# MONORAIL

TOMORROW'S TRANSPORTATION... TODAY

SEE THE FAIR FROM THE AIR

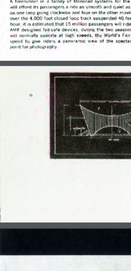
## A BLUE PRINT FOR PROGRESS

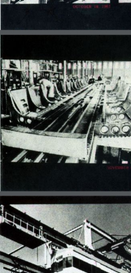
From drawing board to fully automated operation in 342 days—that's the story of the AMF Monorail as it circles the lake amusement area at the New York World's Fair 1964-1965.

A design and engineering team managed by American Machine & Foundry Company and supported by Walter Dorwin Teague Associates, industrial Designers of New York, and the St. Louis Car Company of St. Louis, Missouri began work on design of the AMF Monorail system on 15 May 1963. Working concurrently, this group expected design and engineering on cars, bogies, station superstructure and track so that fabrication and construction could begin in early August 1963.

The AMF passenger station of contemporary design, with an inverted arch roof, is the outstanding landmark of the amusement area. It is 168 feet long, 57 feet wide, and rises to a height of 80 feet above the ground. Escalators and escalators will expedite movement of passengers to and from the 40 foot high platform area.

A transformer in a family of Monorail systems for the mass transportation field, the AMF Monorail will afford its passengers a ride as smooth and quiet as a silent rush of air. Seven two-car trains, three on one loop going clockwise and four on the other moving counter-clockwise, will operate continuously over the 4,000 foot closed loop track suspended 40 feet in the air. With a peak capacity of 4,800 per hour, it is estimated that 15 million passengers will ride these seven air conditioned trains, embodying the latest in safety features, during the two years of the Fair. Operating hours, 10 A.M. to midnight, will normally coincide all night crowds, the World's Fair system has been held to a moderate rate of speed to give riders a panoramic view of the spectacular World's Fair scene and a good vantage point for photography.





Early in April 1963, the vacant Lake Amusement Area in Flushing Meadow Park, last occupied during the 1939-1940 World's Fair, was surveyed for location of the AMF Monorail around its perimeter. Ground was broken shortly thereafter, and by mid-July, concrete footings were being poured. A total of 1,400 feet of pilings and 1,400 cubic yards of concrete were required for column footings and station foundation. The first 50 foot column was lifted into place on December 2, 1963. Erection of steel was begun on the station section on January 3, 1964. William L. Crow Construction Company of New York was general contractor for the project. Fabricated steel was furnished by Harris Structural Steel Company.

On December 3, 1963, the first 50 foot section of prefabricated, double welded I-Beam was installed in elevation into its pre-determined position in the track. On January 27, 1964, the second section of track, 100 feet long, was hoisted into place to cross the loop. The passenger station had begun to take shape in December, 1963 and in February, 1964 was already the most outstanding structure visible from the adjacent intersection of Long Island Expressway and Grand Central Parkway. By March 1964, the station was nearing the final stages of completion and available as the platform for checkout of the automatic block signal control system.




The AMF Monorail, encircling the Lake Amusement Area, lies to the east of the Long Island Expressway, between the Grand Central Parkway and the New York Coliseum. Viewed from the state-erected gate of the Fair, Parking lots can be reached directly from the Expressway. Pedestrian bridges, shown in place connecting the amusement area and the exhibits across the Expressway, can be seen on the left. The aerial photograph shows the completed track and the partially finished passenger station as they appeared on February 25, 1964. The Tower of Light, the Observation Tower, and the Unisphere dome of the Corporate Area are also upper right. The circular structure just behind the station is the Coliseum complex. The Hawaiian exhibit, the Agrichthodes and the Florida building can be seen outside the Monorail track from top to bottom on the right.







Concurrent with the design and engineering of foundation and superstructure, work was begun in early May 1963 by AMF's General Engineering Division on design, fabrication and test of the 28 rubber tired bogies and trucks, which propel the suspended two-car trains. Tests of the bogies and their suspension units were conducted in AMF laboratories and on a specially constructed test track where actual load and operating conditions were simulated. Robert Moses, President of the New York World's Fair 1964-1965 and other Fair officials visited the test track area and rode the test car with Carter Burgess, AMF Chairman, on December 5, 1963.

During the same time period, Walter Dorwin Teague Associates and St. Louis Car Company proceeded with design and fabrication of the 64 cars that make up the seven trains. Fabrication of the first car began on November 1, 1963 and was completed on February 7, 1964.







On February 10, 1964, the first car arrived on the site and was elevated to its suspended position on the track. The on-site checkout program began immediately and increased in tempo as additional cars arrived at the site. By March 20, the last two car train was unloaded on April 3, 1964.

An colorful costume for "Mini Monorail" and other train hostesses was created by fashion designer Anne Fogarty, using the all-new DuPont "Acrilan" Lycra stretch poplin fabric. The distinctive hostess hat, which is patterned after the outward architectural lines of the Monorail station, was designed by Walter Dorwin Teague Associates of New York. Clare Lang Associates, Fashion Consultants of New York, collaborated on design of the hostess costume and the new uniform for mark passenger control officers. Walter Dorwin Teague Associates of New York





## THE SAFEGE MONORAIL

The SAFEGE-Transport high-speed monorail system was developed by Lucien F. Chadenson, Chief Engineer of the Paris firm of Ingenieurs-Conseils Pressyvart et SAFEGE-Transport. It is a high-speed system of elevated design and is operating on a one-mile track at Chatenay-sur-Seine, 90 miles south of Paris. The car is suspended from rubber-tired power units, which run on an inverted T-shaped concrete beam structure. This exclusive patented feature provides protection against snow and ice, assuring safe and uninterrupted operation of the system in all weather. AMF has acquired a license to market the SAFEGE Monorail system in the United States.




The increasingly need for modern, rapid mass transportation is one of the most pressing problems facing the nation today. By 1985, it is estimated that 30 million people will be added to the present number of urban dwellers—almost the population of Italy. The problem of mass transportation which is pressing today, will be acute tomorrow. AMF believes its Monorail systems are the key to solving many of the problems facing traffic-congested cities in the years ahead. Already, there are more than a dozen number of cities in area the advantages of high speed monorails for world-city center transportation.





AMF envisions a variety of applications for suspended monorails in the future:
- High speed airport city center transit systems
- Short haul commuter and intra-urban transport systems
- Long haul and inter-urban rapid transit systems
- Intermediate range scenic transit systems for resort areas
- Closed loop automated systems for shopping centers, air terminals, industrial complexes and amusement park scenic rides (similar to the World's Fair system).

MONORAIL

AMERICAN MACHINE & FOUNDRY COMPANY

Everett Place, Greenwich, Connecticut