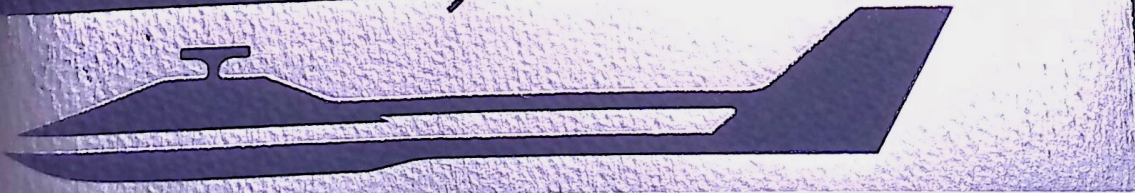


General Motors *Futurama*



NEW YORK WORLD'S FAIR



NEWS

from

OLDSMOBILE

PUBLIC RELATIONS DEPT.

DIVISION GENERAL MOTORS CORP.
LANSING, MICHIGAN 48921

FOR RELEASE

LANSING -- For millions of World's Fair visitors, visually traveling coast-to-coast in General Motors' Product Plaza, one of the most exciting and dramatic scenes will be Oldsmobile's portrayal of the Great Lakes and its water wonderlands.

The majestic sites of the Great Lakes' northern woods, the excitement of summer and winter sports, and the engineering beauty and brilliance of the Mackinac bridge will come alive for spectators as they move about the many Oldsmobile displays.

In these Great Lakes settings, Oldsmobile will present several of its youthful-looking, action packed 1964 models. Each car will be displayed in an interesting and original situation.

Extending from the left side of a 100-foot, dazzling diorama in Oldsmobile's exhibit, is a replica of a northern hunting lodge located at water's edge. This symbolic view of the many lakes and streams feeding the Great Lakes reaches across the entire length of the mural.

Spanning this body of water is Michigan's Mackinac Bridge -- the link between the state's Upper and Lower Peninsulas. In perspective, the bridge's end seems to open into a glamorous array of new Oldsmobiles.

Descriptive of the hundreds of harbors and resorts dotting the shores of the Great Lakes is Oldsmobile's stylized marina complete with animated power boats and sail boats. At dock's edge in this nighttime marine setting is the striking Oldsmobile Mariner, a 98 convertible specially designed in a nautical decor.

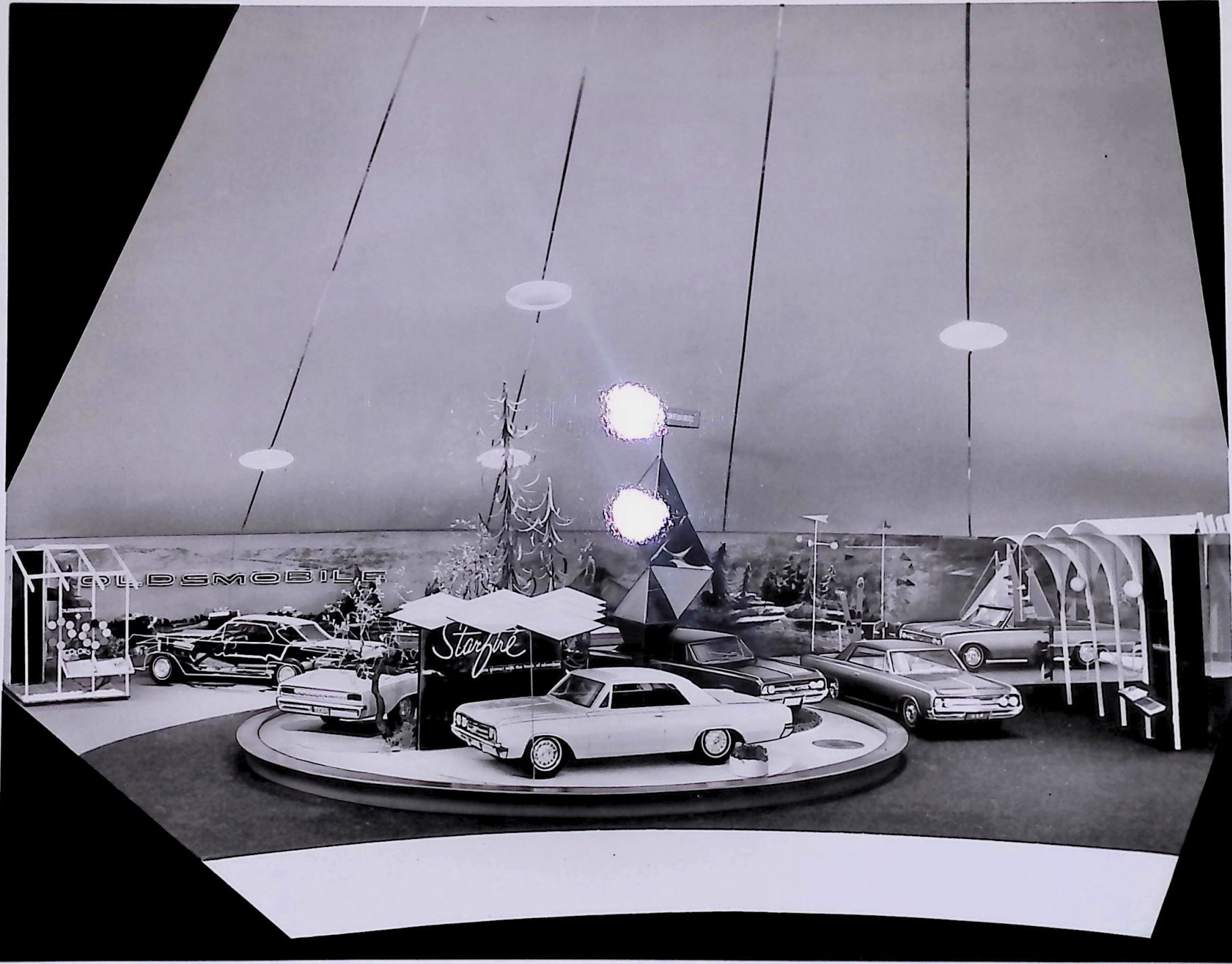
Midpoint in Oldsmobile's exhibit is a magnificent island-like turntable featuring three of Oldsmobile's sports cars -- the Starfire convertible, Jetstar I sports coupe and the Cutlass convertible. Each model, in its own appealing outdoor setting, is suspended above a decorative pool of water. As the turntable revolves, so too, do the wheels of the three cars, for an authentic action look.

While each of the Oldsmobiles on display has been especially selected to complement its particular setting in the water wonderlands, the design, engineering, safety and quality of every 1964 Oldsmobile will be exhibited in a dramatic cut-away model.

A 1964 Dynamic 88 Holiday Sedan is sectioned to demonstrate such Oldsmobile features as the construction of the Guard-Beam frame and chassis, the ruggedness of the Rocket engine and Hydra-Matic transmission, and the comfort and convenience built into every Oldsmobile. In addition, the entire outline of the cut-away portion is redefined through the use of stainless steel rods which follow each contour of the car's body.

Oldsmobile's exhibit is wedge-shaped with 5,000 square feet of floor area. The backwall is 100 feet in length. Nearly 70 feet deep, the front of the display measures 42 feet.

In addition to the many Oldsmobiles to be seen in the Product Plaza, a number of the division's other 1964 models will be shown at the outdoor product area adjacent to GM's Futurama building.



Oldsmobile's portrayal of the Great Lakes and its water wonderlands will be one of the most exciting exhibits in the General Motors Product Plaza at the New York World's Fair. As illustrated in this miniature model of the display, several youthful-looking, action-packed 1964 Oldsmobiles will be shown in interesting and original settings depicting many of the beautiful sites to be found in the Great Lakes area.

From: Oldsmobile Division
General Motors Corp.
Lansing, Michigan 48921

NEWS from **PONTIAC**



PONTIAC MOTOR DIVISION OF GENERAL MOTORS CORPORATION
PUBLIC RELATIONS DEPARTMENT
PONTIAC, MICHIGAN
FEDERAL 2-8111

FOR RELEASE 1964 NEW YORK WORLD'S FAIR

SPECIAL CARS AT PONTIAC EXHIBIT

Visitors to Pontiac Motor Division's exhibit area at the New York World's Fair will view a choice selection of new Pontiac cars and special show displays in an atmosphere of the great Southwest and the Rocky Mountains.

Pontiac will maintain an area in the upper product plaza inside the General Motors Futurama Building at the Fair site in Flushing Meadow Park.

The sets and scenes in the 5,000 square-foot, fully-carpeted, Pontiac area are the results of two years of planning.

Occupying a prominent position in the exhibit area will be a Grand Canyon scene. The center of attraction there will be one of Pontiac's special show cars named "The Clam," which derives its name from a unique two-motion operation which tilts the car up and open simultaneously to permit a clear view of the engine compartment, interior and deck area.

Surrounding "The Clam" will be the desert with a realistic supply of sand and cactus with the painted Grand Canyon and horizon in the background.

A Palm Springs country club scene will set the stage for the Club de Mer, the other Pontiac show car on display. Finished in a gun-metal gray metallic paint exterior and an interior of special trim, the Club de Mer will be suspended over a pool of water.

(more)

Set against one wall will be a recreated version of an early 1800 western music hall complete with a player piano. In place of the music cylinders will be a rear projected film showing in old western graphic style all the Pontiac products.

Two other scenes familiar to the Rockies will be a camping area with a tent already in place and a replica of a ski lodge.

Along the back wall of the Pontiac exhibit will be a diarama of paintings providing a suitable background for this geographical atmosphere.

A cross-section of 1964 Pontiac cars, which will include a Bonneville four-door Vista, LeMans convertible GTO, Tempest Custom Safari, Catalina sports coupe and Tempest four-door sedan, will be set among the painted sets.

Also on display will be an "in-line" 6-cylinder engine and three triangular color and trim boards showing the various color and fabric selections in the Pontiac line.

Pontiac will also display several cars in the patio area outside the Futurama building. Included in this group will be a Grand Prix and a Bonneville Brougham.

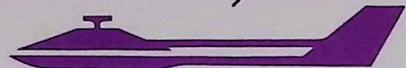


GOING TO THE FAIR -- This Grand Prix has been cut-in-half and will be one of the special show cars displayed by Pontiac Motor Division at the New York World's Fair. Tagged "The Clam," the car has been cut on a horizontal plane and features two motions which tilt the body up and open to provide this unusual view. Pontiac officials estimate "The Clam" will open and close some 50,000 times during the Fair dates from April 22 to October 18 this year. The Pontiac exhibit will be in the upper product plaza of the General Motors Futurama Building.

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**PUBLIC RELATIONS DEPARTMENT
PONTIAC MOTOR DIVISION
PONTIAC, MICHIGAN**

GENERAL MOTORS *Futurama*



NEW YORK WORLD'S FAIR



NEWS FROM FRIGIDAIRE

FOR IMMEDIATE RELEASE

FRIGIDAIRE EXHIBITS
WORLD KITCHENS AT FAIR

The latest ideas in decoration, furnishings, room accessories and appliance design are featured in an intriguing New York World's Fair exhibit, "Profiles of World Kitchens," presented by Frigidaire division of General Motors.

