incorporated as a part of this manual. All others are available from Supervisor, Projection Equipment, Maintenance. WDW



6730 - 904226  
 16MM PROJECTOR ASSEMBLY, O.R.C.  
 SHEET 1 OF 3





58 FT. CAPACITY 1.6 MIN RUNNING TIME @ 36 FT/MIN.

6730-902807 PROJECTOR MAINTENANCE TRAY

6730-902872 16" M. SPICER ASSEMBLY

AVAILABLE AS REQ'D

6730-903866  
FILM CABINET ASSEMBLY

6730-904165

6730-901300 DRIVE  
SHAFT ASSEMBLY

$\frac{1}{8}$ "-32x25 LG RD HD SCR  
(2) REQD.

6730-902650

$\frac{1}{8}$ "-32x12 LG. RD. HD. SCR.

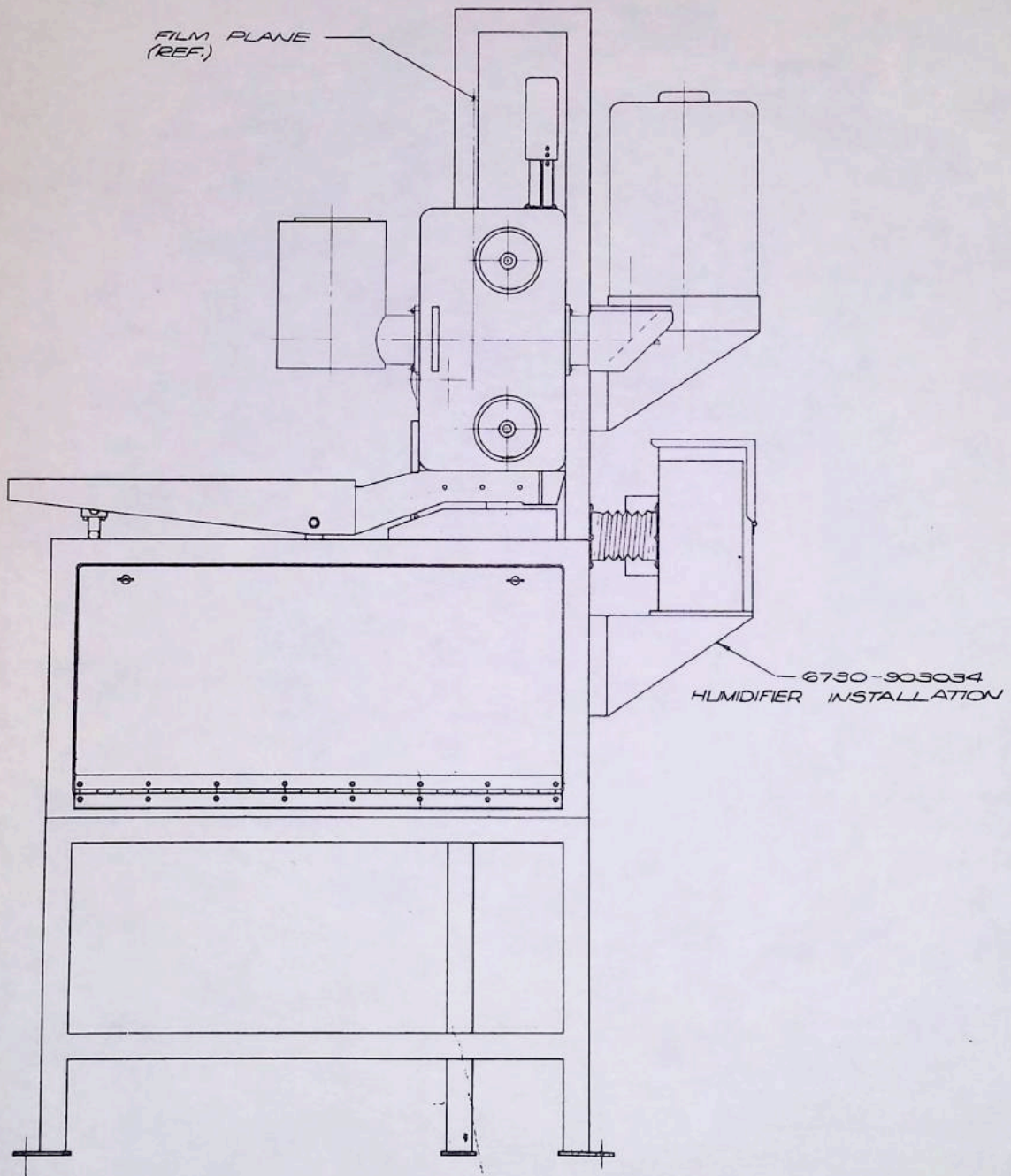
6730-904166

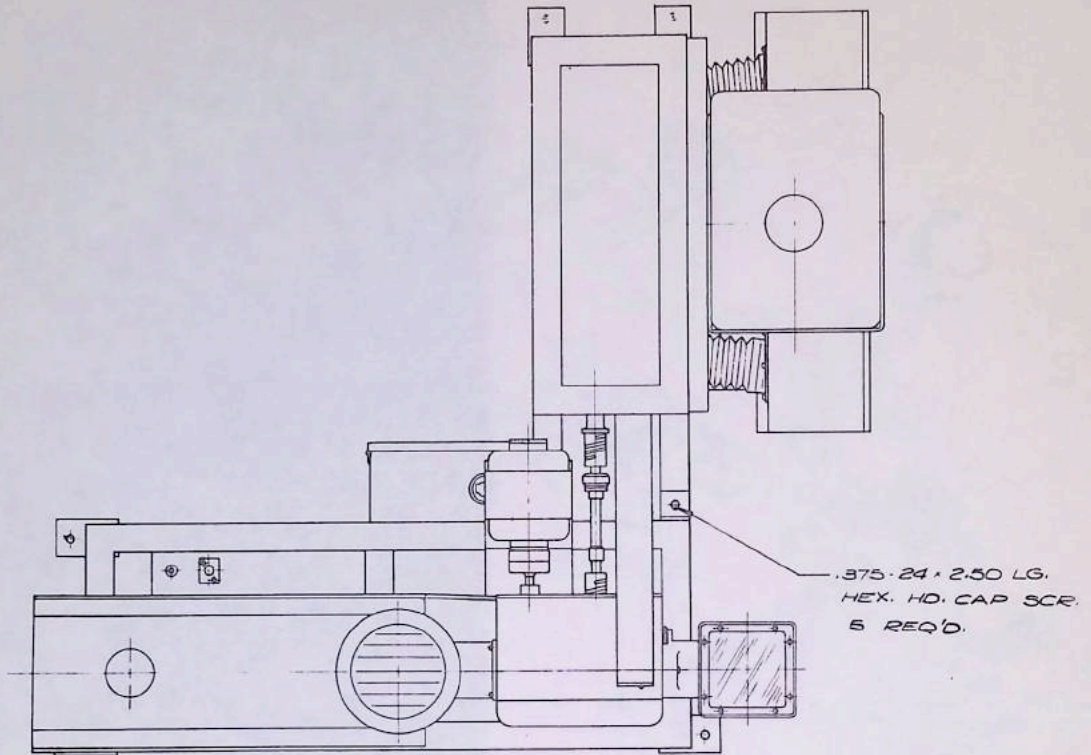
6730-904229 PROJECTOR  
STAND ASSEMBLY

6730-903031

6730-904227  
16MM PROJECTOR ASSEMBLY, E.J.L.  
SHEET 1 OF 3

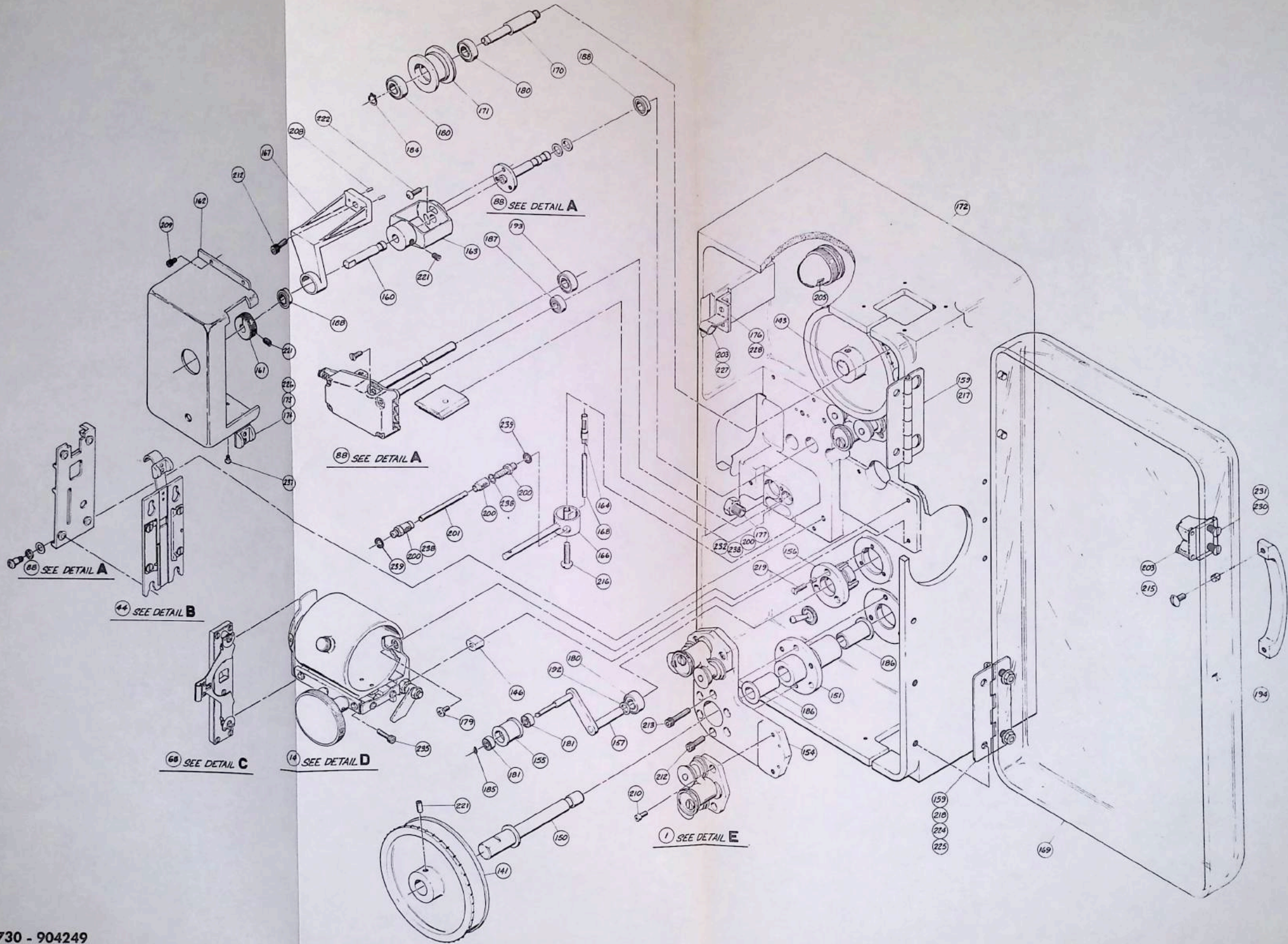


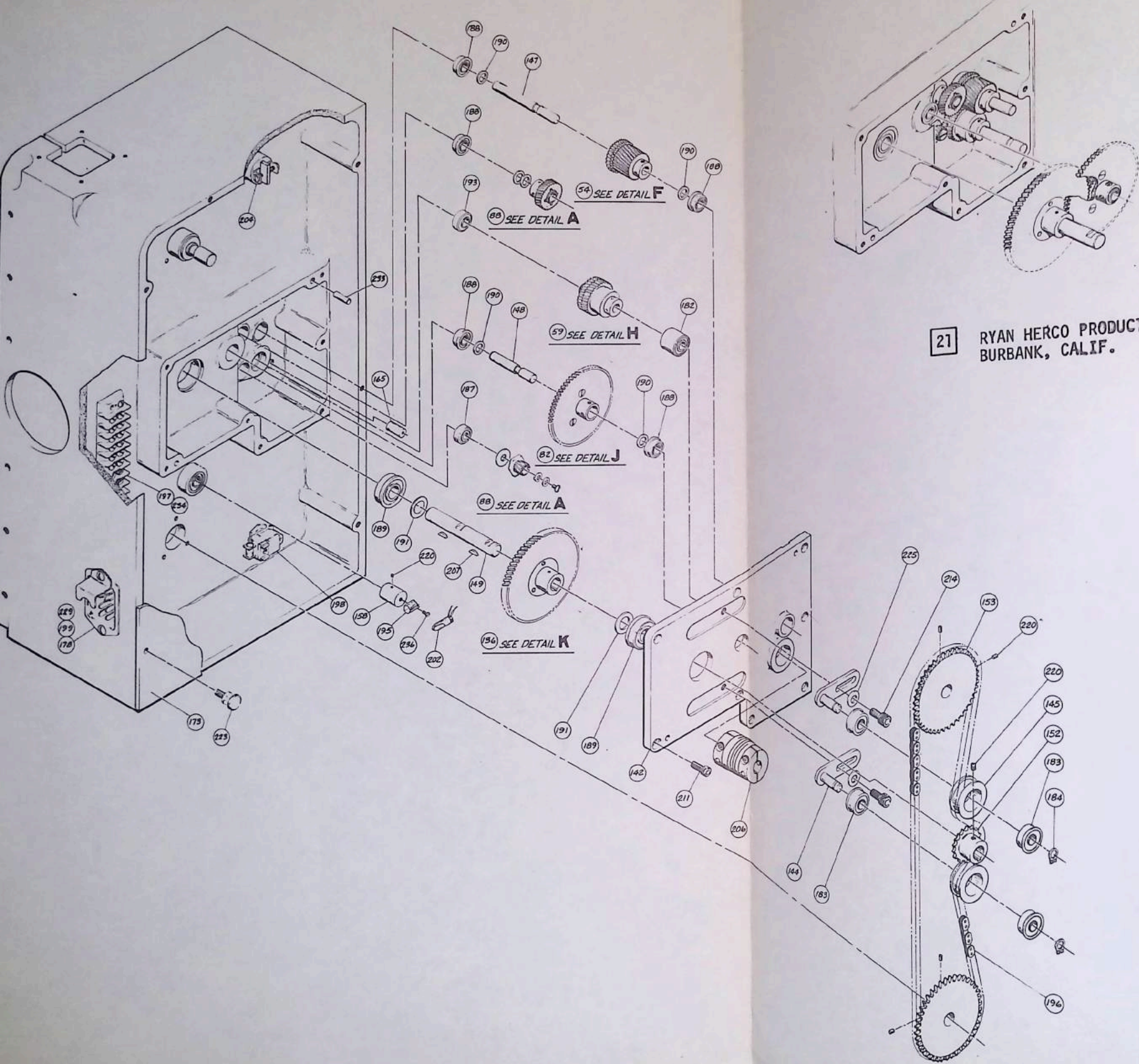




58 FT. CAPACITY 1.6 MIN RUNNING TIME @ 36 FT/MIN.

6730-902807 PROJECTOR MAINTENANCE TRAY  
6730-902872 16" M SPLICER ASSEMBLY  
AVAILABLE AS REQ'D

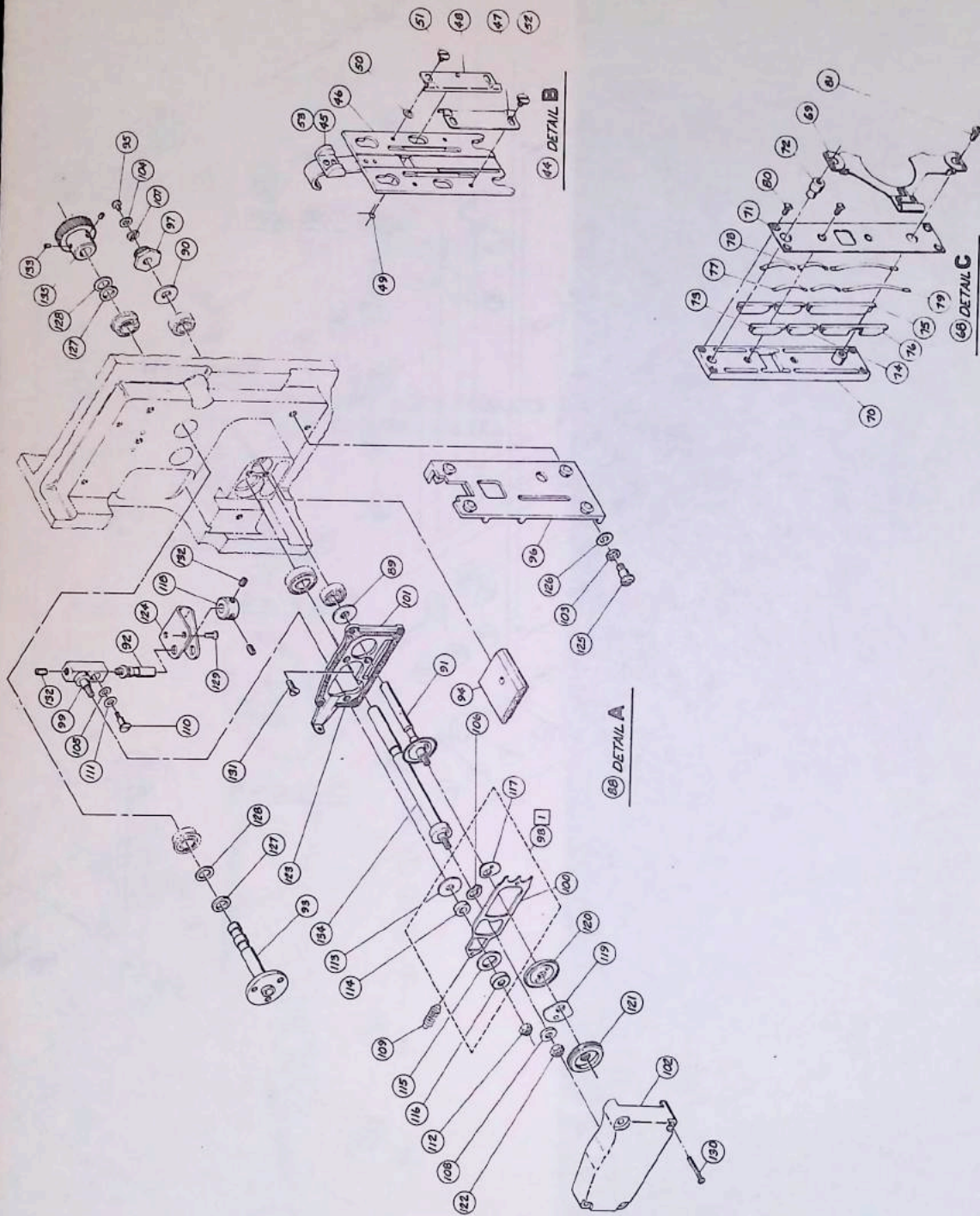




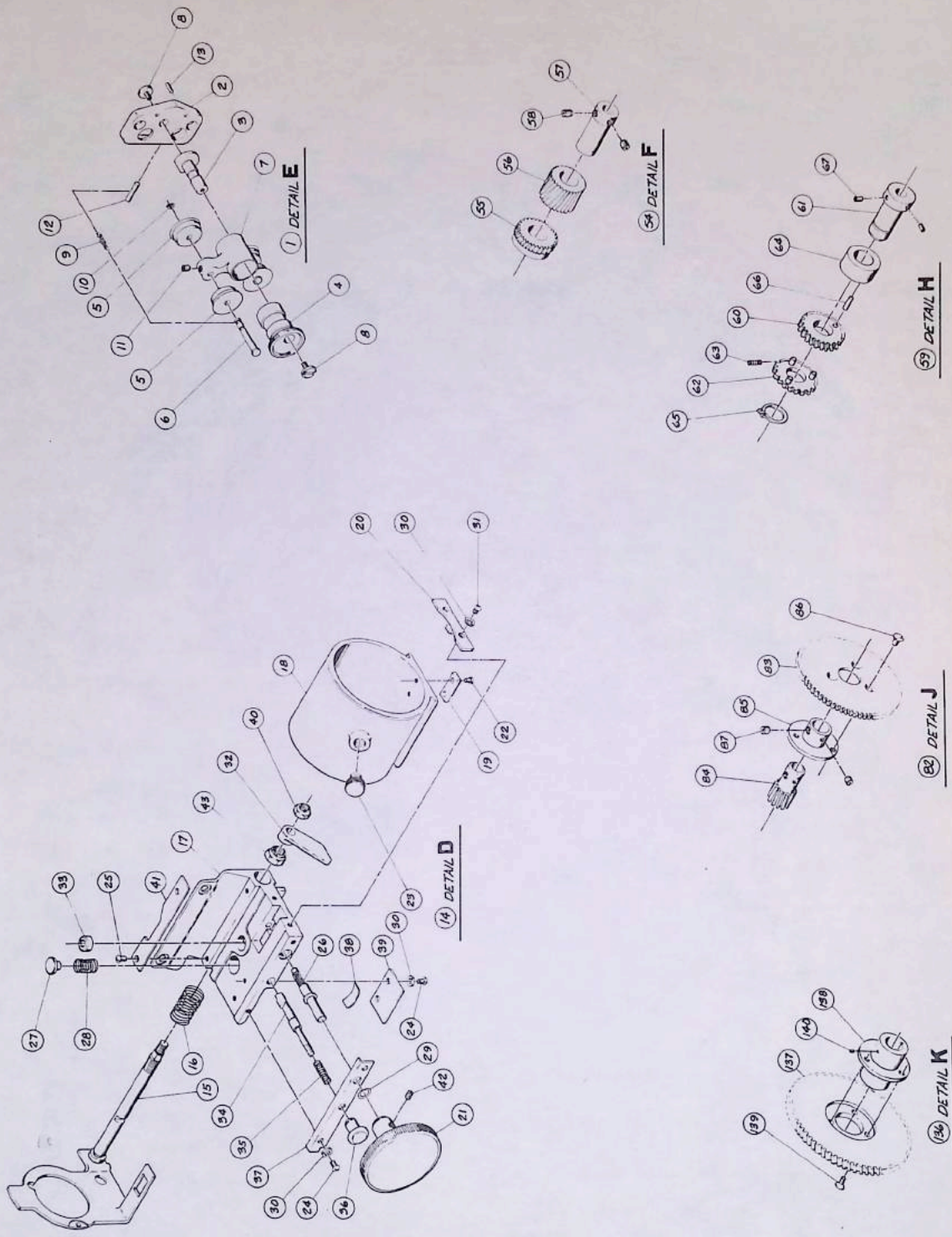
NOTES: UNLESS OTHERWISE SPECIFIED

- 1 PARTS ARE MATCHED AND ALL MUST BE REPLACED AT THE SAME TIME.
- 2 WALDES KOHINOOR, INC. LONG ISLAND CITY, N.Y.
- 3 BELL & HOWELL CHICAGO, ILLINOIS
- 4 MAPO GLENDALE, CALIFORNIA
- 5 SEASTROM MFG. CO., INC., GLENDALE, CALIF.
- 6 FAFNIR BEARING CO. NEW BRITAIN, CONNECTICUT
- 7 ATLAS BRASS FOUNDRY LOS ANGELES, CALIF.
- 8 THE BARDEN CORP. DANBURY, CONN.
- 9 DUCOMMUN METALS & SUPPLY LOS ANGELES, CALIF.
- 10 HONEYWELL INC. WABASH, IND.
- 11 MORSE CHAIN ITHACA, N.Y.
- 12 KULKA ELECTRIC CORP. MOUNT VERNON, N.Y.
- 13 CUTLER HAMMER MILWAUKEE, WISCONSIN
- 14 CINCH JONES CHICAGO, ILL.
- 15 GRA-TEC CORP. MINNEAPOLIS, MINN.
- 16 HARDWARE SPECIALTIES LOS ANGELES, CALIF.
- 17 DIALIGHT CORP. BROOKLYN, N.Y.
- 18 GENERAL ELECTRIC CO. CLEVELAND, OHIO
- 19 HELICAL PRODUCTS REDONDO BEACH, CALIF.
- 20 PORTER SEAL CO. LOS ANGELES, CALIF.

21 RYAN HERCO PRODUCTS CORP. BURBANK, CALIF.



6730 - 904249  
 16MM PROJECTOR HEAD ASSEMBLY  
 SHEET 3 OF 4



6730 - 904249  
 16MM PROJECTOR HEAD ASSEMBLY  
 SHEET 4 OF 4

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		6730-901218	SPROCKET FILM GUIDE ASSEMBLY	4
2.		6730-901219	PLATE, BASE	REF
3.		6730-901220	SHAFT, ECCENTRIC	REF
4.		6730-901221	KNOB, ECCENTRIC	REF
5.		6730-901222	ROLLER	REF
6.		6730-901223	SHAFT, ROLLER	REF
7.		6730-901224	BRACKET, ROLLER	REF
8.		6730-901643	SCREW, ECCENTRIC SHAFT	REF
9.		6730-901644	SPRING, SPROCKET GUIDE	REF
10.		5100-12	SNAP RING, EXTERNAL	2 REF
11.			SET SCREW, SOC HD 4-40 X .12 BLACK	REF
12.			PIN, DOWEL .062 X .50, SST	REF
13.			PIN, DOWEL .093 X .31, SST	REF
14.		6730-901503	LENS MOUNT ASSEMBLY	1
15.		6730-901504	SHAFT, PRESSURE PLATE RELEASE	REF
16.		6730-901505	SPRING, PRESSURE PLATE RELEASE	REF
17.		6730-901506	MOUNT, LENS HOLDER	REF
18.		6730-901507	HOLDER, LENS	REF
19.		6730-901508	RACK, LENS FOCUSING GEAR	REF
20.		6730-901509	PLATE, LENS HOLDER STOP	REF
21.		6730-901630	KNOB, FOCUS	REF
22.		4080	SCREW, GEAR RACK	3 REF
23.		061136	SCREW ASSEMBLY, LENS LOCK	3 REF
24.		600833	SCREW, RD HD	3 REF
25.		600950	SCREW, RD HD	3 REF
26.		611334	PINION, FOCUSING	3 REF
27.		611520	BUTTON, LENS HOLDER FRICTION	3 REF
28.		611521	SPRING, LENS HOLDER FRICTION	3 REF
29.		611645	WASHER, SPRING	3 REF
30.		611734	WASHER, LOCK	3 REF
31.		611469	SCREW, SPECIAL HD	3 REF
32.		613448	ARM, HOLDER PUSH ROD	3 REF
33.		613449	DISC, RELEASE ROD GUIDE	3 REF
34.		613450	ROD, PRESSURE PLATE RELEASE	3 REF
35.		613451	SPRING, COMPRESSION	3 REF
36.		613453	KNOB, RELEASE ROD	3 REF
37.		613455	RAIL, LENS HOLDER SIDE	3 REF
38.		613457	SPRING, LENS HOLDER, FLAT	3 REF

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
39.		613458	PLATE, FLAT SPRING RETAINING	3 REF
40.		614587	NUT, ELASTIC STOP	3 REF
41.		620005	RAIL, LENS HOLDER TOP	3 REF
42.			SET SCREW, SOC HD 6-32 X .12 BLACK	REF
43.		22 FT - 428	NUT, JAM 1/4-28	9 REF
44.		6730-901510	APERTURE PLATE ASSEMBLY	1
45.		6730-901492	SHOE, FILM	REF
46.		6730-901511	PLATE, APERTURE	REF
47.		061150	RAIL SUBASSEMBLY, FILM	3 REF
48.		061151	RAIL SUBASSEMBLY, FILM FLOATING	3 REF
49.		611482	SPRING, SIDE TENSION BRACKET	3 REF
50.		611483	WASHER, SIDE TENSION BRACKET	3 REF
51.		611484	SCREW, SIDE TENSION BRACKET	3 REF
52.		611499	SCREW, FILM GUIDE	3 REF
53.			SCREW, RD HD 2-56 X .12, SST	REF
54.		6730-903284	PRIMARY IDLER GEAR ASSEMBLY	1
55.		6730-901327	GEAR, IDLER	REF
56.		6730-901328	GEAR, IDLER	REF
57.		6730-901329	HUB, IDLER GEAR	REF
58.			SET SCREW, SOC HD 6-32 X .12, SST	REF
59.		6730-903288	ANTI-BACKLASH GEAR ASSEMBLY	1
60.		6730-901340	GEAR, ANTI-BACKLASH	REF
61.		6730-901341	HUB, REAR CAM SHAFT GEAR	REF
62.		6730-901344	GEAR, ANTI-BACKLASH	REF
63.		6730-901345	SPRING, ANTI-BACKLASH GEAR	REF
64.		6730-901359	SPACER, REAR CAM SHAFT GEAR HUB	REF
65.		5100-43	SNAP RING, EXTERNAL	2 REF
66.			ROLLPIN .062 DIA X .31	REF
67.			SET SCREW, SOC HD 6-32 X .18, SST	REF
68.		6730-903706	DELTRIN GATE ASSEMBLY	1
69.		6730-901372	PLATE, DELTRIN GATE SUPPORT	REF
70.		6730-903707	PLATE, PRESSURE	REF
71.		6730-903708	COVER, PRESSURE PLATE	REF
72.		6730-903709	BUSHING, PRESSURE PLATE	REF
73.		6730-903710	SHOE, UPPER GATE	REF
74.		6730-903711	SHOE, CENTER GATE	REF
75.		6730-903712	SHOE, LOWER GATE LEFT	REF
76.		6730-903-13	SHOE, LOWER GATE RIGHT	REF



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
77.		6730-903714	SPRING, UPPER GATE SHOE	REF
78.		6730-903715	SPRING, CENTER GATE SHOE	REF
79.		6730-903716	SPRING, LOWER GATE SHOE	REF
80.			SCREW, FLAT HD 2-56 X .18, SST	REF
81.			SCREW, SOC PAN HD, 4-40 X .25, SST	REF
82.		6730-904238	SECONDARY IDLER GEAR ASSEMBLY	1
83.		6730-901333	GEAR, IDLER	REF
84.		6730-904239	GEAR, IDLER	REF
85.		6730-904240	HUB, IDLER GEAR	REF
86.			SCREW, FLAT HD SOC 4-40 X .21, SST	REF
87.			SET SCREW, SOC HD 6-32 X .12, SST	REF
88.		6730-904245	INTERMITTENT ASSEMBLY	1
89.		6730-904246	SPACER, FRONT CAM SHAFT	REF
90.		6730-904247	SPACER, FRONT CAM SHAFT, REAR	REF
91.		6730-901500	CAMSHAFT, FRONT	REF
92.		6730-901501	SHAFT, FRAMER	REF
93.		6730-901502	SHAFT, SHUTTER	REF
94.		6730-904375	PAD, INTERMITTENT OILER	REF
95.		98757	SCREW, SPECIAL BINDER HD	3 REF
96.		061040	BKT, ASSY, APERTURE PL. MTG.	3 REF
97.		061042	GEAR ASSEMBLY, FRONT CAM	3 REF
98.		061193	KIT ASSY, SHUTTLE CAMS & PIVOT	1 3 REF
99.		063112	BAR ASSY, FRAMER PIVOT	3 REF
100.		063260	SHUTTLE ASSEMBLY	3 REF
101.		067399	PL. ASSY, SHUTTLE COVER MTG.	3 REF
102.		067402	COVER ASSEMBLY, SHUTTLE	3 REF
103.		600293	WASHER, LOCK	3 REF
104.		600789	WASHER, LOCK	3 REF
105.		611251	WASHER, FRAMER BAR FRICTION	3 REF
106.		611283	CAM REAR, HORIZONTAL MOTION	3 REF
107.		611302	RING, FRONT CAM GEAR LOCK	3 REF
108.		611285	WASHER, REAR CAM RETAINING	3 REF
109.		611314	SPRING, SHUTTLE	3 REF
110.		611380	SCREW, FRAMER BAR MOUNTING	3 REF
111.		611383	WASHER, FRAMER BAR SPRING	3 REF
112.		611453	NUT, ELASTIC STOP	3 REF
113.		611773	SPACER, SHUTTLE PIVOT, INNER	3 REF
114.		611774	BUSHING, SHUTTLE PIVOT	3 REF

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
115.		611775	SPACER, SHUTTLE PIVOT, OUTER	3 REF
116.		611779	WASHER, SHUTTLE PIVOT, BUSHING	3 REF
117.		611783	CAM, FRONT, VERTICAL MOTION	3 REF
118.		611866	COLLAR, FRAMER SHAFT LOCKING	3 REF
119.		611973	COUNTERWEIGHT, FRONT CAM	3 REF
120.		611974	DISC, FRONT CAM, LUBRICATING	3 REF
121.		611975	NUT, SPECIAL	3 REF
122.		615925	NUT, CAM LOCK	3 REF
123.		620933	GASKET, SHUTTLE COVER	3 REF
124.		620937	BRACKET, FRAMER SHAFT	3 REF
125.		613210	SCREW, APERTURE MTG. BRACKET	3 REF
126.		5710-36-32	WASHER, FLAT, SST	5 REF
127.		5602-106-32	WASHER, FIBRE	5 REF
128.		5602-106-45	WASHER, FIBRE	5 REF
129.			SCREW, RD HD 4-40 X .18, SST	REF
130.			SCREW, RD HD 2-56 X .62, SST	REF
131.			SCREW, FLAT HD 2-56 X .25, SST	REF
132.			SET SCREW, SOC HD 5-40 X .12 BLACK	REF
133.			SET SCREW, SOC HD 8-32 X .12 BLACK	REF
134.		6730-901339	SHAFT, REAR CAM	REF
135.		6730-901343	GEAR, SHUTTER SHAFT	REF
136.		6730-904248	SILENT CHAIN GEAR ASSEMBLY	1
137.		6730-901334	GEAR, SC SHAFT	REF
138.		6730-904242	HUB, SC SHAFT GEAR	REF
139.			SCREW, FLAT HD 4-40 X .21, SST	REF
140.			SET SCREW, SOC HD 6-32 X .12 BLACK	REF
141.		6730-901118	SPROCKET, FILM	2
142.		6730-904243	COVER, GEAR BOX, BALL BEARING	1
143.		6730-901320	SHAFT, UPPER SPROCKET	1
144.		6730-901321	BRACKET, SC TAKUP	2
145.		6730-901322	ROLLER, SC TAKEUP	2
146.		6730-901827	SPACER, LENS MOUNT	1
147.		6730-901326	SHAFT, IDLER GEAR	1
148.		6730-901326	SHAFT, SECONDARY IDLER GEAR	1
149.		6730-901336	SHAFT, SC DRIVE	1
150.		6730-901337	SHAFT, LOWER SPROCKET	1
151.		6730-901338	HOUSING, SPROCKET DRIVE SHAFT	2
152.		6730-901346	SPROCKET, SC DRIVE	1

DWG.

6730-904249

PROJECTOR HEAD ASSEMBLY, 16MM BALL BEARING

SHEET 5 OF 7

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
153		6730-901347	SPROCKET, DRIVE CHAIN	2
154		6730-901349	BRACKET, SPROCKET FILM GUIDE	2
155		6730-901350	ROLLER, LOOP SWITCH	1
156		6730-901351	HUB, LOOP SWITCH	1
157		6730-901352	SHAFT LOOP SWITCH	1
158		6730-901353	COLLAR, MERCURY SWITCH	1
159		6730-901355	HINGE, DOOR	2
160		6730-901360	SHAFT, SHUTTER	1
161		6730-901361	KNOB, TURNOVER	1
162		6730-901362	HOUSING, INTERMITTENT	1
163		6730-901363	SHUTTER	1
164		6730-901488	TUBE, INTERMITTENT OILER	1
165		6730-901495	BUSHING, FRAMER PIVOT	1
166		6730-901513	RESERVOIR, INTERMITTENT OILER	1
167		6730-904244	BRACKET, SHUTTER BEARING	1
168		6730-901588	WICK, INTERMITTENT OILER	1
169		6730-901748	DOOR, PROJECTOR	1
170		6730-901828	SHAFT 16MM GUIDE ROLLER	1
171		6730-901829	ROLLER, 16MM GUIDE	1
172		6730-904237	BOX, BALL BEARING PROJECTOR	1
173		6730-902698	COVER, PROJECTOR REAR	1
174		6730-901491	BRACKET, LOWER FILM SHOE	1
175		6730-901492	SHOE, FILM	1
176		6730-901494	ANGLE, DOOR STRIKER	1
177		6730-904013	NIPPLE, SHUTTLE OILER 90°	1
178		6730-902984	CLIP, PROJECTOR PLUG	1
179		6730-903686	SCREW, LENS HOLDER MOUNT	2
180		S1KDD7	BEARING	6 4
181		33KDD3	BEARING	6 2
182		DW4K2	BEARING	6 1
183		F4DD	BEARING	6 4
184		5100-25	SNAP RING, EXTERNAL	2 3
185		5100-12	SNAP RING, EXTERNAL	2 1
186		CF376D-0750	BUSHING	7 4
187		SR3FF3CX0G-2	BEARING	8 2
188		SFR188SSW3CX0G-2	BEARING	8 7
189		SFR6FF3CX0G-2	BEARING	8 2
190		5602-106-45	WASHER, FIBRE	5 4

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
191		5606-28-32	WASHER, NYLON	5 2
192		5610-68-32	WASHER, NYLON	5 1
193		SR4FF3CX0G-2	BEARING	8 2
194		4477-A5	STANLEY PULL	9 1
195		11MR11-F	CLIP, MERCURY SWITCH	10 1
196		SC0305	CHAIN, 3/16 S LENT	11 1
197		670-10	TERMINAL STRIP	12 1
198		8295K8	SWITCH, TOGGLE	13 1
199		P-308-DB	RECEPTACLE, PLUG	14 1
200		0016	FITTING, 10-32 X #2	4 15 3
201		R-3603-024	TUBING, CLEAR PLASTIC	21 A/R
202		AS419A1	SWITCH, MIRCO MERCURY	10 1
203		11701-FW12	DOOR CATCH	16 1
204		47-3202-2900-301	PANEL LIGHT	17 1
205		6S6 DC	LAMP 125V, 6W	18 1
206		AC100-128	COUPLING	19 1
207			WOODRUFF KEY NO. 2	2
208			PIN, DOWEL .093 X .25, SST	2
209			SCREW, SOC HD 4-40 X .25, SST	4
210			SCREW, SOC HD 6-32 X .25, SST	8
211			SCREW, SOC HD 8-32 X .43, SST	8
212			SCREW, SOC HD 8-32 X .50, SST	7
213			SCREW, SOC HD 8-32 X .75, SST	6
214			SCREW, SOC HD 10-32 X .37, SST	2
215			SCREW, TRUSS HD 8-32 X .37, SST	2
216			SCREW, RD HD 8-32 X .68, SST	1
217			SCREW, TRUSS HD 10-32 X .25, SST	4
218			SCREW, TRUSS HD 10-32 X .37, SST	4
219			SCREW, FLAT HD 4-40 X .43, SST	3
220			SET SCREW, SOC HD 8-32 X .12 BLACK	6
221			SET SCREW, SOC HD 8-32 X .25 BLACK	4
222			SCREW, BUTTON HD 6-32 X .18 BLACK	3
223			SCREW, THUMB 8-32 X .37, SST	6
224			NUT, HEX 10-32, SST	4
225			WASHER, FLAT 10-32, SST	6
226			SCREW, RD HD 2-56 X .12, SST	2
227			SCREW, TRUSS HD 6-32 X .18, SST	2
228			SCREW, RD HD 6-32 X .25, SST	2



22 RYAN HERCO PRODUCTS CORP.  
BURBANK, CALIF.

21 PORTER SEAL CO  
LOS ANGELES CALIFORNIA

20 BARDEN CORP  
DANBURY CONN.

19 MAPO  
GLENDALE, CALIFORNIA

18 SEASTROM MFG. CO, INC.  
GLENDALE, CALIFORNIA

17 HARDWARE SPECIALTIES  
LOS ANGELES, CALIFORNIA

16 D'COMMUN METALS & SUPPLY  
LOS ANGELES, CALIFORNIA

15 MORSE CHAIN  
ITHACA, NEW YORK

14 HELICAL PRODUCTS  
REDONDO BEACH, CALIFORNIA

13 GRA-TEC, INCORP  
MINNEAPOLIS, MINNESOTA

12 HONEYWELL INC  
WABASH, INDIANA

11 GENERAL ELECTRIC CO  
CLEVELAND, OHIO

10 DIALIGHT CORP  
BROOKLYN, NEW YORK

9 CINCH JONES  
CHICAGO, ILLINOIS

8 CUTLER HAMMER  
MILWAUKEE, WISCONSIN

7 KULKA ELECTRIC CORP  
MOUNT VERNON, NEW YORK

6 ATLAS BRASS FOUNDRY  
LOS ANGELES, CALIFORNIA

5 PIC DESIGN CORP  
EAST ROCKAWAY, NEW YORK

4 NEW DEPARTURE-HYATT BEARINGS  
SANDUSKY, OHIO

3 FAIRBIR BEARING CO  
NEW BRITAIN, CONNECTICUT

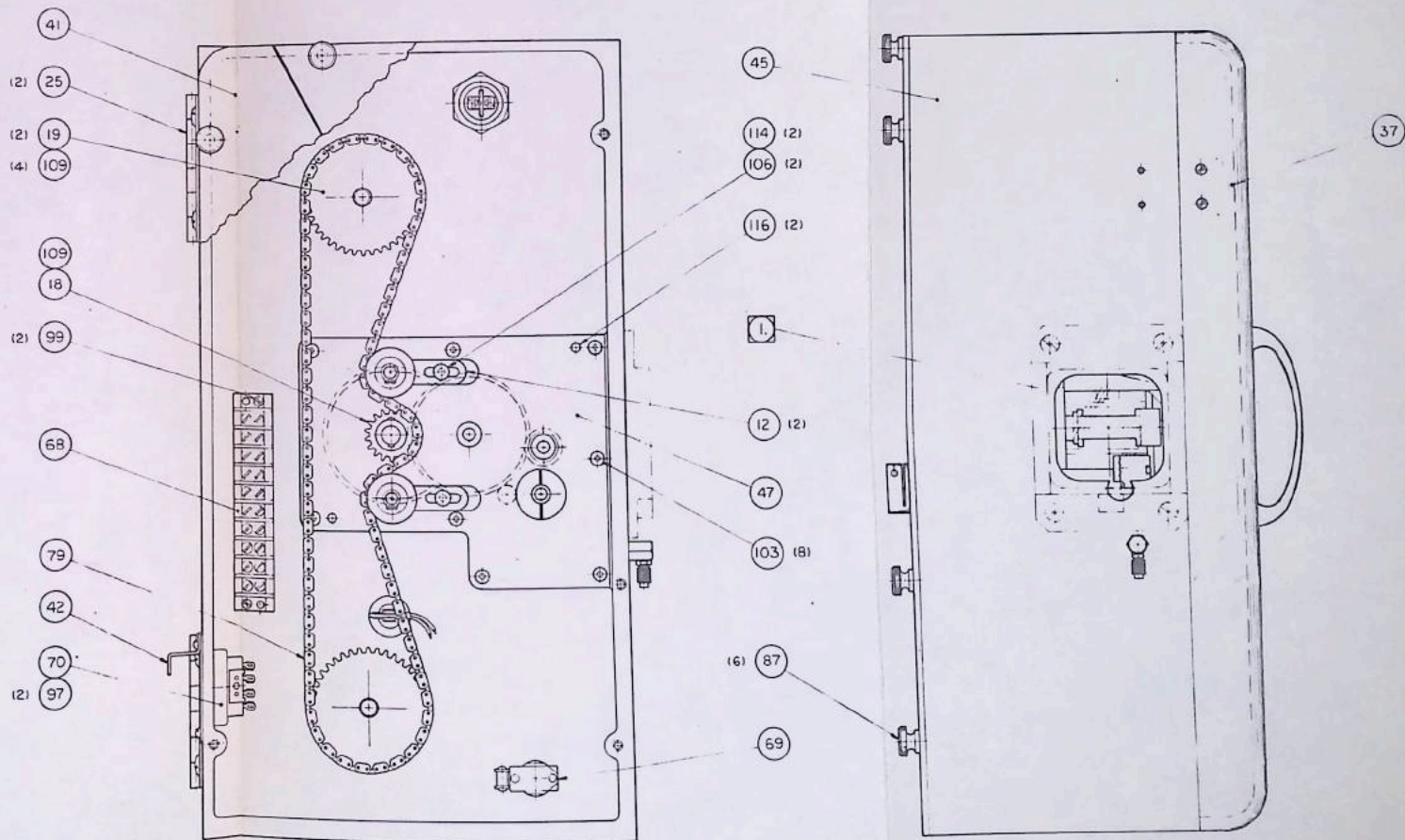
2 WALDES KOHMOOR, INC.  
LONG ISLAND CITY, NEW YORK

2 6730-904249

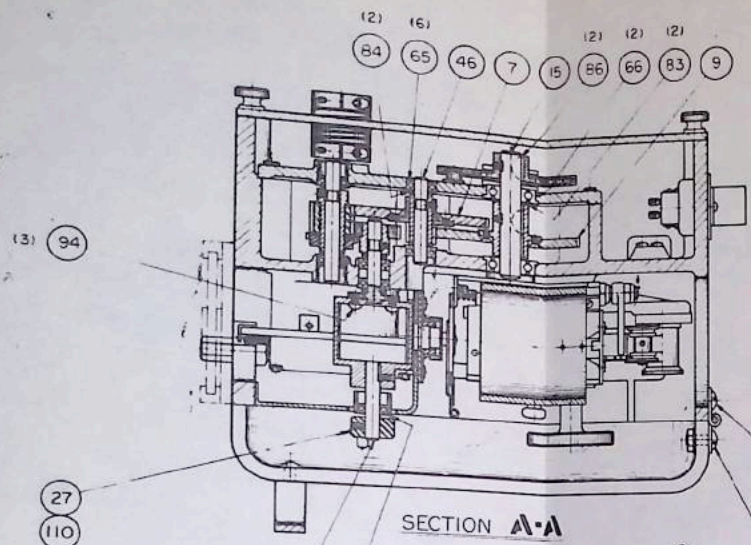
1 6730-902871

1. REFERENCE DOCUMENTS

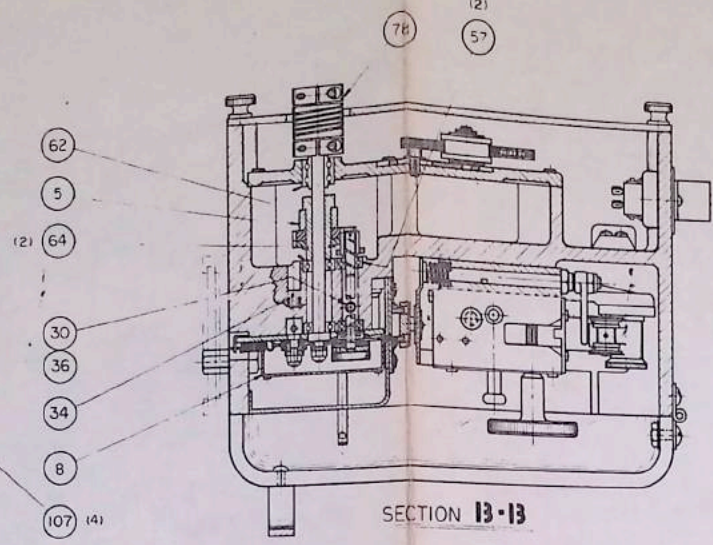
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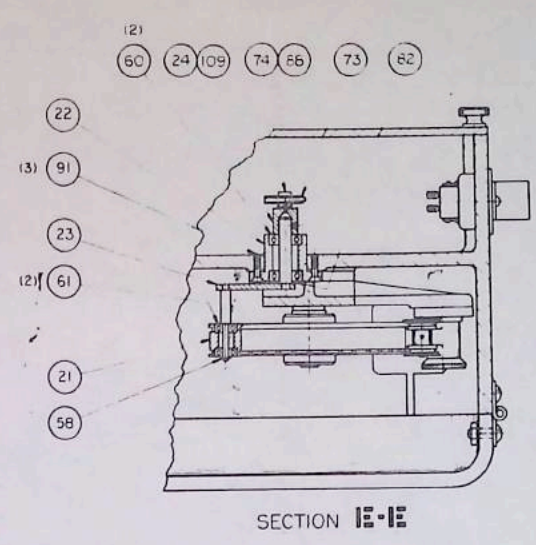
6730 - 904236  
16MM PROJECTOR HEAD ASSEMBLY  
SHEET 1 OF 2



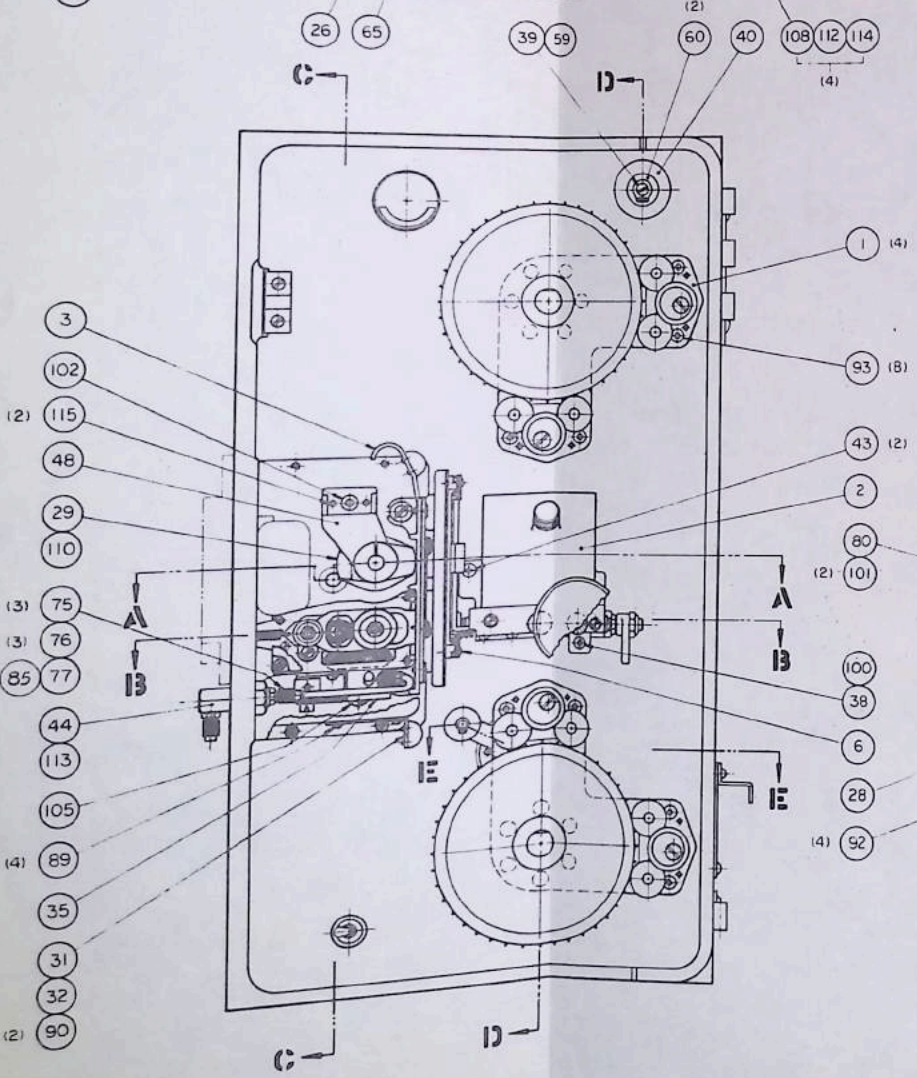
SECTION A-A



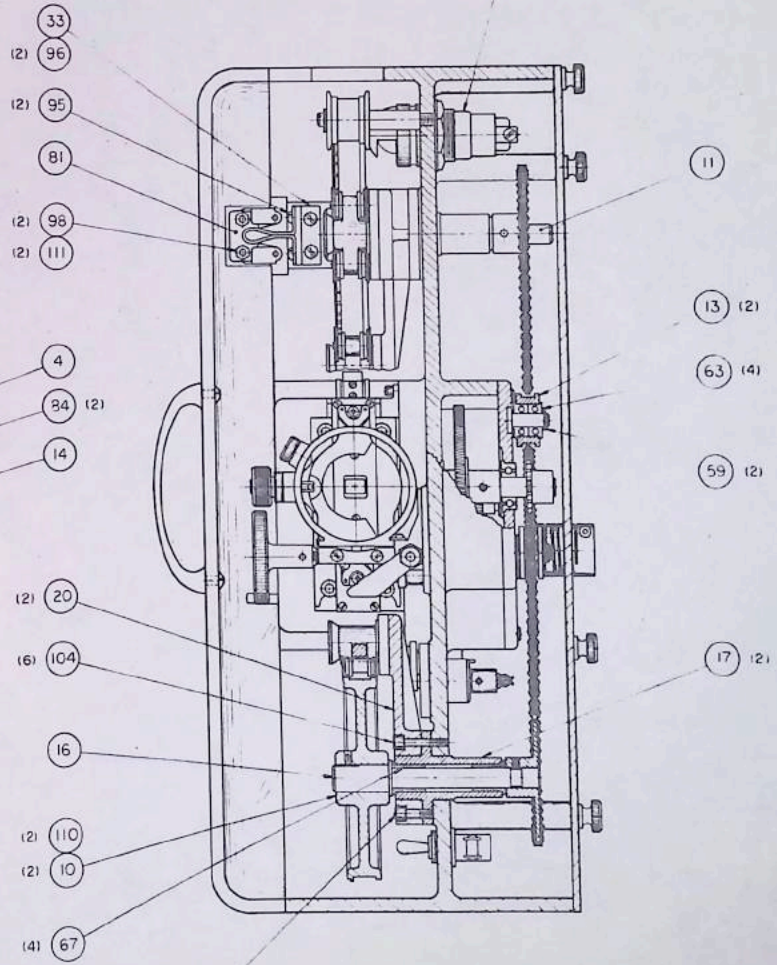
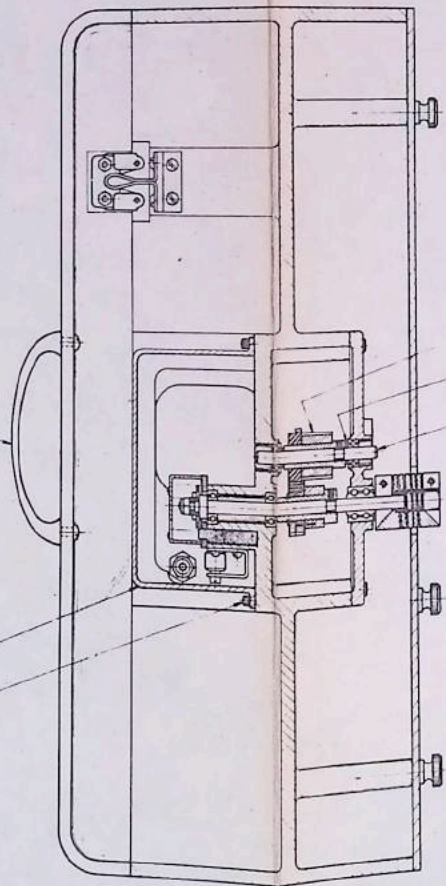
SECTION B-B



