

# Metropolitan TRANSPORTATION & PLANNING

*America's Authority for Coordinated Transportation and Planning*

MARCH / 1964

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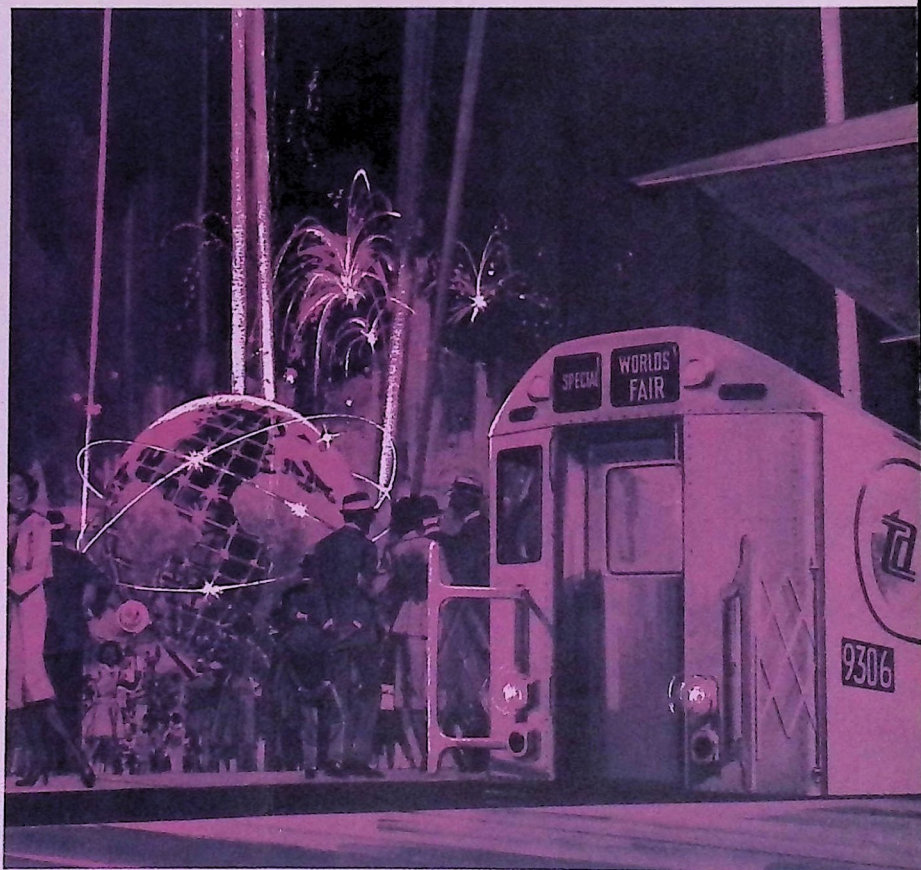
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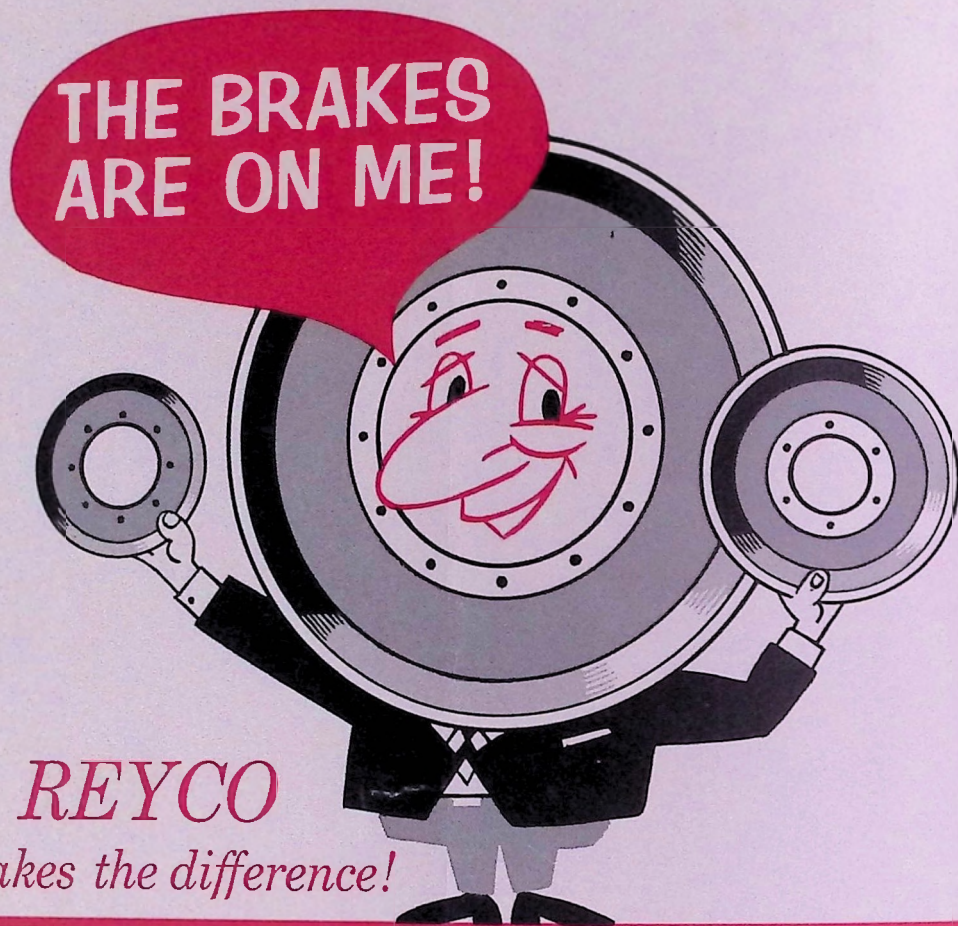
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**COME TO THE FAIR?** Getting there... via transit... is half the show





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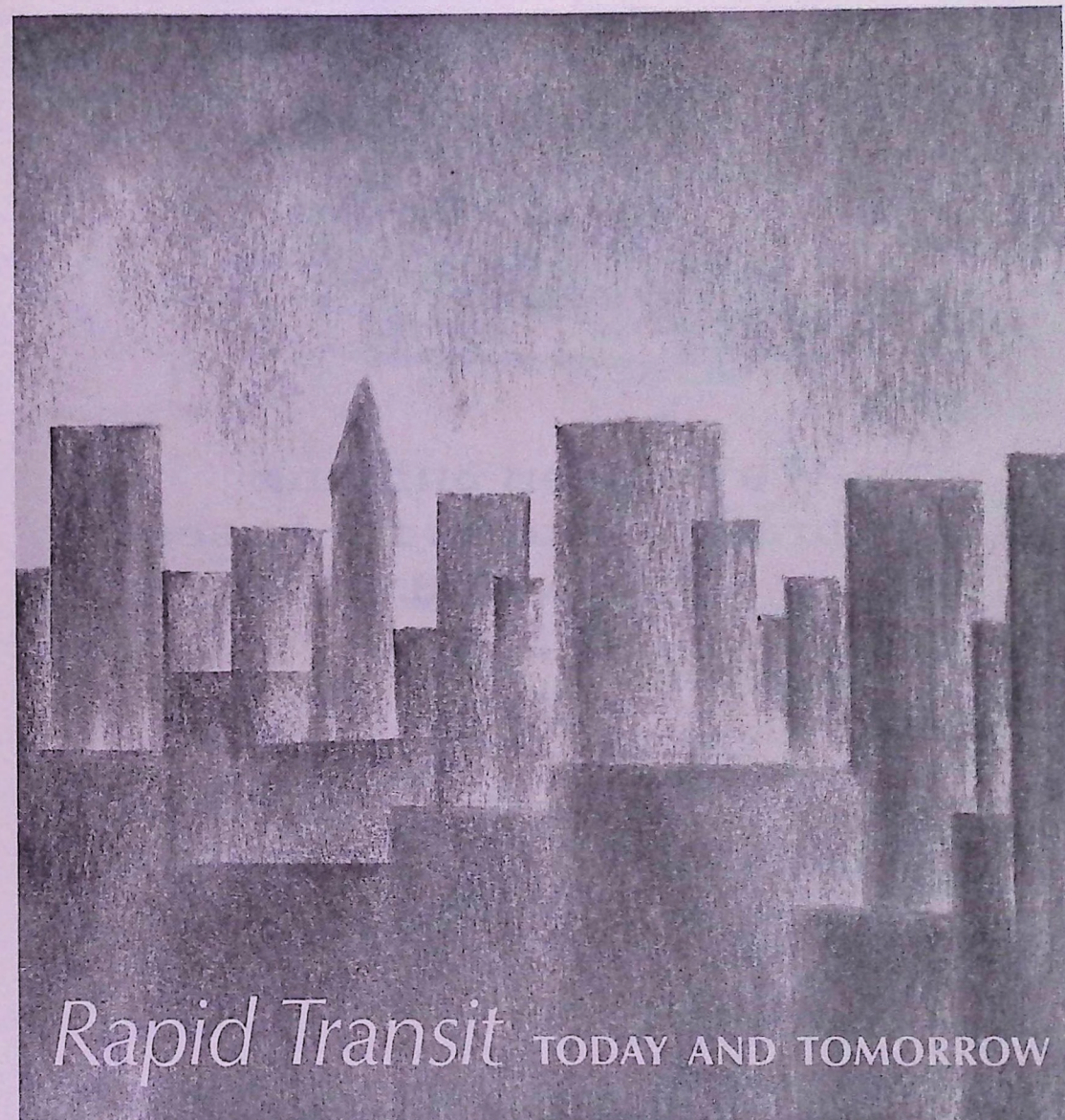
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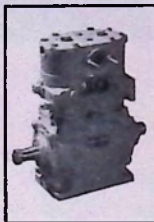


We've been building  
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1923 compressor; 3 cfm,  
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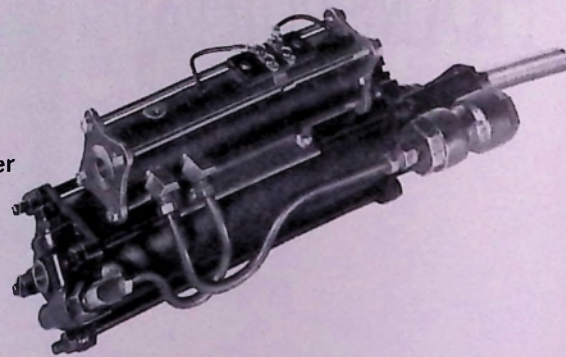
#### A Digest of City Plans

A summary of current metropolitan transportation plans in cities.



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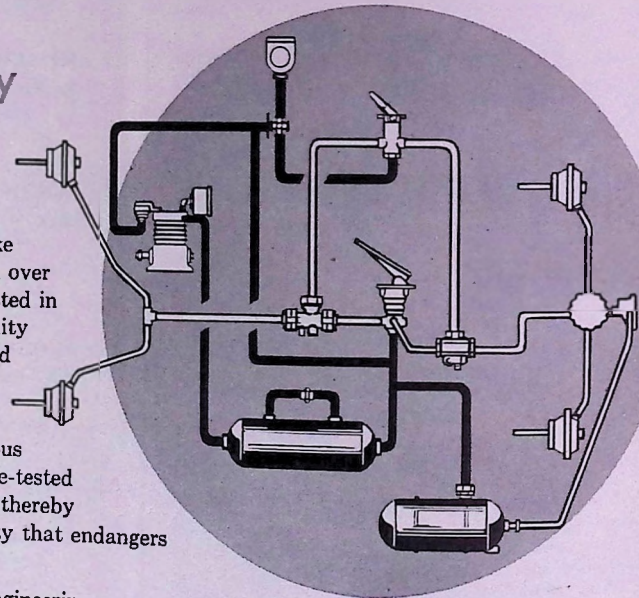
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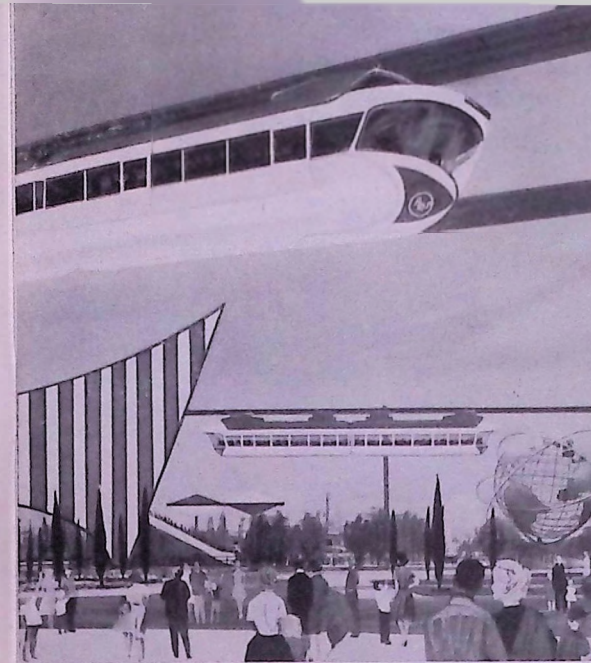
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## COME TO THE FAIR?