The colorful collection, featuring the newest kitchen concepts, has an international flavor and highlights five separate kitchen settings, including the "Mediterranean," "Latin American," "Far Eastern," "Oriental" and "Early American."

Designed for Frigidaire by the General Motors styling section, the five kitchen profiles are arranged in a huge display-in-the-round about 60 feet in diameter. The exhibit, said to be one of the most striking at the fair, is located in the lower level of Product Plaza in the spectacular General Motors Futurama building.

Visitors first view the exciting collection of kitchen settings from above, through a circular well in the upper level, then move down to the ground floor on escalators for a closeup inspection.

Each of the kitchen profiles is keyed to a Frigidaire appliance color, including Mayfair Pink, Turquoise, Aztec Copper and Sunny Yellow as well as White. Thirty-four separate models of free-standing and built-in home appliances of the latest design appear in the glamorous kitchen settings.

WF-1

(more)

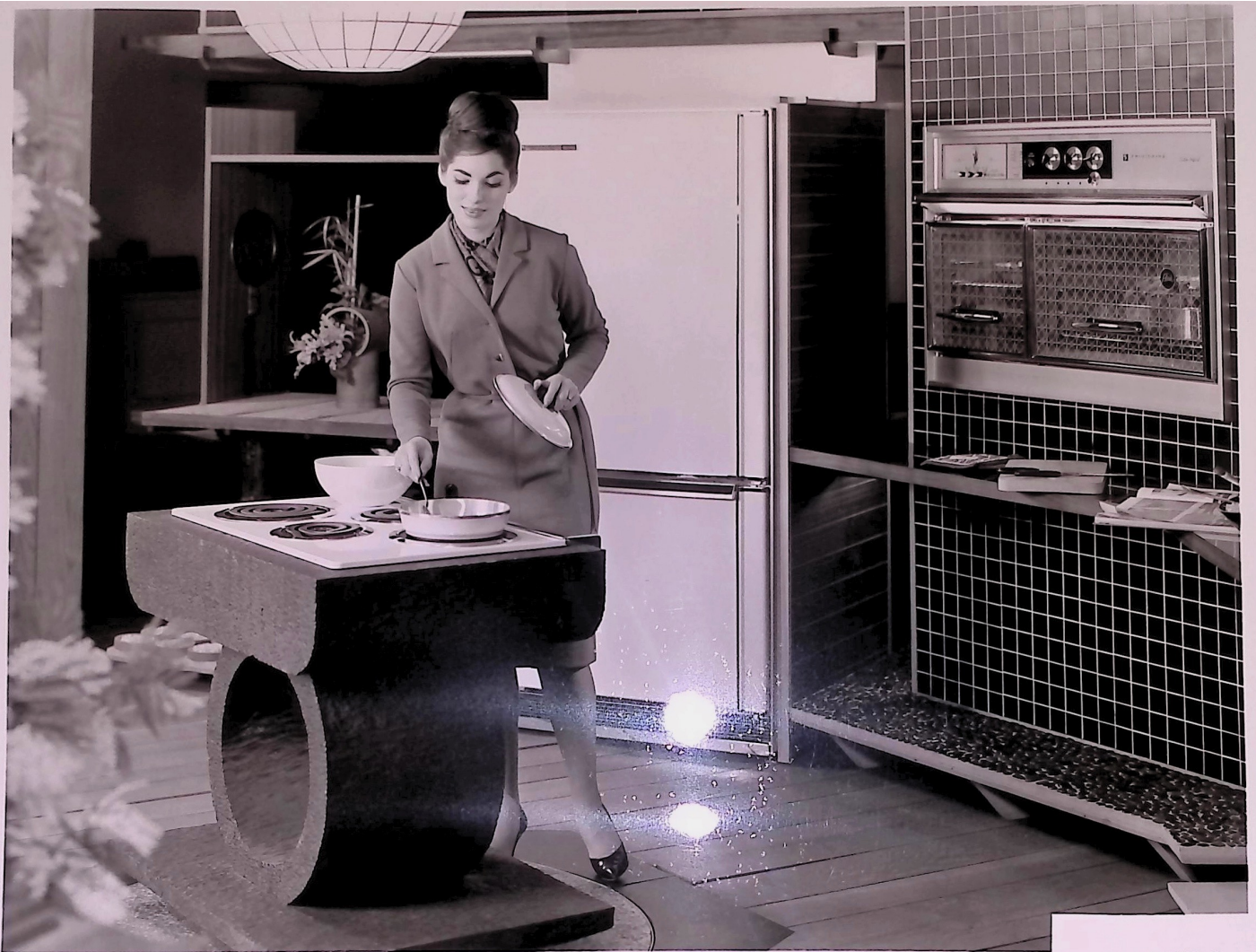
The Early American kitchen profile has captivating colonial charm. The rustic decor of yesteryear is carried out in the brick walls and floor, rough hewn wooden beams and aged board paneling. The copper-colored appliances, although of ultra-modern design, fit gracefully into the colonial setting amidst such accessories as old copper kettles, wooden ladles and an antique woodburning stove. The 16-cubic-foot refrigerator-freezer is Frost-Proof. In addition, there is a compact 30-inch electric range, automatic washer, electric dryer and room air conditioner.

In the Oriental kitchen, white appliances complement the authentic styling touches of Teakwood paneling and Japanese type leaded glass lanterns suspended from umbrellaed bamboo designs. The Benin wood paneling enclosure for the gleaming white porcelain enamel 19-cubic-foot refrigerator presents a pleasing contrast. Imitating traditional Oriental custom, the tilt-door design of the freezer practically "serves" the food to you. A surface cooking unit is the setting in a ring-shaped mounting of hand-tooled Sugar Pine. A 40-inch Flair wall oven is nearby.

The Far East profile is designed around an elaborate arabesque motif with grille-work walls and a tapestry pattern encasing a pink 14-cubic-foot Frost-Proof refrigerator-freezer. A Taj Mahal-like canopy of curving spars covers the cluster of pink appliances including a mobile dishwasher, food waste disposer and 30-inch free-standing range with glass door oven. In an adjacent laundry island, covered by a smaller curving canopy, the homemaker may wash, rinse, dry--even dye--clothes in the automatic washer and dryer.

A roof of brilliantly-tasselled fabric bands sets a gay holiday theme for the richly colorful Latin American profile. And Sunny Yellow appliances add even more color, particularly the double wall oven built into the white, adobe-like wall. A surface cooking unit is in an indoor chimneyed grill in the center

(more)



No. 14057-2

FOR IMMEDIATE RELEASE

UNIQUE INSTALLATION of cooking top on ornamental slab-type counter is a highlight of the Oriental kitchen profile, one of five World Kitchens displayed by Frigidaire in General Motors' Futurama Building at the World's Fair. Formal, clean-lined design of kitchen makes perfect setting for sculptured sheer look of white appliances and the contrasting filigree lacework on Flair wall oven at right.

#



No. 14015-2

FOR IMMEDIATE RELEASE

SIMMER AND SIBBLE CONTRACT is a modern kitchen in the Oriental kitchen profile, designed by the architect of the Hotel in Paris. Harmonizing with the symmetrical kitchen arrangement in subtle contrasts. Sparkling white appliances with the minimalist black door. Circles and arcs, such as the symmetrical base for the cooking top in foreground and the circular overhead lighting on the black wall over sliding doors, soften the architectural styling. Quaker of World Kitchen is set in a colorful display in-the-round in the Panama Building.

**FOR RELEASE:
IMMEDIATELY**

Buick Motor Division's World Fair exhibition spreads over one-sixth of the display area in the great, circular Upper Product Plaza within the enormous Fair Grounds building housing the General Motors Futurama.

World Fair visitors entering the Plaza from The Avenue of Progress, a picturization of how GM scientists and engineers work in America's future, or those entering by escalator from the Lower Product Plaza, will find Buick the first domestic-car display on a clockwise tour of this high-domed hall of automobiles.

The Plaza is themed as a travelogue, a coast-to-coast tour of North America through a series of settings representing picturesque and exciting regions of the United States.

Visitors who go first to the Buick exhibition thus are at San Francisco, symbolic of the Golden West, and at the beginning of a west-east journey in fantasy across the Great West, through New Orleans and the water wonderlands of the Great Lakes, then on to New York City.

(more)

37BMDME/364

BUICK PUBLIC RELATIONS, CEDAR 2-8111, FLINT 2, MICH.

Buick recreates the atmosphere and charm of San Francisco, 3,000 miles away, by dominant presentations of those colorful symbols known around the world - Chinatown, the Bay Bridge, Fisherman's Wharf and the cable cars.

It is in that setting that Buick displays for millions of World Fair visitors seven cars, each in its own jewel-box setting, representative of the 30 models in the current line. Nearby and outside are an additional six cars.

The total decor of the large Buick exhibition is a harmony of color planned with artistic feeling by interior designers. Luxurious carpeting runs from orange through forest green to darker greens and to pale blue.

Beautiful stained woods give richness, earth-colored granite cobbleblocks of a San Francisco street provide a neutral background, and in one area blue-and-white canvas awnings add light, bright gaiety. Colors of the cars on display were selected carefully to harmonize within this decor.

Left side of the Buick area is a representation of Chinatown, centered upon a pagoda with yellow-tinted windows decorated with Chinese designs, miniature Chinese trees on one side and a miniature Chinese garden over the roof structure.

One side of the pagoda presents a gift shop window typifying San Francisco with its display, except for the central gift suggestion - a magnificent driver's compartment for a Riviera by Buick, the unique sports coupe introduced in the fall of 1962 in an American bid as an international classic car.

(more)

Right side of the Buick area is a representation of Fisherman's Wharf, centered upon a cafe setting under a canvas canopy illuminated by buoy lights. Here there are a brass-lamp-lighted ship's wheel, glassed alcoves with ship models, and round tables and captain's chairs for visitors to relax.

Across the back wall are great canvas murals, one depicting the San Francisco Bay Bridge and another a cable car climbing a San Francisco hill. Elsewhere, central in the area, are six big color transparencies, each picturing a car from one of Buick's current-model series in typical and colorful San Francisco scenes.

In front of the murals on a gravelled roadway stands a crowd-stopping exhibit, brilliantly mirrored, a current-model, white Buick Wildcat four-door hardtop sedan. On a time cycle, this Wildcat animates itself, splits into halves, and the half nearer the spectators raises completely out of the way to reveal the total interior construction of a Buick.

Nearby another Wildcat, this one a show car, a two-door convertible, glitters on a turntable. It is bright red, its interior trim bright red genuine leather with astro-bucket seats.

Always there are five current-model production cars in the Buick exhibit, presently:

- . A Buick Special two-door coupe, desert beige with fawn cloth-and-vinyl interior;

- . A LeSabre four-door hardtop, diplomat blue with blue cloth-and-vinyl interior;
- . A three-seat, four-door Skylark Sports Wagon, bronze mist with saddle vinyl interior;
- . A Riviera by Buick, the two-door sports coupe, teal mist with black vinyl interior and bucket seats; and
- . An Electra 225 four-door hardtop, surf green with black top and green cloth-and-vinyl interior.