SECTION E-E



SECTION C-C



6730 - 904236  
16MM PROJECTOR HEAD ASSEMBLY  
SHEET 2 OF 2

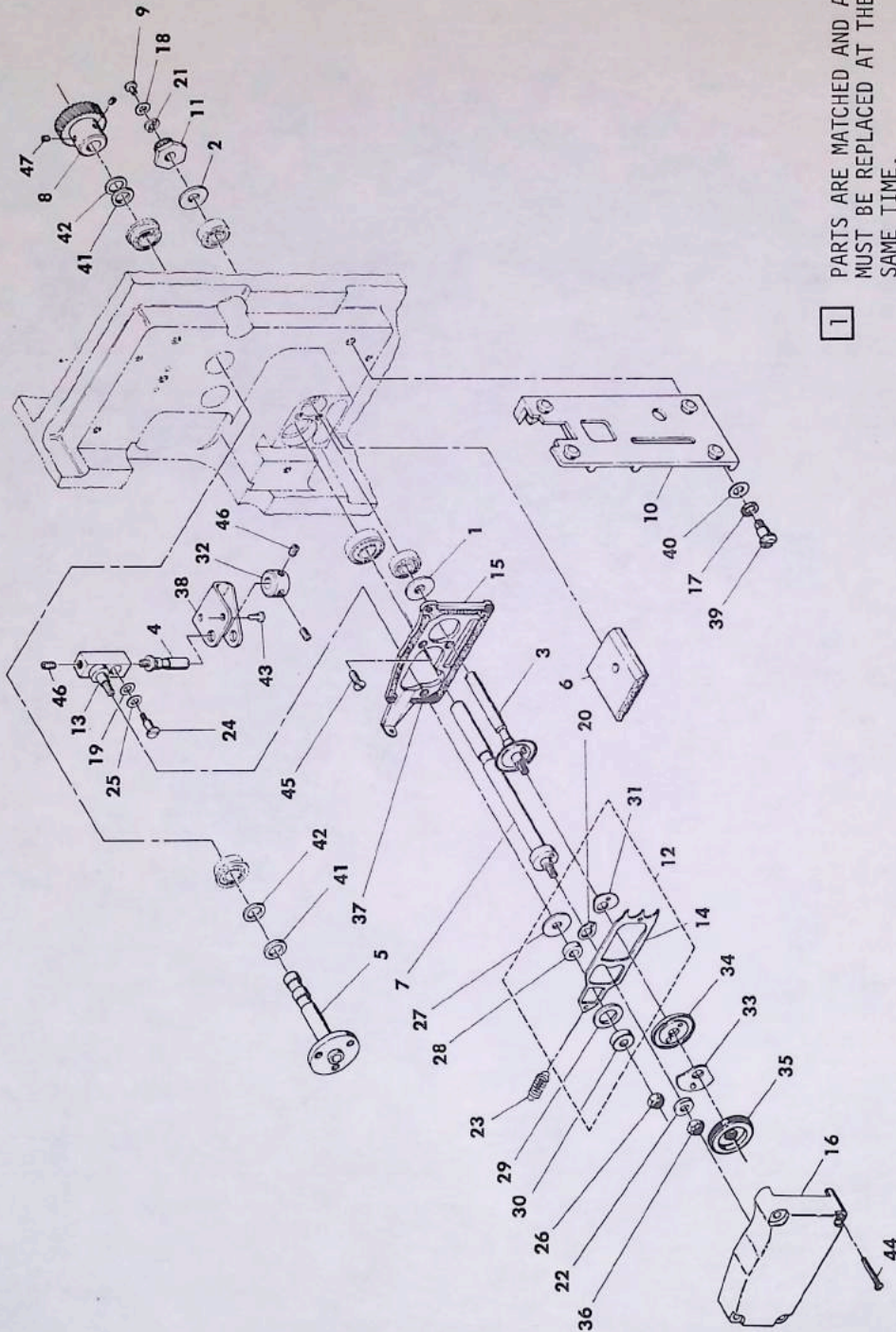
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		6730-901218	SPROCKET, FILM GUIDE ASSY	4
2.		6730-901503	LENS MOUNT ASSY	1
3.		6730-901510	APERTURE PLATE ASSY	1
4.		6730-903284	GEAR, PRIMARY IDLER ASSY	L
5.		6730-903288	GEAR, ANTI-BACKLASH ASSY	1
6.		6730-903706	DELTRIN GATE ASSY	1
7.		6730-904238	GEAR, SECONDARY IDLER ASSY	1
8.		6730-904245	INTERMITTENT ASSY	1
9.		6730-904248	GEAR, SILENT CHAIN ASSY	1
10.		6730-901118	SPROCKET, FILM	2
11.		6730-901320	SHAFT, UPPER SPROCKET	1
12.		6730-901321	BRACKET, S.C. TAKEUP	2
13.		6730-901322	ROLLER, S.C. TAKEUP	2
14.		6730-901326	SHAFT, IDLER GEAR	1
15.		6730-901336	SHAFT, S.C. DRIVE	1
16.		6730-901337	SHAFT, LOWER SPROCKET	1
17.		6730-901338	HOUSING, SPROCKET DRIVE SHAFT	2
18.		6730-901346	SPROCKET, S.C. DRIVE	1
19.		6730-901347	SPROCKET, DRIVEN CHAIN	2
20.		6730-901349	BRACKET, SPROCKET FILM GUIDE	2
21.		6730-901350	ROLLER, LOOP SWITCH	1
22.		6730-901351	HUB, LOOP SWITCH	1
23.		6730-901352	SHAFT, LOOP SWITCH	1
24.		6730-901353	COLLAR, MERCURY SWITCH	1
25.		6730-901355	HINGE, DOOR	2
26.		6730-901360	SHAFT, SHUTTER	1
27.		6730-901361	KNOB, TURNOVER	1
28.		6730-901362	HOUSING, INTERMITTENT	1
29.		6730-901363	SHUTTER	1
30.		6730-901488	TUBE, INTERMITTENT OILER	1
31.		6730-901491	BRACKET, LOWER FILM SHOE	1
32.		6730-901492	SHOE FILM	1
33.		6730-901494	ANGLE DOOR STRIKER	1
34.		6730-901495	BUSHING FRAMER PIVOT	1
35.		6730-901513	RESERVOIR, INTERMITTENT OILER	1
36.		6730-901588	WICK, INTERMITTENT OILER	1
37.		6730-901748	DOOR, PROJECTOR	1
38.		6730-901827	SPACER, LENS MOUNT	1



ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
39.		6730-901828	SHAFT, 16MM GUIDE ROLLER	1
40.		6730-901829	ROLLER, 16MM GUIDE	1
41.		6730-902698	COVER, PROJECTOR REAR	1
42.		6730-902984	CLIP, PROJECTOR PLUG	1
43.		6730-903686	SCREW, LENS HOLDER MOUNT	2
44.		6730-904013	NIPPLE, SHUTTLE OILER 90°	1
45.		6730-904237	BOX, BALL BEARING PROJECTOR	1
46.		6730-904241	SHAFT, SECONDARY IDLER GEAR	1
47.		6730-904243	COVER GEARBOX BALL BEARING	1
48.		6730-904244	BRACKET, SHUTTER BEARING	1
49.				
50.				
51.				
52.				
53.				
54.				
55.				
56.				
57.			BEARING, SR3FF3CX0G-2	BARDEN 20 2
58.		5100-12	SNAP RING, EXTERNAL	TRUARC 2 1
59.		5100-25	SNAP RING, EXTERNAL	TRUARC 2 3
60.		S1KDD7	BEARING	FAFNIR 3 4
61.		33KDD3	BEARING	FAFNIR 3 2
62.		DW4K2	BEARING	FAFNIR 3 1
63.		F4DD	BEARING	FAFNIR 3 4
64.			BEARING, SR4FF2CX0G-2	BARDEN 20 2
65.			BEARING, SFR188SSW3CX0G-2	BARDEN 20 7
66.			BEARING, SFR6FF3CX0G-2	BARDEN 20 2
67.		CF376D-0750	BUSHING	ATLAS BRASS FOUNDRY 6 4
68.		670-10	TERMINAL STRIP	KULKA ELECTRIC 7 1
69.		8295K8	SWITCH, TOGGLE	CUTLER HAMMER 8 1
70.		P-308-DB	RECEPTACLE PLUG	9 1
71.		47-3202-2900-301	PANEL LIGHT	10 1
72.		6S6DC	LAMP, 125V 6W	11 1
73.		AS419A1	SWITCH, MIRCO MERCURY	12 1
74.		1MR11-F	CLIP, SWITCH MERCURY	12 1
75.		0016	FITTING, 10-32 X #2	13 19 3
76.		CY-280-2	GASKET	13 19 3

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
77		R3603-024	TUBING, CLEAR PLASTIC (TYGON)	22 A/R
78		AC100-128	COUPLING	14 1
79		SC0305	CHAIN, 3/16" SILENT	15 1
80		4477-A5	HANDLE, STANLEY PULL	16 1
81		11701-FW12	DOOR CATCH	17 1
82		5610-68-32	WASHER, NYLON	18 1
83		5606-28-32	WASHER, NYLON	18 2
84		5602-106-45	WASHER, FIBER	18 4
85		A-006	O-RING	21 3
86		#2	KEY, WOODRUFF	2
87		8-32 X 3/8"	SCREW, THUMB	SST 6
88		0-80 X 1/16"	SCREW, ROUND HD	SST 1
89		1-72 X 1/8"	SCREW, ROUND HD	SST 4
90		2-56 X 1/8"	SCREW, ROUND HD	SST 2
91		4-40 X 7/16"	SCREW, FLAT HD	SST 3
92		4-40 X 1/4"	SCREW, SOC HD CAP	SST 4
93		6-32 X 1/4"	SCREW, SOC HD CAP	SST 8
94		6-32 X 3/16"	SCREW, BUTTON HD SOC	BLACK 3
95		6-32 X 3/16"	SCREW, TRUSS HD	SST 2
96		6-32 X 1/4"	SCREW, ROUND HD	SST 2
97		6-32 X 1/4"	SCREW, TRUSS HD	SST 2
98		6-32 X 1/2"	SCREW, FLAT HD	SST 2
99		6-32 X 1/2"	SCREW, ROUND HD	SST 2
100		6-32 X 3/4"	SCREW, SOC HD CAP	SST 1
101		8-32 X 3/8"	SCREW, TRUSS HD	SST 2
102		8-32 X 1/2"	SCREW, SOC HD CAP	SST 7
103		8-32 X 7/16"	SCREW, SOC HD CAP	SST 8
104		8-32 X 3/4"	SCREW, SOC HD CAP	SST 6
105		8-32 X 11/16"	SCREW, ROUND HD	SST 1
106		10-32 X 3/8"	SCREW, SOC HD CAP	SST 2
107		10-32 X 1/4"	SCREW, TRUSS HD	SST 4
108		10-32 X 3/8"	SCREW, TRUSS HD	SST 4
109		8-32 X 1/8"	SET SCREW, SOC HD	BLACK 6
110		8-32 X 1/4"	SET SCREW, SOC HD	BLACK 4
111		6-32	NUT, HEX HD	SST 2
112		10-32	NUT, HEX HD	SST 4
113		5/16-24	NUT, JAM	SST 1
114		#10	WASHER, FLAT	SST 6





1 PARTS ARE MATCHED AND ALL MUST BE REPLACED AT THE SAME TIME.

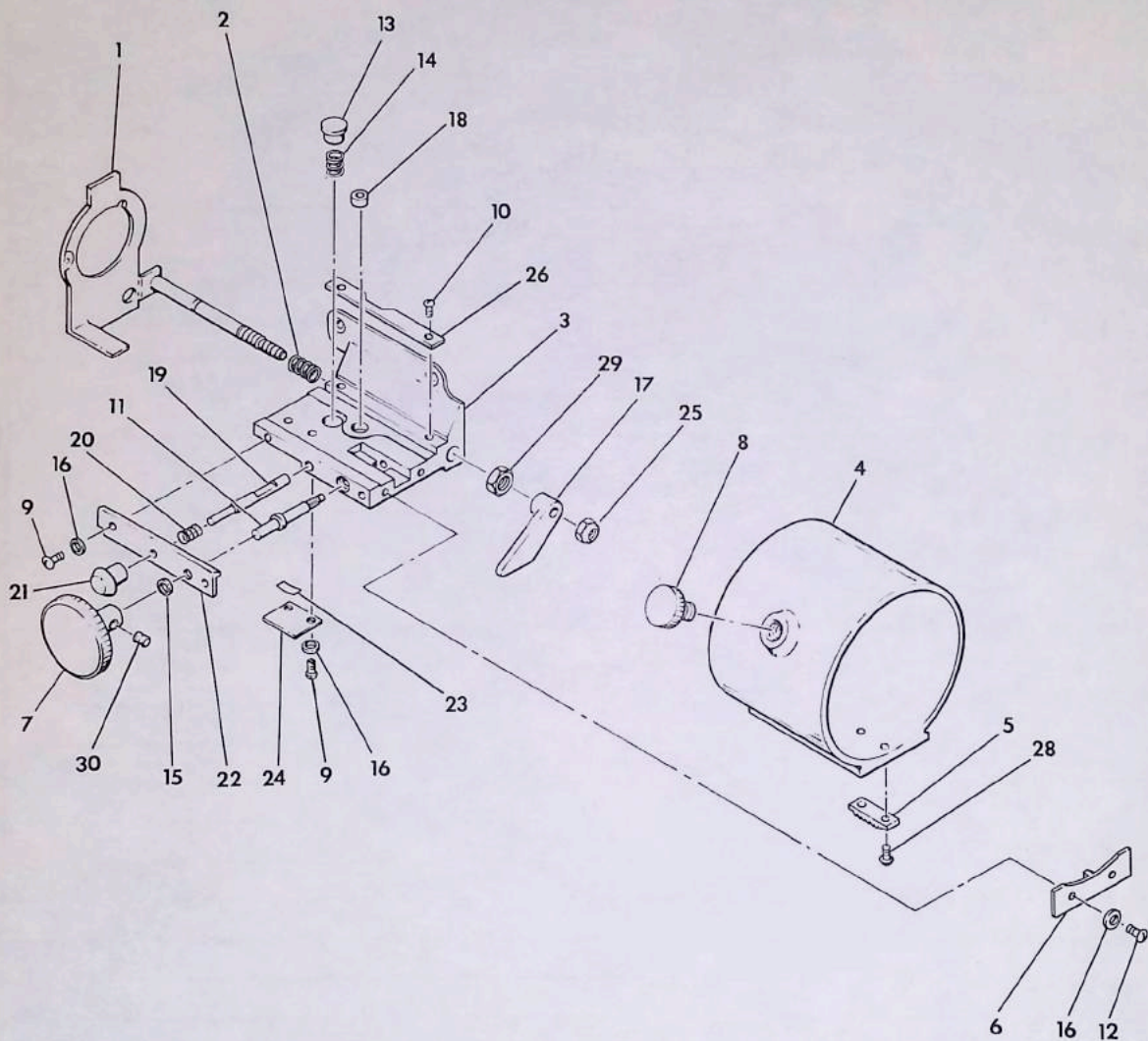
2 BELL & HOWELL CHICAGO, ILLINOIS

3 SEASTROM MFG. CO., INC., GLENDALE, CALIF.

6730 - 904245  
16MM INTERMITTENT ASSEMBLY

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		6730-904246	SPACER, FRONT CAM SHAFT	1
2.		6730-904247	SPACER, FRONT CAM SHAFT, REAR	1
3.		6730-901500	CAMSHAFT, FRONT	1
4.		6730-901501	SHAFT, FRAMER	1
5.		6730-901502	SHAFT, SHUTTER	1
6.		6730-904375	PAD, INTERMITTENT OILER	1
7.		6730-901339	SHAFT, REAR CAM	1
8.		6730-901343	GEAR, SHUTTER SHAFT	1
9.		98757	SCREW, SPECIAL BINDER HD	2
10.		061040	BKT, ASSY, APERTURE PL. MTG.	1
11.		061042	GEAR ASSEMBLY, FRONT CAM	1
12.		061193	KIT ASSY, SHUTTLE CAMS & PIVOT	1
13.		063112	BAR ASSY, FRAMER PIVOT	1
14.		063260	ASSEMBLY, SHUTTLE	1
15.		067399	PL. ASSY, SHUTTLE COVER MTG.	1
16.		067402	COVER ASSEMBLY, SHUTTLE	1
17.		600293	WASHER, LOCK	2
18.		600789	WASHER, LOCK	1
19.		611251	WASHER, FRAMER BAR FRICTION	1
20.		611283	CAM REAR, HORIZONTAL MOTION	1
21.		611302	RING, FRONT CAM GEAR LOCK	1
22.		611285	WASHER, REAR CAM RETAINING	1
23.		611314	SPRING, SHUTTLE	1
24.		611380	SCREW, FRAMER BAR MOUNTING	1
25.		611383	WASHER, FRAMER BAR SPRING	1
26.		611453	NUT, ELASTIC STOP	1
27.		611773	SPACER, SHUTTLE PIVOT, INNER	1
28.		611774	BUSHING, SHUTTLE PIVOT	1
29.		611775	SPACER, SHUTTLE PIVOT, OUTER	1
30.		611779	WASHER, SHUTTLE PIVOT, BUSHING	1
31.		611783	CAM, FRONT, VERTICAL MOTION	1
32.		611866	COLLAR, FRAMER SHAFT LOCKING	1
33.		611973	COUNTERWEIGHT, FRONT CAM	1
34.		611974	DISC, FRONT CAM, LUBRICATING	1
35.		611975	NUT, SPECIAL	1
36.		615925	NUT, CAM LOCK	1
37.		620933	GASKET, SHUTTLE COVER	1
38.		620937	BRACKET, FRAMER SHAFT	2

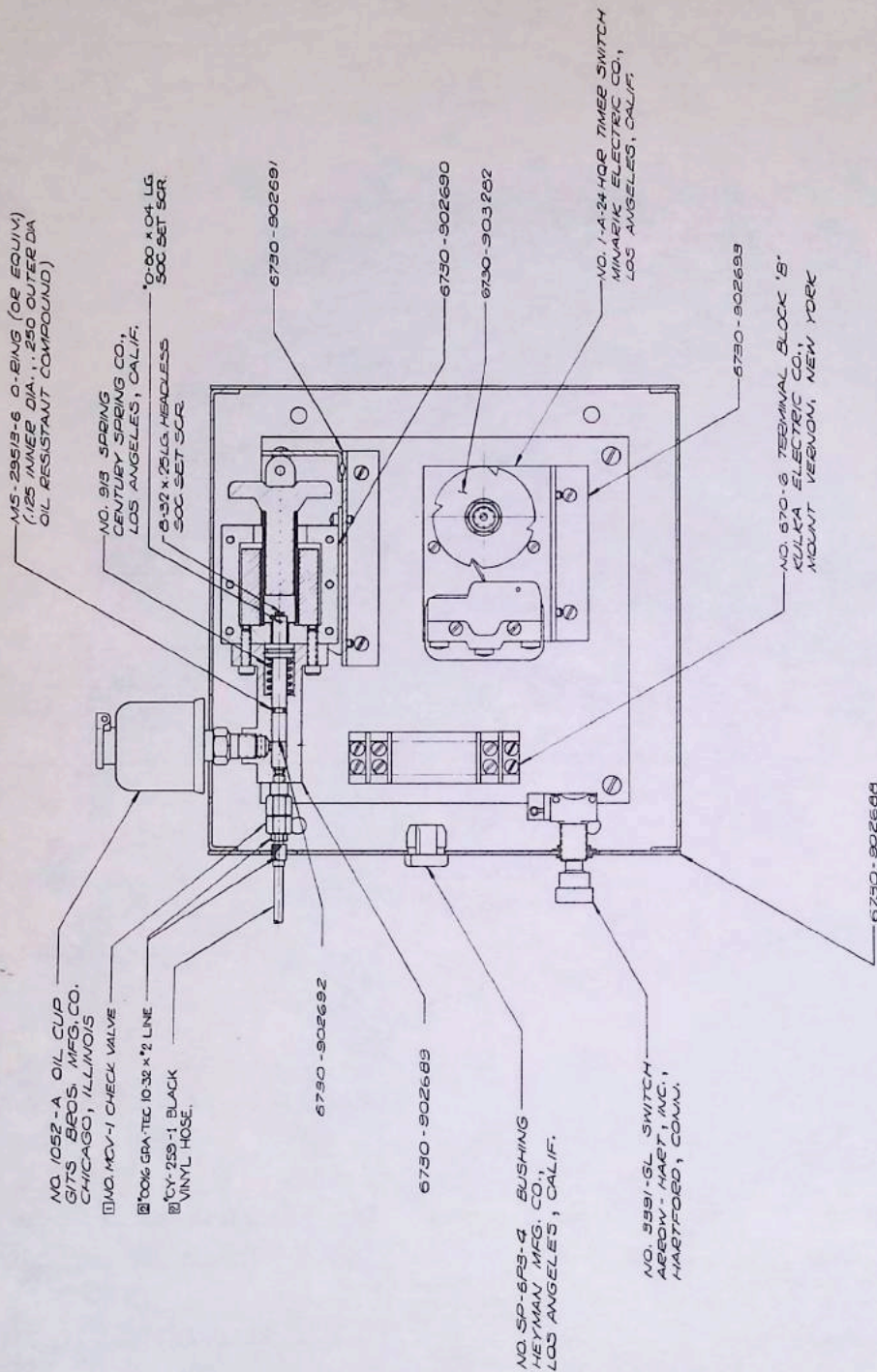




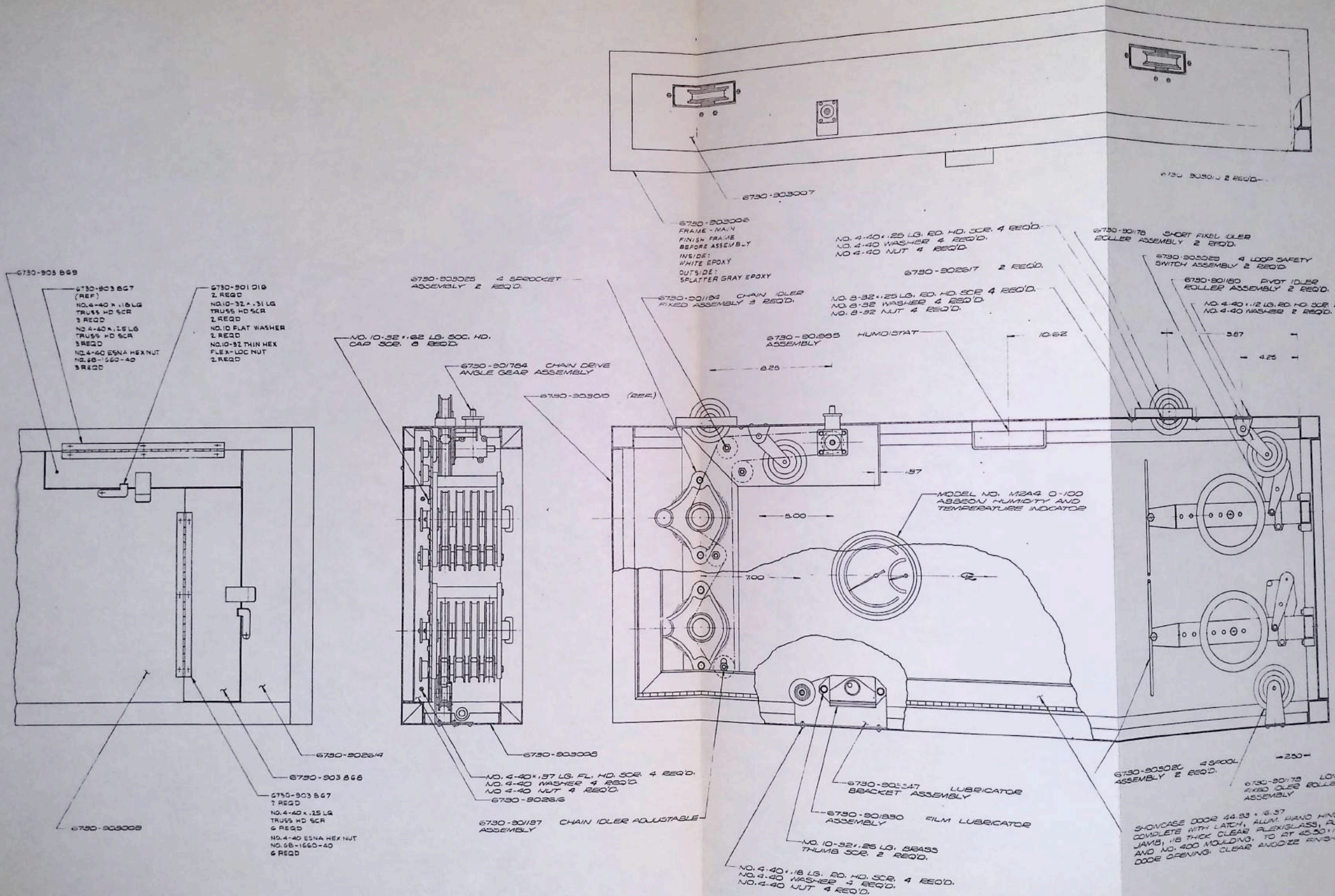
6730-901503  
16mm LENS MOUNT ASSEMBLY







**6730 - 902687**  
**16MM SHUTTLE OILER ASSEMBLY**



6730-903849

6730-903847 (REF)  
NO. 4-40 x 1.18 LG. TRUSS HD SCR 3 REQD.  
NO. 4-40 x 1.56 LG. TRUSS HD SCR 3 REQD.  
NO. 4-40 ESNA HEX NUT NO. 58-1660-40 3 REQD.

6730-901019 2 REQD  
NO. 10-32 x .31 LG. TRUSS HD SCR 2 REQD  
NO. 10 FLAT WASHER 2 REQD  
NO. 10-32 THIN HEX FLEX-LDC NUT 2 REQD

6730-903008

6730-9026/4

6730-903846

6730-903847 7 REQD  
NO. 4-40 x .15 LG. TRUSS HD SCR 6 REQD  
NO. 4-40 ESNA HEX NUT NO. 58-1660-40 6 REQD

6730-903025 4 SPROCKET ASSEMBLY 2 REQD.

NO. 10-32 x 1.62 LG. 50C. HD. CAP SCR. 6 REQD.

6730-901764 CHAIN DRIVE ANGLE GEAR ASSEMBLY

6730-903000 (REF)

6730-903006

NO. 4-40 x 1.37 LG. FL. HD. SCR. 4 REQD.  
NO. 4-40 WASHER 4 REQD.  
NO. 4-40 NUT 4 REQD.

6730-9026/6

6730-901187 CHAIN IDLER ADJUSTABLE ASSEMBLY

6730-903007

6730-903006 FRAME - MAIN  
FINISH FRAME BEFORE ASSEMBLY  
INSIDE: WHITE EPOXY  
OUTSIDE: SPLATTER GRAY EPOXY

NO. 4-40 x 1.25 LG. ED. HD. SCR. 4 REQD.  
NO. 4-40 WASHER 4 REQD.  
NO. 4-40 NUT 4 REQD.

6730-9026/7 2 REQD.

NO. 8-32 x 1.25 LG. ED. HD. SCR 4 REQD.  
NO. 8-32 WASHER 4 REQD.  
NO. 8-32 NUT 4 REQD.

6730-901765 SHORT FIXED IDLER ROLLER ASSEMBLY 2 REQD.

6730-903028 4 LOOP SAFETY SWITCH ASSEMBLY 2 REQD.

6730-901180 PIVOT IDLER ROLLER ASSEMBLY 2 REQD.  
NO. 4-40 x 1.12 LG. ED. HD. SCR 2 REQD.  
NO. 4-40 WASHER 2 REQD.

6730-901894 CHAIN IDLER FIXED ASSEMBLY 3 REQD.

6730-901895 HUMIDISTAT ASSEMBLY

10.62

5.00

7.00

2.25

1.57

MODEL NO. M2A4 0-100 ABSOLUTE HUMIDITY AND TEMPERATURE INDICATOR

6730-9026/4

6730-903006

6730-9026/4

6730-903847

6730-901890 FILM LUBRICATOR ASSEMBLY

NO. 10-32 x 1.25 LG. BRASS THUMB SCR. 2 REQD.

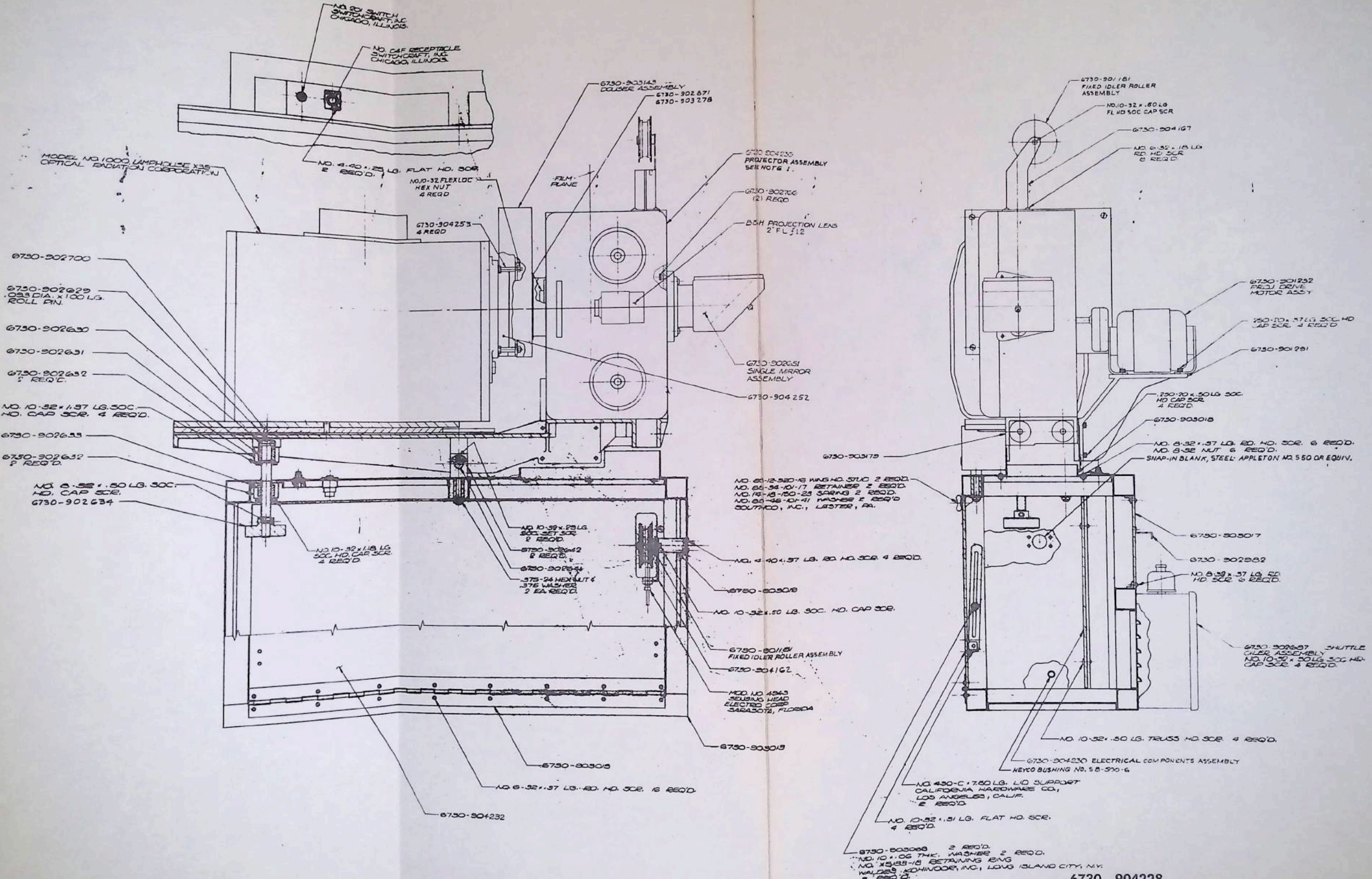
NO. 4-40 x 1.18 LG. ED. HD. SCR. 4 REQD.  
NO. 4-40 WASHER 3 REQD.  
NO. 4-40 NUT 4 REQD.

6730-905020 4 SPOOL ASSEMBLY 2 REQD.

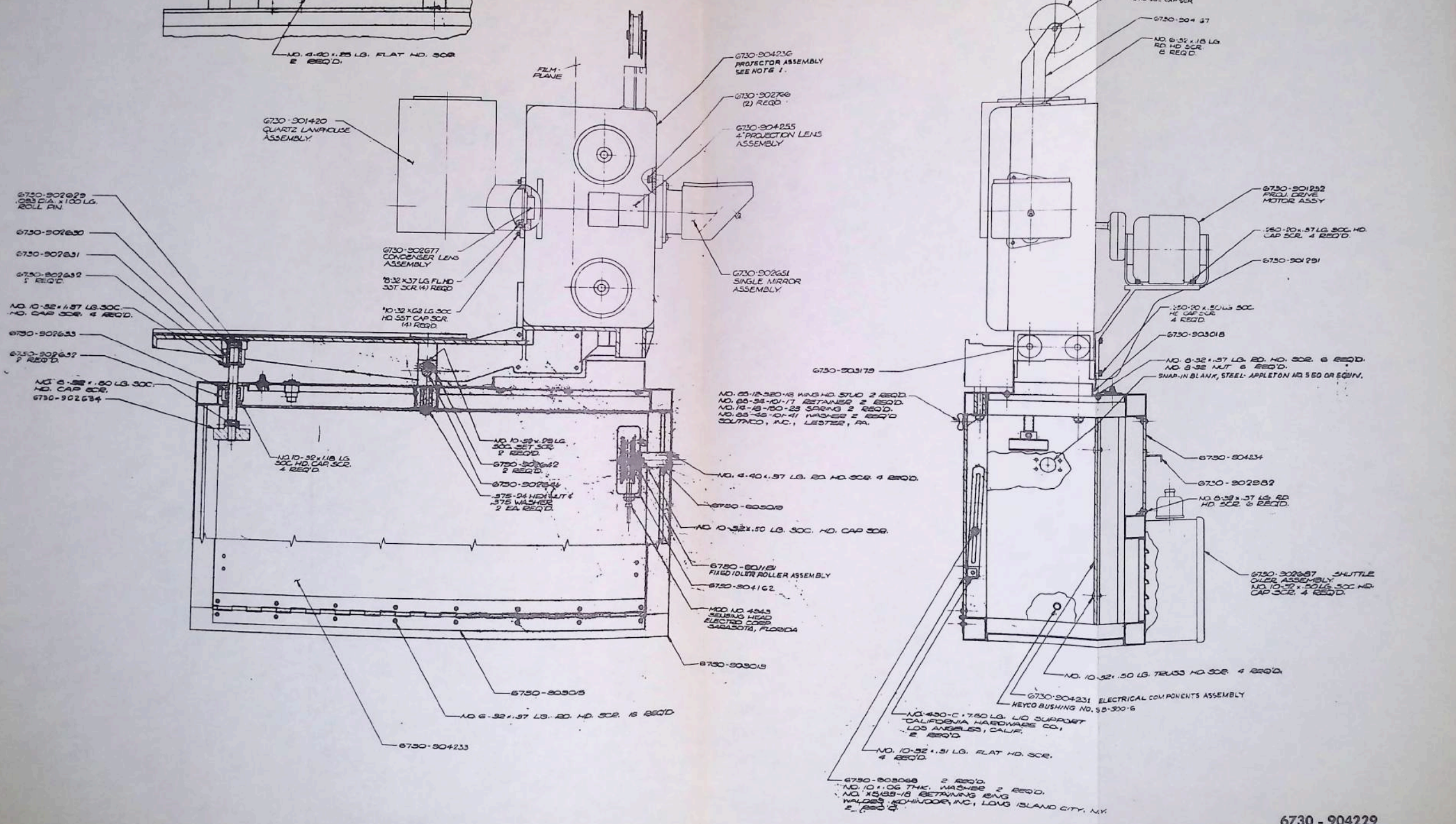
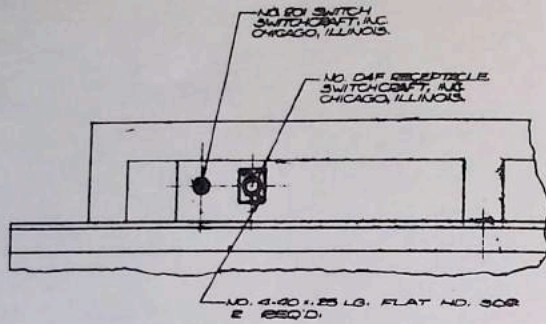
6730-901765 LONG FIXED IDLER ROLLER ASSEMBLY

2.00

SHOWCASE DOOR 44.23 x 6.37 COMPLETE WITH LATCH, ALUM. DIAM. HINGE, JAMB, 1/8" THICK CLEAR ACRYLGLASS, PULL AND NO. 400 MOULDING, TO AT 45.50 x 17.00 CODE DRAWING: CLEAR ANODIZE FINISH



6730 - 904228  
PROJECTOR STAND ASSEMBLY, O.R.C.



6730-901420  
QUARTZ LAMPHOUSE  
ASSEMBLY

6730-902677  
CONDENSER LENS  
ASSEMBLY

6730-904236  
PROTECTOR ASSEMBLY  
SEE NOTE 1.

6730-902706  
(2) REQ'D

6730-904255  
4" PROJECTION LENS  
ASSEMBLY

6730-902651  
SINGLE MIRROR  
ASSEMBLY

6730-901181  
FIXED IDLER ROLLER  
ASSEMBLY

NO. 10-32 x .50 LG.  
FL. HD. SOC. CAP. SCR.

6730-90467

NO. 6-52 x 1/8 LG.  
RD. HD. SCR. 6  
REQ'D

6730-901292  
PULS. DRIVE  
MOTOR ASSY

150-10-1.57 LG. SOC. HD.  
CAP. SCR. 4 REQ'D

6730-901291

150-10-1.50 LG. SOC.  
HD. CAP. SCR. 4  
REQ'D

6730-903018

NO. 8-32 x .57 LG. RD. NO. SCR. 6 REQ'D.  
NO. 8-32 NUT 6 REQ'D.  
SNAP-IN BLANK, STEEL - APPLETON NO. 5 60 OR EQV.

6730-903178

NO. 65-18-950-1/8 WING HD. STUD 2 REQ'D.  
NO. 68-34-10-1/17 RETAINER 2 REQ'D.  
NO. 18-18-10-25 SPRING 2 REQ'D.  
NO. 68-18-10-41 WASHER 2 REQ'D.  
SOUTHERN, INC., LESTER, PA.

NO. 4-40 x .97 LG. RD. HD. SCR. 4 REQ'D

6730-905028

NO. 10-32 x .50 LG. SOC. HD. CAP. SCR.

6730-901181  
FIXED IDLER ROLLER ASSEMBLY

6730-904162

MOD. NO. 4343  
REUSING HEAD  
ELECTRO COSS  
SARASOTA, FLORIDA

6730-903015

6730-902687  
SHUTTLE  
CARRIER ASSEMBLY  
NO. 10-32 x .50 LG. SOC. HD.  
CAP. SCR. 4 REQ'D

NO. 10-32 x .50 LG. TRUSS HD. SCR. 4 REQ'D

6730-904231 ELECTRICAL COMPONENTS ASSEMBLY  
KEYCO BUSHING NO. 58-500-6

NO. 430-C-1.750 LG. LIO SUPPORT  
CALIFORNIA HARDWARE CO.,  
LOS ANGELES, CALIF.  
2 REQ'D

NO. 10-52 x .51 LG. FLAT HD. SCR.  
4 REQ'D

6730-905068 2 REQ'D.  
NO. 10-1.06 THK. WASHER 2 REQ'D.  
NO. X5488-18 RETAINING RING  
WALDEN, ROBINSON, INC., LONG ISLAND CITY, N.Y.  
2 REQ'D

6730-902629  
CR3 P.A. x 100 LG.  
ROLL PIN

6730-902630

6730-902631

6730-902632  
1 REQ'D

NO. 10-32 x 1.87 LG. SOC.  
HD. CAP. SCR. 4 REQ'D

6730-902633

6730-902637  
2 REQ'D

NO. 6-52 x 1.60 LG. SOC.  
HD. CAP. SCR.

6730-902634

NO. 10-32 x 1.18 LG.  
SOC. HD. CAP. SCR.  
4 REQ'D

NO. 10-32 x .08 LG.  
SOC. SET SCR. 2  
REQ'D

6730-902642  
2 REQ'D

6730-902644

375-24 NUT &  
375 WASHER  
2 EA REQ'D

6730-902642

NO. 10-32 x .50 LG. SOC. HD. CAP. SCR.

6730-902642

NO. 6-52 x .97 LG. RD. HD. SCR. 16 REQ'D

6730-904233

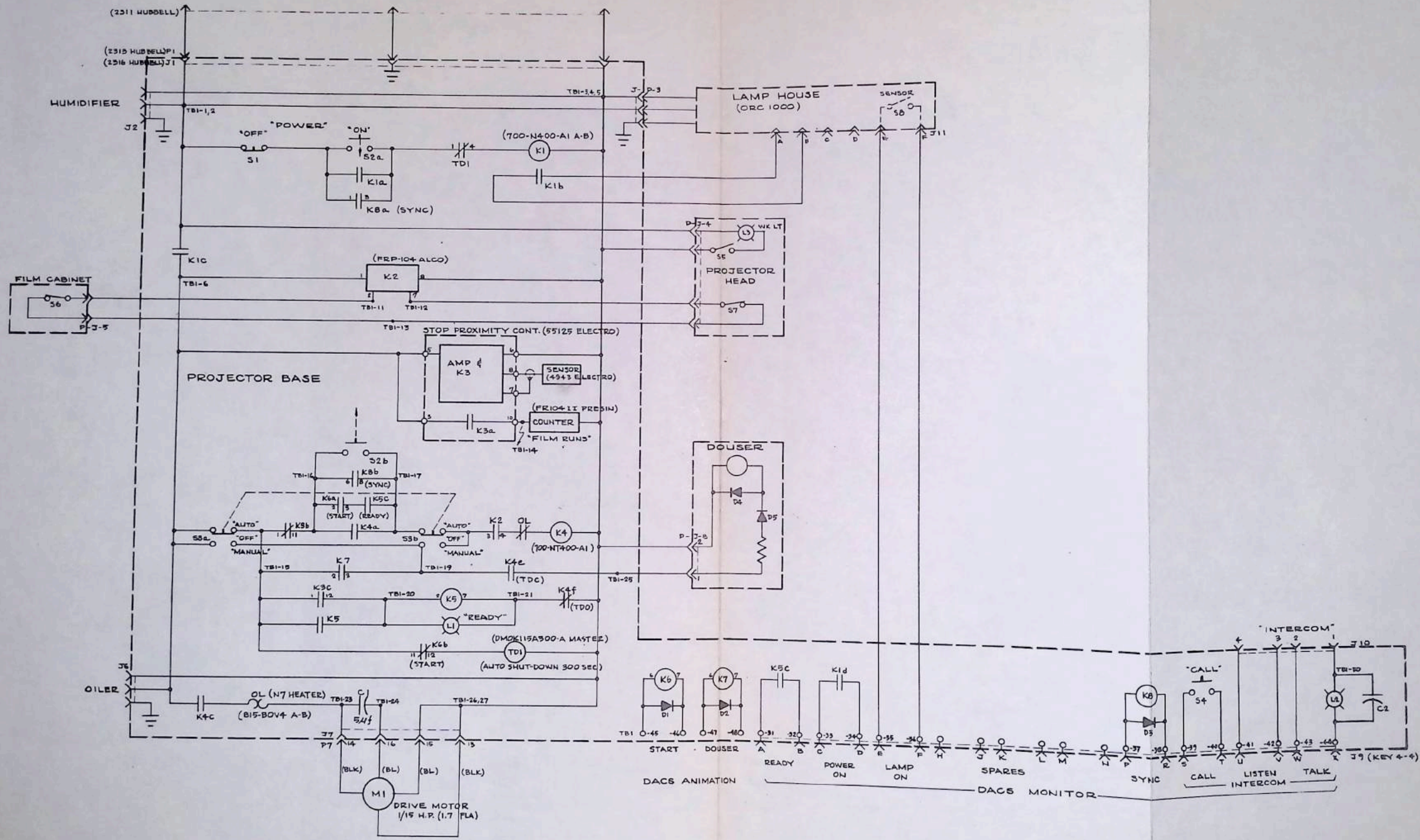
**ELECTRICAL  
DRAWINGS**

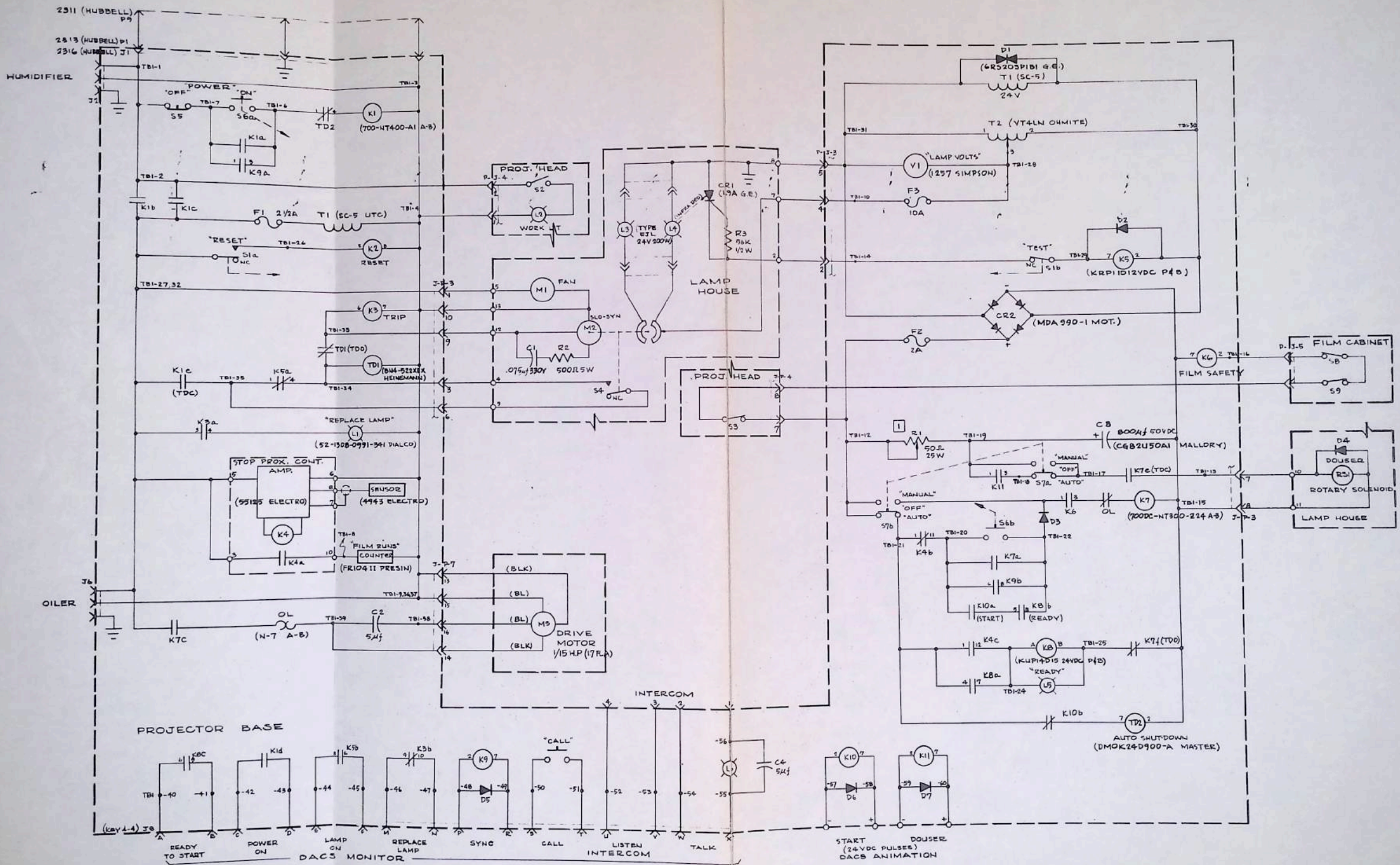
## ELECTRICAL DRAWINGS

Schematic	
Diagram - 16mm Projector (ORC)	*6730-906871
Diagram - 16mm Projector (EJL)	*6730-906870
Assembly - Electrical Components (ORC)	*6730-904230
Assembly - Electrical Components (EJL)	*6730-904231

\*These drawings are incorporated as a part of this manual. All others are available from Supervisor, Projection Equipment, Maintenance. WDW

FOR ADDITIONAL DETAILED ELECTRICAL INFORMATION ON DOCUMENTS OR EQUIPMENT APPEARING IN THE PROJECTOR SECTION OF THIS MANUAL CONTACT: DEPARTMENT HEAD - ELECTRIC DEPT. - WALT DISNEY PRODUCTIONS.