Here's a recap of what will be of interest to bus and rail transit people at the New York World's Fair . . . getting there will be half the show

IN THE PUBLIC PRESS, in the business press, on radio and on television, the trumpet of publicity has been chortling its clarion call to come to the New York World's Fair.

For the benefit of readers who may feel inundated by an avalanche of publicity about the fair, this recapitulation pinpoints some of the activities which may be of interest to bus and transit operators.

Actually, transit men may be just as interested in the role public transportation plays in getting people to the fair as they will be in transportation exhibits within the fair itself.

### Role of the NYC Transit Authority:

The Flushing IRT line will provide, in Commissioner John J. Gilhooley's words, "A showcase to the world for improved metropolitan transportation."

To do this the TA will provide:

- Better equipment; 430 new rapid transit cars.
- Improved service—18 minutes to the fair
- Stations rebuilt and renovated
- Heavy promotion to get people to come via rapid transit and to keep private autos away.

It is estimated that 70 million people will visit the fair. The TA estimates that about half of them will arrive via the IRT.

### Role of the Port Authority:

The Port of New York Authority has its own building overlooking the Transportation Section. It has a heliport on the roof and a transportation exhibit (including exhibits on transit) inside.

The Port Authority will also transport people to the fair from New Jersey via buses to the PA terminal in Manhattan. Thence, there will be convenient connections with the Flushing IRT.

### Role of the Long Island Railroad:

Special LIRR trains will transport visitors from Penn Station to the fair at almost a mile a minute—12 minutes, for the nine miles. The fare: 50¢. Features include a renovated station, renovated cars and other special facilities. This is part of the rail industry's pitch about what's modern and up-to-date in commuter service.

### Role of the New York Central:

Though not promoted as part of the fair activities the New York Central will begin using 34 new commuter coaches, seating 4,400 passengers, later this year. In addition to improvements in the design, transit men will be interested in the new lateral ride control, dynamic braking, transistorized switching for acceleration and deceleration, and the electric signal system in all cars.

### Role of the bus:

Greyhound will provide Glide-a-Ride "lounge trains" three cars long, including the tractor pulling them. These will carry fairgoers between the parking area and main admission gate as well as throughout the fairground for sightseeing and "step-on-and-step-off" service.

The film "Metro-Mobility" dealing with a bus transit system of the future will be shown to special audiences of transportation people. A scale model of the system with moving vehicles, will also be shown to this group. In addition, other commercial bus and automotive transportation exhibits will be open to the general public.

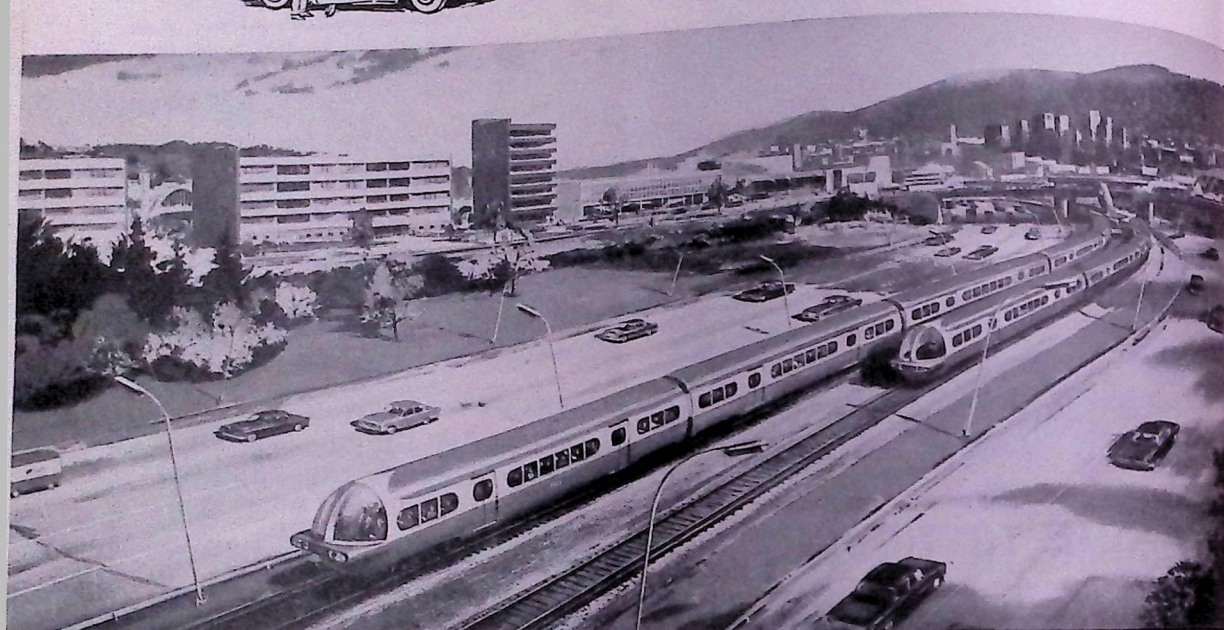
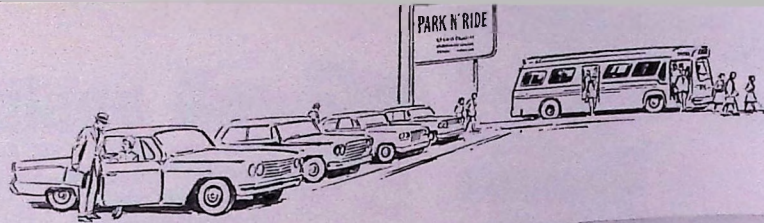
The 80-acre transportation area will have other exhibits. However, none will be slanted exclusively to the metropolitan transportation field.

### Role of the monorail:

Not as a transportation service but "as a precursor of future rapid transit monorail systems . . . (we will) introduce a low speed, scenic monorail," say its promoters. They hope to demonstrate to the 70 million fair visitors that a monorail is safe, it can ride without sway, it is weather proof, it operates quietly, it accelerates and brakes successfully.

They hope to acquaint people within the industry with the possibility of a family of monorail transportation systems—as amusement rides, as transportation to the airport and as a rapid transit line.





# COORDINATED TRANSPORTATION

## Key to better LIVING

To live, work and play where you want is your best reason for urging your community to plan and build a coordinated transportation system.

If your city has more than a half million population, it should have a coordinated transportation planning program under way—a program giving equal emphasis to autos on expressways, outlying parking lots, feeder buses and modern high-speed rapid transit as the high-volume carrier.

It's up to you . . . coordinated transportation won't just happen. FOR MORE INFORMATION, write today for "America is Going Places". General Electric Company, Section 3-42V, Erie, Pennsylvania.

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## Metropolitan TRANSPORTATION & PLANNING



# the concourse

## POLITICS

WITH SENATOR HARRISON WILLIAMS' announcement that he will seek re-election to a second term this year, token opposition to his nomination has ceased within the Democratic party, according to the New York Times. The Times also reports on the difficulty the Republicans are having in getting a candidate to oppose him. Although, admittedly, the Senator's re-election chances are linked to President Johnson's popularity, Williams has, during his one term in the Senate, made a name for himself with his concern for the problems of coordinated metropolitan transportation.

A BRIDGE MAY SPAN MORE than the Potomac in Washington. Location of (or, indeed, the need for) the proposed Two Sisters Bridge has been a focal point of a senseless feud between advocates for rail transit and the highway interests in that city. A new plan, under a transportation agency with a bob-tail rapid transit and certain needed expressways (including a new approach to the controversial bridge) went a long way to span the gulf between highway and rail points of view. But according to transit observers the compromise worked out was too little too late. Months of adverse publicity against the bob-tail plan could not be undone.

In the meanwhile, other opposition to the plan emerged—that of labor which fears the loss of the right to strike if a public agency takes over transit. Of course, it is history that the House sent the bill back to committee. Undaunted, rail supporters feel the bill has a strong pulse beat because:

1. It has received much publicity
2. The White House is behind it
3. Four hundred and thirty seven Congressmen live in Washington and must cope with increasingly snarled traffic.

## FINANCE

STATUS OF THE TRANSIT COMMUTER has been greatly enhanced by the 1-in-1000 population study made during the 1960 census and recently released for private tabulation. As interpreted by the Transit-Advertising Association these figures show that the income of transit-to-work households averages \$6446—significantly above the national household average of \$5660 for all worker households. However, the transit rider as an employed individual, not including the household he represents, earned less than all workers. This data is included in a new fact book just released by the association. Harold B. Mers, president of the group, stated that new and continuing studies of all riders are underway since last summer. The report on the first of these studies will be ready later this month.

SUGAR AND TRANSIT apparently make a sweet mix for the Punta Alegre Sugar Corp. which is proposing a stock merger with National City Lines in Chicago. According to the business press, Punta Alegre was interested in a listing on the New York Stock Exchange, which NCL has, with a bonus of more marketable securities. If the deal goes through, Nicolas M. Salgo will be proposed as chairman of the merged company.

## BUS TRANSIT

A STRING OF AUTOMOBILES with lights on during the daytime usually connotes a funeral; but buses with lights on during the day make them part of a safety campaign. Perhaps the analogy is a good one. (Either put your lights on for safety or somebody will be putting theirs on for you.) At any rate, the Saskatchewan Transportation Company buses have joined an increasing number of bus companies in Canada and the

CONTINUED ON NEXT PAGE



United States in the "See the Light" campaign. "We are a permanent participant in this campaign," states R. D. Mahara, the company's operations manager. "Statistical evidence shows that having lights on during daylight hours contributes to the prevention of accidents on the highway."

**ONE OF THE LATEST DEVELOPMENTS** in winter driving—the studded tire—is being tested in Michigan by the National Safety Council. Widely used in Northern Europe, these are regular or snow tires with about 100 metal or plastic studs driven into the casing to give effective traction. Operators making plans for next winter will be interested in the results to be released in three to five months. The report should answer some important questions: How do they wear on dry pavement? How much heat is generated? What is the cost (including installation)?

### INTERCITY BUS

**PERSONALIZED RADIO SERVICE**, heralded by Greyhound as the newest innovation in bus travel, has begun for passengers on the two-level Scenicruisers between East Coast cities. If the program is well received, 75,000 radios will be put on the entire fleet of transcontinental buses.

A **HEAVY INFLUX OF JAPANESE TOURISTS** is expected on the West Coast due to Japan's recent lifting of outgoing tourist restrictions. Continental Trailways will employ a full-time receptionist to meet Japanese tourists at San Francisco's International Airport.

### HYDROFOILS

**WORLD'S LONGEST MOORING "LOT"?** . . . San Francisco Bay's crowded harbor condition is one of the reasons why an engineer's study ruled out the use of hydrofoil or other special watercraft for practical commuter purposes. Other reasons: costs and fog. At the same time the study recognized that future engineering advances might reduce costs to where such craft would be of commercial transit value. The report was prepared by DeLeuw, Cather & Co. at the request of Alameda-Contra Costa Transit District, as part of their program to explore improved methods of operation and increase service speed.

### RAIL TRANSIT

**OVER HALF BILLION DOLLARS** in new elevated-subway cars will be built in the next ten years, according to the Institute for Rapid Transit estimate. Other prognostications, notably the Stanford Research Institute market analysis (MT&P, Jan. '64, p. 18) figure one billion dollars will be spent on transit cars in the next 20 years. The IRT 10-year figures include the need for transit equipment in Atlanta, Los Angeles, Pittsburgh, and Washington, D.C. In each of these cases new transit systems are being planned, but have not yet been approved.

**WHEN 6,000 WORKERS IN SOUTH BEND**, Ind., were displaced by the shutdown of Studebaker Corp., the Chicago South Shore railroad offered a special commuter rate to Chicago. The move has not yet resulted in large gross receipts but it has received two positive reactions: An automobile assembly plant in the South Chicago area expressed interest in obtaining former Studebaker workers; The city of South Bend and the press throughout the Midwest has hailed the South Shore as a "good neighbor."

### PLANNING

**ANOTHER WARNING** has been issued to cities over 50,000 to develop a transportation planning process before July 1, 1965 or they cannot be approved for additional Federal-aid highway projects. This warning was issued by Federal Highway Administrator Rex Whitton who says that some urban areas are not making adequate progress toward this deadline.

**URBAN TRANSPORTATION ANALYSIS** conference, announced for August 16-29 at Northwestern University may seem a bit too theoretical for some practical planners and transit operators because of its emphasis on theories of transportation system development and using computers for this work. However, it will give a chance for academic and operational to mix, exchange views, and become a little more knowledgeable of each other's problems.