Close by outside the General Motors Futurama building, near the Lower Product Plaza, Buick displays four more current-model cars, presently:

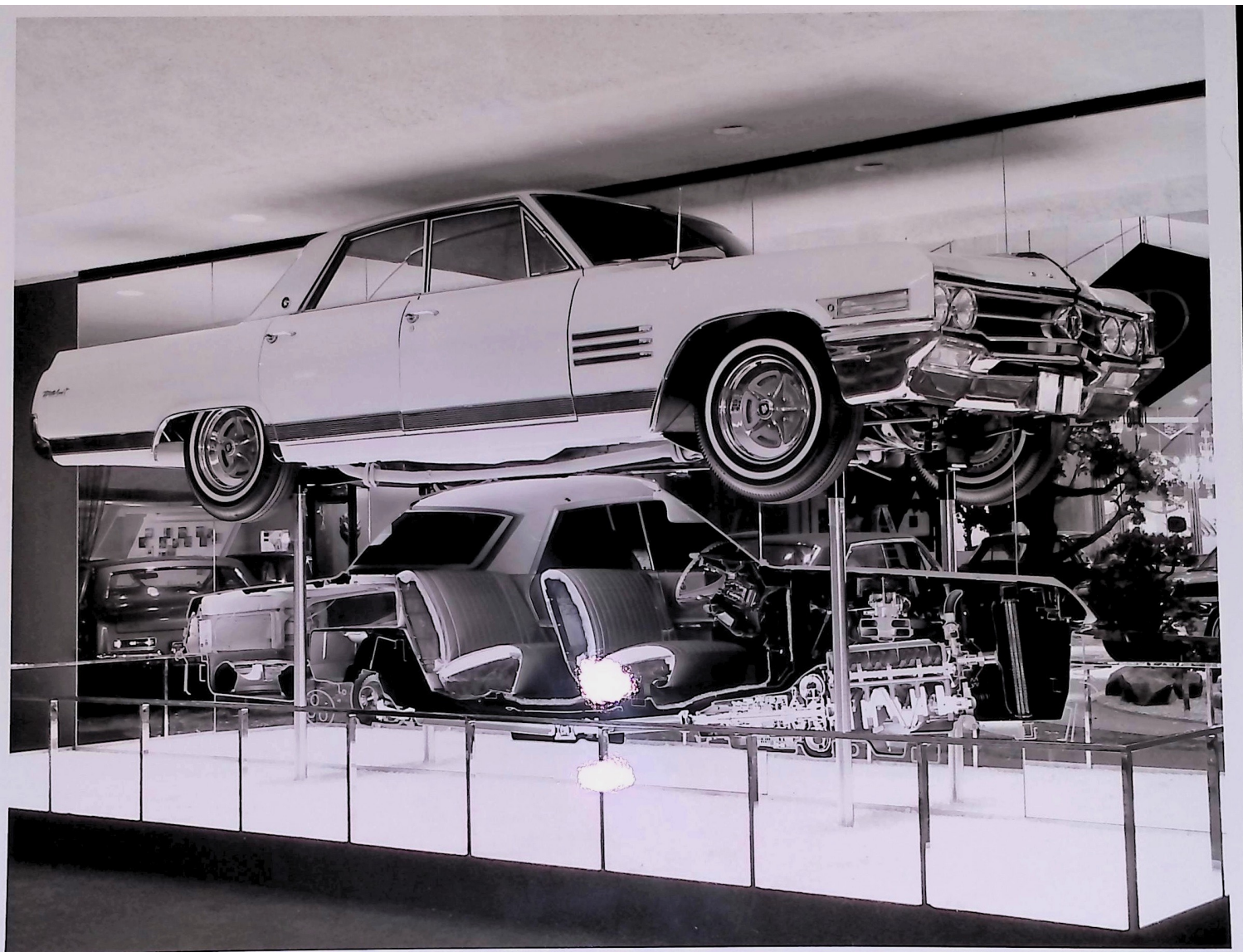
- . A Buick Special deluxe four-door sedan, Wedgewood blue with blue vinyl interior;
- . A LeSabre four-door sedan, tawny mist with fawn cloth-and-vinyl interior;
- . A Wildcat two-door sports coupe, silver cloud with black top and black vinyl interior and bucket seats; and
- . A two-seat, four-door Skylark Sports Wagon, claret mist with black vinyl interior.

In addition, at instant readiness in the driveway to serve the imagined family in the Contemporary House of Good Taste nearby on the World Fair Grounds, there are two more current-model Buicks on display, presently:

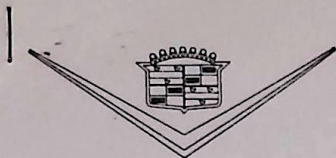
- . A Riviera by Buick, silver cloud with saddle vinyl interior and bucket seats; and

- . A three-seat, four-door Skylark Custom Sports Wagon, Granada red with white vinyl interior.

-wsl-



BUICK DOES THINGS by halves in order to show the total car in the General Motors Futurama exhibit at the New York World's Fair. Split down the middle, the Wildcat sedan's interior is exposed from the front to the rear bumpers as half the car rises before a mirrored backdrop.



NEWS FROM

Cadillac

FOR RELEASE IMMEDIATELY, APRIL 8, 1964

Cadillac Motor Car Division is displaying seven cars in the General Motors Futurama at the World's Fair.

Six of the Cadillacs are standard models, the type you can order from your dealer, while the seventh is a special show car known as the Cadillac Florentine. Five of the Cadillacs, including the Florentine are in the product plaza display area while two are displayed on the grounds of the Futurama.

The Cadillac exhibit theme within the product plaza is New York City which is depicted in five background sets which include a theater marquee, a 5th Avenue fashion salon, a swank hotel patio, an art gallery and a sweeping 30-foot canvass mural of Central Park.

Cadillac's show car, the Florentine, is a two-door luxury coupe. It features a new type upper structure which not only gives an opera coupe elegance to the car but serves functionally to house the rear windows which slide horizontally back into the rear quarter when opened. There is no up and down action to these rear windows.

- more -

Cadillac Motor Car Division, Detroit 32, Michigan, T Ashmoo 5-4600

Completing the new window treatment of this show car is the elimination of the front ventipanes. These are deemed unnecessary as the car includes Cadillac's exclusive comfort control--the system which automatically maintains a dial-selected temperature level, regardless of weather conditions outside the car.

The sheet metal of the body rear quarter is one unbroken surface from the top of the fender right down to the uncovered wheel opening or rocker sill area.

A new grille and new hood configuration give a new look to the head on view.

Other distinctive exterior touches include a lower bumper painted in body color rather than chromed, wire wheels and twin striping on the tires--conventional white accompanied by a smaller gold stripe.

The exterior is a highly pearlescent gold paint which is sprayed over an unusual magenta base. This results in a coloration which changes constantly depending upon the lighting of the moment. The roof is covered in a dark suede vinyl.

On the interior the Florentine decor is all white and gold. The all-white leather trim is antiqued with a gold overspray. Additionally, the perimeter of the highly

contoured astra-type bucket seats features embroidered leather. Done in gold thread the design of this decorative border is adapted from a border piece designed by Michaelangelo in Florence--hence the name Florentine.

The space age influence is readily apparent in the bucket seats which are tied together with a console and center armrest. The lower portion of the console carries a small cartridge-type tape recorder which plays through the radio speaker system.

The carpet is off-white mouton and the headlining also is in white.

Joining the Florentine in the Cadillac display area are a Sedan de Ville, Coupe de Ville, Fleetwood Sixty Special sedan and Eldorado convertible. In the outdoor display area, Cadillac is showing a Sedan de Ville and Fleetwood 75 sedan with the customized landau roof.



THE TEMPO OF midtown Manhattan comes alive in the Cadillac Motor Car display within the General Motors Futurama building at the New York World's Fair. Parked in front of a 5th Avenue fashion salon, an Eldorado convertible catches the eye of patrons at the sidewalk cafe of a next-door hotel. Cadillac's two-door luxury coupe, the Florentine, will also be on display for an expected 100,000 daily visitors to the Futurama.

NEWS

AC SPARK PLUG,

the Electronics

DIVISION OF GENERAL MOTORS

PUBLIC RELATIONS DEPARTMENT

MILWAUKEE OPERATIONS

MILWAUKEE 1, WISCONSIN

PHONE SOUTH 2-7000

FOR RELEASE: IMMEDIATE

MILWAUKEE - The Milwaukee plants of the AC Spark Plug Division of General Motors will have two exhibits in the General Motors Futurama Building at the New York World's Fair.

One exhibit, located just inside the entrance of the GM Product Pavilion, consists of four modular displays pertaining to AC-Milwaukee's efforts in the field of inertial guidance for missiles, space vehicles, and space boosters, air-sea vehicles, and possible future commercial applications.

The other exhibit is located in GM's Space Age Research Area on the "Avenue of Progress." It involves AC's part in Project Apollo, NASA's moon exploration program.

This display shows a model of the Apollo Command Module in which three astronauts will ride to lunar orbit.

AC-Milwaukee is building the inertial guidance systems which will guide the Apollo Command Module to its lunar orbit. An AC built guidance system will also be used in the LEM (Lunar Excursion Module) which will carry astronauts from the orbiting Command Module to the surface of the moon and return to the mother ship.

AC's four modular displays in the product pavilion will consist of:

- more -

1 - Equipment for Aerospace Travel.

This display shows how gyroscopes, accelerometers, and other accessories which make up an inertial measurement unit are used to maintain a navigation reference within a vehicle and to measure vehicle motion along three axes. Combining the inertial measurement unit with a digital computer provides a compact and self-contained guidance, navigation, and control system which can be applied to ships, land vehicles, aircraft, missiles, and space vehicles.

2 - Guidance for Spacecraft and Space Boosters.

This display shows how inertial guidance systems will employ an inertial measuring unit, a star tracker, and a digital computer for the guidance, navigation, and control of spacecraft and space boosters such as Apollo and Titan III.

3 - Navigating Aircraft and Missiles.

This display illustrates the advantages of self-contained, all weather inertial guidance systems in strategic weapons such as ballistic missiles and manned aircraft.

4 - Navigation for Futurama Travel.

The commercial traveller of the future will be conveyed on water by hydrofoil ships, on earth by futuristic land vehicles, or in the air by supersonic transports. Guidance and navigation for point to point travel provide the challenge of the future for inertial guidance.

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NEWS

AC SPARK PLUG,

the Electronics

DIVISION OF GENERAL MOTORS

PUBLIC RELATIONS DEPARTMENT • FLINT 2, MICHIGAN • PHONE 235-7565

FOR RELEASE: IMMEDIATELY

FLINT, MICH. --Three walk-through, circular product modules are featured in AC Spark Plug Division's automotive display in the General Motors Futurama at the New York World's Fair.

AC--called "The Electronics Division of General Motors"--will provide two exhibits, representing each of its major area of operation.

As the industry's principal manufacturer of automotive parts and accessories, AC will feature many of its 32 major automotive products made in Flint in a display within the Lower Product Plaza.