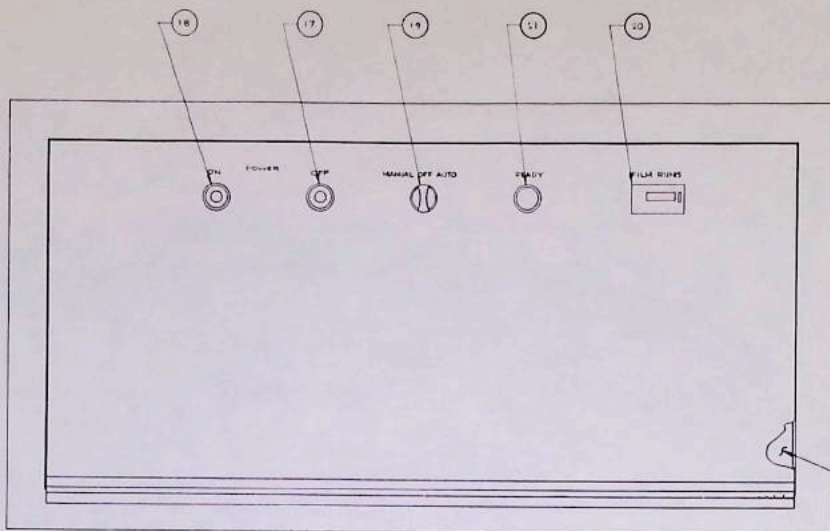


1 ADJUST R1 FOR 10 VOLTS (HOLDING) ACROSS DOUSER

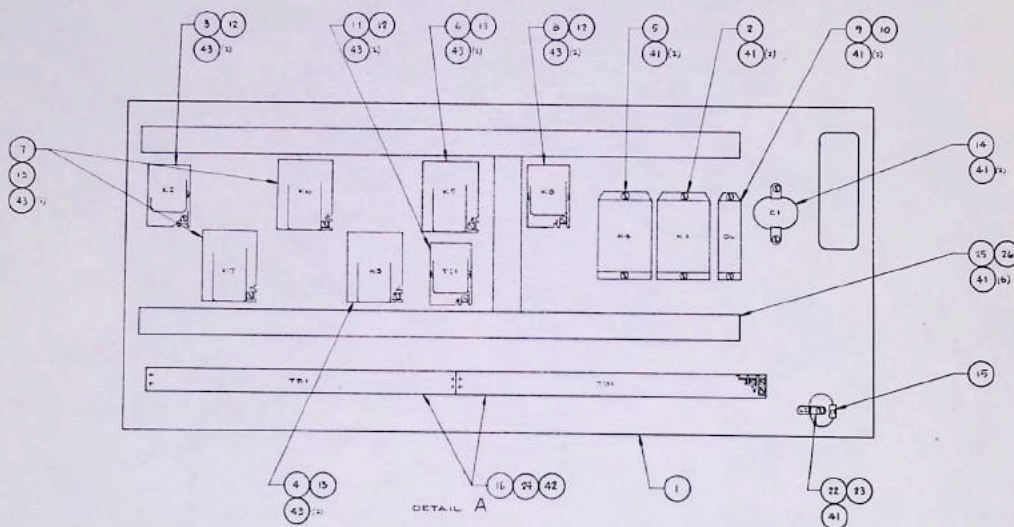
NOTES: UNLESS OTHERWISE SPECIFIED  
DO NOT SCALE DWG

6730 - 906870  
SCHEMATIC DIAGRAM  
EJL 16MM PROJECTOR





VIEW A-A



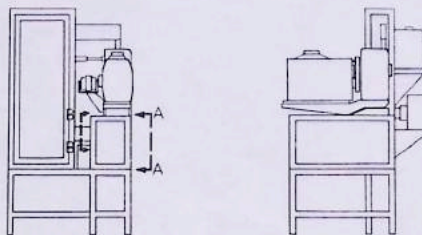
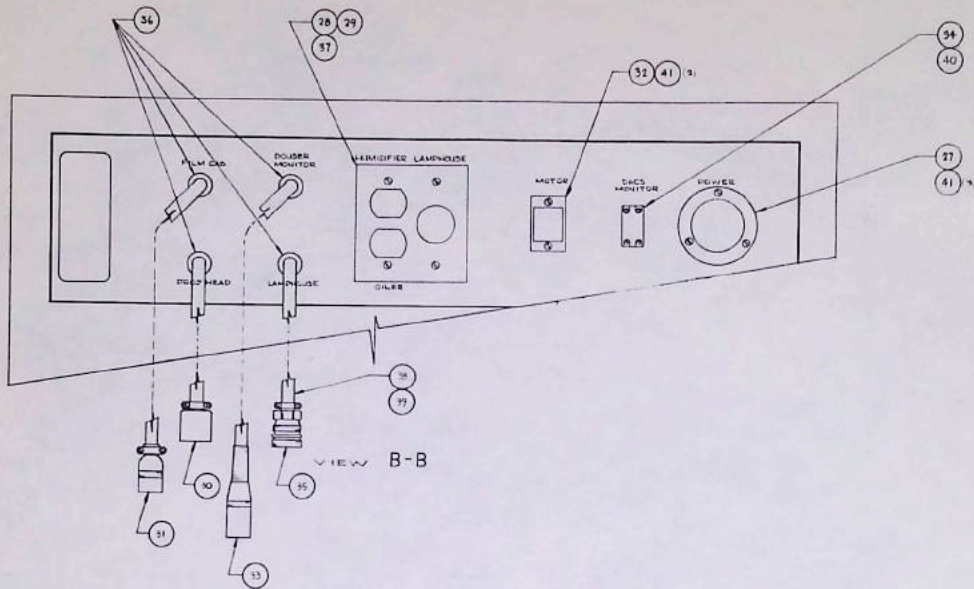
- 2 AEROVON CORP  
AEROVON RD  
MYRTLE BEACH, S CAROLINA
- 2 GENERAL ELECTRIC CO  
1 RIVER RD  
SCHENECTADY NY 12345
- 7 MASTER ELECTRONIC CONTROLS  
125 7TH ST  
SANTA MONICA, CALIF 90404
- 6 POTTER & BURNFIELD  
100 E BROADWAY  
PRINCETON, IND 47570
- 8 STRUTHERS & DUNN INC.  
LAMB RD  
DITMAN NJ 08071
- 4 ELECTRO CORP  
145 57TH ST  
SARASOTA, FLA 33578
- 3 ALCO ELECTRONIC PRODUCTS INC.  
159 US8000 ST  
H ANDOVER, MASS, 01845
- 1 ALLEN-BRADLEY CO  
101 S 2ND ST  
MILWAUKEE WIS 53204

- 23 SIERRA ELECTRIC CORP  
1500 S. FIGUEROA ST  
SARASOTA, FLORIF 39247
- 14 CISH-JONES  
1016 S HOMAN AVE  
CHICAGO ILL 60624
- 16 HARVEY HUBBELL INC  
410 HUNTER DRIVE DIV  
BRIDGEPORT CONN. 06802
- 14 INTERNATIONAL RECTIFIER  
233 WABASH ST  
EL SEGUNDO, CALIF 90245
- 13 SPRAGUE ELECTRIC CO  
461 MARSHALL ST  
NORTH ADAMS MASS 01247
- 12 ELCO CORP  
MARYLAND RD (COMPUTER AVE)  
WILLOW GROVE, PA 15090
- 11 GENERAL ELECTRIC CO.  
M-G-D NELA PARK  
CLEVELAND OHIO 44112
- 10 PRESH CO INC  
TRAP FALLS RD  
SHELTON CONN 06484

- 15 NATIONAL WIDE AND CABLE CORP  
186 SAN FERNANDO RD  
LOS ANGELES, CALIF. 90031
- 14 ITT CANNON ELECTRIC  
666 E DYER RD  
SANTA ANA CALIF 92702
- 13 AMPHENOL CORP  
1830 S 54TH AVE  
CHICAGO, ILL 60610
- 21 ALPHA WIDE CORP  
711 RIDGEMOOD AVE  
ELIZABETH, N J 07207
- 21 KOLKA ELECTRIC CORP  
510 S FULTON AVE.  
MOUNT VERNON, N.Y. 10551
- 10 PANHUT CORP  
1781 BOWLING AVE  
TINLEY PARK, ILL 60417
- 17 HERMAN H SMITH INC  
818 SNEIDER AVE.  
BROOKLYN, NY 11207
- 8 ATLETON ELECTRIC CO  
6450 E BANDINI BLVD  
LOS ANGELES, CALIF 90060

NOTES: UNLESS OTHERWISE SPECIFIED  
DO NOT SCALE DIMS

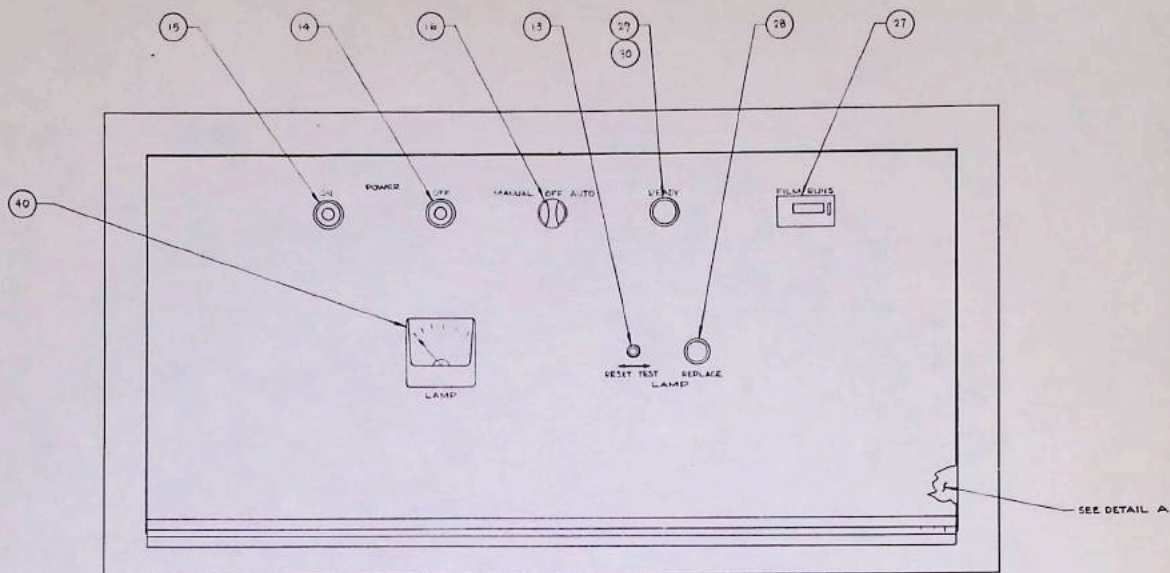
6730-904230  
ELECTRICAL COMPONENT ASSEMBLY, ORC  
SHEET 1 OF 2



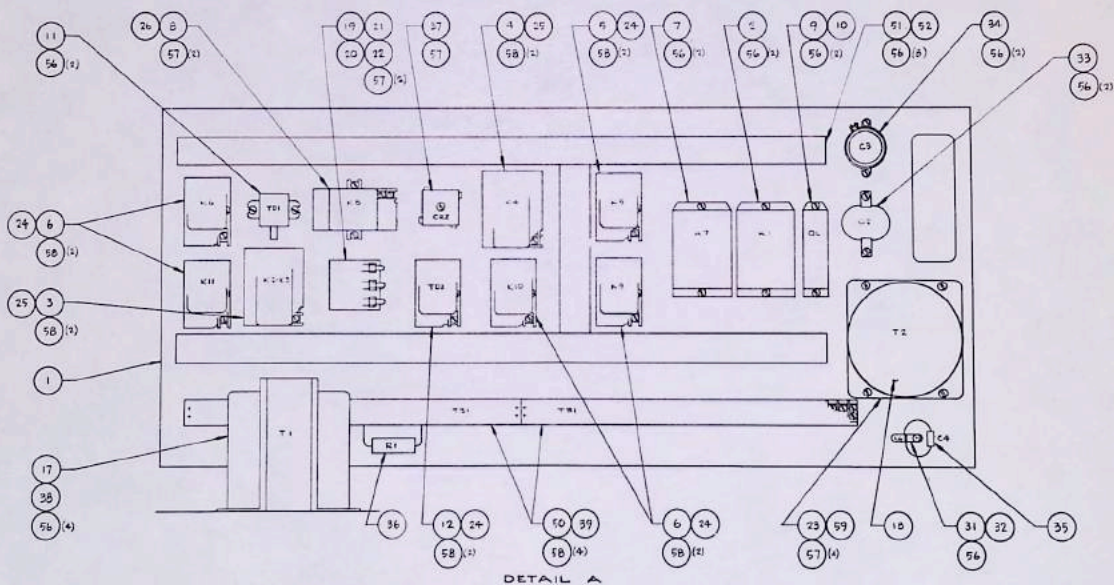
ORC 16MM PROJ. STAND ASSY

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		6730-903016	PANEL, RELAY	1
2.		700-N400-A1	RELAY, 115,K1	2
3.		FRP-104	RELAY, ISOLATION, K2	3
4.		55125	RELAY, PROXIMITY SWITCH, K3	4
5.		700-NT400-A1	RELAY, TIME DELAY, 115 VAC, K4	2
6.		219ABAP	RELAY, 115 VAC, K5	5
7.		219XBP	RELAY, 24 VDC, K6,7	5
8.		KRP11DG	RELAY, 24VDC, K8	6
9.		815-BOV4	RELAY, OVERLOAD, 0L	2
10.		N-7	HEATER ELEMENT	2
11.		DMOK115A300-A	RELAY, TIME DELAY, TD1	7
12.		N-8	SOCKET, RELAY	7
13.		27390	SOCKET, RELAY	5
14.		P145F265	CAPACITOR, 5uf,330VAC, C1	9
15.		TF1303	CAPACITOR, 5uf,50VDC, C2	13
16.		10D2	DIODE, D1,2,3	14
17.		CR104A8113	SWITCH, P.B. GUARDED, RED, S1	8
18.		CR104A8215	SWITCH, P.B. GUARDED, GREEN, 2POS,S2	8
19.		CR104B222	SWITCH, SELECTOR, 3 POS., S3	8
20.		FR10411	COUNTER, 115 VAC	10
21.		CR104C532	INDICATOR, LIGHT, GREEN, L1	8
22.		313	BULB, LIGHT, L2	11
23.		1931	SOCKET, LIGHT	19
24.		670A-30	TERMINAL BLOCK, TB1	21
25.		EIXILG6	DUCT, PLASTIC, CHANNEL	20
26.		CILG6	DUCT, PLASTIC, COVER	20
27.		2316	RECEPTACLE, J1	15
28.		1460	RECEPTACLE, DUPLEX, J2,6	17
29.		2310	RECEPTACLE, J3	15
30.		S-308-CCT	PLUG, P4	16
31.		7464	PLUG, P5	15
32.		S-404-DB	RECEPTACLE, J7	16
33.		91-MC4F1	PLUG, P8	23
34.		8016-020	RECEPTACLE, J9	12
35.		MS3106A-14S-65	PLUG, P11	24
36.		CG1838	BUSHING	18
37.		PP-2-2.S.S.	PLATE, WALL, 2 GANG	17
38.		NB1929U	WIRE, #16	25 A/R



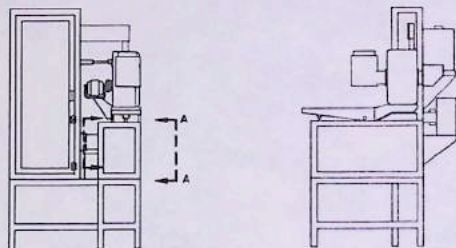
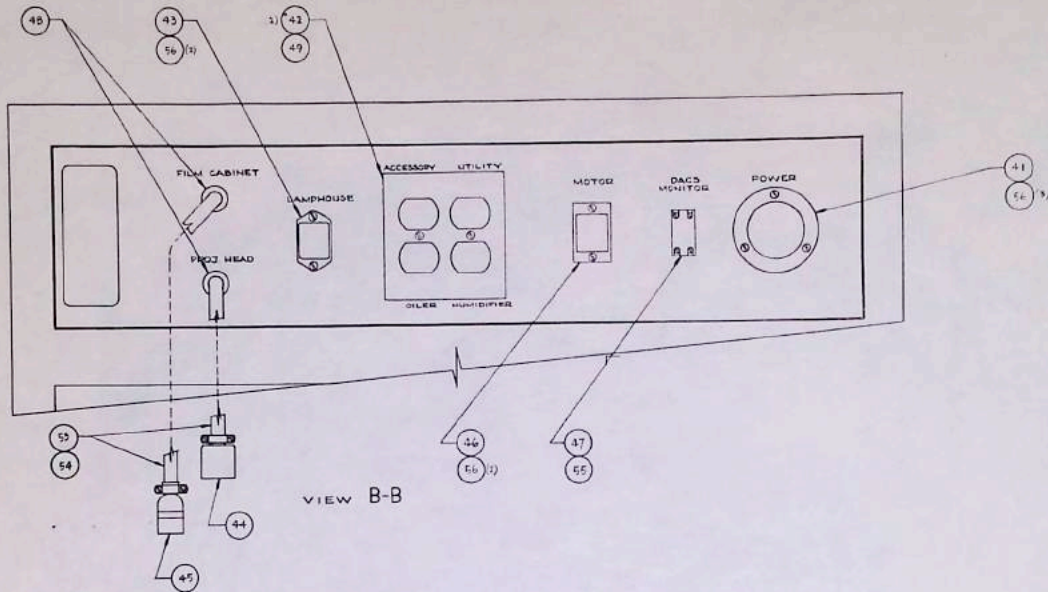


VIEW A-A



DETAIL A

6730-904231  
 ELECTRICAL COMPONENT ASSEMBLY, E1J  
 SHEET 1 OF 2



E3L 16MM PROJ ASSY

- 10 GENERAL ELECTRIC CO.  
1 RIVER RD  
SCHENECTADY, N.Y. 12349
- 9 HERMAN H. SMITH INC  
812 S. HEDKER AVE.  
BROOKLYN, N.Y. 11207
- 8 MICROSWITCH  
11 W. SPRING ST.  
FREEPORT, ILL. 61032
- 7 HEINEMANN ELECTRIC CO.  
2636 BRUNSWICK PIKE  
TRENTON, N.J. 08602
- 6 POTTER & BRUMFIELD  
1200 E. BROADWAY  
PRINCETON, IND. 47170
- 5 MASTER ELECTRONIC CONTROLS  
1555 17TH ST.  
SANTA MONICA, CALIF. 90404
- 4 ELECTRO CORP  
1849 97TH ST.  
SARASOTA, FLA. 35580
- 3 STRUTHERS-DUNN INC  
LAMB'S RD  
PITMAN, N.J. 08071
- 2 ALLEN-BRADLEY CO.  
1201 S. 2ND ST.  
MILWAUKEE, WIS. 53204

- 19 AEROVON CORP.  
AEROVON RD.  
MYRTLE BEACH, S. CAROLINA
- 18 APPLETON ELECTRIC CO.  
8450 E. DANFORTH BLVD.  
LOS ANGELES, CALIF. 90060
- 17 GENERAL ELECTRIC CO.  
1100 NELA PARK  
CLEVELAND, OHIO 44112
- 16 DIALIGHT CORP.  
60 STEWART AVE.  
BROOKLYN, N.Y. 11257
- 15 PRESIN CO. INC.  
TEAP FALLS RD  
SHELTON, CONN. 06484
- 14 LITTELFUSE INC.  
800 NORTHWEST HIGHWAY  
DES PLAINES, ILL. 60016
- 13 OHMITE WPS CO.  
3601 W. HOWARD ST.  
SKOKIE, ILL. 60076
- 12 UNITED TRANSFORMER CO.  
150 VARICK ST.  
NEW YORK, N.Y. 10015
- 11 KULKA ELECTRIC CO.  
920 S. FULTON AVE.  
MOUNT VERNON, N.Y. 10551

- 28 CINCCH-JONES  
1026 S. HOWMAN AVE.  
CHICAGO, ILL. 60624
- 27 HARVEY HUBBELL INC  
WELDING DEVICE DIV.  
BRIDGEPORT, CONN. 06602
- 26 NATIONAL WIRE AND CABLE CORP.  
136 SAN FERNANDO RD.  
LOS ANGELES, CALIF. 90031
- 25 ALPHA WIRE CORP.  
711 LIDGERWOOD AVE.  
ELIZABETH, N.Y. 07207
- 24 SIMPSON ELECTRIC CO.  
2100 W. KINZIE ST.  
CHICAGO, ILL. 60644
- 23 INTERNATIONAL RECTIFIER  
255 KANSAS ST.  
EL SEGUNDO, CALIF. 90245
- 22 MOTOROLA SEMICONDUCTOR DIV.  
5005 E. McDOWELL  
PHOENIX, AZ. 85008
- 21 SPRAGUE ELECTRIC CO.  
481 MARSHALL ST.  
NORTH ADAMS, MASS. 01847
- 20 MALLORY CAPACITOR CO.  
3085 E. WASHINGTON ST.  
INDIANAPOLIS, IND. 46201

- 31 SIERRA ELECTRIC CO.  
15100 S. FIGUEROA ST.  
GARDENA, CALIF. 90248
- 30 PANDUIT CORP.  
17501 RIDGELAND AVE.  
TINLEY PARK, ILL. 60477
- 29 ELCO CORP.  
MARYLAND & COMPUTER AVE.  
WILLOW GROVE, PA. 19390

1 REFERENCE DRAWING  
4730-906870 SCHEMATIC DIAGRAM E3L 16MM PROJ.

NOTES: UNLESS OTHERWISE SPECIFIED  
DO NOT SCALE DIMS

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		6730-903016	PANEL, RELAY	1
2.		700-NT400-A1	RELAY, TIME DELAY, K1	2
3.		255XBP115V	RELAY, LATCHING, K2,3	3
4.		55125	RELAY, PROXIMITY SWITCH, K4	4
5.		GV12DC-DPDT	RELAY, 12VDC, K5	5
6.		KRP11D24VDC	RELAY, 24VDC, K6,9,10,11	6
7.		700DC-NT300-Z24	RELAY, 24VDC, K7	2
8.		KUP14D15	RELAY, 24VDC, K8	6
9.		815-BOV4	RELAY, OVERLOAD, OL	2
10.		N-7	HEATER ELEMENT	2
11.		BN4-522XBX	RELAY, TIME DELAY, TD1	7
12.		DM0K24D900-A	RELAY, TIME DELAY, TD2	5
13.		13AT1	SWITCH, TOGGLE, 3PDT MOMENTARY, S1	8
14.		CR104A8113	SWITCH, P.B., GUARDED, RED, S5	10
15.		CR104A8215	SWITCH, P.B., GUARDED, GREEN, 2POS, S6	10
16.		CR104B222	SWITCH, SELECTOR, 3 POS. S7	10
17.		SC-5	TRANSFORMER, CONTROL, 250VA, T1	12
18.		VT4LN	TRANSFORMER, VARIABLE, T2	13
19.		31302.5	FUSE, 2-1/2A, F1	14
20.		311005	FUSE, 5A, F2	14
21.		314010	FUSE, 10A, F3	14
22.		356003	FUSE-MOUNT	14
23.		6730-904235	BRACKET, TRANSFORMER	1
24.		N-8	SOCKET, RELAY	5
25.		27390	SOCKET, RELAY	3
26.		27E121	SOCKET, RELAY	6
27.		FR10411	COUNTER, 115VAC, M	15
28.		52-1308-0991-341	INDICATOR, LIGHT, L1	16
29.		CR104C116	INDICATOR, LIGHT, L5	10
30.		CR104G95	LENS, GREEN	10
31.		313	BULB, LIGHT, L6	17
32.		1931	SOCKET, LIGHT	9
33.		P145F265	CAPACITOR, 5uf, 330VAC, C2	19
34.		CG82U50A1	CAPACITOR, 800uf, 50VDC, C3	20
35.		TE1303	CAPACITOR, 5uf, 50VDC, C4	21
36.		0200D	RESISTOR, 50Ω, 25W, R1	13
37.		MDA990-1	RECTIFIER, BRIDGE, CR2	22
38.		6RS20SP1B1	DIODE, THYRECTOR, D1	10







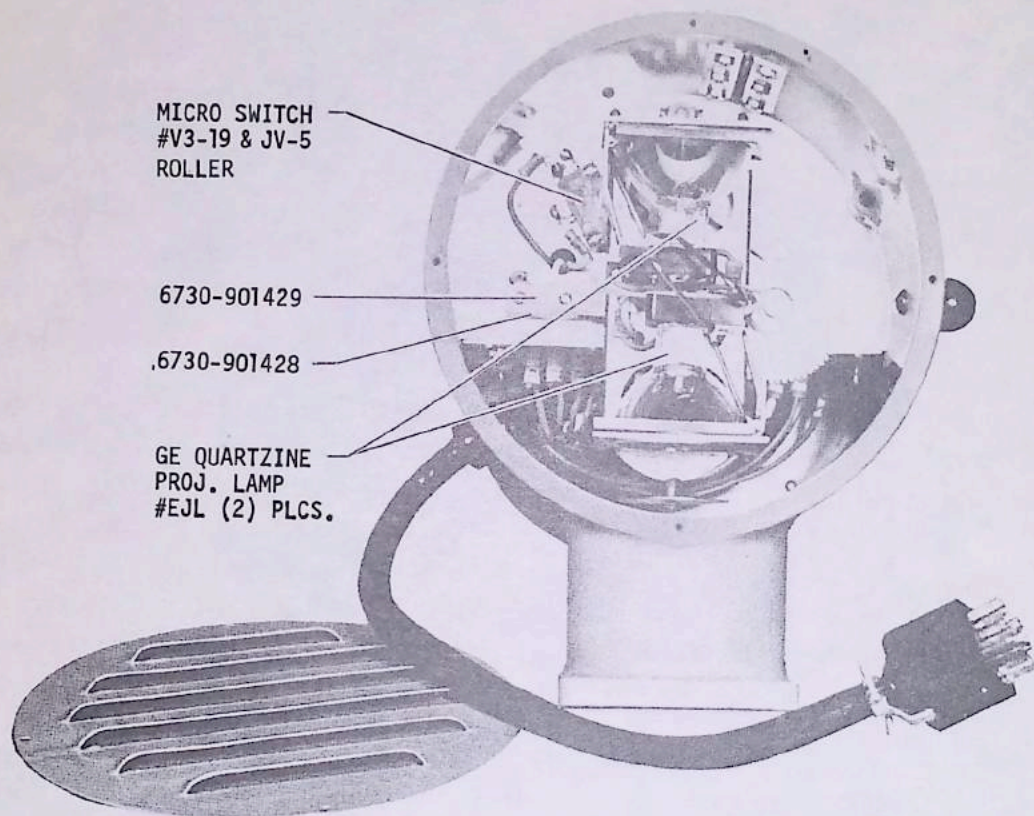
# SECTION 4.2

## EJL QUARTZ LAMPHOUSE Service Instructions

### GENERAL DESCRIPTION

This unit is designed for use with the 16MM projector. The light source is a GE 200 watt Quartzline lamp, mounted in a Slo-Syn motor operated changing mechanism, with a spare lamp in the apposed position. Upon failure of the first lamp, a lamp change quickly occurs. Lamp burn-out de-activates the Light Activated Silicon Controlled Rectifier, (LASCR) causing power loss to coil K5. K5 de-energizing activates latching relay K3 lighting the red neon "REPLACE" lamp on the EJL Electrical Stand Assembly Control Panel, also a monitor light at master control. Closure of switch K5A energizes the Slo-Syn drive motor. As the Micro Switch cam on the drive motor shaft turns, the Micro Switch holds power to the Slo-Syn drive motor until the second lamp has moved into position. The cam connecting link turns a spur gear driving a pinion gear mounted on the lamp changing mechanism hub, and rotates the spare lamp into position. If the spare lamp also fails after change, the LASCR remains de-activated, causing the changing mechanism to rotate back and forth until a 5 second delay stops the motion. Final action of the cam, de-activates the Micro-Switch cutting power to the Slo-Syn drive motor.

Current for the lamp is supplied via a leaf wiper in contact with an insulated brass circular ring sector mounted below the lamp changing mechanism. After the lamp changing mechanism has rotated approximately 90°, contact is broken with the circular ring sector. As rotation continues, (approximately 10°), wiper contact is made with a second insulated brass circular ring sector wired to the spare lamp. A film protection safety feature of the EJL lamphouse is the Solenoid Actuated Douser. This unit is electrically connected to the projector and film loop cabinet. Should either the projector or film loop cabinet loose a loop, a mercury switch in the affected unit is tripped, the solenoid is de-energized, and the douser closes to prevent film burn-up in the projector head.



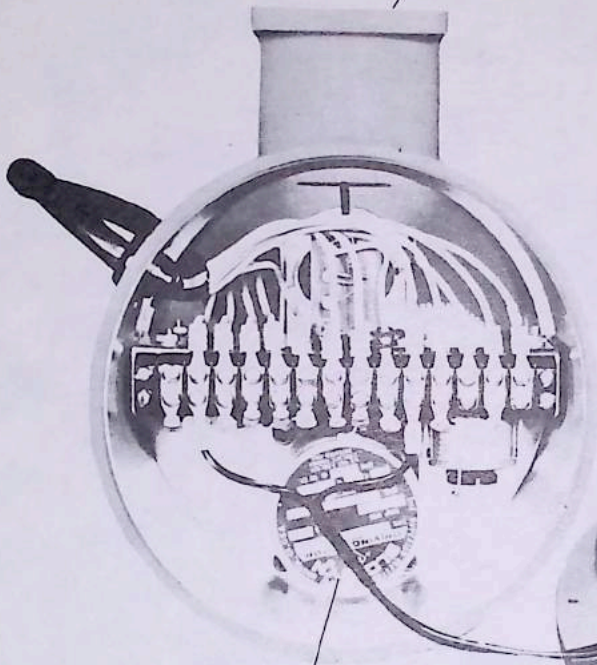
MICRO SWITCH  
#V3-19 & JV-5  
ROLLER

6730-901429

6730-901428

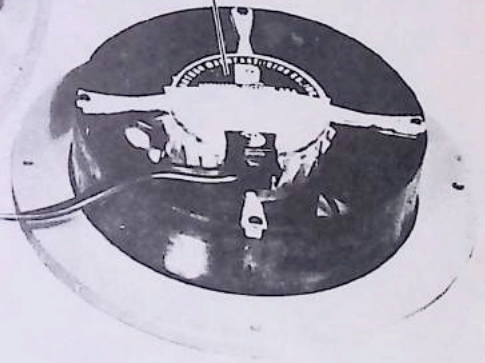
GE QUARTZINE  
PROJ. LAMP  
#EJL (2) PLCS.

6730-902677  
CONDENSOR LENS ASSY.  
MOUNTS IN THIS AREA  
(REF)



SLO-SYN MOTOR  
#SS25

ROTRON MUFFIN  
FAN #MU2B2



## MAINTENANCE FREQUENCY CHART

LUBRICATION POINT	FREQUENCY	REFERENCE
ROTRON MUFFIN FAN BEARING (REMOVE FINGER GUARD AND PLUG)	1 OR 2 DROPS WEEKLY (USE ROTRON OIL #M-21)	FAN
BRONZE BUSHING	1 DROP ANNUALLY (MANUALLY ROTATE LAMP, CHANGING MECHANISM CAM)	LAMP CHANGING MECHANISM HUB
<b>2b. <u>CLEANING POINTS</u></b>		
CONDENSER LENS	WEEKLY	LAMPHOUSE
FINGER GUARD	CHECK MONTHLY FOR DUST ACCUMULATION	FINGER GUARD
LOUVERED COVER	CHECK MONTHLY FOR DUST ACCUMULATION	LAMPHOUSE
FAN BLADES (3)	CHECK MONTHLY FOR DUST ACCUMULATION	LAMPHOUSE FAN
SLO-SYN MOTOR & TAGBLOCK AREA BELOW FAN (FAN & FINGER GUARD REMOVED)	CHECK MONTHLY FOR DUST ACCUMULATION	LAMPHOUSE

### CLEANING INSTRUCTIONS

#### 3a. CONDENSER LENS

Cleaning should be done with any quality glass cleaner and lens cleaning tissue. If only a slight amount of dust has accumulated on the lens, use lens cleaning tissue. If fingerprints, oil, grease, or other accumulation of dirt is present, use lens cleaning fluid. Clean and wipe thoroughly with lens cleaning tissue.

#### 3b. LAMPHOUSE

Keep the lamphouse body dust and dirt free. If oil, grease, or other accumulation of dirt is present, wipe clean with a soft cloth, using alcohol if necessary.

**NOTE:** During maintenance and cleaning operations, do not handle the EJL lamp or reflector with bare fingers, as skin oils can cause deterioration of the lamp wall and reflector. If the lamp or reflector has been handled, wipe thoroughly, using alcohol and a soft cloth. When lamp burn-out occurs, replace the lamp with the spare lamp from the changing mechanism. Install the new lamp in spare location. Activate the manual reset to extinguish the red neon "Replace" lamp on the EJL electrical stand assembly control panel.

**WARNING:** (Lamp Replacement) To avoid risk of burns or other personal injury, never insert lamp into a live socket. Be sure power is off, or projector is unplugged.

### RECOMMENDED SPARE PARTS

DESCRIPTION	SOURCE
SLO-SYN DRIVING MOTOR #SS25 120V, 72 RPM  MINARIK RESISTOR #R-SS25  MINARIK CAPACITOR #C-SS25	MINARIK ELECTRIC CO. 224 EAST THIRD STREET LOS ANGELES, CA 90013
G.E. EJL QUARTZLINE LAMP 200 WATT, 24 VOLTS	G.E. CO. MO-0 NELA PARK CLEVELAND, OHIO 44112
LEDEX ROTARY SOLENOID #810-367-330	LEDEX INC. 126 WEBSTER ST. DAYTON, OHIO 45401
LIGHT ACTIVATED SILICON CONTROLLED RECTIFIER (LASCR) #L9A	G.E. CO. ELECTRONICS PARK SYRACUSE, N.Y. 13201
ROTRON MUFFIN FAN MODEL #MU2B2 476042 FINGER GUARD #18944 CORD & PLUG	ROTRON MFG. CO. WOODSTOCK, N.Y. 12498
ROTRON LUBRICANT #M-21	
OHMITE RESISTOR #RC20GF563F	OHMITE MFG. CO. 3601 W. HOWARD ST. SKOKIE, ILL. 60076
INTERNATIONAL RECTIFIER DIODE #10D2	INTERNATIONAL RECTIFIER 233 KANSAS ST. EL SEGUNDO, CA 90245

## TROUBLESHOOTING CHART

TROUBLE	PROBABLE CAUSE	REMEDY
4a. Lamp does not light (Power On)	Loose connection.	Check all electrical connections, plugs, leads, etc.
	Lamp burnt out, and lamp changing mechanism sticking.	Replace burnt out lamp. (See NOTE and WARNING Page 94 )  After lamp replacement (See NOTE and WARNING Page 94 ) manually rotate lamp changing mechanism. Operation should be smooth with no binding.
4b. Lamp burns out during performance and spare lamp does not light.	Electrical power failure.	Check electrical power supply.
	Check fuses (3) on relay panel in the EJM Elec. stand assembly.	Check electrical connections, plugs, leads, etc.  Check for burnt out lamps, or lamp changing mechanism (containing spare lamp) sticking. (See NOTE and WARNING Page 94 ) manually rotate lamp changing mechanism cam, and check action of changing mechanism. Operation should be smooth with no binding.
	Spare lamp defective.	Replace both lamps. (See NOTE and WARNING Page 94 )
4c. Lamphouse vibration	Fan Vibration.	Check for loose fan assembly retaining screws (4).
		Check for loose fan in assembly.  Spin fan blades by hand to check bearing. Fan should spin freely with no vibration or binding.
4c. Lamphouse vibration (Continued)	Bearing dry or noisy.	Oil. See Page 94 . Replace bearing if necessary.

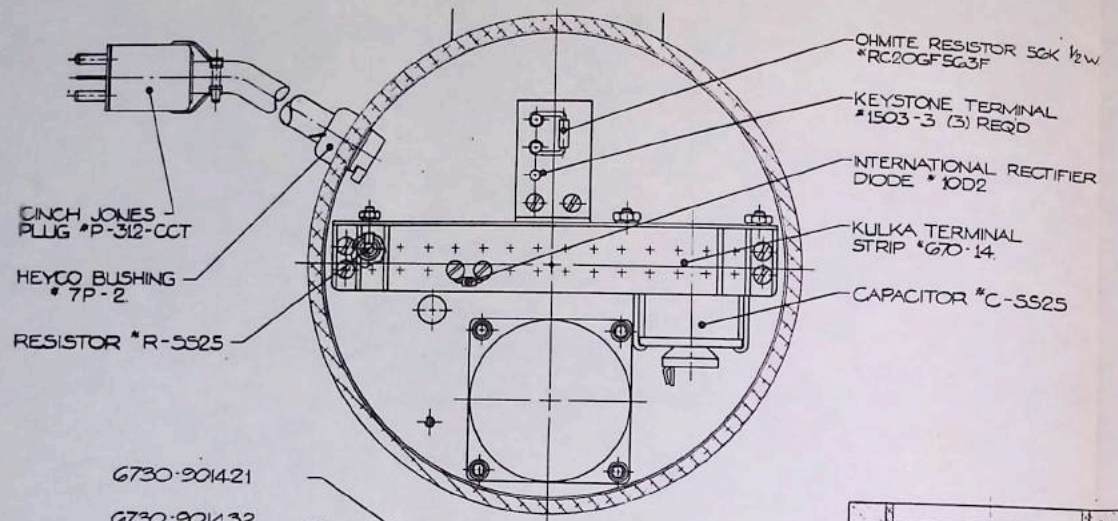
## TROUBLESHOOTING CHART

TROUBLE	PROBABLE CAUSE	REMEDY
4d. Lamphouse unusually warm	Fan inoperative.	Check for loose power cord plug to fan.  Check action of fan manually. If binding or sticking, replace bearing or fan assembly.
	Airflow through finger guard impeded.	Check for dust and dirt accumulation.
	Airflow through louvered cover impeded.	Check for dust, dirt or any foreign matter accumulation obstructing cover louvers.
4e. Unevenly illuminated screen after a lamp change.	Lamp changing mechanism alignment.	After a lamp change, the lamp changing mechanism may require finer alignment. With the lamphouse lit, loosen the (3) screws in the slots on the outside of the lamphouse body, and gently slide screws radially until an evenly illuminated screen is obtained. Tighten screws. Check illumination.
4f. Illumination low	Brightness control (inside EJM electrical stand assembly)	Adjust to required illumination in conjunction with volt-meter on control panel.



**MECHANICAL  
DRAWINGS**

FOR ADDITIONAL DETAILED MECHANICAL INFORMATION ON DOCUMENTS OR  
EQUIPMENT APPEARING IN THE PROJECTOR SECTION OF THIS MANUAL  
CONTACT: DEPARTMENT HEAD - MACHINE SHOP - WALT DISNEY PRODUCTIONS.



- G730-901421
- G730-901432
- G730-901433
- G730-901446

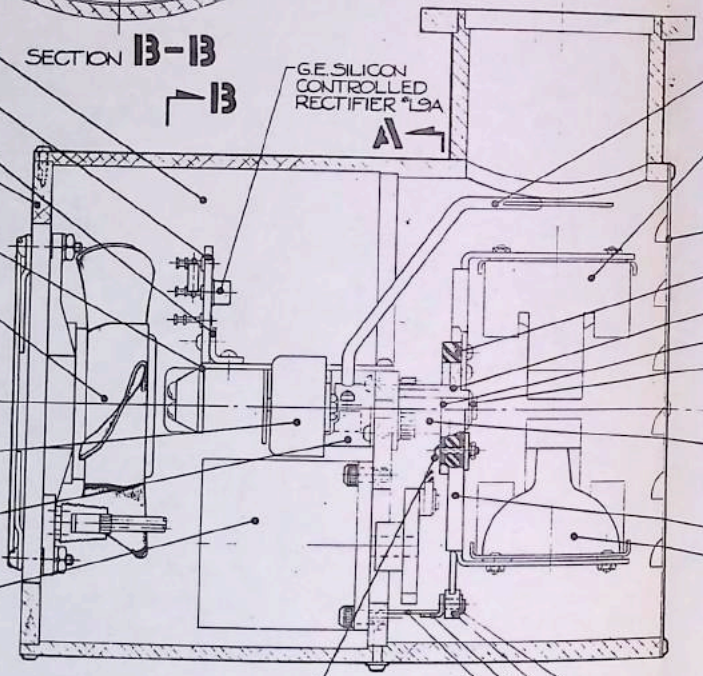
ROTRON MUFFIN FAN MODEL \*ML252  
 FINGER GUARD \*476042  
 \*18944 CORD & PLUG

LEDEX #810-367-330

G730-901431

SLO-SYN MOTOR \*5525

SECTION B-B



\*2-50 x G2 LG. RD. HD. BRASS SCR. FLT. WASHER & HEX. NUT, BAKELITE WASHER .50 DIA. x .080 I.D. x .06 THK (2) EACH REQD.

- TRUARC \*5133-12
- G730-901444
- G730-901442
- G730-901443

- G730-901430
- G730-901439
- G730-901440

- G730-901425
- G730-901427
- G730-901436
- G730-901434
- TRUARC 5100-31 (2) PLCS
- TRUARC 5133-18 (2) PLCS

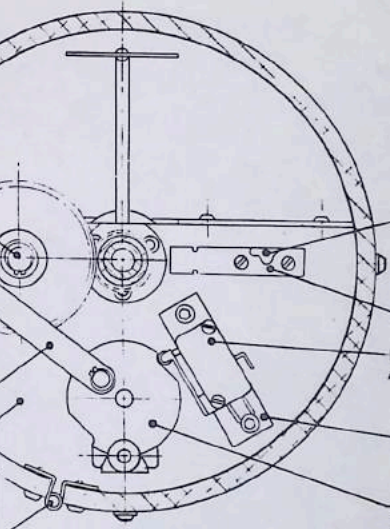
G730-901435

G730-90142A

GE QUARTZLINE PROJECTION LAMP \*EUL (2) PLCS

JERGENS BALL PLUNGER \*B-8 (2) PLCS.

- G730-901437
- G730-901423
- G730-901426
- G730-901445



SECTION A-A

G730-901428

G730-901429

MICRO SWITCH V3-19 AUX. ACTUATOR JV-5

G730-901438

G730-901441  
.09 DIA. x .56 LG.  
ROLL PIN.

# SECTION 4.3

## OPERATING INSTRUCTIONS

MODEL 1000  
INTEGRATED XENON LAMPHOUSE  
AND POWER SUPPLY

Serial No. AA00891

Optical Radiation Corporation  
6352 N. Irwindale Avenue, Azusa, California 91702 • (213) 969-3344

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CAUTION/WARNINGS

The following definitions apply to WARNINGS, CAUTIONS and NOTES found throughout this manual.

**WARNING**

INSTALLATION, OPERATION AND MAINTENANCE PROCEDURES, PRACTICES, ETC., WHICH WILL RESULT IN PERSONNEL INJURY OR LOSS OF LIFE IF NOT CAREFULLY FOLLOWED.

**CAUTION**

INSTALLATION, OPERATION AND MAINTENANCE PROCEDURES, PRACTICES, ETC., WHICH WILL RESULT IN DAMAGE TO EQUIPMENT IF NOT CAREFULLY FOLLOWED.

NOTE

Installation, operation and maintenance procedures, practices, etc., which are essential to emphasize.

## SECTION 1 - INTRODUCTION

### 1-1 GENERAL

This technical manual provides installation, operation and maintenance instructions for the ORCON Xenon Light Projection System, Model 1000. The system is manufactured by Optical Radiation Corporation (ORC), Azusa, California, and is fully compatible with any 35mm or 16mm motion picture projection system. When requesting information concerning the system, always furnish Serial and Model Numbers.

#### WARNING

BE SURE TO READ ALL THE INSTRUCTIONS BEFORE ATTEMPTING TO OPERATE THE LAMPHOUSE. DAMAGE TO EQUIPMENT OR INJURY TO PERSONNEL MAY RESULT IF ALL INSTRUCTIONS ARE NOT CAREFULLY FOLLOWED.

#### WARNING

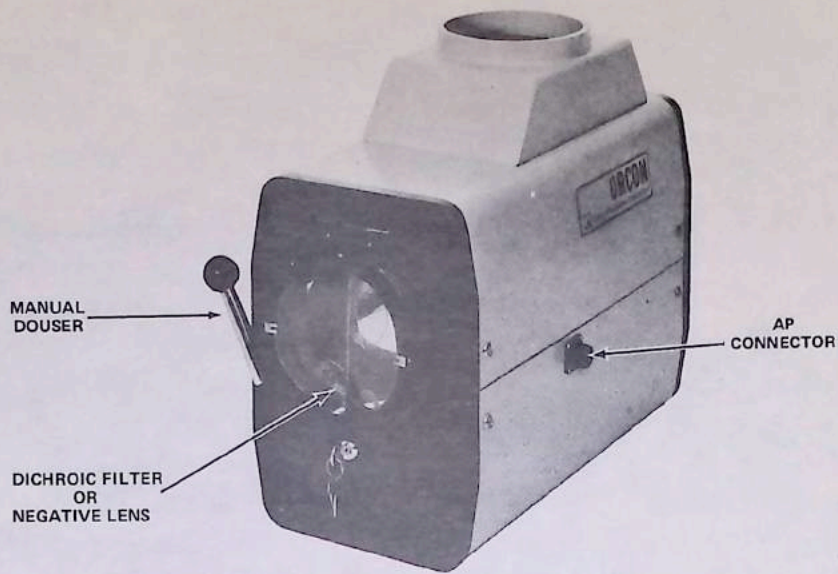
DO NOT REMOVE XENON BULB FROM PROTECTIVE CONTAINER UNTIL READY FOR INSTALLATION. THE XENON BULB IS HIGHLY PRESSURIZED AND SUBJECT TO POSSIBLE RUPTURE.



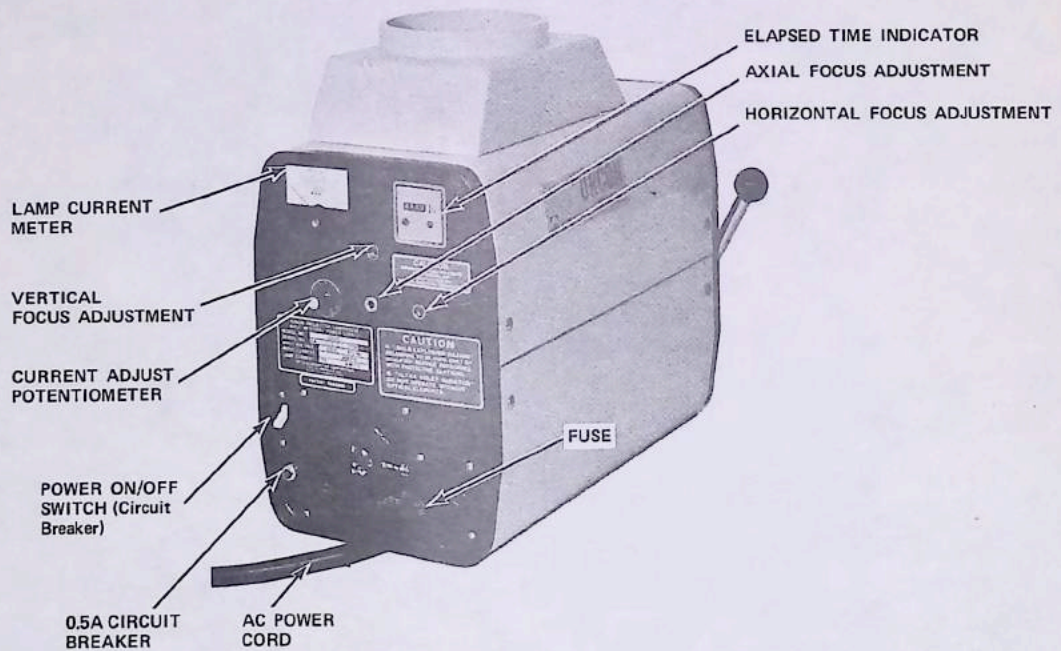
1-2 DESCRIPTION/SPECIFICATIONS (See Figure 1-1 and Table 1-1)

The ORCON Model 1000 is uniquely designed with the lamphouse and power supply integrated into the same package. This eliminates the need for hook-up and location of an external power supply. The system is specifically designed and optimized for use with 35mm or 16mm motion picture projectors. It operates from 115 VAC single phase power source and draws a maximum of 17 amps input current. The system is equipped with an 8 foot long power cord with a standard UL 20 amp, 115 VAC 3 prong plug. It is designed to operate with both the X1000 and X1600 xenon bulbs. The integrated system has DC current regulation in the order of 1% which maintains a current setting independent of line voltage fluctuations. This high degree of current regulation provides a constant screen brightness for optimum projection quality. In addition to current regulation, the system is filtered to provide less than 1% RMS current ripple. This current ripple factor provides optimum lamp life and flickerless projection. Input current can be continuously adjusted by means of a potentiometer on the rear panel of the lamphouse. Current range is from 17 to 40 amps. This current adjustment is accomplished by controlling the firing angle of a pair of SCR's on the primary side of the power isolation transformer. A current feedback sensing circuit is included to maintain the firing angle of the SCR's constant at the corresponding current setting, thus providing current regulation.

Ignition of the lamp is a one-switch operation. When the "power on" circuit breaker is actuated, the fans start and power is provided to establish the necessary DC open circuit voltage across the xenon bulb. The value of open circuit voltage is approximately 120 VDC. When the proper value of voltage is reached, the high voltage RF ignition circuit is triggered and the xenon gas between the electrodes is ionized. After ionization occurs, the



Front View



Rear View

Figure 1-1. Model 1000 Xenon Lamphouse/Power Supply

power source provides the necessary back-up DC voltage for sustained bulb operation. The ignition time after actuation of the main switch is 4 seconds. An interlock switch is provided to extinguish the bulb if the top access cover is not properly in place.

A 20 and 1/2 amp circuit breaker are provided on the back panel. The 20 amp circuit breaker (an on/off switch-type) disrupts AC power to the system if an overload condition exists. The 1/2 amp circuit breaker is for ignitor circuit protection. The breakers must be manually reset if an overload occurs. A 1/4 amp fuse is also provided to protect the control circuit in case of an overload. A thermal switch, set at 160<sup>o</sup>F, is mounted on the SCR heat sink to protect the SCR's from operating beyond the recommended temperature range. If an excessive temperature occurs, the bulb will extinguish and automatically re-ignite when a safe operating temperature is reached.

The power source consists of three main subassemblies: The transformer rectifier, the SCR board, and the control board. For ease of maintenance, plug in circuit boards are used and are easily accessible for service when the top cover is removed. The transformer rectifier assembly is located in the lower portion of the lamphouse, and can be removed by loosening 4 screws on the bottom of the lamphouse. The system is modular in design and internal connections are provided so that the unit can be easily disassembled for maintenance.

The system is equipped with an ammeter so that an accurate current setting can be accomplished. An elapsed time indicator is also provided so that the number of operational hours on the bulb can be monitored, and the lamp warranty data can be accurately maintained.

A manual douser, three axis lamp adjustment and an aspheric reflector are also incorporated into the system. The aspheric reflector has been specially designed by advanced computer techniques to provide the maximum light energy transfer through the projection aperture while maintaining the highest quality of brightness distribution on the screen. The brightness distribution on the screen is free of any hot spots and has a gradual fall-off from center to edge. The distribution is in the order of 80 to 85% when properly aligned.

A self contained forced air cooling system is incorporated in the lamphouse to provide the proper environmental condition for safe temperature operation of the lamp and critical electronic components. In addition, the xenon bulb is ozone free and does not require venting to the outside.

Table 1-1  
General Specifications

Current Range	Open Circuit Volts	AC Voltage	Input Current	Approx. Weight		Dimension In Inches
				Net	Ship	
17-40 Amps DC	120 VDC	105-130	17	85	95	13 High 9½ Wide 18 Long

### 1-3 ACCESSORIES

#### 1-4 Focus Tool

The focus tool is a hex head wrench with a handle, especially designed for focusing the projector lamphouse.

#### 1-5 Xenon Bulb Installation/Removal Tool

The protective bulb installation/removal tool is a cylindrical transparent device which fits over the bulb at the front of the projector lamphouse. It is constructed so that bulb removal and replace-

ment can be easily accomplished without physically handling the bulb. Bulb mounting hardware is contained within the heavy-duty bulb removal tool.

#### 1-6 Allen Wrenches

A 9/64 Allen wrench is provided to aid in tightening the anode connector in the lamphouse. The 1/8 Allen wrench is used for removing the collar from around the xenon bulb.

#### 1-7 Mounting Plate

For 35mm projection, it is recommended that an optional swivel mounting plate be used. This mounting plate attaches to the bottom of the lamphouse and provides the standard 9-inch optical centerline. The lamp focus tool is used to remove the indexing bolt on the rear of the plate for swiveling out of the way. This is extremely helpful for installation, bulb replacement, and lamp-house maintenance.

SECTION 2 - INSTALLATION

2-1 RECEIVING-HANDLING

Remove all packing material from around the unit and carefully inspect for damage which may have been caused by shipping. Any claims for loss or damage that may have occurred in transit must be filed by the buyer with the carrier. Copy of bill of lading and freight bill will be furnished upon request if required. Table 2-1 is a list of installation hardware included with each lamphouse.

Table 2-1. Installation Hardware

1 each	3/16 Plas-T-Key
1 each	9/64 Allen Hex Key (Short Arm)
1 each	1/8 Allen Hex Key (Short Arm)
4 each	1/4-20 x 2" Flathead Screws
4 each	1/4 SAE Flat Washers
4 each	1/4 Lock Washers
4 each	1/4-20 Hex Nuts
1 each	1/4 Xcelite No. 8 (Special Tool)

2-2 MECHANICAL INSTALLATION

Installation of the ORCON lamphouse will vary with the type of projection system used. Individual conversion kits are available for installing the lamphouse to any projection system. Instructions for installing lamphouse are included with the conversion kit. See paragraph 2-8 for procedure for installing lamphouse to standard 35mm motion picture projector.