# think deluxe

at far less cost



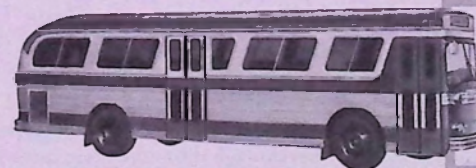
**Think Wayne Luxury Cruiser** . . . the coach that offers luxury, beauty and quality at a far lower price than other prestige-type transit buses. Savings on first cost alone can run thousands of dollars.

**Think Luxury Features** . . . features you would expect to pay much more for: fluted aluminum sides, super-sized windows, curved windshield with Lo-Dip corners, ultra-modern interior, air conditioning and many other available items

that increase comfort and convenience.

**Think Savings** you gain from Wayne quality . . . quality that means longer lasting service, less maintenance and greater enduring beauty. And you can select the make and type of chassis (gasoline or diesel) that best meet your needs.

**Think Profit** for city and inter-city service, feeder lines and charter transportation. See your nearest distributor today. He will tailor a lease or finance plan to get you the buses you need now!



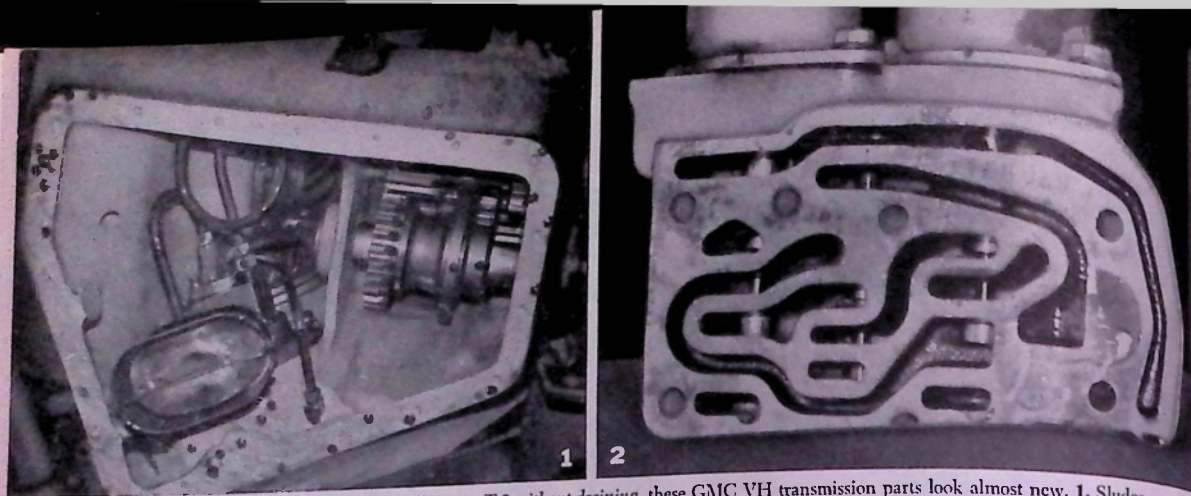
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64-F





After 24,000 miles of operation on Shell Donax T-2 without draining, these GMC VH transmission parts look almost new. 1. Sludge and lacquer-free gear case. Copper tubes are bright with no trace of corrosion. 2. Control valve assembly. Channels are clean,

## NEW VH TRANSMISSION FLUID

Shell Donax T-2 keeps transmission parts clean through 25,000 miles—even under the most severe conditions. Here's proof.

Shell announces Donax® T-2, a new transmission fluid specifically designed to perform beyond requirements for GMC Type II transmission fluids.

Tested in city bus fleets under widely varying weather and traffic conditions, Donax T-2 kept transmission parts remarkably clean, gave smooth clutch action, practically eliminated wear. Here are details.

City bus fleet operators now have a heavy-duty automatic transmission fluid that lives up to specifications on the road as well as on paper. It is a new fluid developed by Shell research called Donax T-2.

In severe climate or traffic conditions, Donax T-2 helps keep components completely free of sludge and lacquer. It gives smoother clutch action, practically eliminates wear and won't harden or cause excessive swelling of seals.

Donax T-2 is compounded from hydrotreated, solvent-refined base stocks and a special combination of additives—each designed to head off a source of trouble. In test after test this

formulation has performed far beyond what is normally expected of an automatic transmission fluid.

The recommended drain interval for GMC Type II fluids is 25,000 miles.

*But in some cases, both the transmission and the Donax T-2 have still been in good condition even when drain intervals were pushed to an incredible 50,000 miles.*

Here are the facts that explain this remarkable performance.

### How Donax T-2 helps keep transmissions clean

First, Shell Donax T-2 fights the source of sludge and lacquer: oxidation

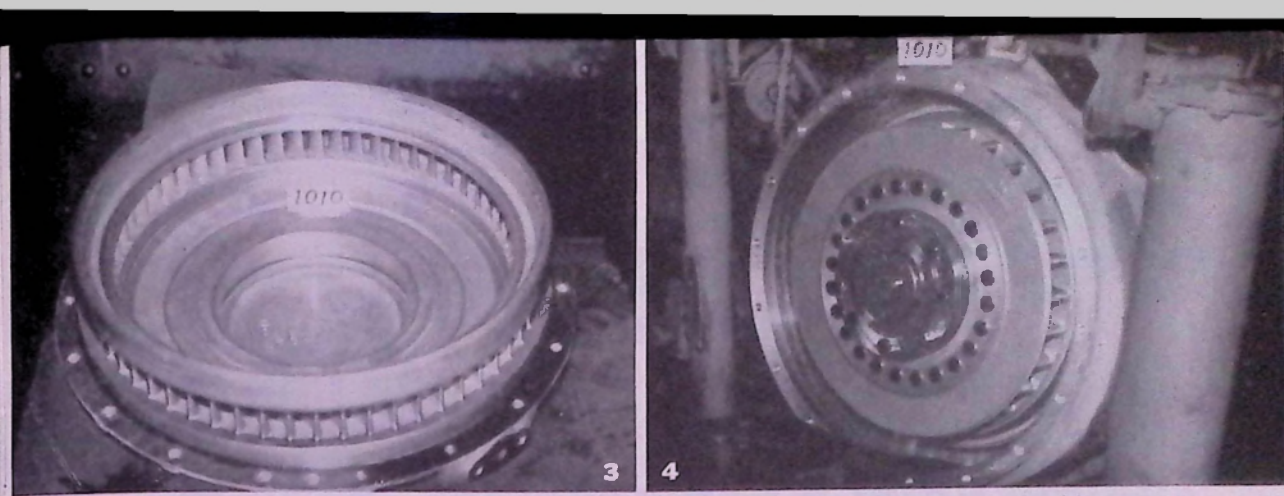
of the oil. Second, Donax T-2 keeps small amounts of oxidation products that do develop from building harmful deposits. Here's how.

**1. Donax T-2 resists oxidation.** Shell Donax T-2 gives good performance under the severe oxidizing conditions of the new VH drives. Its secret: careful selection of base stocks and oxidation inhibitors. Donax T-2 also contains an anti-foaming additive—foaming can accelerate oxidation.

**2. Donax T-2 has exceptional dispersancy.** No fluid yet developed can stay 100 percent free of oxidation products in service. But Donax T-2 protects transmission parts from the small amounts that do form.

A special additive in Donax T-2 keeps oxidation products in suspension through the entire drain interval, guards against build-up of sludge and lacquer.

**Test results:** In several fleets, Donax T-2 was tested under gruelling operating conditions. Previous fluids had



pistons show no lacquer, still move freely in guides. 3. & 4. Reaction member and turbine wheel from VH transmission are in remarkably clean condition. Reason: excellent resistance to oxidation and corrosion, high dispersancy. Read details in text.

been oxidizing to form lacquer and sludge and losing their dispersancy well before 25,000 miles. In one case, drain intervals had been reduced to 9,000 miles. In these transmission tests, Donax T-2 frequently maintained its good performance qualities through twice the mileage of the fluid it replaced.

### Helps prevent corrosion

Inferior fluids can actually attack copper parts and lines from the moment these fluids are put into service. But special additives in Donax T-2 inhibit the chemical reactions that cause corrosion. Copper parts are not corroded.

### Practically eliminates wear

Anti-wear additives give Shell Donax T-2 extra "oiliness" that greatly reduces wear on transmission parts. Scuffing of gears is practically eliminated.

### Provides smooth clutch action

The carefully controlled frictional characteristics of Donax T-2 remain at the proper level throughout the full length of the recommended drain interval. The fluid also retains proper viscosity over the entire range of operating temperatures.

**RESULT:** smooth clutch engagement. Rough lock-up is greatly reduced—or entirely eliminated. Excess wear on clutch facing is prevented.

### Won't harden seals

Donax T-2 helps seals stay flexible, hold their shape; greatly reduces seal leakage problems. Seals in buses using

Donax T-2 show no excessive swelling, hardening or change of size.

### How you can check on Donax T-2 after installation—without draining

You can evaluate the condition of Shell Donax T-2 at any time *without draining*. The method: the Shell ADC® Oilprint Analysis that reveals contaminant level and dispersancy. Your Shell Industrial Products Representative is an expert at evaluating lubricant condition by this proven method.

### Some facts about costs

You will pay a little extra for premium quality Donax T-2. Yet you'll find it far more economical to use. Here's how it will pay you dividends:

- Longer life of fluid assures you of efficient operation for at least 25,000 miles. (Other fluids sometimes need to be replaced after only 9,000 miles.)

- Because parts are kept clean, need for overhaul and maintenance is cut.

- Because maintenance is reduced, your buses spend less time in the garage, more time bringing in revenue.

### How you can get more information

Your Shell Industrial Products Representative can give you complete information on new Shell Donax T-2 Automatic Transmission Fluid.

Or: Mail the coupon below for a technical bulletin on the complete line of Shell Donax-T Oils.

Shell Oil Company, 50 West 50th Street, New York 20, N. Y.

### MAIL COUPON FOR COMPLETE DETAILS

Shell Oil Company, Room 3420B,  
50 West 50th Street, New York 20, N. Y.

Gentlemen:

Please send me \_\_\_\_\_ copy(ies) of your Technical Bulletin L-62-5, Shell Donax T Oils.



Name \_\_\_\_\_ (Please type or print)

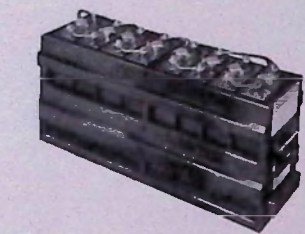
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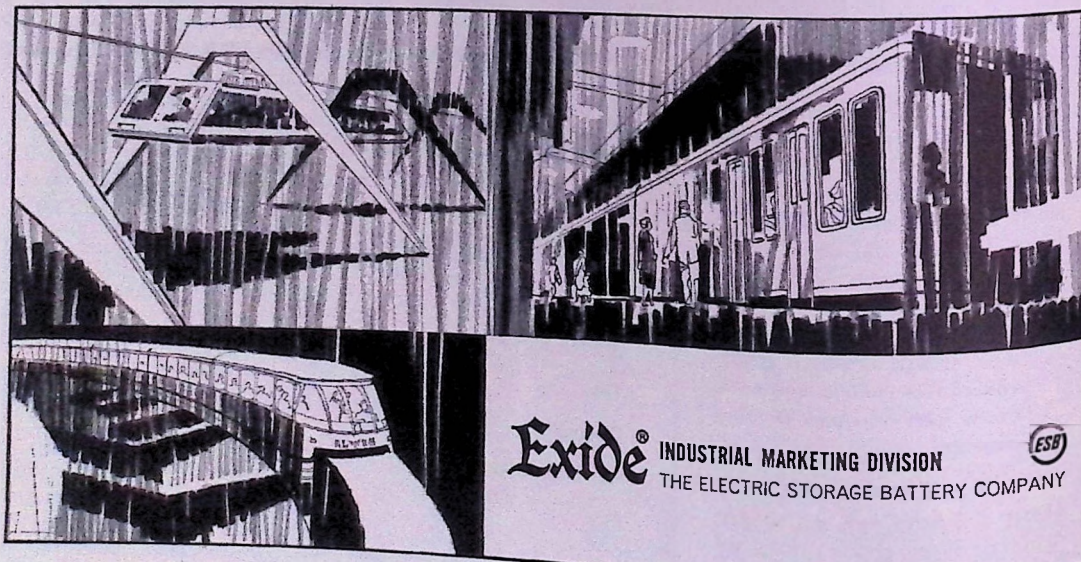
There are Exide Nickel-Iron Batteries in use right now that have been on the job continuously for over 40 years. They are still going strong. Such long life is not unusual—it is true to form for these batteries in transit service.