AC's Milwaukee operations, noted for its development and production of navigation and guidance systems for missiles and space craft, will be represented in the Futurama's Avenue of Progress.

A highlight of the automotive display is the firing end of a giant spark plug that stands nearly five feet high and is more than six feet in diameter. It is the focal point in the largest of the three circular enclosures. Fabricated to scale, the spark plug features a spectacular spark that "jumps" between the center and side electrodes. The brilliant spark flashes automatically or by manual control.

- More

Another nine-foot, cut-away spark plug mounted on the module wall is utilized to point out specific AC manufacturing and material features through a series of flashing lights.

Completing this main module are six color photographs mounted in spark plug shaped frames. This series of pictures illustrates the six broad categories of spark plug use--automotive, commercial, marine, lawnmower, farm tractor and aircraft.

The second module is a 14-foot diameter walk-through enclosure that tells the AC filter story. A six feet high and nine feet wide cut-away engine graphically depicts, through a series of moving lights, the flow of oil, air and fuel in an automobile engine.

AC oil, air and fuel filters and positive crankcase ventilation valves are included in each representative system, demonstrating the nature and need for engine filtration. Mounted on either side of the engine are actual AC filter products.

The final and tallest module is a 14-foot high product pylon displaying major AC products sold in the automotive replacement market. These include spark plugs, fuel pumps, positive crankcase ventilation systems and oil, air and fuel filters.

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FOR RELEASE 4/8/64

NEWS
FROM**DELCO APPLIANCE**

DIVISION OF GENERAL MOTORS CORP. • ROCHESTER 1, N. Y.

DELCO APPLIANCE INTRODUCES NEW UNITIZED
HEATING AND COOLING SYSTEM FOR HOMES AND APARTMENTS

Modern Americans want the convenience, health, and comfort provided by conditioned air. This fact was forcefully demonstrated to General Motors Corporation in 1963 as a record 18% of its cars were sold with complete air conditioning installed.

In the home, too, the modern consumer is looking for comfort 365 days a year. Delco Appliance Division of General Motors has designed a completely new heating and cooling system to provide the consumer with what he wants. The UG-824, Delco's new "unitized" conditioning system for the home, is being introduced to the general public for the first time at the Futurama exhibit. This single unit provided "unitized", or centralized heating and cooling for residences -- be they apartment buildings, or the staple of American dwellings, the one-family house.

Delco Appliance has broken with tradition in the heating and air conditioning field with the dramatically new design features incorporated in the UG-824. Its compactness (about one-half the size of standard units of the same capacity) permits, for the first time, convenient installation at a variety of locations within the residential dwelling. Expensive floor space

DELCO APPLIANCE • MAKERS OF:

- DEFENSE PRODUCTS
- RESIDENTIAL CENTRAL HEATING AND AIR CONDITIONING
- AUTOMOTIVE ELECTRIC MOTORS
- WINDSHIELD WIPER SYSTEMS

is conserved, aiding the builder in giving the home buyer more living area for his money.

Approximately ten percent greater fuel efficiency makes operation of the UG-824 more economical than standard units. Instead of the traditional pilot light, the UG-824 is equipped with spark plug ignition, which is triggered by precise electrical controls. Other important advantages obtained by the residential builder and buyer from use of the UG-824 include:

- A. No chimneys or flues are needed
- B. Unit can be installed through-the-wall
or flush to the inside of an outside wall
- C. The unit can be serviced from either
side
- D. The unit is factory wired and charged
for set-in-place installation

These advantages and other innovations in the UG-824 -- including a new method for heating the same amount of air with a much smaller device -- are the result of more than 2-1/2 years of research and development at Delco Appliance. Such development has made the break with familiar approaches to heating and air conditioning complete, ushering in a new trend in the industry. That trend is to complete "unitized" home conditioning. It certainly is here to stay.

NEWS FROM

NEW DEPARTURE DIVISION • GENERAL MOTORS CORPORATION • BRISTOL, CONNECTICUT



FOR RELEASE

Immediately

Ball bearings, major products of New Departure Division, come in for attention at three locations in the General Motors Futurama at the New York World's Fair. New Departure is represented in the United Delco area and also in the GM Research Laboratories and GM Engineering Staff exhibits.

As one of several General Motors Accessory Divisions within the overall United Delco display, New Departure is featuring its NDur-300 and NDur-600 ball bearings among an assortment that includes highly specialized ones for missile and satellite applications. Viewers are attracted by a unique display unit highlighting the part ball bearings play in the advancement of technology.

New Departure NDur-300 and NDur-600 comprise a recently announced "new generation of ball bearings" that assure much greater endurance as compared to conventional ball bearings. The increased endurance results from two new developments - the use of extremely clean, uniform vacuum processed steel and, an exclusive New Departure manufacturing process.

Bearings having rings machined from bar stock or tubing are designated NDur-300, so identified because the bearings show 300 per cent of the standard rated fatigue life on test. Larger size bearings with rings from forgings are known as NDur-600 since they reveal 600 per cent of the standard rated fatigue life on test.

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NEWS



Delco Products



DIVISION OF GENERAL MOTORS CORPORATION • DAYTON 1, OHIO

For Release: On Receipt

Delco Superlift shock absorbers, on display at General Motors Futurama at the New York World's Fair, feature load-adjustable control which is designed to provide proper suspension under varying conditions of load. When the car carries an extra load, Superlift--by the addition of air--maintains the desired ride and handling while eliminating the annoying "bottoming" characteristic so common on rough roads when the average car is heavily loaded.

An air-adjustable chamber, made of long-wearing, weather-resistant neoprene and reinforced with nylon cords for durability, is sealed to the exterior of a Delco hydraulic shock absorber. This shock absorber operates independently of the air chamber and functions normally regardless of the amount of air in the chamber. When a heavy load is placed in the car, the air chamber can be inflated through an air fill valve until the car reaches its proper height. This air fill valve is conveniently located in the trunk of the car or at the tail gate of station wagons, and filled with the air hose at any service station. Operating pressure on Superlift ranges from ten pounds minimum to a maximum of ninety pounds fully loaded.

Delco Superlift shock absorbers are available as a new car factory-installed option on most General Motors car models, and are available also through GM car dealers and at most service stations through the United Delco program.

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DEPARTMENT OF INDUSTRIAL AND PUBLIC RELATIONS • D. L. TEMPLE 445-6581 • HOME PHONE 274-2553

NO. 479 DATE

NEWS FROM ALLISON

INDIANAPOLIS, INDIANA
DIVISION OF GENERAL MOTORS

PUBLIC RELATIONS DEPT.
CHAPEL 4-1511 EXT. 2509

HOME PHONES

R. C. FLEMING CL 5-9488
MEL OLBINA CH 1-7514

FOR RELEASE

ALLISON DIVISION FEATURES VARIETY OF NEW AND CURRENT ENERGY CONVERSION SYSTEMS

NEW YORK, N. Y.---New concepts in power systems under development today to meet requirements of tomorrow will be among the eye-catching displays featured by Allison, the Energy Conversion Division, in General Motors Futurama Building at the World's Fair.

Also to be seen are representative power systems in use today--- gas turbine aircraft engines and an entire "family" of heavy-duty power-shift transmissions for on- and off-highway vehicles of many sizes and types.

Fair visitors to GM's Avenue of Progress will be able to inspect at close hand a full-scale Fresnel solar collector identical to the one which recently orbited the earth for 30 days aboard a space vehicle as part of an Air Force study aimed at learning more about the problems associated with generation of electricity directly from heat in space.

---more---

Heat is also the basic product in another dramatic new development in power systems depicted in the Allison display---a highly-mobile Military Compact Reactor, a self-contained generating station to convert nuclear energy into electricity. Allison is developing the MCR for the Atomic Energy Commission as a trailer-borne unit capable of producing 3,000,000 watts of electricity in isolated or civil disaster areas.

The MCR is part of a nuclear power exhibit by Allison that depicts a new concept in fuel supply---energy depots where synthetic fuels such as ammonia could be distilled "on-the-spot" for internal combustion engines, or where the MCR could be used to recharge liquid metal cells in electric-powered vehicles.

Visitors to the Allison display will see a simplified schematic working model of a liquid metal "loop" designed to show how liquid metals can be used to transfer heat from a nuclear reactor to a power generation system such as a gas turbine driving an electrical generator. Heat transfer studies underway at Allison are an important phase of the MCR development program and will play an integral role in other projects now in the early stages of research.

Close-by will be examples of operational Allison powerplants---the aircraft engines that have made Allison one of the leaders in the field of aircraft propulsion.

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Fourteen domestic and foreign airlines, and virtually every branch of the military service as well as six foreign countries are flying aircraft powered by Allison gas turbine engines. Largest of the Allison engines, the T56, will be displayed graphically and surrounded pictorially by many of the aircraft it powers---the Lockheed Electra commercial airliner, Convair corporate aircraft, the Lockheed P3A Orion and C-130 Hercules, and the Grumman E2A Hawkeye. These T56 engines have accumulated more than 10,000,000 engine flight hours since becoming operational in 1956.

On display will be Allison's smallest engine, the turboprop T63, which also has been designed in a turboshaft configuration for the Army's new fleet of Light Observation Helicopters. Unique design philosophies employed by Allison in the development of the T63 have resulted in a powerplant weighing only 136 pounds---yet capable of producing 250 horsepower. By comparison, a reciprocating (piston) engine producing 250 horsepower weighs about 450 pounds. As a result, the lighter and more powerful T63 also has excellent potential in the growing armada of small single-engine and twin-engine utility aircraft.

In Navy installations, the T56 Series engine capabilities extend the long-range and "on station" performance of search and patrol aircraft.

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Engines of the T56 series weigh approximately 1,750 pounds and are 12 feet long, 44 inches high and 27 inches wide. Also on graphic display will be the newest of the Allison engines---the 4125-horsepower regenerative T78 turboprop being developed for the Navy as an advanced powerplant for eventual use in a variety of long-endurance aircraft---anti-submarine warfare, airborne early warning and long-range transport. First engine of its kind in full-scale development, the T78 will use exhaust heat from its turbine to pre-heat air being discharged from the compressor before combustion. With this cycle, less fuel is required to heat compressor discharge air to the most efficient turbine inlet operating temperature. Another significant feature of the T78 is hollow, air-cooled turbine blades which permit the engine to operate at higher turbine inlet temperatures for better engine efficiency.

The combination of regeneration and hollow blades makes possible specific fuel consumption rates lower than those of contemporary powerplants, including piston engines. The T78 has an exceptionally flat specific fuel consumption curve, maintaining maximum fuel economy down to 30 per cent of the full power rating of the engine.

Strategically located within the traffic movement pattern of the Allison exhibit will be the cutaway models of the Allison powershift transmissions. Allison transmissions experience dates back nearly two decades and in this interval, Allison has produced approximately 225,000 commercial and military transmissions. The cutaway transmissions will be representative of the more than 900 different models available to 130 equipment manufacturers for mating with engines in the 70- to 600-horsepower range in the construction, logging, mining, material handling, oil field and earthmoving industries.