## 2-3 ELECTRICAL HOOKUP, POWER SUPPLY

The Model 1000 is factory wired for 115 VAC operation. All that is required for operation is to plug the power cord into a 115 VAC 20 amp power source. Bryant 70520FR or NEMA L520R grounding, twist lock (120V, 20A) U.L. receptacle to be used.

## 2-4 INSTALLATION OF DICHROIC FILTER (See Drawing 1133494-3)

### NOTE

Applies to Model 1000-16 for 16mm projection only.

The dichroic filter should be installed before installing the bulb. This is accomplished as follows:

### CAUTION

WEAR WHITE COTTON OR LINEN GLOVES WHENEVER HANDLING FILTER GLASS. FINGER CONTACT WITH GLASS SURFACE WILL LEAVE BODY OIL MARKS WHICH WILL IMPAIR PERFORMANCE AND CAUSE FRACTURE OF THE GLASS AS A RESULT OF HEAT SPOTS CAUSED BY LOCAL ABSORPTION OF THE ENERGY FROM THE LIGHT SOURCE.

a. While holding filter glass at an angle in a bright light, observe for any unusual stains. If stains are noticed, clean with a mild hand soap and water or an ammonia base household cleaner in an aerosol can. Rinse well with cold water and dry with Kleenex or equivalent.

b. Use key to unlock front bulkhead. Swing up and open to a horizontal position.

c. Remove clips (Item 4) and screws (Item 5). Filter segments (Item 13) should be installed with coated side facing light source. A black mark is painted on the uncoated side of the filter and should face towards the projector when installed.

d. Slide both filters in place, install retainers (Item 6) and tighten retainer screws (Item 5).

- e. Install clips (Item 4) and tighten clip screws (Item 5).
- f. Close front bulkhead and secure with key.

2-5 INSTALLATION OF NEGATIVE LENS (See Drawing 1133494-5)

NOTE

Applies to Model 1000-35 for 35mm projection only.

The negative lens should be installed before installing the bulb. This is accomplished as follows:

**CAUTION**

WEAR WHITE COTTON OR LINEN GLOVES WHENEVER HANDLING FILTER GLASS. FINGER CONTACT WITH GLASS SURFACE WILL LEAVY BODY OIL MARKS WHICH WILL IMPAIR PERFORMANCE AND CAUSE FRACTURE OF THE GLASS AS A RESULT OF HEAT SPOTS CAUSED BY LOCAL ABSORPTION OF THE ENERGY FROM THE LIGHT SOURCE.

- a. While holding negative lens at an angle in a bright light, observe for any unusual stains. If stains are noticed, clean with a mild hand soap and water or an ammonia base household cleaner in an aerosol can. Rinse well with cold water and dry with Kleenex or equivalent.
- b. Use key to unlock front bulkhead. Swing up and open to a horizontal position.
- c. Insert negative lens (Item 11) into filter holder located at the back (underside) of the front bulkhead.
- d. Close front bulkhead and secure with key.



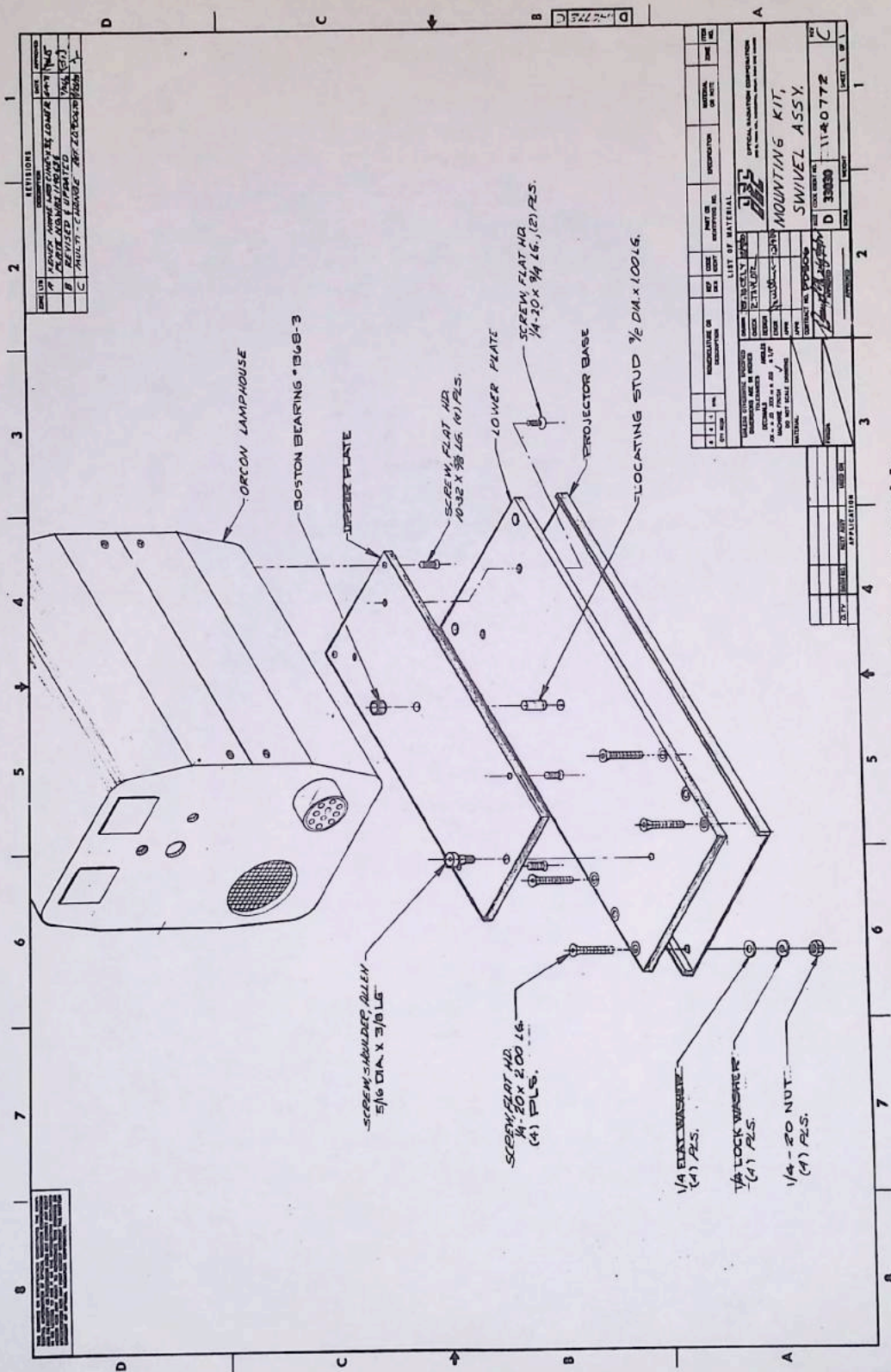
## 2-6 INSTALLATION OF LAMPHOUSE TO MOUNTING PLATE (35mm PROJECTORS)

The ORCON Mounting Plate (MP) should be used in all 35mm projector installations. The plate is designed to simplify the initial installation and to provide speedy bulb replacement when required. Install the mounting plate and lamphouse on the projector pedestal as follows (see figure 2-1):

- a. Remove two 1/4-20 x 3/4 LG flat head screws which secure plates together during shipment.
- b. Insert four 1/4-20 x 2" Allen flat head screws through lower base plate.
- c. Lay lower base plate on pedestal allowing screws to protrude into pedestal base.
- d. Install four 1/4" flat washers and four 1/4" lock washers onto bolts and secure with four 1/4-20 nuts. Nuts should be finger tight only so that lower base plate can be moved freely back and forth within the channels of the projector base.
- e. Normally, when ordered, the upper base plate is shipped installed to the lamphouse. If not installed, assemble the upper base plate to the bottom of the ORCON lamphouse using four 10-32 x 5/8" flat head screws, and tighten securely.
- f. Place the assembled lamphouse and upper base plate carefully onto the locating stud on the lower plate and temporarily insert the 5/16" x 3/8" Allen shoulder screw through the upper plate, into the threaded hole on the lower plate.
- g. After optical alignment has been accomplished, (see Section 4) tighten all nuts securely.

### NOTE

Once base plate is secured, it will never have to be adjusted during the life of the installation.



REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	10/24/64	REVISED TO INCLUDE THE ORCON LAMP SHADE	JAN
2	11/18/64	REVISED TO INCLUDE THE BOSTON BEARING	JAN
3	12/10/64	REVISED TO INCLUDE THE SCREW FLAT HEAD	JAN

LIST OF MATERIAL									
QTY	DESCRIPTION	UNIT	QTY	DESCRIPTION	UNIT	QTY	DESCRIPTION	UNIT	QTY
1	ORCON LAMPHOUSE	EA	1	BOSTON BEARING #068-3	EA	1	UPPER PLATE	EA	1
4	SCREW FLAT HD #0-32 X 3/8 LG.	PLS	4	SCREW FLAT HD 1/4-20 X 3/4 LG.	PLS	2	SCREW FLAT HD 1/4-20 X 2.00 LG.	PLS	4
4	SCREW SUBCUTTER BUSHEN 5/16 DIA. X 3/16 LG.	PLS	4	1/4 EXT WASHER	PLS	4	1/4 LOCK WASHER	PLS	4
4	1/4-20 NUT	PLS	1	LOCATING STUD 3/8 DIA. X 1.00 LG.	EA	1	PROJECTOR BASE	EA	1

MATERIALS			
QTY	DESCRIPTION	UNIT	QTY
1	ORCON LAMPHOUSE	EA	1
1	BOSTON BEARING #068-3	EA	1
1	UPPER PLATE	EA	1
1	PROJECTOR BASE	EA	1
1	LOCATING STUD 3/8 DIA. X 1.00 LG.	EA	1

Figure 2-1. 35mm Mounting Kit Swivel Assembly

**WARNING**

MAKE SURE POWER IS DISCONNECTED TO LAMPHOUSE BEFORE ATTEMPTING TO INSTALL BULB.

The xenon bulb is packaged separately inside a transparent bulb installation tool. Always use included tool when installing or removing bulb.

**WARNING**

THE XENON BULB IS UNDER EXTREME PRESSURE AND SUBJECT TO POSSIBLE EXPLOSION. ALWAYS USE PROTECTIVE BULB INSTALLATION TOOL WHEN INSTALLING OR REMOVING BULB TO PREVENT PERSONNEL INJURY. DO NOT APPLY LATERAL PRESSURE AGAINST BULB WHEN TIGHTENING OR LOOSENING ALLEN SCREWS. DO NOT LOOK INTO FRONT OF LAMPHOUSE WHILE INSTALLING OR REMOVING BULB UNLESS PROTECTIVE FACE MASK IS WORN.

**WARNING**

BULB SHOULD NEVER BE HANDLED OUTSIDE ITS PROTECTIVE CONTAINER UNLESS PROTECTIVE CLOTHING CONSISTING OF CHROME LEATHER GLOVES, PROTECTIVE FACE SHIELD EXTENDING BELOW THE NECK AREA, AND QUILTED BALLISTIC NYLON JACKET IS WORN. THE INSTRUCTIONS REGARDING PROTECTIVE CLOTHING ARE SUBJECT TO CHANGE BY ANY LOCAL OR FEDERAL SPECIFICATIONS WHICH TAKE PRECEDENCE.

- a. Use key to unlock front bulkhead door and to disengage the power interlock (microswitch). Swing door upward to provide clearance for bulb installation.

- b. Remove thumb screw and red plastic end cap from cathode end of bulb installation/ removal tool (containing xenon bulb.
- c. Insert bulb installation/removal tool (containing bulb) through an opening in mirror, and screw bulb into receptacle until it is seated firmly against mating surface.
- d. Remove collar holding bulb installation/removal tool to anode end of bulb, using a 1/8" Allen wrench.
- e. Remove bulb installation/removal tool from bulb without viewing bare bulb and without exerting bending pressure on the bulb.

**CAUTION**

DO NOT TOUCH QUARTZ SURFACE OF BULB WITH BARE HANDS. FINGER CONTACT WITH BULB SURFACE WILL LEAVE BODY OIL MARKS WHICH WILL IMPAIR PERFORMANCE AND CAUSE FRACTURE OF THE BULB WHEN ENERGIZED.

- f. Connect the anode connection over the anode stud of the bulb and carefully tighten the socket screws on the connection with a 9/64" Allen wrench. Support the end of the bulb with one hand while tightening so that lateral pressure is not applied on the bulb.

**CAUTION**

MAKE SURE FRONT LEAD FROM BLACK TRANSFORMER TO BULB IS NOT TOUCHING ANY PART OF MIRROR OR SHUTTER, OR HIGH VOLTAGE ARCING AND SHORTING MAY OCCUR. MAKE SURE PVC AIR TUBES ARE POINTED TOWARD THE BOTTOM OF THE BULB CONNECTION.

- g. Lower front bulkhead door into place and secure by locking and removing key.

SECTION 3 - OPERATION

3-1 START-UP

The following is the procedure for operating the system:

**CAUTION**

MAKE SURE AIR FLOW INLET AND EXHAUST ARE NOT RESTRICTED. THE THERMAL SWITCH ON THE SCR HEAT SINK WILL SHUT OFF SYSTEM IF ADEQUATE AIR FLOW IS NOT AVAILABLE.

- a. Hook up power cord to a 115 VAC power source.
- b. Adjust current adjust potentiometer, located on rear panel of lamphouse to 70% for initial start-up.
- c. Activate main switch on lamphouse to "ON" position. Bulb will automatically ignite.

NOTE

If upper wrap is not secured on lamphouse, bulb will not ignite. The lamphouse upper wrap must be secured in order to activate the interlock switch.

**CAUTION**

IF THE BULB REQUIRES LONGER THAN SIX SECONDS TO IGNITE, THEN THE OPEN CIRCUIT CAPACITORS MUST BE REFORMED AS DESCRIBED IN PARAGRAPH 5-8. THIS PROCEDURE SHOULD BE DONE IMMEDIATELY PRIOR TO THE LAMPHOUSE GOING INTO SERVICE. AFTER LAMPHOUSE IS IN SERVICE, THE REFORMING PROCEDURE WILL NOT HAVE TO BE REPEATED.

Current to the Model 1000 system with an X-1000 bulb installed should not exceed 35 amps, and with an X-1600 bulb should not exceed 40 amps. If starting current exceeds the above values, adjust the current adjust potentiometer CCW until the desired value is reached. Monitor bulb current on ammeter at rear of lamphouse.

The nominal current after warm-up for the X-1000 bulb is 35 amps, and for the X-1600 bulb, 40 amps. The range of adjustment is approximately 15 to 35 amps for the X-1000 bulb and 17 to 40 amps for the X-1600 bulb. The X-1000 and X-1600 bulbs can run continuously at current levels of 35 amps and 40 amps respectively.

### 3-2 SHUT-DOWN

To shut-down the system, position main switch on rear of lamphouse to "OFF". Bulb will extinguish and power supply will be de-energized.

**WARNING**

IF XENON BULB IS TO BE REMOVED AFTER SHUT-DOWN,  
ALLOW BULB TO COOL FOR 15 MINUTES BEFORE REMOVING.  
WHEN BULB IS HOT, IT IS UNDER HIGHER INTERNAL PRES-  
SURE AND MORE SUBJECT TO EXPLOSION.

Start-up can be accomplished immediately after shut-down if required without damage to the equipment.

**CAUTION**

FILM IN PROJECTOR MAY BURN IF PROJECTOR IS STOPPED  
WHILE LAMPHOUSE IS ENERGIZED. ANY TIME PROJECTOR  
IS STOPPED, CLOSE LAMPHOUSE DOUSER FIRST FOR FILM  
PROTECTION.

## SECTION 4 - OPTICAL ALIGNMENT

### 4-1 GENERAL

The optical alignment of the system can be easily accomplished once the lamphouse is positioned properly with respect to the optical axis of the projection lens. In general, the following setup is the same for 16mm or 35mm projectors.

### 4-2 ALIGNMENT PROCEDURE

#### NOTE

No optical alignment tools or devices are required if the following instructions are carefully followed.

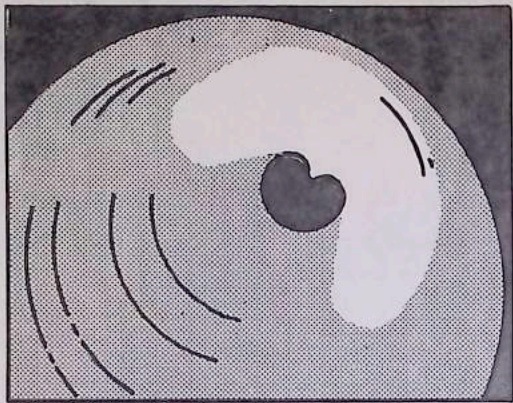
a. Remove socket head bolt from upper mounting plate. Swivel lamphouse and upper base plate around so that it is at a right angle to the direction of the screen.

b. Turn on lamphouse and open douser to direct light from the lamphouse onto the side wall of the projection room. Set current to minimum to prevent damage to optical elements.

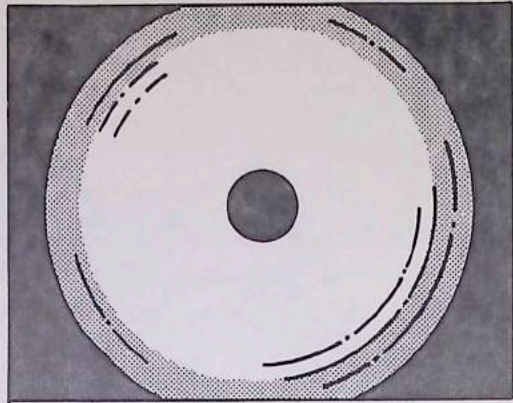
c. Insert focusing tool into the center adjustment hole (FOCUS ADJUST, see figure 1-1), and adjust until the light pattern on the wall resembles a target with a small dark "bullseye" in the approximate center, surrounded by gray rings (see figure 4-1A). Adjust the horizontal and vertical bulb adjustments (see figure 1-1) to set the dark bullseye symmetrically in the center of the gray rings (see figure 4-1B). Turn the center focus adjust clockwise until the dark bullseye just disappears. The bulb is now aligned with respect to the lamphouse mirror.

d. Close the lamphouse douser and swivel the lamphouse into its normal operating position on the projector pedestal with the front bulkhead of the lamphouse approximately 8 to 8-1/2 inches (6-3/4 to 7-1/4 inches for 16mm) from the aperture plate of the projector (see figure 4-2).

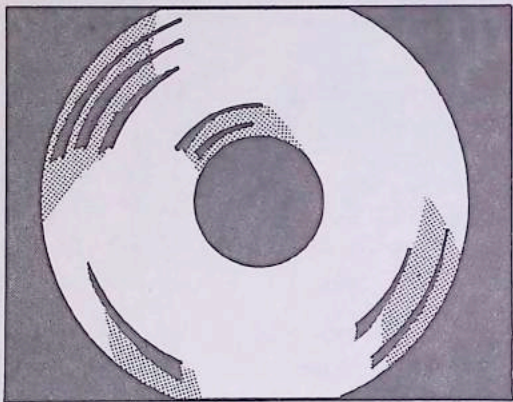




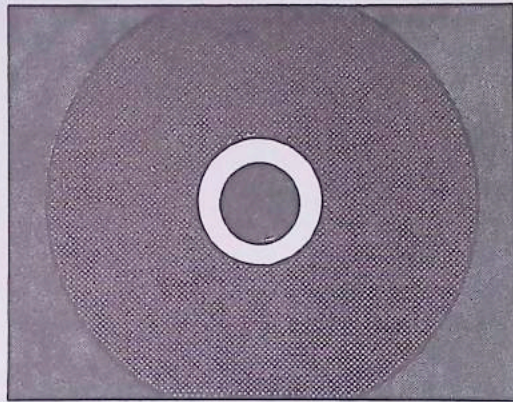
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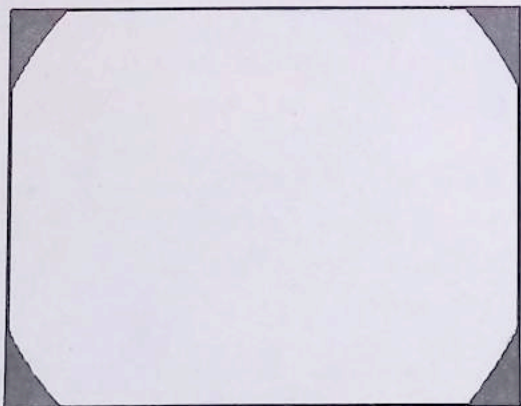
B



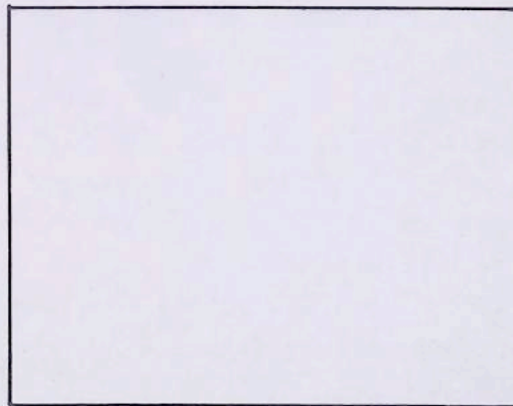
C



D



E



F

Figure 4-1. Alignment Procedure

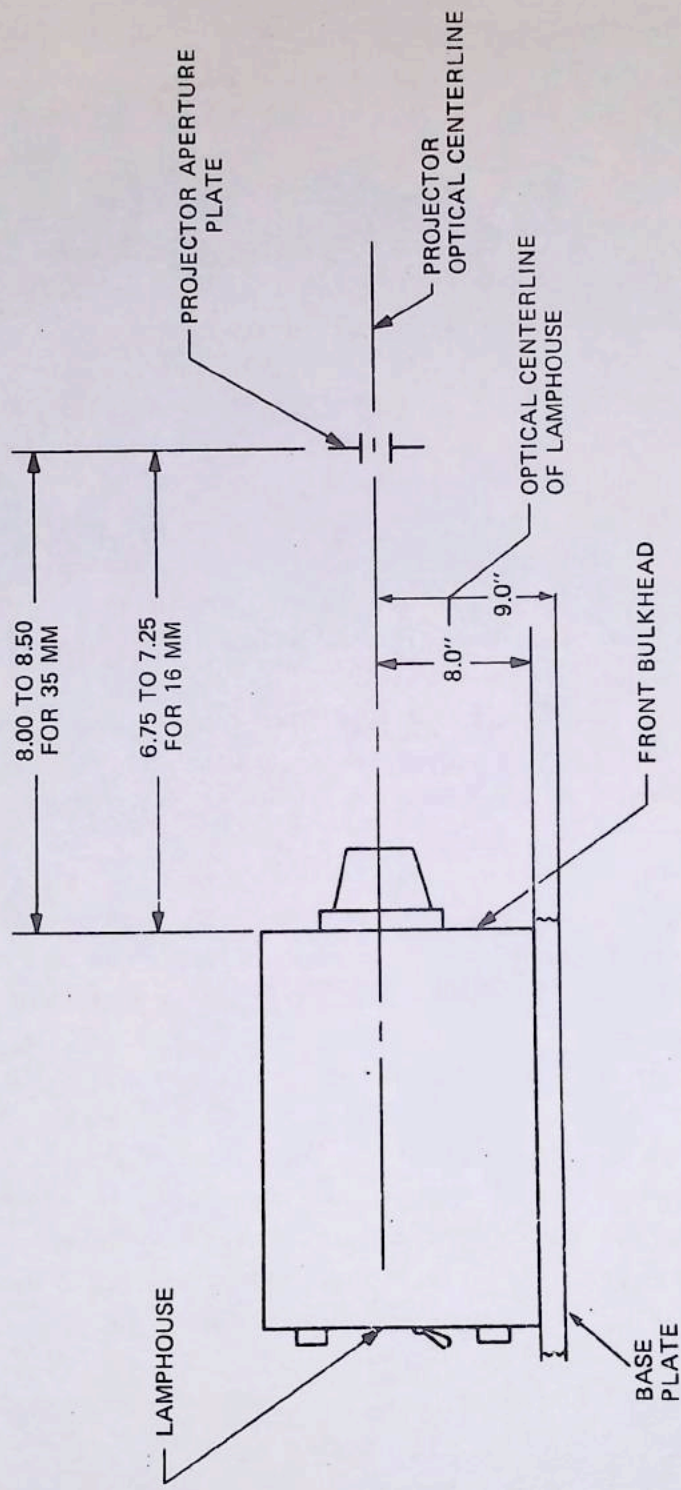


Figure 4-2. Lamphouse/Projector Alignment

e. Remove projector lens; start projector and open lamphouse douser and changeover douser. The "target" pattern should now appear on the screen.

NOTE

DO NOT re-adjust the horizontal and vertical bulb adjustments during the following alignment procedures.

f. Center the dark "bullseye" again (see Figure 4-1B) by physically moving the lamphouse table on the projector pedestal up or down as required. If no adjustment is provided, it may be necessary to place shim washers between the lower base plate and the lamphouse table until the desired height is established. If precise centering of the "bullseye" cannot be obtained by moving the lamphouse, repeat steps a through c to be sure the bulb is centered in the mirror.

g. Adjust the center focus adjust counterclockwise until the outer rings begin to converge toward the bullseye. Move the rear of the lamphouse until the bullseye is centered within the outer rings (see figure 4-1C).

h. Adjust the center focus adjust clockwise until the outer rings converge toward the bullseye to form a dark collar around the bullseye and adjacent ring of light. Adjust the front of the lamphouse to center the bullseye adjacent ring of light within the outer rings (see figure 4-1D).

i. Repeat steps g and h until no further adjustment is necessary to center the bullseye within the adjacent ring of light. After the bullseye has been centered, set center focus adjust half way between the above two alignment positions used in steps g and h.

j. Close the douser and insert projection lens in projector. Open douser, focus projection lens, and adjust center focusing adjustment to obtain a bright spot on the screen.

**CAUTION**

DO NOT ALLOW LIGHT FROM LAMPHOUSE TO STRIKE THE PROJECTION LENS FOR MORE THAN A FEW SECONDS AT A TIME. OPEN THE LAMPHOUSE DOUSER, MAKE AN ADJUSTMENT WHILE OBSERVING THE RESULTS OF THE SCREEN AND THEN CLOSE THE DOUSER TO PERMIT THE LENS TO COOL. PROLONGED EXPOSURE OF THE LENS TO THE INTENSE LIGHT FROM THE LAMPHOUSE WITHOUT FILM BEING RUN THROUGH THE PROJECTOR CAN DAMAGE THE LENS.

k. If the bright spot is not in the center of the screen, readjust the lamphouse or horizontal and vertical bulb adjustments slightly to center the pattern. Adjust the center focus adjustment clockwise until the light fills the screen with the exception of the four dark corners (see figure 4-1E) which should be of equal size.

l. If the four dark corners are not of equal size, repeat step k.

m. Adjust the center focus adjust clockwise until the screen is filled with light, evenly distributed, with no dark corners (see figure 4-1F). Set the current control to provide the desired light level on the screen. Do not exceed the maximum safe bulb current (see paragraph 3-1).

n. Tighten the four bolts that fasten the lamphouse base to the pedestal.

NOTE

Once the system is properly aligned, no adjustments will be necessary until a new bulb is installed. After installation of a new bulb, adjustment of the three lamp focus adjustments is required to again achieve optimum alignment.

**WARNING**

BEFORE ATTEMPTING TO CHANGE PARTS OR MAKE REPAIRS, BE SURE THAT THE POWER CORD IS DISCONNECTED FROM THE POWER SOURCE.

**WARNING**

CAUTION SHOULD BE EXERCISED IN TAKING VOLTAGE MEASUREMENTS WHEN TROUBLE SHOOTING THE UNIT. ALWAYS AVOID CONTACT BETWEEN ANY PART OF THE HUMAN BODY AND ANY CURRENT CARRYING PART OF THE POWER SOURCE.

5-1 FAN MOTOR

The fan motors are manufactured with lifetime lubricated bearings and no maintenance is required.

5-2 CONNECTORS

Electrical connections (i.e., circuit boards and connectors) should be checked periodically to ensure good contact and eliminate any possible heating at contact areas.

5-3 CLEANING POWER SUPPLY

Periodically remove the top cover and blow out the lamphouse using clean, dry compressed air.

5-4 CLEANING OPTICS

It is recommended that at least twice annually the reflector and negative lens be cleaned to maintain high screen brightness. In cleaning the optics, the following steps should be taken:

- a. Remove bulb from lamphouse as described in paragraph 5-5.
- b. With a soft bristled brush, gently brush larger particles off the optics surface.

- c. Clean optics with a mild hand soap and water or an ammonia base household cleaner in an aerosol can. Rinse well with cold water (if cleaned with soap and water) and dry (or wipe) with Kleenex or equivalent.

#### 5-5 REPLACEMENT OF BULB

**WARNING**

BEFORE REMOVING XENON BULB, ALLOW 15 MINUTES TO COOL DOWN. WHEN HOT, BULB IS UNDER HIGHER INTERNAL PRESSURE AND MORE SUBJECT TO EXPLOSION.

- a. Loosen shoulder bolt in baseplate at rear of lamphouse (if 35mm installation) and swing lamphouse nose away from projector.
- b. Use key to unlock front bulkhead door and to disengage the power interlock (microswitch). Swing door upward to provide clearance for bulb installation.

**WARNING**

THE XENON BULB IS UNDER EXTREME PRESSURE AND SUBJECT TO POSSIBLE EXPLOSION. ALWAYS USE PROTECTIVE BULB INSTALLATION TOOL WHEN INSTALLING OR REMOVING BULB TO PREVENT PERSONNEL INJURY. DO NOT APPLY LATERAL PRESSURE AGAINST BULB WHEN TIGHTENING OR LOOSENING ALLEN SCREWS. DO NOT LOOK INTO FRONT OF LAMPHOUSE WHILE INSTALLING OR REMOVING BULB UNLESS PROTECTIVE FACE MASK IS WORN.

**WARNING**

BULB SHOULD NEVER BE HANDLED OUTSIDE ITS PROTECTIVE CONTAINER UNLESS PROTECTIVE CLOTHING CONSISTING OF LEATHER GLOVES, PRO-

TECTIVE FACE SHIELD EXTENDING BELOW THE NECK AREA, AND QUILTED BALLISTIC NYLON JACKET IS WORN. THE INSTRUCTIONS REGARDING PROTECTIVE CLOTHING ARE SUBJECT TO CHANGE BY ANY LOCAL OR FEDERAL SPECIFICATIONS WHICH TAKE PRECEDENCE.

- c. Loosen and remove fitting on front of bulb.
- d. Insert bulb installation/removal tool over bulb; unscrew and remove bulb from lamphouse and return to Optical Radiation Corporation for replacement along with bulb warranty claim form.

**WARNING**

BULB IS UNDER EXTREME INTERNAL PRESSURE. DO NOT REMOVE FROM PROTECTIVE CONTAINER.

- e. Insert new bulb with furnished bulb installation/removal tool, and secure front electrical connections with Allen tool provided. See paragraph 2-7 for instructions.
- f. Lower front bulkhead door into place and secure by locking and removing key. Secure lamphouse to baseplate.
- g. Align the lamp as described in Section 4.

NOTE

Do NOT loosen lamp baseplate on projection pedestal since the lamphouse mirror is optically aligned with the center-line of the projection lens.

#### 5-6 TROUBLE SHOOTING

Whenever lamphouse fails to operate properly, consult wiring diagram, figure 5-1, Trouble Shooting Chart table 5-1, voltage chart table 5-2 and resistance test points table 5-3 as an aid in locating the possible trouble.

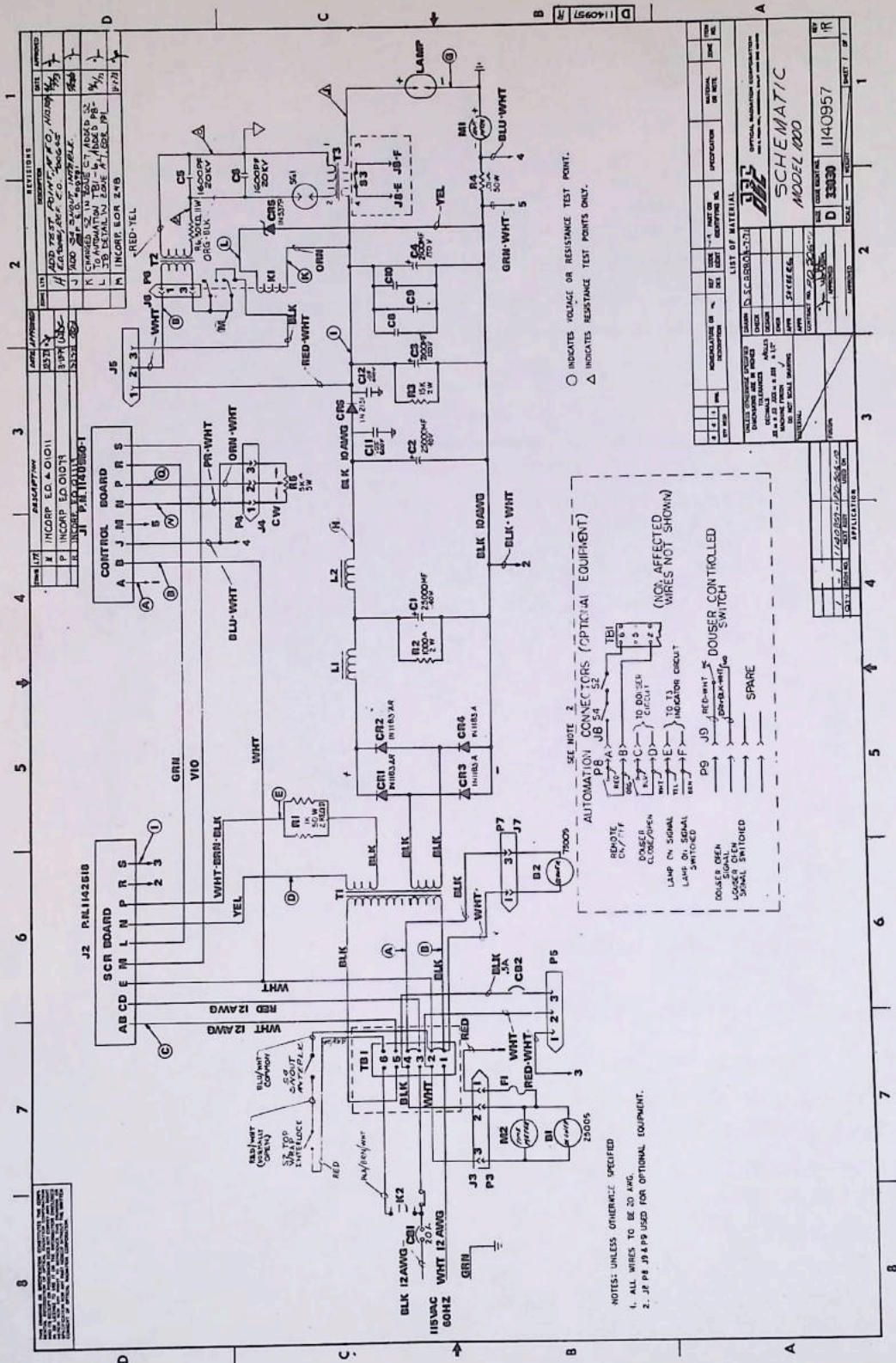


Figure 5-1. Wiring Diagram, Model 1000 Lamphouse



Table 5-1. Trouble Shooting Chart

<u>Symptom</u>	<u>Probable Cause</u>	<u>Remedy</u>
1. Lamp does not operate when switched on; fans do not operate..	1.1 20 amp circuit breaker (on/off switch) or main panel circuit breaker tripped.	1.1 Reset circuit breaker(s).
	1.2 Automation control circuit disconnected or inoperative (This applies only to power supplies provided with automation control).	1.2 Check automation connector and associated wiring.
2. Bulb flashes but does not remain on.	2.1 Defective control board.	2.1 Replace control board. See circuit board replacement information.
	2.2 Loose connection in DC current circuit (CR1-CR4, L1, L2, C1, C2, C3, CR6).	2.2 Visually inspect all the heavy (DC) wiring for loose connections, especially at the ammeter and capacitor terminal. Retighten as required.
	2.3 Oxidized circuit board connection.	2.3 Remove and clean contacts, reinsert the circuit boards into their respective connectors.
	2.4 Defective bulb.	2.4 Replace bulb.
	2.5 Defective current control potentiometer.	2.5 Measure resistance. See table 5-3.
3. Bulb does not flash.	3.1 1/4 amp fuse blown.	3.1 Check and replace if blown.
	3.2 1/2 amp circuit breaker tripped.	3.2 Reset circuit breaker.

Table 5-1. Trouble Shooting Chart (continued)

<u>Symptom</u>	<u>Probable Cause</u>	<u>Remedy</u>
3. Bulb does not flash (cont.).	3.3 Ignitor relay failure.	3.3 Try to manually start the lamp with a momentary jumper across the contacts of K1. If it starts, the K1 relay is defective.
	3.4 Shorted blocking diode (CR6).	3.4 Check voltage on both sides. See figure 5-1 and table 5-2.
	3.5 Check steps 2.1, 2.2, or 2.4.	3.5 See 2.1, 2.2, or 2.4.
	3.6 Ignitor component failures.	3.6 Check resistance values of ignitor circuit components T2, T3, C5, C6, etc. See table 5-3.
4. Lamp runs at excessive current; no current control. Current remains on, even when the 1/4 amp fuse on rear bulkhead is removed.	4.1 Defective SCR board.	4.1 Replace SCR board.
5. Lamp runs at excessive current; no current control. Current goes to 0 when 1/4 amp fuse is removed.	5.1 Defective control board.	5.1 Replace control board.
	5.2 Defective current control potentiometer.	5.2 Check resistance as per table 5-3.

Table 5-1. Trouble Shooting Chart (continued)

<u>Symptom</u>	<u>Probable Cause</u>	<u>Remedy</u>
6. Lamp current fluctuates slowly by several amperes. Unit makes a grunting sound and trips the circuit breaker when 1/4 amp fuse is removed.	6.1 Defective SCR board.	6.1 Replace SCR board.
7. Unit makes loud buzzing sound. Lamp may or may not light; circuit breaker trips.	7.1 Defective SCR board.  7.2 Defective control board.	7.1 If removal of 1/4 amp fuse does not eliminate noise, trouble is defective SCR board. Replace SCR board.  7.2 If removal of 1/4 amp fuse eliminates noise, trouble is defective control board. Replace control board.
8. Apparent normal operation except for a rapid (60 Hz) flicker, and circuit breaker trips when lamp current is above 25 amps. This may also occur only after the unit warms up.	8.1 Loose or intermittent connection on one of the four diodes (CRL-CR4) mounted on transformer assembly.  8.2 Defective diode (CRL-CR4).	8.1 Check connections.  8.2 Replace defective diodes.

Table 5-1. Trouble Shooting Chart (continued)

<u>Symptom</u>	<u>Probable Cause</u>	<u>Remedy</u>
9. Normal operation except for a low frequency (approximately 10 per second) flicker which may occur only at certain current settings.	9.1 Defective control board.	9.1 Check the three electrolytic capacitors on the control board or replace board if defective.
	9.2 Defective SCR board.	9.2 Replace SCR board.
10. Unit operates normally except for loud hum or buzz. Sound may change in intensity as unit heats up.	10.1 Defective transformer or filter choke.	10.1 Replace transformer or filter choke.
11. Not possible to obtain maximum lamp current (36A for 1000 lamp or 40A for 1600 lamp).	11.1 Low line voltage.	11.1 Minimum AC line voltage for proper operation @ 40 amps with a 21 volt lamp is approximately 108 V.
	11.2 High Voltage lamp.	11.2 Normal maximum lamp voltage is approximately 21 volts. Replace if higher.
	11.3 Open rectifier diode.	11.3 See symptom No. 8.
	11.4 Control board potentiometer misadjusted.	11.4 Readjust potentiometer.

Table 5-1. Trouble Shooting Chart (continued)

<u>Symptom</u>	<u>Probable Cause</u>	<u>Remedy</u>
12. Bulb ignites almost instantly: i.e., does not wait the normal four seconds, and the 1/2A circuit breaker pops out after several seconds.	12.1 Zener diode CR5 (on relay) shorted, or defective relay.	12.1 Note that extended operation under these conditions may cause the high voltage transformer in the front of the unit to burn itself out. Replace diode CR5 and high voltage transformer if burned out.
13. Unit operates normally for a time, then the bulb goes out. Circuit breaker trips. Unit returns to normal after cooling down.	13.1 Thermal overload switch on SCR board tripped due to air passage blockage.  13.2 Defective thermal overload switch.	13.1 Check for dirt accumulation in the air path and particularly in the air duct under the SCR board.  13.2 Replace switch or complete SCR board.
14. Bulb flickers and/or goes out especially at low lamp currents. Bulb re-ignites and repeats the above.	14.1 Unstable bulb.	14.1 Replace bulb.
15. Bulb takes longer than six seconds to ignite.	15.1 Open circuit capacitors need reforming.	15.1 Reform open circuit capacitors as described in Paragraph 5-8.

Table 5-2. Test Voltages

<u>VOLTAGE TEST POINTS</u>	<u>VOLTAGE READING BEFORE LAMP IGNITION</u>	<u>VOLTAGE READING AFTER LAMP IGNITION</u>	<u>NOTES</u>
(A) to (B)	115 VAC	115 VAC	Line voltage.
(B) to (C)	110 VAC	65 V to approximately 110 VAC	Depends on lamp current and type of voltmeter.
(D) to (E)	0 to 5 seconds; approximately 150 VAC	≈ 20 VAC	Voltage changes '0 to 140 V in about 5 seconds after power is first applied.
(I) (+) to (G) (-)	0 to 5 seconds; approximately 150 VDC	20 V ± 1 VDC	
(H) (+) to (G) (-)	40 V	21 V ± 1 VDC	Bulb voltage.
(J) (+)			
(L) (-) to (K) (+)		0 VDC	Ignitor relay coil.
(B) to (M)	115 VAC for about 5 seconds	0 V	High voltage transformer primary.
(N) (+) to (G) (-)	8 to 12 VDC	8 to 12 VDC	

5-10

Note: Refer to Schematic Diagram, Figure 5-1, for test points.

(4-73)

Table 5-3. Resistance Test Points

<u>RESISTANCE TEST POINT</u>	<u>RESISTANCE</u>	<u>NOTES</u>
(B) to (C)	.1 $\Omega$	T1 Primary
(D) to (E)	1K	R1 and T1 Secondary
(H) to (G)	900 $\Omega$	Use X1 ohmmeter range, polarity sensitive.
(M) to (B)	25 $\Omega$	T2 Primary
(A) to (F)	55K	T2 Secondary (Transformer frame is point 0) and 30K Resistor
(I) to (J)	Less than .05 $\Omega$	T3 Secondary
(K) to (L)	5K	Reading is polarity sensitive
(N) to (G)	5 K with control board.	Current adjust potentiometer resistance
(G) to (Q)	0 to 5K with control board removed.	Depends on current adjust setting
(H) to (I)	20 $\Omega$ /2K (appropriate values)	Blocking diode forward and reverse resistance ("in circuit" reading)

NOTE: Take all resistance measurements with power off.  
See schematic diagram, figure 5-1, for test points.

## 5-7 REMOVAL AND REPLACEMENT OF SCR OR CONTROL BOARD

The following procedure should be followed in the event that the Control Board or SCR Board is replaced. Refer to Drawing No. 1140859 for locations. Figure 5-2 shows the detailed installation.

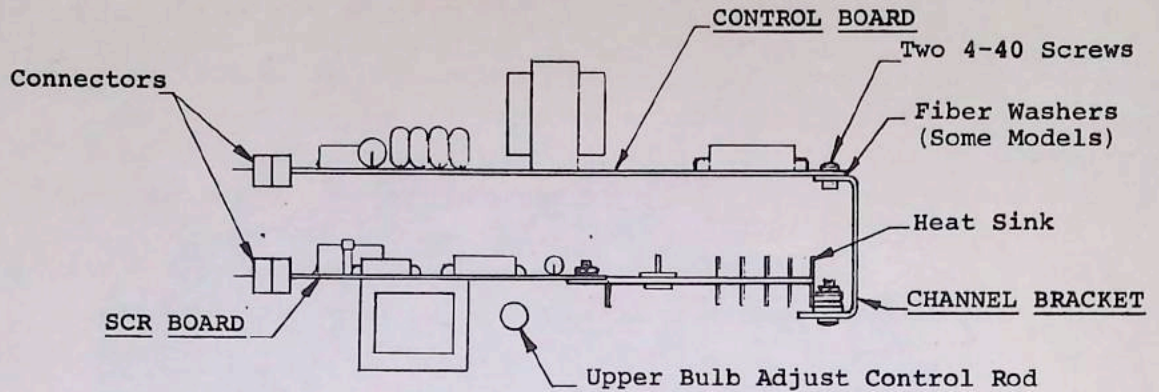
### Removal of Control Board

- a. Disconnect the lamphouse power cord from its wall socket and remove the top wrap.
- b. Locate and remove the printed circuit card (Control Board) located at the top of the power supply section of the lamphouse. This is accomplished by removing the two 4-40 screws securing the end of the card to the channel bracket opposite from the connector. Two fiber washers will be found between the card and the channel bracket on some models (Style A). Do not lose these fiber washers as they are necessary to insulate the bottom of the card from the bracket when reinstalled. (Newer systems, S/N AA0351 and up (Style B) do not require these washers.)
- c. Pull the control board straight out from its connector.

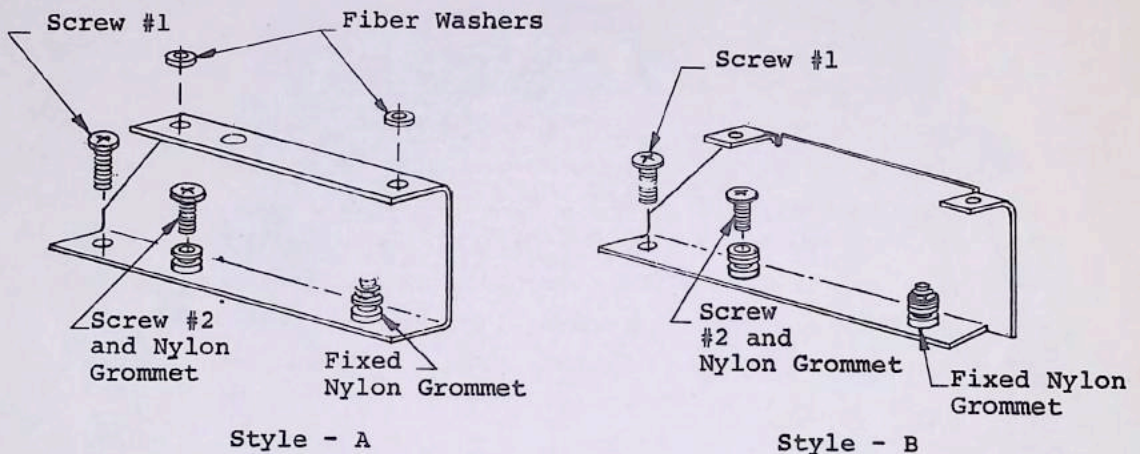
### Removal of SCR Board

- a. Remove the two quick-connect tabs from the SCR Board, which is now visible when viewed from the top. These tabs connect red and white wires to the SCR Board. See figure 5-2C.
- b. Looking down on the channel bracket (see figure 5-2B), loosen screw number 1 (closest to the rear bulkhead of the lamphouse) approximately three turns.
- c. Completely loosen screw number 2 on the channel bracket. Once loosened, this screw should be left in the nylon grommet attached to the heat sink portion of the SCR Board.
- d. Lift up the front (towards the capacitor) of the channel bracket until screw number 2 is clear of the lower assembly, and

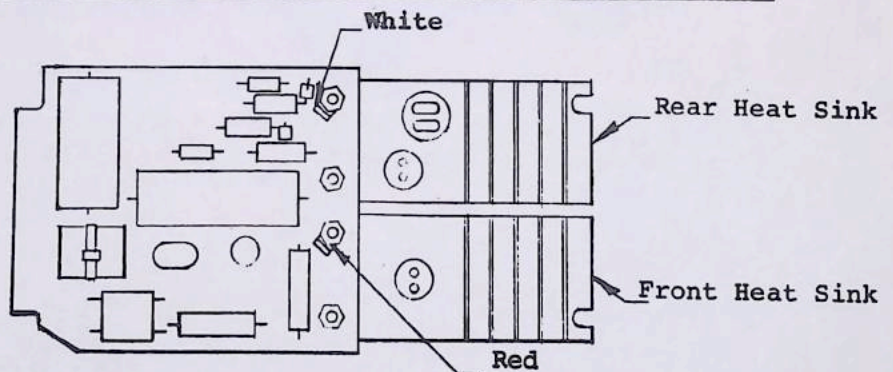




A - Printed Circuit Board Assembly Viewed From Front Of Lamphouse



B - Channel Bracket



C - Top View SCR Board

Figure 5-2. Model 1000 SCR Board Replacement Procedure

swing the bracket out away from the lamphouse. Some initial resistance may be encountered when swinging the channel bracket away from the SCR Board. This is due to the fit between the fixed nylon grommet (see figure 5-2B) and the heat sink portion of the SCR board.

e. The SCR Board may pull out from its connector, or screw number 2 (with nylon grommet) may separate from the heat sink. When enough clearance is available, remove the SCR Board with heat sinks attached by carefully lifting the board up and out from its connector. Note that the transformer mounted on the bottom of the SCR Board clears the upper bulb adjust control rod before removing. If necessary, remove the nylon grommet and screw number 2 from the heat sink of the SCR Board.

#### Replacement of the SCR Board

a. Insert the nylon grommet with screw number 2 in the U-shaped mounting slot on the rear heat sink of the replacement SCR Board. The thick side of the grommet should be on the bottom.

b. Carefully reinstall the SCR Board with its attached heat sinks into the lower connector. While lifting up slightly on the heat sinks to hold them away from the bracket, pivot the bracket back to its original position being careful to properly reinsert the fixed nylon grommet into the front heat sink slot.

c. Line up screw number 2 with its threaded retainer and tighten. Next, tighten screw number 1.

d. Snap the quick-connect tabs onto the SCR Board. See figure 5-2C.

e. Check that the SCR Board is firmly seated in its connector and that the upper bulb adjustment control rod is not rubbing against the underside of the board. See figure 5-2A.

### Replacement of Control Board

- a. Insert the Control Board into the top connector. Be sure to place the insulating fiber washers between the Control Board and the channel bracket if applicable to your system.
- b. Install the 4-40 screws at each corner of the Control Board and tighten. Check that the quick-connect tabs under the Control Board do not touch the bottom of the board.
- c. Replace the top wrap after connecting the plastic connector to the exhaust fan.

### 5-8 REFORMING OPEN CIRCUIT CAPACITORS

If the bulb requires longer than six seconds to ignite, then the open circuit capacitors must be reformed. This procedure should be done only prior to the lamphouse going into service. Reforming of the open circuit capacitors is accomplished as follows:

- a. Turn power switch to the "OFF" position.
- b. Remove top cover of lamphouse by removing three Phillip screws and one tri-wing screw.
- c. Remove the plug-in igniter relay (K1) located on the center bulkhead assembly (see Item 33, Drawing No. 1140881).
- d. Replace top cover but do not install screws.
- e. Turn the power switch to the "ON" position and let the unit run for three minutes.

### NOTE

The bulb will not ignite with the igniter relay removed. However, the fans should be running. If the system is wired to an automation system, the external lamp control should be in the "ON" position.

- f. Turn the power switch to the "OFF" position and wait five minutes.

- g. Remove top cover and replace igniter relay.
- h. Replace top cover and reinstall screws.

SECTION 6 - BULB WARRANTY

The lamp warranty on the xenon bulb will not be honored unless the necessary forms are completed.

Upon installation of a new bulb, the xenon lamp warranty card must be filled out and returned to Optical Radiation Corporation. It is mandatory that all information on the card be completed. Shown below is a sample card which was included with delivery.

This card must be filled out and returned within 30 days after installation of the lamp to validate the warranty of your new xenon lamp.

**XENON LAMP WARRANTY CARD**

USER'S NAME \_\_\_\_\_ DATE \_\_\_\_\_  
COMPANY \_\_\_\_\_  
STREET ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
BULB MODEL NO. \_\_\_\_\_ BULB SERIAL NO. \_\_\_\_\_  
INSTALLED IN \_\_\_\_\_ LAMPHOUSE MODEL NO. \_\_\_\_\_  
LAMPHOUSE SERIAL NO. \_\_\_\_\_  
RUNNING TIME METER READING AT TIME OF INSTALLATION \_\_\_\_\_ HRS.  
PURCHASED FROM \_\_\_\_\_  
CITY \_\_\_\_\_

**READ ALL INSTRUCTIONS BEFORE INSTALLING LAMP**

If the bulb has failed during the warranty period, the xenon lamp warranty claim form must be filled out and returned to Optical Radiation Corporation along with the defective bulb.