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## Think of the future

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We are proud to announce another new ASF development—the Drive Shaft Brake—now in use on the new Chicago Transit Authority Cars. This new brake joins the well established family of ASF brakes, that today are providing safe, sure, economical stopping power for modern railway cars—ASF Clasp Brakes, Simplex® Roto Brakes and Unit® Brakes.

For the best possible answer to your brake component needs, call in your ASF representative. He'll recommend an ASF brake that will meet your exact braking requirement.

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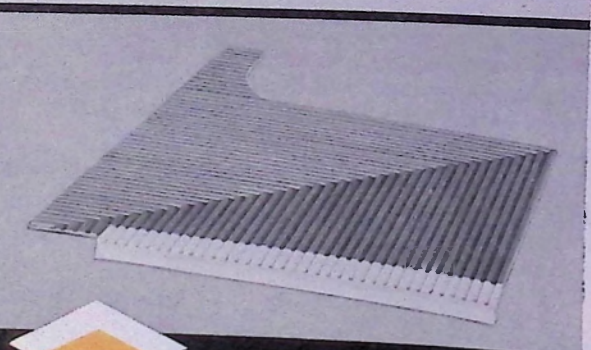
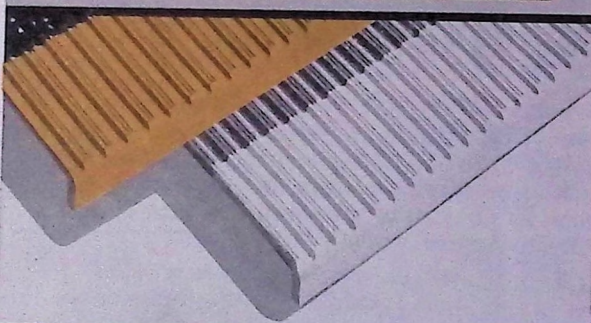
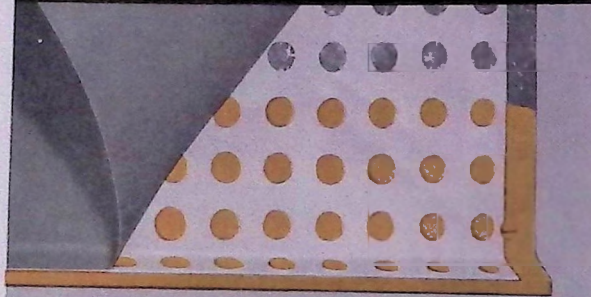
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## BUS OPERATIONS:

- The analysis of a private bus operation with a net income up 57% over five years ago . . . without subsidies or fare increase.
- The four-point driving force behind this money-making success



## HOW TO MAKE MONEY IN THE SMALL BUS FIELD

by Mel Brdlik, editor

WHO SAYS YOU CAN'T make money these days as the operator of a small bus line? Not South Suburban Safeway Lines in Harvey, Illinois—or at least they say you *can* make money, with one known (to them) exception.

South Suburban is an operation of 132 buses with 156 drivers, a maintenance crew of 40, and 7 men guiding their managerial functions. They operate as the name suggests, in the South Suburban area of Chicago connecting 26 communities with each other, with the south side of the city and with Chicago's loop.

In many ways this is a favored position for a bus line to be in, given today's suburban sprawl and the greatly improved (if still crowded) expressways headed out to suburbia. But many bus companies in a similar situation have not done as well.

Consider the gains posted by South Suburban since 1958:

Revenue: up 20% ('63 compared to '58)  
Income (net): Up 32% ('63 compared to '58)  
. . . This *without* a fare increase.

What secret seasoning must be cast into the transit brew to produce such savory statistics?

"Our basic philosophy," quotes Bob Thompson, company president, "is that the customer is the most important person in our business and that we are eager to furnish rides for anybody, any time. . . . But the rides must be furnished at a profit." He says it, not like a man divulging a secret family recipe, but as a matter-of-fact business principle set down over 30 years ago by Paul Dittmar, chairman. Dittmar founded the company in 1927 and under his guidance they have prospered and grown to their present size.

In the operations end of the business this philosophy means that South Suburban will never trim service until people—by not riding—make it necessary. On the other hand, they will increase service as loads increase.

What happens if the public—by not riding—makes

it necessary to trim-back all service until very little is left? The company has had to face this, too. It is the one important exception cited above.

This did not occur in Chicago's South Suburbs, but did in Kankakee, Illinois, a town of about 100,000, which presently has no bus line and little prospect of getting one. South Suburban's connection with Kankakee is that they were asked to come in and operate the city bus line in 1961. The story is that one night, the week before, the former operator in this city, packed all his worldly possessions in the back of one of his buses and took off for parts unknown, leaving the city without public transportation.

That's when city fathers approached Messrs. Dittmar and Thompson. Their reply: "We'll furnish rides for anybody, wherever a profit is possible." Downtown merchants and others in Kankakee were willing to subsidize South Suburban's efforts to the tune of \$10,000 for the first six months of operation.

Though South Suburban was willing to furnish rides for anybody in Kankakee, the \$10,000 dwindled to nothing in a little short of six months and after giving the experiment a couple extra cost-losing months for good measure, South Suburban was forced to discontinue operations for lack of riders.

The "non-success" of this experiment did not dampen their enthusiasm for experimenting with other services, however, and the company pulled their buses back to Harvey to engage in regular operations plus two or three other diversifications where profit is possible.

As good as it may be, an operating philosophy alone does not explain the "how" behind making a profit. What might better explain it is the driving force behind the philosophy. At South Suburban this force results from:

- A careful selection of people, loyal to the company and to whom the company is loyal
- A finger-on-the-pulse type scheduling, quickly



- responsive to rider demand
- Top-notch maintenance practices
- The inauguration of extremely successful side-line services.

#### What makes people loyal?

At South Suburban, you're a "pup" when you've been around 20 years—and that includes the management, mechanical and driving ends of the business. Building a staff of people who know the ropes and have chosen the company as a career, has the obvious advantages of experience and devoted service. Potential kink in this chain—the building of an old and moribund management—has not materialized in this case; as witness the company's willingness to change as opportunities arise.

The value of a good personnel function takes various forms. It may manifest itself in a driver like Roy White, who drives the Western Avenue run and can greet, by name, over half of the people who board his bus. White is no exception. Two-thirds of the drivers at South Suburban can do it.

It may show itself in a 30-year veteran like Tony Dunker, with the unlikely avocation of art, who paints oils which have enshrined the rider as "the most important person in our business." These oils are then displayed at his successful private shows. The result in customer goodwill is priceless.

Any good personnel program begins with choosing the right man for the job and then training him properly. Since there are more applicants than openings in their driver's ranks, South Suburban can afford to be careful to pick the right man for each job. Their qualifications for applicants include:

- Over 23, married and showing responsibility
- Good credit rating; no police record; good references from former employers
- Able to pass two mechanical tests—an eye test given with an eye machine and a polygraph test given by a professional technician.

Training includes breaking in on every major route in the book over a three-week period. After actually riding every route, the trainee, accompanied by his instructor, drives from two to five days under actual conditions. Then he takes a final examination in which he is quizzed on routes, fares and transfers. Each man is okayed by his instructor only when he passes these tests.

#### Finger on-the-pulse scheduling

South Suburban claims that scheduling is directly derived from the philosophy of furnishing rides wherever profitable. But in a way this is an oversimplification—much more is involved.

Very much more was involved in the one significant scheduling move—the starting of an express bus service on Chicago's Dan Ryan Expressway—which more than any other single factor, is responsible for the company's increase last year. After two years of hearings, litigation, and perusals which proved financial solvency, permission was finally granted in February, 1963. It was the first such permission

on any of Chicago's expressways. On February 4, this service celebrated its first anniversary by counting a daily ride of 4,000 people with 23 regular buses plying the route. The service began with just five buses.

Use of the expressway is nine miles or more, depending on the route, resulting in a saving of 15 minutes of running time.

In this expressway service lies much of the company's hope for the future, as well. For if they follow the philosophy of increasing service as riders use it, the number of buses will increase. They will gather riders in a much more concentrated area and head for the expressway sooner. The ultimate will be gathering a busload of riders in each of the small towns served and giving expressway service from that town directly to the loop area. This brand of service will make it foolish for the commuter to drive his car downtown, when he can catch an express bus near his home and sit back and let somebody else do the driving.

As a matter of fact, South Suburban is beginning to see this happen already, especially in new communities which are far from commuter rail transportation. In established communities, near the railroad stations, South Suburban schedules their buses to meet the train schedule and thus make a profitable business of "feeding" the commuter trains.

#### Top-notch maintenance

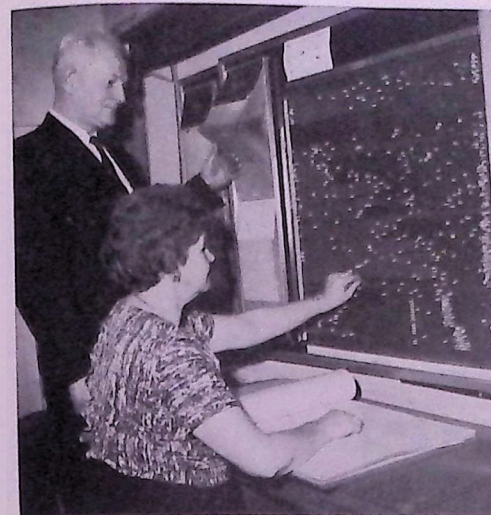
What makes a top-notch maintenance program? Opinions differ. But, Ed Marcinski, shop superintendent of South Suburban, estimates that 95% of the bus companies with average (or larger) size fleets have complete shop facilities and do their own automotive repairing and overhauling.

Costs of these operations are variable—depending on many factors. There is no question but that the industry would benefit from standardized cost keeping procedures making comparisons feasible. Yet, even without standardized records, several principles stand out in the experience of shop operations like South Suburban.

There is a maximum cost which Ed Marcinski believes is the limit, beyond which shop costs become unprofitable. He sets maximum costs at 25-man-hours per 1,000-vehicle-miles. These costs include housekeeping man-hours for shop functions, but not rent, light and heat. With his present staff, costs run between 19-21.5 man-hours per 1,000 road miles.

Every automotive job is done in the shop, except crankshaft grinding and armature winding which are farmed out. All body work is done inside. Reason: Costs run about half of what they would outside. For instance, with their present operation South Suburban can overhaul a diesel engine for \$400 inside compared to \$800-\$900 outside. And there is better control of the components that are used in rebuilding when the job is done in their own shop.

Another well-established principle of South Sub-



Vehicle maintenance records, posted on this board, give visual impact. E. J. Marcinski, maintenance supervisor, checks the board to tell when major work is due and when it is actually performed.

burban's shop operation is the rebuilding of parts in advance and pulling them from stock as needed. Engines, too, are rebuilt in advance and stockpiled, but this follows a carefully planned program of pre-scheduling, knowing in advance from the records, what the normal needs will be.

In Marcinski's thinking, it is a well-trained staff, more than any other factor, which enables South Suburban to keep shop activities profitable.

"But," he emphasizes, "there is no one way." Because we have a good staff of men, we operate on a long-cycle of vehicle replacement. We rebuild bodies and engines. We've operated buses for a million miles—of course it's not the original unit. Everything has been replaced two or three times.

"On the other hand, many operators, without the staff or shop facilities, buy new buses and keep them only until they will begin to need major repairs—about the 200,000 mile mark. Then they trade them in. I've heard plant accountants and bus operating managers make a pretty good case for this, and I'm not so sure but that if I were starting out again, I wouldn't recommend doing it that way."

#### Sideline services—1964's big success

In 1963 South Suburban made headlines with the inauguration of their express bus service on the Dan Ryan. The big advance in 1964 may not make headlines in the newspapers, but it is the front page story in South Suburban's ledger book.

In November, South Suburban became the franchise dealer for a national car rental chain. Results are, in President Bob Thompson's words, "Gratifying. We were looking for profitable ways to diversify and the car rental service ties in well with the bus business. We have the automotive know-how, the garage and shop facilities and a reliable name in the community. These things make car rentals a natural sideline."

Facts thus far seem to back up this optimism.

Starting conservatively with five autos in November, five more were added in December, and five in January. They have had 78% use. Cars are leased from the manufacturer and turned back after a year. They are secured through a local dealer; any model can be ordered and the dealer takes them back in trade on a predetermined schedule.

The usual advertising media are being used to promote car rentals—direct mail, newspapers, gift premiums, and transit ads. (These are the only transit ads allowed in South Suburban buses.) But the most effective promotion is the personal call on local businesses and industry by rental service managers—who are women, trained to emphasize personalized service.

Another sideline service which has tied in excellently through the years is the school bus business. The older units of the fleet are used for this service and by working closely with the school district on scheduling, these units do double duty. After the a.m. commercial runs they pick up the high school students in the same area. In the afternoon, they fall into their regular runs after the pupils have been delivered home. The changeover to the school bus signs and auxiliary equipment is easily made by the driver on his route.