---more---

To meet the needs of on-highway equipment operators, Allison designed, developed and has been producing since 1955 the MT Series fully automatic transmission for use in such applications as transit mix and dump trucks, refuse removal vehicles, various types of buses, crash and fire-rescue equipment, over-the-road tractors, utility line trucks and a dozen other vocations.

Allison powershift transmissions, both the hydraulic and the fully automatic, have proven their ability to get more work from a vehicle with less strain on the engine, driveline components and the driver than non-powershift transmissions.

A torque converter makes possible more efficient use of a greater portion of the engine's horsepower, with two immediate results being better acceleration and faster trip time. The converter at the same time serves as a fluid coupling to absorb shock-loading before damage can occur to driveline components, thereby reducing maintenance and repair costs and holding downtime to a minimum. A hydraulic retarder integral with the transmission and operated manually by the driver further reduces trip time by permitting faster downhill operation with complete safety. The retarder, working as a fluid brake, cuts wear on service brakes by making it necessary to use them only for complete and emergency stops.

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from public relations

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WORLD'S FAIR FUTURAMA EXHIBITS

FOR IMMEDIATE RELEASE

Hollow glass and plastic beads, bonded in resin, may well serve as the key that helps to unlock the mysteries of the ocean's depth.

And an imitation of the marvelous perfection with which the many joints in the human anatomy function without ever needing lubricating may lead to the development of the GMF (greaseless-maintenance-free) balljoint.

These are the challenges the research teams at Inland Manufacturing Division, General Motors Corporation, in Dayton, Ohio, are trying to meet.

Examples of these projects are displayed in the Applied Research Section, Panel 15 and 17, of the GM Futurama Exhibit.

The hollow beads of glass and/or plastic, bonded together with resins, are Inlyte, [®] a generic name for flotation materials. Inland's Government Products Laboratory has developed a whole family of it, and each member shares the same characteristics: high strength, low weight, and the capability of withstanding the tremendous pressures of the ocean's depth.

Inlyte has a high buoyancy per pound and will perform at any ocean depth. It has successfully withstood 20,000 pounds per square inch of hydrostatic pressure without distortions.

Inlyte is versatile, too. It is supplied in molded shapes, such as cylinders, blocks and spheres. It can be shaped or finished with conventional wood-working tools to meet any requirement.

Inlyte can provide buoyancy for deep ocean research vehicles, acoustical devices for anti-submarine detection; submarine hull structures; deep submerged structures, and deep moored buoys.

In the field of transportation machinery, Inland's reserachers are seeking to develop heavy duty chassis bearings which will feature metal against plastic surfaces and will be GMF(greaseless-maintenance-free).

This concept involves the choice of a suitable material which is similar, but far exceeds, the efficiency of the cartilagenous film that is found in bone joints of the human anatomy.

When completed, this futuristic GMF balljoint will perform under far greater loads than is possible now with lubricants.

Inland has chosen "Where Imagination and Performance are Partners" as its slogan. Its research teams are constantly guided by this as they push beyond the frontiers of the future.

® Registered Trademark

February 28, 1964



NEWS RELEASE

R-331

DETROIT DIESEL ENGINE DIVISION

GENERAL MOTORS CORPORATION ■ 13400 West Outer Drive Detroit, Michigan, 48228

April 8, 1964

GM DIESEL - THE UNIVERSAL POWER

The important part the GM Diesel engine plays today in the World's economy is the theme of Detroit Diesel Engine Division's Futurama Exhibit in the Lower Product Plaza.

The theme is of real significance because the diesel originally was an engine of great bulk and weight suitable for use only in few stationary power applications. The diesel of today, however, can well be termed "The Universal Power."

Detroit Diesel's exhibit shows just how far General Motors has come in adapting the great power, economy and long life of the diesel to over 2700 different power applications ranging from 20 to 1400 horsepower.

The story is told by a representative display of engines and a colorful photo display depicting today's widespread use of these engines in trucks and buses; construction, industrial and agricultural equipment; pleasure craft and equipment used by the armed forces.

Included in the Division's exhibit is an activated cutaway engine which demonstrates how the diesel ignites its fuel without benefit of spark plugs or electrical ignition systems. The display also shows how all GM Diesel engines operate on the two-cycle principle which is largely responsible for their smaller size compared to other diesels of equal power output.

Another display of interest is a GM Diesel standby generator set housed in a glass structure outside the Division's main exhibit. This is a "live" unit ready to supply power for temporary lighting automatically within seconds in the event of emergency. These units are now standard equipment in many hospitals and other institutions, and comprise another highly important GM Diesel power application.

The wide horsepower range of the GM Diesel family of engines all built to one basic design regardless of power output and their wide flexibility in meeting hundreds of mobile and stationary power applications are features unique to the industry. The flexibility of these engines also extends to the fuels on which they can operate efficiently. Due to their "multifuel" characteristics they can burn any fuel from furnace oil to gasoline with only slight modification.

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for release

IMMEDIATELY

WORLD'S FAIR -- Cosmic rays trace a luminous path through a spark chamber ... a multi-wheeled vehicle crawls across a simulated desert on the moon ... a hyper-velocity projectile demonstrates the impact of meteorites on space vehicles ... a mechanical heart pumps on and on.

General Motors highlights these and other research areas along the "Avenue of Progress," one of the featured attractions of GM's Futurama exhibit at the 1964-65 New York World's Fair.

The Futurama will also transport some 70,000 persons each day in a chair train through what GM designers - who created the entire exhibit and pavilion - say may be the world of tomorrow. Also on display will be General Motors automotive, household and other products.

The "Avenue of Progress" was designed to portray the role of science in the continuing progress of mankind. Its subjects range from space age technology through potential power sources to radioisotopic analysis of metals.

The creative research and engineering in General Motors, together with facilities and personnel that make them possible, are dramatized within the Avenue of Progress.

In no previous GM exhibit has this story of materials, methods and manpower been so comprehensively presented. It embraces not only the work of such GM corporate organizations as Research Laboratories and Engineering Staff but also the varied scientific and engineering projects of GM's operating divisions.

A key activity of any major industrial organization, for example, is fundamental research into materials and their behavior. The Avenue's materials exhibit alone includes 160 panels displaying metals, semiconductors, polymers, ceramics, etc.

The panels illustrate, among other things, how materials are tailored to improve strength, stiffness, corrosion resistance, wear characteristics, fatigue durability and appearance. Control of these properties is a never-ending study.

General Motors Futurama
New York World's Fair
Flushing, New York 11380
Phone 888-4000 Area Code 212

For Further Information Contact:
Harry A. Turton, _____ 888-6320
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Terry W. Wilson, _____ 888-7822

There are also examples of how new materials are developed such as the growth of semiconductor crystals or polymers laboratory formulation of new plastics within a physics laboratory.

Applications of these many different materials include displays of thermo-electric cooling, microelectronics, solid state electrical systems and the use of sensors, rectifiers, controllers, photocells, switches, transducers and temperature sensitive microprobes for medical research.

Technical as this terminology may be, it is already becoming established in the non-scientific vocabulary.

In the various exhibits General Motors makes technical terminology meaningful by illustrating applications of ferromagnetic switching in computer circuitry, alumina ceramics, ceramic sponge, heat resistant alloys and coatings, electrodeposited solid lubricants, glass-plastic ropes, improved polymer binders that improve longevity of automotive finishes.

One of the most comprehensive exhibits covers work with bearings - research in materials, lubricants, geometry and analysis. GM products range from household appliances to inertial guidance systems and in virtually all of these bearings are used.

How they function, how they are designed and how they are held to fantastic accuracies is dramatized with both static and animated displays. In short, General Motors emphasizes that bearing design is no longer a mechanical art, it is a science.

Obviously, the facilities, tools and testing or the engineering of General Motors products is closely allied with the fundamental and applied research operations. Engineering on the Avenue of Progress is typified by three 50-foot wide displays.

Titles of the three sections tell their own story - People and Facilities - the Keys to Progress; Engineering Laboratories - the Tools of Progress; Road Testing - the Proof of Progress.

Accordingly General Motors' greatest resource is people and a series of color transparencies shows closeups of GM personnel in test laboratories throughout the corporation.

Models of five special test cells show how specialized equipment evaluates experimental components in automotive engineering. The World's Fair visitor can witness stress or strain in a metal part being bent or deformed in actual vibration. Techniques for making stress, motion, vibration, sound and strain visible are shown with animated techniques.

Road testing is dramatized in a relief map 12 feet wide and 16 feet high which shows the road system and facilities at GM's 4,000-acre proving ground at Milford, Mich.

The Avenue of Progress has a number of individual scientific displays. One that sets the theme of a radioactivity exhibit is a cosmic ray spark chamber. Almost 12 feet high, it stands on a decorative plastic base 16 feet in diameter.

Built by GM Research Laboratories with assistance from the University of Michigan, the operating chamber consists of 48 clear plastic rings which, stacked alternately with solid aluminum discs, provide an enclosure in which cosmic rays from outer space are made visible.

A new and sophisticated tool in high-energy physics, the spark chamber provides a method for observing behavior of cosmic rays that are constantly bombarding the earth.

Obviously, energy conversion is General Motors' No. 1 job. In a power theme center some of GM's most recently developed engines are displayed including the GT-309 a new vehicular gas turbine specifically designed for commercial and heavy-duty application.

Both conventional and novel power plants are shown - gasoline, a four-cycle Diesel and a Stirling thermal or external combustion engine. Even future power systems are illustrated - thermoelectric, thermionic, magnetoplasmadynamic, fuel cell and liquid metal cell. Exhibits of these various systems are, in effect, progress reports or state-of-the-art displays. Such systems are designed for specialized future needs.

GM and its divisions are engaged in a wide area of pure and applied research devoted to improving its current products and developing new undertakings for the future. The "Avenue of Progress" covers many of these projects while demonstrating the credibility of the unique ideas shown in the Futurama ride.

Among the research displays is one devoted to the peaceful use of atomic energy; another concerns the conversion of energy via thermoelectric and thermionic converters.

Another concerns GM's studies of humanitarian problems. Among other results, these have produced to date a mechanical heart and a centri-filmer for purifying vaccines and serums.

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GMC TRUCK & COACH DIVISION
GENERAL MOTORS CORPORATION
660 SOUTH BOULEVARD EAST
PONTIAC 11, MICHIGAN

FOR RELEASE

GMC TRUCK & COACH DIVISION FEATURES
"WORK READY" VEHICLES FOR WORLD'S FAIR

Ten commercial vehicles, ranging from a light delivery van to a huge gravel hauler, will be exhibited by the GMC Truck & Coach Division of General Motors at the New York World's Fair.

They will appear in an exhibit area outside the General Motors Futurama Building.

Theme of the GMC Truck & Coach exhibit will be the scope of tasks performed by commercial vehicles. Applications will cover milk and beverage hauling, concrete mixing, dump operations, camping, delivery work, general freight and gravel hauling, and passenger transportation.

All display vehicles will be in "work ready" condition. They will be equipped with the bodies or trailers they require for actual hauling operations.