XENON LAMP  
WARRANTY CLAIM FORM

To expedite warranty claims, please fill out the following as completely as possible and return with defective bulb to Optical Radiation Corporation:

1. Bulb Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_  
Purchase Date \_\_\_\_\_

2. Equipment  
Lamphouse Type: Model No. \_\_\_\_\_  
Serial No. \_\_\_\_\_

3. Operating Conditions  
Accumulated Running Hours on Bulb \_\_\_\_\_  
Average ON Time \_\_\_\_\_ Average OFF Time \_\_\_\_\_  
Estimated Number of Ignitions \_\_\_\_\_  
Voltage at Failure \_\_\_\_\_ Current at Failure \_\_\_\_\_

4. Conditions Causing Reject or Return \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Additional Information \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Form Completed By \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

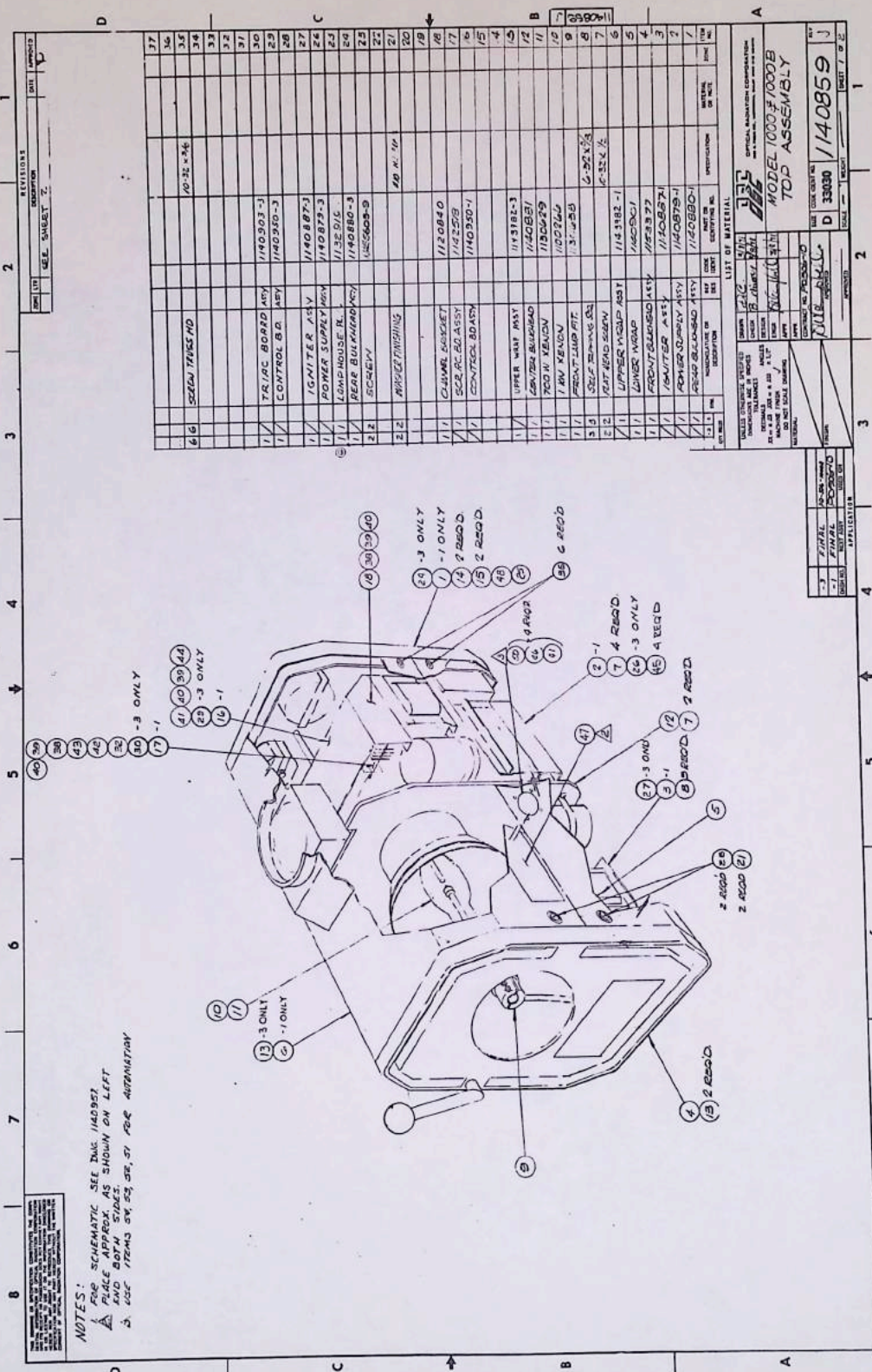
Telephone No. \_\_\_\_\_ Date \_\_\_\_\_

Return To:

**Optical Radiation Corporation**  
6352 N. Irwindale Avenue, Azusa, California 91702 • (213) 969-3344

SECTION 7 - SPARE PARTS LIST

The following is the list of parts which comprise the Model 1000 Lamphouse/Power Supply. When ordering replacement parts, please specify complete part number and quantity required. Consult your local dealer or write Optical Radiation Corporation for prices.



QTY	DESCRIPTION	REF ID	UNIT OF MEASURE	REVISIONS	DATE	APPROVED
1	SCREW TRASH HD					
1	TRIA/C BOARD ASSY	1140301-3				
1	CONTROL B.D. ASSY	1140300-3				
1	IGNITER ASSY	1140887-3				
1	POWER SUPPLY MCM	1140879-3				
1	LAMP HOUSE N.	1132016				
1	REAR BULKHEAD ASSY	1140880-3				
2	SCREW	1140560-9				
2	WASHER FINISHING	48 N. 1/4				
1	CLAMP BASKET	1120810				
1	SCR. AC. 20 ASSY	1142259				
1	CONTROL BOARD	1140300-1				
1	UPPER WATT PAST	1113182-3				
1	LAMP BULKHEAD	1140881				
1	TOOL W/ VERN	1140879				
1	TANK W/ VERN	1140879				
1	PRENT-LAMP PRT	1131425B				
3	SELF-HEATING SO2	1132214				
2	UPPER WATT PAST	1141312-1				
1	UPPER WATT PAST	1140881				
1	FRONT BULKHEAD ASSY	1140879				
1	IGNITER ASSY	1140879-1				
1	POWER SUPPLY ASSY	1140879-1				
1	REAR BULKHEAD ASSY	1140880-1				
1	INDICATIVE OR RECEPTION					

QTY	DESCRIPTION	REF ID	UNIT OF MEASURE	REVISIONS	DATE	APPROVED
1	SCREW TRASH HD					
1	TRIA/C BOARD ASSY	1140301-3				
1	CONTROL B.D. ASSY	1140300-3				
1	IGNITER ASSY	1140887-3				
1	POWER SUPPLY MCM	1140879-3				
1	LAMP HOUSE N.	1132016				
1	REAR BULKHEAD ASSY	1140880-3				
2	SCREW	1140560-9				
2	WASHER FINISHING	48 N. 1/4				
1	CLAMP BASKET	1120810				
1	SCR. AC. 20 ASSY	1142259				
1	CONTROL BOARD	1140300-1				
1	UPPER WATT PAST	1113182-3				
1	LAMP BULKHEAD	1140881				
1	TOOL W/ VERN	1140879				
1	TANK W/ VERN	1140879				
1	PRENT-LAMP PRT	1131425B				
3	SELF-HEATING SO2	1132214				
2	UPPER WATT PAST	1141312-1				
1	UPPER WATT PAST	1140881				
1	FRONT BULKHEAD ASSY	1140879				
1	IGNITER ASSY	1140879-1				
1	POWER SUPPLY ASSY	1140879-1				
1	REAR BULKHEAD ASSY	1140880-1				
1	INDICATIVE OR RECEPTION					

**NOTES:**  
 1. FOR SCHEMATIC SEE DRAW 1140897  
 2. PLACE APPROX. AS SHOWN ON LEFT  
 3. LOC. ITEMS 29, 32, 35, 37 FOR ADJUSTMENT

**LIST OF MATERIAL**

QTY	DESCRIPTION	REF ID	UNIT OF MEASURE	REVISIONS	DATE	APPROVED
1	SCREW TRASH HD					
1	TRIA/C BOARD ASSY	1140301-3				
1	CONTROL B.D. ASSY	1140300-3				
1	IGNITER ASSY	1140887-3				
1	POWER SUPPLY MCM	1140879-3				
1	LAMP HOUSE N.	1132016				
1	REAR BULKHEAD ASSY	1140880-3				
2	SCREW	1140560-9				
2	WASHER FINISHING	48 N. 1/4				
1	CLAMP BASKET	1120810				
1	SCR. AC. 20 ASSY	1142259				
1	CONTROL BOARD	1140300-1				
1	UPPER WATT PAST	1113182-3				
1	LAMP BULKHEAD	1140881				
1	TOOL W/ VERN	1140879				
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1	IGNITER ASSY	1140879-1				
1	POWER SUPPLY ASSY	1140879-1				
1	REAR BULKHEAD ASSY	1140880-1				
1	INDICATIVE OR RECEPTION					

**APPROVALS:**  
 DESIGNED: [Signature]  
 CHECKED: [Signature]  
 DRAWN: [Signature]  
 DATE: [Date]

**ITEM 1140859**

**MODEL 1000 F 1000B**

**TOP ASSEMBLY**

**D 33030 1140859**

**REVISIONS**

REV	DATE	DESCRIPTION
1		
2		







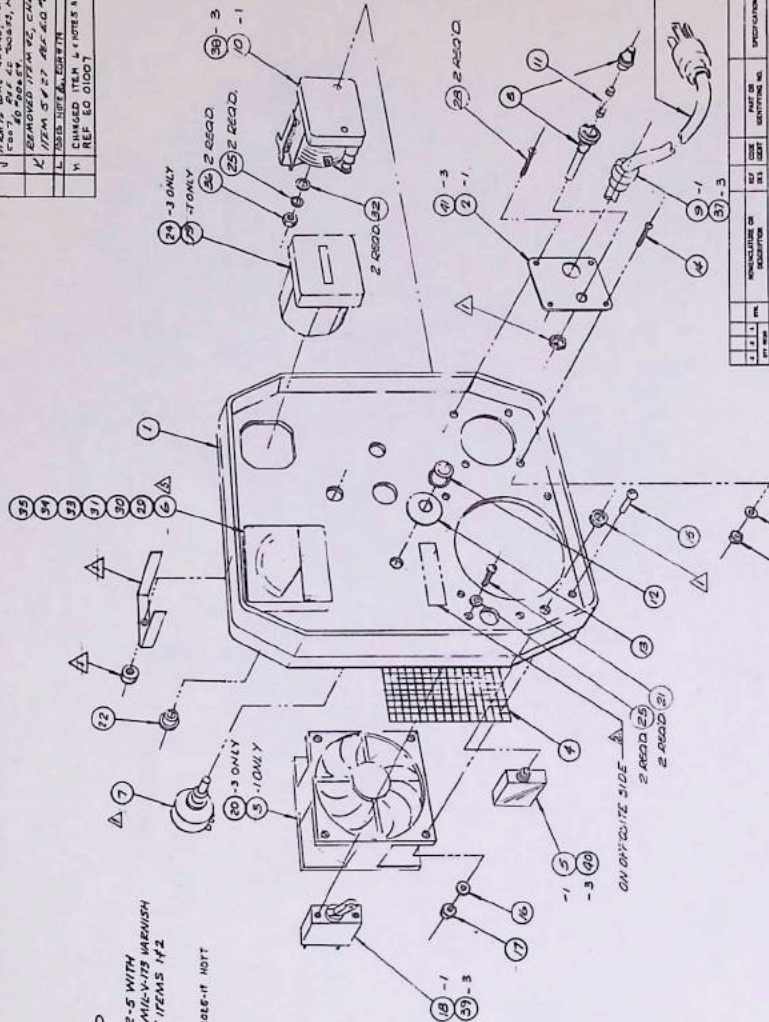




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DATE	REV.	REVISIONS
17 JUN 68	1	CHANGE ITEM 29 TO ITEM 28 ITEM 19 WITH 4 BUSHES -1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	2	REMOVED ITEM 42, CHANGED ITEM 57 TO 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	3	REMOVED ITEM 42, CHANGED ITEM 57 TO 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	4	REMOVED ITEM 42, CHANGED ITEM 57 TO 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	5	REMOVED ITEM 42, CHANGED ITEM 57 TO 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	6	REMOVED ITEM 42, CHANGED ITEM 57 TO 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	7	REMOVED ITEM 42, CHANGED ITEM 57 TO 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
	8	REMOVED ITEM 42, CHANGED ITEM 57 TO 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

- NOTES:
- ▲ MOUNTING HARDWARE SUPPLIED WITH COMPONENTS
  - ▲ RUBBER STAMP PIN 33030-140BB-1, -3 OR -5 WITH BLACK CHARACTERS .12 HIGH, COVER WITH MIL-V-13 MARKING
  - 5. MATCH ITEMS 5, 21 AFTER ASSEMBLY OF ITEMS 14, 2
  - ▲ ALTERNATE PRT IS J40066500A, SEE ITEM NO. 7
  - ▲ ACCEPTABLE ALTERNATE PRT IS 050 AMP METER, PN 3026-11 HO1T



QTY	UNIT	DESCRIPTION	QTY	UNIT	DESCRIPTION	QTY	UNIT	DESCRIPTION
1	PCB	REAR BULKHEAD ASSY	1	PCB	REAR BULKHEAD ASSY	1	PCB	REAR BULKHEAD ASSY

QTY	UNIT	DESCRIPTION	QTY	UNIT	DESCRIPTION
1	PCB	REAR BULKHEAD ASSY	1	PCB	REAR BULKHEAD ASSY

QTY	UNIT	DESCRIPTION	QTY	UNIT	DESCRIPTION
1	PCB	REAR BULKHEAD ASSY	1	PCB	REAR BULKHEAD ASSY

QTY	UNIT	DESCRIPTION	QTY	UNIT	DESCRIPTION
1	PCB	REAR BULKHEAD ASSY	1	PCB	REAR BULKHEAD ASSY

QTY	UNIT	DESCRIPTION	QTY	UNIT	DESCRIPTION
1	PCB	REAR BULKHEAD ASSY	1	PCB	REAR BULKHEAD ASSY

QTY	UNIT	DESCRIPTION	QTY	UNIT	DESCRIPTION
1	PCB	REAR BULKHEAD ASSY	1	PCB	REAR BULKHEAD ASSY

QTY	UNIT	DESCRIPTION	QTY	UNIT	DESCRIPTION
1	PCB	REAR BULKHEAD ASSY	1	PCB	REAR BULKHEAD ASSY

QTY	UNIT	DESCRIPTION	QTY	UNIT	DESCRIPTION
1	PCB	REAR BULKHEAD ASSY	1	PCB	REAR BULKHEAD ASSY

QTY	UNIT	DESCRIPTION	QTY	UNIT	DESCRIPTION
1	PCB	REAR BULKHEAD ASSY	1	PCB	REAR BULKHEAD ASSY

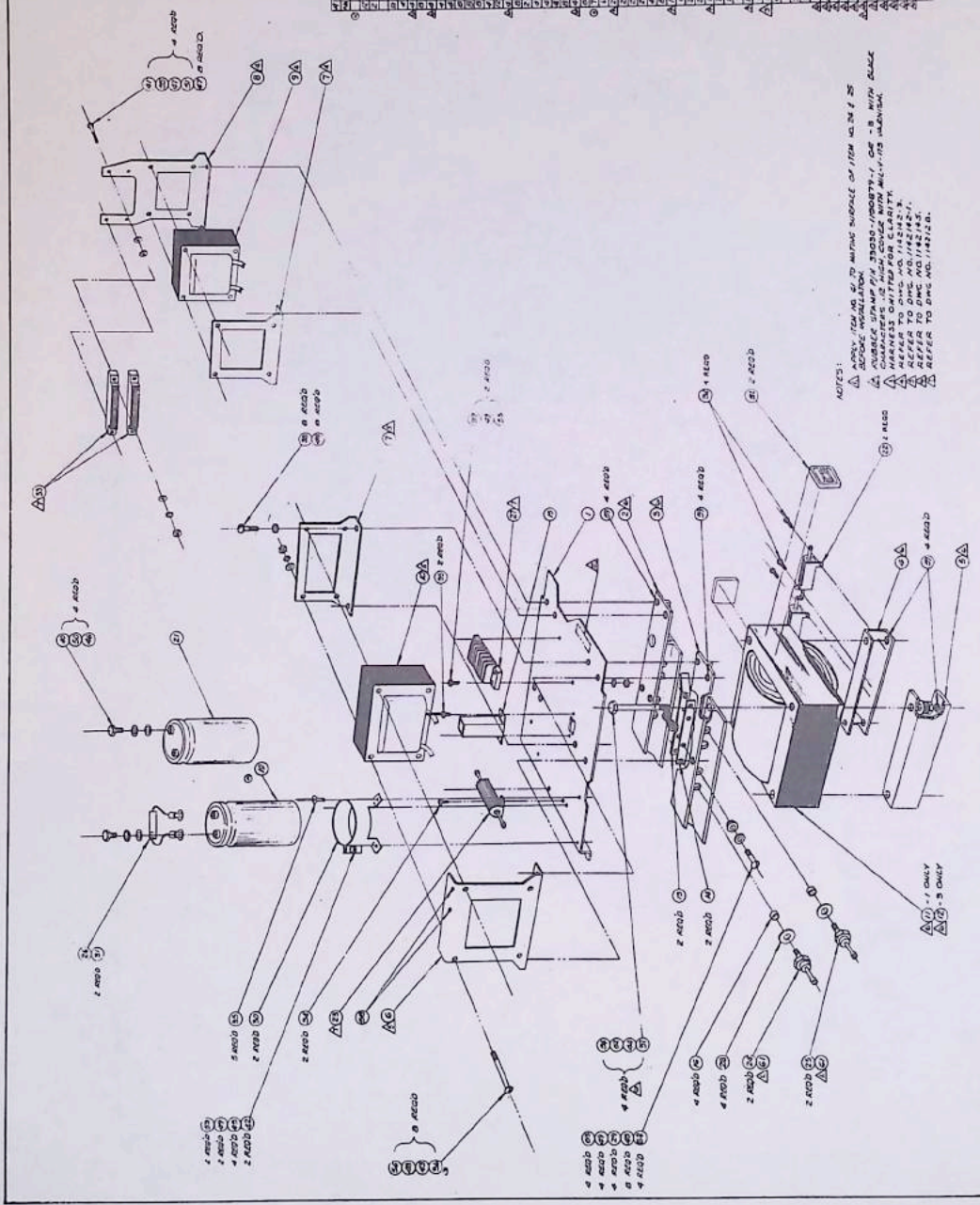
QTY	UNIT	DESCRIPTION	QTY	UNIT	DESCRIPTION
1	PCB	REAR BULKHEAD ASSY	1	PCB	REAR BULKHEAD ASSY



ITEM NO.	DESCRIPTION	QTY	UNIT	REMARKS
1	...	...	...	...
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ITEM NO.	DESCRIPTION	QTY	UNIT	REMARKS
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99	...	...	...	...
100	...	...	...	...

POWER SUPPLY ASSEMBLY  
 NO. 1150877



NOTES:  
 1. APPLY ITEM NO. 25 TO MOUNTING SURFACE OF ITEM NO. 25.  
 2. REMOVE WINDING FROM...  
 3. CHARACTERS IN HIGH COVER WITH MIL-1-175 IDENTICAL.  
 4. REFER TO SPEC. NO. 1150877.  
 5. REFER TO SPEC. NO. 1150877.

1150877-1 ONLY  
 1150877-5 ONLY

POWER SUPPLY ASSEMBLY  
 NO. 1150877





THIS DRAWING OR SPECIFICATION CONSTITUTES THE COMPLETE AND EXCLUSIVE AGREEMENT BETWEEN THE DRAWER AND THE RECIPIENT OR POSSESSOR OF THIS DRAWING AND RIGHT THEREIN, NOW AND HEREINAFTER. NO OTHER AGREEMENT OR CONTRACT SHALL BE VALID OR BINDING ON EITHER PARTY HERETO UNLESS IT IS WRITTEN AND CONSISTENT WITH THE SPECIFICATION AND DRAWING.

10  
5  
8  
4 REQ'D. (-3, -7)  
4 REQ'D.  
4 REQ'D. (-5)

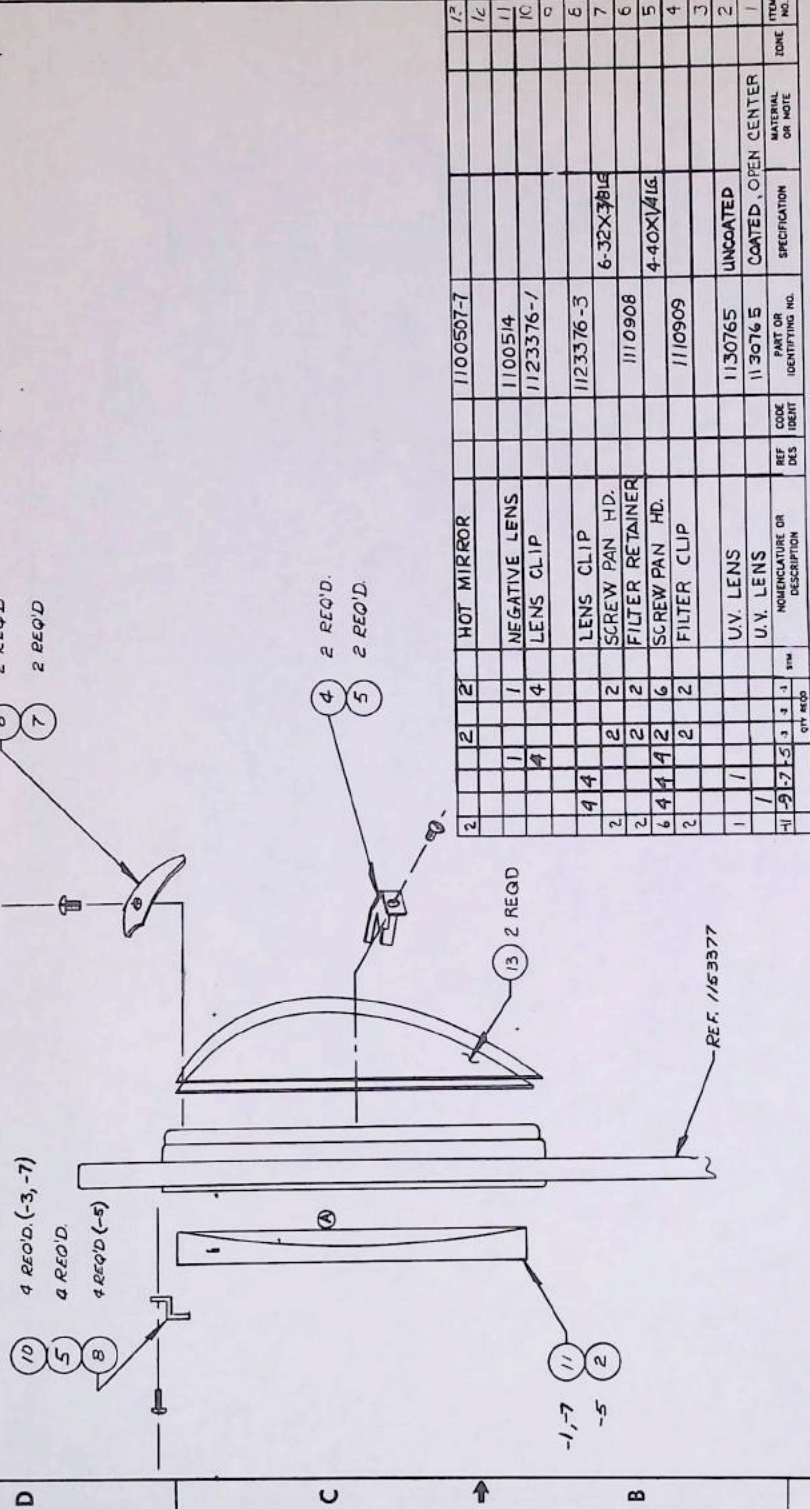
6  
7  
2 REQ'D.  
2 REQ'D.

4  
5  
2 REQ'D.  
2 REQ'D.

13  
2 REQ'D.

REF. 1153377

REVISIONS		
ZONE LTR	DESCRIPTION	DATE
A	CORRECT POSITION OF NEGATIVE LENS, ZONE C4, FOR COLL. LENS	9/15/73
B	REVISED TABULATION REF. Q. 1111	3-15-74



QTY REQ'D	QTY	SYM	NUMERICAL OR DESCRIPTION	REF DES IDENT	PART OR IDENTIFYING NO.	SPECIFICATION	MATERIAL OR NOTE	ITEM NO.
2	2		HOT MIRROR	1100507-7				12
	1		NEGATIVE LENS	1100514				11
	4		LENS CLIP	1123376-1				10
	4	4	LENS CLIP	1123376-3				8
	2	2	SCREW PAN HD.	1110908		6-32X.375L		7
	2	2	FILTER RETAINER	1110908				6
	6	4	SCREW PAN HD.	1110909		4-40X.141L		5
	2	2	FILTER CLIP					4
	1	1	UV LENS	1130765		UNCOATED		2
	1	1	UV LENS	1130765		COATED, OPEN CENTER		1

LIST OF MATERIAL

QTY	DASH NO.	NEXT ASSY	USED OR
1	-11	1152416	SPECIAL
1	-9	1152416	SPECIAL
1	-7	1153377	1000-1000B
1	-5	1153377	1000-1000B
1	-3	1153377	1000-1000
1	-1	110774	16.00

DRAWN	CHECK	DESIGN	ENGR	APPR

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMALS ANGLES DESIGN ENGR

JX = ±.0000 XOX = ±.010 ±.1/2

MATERIAL: DO NOT SCALE DRAWING

CONTRACT NO. 99-0596

6-21-B

APPROVED

QTY	DASH NO.	NEXT ASSY	USED OR
1	-11	1152416	SPECIAL
1	-9	1152416	SPECIAL
1	-7	1153377	1000-1000B
1	-5	1153377	1000-1000B
1	-3	1153377	1000-1000
1	-1	110774	16.00

REV	SIZE	CODE IDENT NO	SCALE	APPROVE	WEIGHT	SHEET / OF
B		C 33030	1/33494			1

Optical Radiation Corporation

LENS KIT

# SECTION 4.4

## SHOW FILM

### DWG NUMBER

### FILM TITLE

6770-903845

MOTION PICTURE FILM

Film, 16MM B & W, Act III

6770-903846

Film, 16MM Color, Act IV

THREADING DIAGRAMS

6730-903834

16MM Picture Cabinet Threading, Act III

6730-903844

16MM Picture Cabinet Threading, Act IV

STILL FILM

6770-903835-

Film, Still, Color "Fireworks"

6770-903839

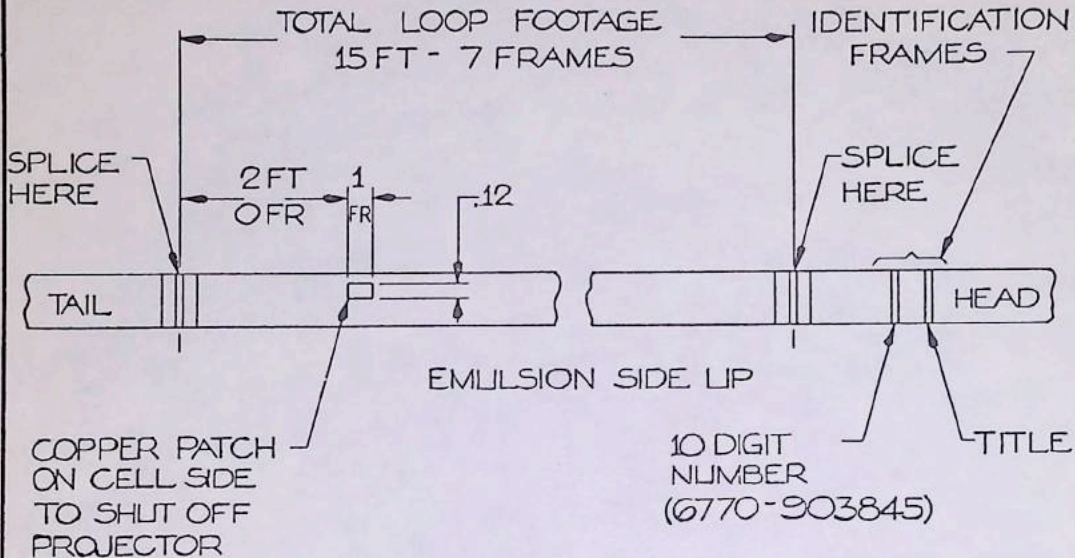
6770-903840-

Film, Still, Color "Fireworks"

6770-903843

**MOTION PICTURE FILM**

APPLICATION		REVISIONS				
NEXT ASSY	USED ON	LTR	E.O.	DESCRIPTION	DATE	APPROVED
6730-904225	DISNEY WORLD					



NOTES:

- FOOTAGES SHOWN ARE 16mm FOOTAGES
- THE FOOTAGES SHOWN MUST ALWAYS BE MAINTAINED IN ORDER TO REMAIN IN SYNCH WITH THE SEPARATE SOUND TAPE
- SOURCE: W.D.P. EDITORIAL DEPT
- PRINT ON FILM SPECIAL BLACK BORDER APERTURE .345 x .263

GENERAL ELECTRIC - WDW

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.  
TOLERANCES:  
ANGLES ±  
FRACTIONS ±  
DECIMALS,  
2 PLACES ±  
3 PLACES ±

APPROVALS

DRAWN	PHIL. WISE	1-75
CHECK	E. Otto	4-75
ENGRG	Bob Smith	4-75

WALT DISNEY PRODUCTIONS

500 South Buena Vista, Burbank, California 91505 Phone 849-3411

DWG. TITLE

FILM, 16mm B & W  
ACT III

DWG. NO.

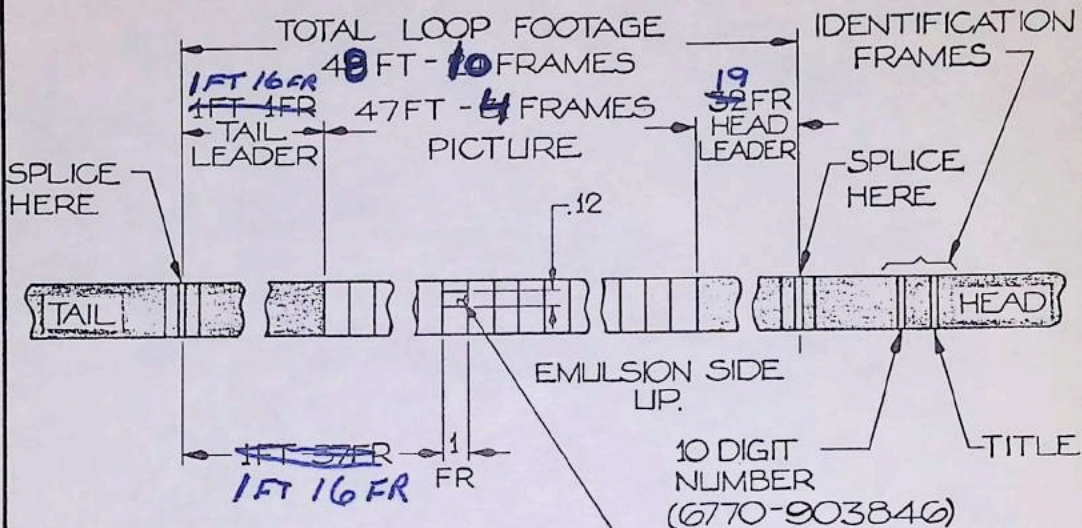
6770-903845

REV.

SCALE

SHEET OF

APPLICATION		REVISIONS				
NEXT ASSY	USED ON	LTR	E.O.	DESCRIPTION	DATE	APPROVED
6730-904225	DISNEY WORLD					



NOTES:

- FOOTAGES SHOWN ARE 16mm FOOTAGES
- HEAD AND TAIL LEADERS TO BE BLACK
- THE FOOTAGES SHOWN MUST ALWAYS BE MAINTAINED IN ORDER TO REMAIN IN SYNCH WITH THE SEPARATE SOUND TAPE
- SOURCE: W.D.P. EDITORIAL DEPARTMENT
- PRINT ON FILM SPECIAL BLACK BORDER APERTURE .345 x .263

GENERAL ELECTRIC - WDW

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.  
 TOLERANCES:  
 ANGLES ±  
 FRACTIONS ±  
 DECIMALS,  
 2 PLACES ±  
 3 PLACES ±

APPROVALS

DRAWN	PHIL WISE	1-75
CHECK	R.OTO	4-75
ENGRG	How Laska	4-75

WALT DISNEY PRODUCTIONS

500 South Buena Vista, Burbank, California 91505 Phone 849-3411

DWG. TITLE

FILM, 16mm COLOR  
 ACT IV

DWG. NO.

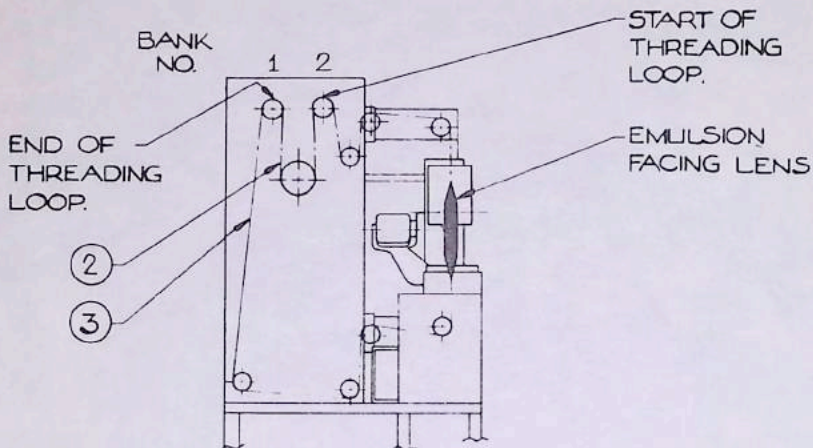
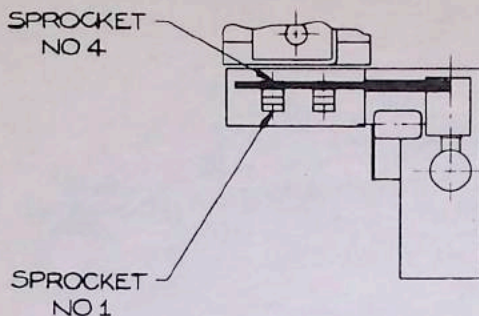
6770-903846

REV.

SCALE

SHEET OF

# THREADING DIAGRAMS

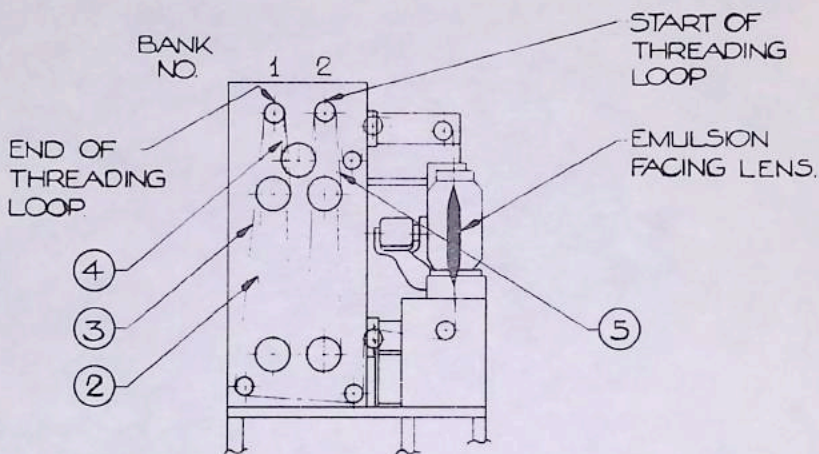
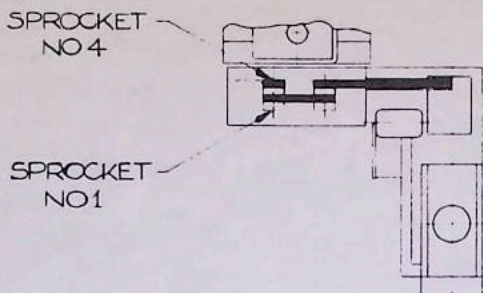


NOTE: THREADING FROM LEFT TO RIGHT.

BANK NO.	1	2
SPROCKETS USED	1	1

3	1	THREADING LOOP	12	33
2	1	CROSSOVER LOOP	2	14
1	1	TOTAL FOOTAGE	15	7
ITEM	NO. REQD	DESCRIPTION	FEET.	FRAMES

6730 - 903834  
 PICTURE CABINET THREADING  
 16MM PROJECTOR SYSTEM



NOTE: THREADING FROM LEFT TO RIGHT.

BANK NO.	1	2
SPROCKETS USED	3	3

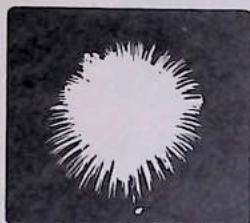
5	2	SPROCKET LOOP SHORT	8	-
4	1	CROSSOVER LOOP	2	15
3	1	THREADING LOOP	12	33
2	4	SPROCKET LOOP LONG	26	16
1	1	TOTAL FOOTAGE	49	24
ITEM	NO. REQD	DESCRIPTION	FEET.	FRAMES

6730 - 903844  
 PICTURE CABINET THREADING  
 16MM PROJECTOR SYSTEM

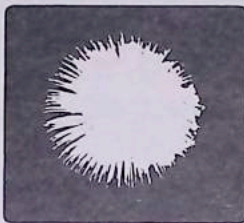


**STILL FILM**

APPLICATION		REVISIONS				
NEXT ASSY	USED ON	LTR	E.O.	DESCRIPTION	DATE	APPROVED
6770-904225	DISNEY WORLD					



6770-903835



6770-903836



6770-903837



6770-903838



6770-903839

Mount in Super Mount  
Slide Holder SM-46KG

Wess Plastics  
50 Schmitt  
Farmingdale, New York 11735  
(516) 293-8994

MATERIAL: EKTACHROME DAY 4 X 5

SOURCE: W.D.P. PROCESS LAB

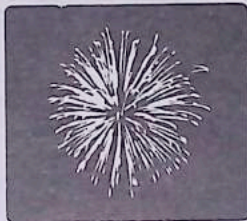
GENERAL ELECTRIC, W.D.W.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES: ANGLES ± FRACTIONS ± DECIMALS, 2 PLACES ± 3 PLACES ±	APPROVALS			<b>WALT DISNEY PRODUCTIONS</b> 500 South Buena Vista, Burbank, California 91505 Phone 849-3411		
	DRAWN	<i>ROTT</i>	<i>10-74</i>			
	CHECK			FILM, STILL, COLOR "FIREWORKS"		
	ENGRG			DWG. NO.		
				6770-903835 Thru 6770-903839		
				REV.		
				SCALE		
				SHEET OF		

APPLICATION		REVISIONS				
NEXT ASSY	USED ON	LTR	E.O.	DESCRIPTION	DATE	APPROVED
6770-904225	DISNEY WORLD					



6770-903840



6770-903841



6770-903842



6770-903843

Mount in Super Mount  
Slide Holder SM-46KG

Wess Plastics  
50 Schmitt  
Farmingdale, New York 11735  
(516) 293-8994

MATERIAL: EKTACHROME DAY 4 X 5  
SOURCE: W.D.P. PROCESS LAB

GENERAL ELECTRIC, W.D.W.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES: ANGLES ± FRACTIONS ± DECIMALS, 2 PLACES ± 3 PLACES ±	<b>APPROVALS</b>			<b>WALT DISNEY PRODUCTIONS</b>		
	<b>DRAWN</b>	<i>R Otto</i>	10-74	500 South Buena Vista, Burbank, California 91505 Phone 849-3411		
	<b>CHECK</b>			<b>DWG. TITLE</b>		
	<b>ENGRG</b>			FILM, STILL, COLOR "FIREWORKS"		
				<b>DWG. NO.</b>		<b>REV.</b>
				6770-903840 Thru 6770-903843		
				<b>SCALE</b>		<b>SHEET OF</b>

# SECTION 4.5

## FILM CABINET HUMIDIFIER Service Instructions

### GENERAL DESCRIPTION

The purpose of this unit is to maintain the relative humidity in the film cabinet when the ambient relative humidity is below 50%. In achieving and maintaining this condition, the film life is extended due to the constant relative humidity of 50% within the film cabinet. The humidifier unit is comprised of a Bodine Motor driving a spoked drum with a polyurethane foam pad evaporator around its circumference. Rotating in a reservoir of distilled water, moisture is picked up on the polyurethane foam pad and is evaporated into water vapor via a Universal Electric Blower unit housed in a return air plenum. The moist air is then discharged into the film cabinet via a supply air plenum box. The level of distilled water in the reservoir is maintained by a float assembly connected via a tube to a carboy mounted above the humidifier unit. Should the float inadvertently stick any time in the open position, the overflow outlet will discharge the excess water. (See Drawing 6730-902760).

### MAINTENANCE FREQUENCY CHART

LUBRICATION POINT	FREQUENCY
Bodine Motor (3) Oiling Points	2 to 3 drops monthly (Each oiling point)
CLEANING POINTS	FREQUENCY
Evaporator Pad	Monthly
Blower Squirrel Cage	Monthly

### FLOAT ADJUSTMENT

Float adjustment to be not less than 1 1/2" and not to exceed 2" from bottom of reservoir to center line of glass float in horizontal position. To achieve this condition, loosen slotted screw on float arm, hold rubber seat against needle valve with finger, set float at specified height, and tighten slotted screw. Re-check float height.

## FLOAT ADJUSTMENT (cont.)

**WARNING:** Use ONLY distilled or de-ionized water in humidifier reservoir and carboy. If any other type of water is used, a white powder residue will form due to chlorides and solids. These will dry on the evaporator pad and eventually be carried into the film cabinet, causing film scratching and damage.

### TROUBLESHOOTING CHART

TROUBLE	PROBABLE CAUSE	REMEDY
1. Low humidity	Unit power off	Check fuse and breaker.
	Unit does not run (Power on)	Check humidistat for broken sensing element in film loop cabinet. Check all service cords, check capacitor.
	Water carboy empty	Refill with distilled water. See WARNING above.
	Sticking float	Manually check action of float. Adjust float, or replace as necessary.
	Obstruction in distilled water supply line.	Remove obstruction and clean out supply line.
	Water level too low.	Adjust float to maintain 1 1/2" minimum water level. See Float Adjustment.
	Humidistat set too low.	Adjust humidistat in film loop cabinet to 50%.
	Evaporator drum not turning.	Check coupling set screw on drive motor shaft.
	Obstruction in air supply or air return.	Remove obstructions.
Plenum box hose damaged	Check hoses on both plenum boxes for cuts, holes or disconnects between unit and film loop cabinet.	

## TROUBLESHOOTING CHART (cont.)

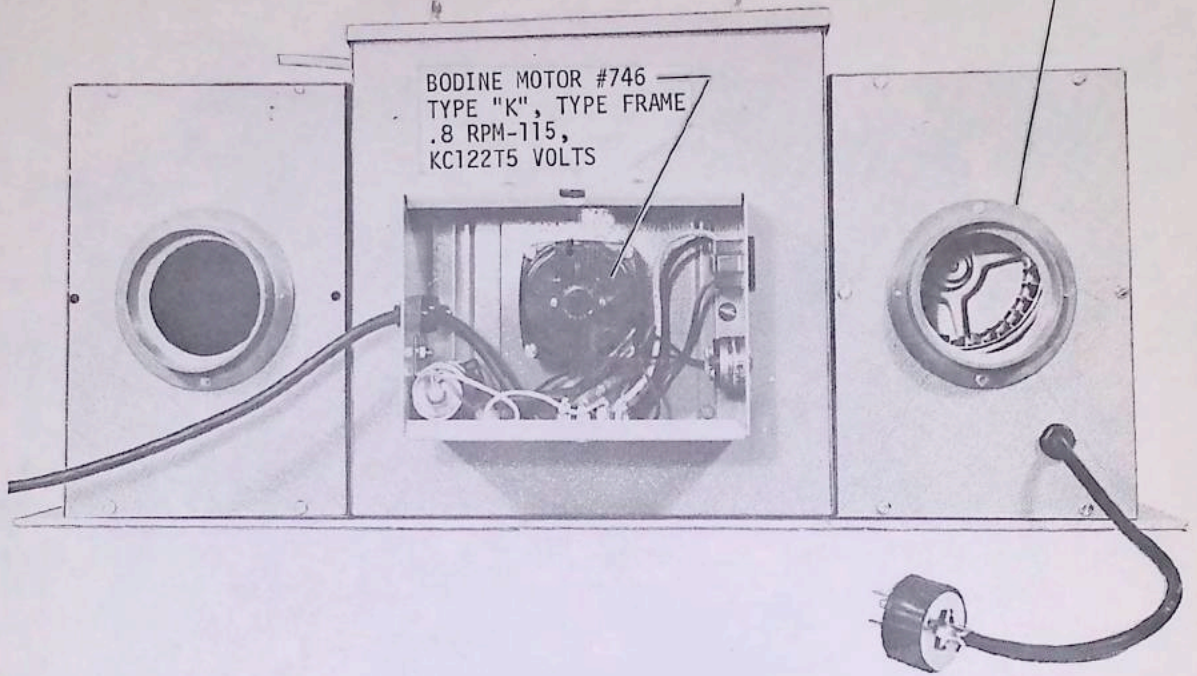
TROUBLE	PROBABLE CAUSE	REMEDY
2. Reservoir overflows.	Sticking or broken float.  Float adjusted too high.	Adjust or replace float assembly.  See Float Adjustment.
3. Dirt or white powder in reservoir.	Non distilled water used. See WARNING.	Remove humidifier unit. Drain completely. Remove all foreign particles and clean reservoir. Replace evaporator pad and refill with distilled water.
4. White powder and grit on film.	Non distilled water used. See WARNING.	Remove humidifier unit. Drain completely. Remove all foreign particles and clean reservoir. Replace evaporator pad and refill with distilled water.
5. Drive motor noisy.	Lack of lubrication.  Bearing(s) noisy.  Loose coupling on drive motor shaft.	Oil. See Maintenance Frequency Chart.  Replace bearing(s).  Tighten set screw.
6. Blower unit noisy (No lubrication point).	Blower vibration        Bearings dry or noisy	Check for loose blower retaining screws (4).  Check for loose set screw retaining squirrel cage blower on drive shaft.  Spin squirrel cage blower by hand to check oilite bearing. Cage should spin freely with no vibration or binding.  Replace bearings.