This school bus service is performed under bid contract which provides a fair return to the bus company but is far less than the cost to the school if it were to operate its own transportation system.

In line with the national trend, charter bus service is on the increase at South Suburban. They have enjoyed an increase every year on this sideline service. In 1963, charter business was up \$9,000 over the previous year.

A sideline which may not be available to many bus operators, continues to be profitable to South Suburban . . . their race track service. Washington Park is located in the heart of the suburban area south of Chicago. They schedule a regular service from the city rapid transit terminal to the park. The park itself charters South Suburban buses to carry people from the four corners of the mammoth parking lot to the grandstand.

For the most part buses are required at the track during transit off-hours. Since the racing season is in the summer it fits in nicely, augmenting transit volume which normally falls off then.

How does a small bus operator make money in these pessimistic days? Of course, there is no pat answer. South Suburban, certainly successful in their own bailiwick, could not make the same formula work in an eight-month period in a smaller town which previously had been getting poor transit service over the years. This is but one failure. Surely in the story of their many successes, lie ideas which can be turned into profitable operations for other bus transit operators in other places.



by Raymond S. Silver,  
Director of plans and programs,  
Advance Data Systems Corp.

# WHY AUTOMATIC REVENUE COLLECTION

?

Is the future for automatic fare collection "apathetic" inquired the September issue of METROPOLITAN TRANSPORTATION & PLANNING

Definitely not, counters an engineer who has traveled the world studying the problem. In this article he speaks out on what he has seen.

LET'S RETIRE, once and for all, the trite platitude: "Everybody talks about automatic fare collection, but nobody does anything about it."

Such a notion is definitely out of date for in the past year and a half, significant strides have been made in this field. They could result in a major leap forward by:

- Reducing transit operational costs
- Providing better service to the public
- ... two of the most sought-after requirements in the burgeoning field of public transportation.

## New technologies—in tickets

Most significant of the technological developments affecting the future of automatic fare collection have been in coded tickets. These are tickets, coded at the time of purchase and then decoded by an automatic "reader" at the gate. They can be sold from automatic vending machines.

A major advantage of the coded ticket is that it allows the transit system to collect for the number of miles traveled. Another advantage is that a rider buys several tickets in advance, reducing his number of purchases and providing cash receipts in advance for the transit system.

Several devices for coded ticket reading have

been built, both in this country and abroad. Various techniques are used to code tickets such as: magnetic ink, magnetic tape, punched holes or metallic material imbedded in cards. The decoding is done at the gate by an automatic "reader." Then, by the use of electronic logic modules, similar to those used in the computer industry, the ticket is validated, the gate opened and passage allowed. If the ticket is invalid, this is indicated by a lighted display with instructions to the passenger as to what to do.

This device is being tested by the Tri-State Transportation Committee on the Long Island Railroad under an HHFA grant, with system equipment provided by Advance Data.

London (England) Transport is experimenting with an electronic "reader" and barrier control in that city's underground (subway). In reporting it, headline writers in the British press had a field day calling it "the robot ticket taker" with the "electric eye" in the "brave new underground."

These tests portend a design and development of systems of a more sophisticated nature both in London and in San Francisco for the Bay Area Rapid Transit District. Both of these systems employ a fare structure based on miles traveled.

A key part of any automatic fare collection system is money handling equipment. Encouraging advances are being made in automatic bill changers and improved automatic coin counting and totalizing equipment.

The incorporation of these devices into an automatic revenue collection system will give automatic, speedy control of cash.

## In credit cards

Some comment should be made regarding credit cards with monthly billings for transit rides. Though feasible, cost factors of this system are too high for transit systems. It would seem more advantageous for any transit operation to encourage the purchase of pre-paid "bulk" transportation rather than offer credit.

## Problems involved in systems

One of the reasons why automatic fare collection has not progressed as rapidly as some of the other technologies in transit has been a lack of understanding of the true nature of the problem. It is more than an "equipment" problem. The first step is to determine the requirements—the *what* and the *why*. After these have been established, the *how* is determined.

Attempts have been made to build devices which solve one or another of the fare collection problems. But though they may have fitted a particular situation and operation, they left much to be desired in solving the total fare collection problem for the industry.

Fare collection is not just the mechanics of collecting money and issuing tickets. It is a system for controlling the revenue of the entire operation . . . the very life-blood of the transit business.

## In fare structures

Another reason why fare collection has not progressed as rapidly as desired is because of a condition which is unique to public transit—that is, the large variety and types of fare structures.

Think of the variations between a flat fare and a fare based on miles traveled. Add to this the large variety of special fares for students, old people, etc. Then throw in the complication of a change in fare from time to time involving odd combinations of coins.

With each of these complications an individual fare collection problem exists bringing high administrative and operational costs to the transit company.

## In politics

The problems in fare collection which are created by the variety of fare structures can only be solved by giving some serious thought to factors involved in setting fare structures. These factors deal with the philosophical, political and economic aspects of each community. Underlying these considerations is whether or not the transit operation is to be subsidized by taxes or whether it must pay its own way from fare-box receipts.

## In public acceptance and safety

Automatic fare collection will allow personnel to be used in a helpful manner. For instance, a ticket seller—instead of being closed within a barred cage handling money and selling tickets—could be free to roam the station, assisting passengers and providing a personalized form of service.

Fare collection also deals with the passage of people through barrier gates and turnstiles. Such devices are not only physical barriers, but also psychological barriers which may influence the passenger's use of transit. The type of barrier, its speed, location, size and reliability, can affect passenger acceptance, station flow rates, and, indeed, the revenue of the transit system.

The handling of cash and accounting for it along with the collection of statistical data are other considerations which are part of the revenue control problem. Most of the financial and statistical data begins when the fare is collected. Good controls are important to assure transit management that there is no shrinkage. A fare collection system must be designed to satisfy these management considerations.

## How to standardize, integrate, systemize

First, something should be done to establish some semblance of order to fare policies and structures. There has been little serious fare structure analysis work done on an industry-wide basis for ten years. When such work is done, fare collection systems can be designed to serve the needs of the industry rather than a single operation.

Second, the solution of fare collection problems for rapid transit is tied to fare collection on buses. If bus and rail fare structures and collection techniques could be integrated it would be a selling convenience to the public with a result which could pay handsome dividends.

Park-and-ride facilities could be integrated into the total fare collection problem. In fact, a single ticket could be offered to the commuter to carry him on whatever mode of transportation he desires—bus, rail, or park-and-ride. This kind of convenience is a big incentive for use of public transportation facilities. At the same time it would cut operation costs significantly.

Finally, and most important, fare collection needs good systems thinking. Actually such thinking is a technique which can apply to many operations in the transit business, and, in fact, in any business.

This point was made by Frederick R. Kappel, chairman of American Telephone and Telegraph at a management congress:

"We believe the successful union of business and science depends fundamentally on systems thinking, the systems approach—the concept that underlies systems engineering . . ."

He speaks from experience. AT&T developed the transistor through systems engineering.

For these reasons we believe in the systems approach to problem solving. And, we feel, it is the only approach to solving the problems of automatic fare collection.





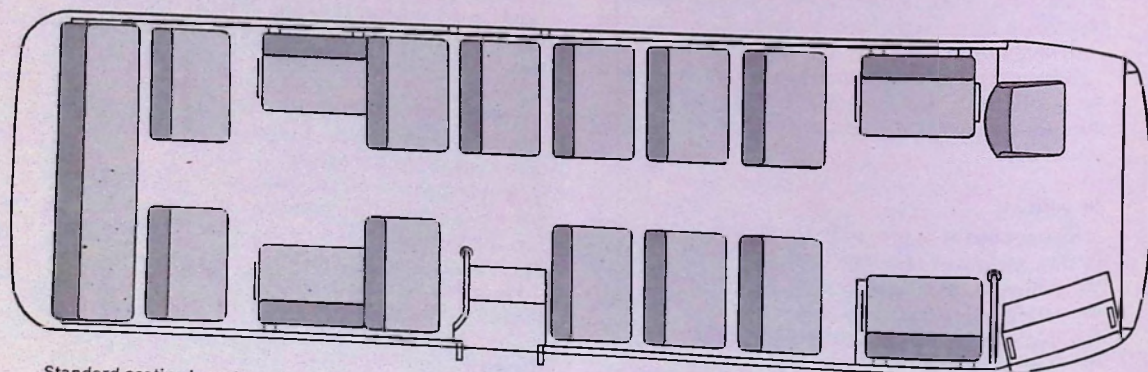
|                            |           |
|----------------------------|-----------|
| LENGTH OVER BUMPERS        | 29'6 1/4" |
| WIDTH OVER BODY            | 94 1/4"   |
| HEIGHT                     |           |
| Front Empty                | 109 1/4"  |
| Rear Empty                 | 110 1/4"  |
| Ground to First Step       |           |
| Entrance                   | 14 1/4"   |
| Exit                       | 15 3/4"   |
| HEADROOM (At Aisle)        |           |
| Front and Rear             | 76 1/2"   |
| aisle WIDTH                |           |
| Between Seats              | 20"       |
| WHEELBASE                  | 180 1/4"  |
| OVERHANG (Axle to Bumper)  |           |
| Front                      | 68 7/8"   |
| Rear                       | 105 1/4"  |
| TURNING RADIUS             |           |
| Wheels—Right and Left      | 30'       |
| Body Corner—Right and Left | 33"       |
| TIRE SIZE                  |           |
| Single Front, Dual Rear    | 8 25/32"  |

The GM-designed Torqmatic transmission, combining torque converter and direct drive, has set records for durability in many fields, including trucks, off-the-road equipment and military vehicles.

Torqmatic drive automatically coordinates engine speed and load demand—an excellent feature for stop-and-go bus service. Power is transmitted through a single stage converter, with a maximum torque ratio of 2.5 to 1.

For fuel economy when torque multiplication is not required, a lockup clutch automatically provides a one-to-one direct mechanical drive.

Transmission gear ratios are: first, 2.69 to 1; second, 1.94 to 1; third, 1.39 to 1; and fourth, 1.00 to 1.



Standard seating layout provides 35-passenger capacity, or 37 without exit door. For school bus service, this model seats 61 with 39" seats on 29" centers. Compare this with competitive school bus models and you will easily see the greater value in this unit.

## Now from GM... a new 35-passenger coach with exclusive V-6 power!

*Gasoline or Diesel... fully automatic transmission... light weight aluminum integral body construction... famed GM workmanship and materials—and all at a very attractive price*

To meet insistent demands for a low-priced 35-passenger transit coach, GM has developed this model TGH-3501. A companion model TDH-3501 with Diesel power is also available.

Both may be ordered right now for delivery in the fourth quarter of this year.

For light lines, marginal operations and feeder service with small passenger loads, and where low break-even cost is the major consideration, here is the ideal vehicle—and one which you can afford to buy for this type of service.

Base prices have been tentatively set at \$13,005 for gasoline power... and \$13,995 with Diesel. This includes Federal Excise tax, and less tires.

These low base prices are possible through utilization of much existing tooling. Our survey among operators showed that low purchase price for this unit was more desirable than styling and glamor.

Besides low capital cost, still other features promise low cost of operation and long, trouble-free life.

Components have already proved themselves. Basic body structure, almost identical with the

predecessor model TGH-3102, has set great records in millions of miles of service.

The V-6 engine has been sensational in light and medium duty truck operations, achieving long life records previously unheard of in gasoline engines. Over 300,000 are now in service.

Available as an option is a new GMC-designed V-6 Diesel engine. All components have been specifically engineered for the rugged requirements of Diesel operation. For companies operating high mileage, the added cost of Diesel power can soon be recovered in lower fuel costs, plus additional savings in maintenance.

Traditional GM workmanship and materials, technical service and warranties, excellent parts availability all promise maximum investment protection throughout useful vehicle life.

For additional details and prices, see your GM representative. Catalogs are also available on request to the *Coach Sales Department, GMC Truck & Coach Division, Pontiac, Michigan.*



**GASOLINE.** Exclusive GMC V-6 engine develops 145 B.H.P. at its governed speed of 2500 r.p.m.

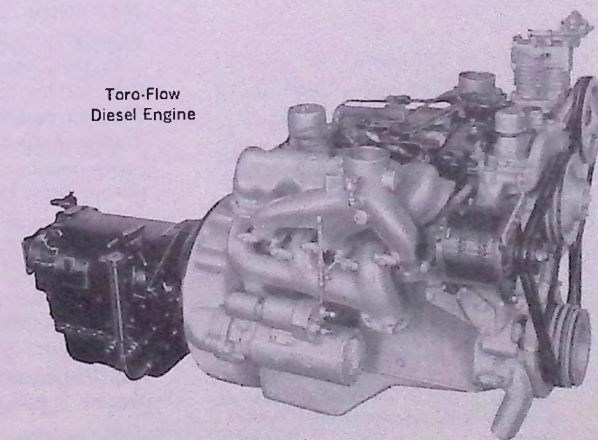
Maximum torque is 312 foot pounds, reached at a low 1600 r.p.m.—ideal for fast acceleration to route speeds.