Show trucks consist of a GMC "Handi-Van" delivery truck; a Suburban station wagon; a pickup with camper body; a steel tilt cab bottlers' truck; a "B" conventional-cab milk hauler; a tandem-axle dump truck; a "trandem-axle" concrete mixer unit; a tandem-axle, diesel-powered highway tractor; and an aluminum tilt-cab diesel tractor with gravel trailers.

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A 79-passenger bus equipped for school service will also be shown. GMC Truck & Coach manufactures its chassis which is known as a "pusher type" due to its rear-mounted engine.

Brief descriptions of the show trucks follow:

GMC Handi-Van

This delivery van combines high-cube load capacity with integral body-frame construction. It has an all-steel, van-type body. Cargo space is 211 cubic feet; load capacity, up to 2100 pounds. Optional right side cargo doors are included on the show van.

Suburban Station Wagon

A rugged-service station wagon built on a truck chassis, the GMC Suburban seats six normally, but can accommodate two more passengers by adding an optional third seat. Rear floor groove fastenings permit numerous seat arrangements. The eight-passenger show Suburban is rigged as a construction field office.

Pickup with Camper Body

Ideal for sports use, this "camp on wheels" consists of a GMC three-quarter-ton pickup with a removable camper body mounted in the cargo box. The camper sleeps five and includes such luxury features as a built-in television set.

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Model L 4000 with Bottler's Body

This unit's cab and chassis, built by GMC Truck, has a 72-inch steel tilt cab and a 305C V-6 gasoline powerplant. It is equipped with an aluminum body designed for the pallet loading of bottled beverages.

Model BH 5000 Milk Hauler

With its GMC tractor, this rig is designed for farm bulk milk pickup. It has a 401 V-6 gasoline engine under the hood of its 90-inch "B" conventional cab. Its special 3300-gallon milk tank trailer is stainless steel.

Model W 5500 with Dump Body

Built for extremely rugged use, this tandem-rear-axle unit with its 105-inch conventional cab is designed for off- and on-road service. It has exceptionally tough chassis components. Its 401 V-6 gasoline engine develops 210 gross horsepower. This show vehicle is equipped with a large dump body.

Model W 6500 "Trandem" Truck with Mixer

This specialized GMC truck has three rear axles for peak transit mix payload hauling in at least three Midwestern states. Besides permitting greater loads, the extra rear axle can transfer vehicle weight from the front to the rear axles when greater traction and flotation are needed. Mounted on this unique "trandem truck" is an eight-cubic-yard concrete mixer.

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Model DBWI 7000 with Trailer

This GMC highway tractor is equipped with a 40-foot van trailer to show visitors a typical over-the-road freight rig. The tractor has a 90-inch cab and a 6-71N diesel engine. Its gross combination weight (cab and chassis, trailer and cargo) is rated at 76,800 pounds.

Model DFW 7100 Gravel Hauler

One of the most impressive GMC Truck & Coach displays, this tractor-trailer combination consists of a 48-inch aluminum tilt-cab tractor, a semi-trailer and a full trailer. Powering the GMC tractor is an 8V-71N diesel engine developing 290 gross horsepower.

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A tractor-trailer combination similar to the one pictured here will be a featured attraction in the GMC Truck & Coach Division exhibit at the New York World's Fair. This huge earth and gravel train is capable of hauling 57 1/2 tons of aggregate on each trip. It will be one of 10 commercial vehicles exhibited by the Division.

From: GMC Truck & Coach Division
Pontiac, Michigan



EUCLID

NEWS RELEASE

DIVISION OF GENERAL MOTORS

HUDSON, OHIO

New York World's Fair

"EUCLID SERVING THE WORLD COMMUNITY"

The Euclid Division of General Motors will be well represented at the New York World's Fair when it opens in April. As an integral part of the General Motors 230,000 sq. ft. Futurama building, Euclid will be represented in many important viewing areas: First, in the Reception Hall of the gigantic 680 ft. building with photographic displays; then, in the Upper Product Plaza within the International Corporation Exhibit where color photographs will illustrate GM products at work in the communities of the world.

The most dynamic area of Euclid representation will be the divisional exhibit in the Lower Exhibit Hall of the Product Pavilion. Here, there will be a graphic display of color transparencies that will show Euclids on the job in many applications, covering the entire product line, and in all areas of the world. This display will be closely associated with an outside exhibit area where an R-45 Rear Dump, an L-30 Pivot Steer Loader, a C-6 Crawler and an S-28 Scraper will be on public view.

Pioneering in the design and manufacture of off-highway earth-movers, Euclid's experience and leadership date back to the period when dealers took mules as trade-ins on engine powered machines. A continuing development program since the introduction of the diesel engine and

off-highway tires in the '30's has made Euclid the accepted standard for tough jobs in mines, quarries and large construction projects.

From three major plants at Hudson, Euclid (Cleveland), Ohio, and Lanarkshire, Scotland, Euclids are delivered all over the free world. Euclid products have played a major roll in reshaping the earth and, in effect, formulated the Division's slogan for the coming Fair, "Euclid Serving the World Community".

Released by R. E. Keidel, Manager
Advertising & Public Relations
February, 1964



EUCLID R-45 REAR DUMP



EUCLID L-30 PIVOT-STEER LOADER



EUCLID C-6 CRAWLER TRACTOR



EUCLID S-28 SCRAPER

GENERAL MOTORS CORPORATION

GENERAL MOTORS BUILDING
DETROIT, MICHIGAN 48202
TRINITY 3-7200
AREA CODE 313

NEWS**FOR RELEASE**

GM DEFENSE RESEARCH LABORATORIES

GOES TO THE 1964-1965 WORLD'S FAIR

FLUSHING MEADOW, N.Y. -- Advanced scientific methods helping to answer the nation's military defense and space needs are depicted in four GM Defense Research Laboratories' exhibits in the Avenue of Progress.

With animated models and graphic displays, this research and engineering staff unit of General Motors illustrates its progressive pioneering role in expanding the sciences of ultrahigh-speed flight, lunar exploration, deep-sea acoustic tracking, and off-the-road mobility.

An aerospace exhibit dramatizes with a model hypervelocity gun range, the basic tool in GM DRL's progress in simulating physical phenomena associated with the flight of intercontinental ballistic missiles, reentry problems, meteoroid impact and other phases of space flight. Called a hypervelocity free-flight range, this facility represents one of several developed by the laboratories at their Santa Barbara, California, headquarters to fire spacecraft models at velocities above 20,000 miles per hour under controlled, instrumented conditions. This forward step enables scientists to make accurate studies of related characteristics and phenomena, as illustrated in color in the exhibit.

A hypervelocity ballistics range model also is exhibited to show how scientists study the flash of light produced when objects collide at satellite or meteoroid velocities upward of 15,000 miles per hour. Visitors to the exhibit learn how this impact flash is studied to discover important information regarding the properties of the colliding substances. Ultimate goal of the study is knowledge of the moon's composition by observing the impact flash of lunar probes.

Other displays in the GM Defense Research Laboratories explain studies of aerodynamic forces, communication blackout and ionization, and radiation. One display shows

(more)

the ionized gas sheath surrounding a hypervelocity vehicle, and the microwave instrumentation with which the plasma sheath is studied at GM DRL. Another touches upon the microwave study of the "wake" set up by hypervelocity projectile models. Still others explain the laboratories' study of such forces as lift and drag which affect space vehicles as they re-enter the earth's atmosphere.

Visitors exploring the GM Defense Research Laboratories' exhibit will learn that the oceans of the world are an immense laboratory to the Santa Barbara scientists. Here "sight" is accomplished by sound waves and beams. Spectators will see how the ocean provides a rugged laboratory environment for testing the accuracy and reliability of acoustical instruments. They also will be presented with newly discovered information about marine biology and oceanography, which already is having its effect upon man's understanding of the development of underwater food resources and mineral potentials.

Through hardware items and photographs, the GM Defense Research Laboratories displays describe plankton, a term denoting the plants and animals that drift with current movements or swim freely. Visitors will learn that the sea is a noisy place, and that the sounds produced by plankton and other marine animals can blank out or confuse those produced by a submarine or a surface ship. Many underwater species also reflect the sounds made by man in his effort to locate objects under the surface. This condition has led to the knowledge that certain "shoals" discovered by sonar in otherwise deep waters actually are "phantom bottoms" recorded on the equipment and caused by various "layers" of animal life, now generally known as the deep scattering layers. These layers move up and down daily depending on light conditions. In the exhibit, GM Defense Research Laboratories tells how this phenomenon is being studied for peaceful and military purposes.

Work by the laboratories is overcoming the problems of sound generation and reception under water also is described. Studies of temperature changes in the ocean, which vary at different layers and cause a major problem in predicting the manner of sound transmission, is explained.

Other exhibits show progress in off-the-road vehicle research, including a soil

(more)

measuring instrument developed by the GM Defense Research Laboratories. Because off-the-road environments cover 80 per cent of the world's land surface, a soil measuring instrument, according to engineers, is a prerequisite to the development of vehicles designed for the various conditions. This display points out that vehicle mobility is dependent upon the "flotation" characteristic and shear or "tractive" characteristic of the soil. Both features are measured by the laboratories' device.

Panels display test models of off-the-road vehicles developed by the GM Defense Research Laboratories include four types. The first shows a screw-encompassed vehicle for use on terrains too soft and weak to support the vehicle's weight. The screw can burrow through the soft soil, but its inherent low mechanical efficiency is a disadvantage.

An elastic track vehicle, which is flexible and conforms to contours of an irregular surface, is the second vehicle displayed. It has large cleats which bite into a hard layer beneath a weak upper crust. Its advantages are high flotation and good traction. The third vehicle to be displayed is a train-type, articulated wheeled vehicle of as many units as desired for various cargo requirements. Each unit has a pair of powered wheels which assists adjacent units in negotiating difficult terrain.

Fourth to be displayed is a moon vehicle featuring a lightweight flexible frame. Disproportionately large wheels provide good flotation and contribute to the ability to negotiate both very soft and very rough terrains.

Four panel displays describe vehicle models specifically designed for different terrain conditions:

1. SWAMP VEHICLE - an amphibious device capable of negotiating vast areas of dense vegetation, mud, and open water. Air chambers provide flotation in open water. A spaced-link track covers the entire under-surface of the vehicle. This track prevents floundering by setting all available ground contact area into driving motion. Ground pressure is thus minimized while maximum load distribution, flotation and traction are obtained.

(more)

2. ARCTIC VEHICLE - a multi-unit vehicle which incorporates the use of flexible, elastic tracks. These tracks conform easily to contours of irregular surfaces as large cleats bite into a hard layer beneath a weak surface layer. Advantages are good traction through large ground contact area, and high flotation resulting from a low overall ground pressure. Flexible couplings provide roll, pitch, and yaw freedom, giving increased traction by self-powered units.
3. DESERT VEHICLE - a train-type device using large tires on all two-wheeled units for flotation. The load capacity is increased by adding units without disturbing width, height, or ground pressure. Two-wheeled units provide excellent ground contact. Each unit, being self-powered, can help to push or pull the other units when necessary, and the vehicle may be driven forward or backward from control cabs on either end.
4. MOON VEHICLE - a train-type device in which an elastic frame provides articulation between individual units. Fabric covered flexible wire wheels are impervious to wide temperature variations and meteorite punctures. Ratio of wheel diameter to vehicle weight allows locomotion on weak or rough terrain. Elastic frame provides the ability to bridge faults or chasms plus the advantage of greater friction with less ground pressure through better conformance to the terrain.