## RECOMMENDED SPARE PARTS

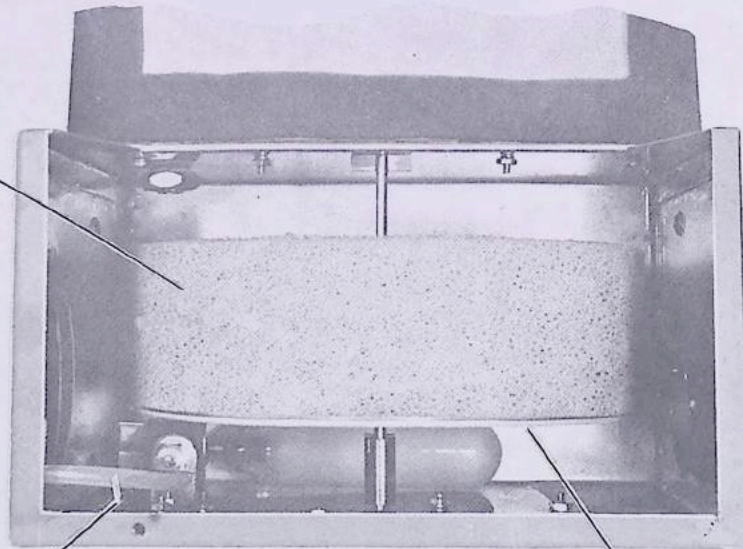
DESCRIPTION	SOURCE
Bodine Motor #746 Type "K" .8RPM Type Frame #KC122T5	Bodine Electric Co. Chicago, Illinois
Universal Electric Blower Stock #12 115V 1600RPM 60 CFM	Universal Electric Co. Owosso, Michigan 48867
Float Assembly #A-39 & A-456	Arrow Risco Sales Co. 8210 Lankershim Blvd. No. Hollywood, Calif. 91605 (213) 768-5440
Polyurethane Foam Pad Evaporator #A1-1725-7	Arrow Risco Sales Co. 8210 Lankershim Blvd. No. Hollywood, Calif. 91605 (213) 768-5440
Poly-Flo Natural Color Tube #44-P 1/4" O.D.	Arrow Risco Sales Co. 8210 Lankershim Blvd. No. Hollywood, Calif. 91605 (213) 768-5440
Neoprene Gasket Material #7AN	Arlon Products, Inc. 23924 So. Vermont Ave. Harbor City, Calif. 90710 (213) 775-3507
Gasket Material #5AL	Arlon Products, Inc. 23924 So. Vermont Ave. Harbor City, Calif. 90710 (213) 775-3507

UNIVERSAL ELECTRIC  
BLOWER STOCK #12-115V  
1600 RPM - 60 CFM

BODINE MOTOR #746  
TYPE "K", TYPE FRAME  
.8 RPM-115,  
KC122T5 VOLTS



POLYURETHENE FOAM  
EVAPORATIVE PAD  
PART #A1-1725-7  
MODEL 25



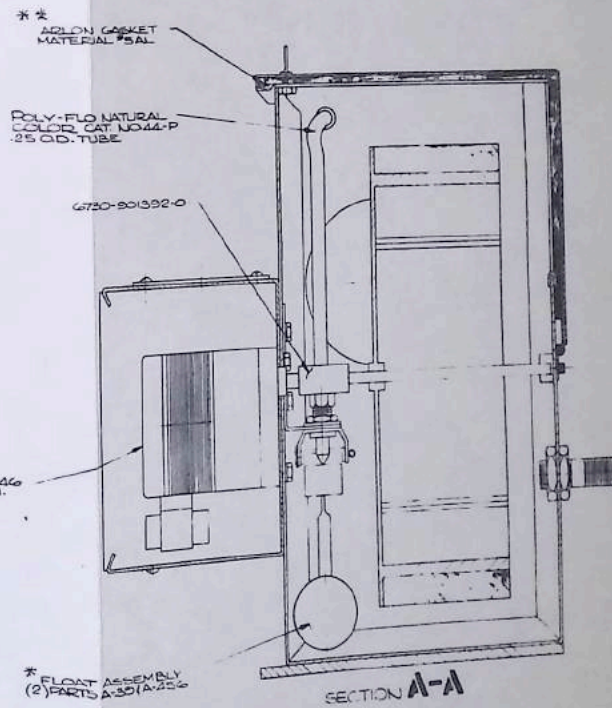
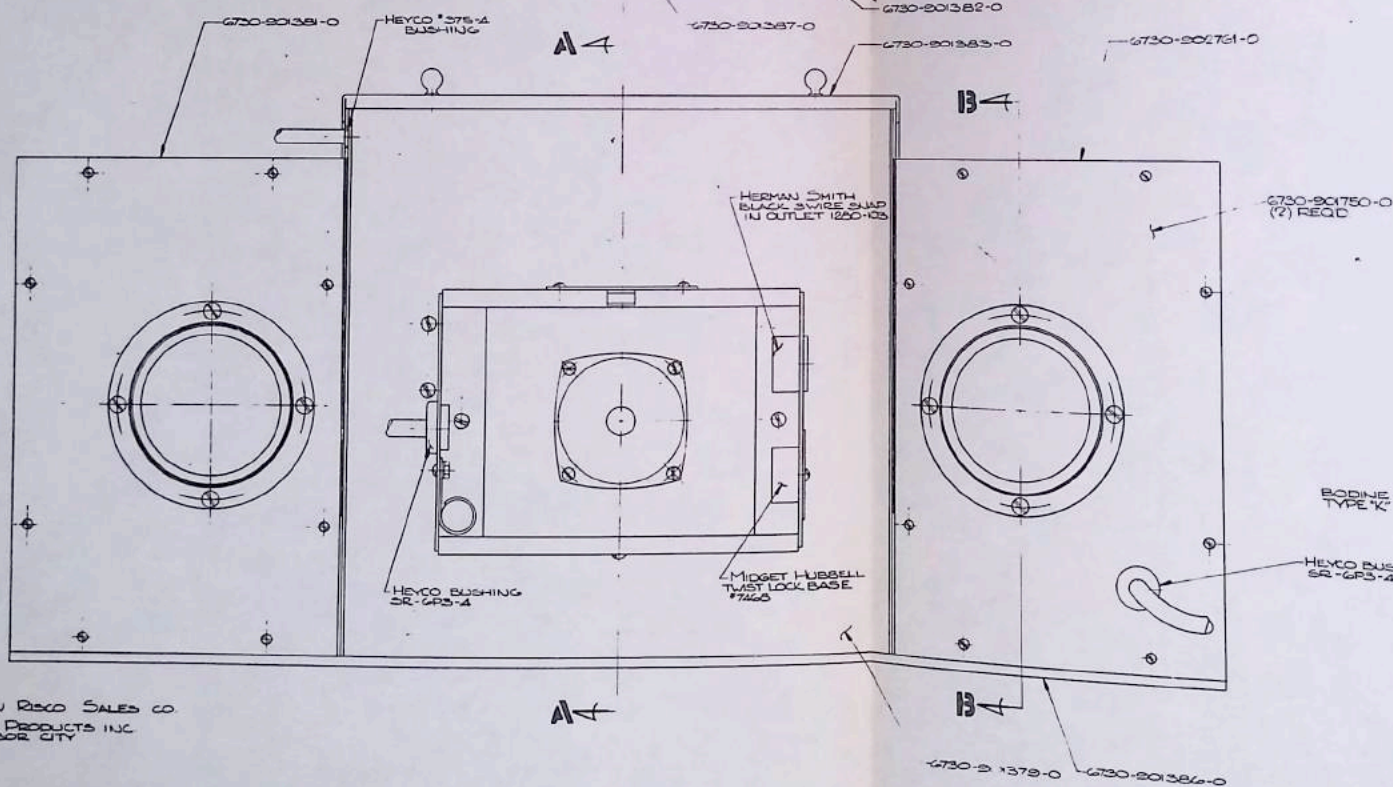
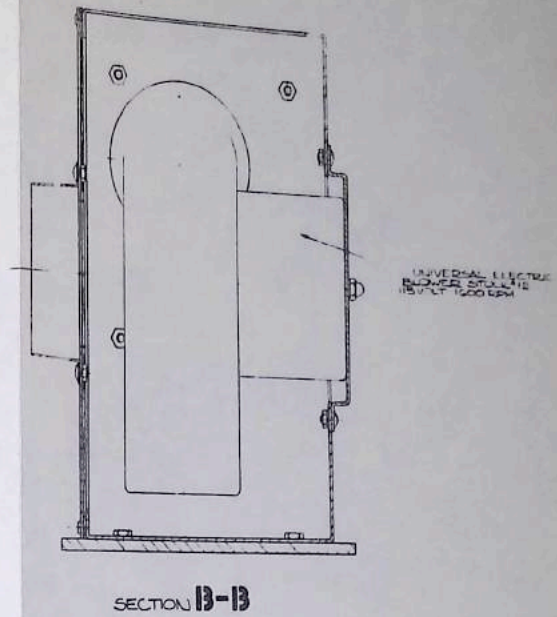
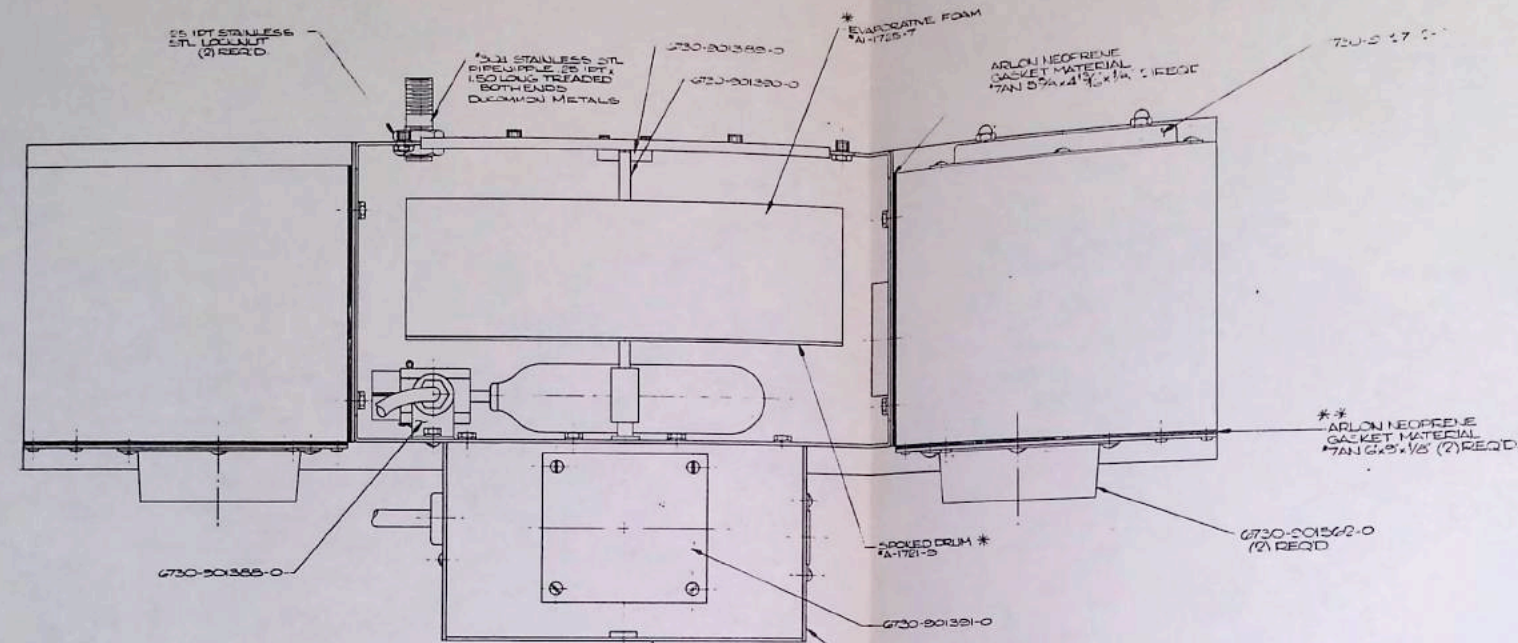
MODEL 25 DRUMATIC  
SKUTTLE FLOAT ASSY.  
"2 PARTS - A-39-A456"

MODEL 25  
DRUMATIC  
SKUTTLE SPOKED  
DRUM  
PART #A-1721-9

FILM CABINET HUMIDIFIER



**MECHANICAL  
DRAWINGS**



\* ARROW RISK SALES CO  
 \*\* ARLON PRODUCTS INC  
 HARBOR CITY

# SECTION 4.6

## FIREWORKS KALEIDOSCOPE PROJECTOR Service Instructions

### GENERAL DESCRIPTION

The Fireworks Kaleidoscope Projector has been designed to create the effect of multiple bursts of fireworks exploding. This effect is created by projecting a light source through a condenser lens, a heat glass, revolving filter disc, kaleidoscopic tube and finally through the projection lens. The kaleidoscopic tube is made up of multiple mirrors inclined at 45° to each other. After the projector is activated, the light source passes through the optical system and revolving filter disc. Some of the holes, in the various hold patterns of the filter disc, are covered by different colored gels. The light source after passing through the revolving filter disc, is then projected through the kaleidoscopic tube creating eight 45° segments. This effect is projected through the projection lens and onto the spherical mirror attached to the projector lens holder, creating multiple bursts of fireworks exploding.

The light source for the projector is a 1000 watt Sylvania Lamp, mounted with a second "STAND-BY" lamp, in a spring loaded lamp changer mechanism. Upon failure of the first lamp, a lamp change quickly occurs. The lamp current sensing relay de-energizes, releasing the locking latch of the spring loaded lamp changer mechanism and allows the lamp carriage to move the "STAND-BY" lamp into position. With the movement of the lamp carriage, a 2 pole Micro Switch transfers power from the first lamp socket to the second lamp socket, cutting power to the solenoid, and activating a red signal light (REPLACE LAMP) on the projector front access panel to indicate the change. A second Micro Switch activates a monitor light at the Master Control Panel, also to indicate the change. A Minarik blower mounted below the Sylvania Lamp provides the cooling source. Since the projector cooling fan is programmed by DACS to turn on only when the lamp is brightened up, the residual level ("Low Output") setting on the dimmer must be set low enough to prevent heat damage to the projector. Upon blower failure, a thermostatic safety switch shuts off the electrical power at 250° + 6° F. Thus preventing heat damage to the projector. For initial projector set-up, the OPERATE/LINE-UP switch on the front panel must be in the LINE-UP position. For DACS control of the projector the switch must be in the OPERATE position at all times.

6760-560549  
14" F3.5 TRIPLET  
PROJECTION LENS  
#D717A

LENS LOCK

OPERATE/LINE-UP  
TOGGLE SWITCH

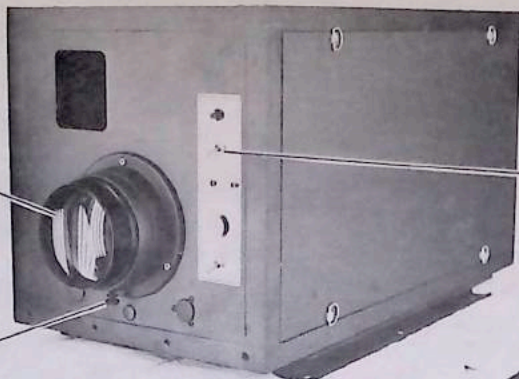


FIG. 1  
SPHERICAL MIRROR  
ASSEMBLY NOT SHOWN

6730-904285  
KALEIDOSCOPIIC  
ASSEMBLY

MINARIK BLOWER  
#2C067M

BODINE  
GEARMOTOR  
#724 (5.5 RPM)

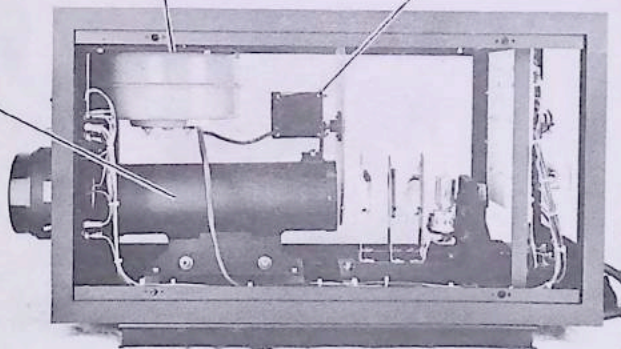


FIG. 2  
ACCESS PANELS REMOVED  
HEAT SHIELD NOT SHOWN

PLANO CONVEX  
CONDENSER LENS  
#10.0295  
(80MM DIA X 120MM F.L.)

KODAK HEAT GLASS  
#625887

6225-594554  
THERMOSTATIC SWITCH  
#L250-3455-87-69

5930-594848  
LEDEX ROTARY  
SOLENOID  
#810-367-330

6250-901866  
LAMP CHANGER  
ASSEMBLY

6730-904284  
FILTER DISC  
ASSEMBLY

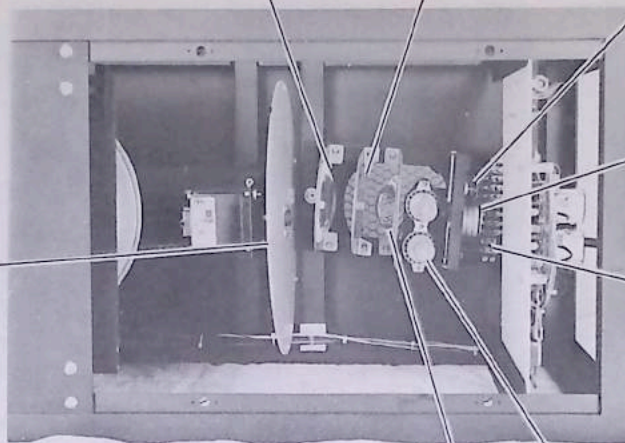


FIG. 3  
ACCESS PANELS  
REMOVED.  
HEAT SHIELD  
NOT SHOWN

SYLVANIA QUARTZ LAMP (2)  
#BRR 1000 WATT

6760-594481  
PLANO CONVEX ASPHERIC  
CONDENSER LENS #0ILAG019  
(65MM DIA X 53MM F.L.)

FILTER DISC ASSEMBLY  
SHOWING VARIOUS HOLE  
PATTERNS IN THE DISC.  
COLORED GELS ARE SAND-  
WICHED BETWEEN DISCS.

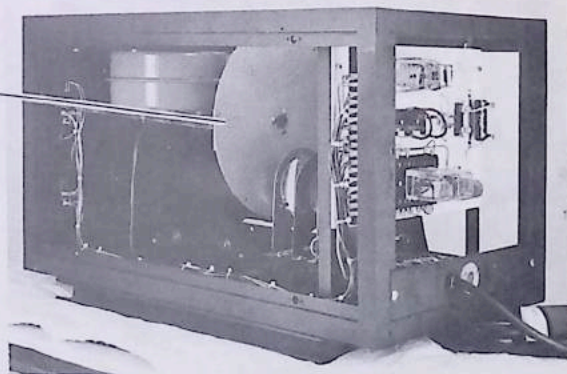
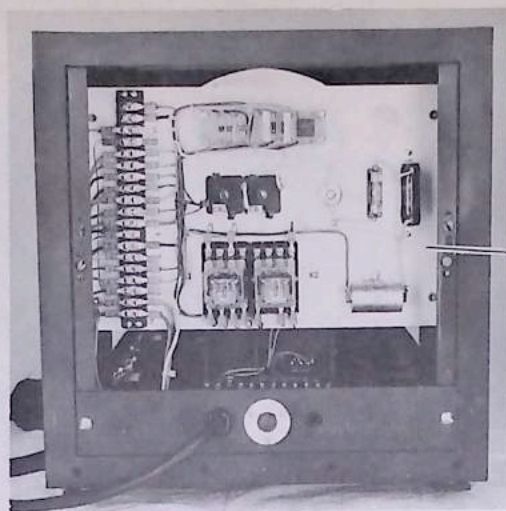


FIG. 4  
ACCESS PANELS REMOVED



6730-904287  
ELECTRICAL  
COMPONENT  
ASSEMBLY

FIG. 5  
SHOWING ELECTRICAL  
COMPONENTS.

### MAINTENANCE FREQUENCY CHART

CLEANING POINTS	FREQUENCY	REFERENCE
FILTER DISC DRIVE MOTOR	1 OR 2 DROPS IN EACH HOLE (3) EVERY 3 MONTHS.	KALEIDOSCOPIIC MIRROR ASSEMBLY
PROJECTION LENS	DAILY	PROJECTOR
CONDENSER LENS	WEEKLY	PROJECTOR
HEAT GLASS	WEEKLY	PROJECTOR
FILTER DISC GELS	CHECK MONTHLY	PROJECTOR
KALEIDOSCOPIIC MIRRORS	ONLY AS OFTEN AS NECESSARY	PROJECTOR
SPHERICAL MIRROR ASSEMBLY	ONLY AS OFTEN AS NECESSARY	PROJECTOR

## CLEANING INSTRUCTIONS

### Optical Parts

Clean the front and rear elements of the Projection lens, also the (2) Condenser lenses, and heat glass. Do not attempt to take the Projection lens apart for any further cleaning. The cleaning should be done with any quality glass cleaner and lens cleaning tissue. If only a slight amount of dust has accumulated on the lenses, use lens cleaning tissue to remove the dust. If, however, any fingerprints, oil, grease, or other accumulation of dirt is present, lens cleaning fluid should be wiped on the lens surfaces. Then clean thoroughly with lens cleaning tissue.

### Projector

Keep the projector body, and all moving parts, dust and dirt free. If any oil, grease or other accumulation of dirt is present, then wipe clean with a soft cloth, using alcohol if necessary.

### Mirror (Front Surface)

Clean carefully and only when necessary, dirt should be floated or blown off, not ground in. DO NOT clean dry. Use a soft clean cloth saturated with a quality glass cleaner.

### NOTES:

1. During maintenance and cleaning operations, DO NOT handle the Sylvania lamps with bare fingers, as skin oils can cause deterioration of the lamp wall. If, however, the lamp has been handled, wipe lamp wall thoroughly using alcohol and a soft cloth. When lamp burn-out occurs, replace the lamp with the spare lamp from the changing mechanism. Install the new lamp in spare location. Return lamp carriage to initial position.
2. For correct cooling of the projector when in use, all access panels must be in position.
3. Since the projector cooling fan is programmed by DACS to turn on only when the lamp is brightened up, the residual level ("Low Output") setting on the dimmer must be set low enough to prevent heat damage to the projector.

### WARNING

Lamp replacement. To avoid risk of burns or other personal injury, NEVER insert lamp into a live socket. Ensure power is off, or projector is disconnected. When inserting a new lamp into the socket, push down firmly, making sure it is seated properly.

RECOMMENDED SPARE PARTS — MECHANICAL

ITEM	SOURCE
1. SYLVANIA QUARTZ LAMP - 1000 WATT #BRR 120V 50 HRS.	G.T.E. SYLVANIA, INC. LAMP DIVISION IRVINE ROAD WINCHESTER, KENTUCKY 40391
2. 6760-594481 PLANO CONVEX ASPHERIC LENS #OILAG019 65MM DIA X 53 MM F.L.	OPTICAL INDUSTRIES 3006 ENTERPRISE COSTA MESA, CA 902626
3. ROLYN PLANO-CONVEX LENS #10.0295 80MM DIA X 120MM F.L.	ROLYN OPTICS CO. 300 ROLYN PLACE ARCADIA, CA 91006
4. KODAK HEAT GLASS #625887	EASTMAN KODAK CO. 12100 RIVERA ROAD WHITTIER, CA
5. 6760-560549 14" F3.5 TRIPLET PROJECTION LENS #D717A	GENERAL SCIENTIFIC CORPORATION 5151 WEST 65TH STREET CHICAGO, ILL. 60638
6. MIRROR FRONT SURFACE 1.00" X 1.00" X .063 #749 COATING (SEAMED EDGES)	LIBERTY MIRROR CO. LIBBEY OWENS FORD GLASS CO. 3440 WILSHIRE BLVD. LOS ANGELES, CA 90010
7. MIRROR FRONT SURFACE 10.50" X 2.25" X .25" #749 COATING (SEAMED EDGES)	
8. 4140-594500 MINARIK BLOWER #2C067M	MINARIK ELECTRIC CO. 224 EAST THIRD STREET LOS ANGELES, CA 90013
9. BODINE GEARMOTOR #724 5.5 RPM	BODINE ELECTRIC CO. CHICAGO, ILL.
10. NO. 877 GELATINE - MED BLUEGREEN .37 X 1.50	ROSCO LAB. 11420 VENTURA BLVD. STUDIO CITY, CA 91604
11. NO. 855 GELATINE - AZURE BLUE 1.00 X 1.50	
12. NO. 854 GELATINE - STEEL BLUE 1.25 X 1.50	



RECOMMENDED SPARE PARTS — MECHANICAL (CONT.)

ITEM	SOURCE
13. NO. 838 GELATINE - DARK MAGENTA 1.00 X 1.50	ROSCO LAB. 11420 VENTURA BLVD. STUDIO CITY, CA 91604
14. NO. 825 GELATINE - NO COLOR PINK 1.50 X 2.50	
15. NO. 813 GELATINE - LIGHT AMBER 1.00 X 2.50	
16. NO. 810 GELATINE - NO COLOR AMBER 1.00 X 1.50	

RECOMMENDED SPARE PARTS — ELECTRICAL

ITEM	SOURCE
K1, K2      KRP11D24      RELAY	P-B
CR1          18DB4A          RECTIFIER, BRIDGE	I.R.
CR2, CR3    MDA990-1      RECTIFIER, BRIDGE	MOTOROLA
CR4          C106B1          RECTIFIER, SILICON, CONTROLLED	G.E.
D1, D2      10D2          DIODE	I.R.
RT1          9RT1A3      THERMISTOR	G.E.
R1          0200D      RESISTOR 50Ω 25W	OHMITE
R2          4654          RESISTOR 10K 10W	OHMITE
R3          RC20GF821F    RESISTOR 820Ω 1/2W	OHMITE
R4          RC20GF200F    RESISTOR 20Ω 1/2W	OHMITE
R5          4623          RESISTOR 1K 5W	OHMITE
F1          314010      FUSE 10A	LITTELFUSE
F2          312001      FUSE 1A	LITTELFUSE
L1          249-7841-0331-574    LIGHT, NEON	DIALIGHT
L2, L3	

# TROUBLESHOOTING CHART

TROUBLE	PROBABLE CAUSE	REMEDY
Firework burst unsteady	Projection lens loose.	Check for loose lens lock, or lens holder, Fig. 1.
	Blower vibration, or unusually noisy.	Check for loose blower retaining screws. (3) Also spacer screws (4).  Spin squirrel cage blower by hand to check oilite bearing (2). Cage should spin freely with no vibration or binding. Fig. 2.
	Bearings noisy.	Replace blower assembly (re-work old assembly). Fig. 2.
	Lamp changer frame retaining screws loose.	Check retaining screws(2). Fig. 3.
	Loose spherical mirror assembly.	Check for loose lens ring clamp retaining cap screw.  Check for loose wingnuts (2) retaining the spherical mirror to the mirror mount bracket.
	Gearmotor vibration.	Check for loose gearmotor retaining screws (2). Two places. Fig. 3.
	Gearmotor binding up.	Check gearmotor operation. Fig. 2.
	Filter disc loose on hub.	Check retaining screws (3). Fig. 4.
Sylvania lamp burns out during performance and does not reappear.	Filter disc hub loose on gearmotor shaft.	Check set screw. Fig. 3.
	Electrical power failure.	Check electrical power supply.  Check fuse holder on projector front panel. Fuse blown if neon light is on. Fig. 1.  Check electrical connections, plugs, leads, etc.

## TROUBLESHOOTING CHART

TROUBLE	PROBABLE CAUSE	REMEDY
Sylvania lamp burns out during performance and does not reappear	Electrical power failure.	Check for burned out lamp, and lamp changer mechanism (containing spare lamp) sticking. Fig. 3. See NOTE and WARNING. Page 191
		Check for inoperative blower. (This causes an increase in temperature from the lamp. Activating a thermostatic safety switch shutting off the electrical power supply Fig. 2 & 3.
Firework burst indistinct	Lens improperly focused.	Re-focus lens in holder for maximum sharpness. Fig. 1.
	Condenser lenses, heat glass, kaleidoscopic mirrors, projection lens, or spherical mirror dirty, oily, or finger-spotted.	See Cleaning Instructions. Page 191.
Firework burst illumination low	Defective projection lens.	Replace lens.
	Lamp old, ready to burn out.	Replace lamp. See NOTE and WARNING. Page 191.
	Brightness control	See dimmer unit. Note 3.
	Condenser lenses, heat glass, kaleidoscopic mirrors, projection lens, or spherical mirror dirty, oily, or finger-spotted.	See Cleaning Instructions Page 191.
	Heat glass discolored.	Heat glass discolored due to excessive heat. Replace damaged unit. Fig. 3.
	Access panels.	Check blower for normal air flow. Check all access panels are in position. One pane left out will cause eventual overheating.
Projector unusually warm	Blower.	Check blower for normal air flow.
	Blower air flow impeded.	Check blower for normal air flow.

## TROUBLESHOOTING CHART

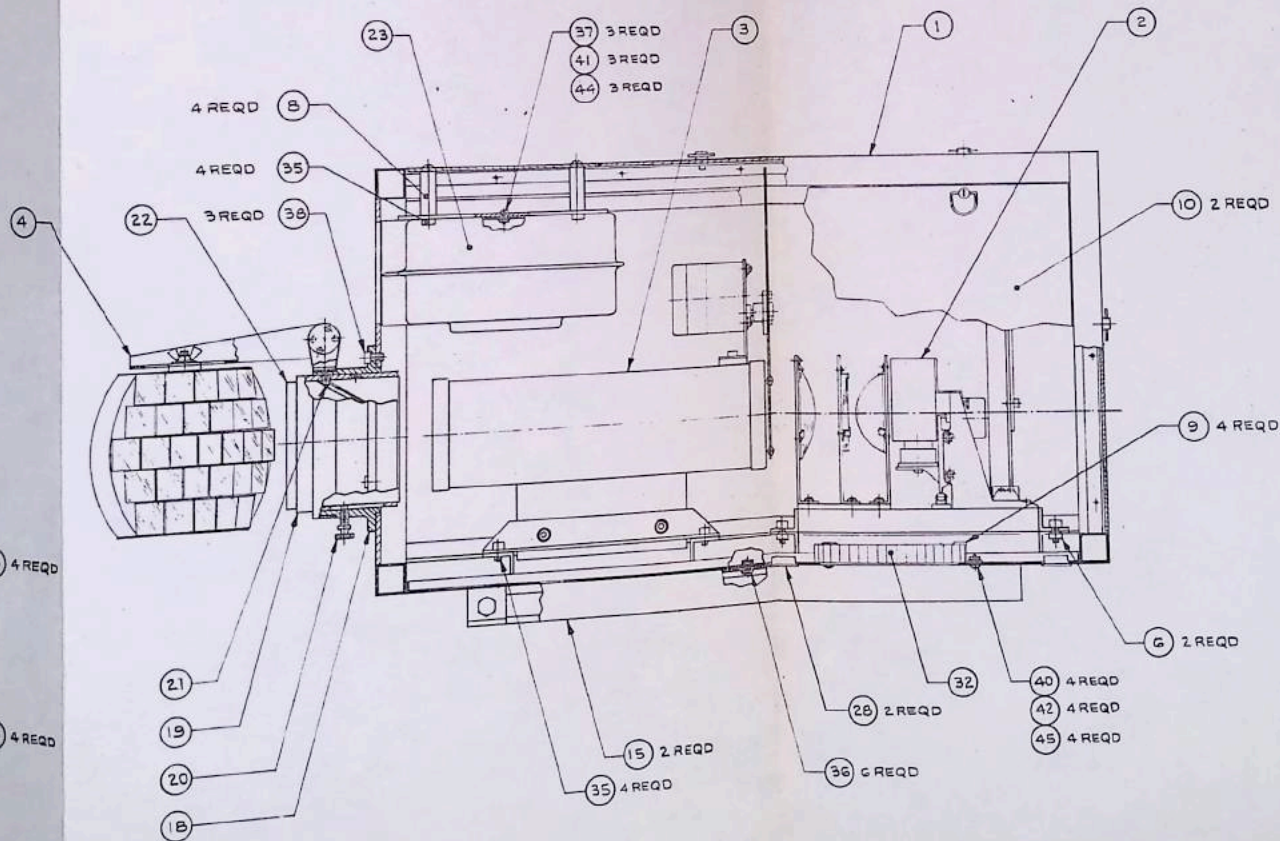
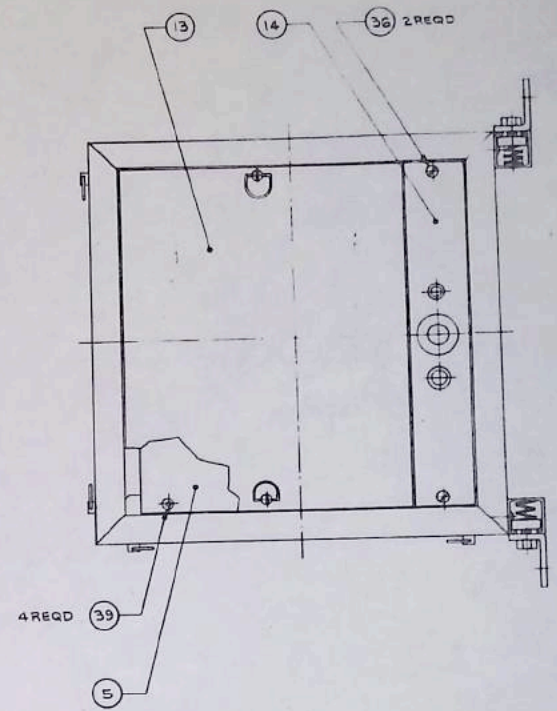
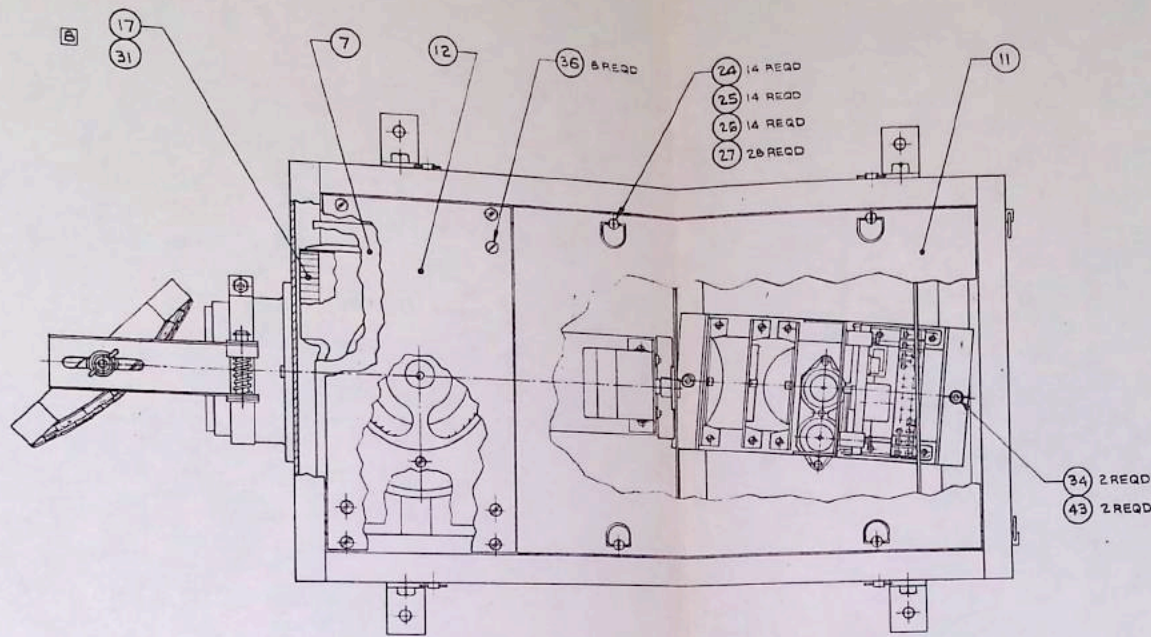
TROUBLE	PROBABLE CAUSE	REMEDY
Projector unusually warm.	Heat glass.	Examine heat glass for discoloration, cracks or distortion. Replace unit if necessary. Fig. 3.
	Heat shield.	Check heat shield is in position around sylvania lamps.
	Condenser lenses.	Examine condenser lenses for cracks or damage. Fig. 3.
	Access panels.	Check all access panels are in position. One panel left out will cause eventual overheating.
Unevenly illuminated field	Sylvania lamp loose or damaged.	Check lamp is tight and seated correctly in socket. Fig. 3.
	Condenser lenses.	Examine condenser lenses for cracks or damage.
	Filter disc loose on hub.	Check retaining screws (3). Fig. 4.
	Filter disc hub loose on gearmotor shaft.	Check set screw. Fig. 3.
	Gearmotor binding up.	Check gearmotor operation. Fig. 3.
	Projector shuts off soon after start-up	Heat shield.
Access Panels.		Check all access panels are in position. One panel left out will cause eventual overheating.

**MECHANICAL  
DRAWINGS**

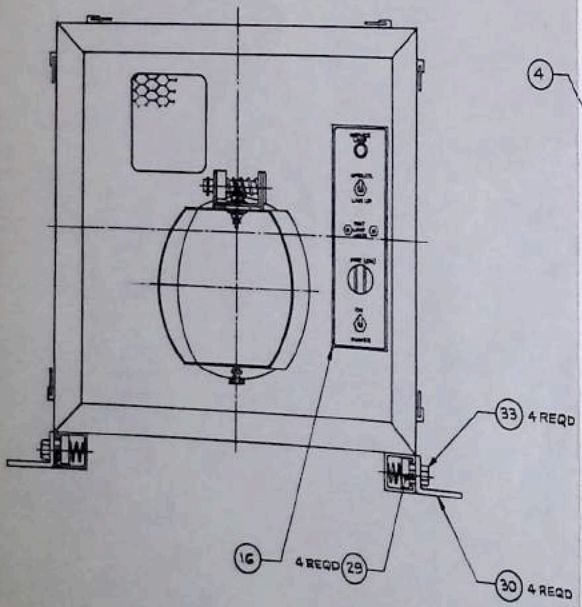
FOR ADDITIONAL DETAILED MECHANICAL INFORMATION ON DOCUMENTS OR  
EQUIPMENT APPEARING IN THE PROJECTOR SECTION OF THIS MANUAL  
CONTACT: DEPARTMENT HEAD - MACHINE SHOP - WALT DISNEY PRODUCTIONS

## MECHANICAL DRAWINGS

DESCRIPTION	DWG. NUMBER	PAGE
FIREWORKS KALEIDOSCOPE PROJECTOR	6730-904281	200
LAMP CHANGER ASSEMBLY	6250-901866	204
LIGHT SOURCE ASSEMBLY	6730-904283	206
FILTER DISC ASSEMBLY	6730-904284	208
KALEIDOSCOPIIC MIRROR ASSEMBLY	6730-904285	210
SPHERICAL MIRROR ASSEMBLY	6730-904286	213



- 5 ITEM 17 BAFFLE-BLOWER TO BE BONDED IN PLACE WITH ITEM 31 DEVCON "5 MINUTE" EPOXY
  - 7 DEVCON CORP. DANVER, MASSACHUSETTS 01923
  - 8 UNISTRUT CORP. 4118 S. WAYNE ROAD, WAYNE, MICHIGAN 48184
  - 10 BRAYBAR ELECTRIC CO. INC. 16520 CABRITO ROAD, VAN NUYS, CA 91406
  - 14 AVDEL CORP., 10 HENRY STREET, TETERBORO, NEW JERSEY 07608
  - 22 DZUS FASTENER CO. INC. 425 UNION BLDG., WEST ISLIP, NEW YORK 11795
  - 2 MINARIK ELECTRIC CO. 224 E. 3 RD STREET, LOS ANGELES, CA. 90013
  - 11 GENERAL SCIENTIFIC CORP. 5151 W. 65TH STREET, CHICAGO, ILLINOIS 60638
- UNLESS OTHERWISE SPECIFIED NOTES





DWG.

6730-904281

## FIREWORKS KALEIDOSCOPE PROJECTOR ASSEMBLY

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		6730-904282	FRAME-WELDED	1
2.		6730-904283	LIGHT SOURCE ASSEMBLY	1
3.		6730-904285	KALEIDOSCOPIIC MIRROR ASSEMBLY	1
4.		6730-904286	SPHERICAL MIRROR ASSEMBLY	1
5.		6730-904287	ELECTRICAL COMPONENTS ASSEMBLY	1
6.		6730-904289	T-NUT-LAMP CHANGER SUPPORT	2
7.		6730-904300	PANEL-BLOWER MTG	1
8.		6730-904301	SPACER-BLOWER MTG PANEL	4
9.		6730-904302	CLIP-INTAKE BAFFLE	4
10.		6730-904305	PANEL-SIDE ACCESS	2
11.		6730-904306	PANEL-TOP ACCESS	1
12.		6730-904307	PANEL-TOP COVER	1
13.		6730-904308	PANEL-UPPER REAR	1
14.		6730-904309	PANEL-LOWER REAR	1
15.		6730-904310	CHANNEL-UNISTRUT	2
16.		6730-904312	PLATE-IDENTIFICATION METAL	1
17.		6730-904251	BAFFLE-BLOWER	1
18.		6730-904076	MOUNT-LENS	1
19.		6760-901057	HOLDER-LENS	1
20.		5305-901058	SCREW-LENS LOCK	1
21.		5305-901059	SCREW-LENS DOG	1
22.		D717A	LENS-14 INCH F.L.	1
23.		2C067M	BLOWER-MINARIK	1
24.		BJR 4-40	STUD-RING HEAD	14
25.		GH4	HALF GROMMET	14
26.		S4-225	SPRING	14
27.		1604-0412	AVEX BLIND RIVET	28
28.		S50	SNAP-IN BLANK-STEEL	2
29.		A1007	NUT-UNISTRUT	4
30.		A1068	90° FITTING-UNISTRUT	4
31.			DEVCON "5 MINUTE EPOXY"	A/R
32.		6730-903981	BAFFLE-INTAKE DUCT	1
33.			5/16-18 X .75 HEX HD MACH SCREW	4
34.			1/4-20 X .50 LG SOC HD CAP SCREW	2
35.			10-32 X .37 LG SOC HD CAP SCREW	8
36.			10-32 X .37 LG SLOTTED TRUSS HD MACH SCREW	16
37.			8-32 X .37 LG SLOTTED TRUSS HD MACH SCREW	3
38.			8-32 X .37 LG SOC HD CAP SCREW	3

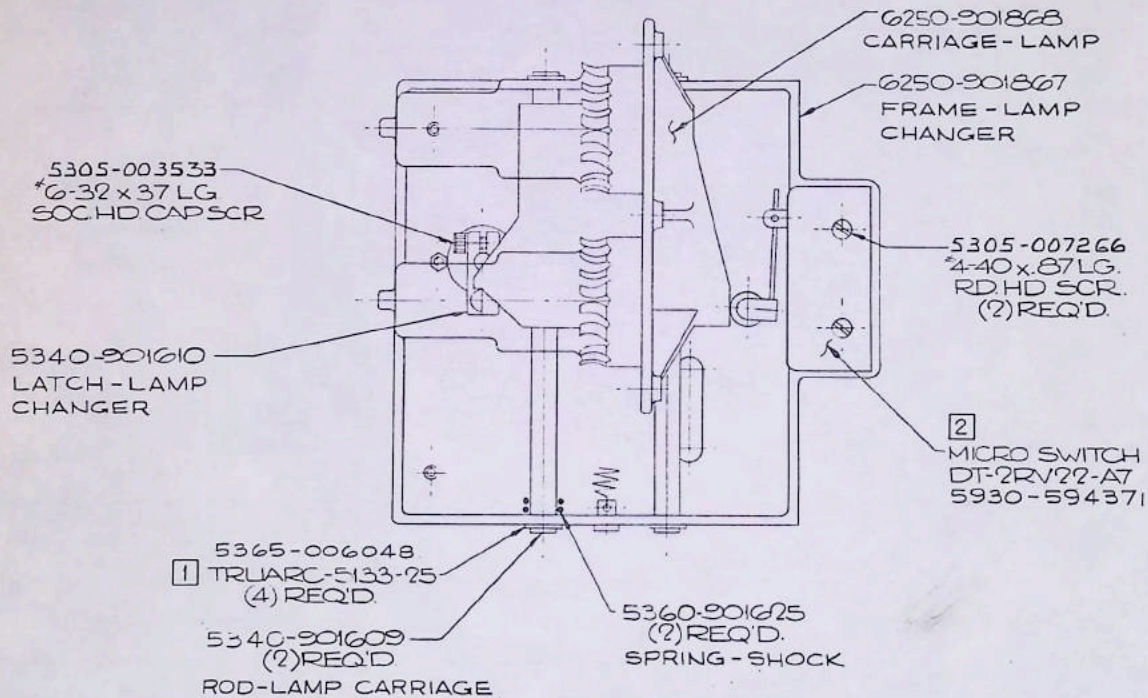


5930-594848  
LEDFEX ROTARY  
SOLENOID  
810-367-330 [3]

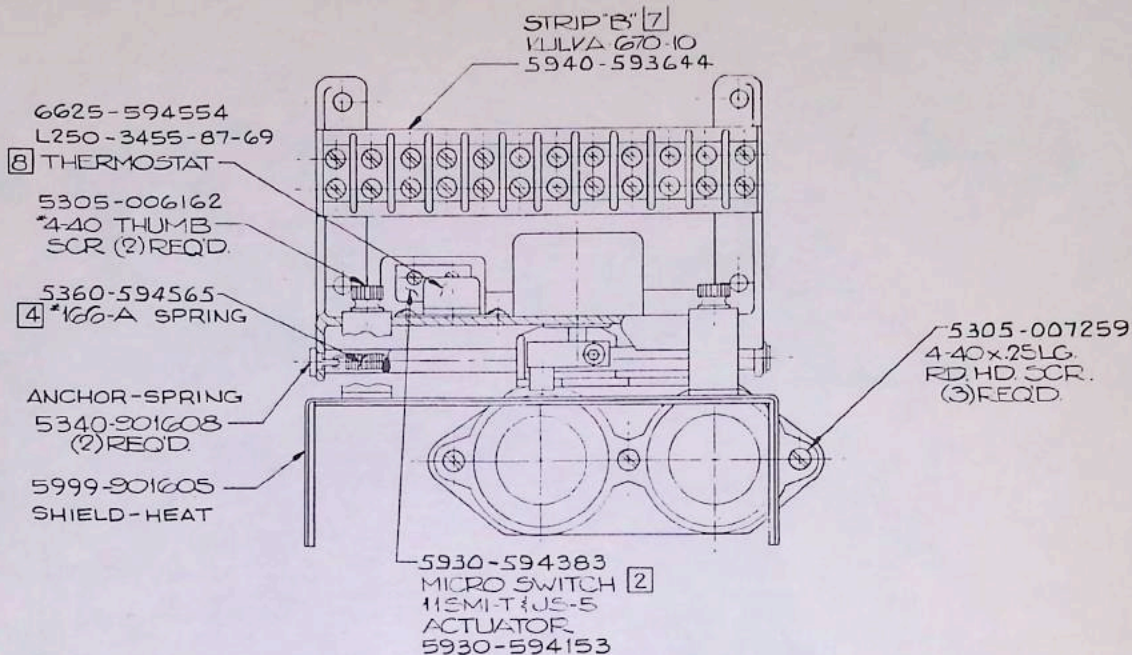
BAR - SWITCH LOCK  
6250-901871

6240-591517  
SYLVANIA \*ECK  
500 W. QUARTZ  
[5] (?) REQ'D.

6250-591518  
SYLVANIA \*7460-0071  
LAMP SOCKET  
[6] (?) REQ'D.



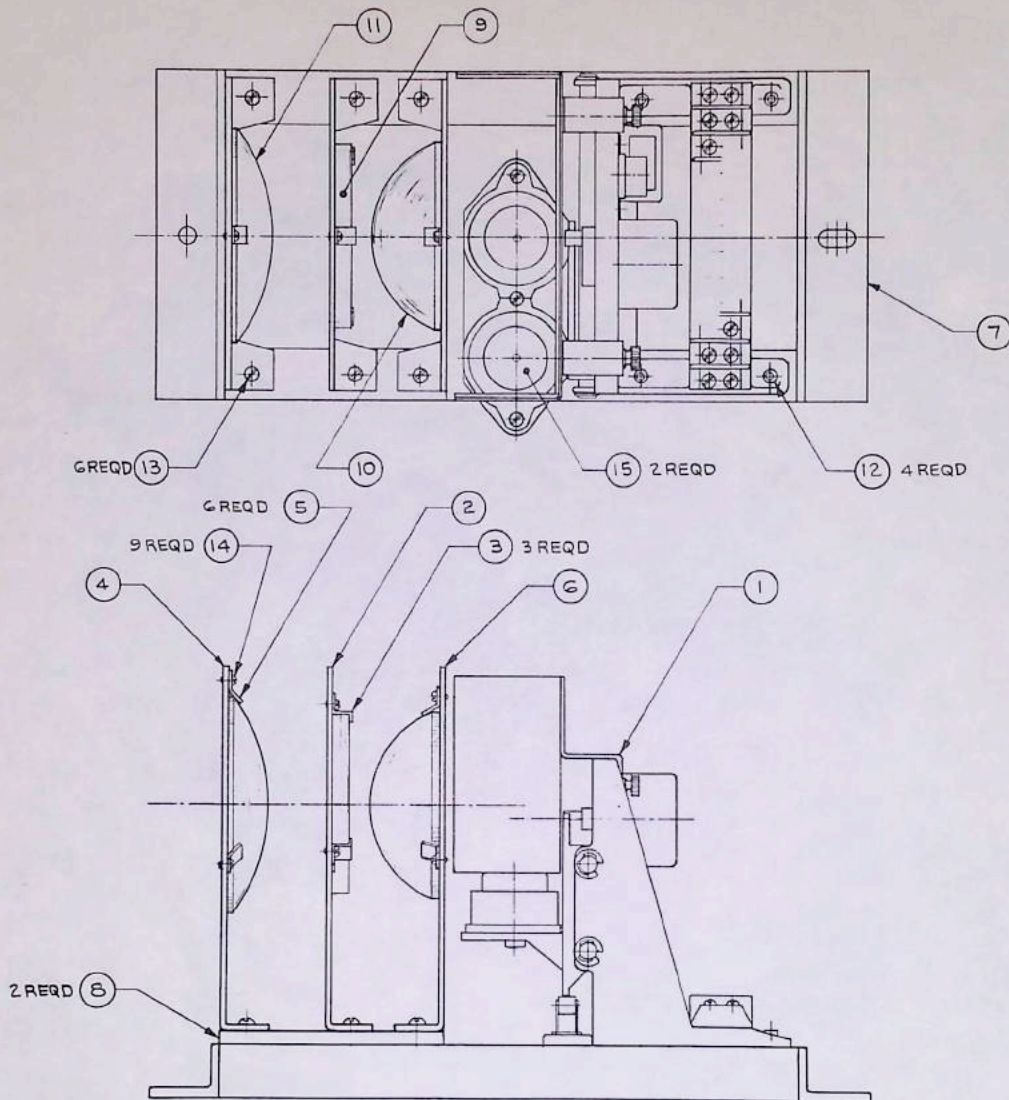
6250 - 901866  
LAMP CHANGER ASSEMBLY  
SHEET 1 OF 2



6110-906720 SCHEM DIAGRAM  
9 REFERENCE DOCUMENT

- [8] ELMWOOD SENSORS INC.  
1653 ELMWOOD AVE.  
CRANSTON RHODE ISLAND 02907
- [7] KULKA ELECTRIC CORP.  
520 S. FULTON AVE. MT. VERNON N.Y. 10551
- [6] G.T.E. SYLVANIA  
PORTSMOUTH AVE. EXETER NEW HAMPSHIRE 03833
- [5] G.T.E. SYLVANIA INC.  
IRVINE RD. WINCHESTER KENTUCKY 40391
- [4] CALIFORNIA SPRING CO. INC.  
8401 E. SLAUSON AVE. PICO RIVERA CALIF. 90660
- [3] LEDEX DIVISION - LEDEX INC.  
123 WEBSTER ST., DAYTON OHIO 45402
- [2] MICRO SWITCH  
11 W. SPRING ST., FREEPORT ILLINOIS 61032
- [1] WALDES KOHINOOR INC.  
47-16 AUSTEL PLACE  
LONG ISLAND CITY  
NEW YORK 11101

NOTES: UNLESS OTHERWISE  
SPECIFIED

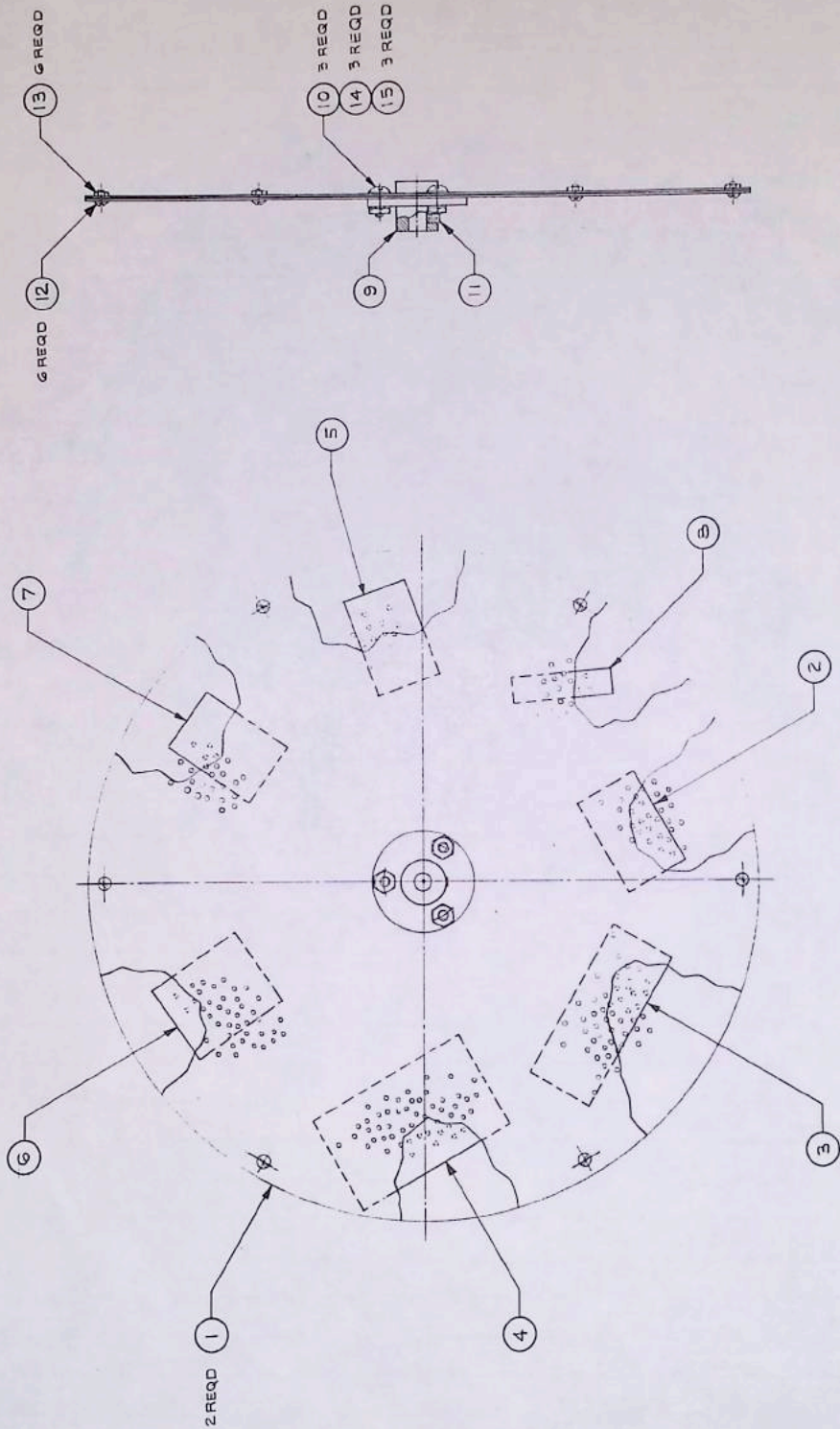


- ④ G.T.E. SYLVANIA INC., IRVINE ROAD, WINCHESTER, KENTUCKY 40391
- ③ ROLYN OPTICS CO., 300 ROLYN PLACE, ARCADIA, CA. 91006
- ② OPTICAL IND., 3006 ENTERPRISE, COSTA MESA, CA. 92626
- ① EASTMAN KODAK CO., 12100 RIVERA ROAD, WHITTIER, CA.