**DIESEL.** With its revolutionary "Toro-Flow" combustion chamber and low governed speed of 2500 r.p.m., this exciting new engine brings Diesel economy and long life to light vehicle service.

B.H.P. is 145... maximum torque, 310 foot pounds at 2000 r.p.m.

Designed to operate at much higher speed in trucks, this engine, at 2500 r.p.m., will be "cruising" in the TDH-3501 with resultant better fuel economy and longer engine life.

Toro-Flow Diesel Engine





## Must the future of transit hinge on Federal Aid?

Here are the facts together with opinions on both sides of the most vital question in transit today

## WHERE IS THE

## MONEY COMING FROM?

## NATIONAL SCENE:

by Austin Tobin  
Executive Director  
Port of New York Authority\*

*"No public operation can be self supporting which must operate during rush hours only—or twenty hours a week!"*

*"Philadelphia subsidizes transit by \$4,000,000 . . . .  
Boston, \$16,400,000 . . . .  
New York \$150,000,000."*

*"The Port of New York Authority . . . in 1964 . . . plans to spend \$40,000,000."*

(\*Presented before the National Conference on Urban Transportation of the Chamber of Commerce)

### —PRO—

THERE SEEMS TO BE a growing public awareness of the critical nature of the urban transportation problem. This realization of the seriousness of the problem can lay the groundwork for affirmative and pragmatic approaches to the urgent need for salvaging and reconstructing the country's urban transportation services.

The provision of mass transportation, including commuter railroads, rail transit and buses, to and from the central core is where we seem to have made the least progress despite all efforts of the suffering railroads, and of the cities and states. Yet, this problem of mass transportation service to and from the central core is essential to the economic health of our urban centers.

Throughout the nation, the daily journey-to-work movement to and from the central core of our metropolitan areas is largely accomplished by some form of mass transportation. For example, 86 per cent of the 1,500,000 people who enter the Central Business District of Manhattan during the morning peak hours from 7 to 10 on an average day, use mass transportation—subway, bus, ferry or railroad. New York may be an extreme case, but a similar, if not as pronounced, reliance on mass transportation exists in all other major downtown areas.

### Big investment for 20 hours a week!

We are all aware that throughout the country the great majority of commuter railroads are operating at a loss and that public and private bus and transit systems are struggling to maintain financial solvency. No business can survive and no public operation can be self-supporting which requires an enormous capital investment and a very large operating force, and then uses that plant, equipment and manpower during rush hours only or twenty hours a week!

### City help totals millions

This is not to say that state and local governments have failed to do what they could to meet the growing demand for improved facilities for the mass movement of people.

The City of Philadelphia is subsidizing its transit system by about \$4,000,000 per year. In Boston the Metropolitan Transit Commission's 1962 deficit of \$16,400,000 was made up by Boston and the adjacent suburban communities served by the system.

In the New York region, the City of New York annually pays the debt service on the outstanding indebtedness of the Transit Authority. This, in combination with certain other payments of the city to the Transit Authority totals about \$150,000,000 a year. The State of New Jersey makes a contribution of about \$6,000,000 annually to meet the cost of providing that service.

The State of New York has granted tax relief to railroads throughout the state in the amount of some \$26,000,000 annually. A major share of this is for commuter services in the New York City area. Connecticut's tax and other relief to the beleaguered New Haven Railroad amounts to some \$1,700,000 annually.

The Port of New York Authority recently has acquired the bankrupt and dilapidated Hudson and Manhattan Railroad. In 1964 alone, we plan to spend almost \$40,000,000 to begin necessary capital improvements

CONTINUED ON PAGE 24

### —CON—

THE MOST OBVIOUS SOURCE of financing is the Federal government. No one can question its ability to provide the funds. For a variety of reasons, the government is also willing to cooperate in financing better urban transport. Actions by the Federal government are in many respects responsible for the urban decay and congestion which exist today. Willingness to guarantee G.I. mortgages after World War II allowed many people to own their own homes and was a great stimulus to the growth of the suburbs and the decline of the cities.

A second Federal act which complicated the transit problem was the highway program. By offering to share the cost of roads with the states, attention and resources were directed to the highways rather than to the transit problems. Yet miles and miles of new roads have not been sufficient to handle the transportation needs of the population.

The high cost of building more highways in our cities is a further stimulus to Federal interest in other forms of transportation. Some experts estimate that building more roads to meet transportation needs would be four or five times more costly than financing improvements in mass transit. This is not to argue that highway financing should be abandoned, but only to suggest that the allocation of resources in this direction has been severely unbalanced—in terms of meeting the needs of the cities. In fact, the Federal government explicitly recognized this in the Highway Act of 1962 by requiring that any further highway financing be part of an overall transportation plan, rather than an independent venture.

### Cities: in "hock" for \$88 billion

The burdens on state and local governments have increased tremendously since 1945, and their debt has risen at a much faster rate than Federal debt. Municipal bonds outstanding have gone from \$23 billion in 1950 to \$88 billion in 1963. With education, water, roads, general public improvements, construction, etc., getting progressively more expensive and large cities less populated, budget crises have been commonplace. Transportation has been allowed to deteriorate to the point where one expects bad service. There is no question that something must be done. It is rather who will do it and how.

### Local financing: three reasons

I feel that it is more desirable for the states and cities to attempt to furnish their own transportation than for the central government to do so. There are several reasons for this feeling.

1. The smaller political entities are closer to their own problems than could be an overall national agency. Because of differing geography and living habits, each metropolitan area must devise a unique approach to the problem of moving people about. A dedicated local group, utilizing information gained in other cities, can do this more effectively than a central body.

2. The only beneficiaries of a new or improved transit system are the residents of that particular area. Therefore, those people should be the ones to pay for the system, originally by furnishing the capital funds and later by their transit fares. Furthermore, an individually and locally designed plan for financing and constructing a transport network will in all likelihood be more flexible than one which might be con-

CONTINUED ON PAGE 24

by James S. Abrams  
General Market Municipal  
Bond Department  
Allen & Co., New York\*

*"Actions by the Federal government are responsible for urban decay and congestion."*

*"Municipal bonds outstanding have gone from \$23 billion in 1950 to \$88 billion in 1963."*

*"There is no question that something must be done. It is rather who will do it and how."*

(\*Presented before the National Conference on Urban Transportation of the Chamber of Commerce)



## Federal subsidies or local solutions?

Two sides to the biggest question in transit today  
—where is the money coming from?

### —Pro—

including the purchase of new cars, a complete rehabilitation of the physical plant and improved interchanges with certain of the commuter railroads in New Jersey.

Effective regional and local planning can help. Skilled engineering can make the results better and cheaper. But we all know that the core and kernel of the problem is fiscal—where is the money coming from? That is where we will succeed or fail in meeting the country's mass transportation problem.

### Who has the \$ \$?

It may be possible to recover the actual operating expenses of revitalized mass transportation from fares and from other sources of revenue available to private and public operators. But the basic problem which remains is that funds simply are not available for the capital improvements which are, and will be required.

Passenger revenues on most public transit operations throughout the country and abroad, including such systems as New York, Toronto, Chicago, London and Paris, are sufficient only to meet the expenses of operation and maintenance. Major capital expenditures for basic system improvements and for new equipment must come from sources other than operating revenues.

Such funds in most cases are being provided by the local and national governments either directly or by assuming responsibility for the necessary debt service out of general tax revenues. But local government—and the states themselves—are faced with the impossibility of financing increasingly greater demands for general services out of fewer and fewer sources of untapped revenue.

The only other local source would be further fare increases. But in most metropolitan areas, further fare increases would be self-defeating.

### Federal Aid: a reluctant conclusion

I am firmly convinced, therefore, that the capital requirements of mass transportation in the urban centers of the country cannot be met entirely out of the public funds which state and local governments will be able to make available. The mere fact that existing essential facilities and services cannot be maintained is, to me, sufficient proof that future needs cannot and will not be met without the stimulus of Federal participation.

I have, therefore, come to the reluctant conclusion that a soundly conceived program of Federal aid to mass transportation is absolutely

### —Con—

trolled—if not originated—in Washington.

3. However, the main reason I favor local solutions to local problems is that I believe it promotes more efficiency and responsibility. The local government with a transit bond issue to repay is more likely to require efficiency of construction and operation than the administration that receives a large grant from the Federal government.

### Local resources: can they do it?

State and local governments have two main financial instruments at their disposal, general obligation bonds and revenue bonds. In 1963, the total amount of these bonds issued was about \$8,500,000,000, \$5 billion of which were general obligations and the remainder revenue issues. (Not included in these totals are approximately \$1 billion worth of refunding issues.) Bonds issued have been increasing steadily since 1950 and there is every indication of a continued rapid growth over the next decade. Assuming that all our major cities went into the bond market to raise money for transit development, the total annual increment in borrowing would be less than \$1 billion, based on estimates earlier in this article. This transit financing would thus constitute only a 15% increase in bonds issued in its peak years. I thus conclude that the traditional capital markets would be able to supply the money for mass transit.

### General obligation bonds: one solution?

The primary advantage of these G. O. bonds as compared to revenue bonds is their interest cost. Provided that the credit of the issuing municipality is good, the bonds will carry a lower coupon rate than bonds secured solely by the revenues of a project.

On the whole, however, general obligations may have several drawbacks when considered as a means of financing transit facilities. Most of these problems are the result of political overtones. The need for voter's approval of a bond issue, is one. Another is the necessity of coordinating the financing with all other projects financed by the city. The final—and I feel the most important—factor is the decreased emphasis on efficiency which can be associated with general obligation bonds. All these drawbacks mentioned can be mitigated by proper organization of the district and powers of the authority. The extent to which this can be done will vary with each area, depending upon the political structure, present transit system, financial resources, etc. Nevertheless, the existence of the problems as-

*"I have therefore come to the reluctant conclusion that Federal aid is absolutely necessary if urban passenger transportation needs are to be met."*

### —Pro—

essential if the urban passenger transportation needs of this nation are to be met.

I may say that, personally, I have reached this conclusion the hard way. I am a firm believer in the independence and autonomy of the states in our Federal system. I have consistently opposed encroachments by the central government on the reserved powers of the states (and I am, indeed, the Chairman of the nation-wide Conference on State Defense). But when a problem stretches across the country, in every metropolitan area, and affects the economic well-being not only of our urban population, but of our nation; and when the states and cities have about exhausted their financial ability to meet it—then I know of no other resource to call on, to meet an immediate and vital national concern, than the Federal government itself.

### No surrender

I am not suggesting that local officials should abrogate their responsibilities in this field or look to the Federal government to do the whole job. On the contrary, local participation in urban transit is just as vital as in the other large-scale Federal aid programs mentioned above, all of which are set up on a "matching funds" basis. We would not or should not be willing to surrender the control over our own metropolitan transit systems, which would be the consequence of complete reliance on Federal financing.

The Congress itself has already recognized the importance of the problem by making funds available through the Mass Transportation Demonstration Grant Program for experiments in transportation improvement. Federal funds are also presently available to assist in the development of coordinated studies of overall transportation requirements.

It is gratifying to me that legislators from the New Jersey-New York region, and in particular, Senator Harrison Williams, have taken the lead in sponsoring these programs. Senator Williams' bill proposing expanded Federal aid to mass transportation was passed in the Senate last year, but bogged down in the House. For the reasons that I have reviewed here today, it should be passed during the current session.

### The President has said:

In his State of the Union Message of January 8, President Johnson stated, "We must help obtain more modern transit within our communities as

*"The main reason I favor a local solution is that it promotes efficiency and responsibility . . . the Federal government could help through long-term low-interest loans."*

### —Con—

sociated with G. O. financing must be acknowledged.

### Revenue bonds: advantages and disadvantages

Revenue bonds are obligations payable solely from the earnings of the project financed. Because of less assuredness that revenues will be sufficient to pay interest, these bonds carry a higher interest rate than general obligation bonds.

On the issue of flexibility, revenue bonds have certain advantages. The timing of the financing is primarily a function of when the money is needed. No referendums are necessary. There are no other projects or financial demands which must be accommodated. The planning of the transit project need not be unduly influenced by political pressures. It is the potential bondholders who must be convinced, and their main interest concerns the practicality and efficiency of the system. With certain reservations, I feel that revenue bonds can offer a more flexible financing device than general obligation issues.