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GENERAL MOTORS OVERSEAS OPERATIONS DIVISION

1775 Broadway - New York 19, N.Y.

Public Relations Department
PLaza 7-4000

NEWS

GM FUTURAMA 1964-1965

General Motors Gateway to the Globe --

The Overseas Operations Division

FLUSHING MEADOW, N.Y. -- Overseas, as at home, General Motors builds a wider range of automobiles than ever before. Representative 1964 models from GM factories in Australia, England and Germany will be on show together, for the first time in the U.S., in the romantic, old-world atmosphere of the Overseas Operations exhibit at the GM Futurama.

The Overseas Operations Division area is entered by Futurama visitors as they walk into the great domed Product Plaza from the Avenue of Progress. Two of the four arches through which they pass carry displays of the world-wide employe publications of General Motors, including thirty magazines and bulletins published by GM plants in fifteen foreign countries.

Along the left side of the Overseas Operations exhibit, visitors may view the products of Adam Opel A.G. The atmosphere of Opel's home country is suggested by a replica of the quaint "Rathaus", or town hall, of Michelstadt, Germany. Interest is added by a shop window, in a wing of the town hall, and by travel posters which show something of the varied beauty of Germany.

On display at the rear of the Opel exhibit is a chassis assembly of the one-liter Opel Kadett, canted upward for easy overall viewing. Two of the three Opel models on display will also be Kadetts, which are marketed in the

- more -

U.S. by Buick. One will be a black and red sports coupe, with black interior, while the other will be a grey station wagon with a blue interior. These will be joined by an Opel Rekord, Europe's top-selling model in the medium-size class. The car shown will be a grey four-door Rekord sedan.

On the opposite side of the Overseas Operations exhibit, to the right of the entering visitor, the products of Holden and Vauxhall are on show.

Output of Holdens has grown with Australia's prosperity and industry, which are depicted in 14 dramatic color translites in a wall display. A large map of the Australian continent is highlighted by illustrations typifying the industry and geography of the various states.

The youngsters will especially enjoy a tableau in the Holden exhibit showing some of the animal life that is so exclusively and distinctively Australian. Mounted and on display are a koala bear, a duck-billed platypus, and a kangaroo accompanied by a "joey", the youngster of the family. Some of the Australian birds also on display are the kookaburra, galah, white cockatoo and crimson rosella parrot.

The Holden display will include a green Premier Station Sedan, with a tan interior.

The ancestry of Vauxhall Motors Limited will be apparent to the Futurama visitor in the simulation of an English inn which dominates the Vauxhall area.

The inn's design is carried out in the traditional Cotswolds style, with diamond-pattern stained-glass windows and an array of chimney pots. A sense of scale is provided by a remarkable simulation of a gnarled old English oak tree, 18 feet in height.

Two Vauxhall models will be on display. One will be the luxurious Cresta four-door sedan, the top of the Vauxhall line, in maroon with a beige interior. The other will be the new one-liter Viva, a red two-door sedan.


After viewing the indoor exhibit of the Overseas Operations Division, and the other attractions of the Product Plaza, Futurama visitors may walk outdoors to see the supplementary displays. These include the Camelot-like multi-spired Commercial Pavilion of Overseas Operations, in a hexagonal ground plan. It houses a motion picture theater, showing many GM commercial products in action around the globe, and additional exhibits including a Bedford six-cylinder diesel engine, manufactured by Vauxhall Motors in England.

Grouped around the Commercial Pavilion are some of the distinctive trucks and buses built abroad by GM Overseas Operations. From Germany comes a six-cylinder Opel truck, with cattle-carrying body, and an Opel Rekord "Delvan" or delivery van.

England is represented by Vauxhall's Bedford, Europe's largest builder of commercial vehicles. A Bedford TK tipper truck will be shown, as well as a Vega Major bus, built on a Bedford chassis. Australia's Holden supplies its sturdy EH Utility model.

* * * * *

NEWS

from CHEVROLET MOTOR DIVISION 

General Motors Corporation • General Motors Building • Detroit 2, Michigan

TRinity 3-7200

FOR
RELEASE

IMMEDIATELY

CHEVROLET AT NEW YORK WORLD'S FAIR

(3601)

N. Y. FAIR

Colorful exhibits blending atmosphere and action make up Chevrolet's World's Fair showcase for the 1964 cars and trucks with which it seeks to set all-time sales records for the third successive year.

There is the scenic charm of old New Orleans, a car whose body rises to reveal the chassis, and even a pretty girl bobbing high atop a water-filled dump truck.

Twenty-one new Chevrolet cars and trucks plus a variety of engineering and feature exhibits are included in displays both inside and outside the sweeping General Motors Futurama Building.

"Sharing the Futurama's over-all theme of mobility, Chevrolet's World's Fair exhibit demonstrates the variety of vehicles available to satisfy today's advanced personal transportation needs," Semon E. Knudsen, Chevrolet general manager, said.

Passenger cars are featured in Chevrolet's 6,000 square foot area on the upper level of the circular product plaza at the east end of the Futurama Building.

The outer arc of this area is a 160-foot panorama of New Orleans, stretching from a French Quarter courtyard past the Royal Orleans Hotel to a Mississippi River boat scene. The 10-foot high, three-dimensional setting is an intriguing combination of plexiglass panels, New Orleans wrought iron and abstract murals.

A highly styled, two-story French Quarter house with an open balcony is located near the entrance of the exhibit. Nearby, a colorful Mardi Gras

(3601).....2

theme surrounds a red Corvette. There is also a revolving carousel made up of 28 light boxes showing product features.

A striking version of Chevrolet's famed "lift body" gives visitors an inside view of the working parts of a passenger car. The device is applied to an azure aqua Chevelle -- Chevrolet's newest car -- whose body lifts 30 inches up and down from a brightly painted chassis.

Another display is built around a special Impala Super Sport convertible "show car" of iridescent blue-black with matching interior upholstery and trim. Special features include a low profile windshield, dual exhaust outlets ahead of the rear wheels and unique front and rear end styling.

A wide assortment of Chevrolet production cars demonstrates the division's diversity of automobiles for 1964, which totals 45 models in five different car sizes.

Representing regular Chevrolets, Chevelle, Chevy II, Corvair and Corvette, six cars will be shown in the interior exhibit. Six additional passenger cars will be in the outdoor Chevrolet exhibit below the domed product plaza.

Also in the outdoor area is a feature-filled Chevrolet truck display. Nine trucks ranging in size from the new El Camino pickup to a large Diesel powered tractor demonstrate Chevrolet's wide variety of trucks, which for 1964 totals 194 models.

In the center of the truck exhibit is a heavy dump truck with an unusual cargo -- 2300 gallons of water and a pretty girl who never gets wet.

Floating in the water is a "Aqua-Bobber," consisting of a one and one-half ton float six feet in diameter which supports a 17-foot high pole. In a crow's nest atop the pole, a girl swings back and forth 25 feet off the ground.

By shifting her weight she can swing a 180-degree arc down to a point where the pole is almost parallel to the top of the truck body.

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Visible to passing traffic on the nearby interchange of the Long Island Expressway and Grand Central Parkway, the "Aqua-Bobber" will become a familiar World's Fair landmark.

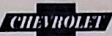
Also in the open air exhibit is a Chevrolet camping display and a unique engine exhibit which shows eight engines, five of them complete with power trains -- all operating and mounted within a glass walled truck trailer.

In a small pavilion in the truck display are exhibits of demonstrating truck air brakes, front suspension and power steering.

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NEWS

from CHEVROLET MOTOR DIVISION 

General Motors Corporation • General Motors Building • Detroit 2, Michigan

TRinity 3-7200

FOR
RELEASE

IMMEDIATELY

CHEVROLET AT NEW YORK WORLD'S FAIR

(3601)

N. Y. FAIR

Colorful exhibits blending atmosphere and action make up Chevrolet's World's Fair showcase for the 1964 cars and trucks with which it seeks to set all-time sales records for the third successive year.

There is the scenic charm of old New Orleans, a car whose body rises to reveal the chassis, and even a pretty girl bobbing high atop a water-filled dump truck.

Twenty-one new Chevrolet cars and trucks plus a variety of engineering and feature exhibits are included in displays both inside and outside the sweeping General Motors Futurama Building.

"Sharing the Futurama's over-all theme of mobility, Chevrolet's World's Fair exhibit demonstrates the variety of vehicles available to satisfy today's advanced personal transportation needs," Semon E. Knudsen, Chevrolet general manager, said.

Passenger cars are featured in Chevrolet's 6,000 square foot area on the upper level of the circular product plaza at the east end of the Futurama Building.

The outer arc of this area is a 160-foot panorama of New Orleans, stretching from a French Quarter courtyard past the Royal Orleans Hotel to a Mississippi River boat scene. The 10-foot high, three-dimensional setting is an intriguing combination of plexiglass panels, New Orleans wrought iron and abstract murals.

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BOBBING BEAUTY AT WORLD'S FAIR -- Center of a feature-filled Chevrolet truck exhibit outside the General Motors Futurama Building at the World's Fair will be the girl atop the "aqua-bobber" which floats in 2300 gallons of water in a heavy duty dump truck. By shifting her weight, she can swing from a height of 25 feet above the ground down in all directions until the pole is nearly parallel to the top of the truck body. Located near the interchange of the Long Island Expressway and Grand Central Parkway, Chevrolet's "aqua-bobbing beauty" will become as familiar a sight to motorists and Fair visitors as the revolving time and temperature indicator high above her on the domed product plaza of the Futurama Building.