NOTES: UNLESS OTHERWISE SPECIFIED  
DO NOT SCALE DWG

**6730 - 904283**  
**LIGHT SOURCE ASSEMBLY**  
**FIREWORKS KALEIDOSCOPE PROJECTOR**





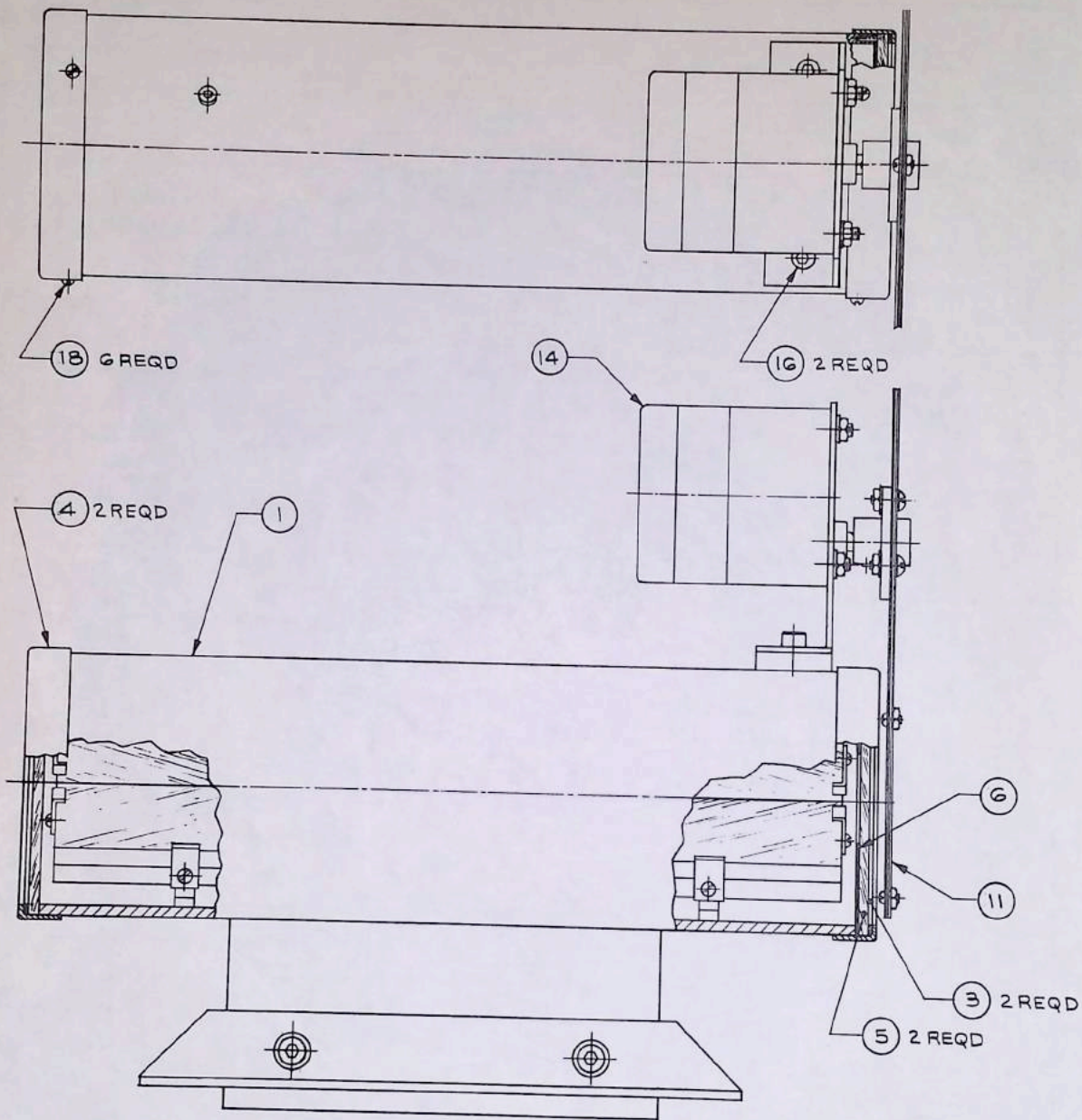
1 ROSCO LAB 11420 VENTURA BLVD, STUDIO CITY, CA. 91604

NOTES: UNLESS OTHERWISE SPECIFIED  
DO NOT SCALE DWG

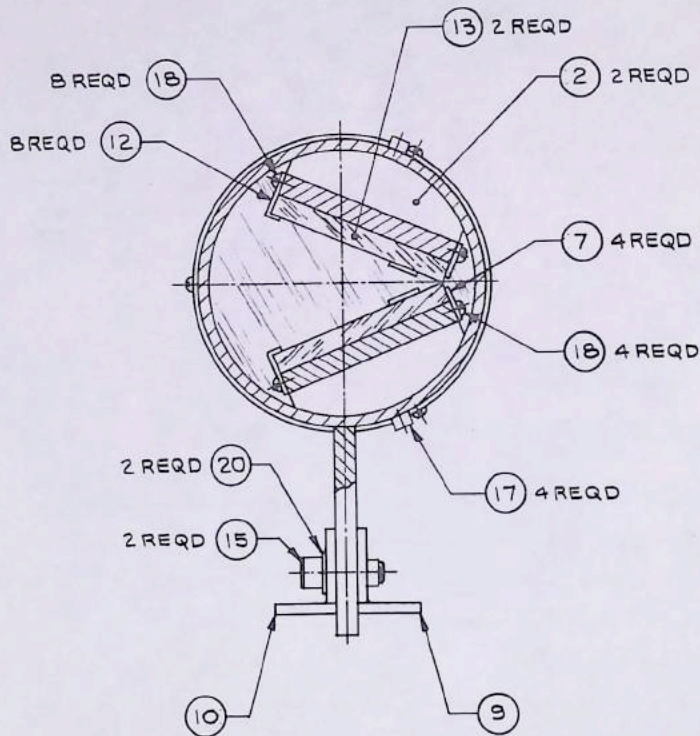
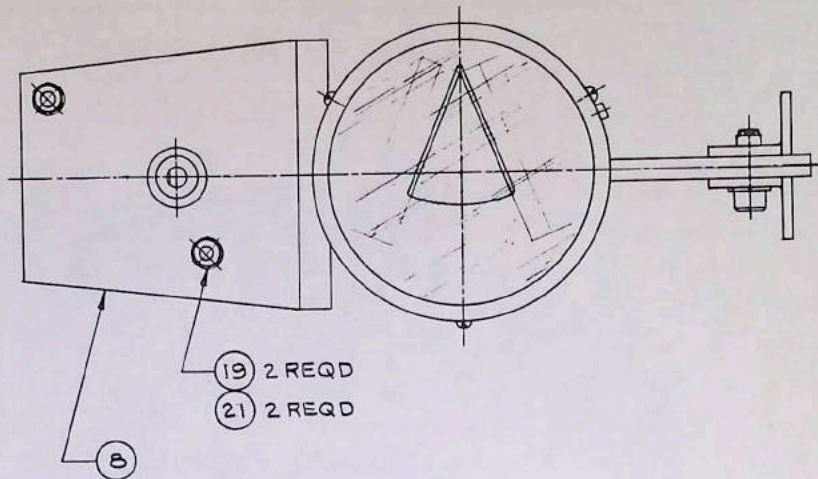
6730 - 904284  
**FILTER DISK ASSEMBLY**  
**FIREWORKS KALEIDOSCOPE PROJECTOR**







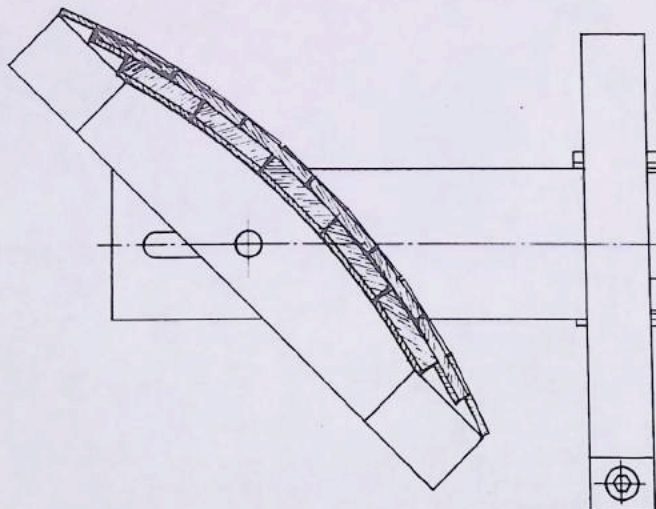
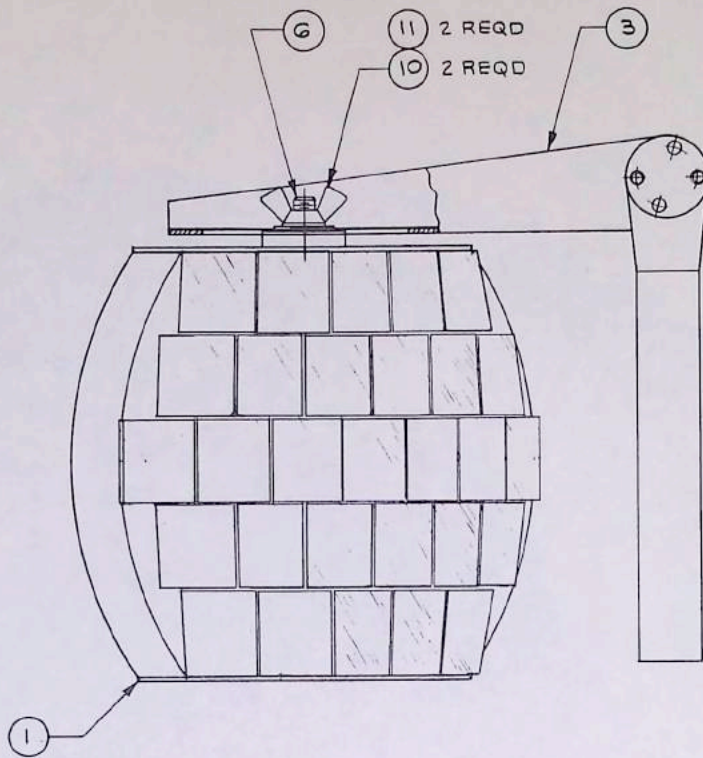
6730 - 904285  
 KALEIDOSCOPIC MIRROR ASSEMBLY  
 SHEET 1 OF 2



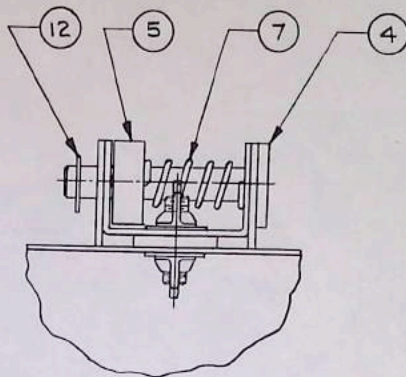
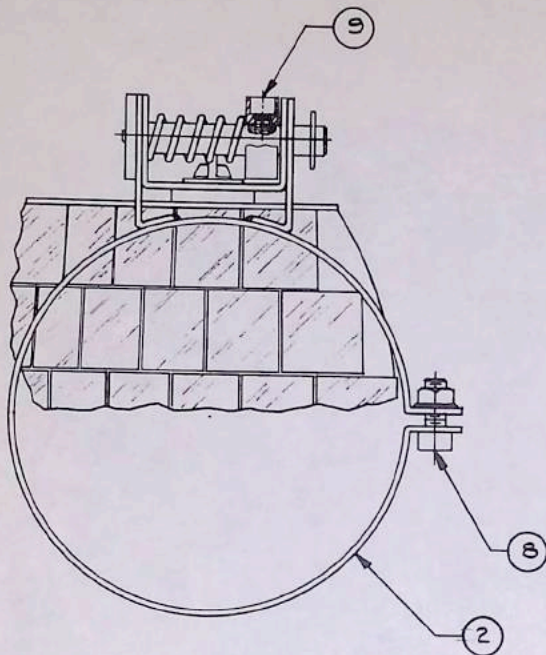
- 3 MINARIK ELECTRIC CO., 224 EAST 3RD STREET, LOS ANGELES, CA. 90013
- 2 LIBERTY MIRROR DIVISION LIBBEY-OWENS-FORD GLASS CO.,  
3440 WILSHIRE BLVD., SUITE 506, LOS ANGELES, CA. 90010
- 1 10.50 X 2.25 X .25 FRONT SURFACE, NO. 749 COATING, SEAMED EDGES

NOTES: UNLESS OTHERWISE SPECIFIED  
DO NOT SCALE DWG





6730 - 904286  
 SPHERICAL MIRROR ASSEMBLY  
 FIREWORKS KALEIDOSCOPE PROJECTOR  
 SHEET 1 OF 2



- ③ WALDES KOHINOOR, INC. 47-16 AUSTEL PLACE, LONG ISLAND CITY, N.Y. 11101
- ② DUCOMMUN METALS & SUPPLY CO. 4890 SOUTH ALAMEDA STREET, LOS ANGELES, CA. 90054
- ① CENTURY SPRING CO. INC. 1804 SOUTH MAIN STREET, LOS ANGELES, CA. 90015

NOTES: UNLESS OTHERWISE SPECIFIED  
DO NOT SCALE DWG



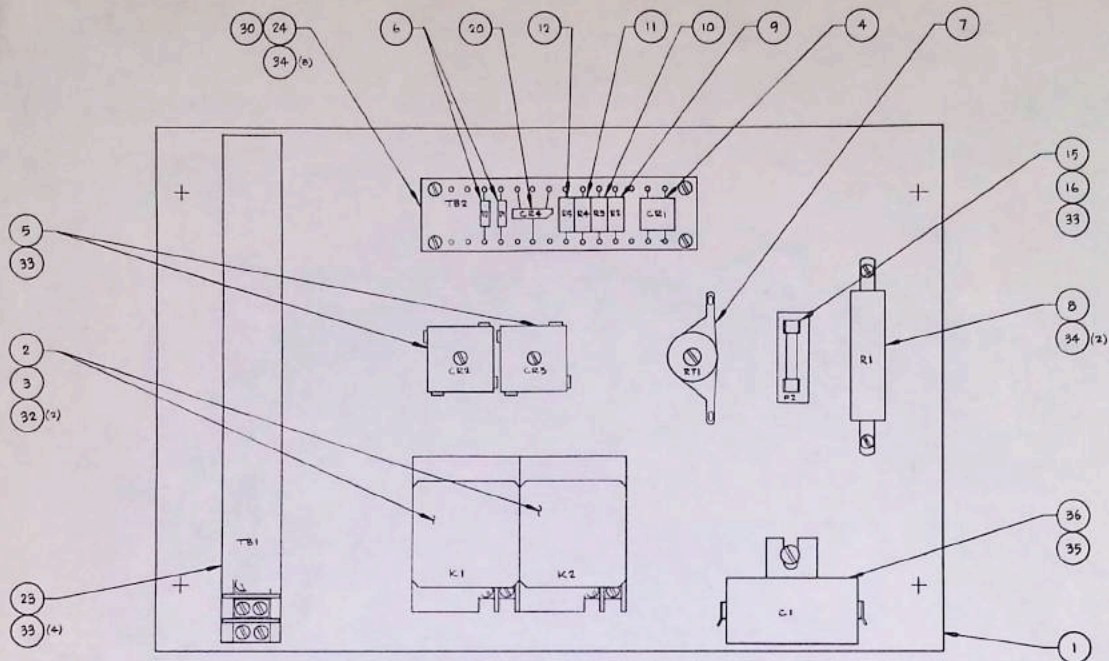
**ELECTRICAL  
DRAWINGS**

FOR ADDITIONAL DETAILED ELECTRICAL INFORMATION ON DOCUMENTS OR  
EQUIPMENT APPEARING IN THE PROJECTOR SECTION OF THIS MANUAL  
CONTACT: DEPARTMENT HEAD - ELECTRICAL DEPT. - WALT DISNEY  
PRODUCTIONS.



# ELECTRICAL DRAWINGS

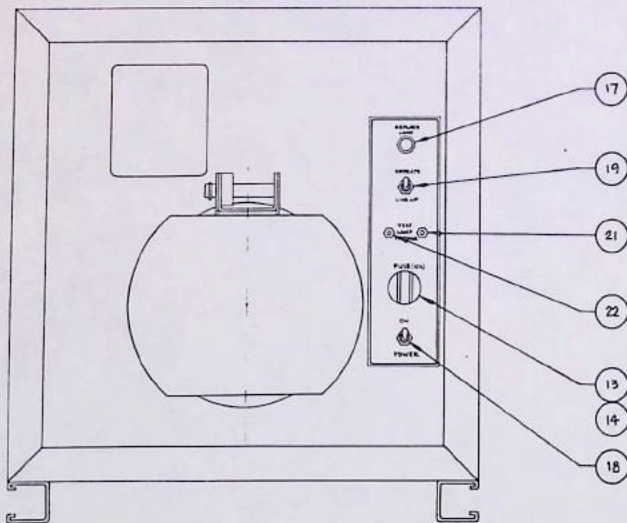
DESCRIPTION	DWG NUMBER	PAGE
ELECTRICAL COMPONENT ASSEMBLY	6730-904287	220
SCHEMATIC DIAGRAM (FIREWORK KALEIDOSCOPE PROJECTOR)	6730-906869	225



VIEW A-A (SCALE 1/1)

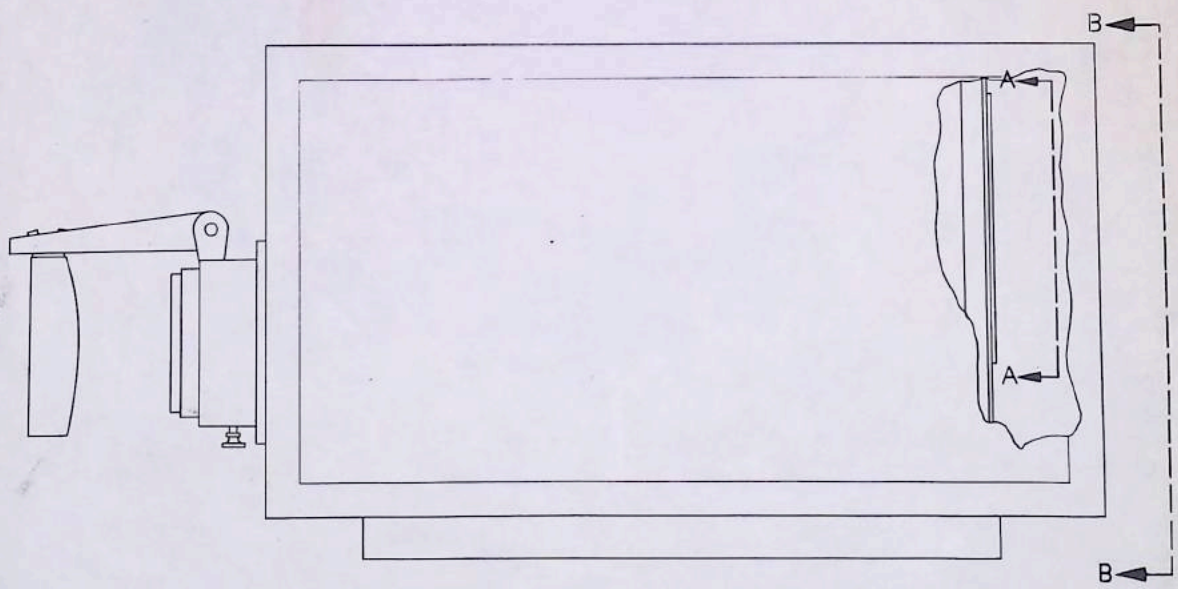
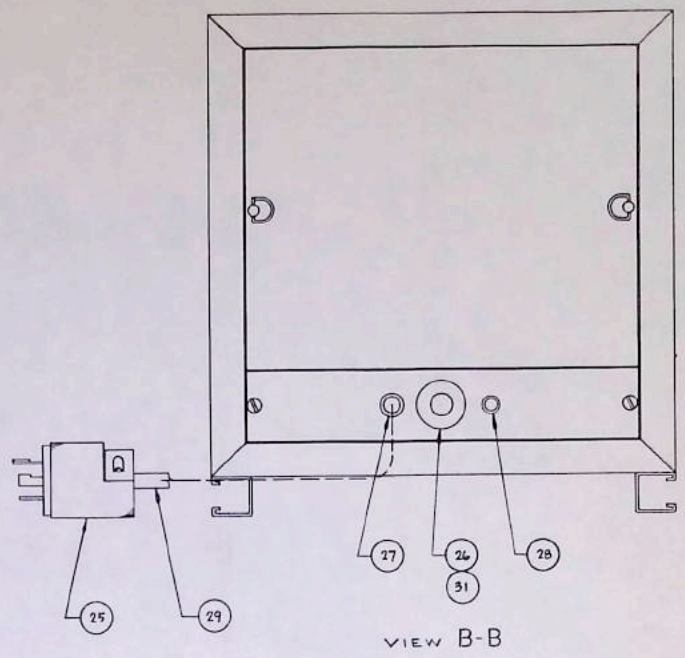
- 16 ITT CANNON ELECTRIC  
666 E. DYER RD.  
SANTA ANA, CALIF. 92702
- 14 HARVEY HUBBELL INC.  
121 W. ELMYRA ST.  
LOS ANGELES, CALIF. 90012
- 13 KEYSTONE ELECTRONICS CORP.  
49 BLEEKER ST.  
NEW YORK, N.Y. 10012
- 12 KULKA ELECTRIC CORP.  
520 D. FULTON AVE.  
MOUNT VERNON, N.Y. 10551
- 11 ELECTRONIC MOLDING CORP.  
40 CHURCH ST.  
PAWTUCKET, R.I. 02860
- 10 MICRO SWITCH  
11 W. SPRING ST.  
FREEPORT, ILL. 61032
- 9 DIALIGHT CORP.  
60 STEWARD ST.  
BROOKLYN, N.Y. 11237
- 8 LITTELFUSE INC.  
800 E. NORTHWEST HIGHWAY  
DES PLAINES, ILL. 60016
- 7 OHMITE MFG. CORP.  
3660 HOWARD ST.  
SKOKIE, ILL. 60076
- 6 GENERAL ELECTRIC CO.  
ELECTRONICS PARK  
SYRACUSE, N.Y. 13201
- 5 MOTOROLA SEMICOND. PROD'S INC.  
5005 E. MCDOWELL  
PHOENIX, AZ. 85008
- 4 INTERNATIONAL RECTIFIER  
233 KANSAS ST.  
EL SEGUNDO, CALIF. 90245
- 3 MASTER ELECTRONIC CONTROLS  
1555 17 TH ST.  
SANTA MONICA, CALIF. 90404
- 2 POTTER & BRUMFIELD  
1200 E. BROADWAY  
PRINCETON, IND. 47570
- 1 REFERENCE DRAWING  
6730-906869 SCHEMATIC DIAGRAM, FIREWORKS  
KALEIDOSCOPE PROJ.

NOTES: UNLESS OTHERWISE SPECIFIED  
DO NOT SCALE DWG



6730 - 904287  
ELECTRICAL COMPONENT ASSEMBLY  
FIREWORKS KALEIDOSCOPE PROJECTOR  
SHEET 1 OF 2

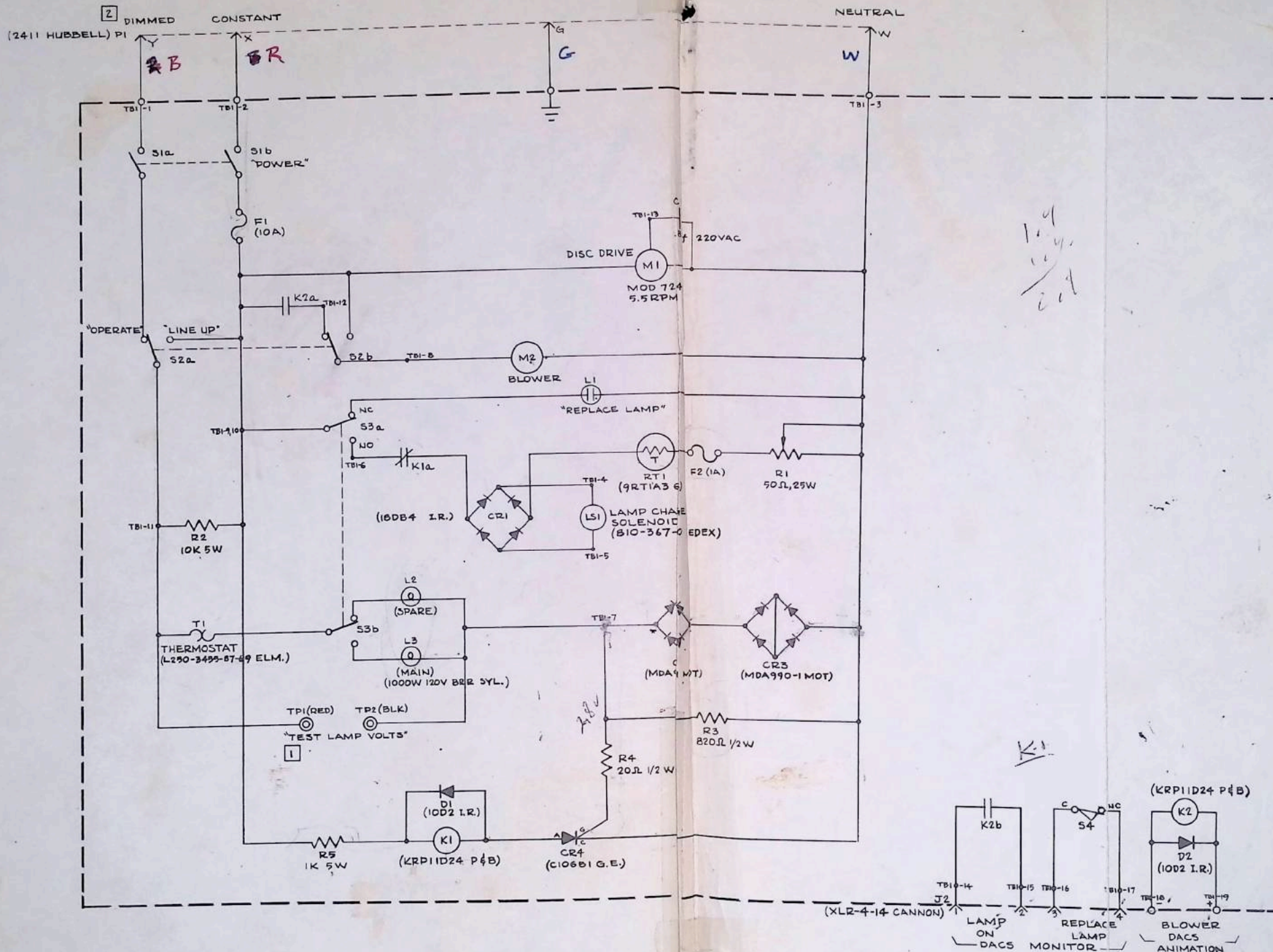
- 20 HERMAN H SMITH INC.  
812 SNEDIKER AVE.  
BROOKLYN, N.Y. 11207
- 19 AEROVOX CORP.  
AEROVOX RD.  
MYRTLE BEACH, SO. CAROLINA
- 18 CAROL CABLE CO.  
249 ROOSEVELT AVE.  
PAWTUCKET, R.I. 02862
- 17 HEYMAN MFG. CO.  
E. MICHIGAN AVE.  
KENILWORTH, N.J. 07033
- 16 ELECTRICAL FITTINGS CORP.  
123 SMITH ST.  
E. FARMINGDALE, N.Y. 11735



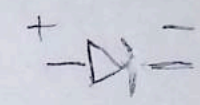
DWG. 6730-904287

ELECTRICAL COMPONENT ASSEMBLY  
FIREWORKS KALEIDOSCOPE PROJECTOR

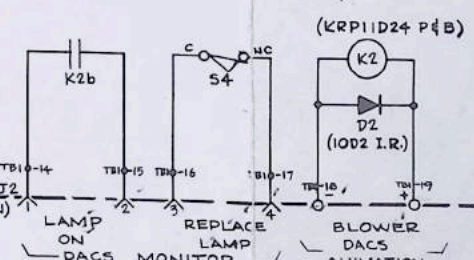
ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		6730-904074	PANEL, COMPONENT, ELEC	1
2.		KRP11D24	RELAY, DPDT, 24 VDC, K1, K2	2
3.		N-8	SOCKET, RELAY	2
4.		18D84A	RECTIFIER, BRIDGE, CR1	1
5.		MDA990-1	RECTIFIFE, BRIDGE, CR2,3	2
6.		10D2	DIODE, D1,2	2
7.		9RT1A3	THERMISTOR, RT1	1
8.		0200D	RESISTOR, 50 ,25W,R1	1
9.		4654	RESISTOR, 10K,5W,R2	1
10.		RC20GF821K	RESISTOR, 820 $\Omega$ ,1/2WR3	1
11.		RC20GF200F	RESISTOR, 20 $\Omega$ ,1/2W, R4	1
12.		4623	RESISTOR, 1K,5W, R5	1
13.		314010	FUSE, 10A,F1	1
14.		344125	FUSE HOLDER, INDICATING	1
15.		312001	FUSE, 1A,F2	1
16.		357001	FUSE HOLDER	1
17.		249-7841-0931-574	LIGHT, PILOT, NEON, L1	1
18.		12TS15-2	SWITCH, TOGGLE, 2PST, S1	1
19.		11TS15-3	SWITCH, TOGGLE, 2PDT, S2	1
20.		C106B1	RECTIFIER, SILICON, CONTROLLED, CR4	1
21.		4563-86-2	JACK, TEST, RED, TP1	1
22.		4653-86-0	JACK, TEST, BLACK, TP2	1
23.		670A-19	TERMINAL BLOCK, TB1	1
24.		15545	TERMINAL STRIP, TB2	1
25.		2411	PLUG, 4W,20A,P1	1
26.		XLR-4-14	RECEPTACLE, J2	1
27.		SR-7P-2	CONNECTOR, CORD	1
28.		SB-500-6	BUSHING	1
29.		01343-15	CABLE, 4COND. SJO, 300V	1
30.		2323	SPACER, HEX, 6-32	1
31.			SCREW, 4-4-X1/4, FLT. HD.	3
32.			SCREW, 6-32X1	4
33.			SCREW, 6-32X1/2	7
34.			SCREW, 6-32X1/4	10
35.			SCREW, 10-32X1/4	1
36.		P138F44	CAPACITOR, .85uf, 220VAC	19



1.4  
1.4  
2.8



K1



- 2 'DIMMED' AND 'CONSTANT' CONNECTIONS MUST BE SUPPLIED FROM SAME BRANCH CIRCUIT.
- 1 USE IRON VANE METER TO MEASURE LAMP VOLTAGE, WESTON INSTRUMENTS, INC., 614 FRELINGHUYSEN AVE., NEWARK, N.J. 07114 OR SIMPSON ELECTRIC CO., 5200 KINZIE ST., CHICAGO, ILL.

NOTES: UNLESS OTHERWISE SPECIFIED

Plus

# SECTION 4.7

## IRIS FIREWORKS PROJECTOR Service Instructions

### GENERAL DESCRIPTION

The Iris Fireworks Projector has been designed to create the effect of fireworks bursting in the sky from a 2 X 2 slide. This effect is achieved by projecting a light source through a condenser lens system, heat glass, a pneumatically controlled iris, a 2 X 2 fireworks slide, and finally through the projection lens. After the projector light-source is activated, the controlled iris opens to create the burst effect. At full iris aperture the light is extinguished, followed by the closing of the iris. Burst locations are changed by projecting the image onto a servo controlled mirror assembly attachment (ACT IV).

The light source for the projector is a 1000 watt Sylvania lamp, mounted with a second "STAND-BY" lamp, in a spring loaded lamp changer mechanism. Upon failure of the first lamp, a lamp change quickly occurs. The lamp current sensing relay de-energizes, releasing the locking latch of the spring loaded lamp changer mechanism and allows the lamp carriage to move the "STAND-BY" lamp into position. With the movement of the lamp carriage, a 2 pole Micro Switch transfers power from the first lamp socket to the second lamp socket, cutting power to the solenoid, and activating a red signal light (REPLACE LAMP) on the projector front access panel to indicate the change. A second Micro Switch activates a monitor light at the master control panel, also to indicate the change. A Minarik blower mounted below the Sylvania lamp provides the cooling source. Since the projector cooling fan is programmed by DACS to turn on only when the lamp is brightened up, the residual level ("LOW OUTPUT") setting on the dimmer must be set low enough to prevent heat damage to the slide. Upon blower failure, a thermostatic safety switch shuts off the electrical power at  $250^{\circ} \pm 6^{\circ}\text{F}$ . Thus preventing heat damage to the projector. For initial projector set-up, the OPERATE/LINE-UP switch on the front access panel must be in the LINE-UP position. For DACS control of the projector, the switch must be in the OPERATE position at all times.

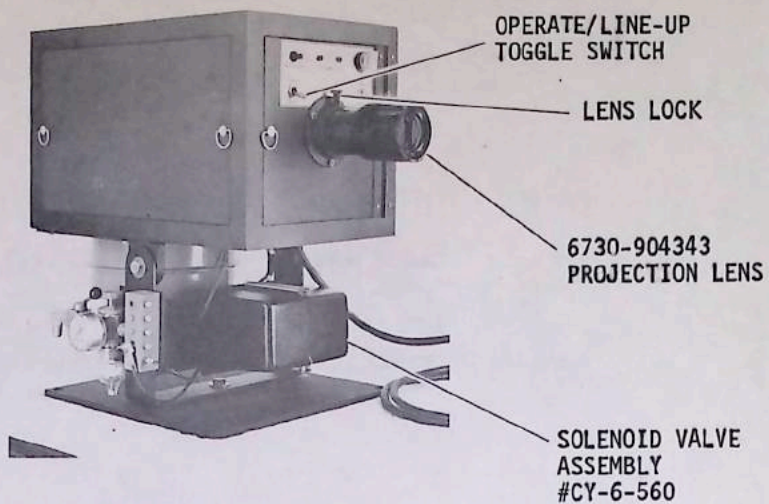


FIG. 1  
6730-904314

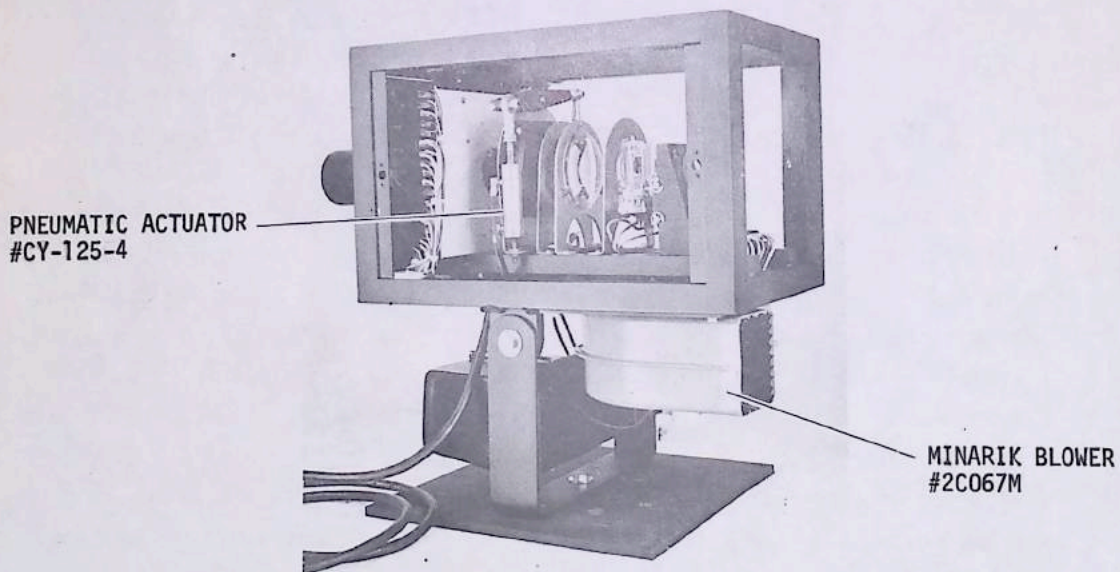


FIG 2  
ACCESS PANELS REMOVED

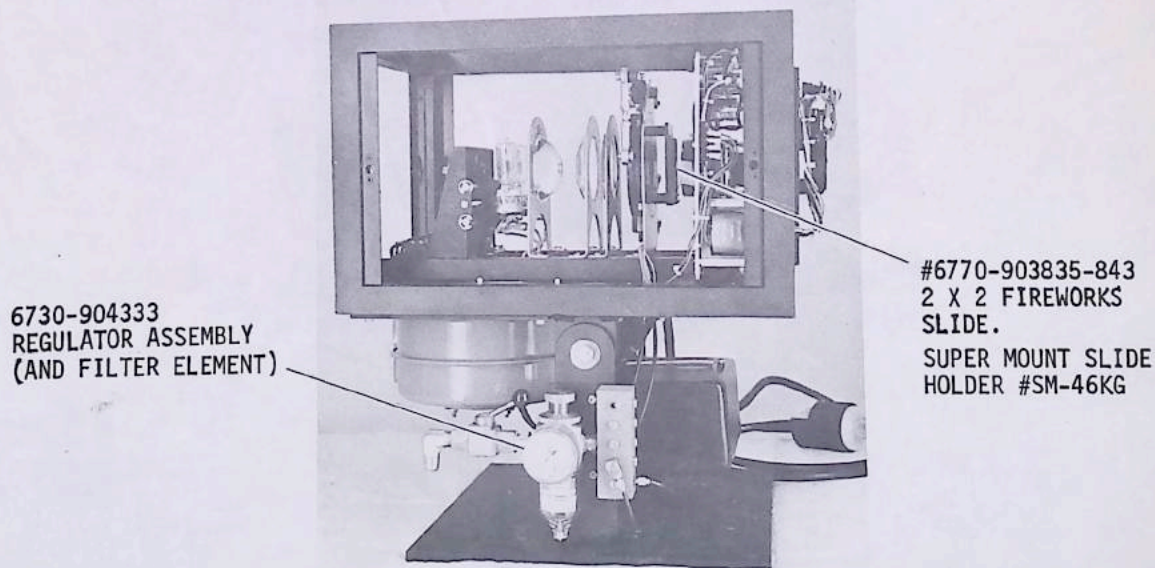
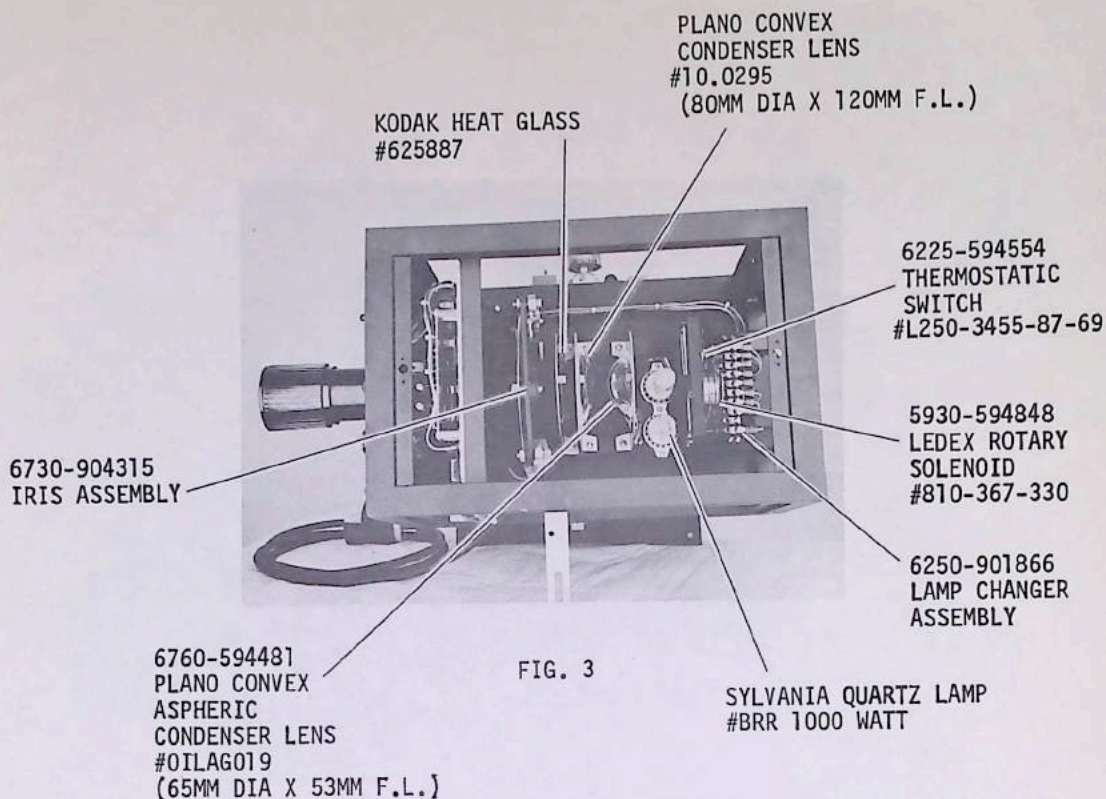
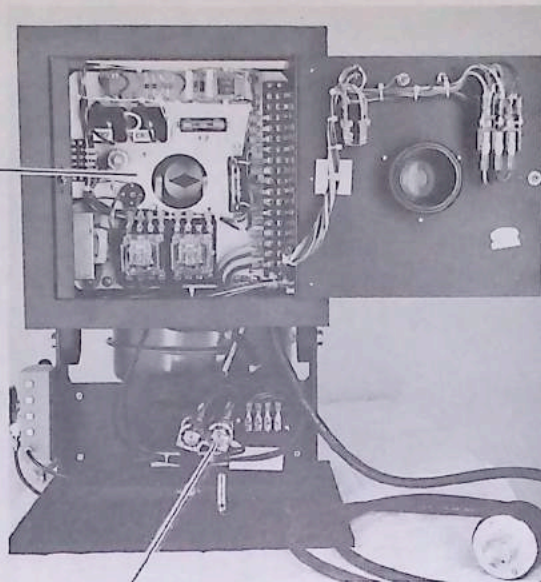




FIG. 5  
SHOWING ELECTRICAL  
COMPONENTS

6730-904335  
ELECTRICAL  
COMPONENT  
ASSEMBLY



3 WAY VALVE (2)  
FOR IRIS ACTUATOR  
#B4RX16-24

FRONT  
SURFACE MIRROR  
7" X 4" X 1/4"  
#749 COATING.  
(SEAMED EDGES)

FAFNIR BRG.  
#DSP-3

SERVO ACTUATOR  
#CY-4-509

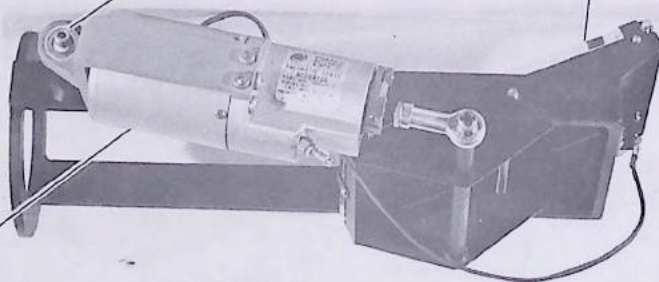


FIG. 6  
6730-904345  
SERVO MIRROR ASSEMBLY  
(ACT IV ONLY)

## MAINTENANCE FREQUENCY CHART

CLEANING POINTS	FREQUENCY	REFERENCE
PROJECTION LENS	DAILY	PROJECTOR
CONDENSER LENS	WEEKLY	PROJECTOR
HEAT GLASS	WEEKLY	PROJECTOR
IRIS ASSEMBLY	CHECK MONTHLY	PROJECTOR
2 X 2 FIREWORK SLIDE MOUNT	CHECK MONTHLY	PROJECTOR
MIRROR (FRONT SURFACE)	ONLY AS OFTEN AS NECESSARY	PROJECTOR (SERVO MIRROR) ACT IV ONLY

### CLEANING INSTRUCTIONS

#### Optical Parts

Clean the front and rear elements of the Projection lens, also the (2) Condenser lenses and heat glass. Do not attempt to take the Projection lens apart for any further cleaning. The cleaning should be done with any quality glass cleaner and lens cleaning tissue. If only a slight amount of dust has accumulated on the lenses, use lens cleaning tissue to remove the dust. If, however, any fingerprints, oil, grease, or other accumulation of dirt is present, lens cleaning fluid should be wiped on the lens surfaces. Then clean thoroughly with lens cleaning tissue.

#### Projector

Keep the projector body and all moving parts, dust and dirt free. If any oil, grease or other accumulation of dirt is present, then wipe clean with a soft cloth, using alcohol if necessary.

#### Mirror (Front Surface)

Clean carefully and only when necessary, dirt should be floated or blown off, not ground in. DO NOT clean dry. Use a soft clean cloth saturated with a quality glass cleaner.

#### NOTES:

1. 2 X 2 Firework Slide Mount: Clean with soft cloth and quality glass cleaner.
2. During maintenance and cleaning operations, DO NOT handle the Sylvania lamps with bare fingers, as skin oils can cause deterioration of the lamp wall. If, however, the lamp has been handled, wipe lamp wall thoroughly using alcohol and

a soft cloth. When lamp burn-out occurs, replace the lamp with the spare lamp from the changing mechanism. Install the new lamp in spare location. Return lamp carriage to initial position.

3. For correct cooling of the projector when in use, all access panels must be in position.
4. Since the projector cooling fan is programmed by DACS to turn on only when the lamp is brightened up, the residual level ("Low Output") setting on the dimmer must be set low enough to prevent heat damage to the slide.

**WARNING**

Lamp replacement. To avoid risk of burns or other personal injury, NEVER insert lamp into a live socket. Be sure power is off, or projector is disconnected. When inserting a new lamp into the socket, push down firmly, making sure it is seated properly.

RECOMMENDED SPARE PARTS — MECHANICAL

ITEM	SOURCE
1. Sylvania Quartz Lamp - 1000 Watt #BRR 120V 50 Hrs.	G.T.E. Sylvania, Inc. Lamp Division Irvine Road Winchester, Kentucky 40391
2. 6760-594481 Plano Convex Aspheric Lens #OILAG019 65mm Dia X 53mm F.L.	Optical Industries 3006 Enterprise Costa Mesa, CA 902626
3. Rolyn Plano-Convex Lens #10.0295 80mm Dia X 120mm F.L.	Rolyn Optics Co. 300 Rolyn Place Arcadia, CA 91006
4. Kodak Heat Glass #625887	Eastman Kodak Co. 12100 Rivera Road Whittier, CA
5. 6730-904343 Projection Lens	Walt Disney Productions 500 S. Buena Vista Street Burbank, CA 91521
6. Fafnir Bearing #F4DD	Fafnir Bearing Co. 4635 Sheila Street Los Angeles, Ca 90040
7. Fafnir Bearing #DSP-3	
8. 4140-594500 Minarik Blower #2C067M	Minarik Electric Co. 224 East Third Street Los Angeles, CA 90013
9. 3010-200514 Servo-Actuator #CY-4-509	MAPO, Inc. 1401 Flower Street Glendale, CA 91201
10. Pneumatic Actuator #CY-125-4	
11. 3 Way Valve #B4Rx16-24	
12. Regulator and Filter Assembly #7019-2 (Filter Only)	
13. Mirror - Front Surface 7" X 4" X 1/4" #749 Coating (Seamed Edges)	Liberty Mirror Libbey Owens Ford Glass Co. 3440 Wilshire Blvd. Los Angeles, CA 90010
14. Super Mount Slide Holder #SM-46KG	Wess Plastic Mold Inc. 50 Schmitt Blvd. Farmingdale L.I., N.Y. 11735

RECOMMENDED SPARE PARTS — ELECTRICAL

ITEM			SOURCE
K1, K2	KRP11D24	RELAY	P-B
CR1	18DB4A	RECTIFIER, BRIDGE	I.R.
CR2, CR3	MDA990-1	RECTIFIER, BRIDGE	MOTOROLA
CR4	C106B1	RECTIFIER, SILICON, CONTROLLED	G.E.
D1, D2	10D2	DIODE	I.R.
RT1	9RT1A3	THERMISTOR	G.E.
R1	0200D	RESISTOR 50 $\Omega$ 25W	OHMITE
R2	4654	RESISTOR 10K 10W	OHMITE
R3	RC20GF821F	RESISTOR 820 $\Omega$ 1/2W	OHMITE
R4	RC20GF200F	RESISTOR 20 $\Omega$ 1/2W	OHMITE
R5	4623	RESISTOR 1K 5W	OHMITE
F1	314010	FUSE 10A	LITTELFUSE
F2	312001	FUSE 1A	LITTELFUSE
L1	249-7841-0331-574	LIGHT, NEON	DIALIGHT
L2, L3			
CR5	SCRB2	RECTIFIER, BRIDGE	SEMTECH

## TROUBLESHOOTING CHART

TROUBLE	PROBABLE CAUSE	REMEDY
Firework burst unsteady	Projection Lens loose.	Check for loose lens lock or lens mount. Fig. 1.
	Blower vibration, or unusually noisy.	Check for loose blower retaining screws (3).  Check for loose set screw retaining squirrel cage blower on drive shaft.
	Loose Servo Mirror Assembly (Act IV)	Spin squirrel cage blower by hand to check oilite bearing (2). Cage should spin freely with no vibration or binding. Fig. 2.  Check for loose assembly retaining screws (3).
	Lamp Changer Frame Retaining Screws loose.	Check retaining screws (4).
	Bearings noisy.	Replace blower assembly. (Rework old assembly.)
Sylvania Lamp burns-out during performance and does not reappear.	Loose servo mirror attachment (Act IV only).	Check for loose lens mount screws clamp attachment to projector.
	Electrical power failure.	Check electrical power supply.  Check fuse holder on projector front access panel. Fuse blown if neon light is on. Fig. 1.
		Check electrical connections, plugs, leads, etc.
		Check for burnt out lamp, and lamp changer mechanism (containing spare lamp) sticking. See NOTE & WARNING, Page 232 & Fig. 3.
		Check for inoperative blower. (This causes an increase in temperature from the lamp activating a thermostatic switch shutting off the electrical power supply.) Fig. 2 & 3.

## TROUBLESHOOTING CHART

TROUBLE	PROBABLE CAUSE	REMEDY
Projector Iris aperture remains open.	Air hose connection loose.	Check that the hose connections to the pneumatic actuator and regulator assembly are tight. Figs. 4 & 6.
	Insufficient air pressure to activate actuators.	Check for correct air pressure from source. (Should be 100 P.S.I.)  Be sure air hoses are not pinched or cut.
	Actuator malfunction.  Operate/line-up switch on projector front access panel is in the line-up position.	Replace unit.  Switch must always be in the "Operate" position for DACS control. Fig. 1.
Projector Iris aperture remains closed.	Air hose connection loose.	Check that the hose connections to the pneumatic actuator and regulator assembly are tight. Figs. 4 & 6.
	Insufficient air pressure to activate actuators.	Check for correct air pressure from source. (Should be 100 P.S.I.)  Be sure air hoses are not pinches or cut.
	Actuator malfunction	Replace unit.
	Electrical power failure.	Check electrical power supply etc.
	No signal from DACS.	Check operate/line-up switch. Switch must always be in the "Operate" position for DACS control Fig. 1.
Projector Iris does not open or close smoothly.	Iris blades or guides binding.	Disconnect iris actuator crank from pneumatic actuator. Operate manually the action of the iris, checking for burrs on iris blade edges, and loose rivet pins. Fig. 3.
	Insufficient air pressure to activate pneumatic actuator.	Check for clogged filter in regulator and filter assembly.

# TROUBLESHOOTING CHART

TROUBLE	PROBABLE CAUSE	REMEDY
Firework burst indistinct.	Lens improperly focused.	Re-focus lens in mount for maximum sharpness. Fig. 1.
	Condenser lenses, heat glass, 2 X 2 slide, projection lens, or servo mirror (unload) dirty, oily or fingerspotted.	See Cleaning Instructions, Page 231.
	Defective Projection lens.	Replace lens.
Firework burst illumination low.	2 X 2 firework slide burning-up.	See slide burn-up.
	Lamp old, ready to burn out.	Replace lamp. See NOTE & WARNING, Page 231-232.
	Brightness control.	See dimmer unit. Note 3.
	Condenser lenses, heat glass, 2 X 2 slide, projection lens, or servo mirror (unload) dirty, oily or fingerspotted.	See Cleaning Instructions, Page 231.
Projector unusually warm	Heat glass discolored	Heat glass discolored due to excessive heat. Replace damaged unit. Check blower for normal air flow. Fig. 3.
	2 X 2 firework slide burning-up.	See slide burn-up.
	Blower	Check blower for normal air flow. Fig. 2.
	Blower air flow impeded.	Check blower exhaust area is clear for hot air dispersion.
	Heat glass	Examine heat glass for discoloration, cracks or distortion. Replace unit if necessary. Fig. 3.
	Heat shield	Check heat shield is in position around Sylvania lamps.
	Condenser lenses	Examine condenser lenses for cracks or damage. Fig. 3.
	Access Panels	Check all access panels are in position. <u>One</u> panel left out will cause eventual overheating.