On the final criterion—promotion of efficiency, I feel revenue bonds have their greatest advantage. By demanding that debt be repaid through earnings, the attention of both the management and the public is focused on efficiency of operation. Transportation within a metropolitan area is a necessary service. Nevertheless, it should be run like a business.

### Who'll take the risk?

Transportation within metropolitan areas has been notoriously unsuccessful in the past thirty years. Most of the private companies have failed or have been taken over by the cities. Rapid transit systems in New York and Boston incur large deficits each year. As a result, there is a feeling that it is impossible to run a profitable transit service. Investors are hesitant to put their funds into an obligation of a transit company. This hesitation to invest is true not only for the private companies still remaining in the field, but also for the publicly-run facilities. The investing public has no faith in the ability of a transit network to meet even its operating charges. Consequently, despite its desirable characteristics, I feel the straight revenue bond is not an adequate transit financing alternative for our large cities.

It is my recommendation that the Federal government finance a portion of our basic transit systems through long-term low-interest loans. An agency would be created which would have au-

CONTINUED ON PAGE 37

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## BALANCED TRANSPORTATION:

In one of the most sweeping and extensive route pattern changes to be made by any urban transit system in recent years, Toronto has provided:

- Intra suburban service for riders between suburbs
- Bus route patterns to tie in with rapid transit for downtown riders

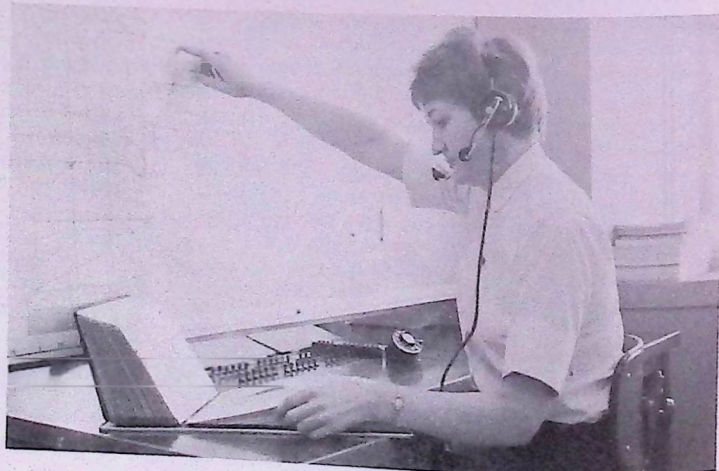
# TORONTO'S NEW "GRID" PATTERN

ONE OF THE MOST SWEEPING route pattern changes to made by any urban transit system in recent years was made by the Toronto Transit Commission last September 1 when a boost of 1,100,000 miles a year was made in Toronto's suburban service.

The extended service is designed to put 97% of the population of Metropolitan Toronto within reasonable distance of regular transit service. It meets the growing needs of passengers traveling locally within their suburban communities and coordinates bus and rapid transit service for commuters from the suburbs to downtown.

The new pattern criss-crosses the city as a grid-iron rather than as the spokes of a wheel headed out from downtown. Whereas many of the previous routes were downtown oriented, new routes have been added to improve the access within the individual suburban communities.

In adding route miles and more frequent off-peak service, Toronto bucked transit cutbacks—the strongest trend prevalent in the industry today. Needless to say, the eyes of the world in transit are on the results of this expansion.



One of the follow-through services that help make the suburban extension a success is the telephone information center. Miss Joyce Cann (right) answers one of the 3,000 daily calls.



Coordination of suburban bus feeder routes is handled at the Eglinton terminal which is used by 100,000 passengers daily. A parking lot has also been built across the street.

It is more than a coincidence that since September several encouraging developments have been recorded:

1. TTC experienced a 2,298,623 increase in riders for 1963. This increase was registered during the four months following the change.
2. In spite of a fare increase on January 1, 1964, passenger traffic was up 2.53% over January, 1963.
3. From December 9-15 TTC experienced a slowdown, during labor negotiations, with frequency of service reduced 20-25%. But the volume of riding was not seriously affected (only 2% for the period).
4. There are increases in off-peak and "light-way" riding. Many downtown-oriented routes are almost entirely rush hour lines. Now improved suburban access generates off-peak usage.
5. All of the new routes will be continued as regular routes in the system. In fact, about ten more route extensions will be introduced during 1964.

### Profits?

What does it take to make such service profitable? A one-word answer would be: Passengers. In general that is the basis of TTC's profitable planning . . . the routes go where the people are. In Metropolitan Toronto 82% of the population lives within 1,000 feet of transit service. An additional 15% live within 1,000-2,000 feet.

But profit is not the only requirement or consideration. Obviously, some of these routes are not expected to pay their way fully and may have to be supported by the rest of the system, perhaps for many years.

But their potential contribution to the system is carefully considered and new routes are, in a real sense, investments in the future. An indication that this policy is beginning to pay off is the fact that suburban riding increased by three million riders in both 1962 and 1963.

To meet one of the plain objectives of the grid system, new routes were planned specifically to serve shopping centers, industrial areas, hospitals, schools, local municipal offices and fast-growing residential areas. The need for transit service to such places was, of course, always recognized. But with the downtown-oriented routes it was not always possible to provide it without serious inconvenience to the majority of riders who travel downtown.

### How it began

Preparations for the expansion program included a house-to-house canvass of 4,386 field calls, representing a 10.2% sample of an area proposed for service. In addition, employees of 100 industries were surveyed to obtain travel-habit information. This comprehensive origin-destination study confirmed the need for extending the grid system as outlying districts develop.

Full page two-color newspaper ads were the major promotion effort at the introduction of the grid system. These were followed with the distribution of 85,000 new system route maps and half a million individual pocket timetables. Both of these items were sharpened in appearance and usefulness.

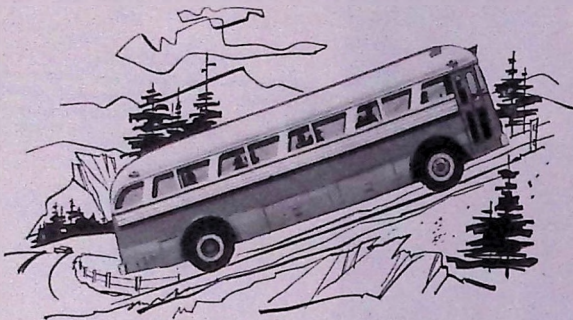
The pace of TTC suburban route expansion is unmatched anywhere on this continent. Total yearly suburban miles in 1964 will be well over the ten million mark.

Without this suburban expansion, ridership within the city would have declined 700,000 revenue passengers during 1963. But a three million passenger increase on the suburban routes provided the 2,298 increase for the total system.

By keeping abreast of population trends and extending the kind of service suburbanites need with 97% coverage, TTC has pioneered in a return to the original function of a transit system—give people the service they want, where they live.



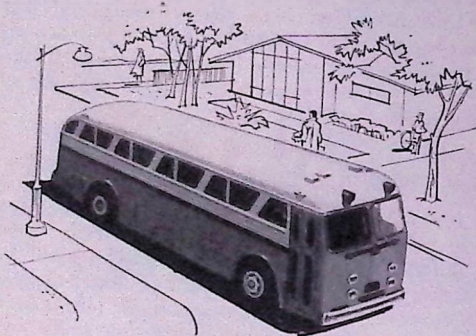
## How to get a "Jack of all routes" bus



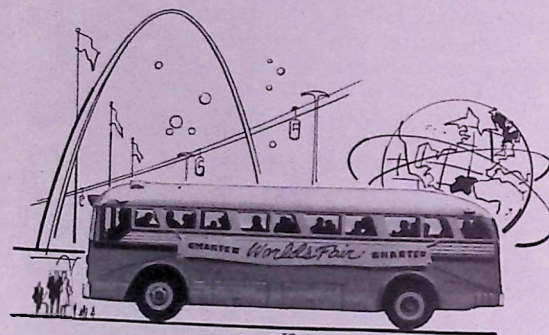
If you need buses geared for hilly routes and...



...heavy-traffic routes and...

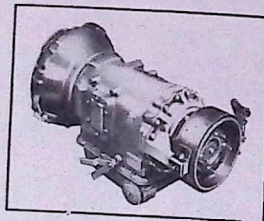


...suburban routes and...

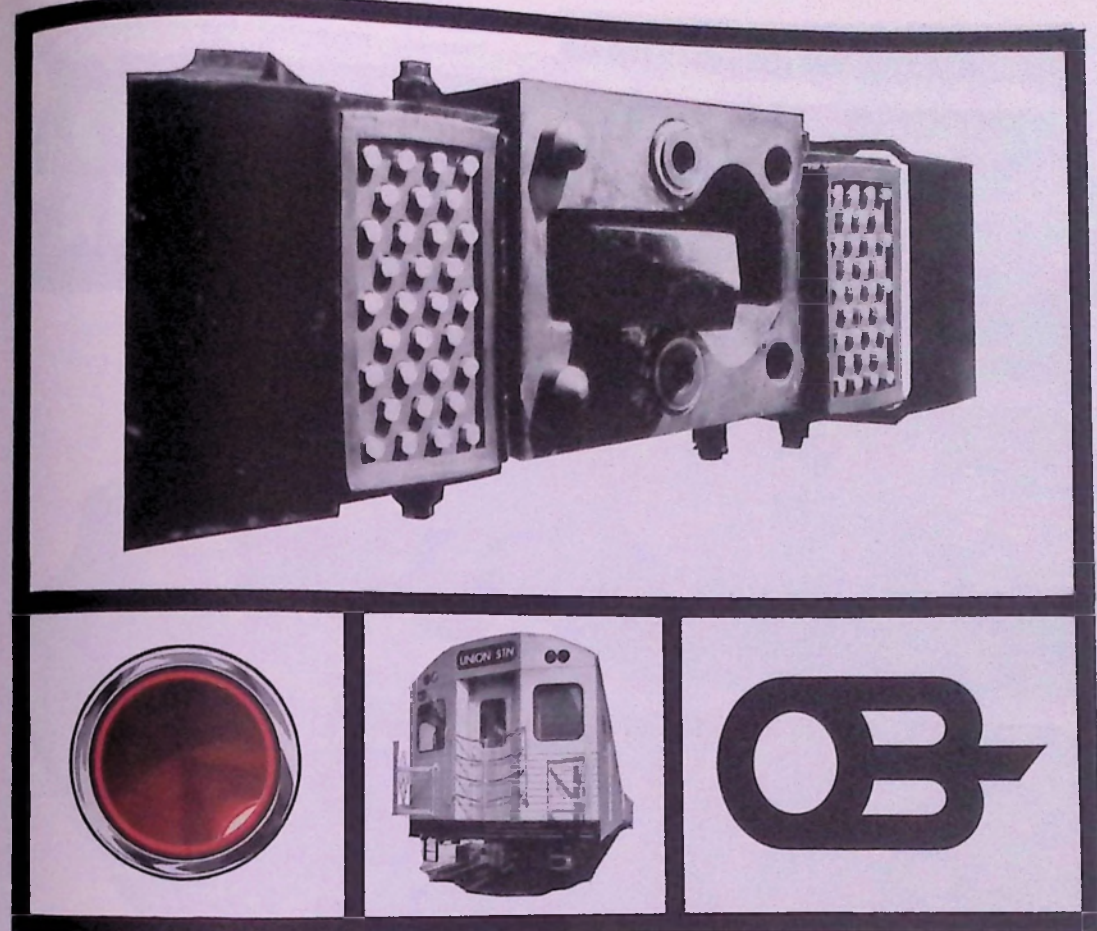


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speed demands, let your buses move in dense traffic or at highway speeds. Details? Write Allison Division of General Motors, Box MT-3, Indianapolis 6, Indiana.



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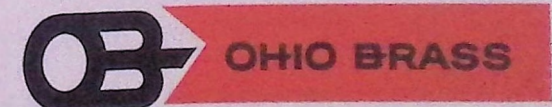
All services... mechanical, electric, and pneumatic ... are connected by pushing a button in the control cab of this car. The fully automatic coupler connects this continent's newest design subway cars... now in service for the Toronto Transit Commission. This new coupler saves time and is much safer to operate: it virtually eliminates the need for a trainman to step between cars. A built-in center locking device holds the coupler ready for quick train make-up at the touch of a switch button. Coupling cars now takes a few seconds where it used to take many minutes. Operations are speedier, safer, because of the O-B automatic coupler.