GENERAL MOTORS *Futurama*



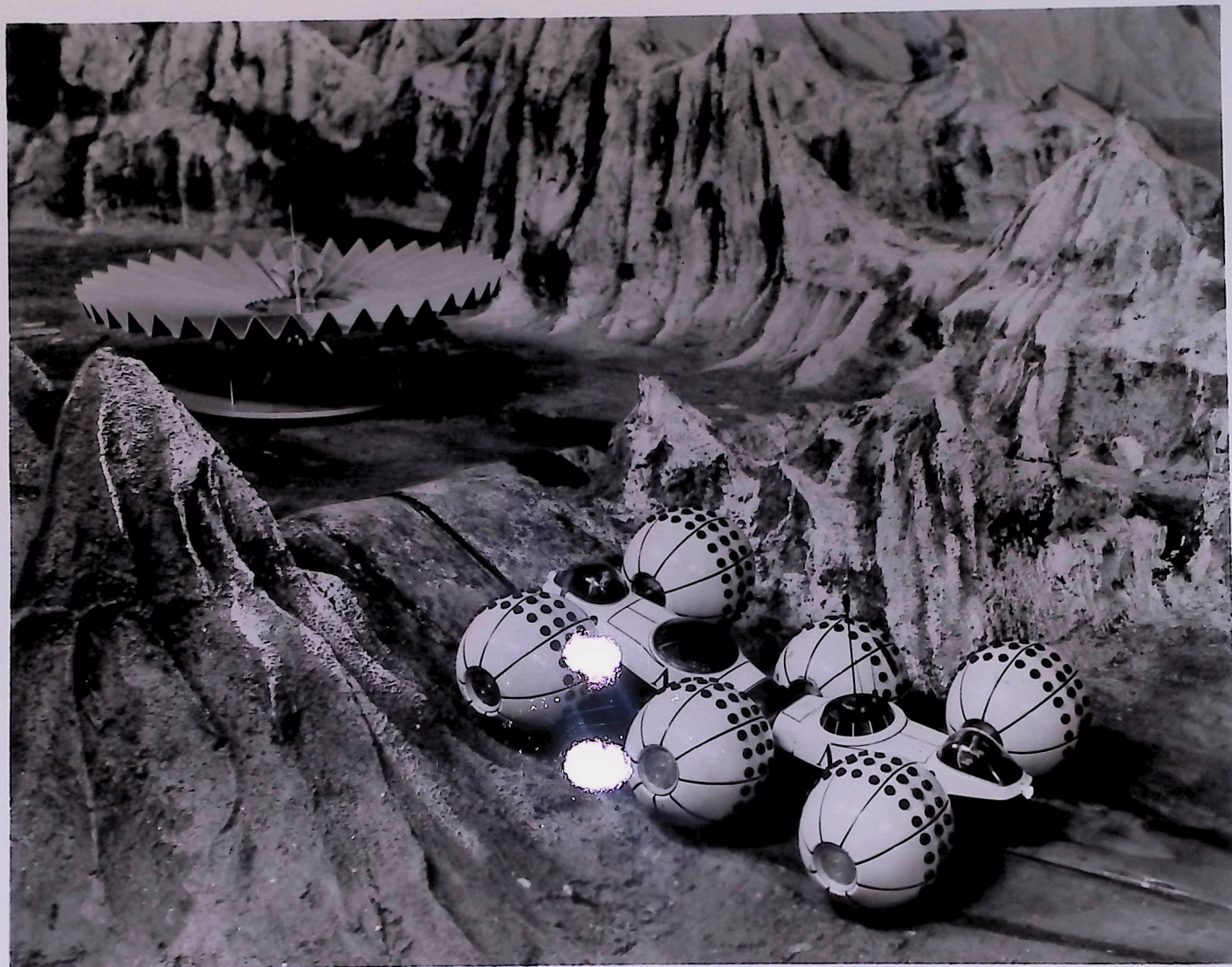
CHEVROLET at the *New York* WORLD'S FAIR



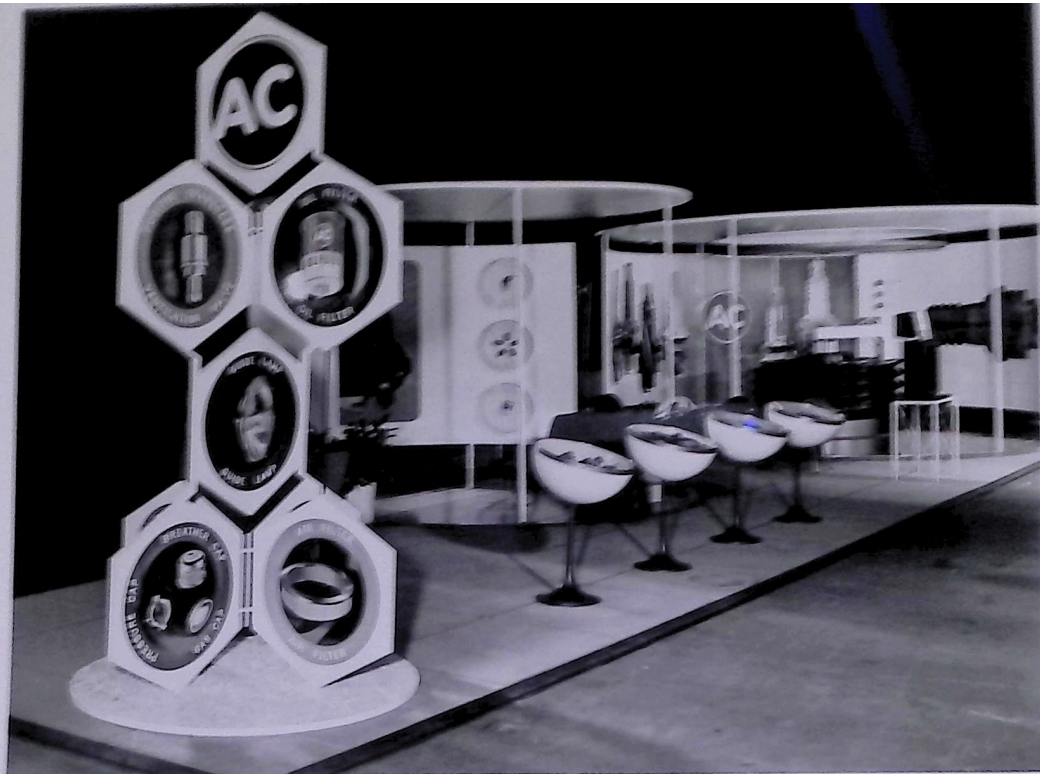
A few snowballs tossed into this scene in the General Motors Avenue of Progress at the World's Fair wouldn't stop the arctic vehicle with its specialized form of traction. It uses flexible, elastic tracks that conform easily to the contours of an irregular surface. Flexible couplings between the cab units provide a freedom of articulation and also increase traction by allowing the units to conform to the terrain. The model vehicle is one of many studies in off-the-road vehicle research by GM Defense Research Laboratories.



FAR INTO THE HALF-LIGHT of an Antarctic summer night the work of installing an international scientific expedition headquarters goes on in this scene from the General Motors Futurama ride at the New York World's Fair. Laboratories and dormitories are already in place (three-legged structures right) while a boring machine (left) excavates an under-ice area for the installation of other facilities. GM designers created specialized vehicles, buildings and other equipment to aid in the potential development of the Antarctic.

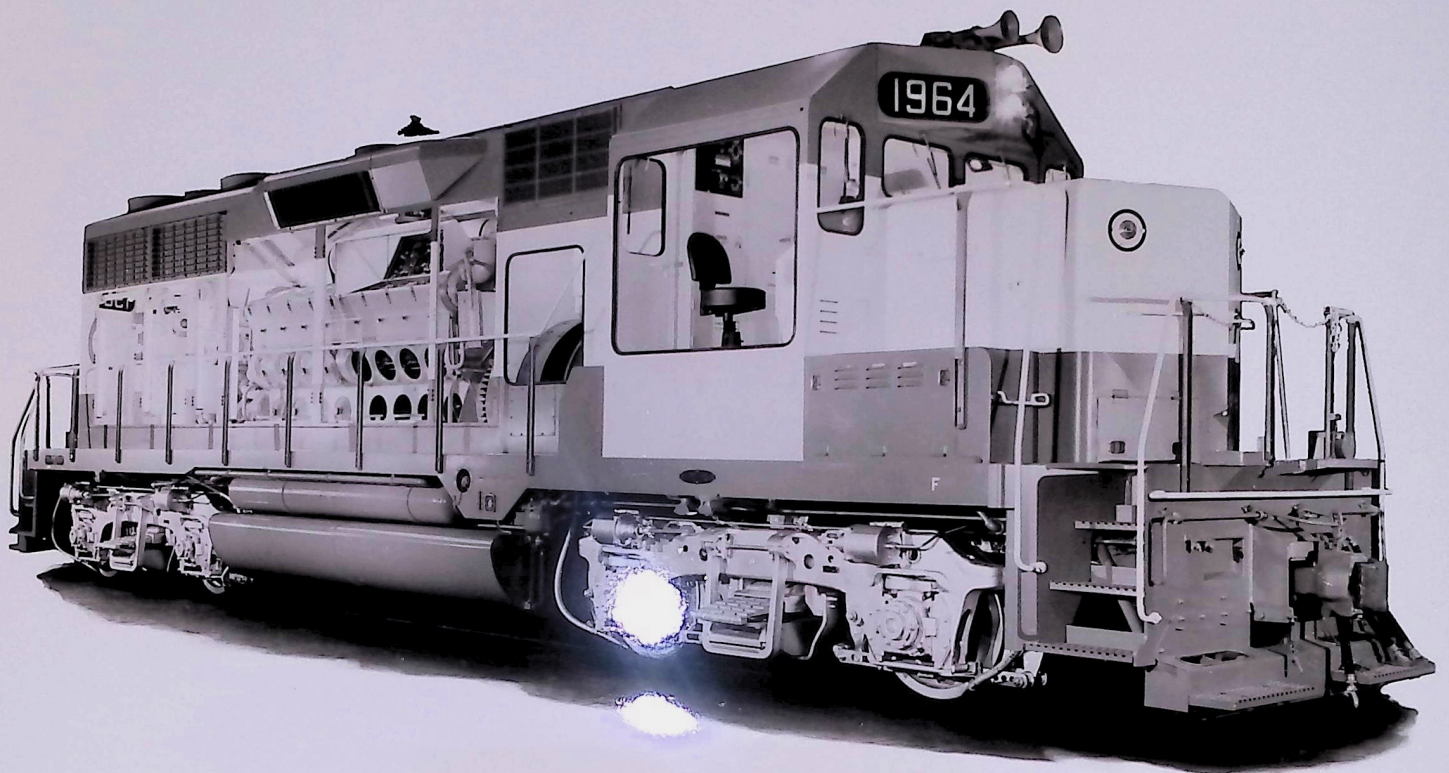


AN ARTICULATED CRAWLER, capable of surmounting almost any terrain obstacle, moves across the surface of the moon toward a communications center in the General Motors Futurama ride at the New York World's Fair. Futurama riders will watch vehicles unlike any they've seen before climb the craters of the moon or traverse its trackless deserts as man carries out his first exploratory venture into outer space.



AC AUTOMOTIVE DISPLAY -- As the auto industry's principal manufacturer of parts and accessories, AC Spark Plug Division will feature many of its 30 major products in its automotive exhibit in the General Motors Futurama at the New York World's Fair. Highlighting the display is the firing end of a giant spark plug (right) that stands nearly five feet high. Fabricated to scale, it features a spectacular spark that "jumps" between the center and side electrodes. A six foot high by nine foot wide cut-away engine (center) is utilized to tell the AC filter story, and a 14-foot high product pylon (left) displays many of AC's products. AC Spark Plug Division's automotive exhibit will be located within the Lower Product Plaza. AC is also noted for development and production of navigation and guidance systems for missiles and space craft and will exhibit its "electronic" items within the Futurama's Avenue of Progress.

PUBLIC RELATIONS DEPARTMENT • AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION • FLINT 2, MICHIGAN



FOR: RELEASE AT WILL

 Specially prepared exhibit locomotive will permit visitors to the General Motors Futurama at the New York World's Fair to see what makes a modern high speed freight locomotive "tick".