## TROUBLESHOOTING CHART

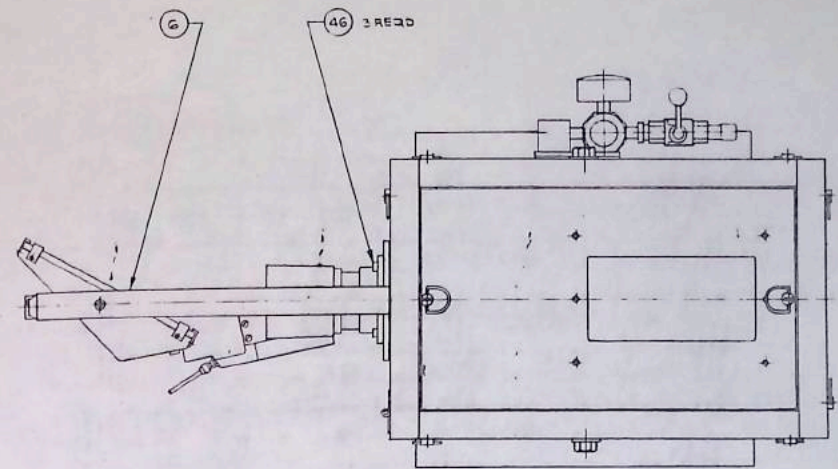
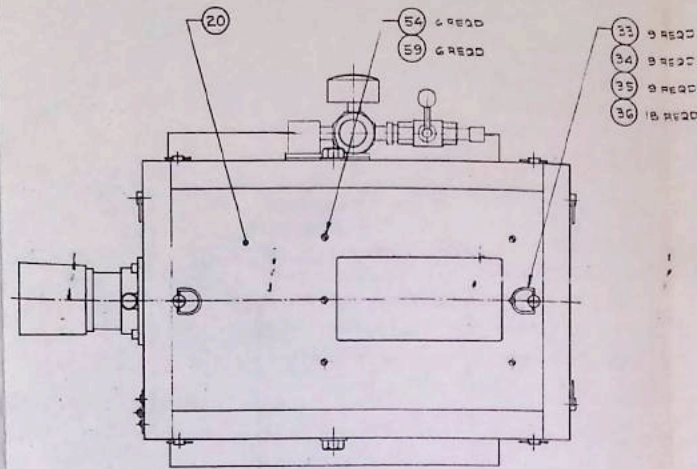
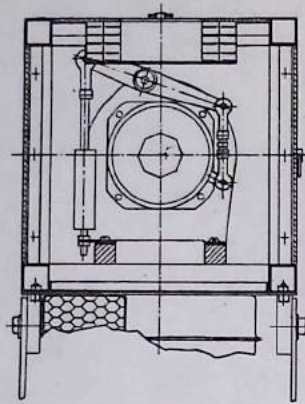
TROUBLE	PROBABLE CAUSE	REMEDY
Unevenly illuminated field	Sylvania lamp loose or damaged	Check that the lamp is tight and seated correctly in socket. Fig. 3.
	Condenser lenses	Examine condenser lenses for cracks or damage. Fig. 3.
Projector shuts off soon after start up.	Heat shield	Check that heat shield is in place around Sylvania lamps. If not replaced after any maintenance operation, projector will overheat, causing the thermostatic safety switch to shut off the electrical power at $250^{\circ} \text{F} \pm 6^{\circ}$ . Fig. 3.
2 X 2 Firework slide burns up	Blower	Check blower for normal air flow.
	Blow air flow impeded	Check blower exhaust area is clear for hot air dispersion.
	Heat glass	Heat glass cracked, or left out after maintenance.
	Condenser lenses	Examine condenser lenses for cracks or damage.
	Access panels	Check all access panels are in position. <u>One</u> panel left out will cause eventual slide burn up.

**MECHANICAL  
DRAWINGS**

FOR ADDITIONAL DETAILED MECHANICAL INFORMATION ON DOCUMENTS OR  
EQUIPMENT APPEARING IN THE PROJECTOR SECTION OF THIS MANUAL  
CONTACT: DEPARTMENT HEAD - MACHINE SHOP - WALT DISNEY PRODUCTIONS

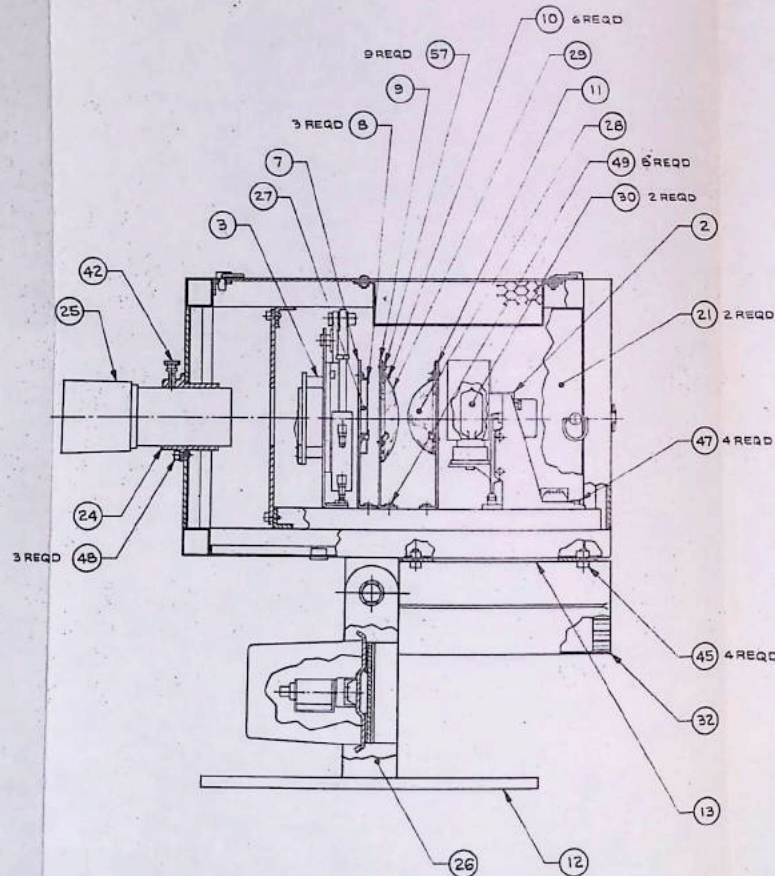
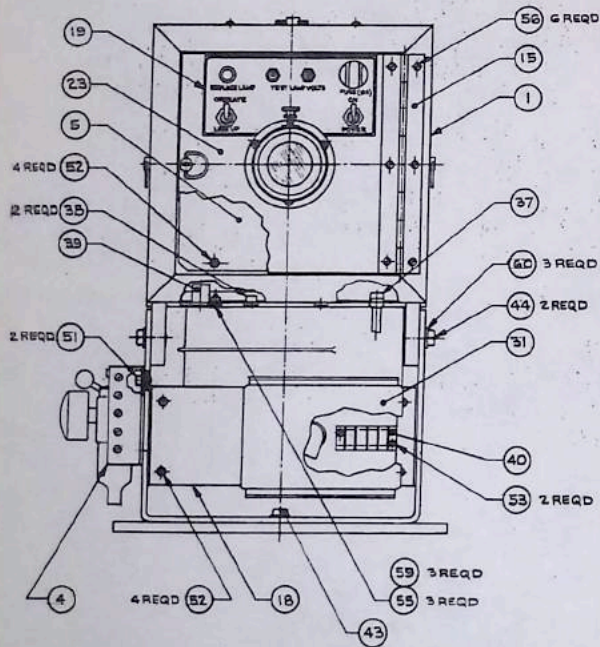
# MECHANICAL DRAWINGS

DESCRIPTION	DWG NUMBER	PAGE
IRIS FIREWORKS PROJECTOR ASSEMBLY	6730-904313 (UNLOAD)	242
IRIS FIREWORKS PROJECTOR ASSEMBLY	6730-904314 (ACT IV)	242
LAMP CHANGER ASSEMBLY	6250-901866	245
IRIS ASSEMBLY	6730-904315	247
REGULATOR ASSEMBLY	6730-904333	250
SERVO MIRROR ASSEMBLY	6730-904345 (UNLOAD)	252

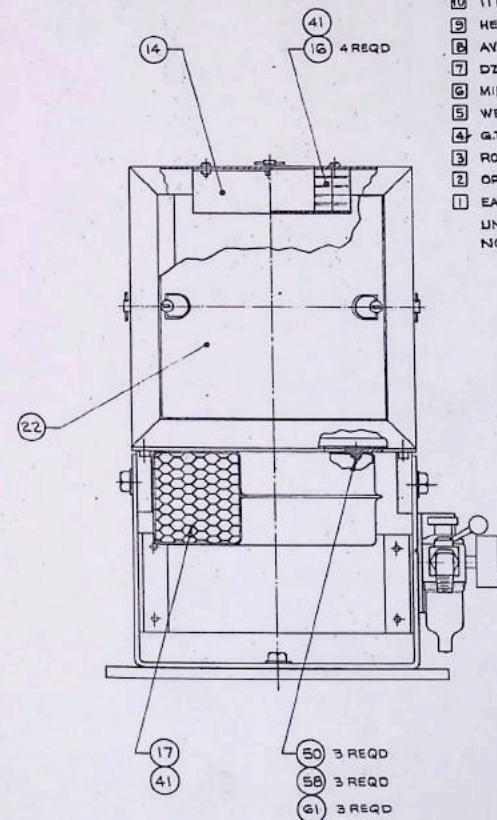


6730-904313  
IRIS FIREWORKS PROJECTOR  
ASSEMBLY UNLOAD

- 3 DUCOMMUN METALS & SUPPLY CO., 4890 SO. ALAMEDA ST., LOS ANGELES, CA. 90008
  - 4 DEVCON CORP., DANVER, MASSACHUSETTS 01923
  - 5 KULKA ELECTRIC CORP., 520 S. FULTON AVE., MOUNT VERNON, N.Y. 10550
  - 6 ITT CANNON ELECTRIC 666 E. DYER ROAD, SANTA ANA, CA. 92702
  - 7 HEYMAN MFG CO., 249 ROOSEVELT AVE., PAWTUCKET, R.I. 02862
  - 8 ANDEL CORP., 10 HENRY STREET, TETERBORO, NEW JERSEY 07093
  - 9 DZUS FASTENER CO. INC., 425 UNION BLVD., WEST ISLIP, NEW YORK 11796
  - 10 MINARIK ELECTRIC CO., 224 E. 3RD STREET, LOS ANGELES, CA. 90012
  - 11 WED ENTERPRISES 1401 FLOWER STREET, GLENDALE, CA. 91201
  - 12 G.T.E. SYLVANIA INC., IRVINE ROAD, WINCHESTER, KENTUCKY 40391
  - 13 ROLYN OPTICS CO., 300 ROLYN PLACE, ARCADIA, CA. 91006
  - 14 OPTICAL IND., 3006 ENTERPRISE, COSTA MESA, CA. 92626
  - 15 EASTMAN KODAK CO., 12100 RIVERA ROAD, WHITTIER, CA. 92617
- UNLESS OTHERWISE INDICATED NOTES:



6730-904314  
IRIS FIREWORKS PROJECTOR  
ASSEMBLY ACT IV



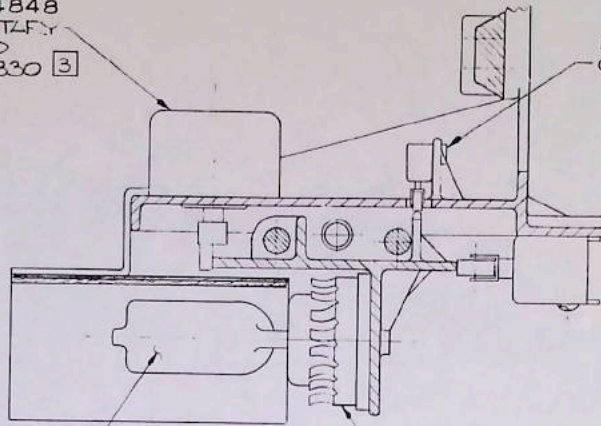
6730-904313  
6730-904314

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		6730-904331	FRAME - WELDED	1
2.		6730-901866	ASSEMBLY - LAMP CHANGER	1
3.		6730-904315	IRIS - ASSEMBLY	1
4.		6730-904333	REGULATOR - ASSEMBLY	1
5.		6730-904335	ELECTRICAL COMPONENTS ASSEMBLY	1
6.		6730-904345	SERVO MIRROR - ASSEMBLY (6730-904313 ONLY)	1
7.		6730-901875	BRACKET - HEAT GLASS	1
8.		6730-901876	CLIP - HEAT GLASS	3
9.		6730-901877	BRACKET - 80MM CONDENSER LENS	1
10.		5340-901878	CLIP - CONDENSER LENS	6
11.		6760-901879	BRACKET - 65MM ASPHERIC LENS	1
12.		6760-902005	PLATE - BASE	1
13.		6730-904039	PANEL - BLOWER MTG	1
14.		6730-904042	RETAINER - LIGHT BAFFLE	1
15.		6730-904048	HINGE - ACCESS DOOR	1
16.		6730-904050	BAFFLE - LIGHT	4
17.		6730-904251	BAFFLE - BLOWER	1
18.		6730-904332	PANEL - VALVE ASSEMBLY MOUNT	1
19.		6730-904337	PLATE - IDENTIFICATION METAL	1
20.		6730-904338	PANEL - TOP ACCESS	1
21.		6730-904339	PANEL - SIDE ACCESS	2
22.		6730-904340	PANEL - REAR ACCESS	1
23.		6730-904341	PANEL - FRONT ACCESS	1
24.		6730-904342	MOUNT - LENS	1
25.		6730-904343	LENS - PROJECTION	1
26.		6730-904344	YOKE - PROJECTOR	1
27.		625887	KODAK HEAT GLASS	1
28.		OILAG019	LENS - ASPHERIC PLANO CONVEX 65MM DIA, 53MM F.L.	1
29.		10.0295	LENS - PLANO CONVEX 80MM DIA, 120MM F.L.	1
30.		BRR-1000W	LAMP-SYLVANIA	2
31.		CY-6-560	MOUNTED SOLENOID VALVE ASSEMBLY	1
32.		2C067M	BLOWER-MINARIK	1
33.		BJR4-40	STUD-RING HEAD	9
34.		GH4	HALF GROMMET	9
35.		S4-224	SPRING	9
36.		1604-0412	AVEX BLIND RIVET	18
37.		SR-6P3-4	STRAIN RELIEF BUSHING	1
38.		SB-500-6	SNAP BUSHING	2



5930-594848  
LEDFX ROTARY  
SOLENOID  
810-367-330 [3]

BAR - SWITCH LOCK  
6250-901871



6240-591517  
SYLVANIA \*ECK  
50 W QUARTZ  
[5] (?) REQ'D.

6250-591518  
SYLVANIA \*7460-0071  
LAMP SOCKET  
[6] (?) REQ'D.

5305-003533  
\*6-32 x 37 LG  
SOC HD CAP SCR

6250-901868  
CARRIAGE - LAMP

6250-901867  
FRAME - LAMP  
CHANGER

5340-901610  
LATCH - LAMP  
CHANGER

5305-007266  
4-40 x .87 LG.  
RD HD SCR.  
[2] (?) REQ'D.

5365-006048  
[1] TRIARC-F133-25  
(4) REQ'D.

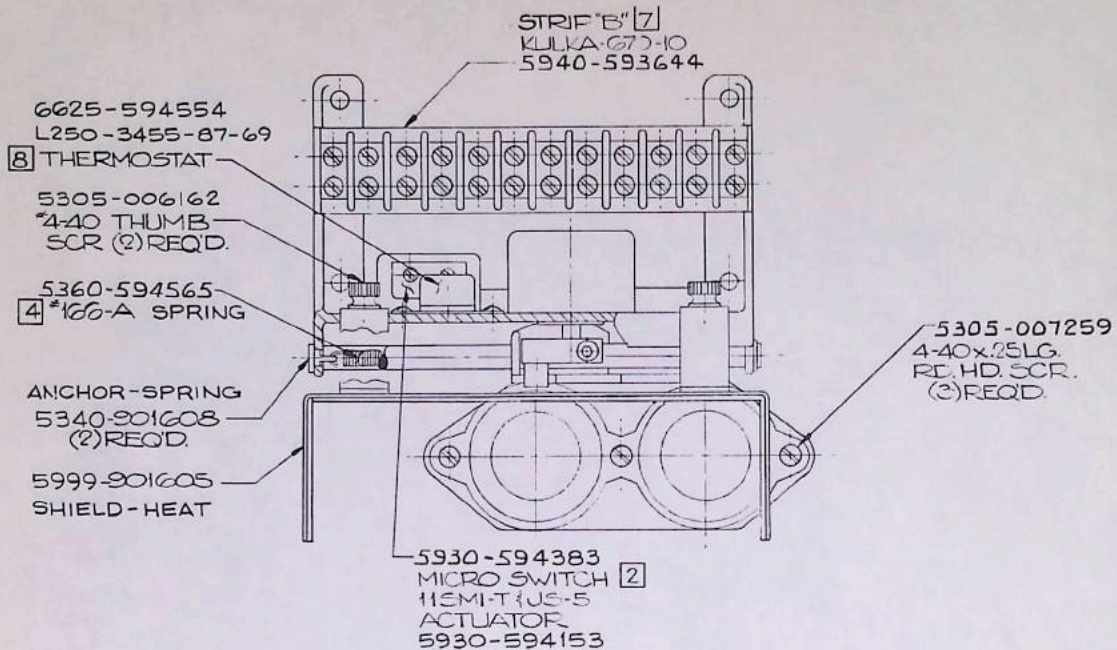
5340-901609  
(2) REQ'D  
ROD - LAMP CARRIAGE

5360-901625  
(2) REQ'D.  
SPRING - SHOCK

[2]  
MICRO SWITCH  
DT-2RV22-A7  
5930-594371

6250 - 901866  
LAMP CHANGER ASSEMBLY  
SHEET 1 OF 2



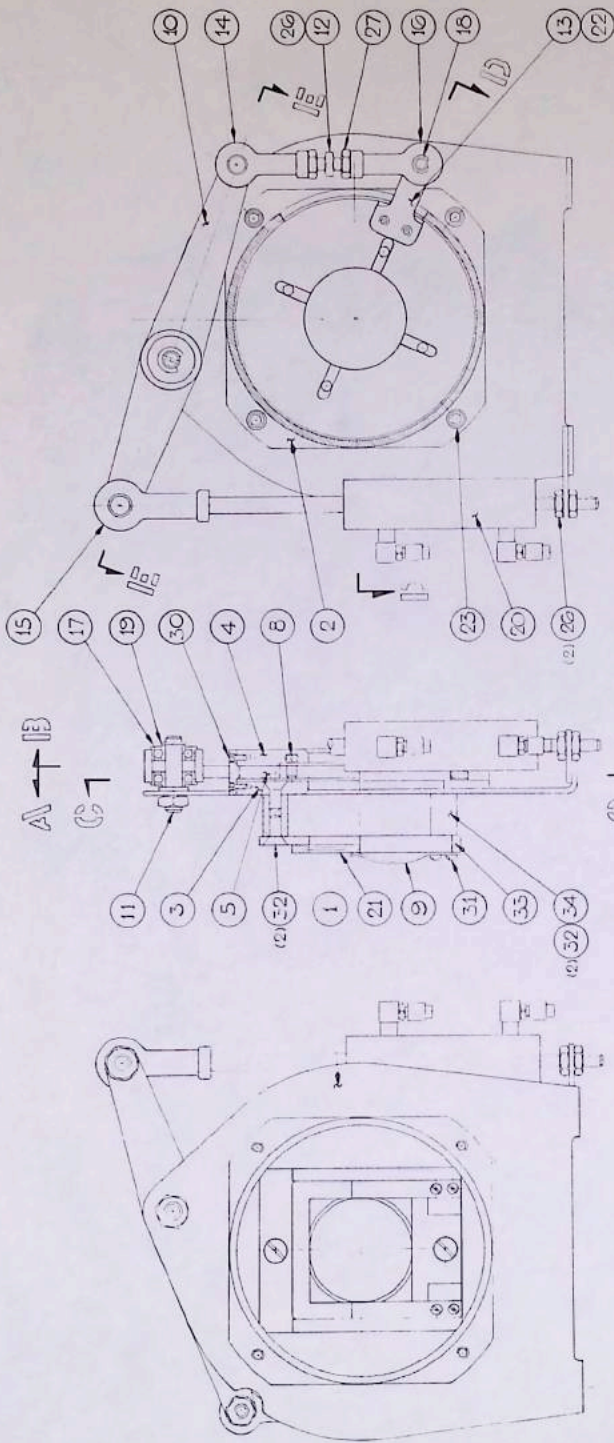


6110-906720 SCHEM DIAGRAM

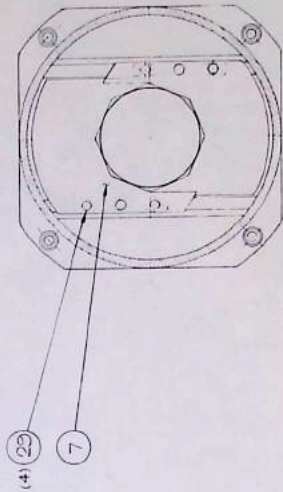
9 REFERENCE DOCUMENT

- [8] ELMWOOD SENSORS INC.  
1653 ELMWOOD AVE.  
CRANSTON RHODE ISLAND 02907
- [7] KULKA ELECTRIC CORP.  
520 S. FULTON AVE. MT. VERNON N.Y. 10551
- [6] G.T.E. SYLVANIA  
PORTSMOUTH AVE. EXETER NEW HAMPSHIRE 03833
- [5] G.T.E. SYLVANIA INC.  
IRVINE RD. WINCHESTER KENTUCKY 40391
- [4] CALIFORNIA SPRING CO. INC.  
8401 E. SLAUSON AVE. PICO RIVERA CALIF. 90660
- [3] LEDEX DIVISION - LEDEX INC.  
123 WEBSTER ST., DAYTON OHIO 45402
- [2] MICRO SWITCH  
11 W. SPRING ST., FREEPORT ILLINOIS 61032
- [1] WALDES KOHINOOR INC.  
47-16 AUSTEL PLACE  
LONG ISLAND CITY  
NEW YORK 11101

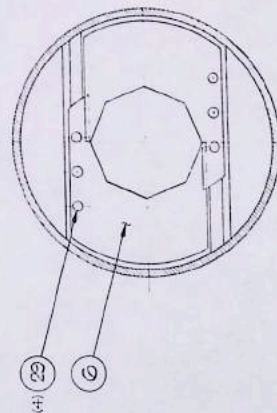
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SECTION A - A

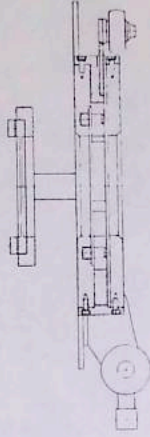


SECTION C - C

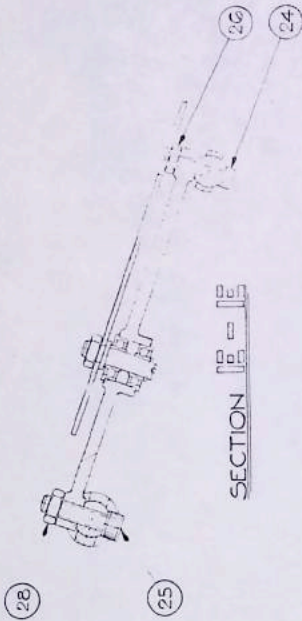


SECTION B - B

6730 - 904315  
 IRIS ASSEMBLY  
 IRIS FIREWORKS PROJECTOR  
 SHEET 1 OF 2



SECTION D-D



SECTION E-E

- ⑨ VAN DUSEN  
501 INDUSTRIAL AVE.  
TETERBORO, NJ 07709
- ⑤ WESS PLASTIC MOLD NC  
50 SCHMITT BLVD  
FARMINGDALE  
LI, NY 11735
- ④ MAPO INC  
1401 FLOWER ST  
GLENDALE, CA 91201

- ③ WALDES KOHNDOOR INC  
47-11 ALUSTEL PLACE  
LI CITY, NY 11101
- ② FAFNR BEARINGS COMPANY  
4035 SHEILA ST  
L.A. CALIFORNIA 90040
- ① THE HEIM COMPANY  
FAIRFIELD, CONN.

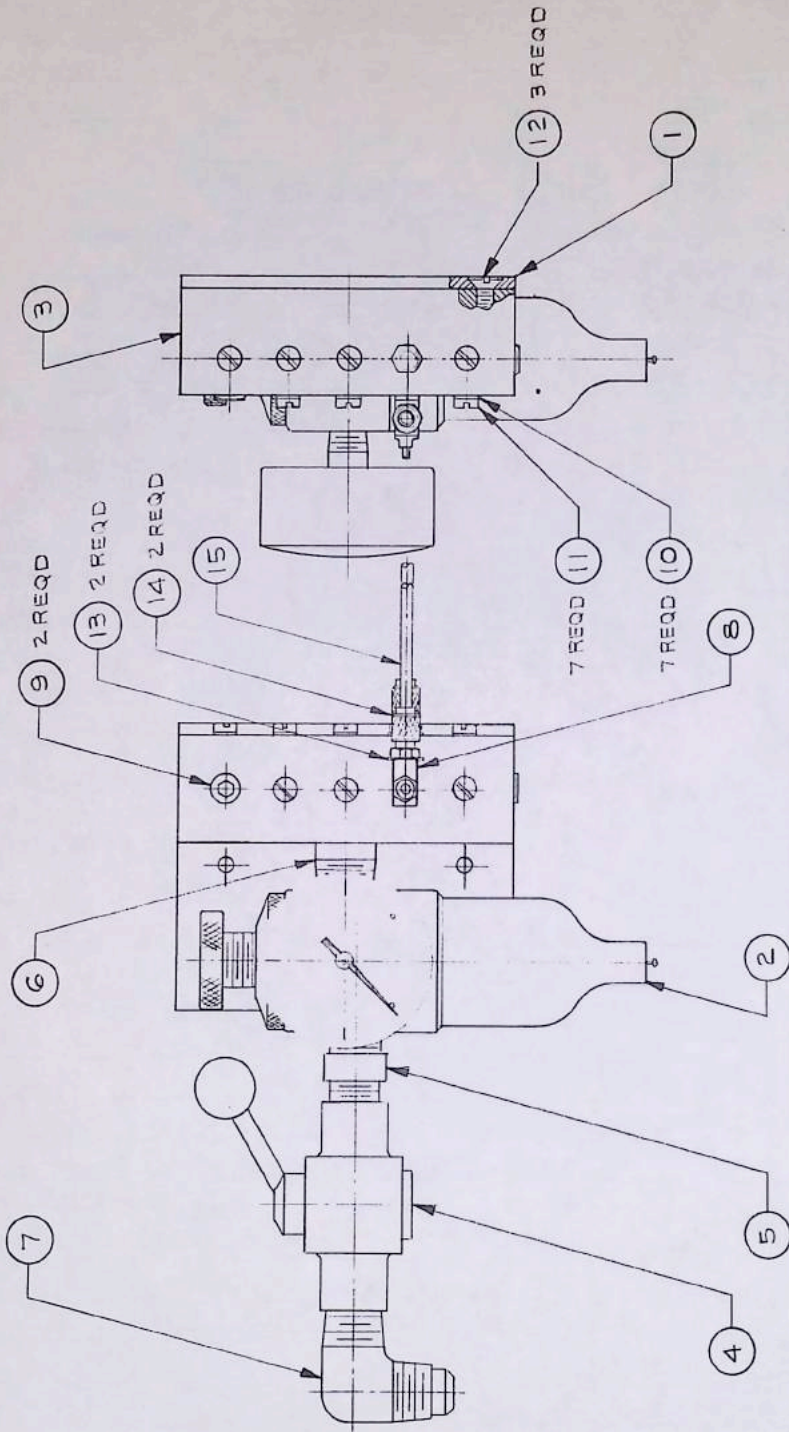
NOTES: UNLESS OTHERWISE SPECIFIED

DWG.

6730-904315

IRIS ASSEMBLY  
IRIS FIREWORKS PROJECTOR

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		6730-904316	BRACKET, IRIS	1
2.		6730-904317	HOUSING, IRIS BLADE	1
3.		6730-904318	GUIDE, VERTICAL BLADE	1
4.		6730-904319	GUIDE, HORIZONTAL BLADE	1
5.		6730-904320	RING, BLADE DRIVE	1
6.		6730-904321	BLADE IRIS (RH)	2
7.		6730-904322	BLADE IRIS (LH)	2
8.		6730-904323	KEY, IRIS BLADE	4
9.		6730-904324	SPRING, SLIDE	2
10.		6730-904325	CRANK, IRIS ACTUATOR	1
11.		6730-904326	SHAFT, CRANK PIVOT	1
12.		6730-904327	ROD, CONNECTING	1
13.		6730-904328	ARM, RING	1
14.			BEARING, ROD END, HF-3	1
15.			BEARING, ROD END, HF-4	1
16.			BEARING, ROD END, HFL-3	1
17.			BEARING, F4DD	2
18.			TRUARC, 5133-18	3
19.			TRUARC, 5133-25	3
20.			ACTUATOR 1 1/2" STROKE 5/8" BORE, CY-125-4	4
21.			SUPER MOUNT SLIDE HOLDER, SM-46KG	5
22.			4-40 X .18 LG FL HD SCREW	SST 2
23.			8-32 X .18 LG SOC HD CAP SCREW	SST 4
24.			10-32 X .87 LG SOC HD CAP SCREW	SST 1
25.			1/4-20 X 1.00 LG SOC HD CAP SCREW	SST 1
26.			10-32 HEX HD NUT	SST 4
27.			10-32 HEX HD NUT (LH)	SST 1
28.			1/4-20 HEX HD NUT	SST 1
29.			RIVET 1/16 DIA X 3/16 LG ALUM, AN-426AD2-3	6
30.			1-72 X .18 LG SOC HD CAP SCREW	SST 8
31.			2-56 X .12 LG SLOTTED RD HD SCREW	SST 4
32.			8-32 X .43 LG FL HD SOC CAP SCREW	SST 4
33.		6730-904329	HOLDER, SLIDE	1
34.		6730-904330	SPACER, SLIDE HOLDER	2



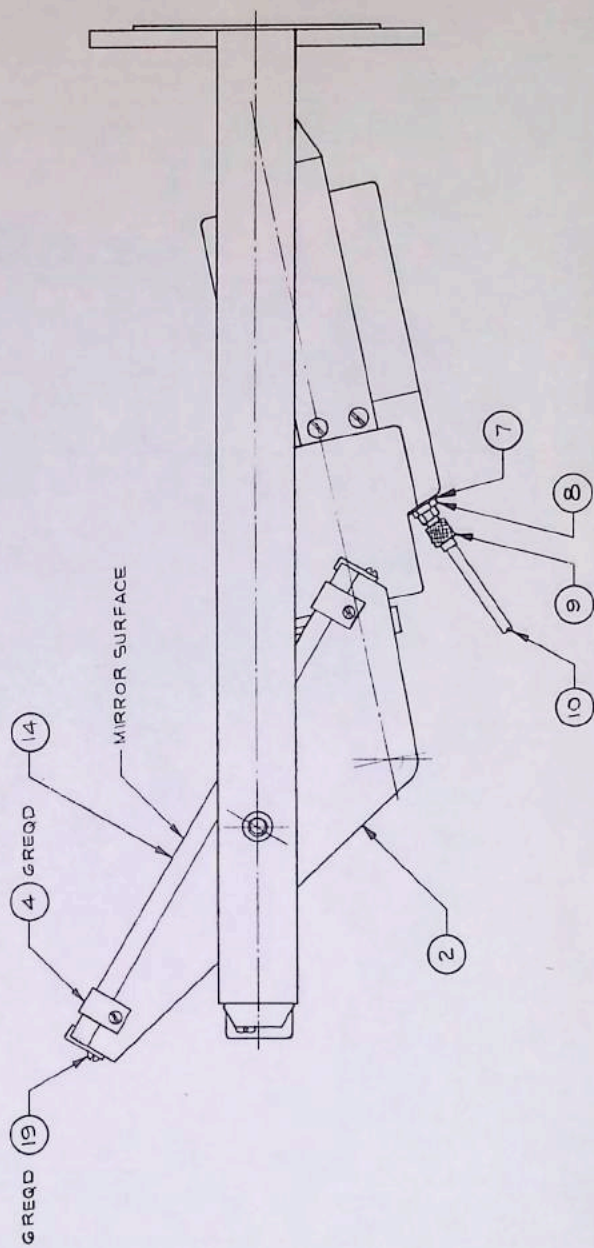
1 WED ENTERPRISES  
 1401 FLOWER STREET  
 GLENDALE, CALIF. 91201

6730 - 904333  
 REGULATOR ASSEMBLY  
 IRIS FIREWORKS PROJECTOR

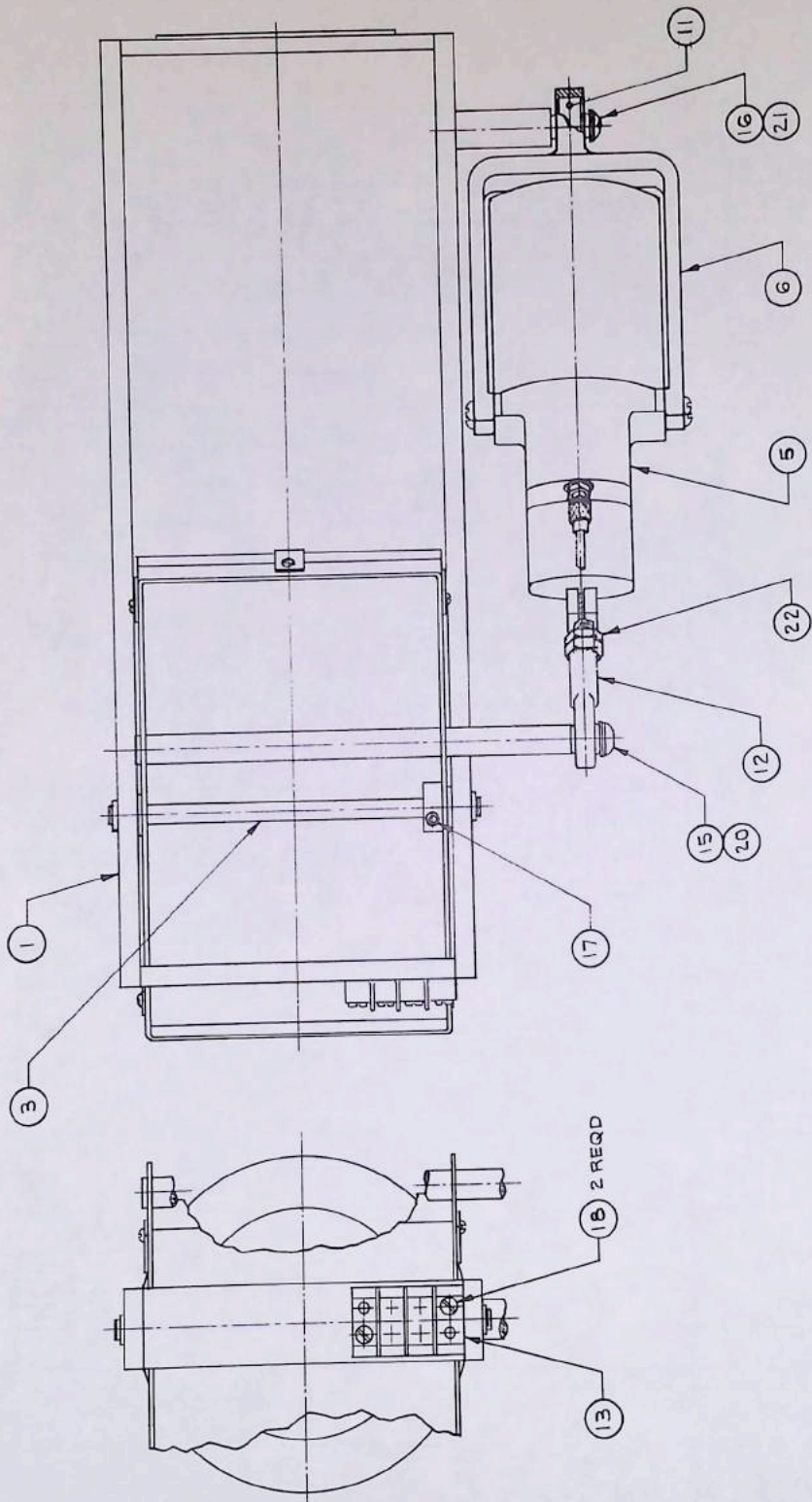


- ⑨ 7" x 4" x 1/4" FRONT SURFACE  
NO. 749 COATING, SEAMED EDGES
- ⑤ LIBBETY MIRROR DIV. LIBBEY-OWENS-FORD GLAS CO.,  
3440 WILSHIRE BLVD., SUITE 506, LOS ANGELES, CA. 90010
- ④ KULKA ELECTRIC CORP. 520 SOUTH FULTON AVE.,  
MOUNT VERNON, N.Y. 10551
- ③ THE HEIM CO. UNIVERSAL DIV. NORTH AMERICAN ROCKWELL  
60 ROUND HILL ROAD, FAIRFIELD, CONN. 06430
- ② FAFNIR BEARING CO. 4635 SHEILA STREET,  
LOS ANGELES, CA. 90040
- ① MAPO INCORPORATED 1401 FLOWER STREET,  
GLENDALE, CA. 91201

NOTES: UNLESS OTHERWISE SPECIFIED  
DO NOT SCALE DWG



6730 - 904345  
SERVO MIRROR ASSEMBLY  
IRIS FIREWORKS PROJECTOR  
SHEET 1 OF 2





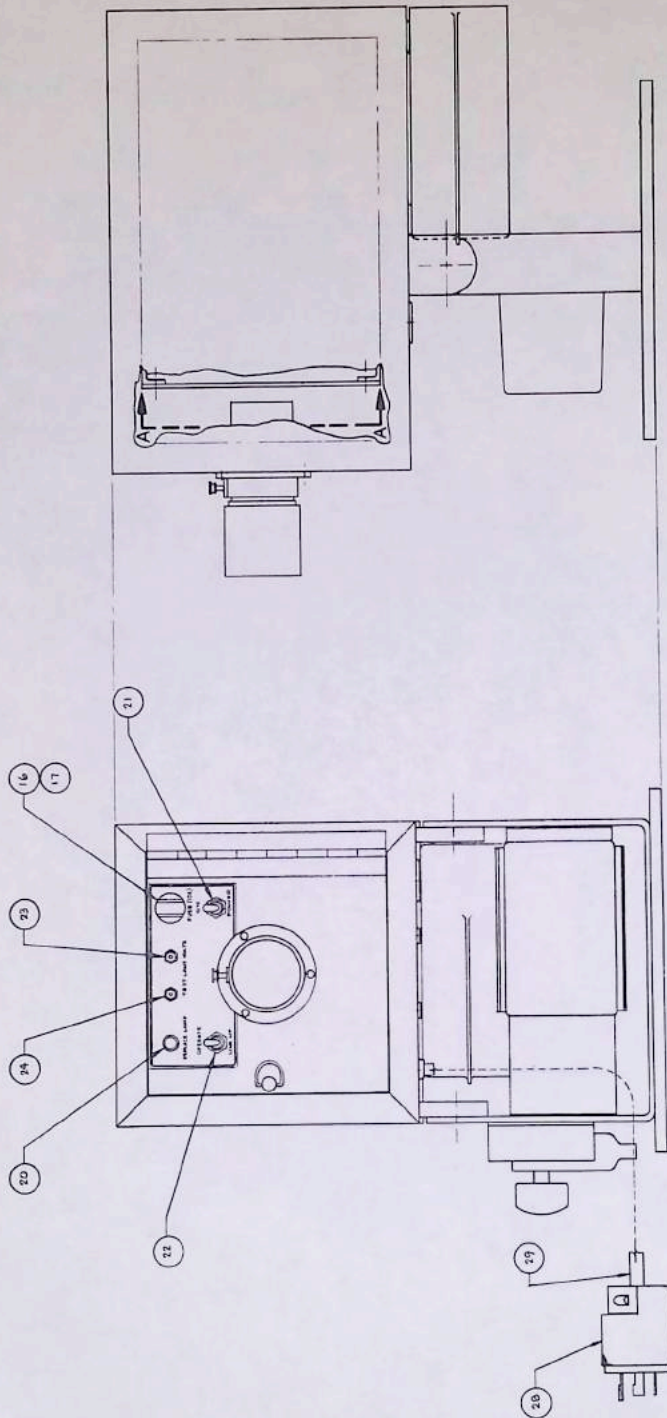


# **ELECTRICAL DRAWINGS**

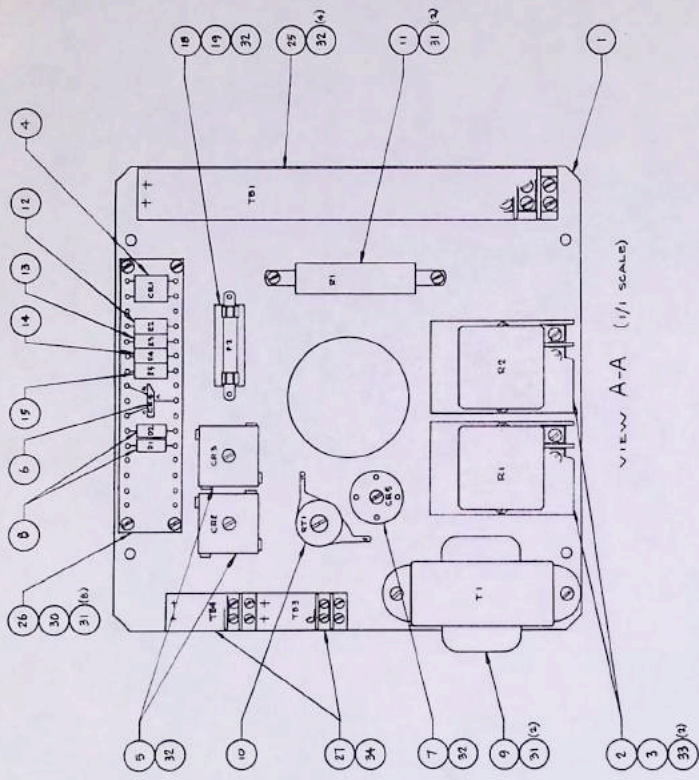
FOR ADDITIONAL DETAILED ELECTRICAL INFORMATION ON DOCUMENTS OR  
EQUIPMENT APPEARING IN THE PROJECTOR SECTION OF THIS MANUAL  
CONTACT: DEPARTMENT HEAD - ELECTRICAL DEPT. - WALT DISNEY  
PRODUCTIONS.

## ELECTRICAL DRAWINGS

DESCRIPTION	DWG NUMBER	PAGE
ELECTRICAL COMPONENT ASSEMBLY	6730-904335	258
SCHEMATIC DIAGRAM (IRIS FIREWORKS PROJECTOR)	6730-906868	262



6730 - 904335  
 ELECTRICAL COMPONENT ASSEMBLY  
 IRIS FIREWORKS PROJECTOR  
 SHEET 1 OF 2



VIEW A-A (1/1 SCALE)

- 1 DIALIGHT CORP  
60 STEWARD ST  
BROOKLYN, N.Y. 11237
- 2 MASTER ELECTRONIC CONTROLS  
1525 17TH ST. CA., CALIF. 90404
- 3 DANFA MOTORFIELD  
200 E. BROADWAY  
PRINCETON, IND. 47570
- 4 MICRO SWITCH  
11 W. SPRING ST  
PRAIRIE, ILL. 61092
- 5 GENERAL ELECTRIC CO  
ELECTRONICS PARK  
SYRACUSE, N.Y. 13211
- 6 QUINTE MFG CORP  
1000 W. 10TH ST  
SKOKIE, ILL. 60076
- 7 WHITE MFG CORP  
1000 W. 10TH ST  
SKOKIE, ILL. 60076
- 8 SEAMTECH CORP  
952 MITCHELL RD  
NEWBURY PARK, CALIF. 91320
- 9 CAROL CABLE CO.  
500 E. 11TH ST  
PAWTUCKET, R.I. 02882
- 10 KEYSSTONE ELECTRONICS CORP  
121 W. ELMYRA ST  
LOS ANGELES, CALIF. 9002
- 11 HARVEY HUBBELL INC.  
121 W. ELMYRA ST  
LOS ANGELES, CALIF. 9002
- 12 KULKA ELECTRIC CORP  
510 S. FULTON AVE.  
NEW YORK, N.Y. 10012
- 13 MOUNT VERNON, N.Y. 10551
- 14 ELECTRONIC MOLDING CORP  
PAWTUCKET, R.I. 02880
- 15 CAROL CABLE CO.  
500 E. 11TH ST  
PAWTUCKET, R.I. 02882
- 16 SEAMTECH CORP  
952 MITCHELL RD  
NEWBURY PARK, CALIF. 91320
- 17 HANCOCK ELECTRONIC CORP  
3700 W. 10TH ST  
CHICAGO, ILL. 60618
- 18 HARVEY HUBBELL INC.  
121 W. ELMYRA ST  
LOS ANGELES, CALIF. 9002
- 19 KEYSSTONE ELECTRONICS CORP  
121 W. ELMYRA ST  
LOS ANGELES, CALIF. 9002
- 20 KULKA ELECTRIC CORP  
510 S. FULTON AVE.  
NEW YORK, N.Y. 10012
- 21 MOUNT VERNON, N.Y. 10551
- 22 ELECTRONIC MOLDING CORP  
PAWTUCKET, R.I. 02880
- 23 CAROL CABLE CO.  
500 E. 11TH ST  
PAWTUCKET, R.I. 02882
- 24 SEAMTECH CORP  
952 MITCHELL RD  
NEWBURY PARK, CALIF. 91320
- 25 HANCOCK ELECTRONIC CORP  
3700 W. 10TH ST  
CHICAGO, ILL. 60618
- 26 HARVEY HUBBELL INC.  
121 W. ELMYRA ST  
LOS ANGELES, CALIF. 9002
- 27 KEYSSTONE ELECTRONICS CORP  
121 W. ELMYRA ST  
LOS ANGELES, CALIF. 9002
- 28 KULKA ELECTRIC CORP  
510 S. FULTON AVE.  
NEW YORK, N.Y. 10012
- 29 MOUNT VERNON, N.Y. 10551
- 30 ELECTRONIC MOLDING CORP  
PAWTUCKET, R.I. 02880
- 31 CAROL CABLE CO.  
500 E. 11TH ST  
PAWTUCKET, R.I. 02882
- 32 SEAMTECH CORP  
952 MITCHELL RD  
NEWBURY PARK, CALIF. 91320
- 33 HANCOCK ELECTRONIC CORP  
3700 W. 10TH ST  
CHICAGO, ILL. 60618

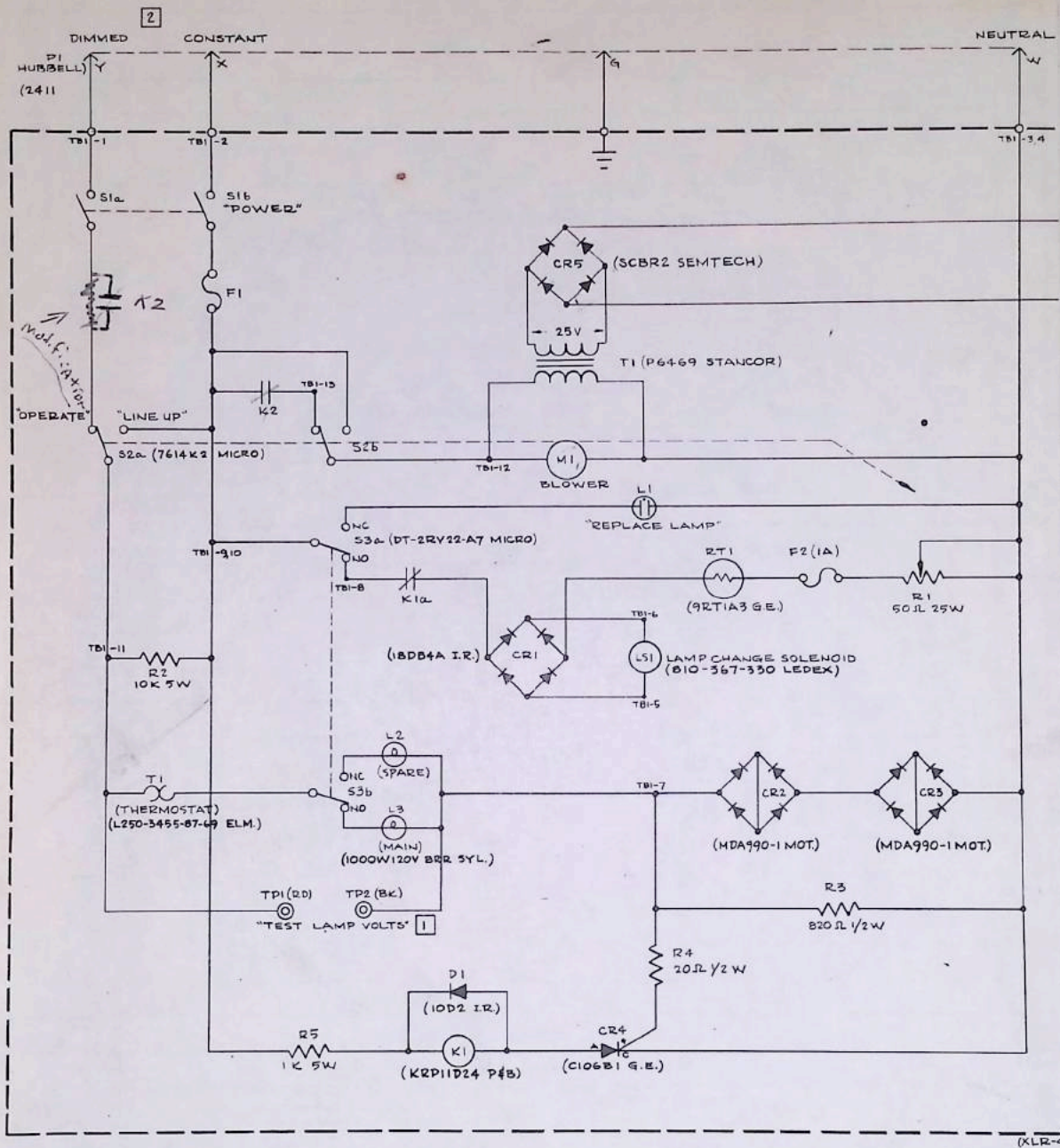
HERMAN H. SMITH INC  
100 W. 11TH ST  
BROOKLYN, N.Y. 11207

NOTES: UNLESS OTHERWISE SPECIFIED  
DO NOT SCALE DIMS

ELECTRICAL COMPONENT ASSEMBLY

TRIS FIREWORKS PROJECTOR

ITEM	WDP NO.	PART NO.	DESCRIPTION	QTY.
1.		6730-904336	PLATE, COMPONENT, MTG.	1
2.		KRP11D24	RELAY, 24VDC,K1,2	2
3.		N-8	SOCKET, RELAY	2
4.		18D84A	RECTIFIER, BRIDGE, CR1	1
5.		MDA990-1	RECTIFIER, BRIDGE, CR2,3	2
6.		C106B1	RECTIFIER, SILICON, CONTROLLED,CR4	1
7.		SCBR2	RECTIFIER, BRIDGE,CR5	1
8.		10D2	DIODE,D1,2	2
9.		P-6469	TRANSFORMER, FILAMENT, 117/25,1A,T1	1
10.		9RT1A3	TERMISTOR,RT1	1
11.		Q200D	RESISTOR, 50 $\Omega$ ,25W,R1	1
12.		4654	RESISTOR, 10K,5W,R2	1
13.		RC20GF821F	RESISTOR, 820 $\Omega$ ,1/2W,R3	1
14.		RC20GF200F	RESISTOR 20 $\Omega$ , 1/2W,R4	1
15.		4623	RESISTOR, 1K,5W,R5	1
16.		314010	FUSE, 10A,F1	1
17.		344125	FUSE HOLDER, INDICATING	1
18.		312001	FUSE, 1A,F2	1
19.		357001	FUSE HOLDER	1
20.		249-7841-0331-574	LIGHT, PILOT, NEON,L1	1
21.		12TS15-2	SWITCH, TOGGLE, 2PST,S1	1
22.		12TS15-3	SWITCH, TOGGLE, 2PDT	1
23.		4653-86-2	JACK, TEST, RED,TP1	1
24.		4653-86-0	JACK, TEST, BLACK,TP2	1
25.		670A-17	TERMINAL BLOCK,TB1	1
26.		15545	TERMINAL STRIP,TB2	1
27.		410-4	TERMINAL BLOCK,TB3,4	2
28.		2411	PLUG, 4W,20A,P1	1
29.		01343-15	CABLE, SJO,16/4,300V	1
30.		2323	SPACER, HEX 6-32	4
31.			SCREW, 6-32x1/4	12
32.			SCREW, 6-32x1/2	8
33.			SCREW, 6-32x1	4
34.			SCREW, 4-40x1/2	8



(XLR-4)

- [Z] "DIMMED" AND "CONSTANT" CONNECTIONS MUST BE SUPPLIED FROM SAME BRANCH CIRCUIT.
- [I] USE IRON VANE METER TO MEASURE LAMP VOLTAGE, WESTON # 433, WESTON INSTRUMENTS, INC., 614 FRELINGHUYSEN AVE., NEWARK, N.J. 07114 OR SIMPSON MODEL #10, SIMPSON ELECTRIC CO., 5200 KINZIE ST., CHICAGO, ILL.

NOTES: UNLESS OTHERWISE SPECIFIED  
DO NOT SCALE DWG

6730 - 906868  
SCHEMATIC DIAGRAM  
IRIS FIREWORKS PROJECTOR  
SHEET 1 OF 2



IRIS FIREWORKS PROJECTOR