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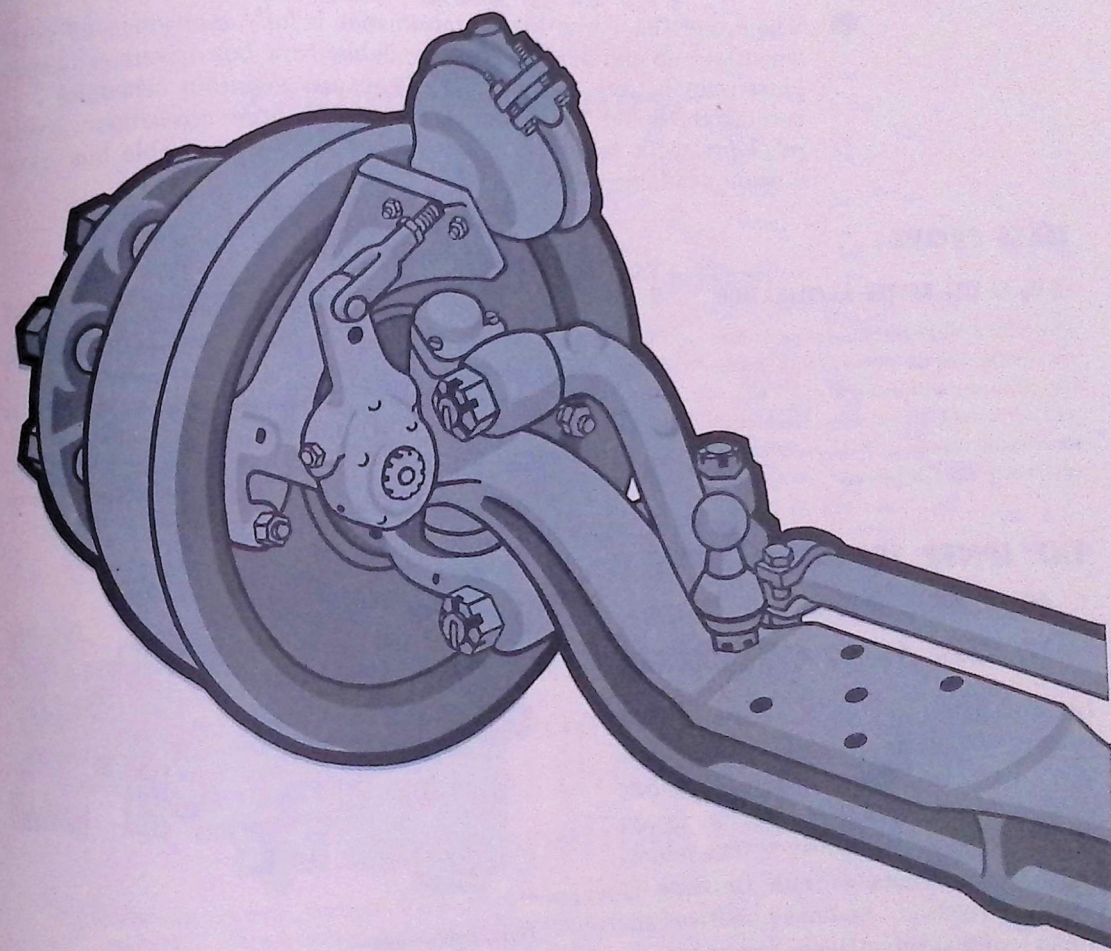
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- 33' length, basic 38-passenger
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\*Not illustrated. Same design as 33', with slightly more space between windows.



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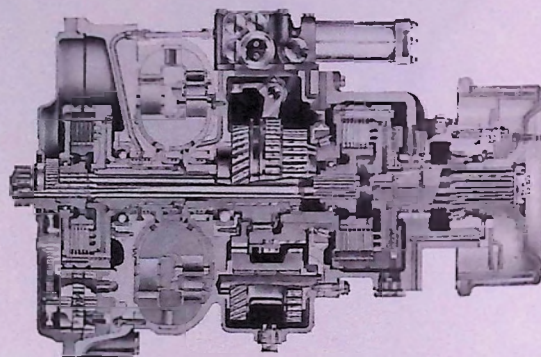
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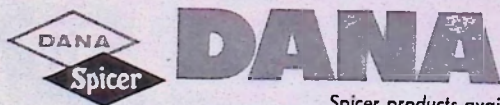
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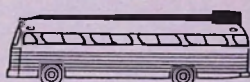
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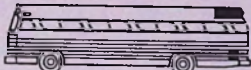
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### B SERIES

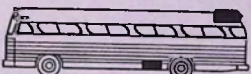
#### MODEL B-1

Evaporator-condenser assembly mounted in roof; compressor installed in bus engine compartment and belt-driven by bus engine.



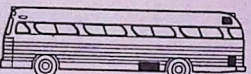
#### MODEL B-2

Evaporator-condenser assembly mounted in roof; engine-driven compressor assembly mounted under bus.



#### MODEL B-3

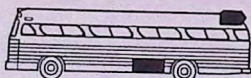
Evaporator assembly mounted inside bus at upper rear; condenser assembly mounted under bus. Compressor installed in engine compartment and driven by bus engine.



### D SERIES

Engine and compressor installed beneath the bus with condenser and evaporator section in rear roof area. Ducting depends on bus configuration.

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## Across America

- - - A Digest of City Plans

### IN PITTSBURGH

The current "Swiftly" is the latest remark by Col. Harley Swift, executive director of the County Port Authority. The one now making the rounds: "Along with spring flowers, the transit operation of Pittsburgh will begin to sprout." It may be so, because watering and fertilizing the Port Authority takeover of 30 transit lines and the Pittsburgh Railways is the fact that six Pittsburgh banks advanced loans totaling \$45 million at 2.40% as interim financing until the Authority issues bonds. The Authority has, meanwhile, named its first manager: John Dameron who assisted John Baine in the Bi-State Development Agency transit takeover in St. Louis last year.

### IN WASHINGTON

The Minibus will transport its millionth passenger sometime this spring. A full fleet of 15 Minibuses was in operation at the end of January. The National Capital Downtown Committee equates the continued success of the Minibus with the vast program of downtown revitalization now underway in the Capital.

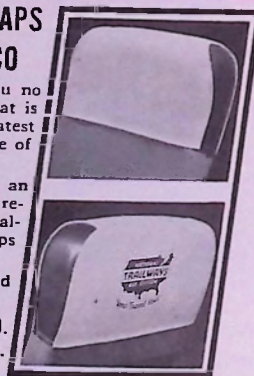
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## America - - -

CONTINUED FROM PAGE 34

### IN PHILADELPHIA

The announced Southeastern Pennsylvania Transportation Authority has appointed a board of directors which has met in preliminary sessions. Alleged goal of the Authority is to absorb the two groups which now conduct successful railroad commuting demonstration (PSIC within Philadelphia and SEPACT in adjoining counties) and combine them with bus and subway operations. This includes the Philadelphia Transportation Company, the last privately held transit company which includes subway operations. However, no funds have yet been appropriated for the purchase or support of any of these services.

### IN LOS ANGELES

A so-called "summit meeting" of city and county officials gave a "surprising" vote of confidence to the Metropolitan Transit Authority. If a surprise at all it was well deserved by the MTA which had worked hard to point out to the community the engineering reasons why they felt it impossible to build and operate a 74-mile rail transit system out of fare box proceeds alone. City and county officials now agree that four amendments to the state's MTA Act will be necessary. These amendments would give the MTA the power: 1. Of eminent domain for the new system's routing; 2. To get financial aid through motor vehicle tax approved by the Legislature last year; 3. To issue general obligation bonds if the voters approve. A book could, and probably will, be written about the political tangles in the Los Angeles transit dispute.

### IN CLEVELAND

The question of whether to expand the rapid transit and where to do it, continues, snarled in politics. There has been much press support for an extension to the southwest of the Cleveland Hopkins Airport. The Cleveland Transit System, while not denying the need for this,

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By counting and slitting tickets.

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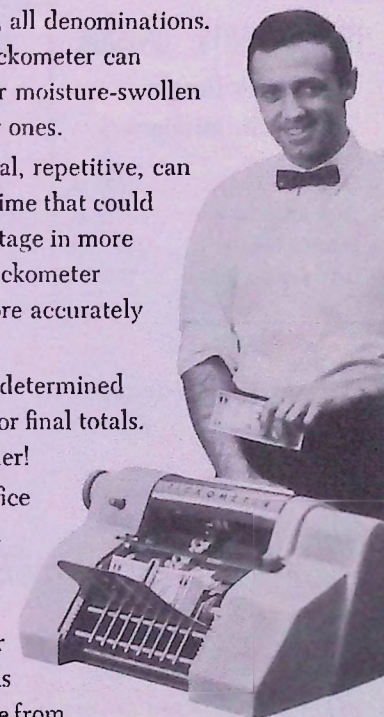
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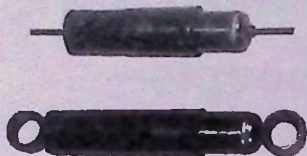
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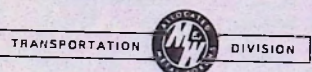
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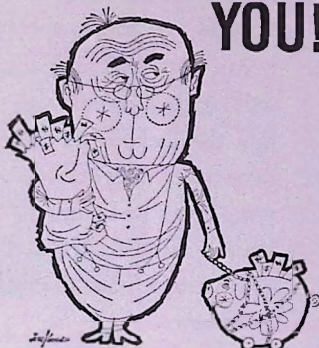
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feels it can be done later. Right now there is more business in a southeast extension. County Highway engineer Albert Porter, (who in the words of the Cleveland Press "wants everybody to travel his way via highway or not at all") came out for the airport extension. In the meanwhile, a 2-mile extension of the Shaker Heights Rapid Transit (not connected with the CTS) has been proposed by opponents of the proposed Clark Freeway which would cut through that posh Cleveland suburb. The Shaker Heights rapid will be debt-free in August when the last bonds are paid.

### IN ST. LOUIS

While the city celebrated its 200th anniversary the Bi-State Development Agency announced a H&HFA demonstration grant of \$357,754 to establish express bus routes on "fan-corridors" and to create a new cross-country route with inter-suburban service. The "fan-corridors" are a test of service to a city which has spread out in all directions and not along radial transportation lines. The cross-county route will test service which skirts the city linking suburban communities without coming downtown.

### IN BOSTON

Two political messages, will have a lasting effect on transit. In his annual message, Governor Peabody gracefully put to rest the Mass Transportation Commission whose experiments will be completed in April. Apparently its research and demonstration activities will be incorporated in a new Department of Economic Development.

In his second inaugural address, Boston's Mayor Collins spelled out the problem of public transportation. "We must," he said, "accept these facts: The railroads are going out of the commuting business... local mass transportation has become a governmental responsibility... this problem must be solved on a metropolitan basis. What is required immediately is the MTA rapid transit extension along available railroad rights of way." He suggests that cities and towns with the backing of the state help pay for this service.

### Pro - - -

well as low cost transportation between them." He went on to say, "Every American community will benefit from... the improvement of urban renewal and public transit."

Again, in his Budget Message last week, the President said "pending legislation to assist urban mass transportation systems would authorize Federal grants, direct loans, and loan guarantees involving new obligatory authority totaling \$375 million over a 3-year period. The 1965 Budget includes \$75 million in new obligatory authority and \$10 million in expenditures for the first year of operation under the new program."

### Con - - -

thorization to purchase bonds equal to perhaps half the cost of a metropolitan area's transportation network. The other half of the system's cost would be financed through a regular revenue bond issue. Interest and principal payments to the government could be made only after the debt service payments on the revenue issue were paid. In effect, the loan with a secondary claim on net revenues is a form of equity.

The Rural Electrification Administration is in many respects similar to the agency which I am suggesting. It was created to fill a need which private industry was unable to meet, that of sup-

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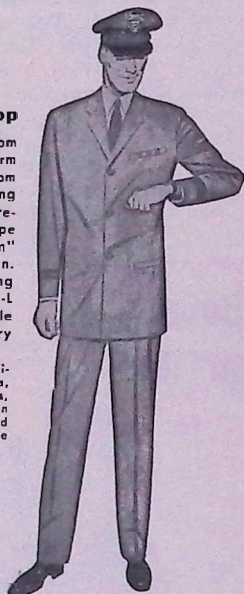
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—Pro—

CONTINUED FROM PAGE 37

In comparison with other existing programs of Federal aid to state and local governments—totaling some \$10 billion in the proposed 1965 Budget—this amount is quite small. Its impact would be large, however, since the provision of Federal funds on a matching basis, as has been proposed, would make even more productive the local funds already available for transportation purposes. Further, as in other Federal aid programs, the national interest generated as a result of the program will stimulate additional local resources, encouragement and action.

If the Federal government can undertake a massive collaborative effort to develop a supersonic plane, certainly it should also be able to afford more funds than the small amount so far made available for the development of new rolling stock and equipment for ground transportation.

—Con—

plying power to rural districts. Mass transit is another field in which returns do not justify private investment, but in which the public need is clearly present. The REA grants 2% loans for periods extending to 35 years, and it is this type of arrangement I would recommend for mass transportation. With a flexible secondary creditor, the transportation authority would have the obligation to repay, but not the prospect of default in case of insufficient revenues.

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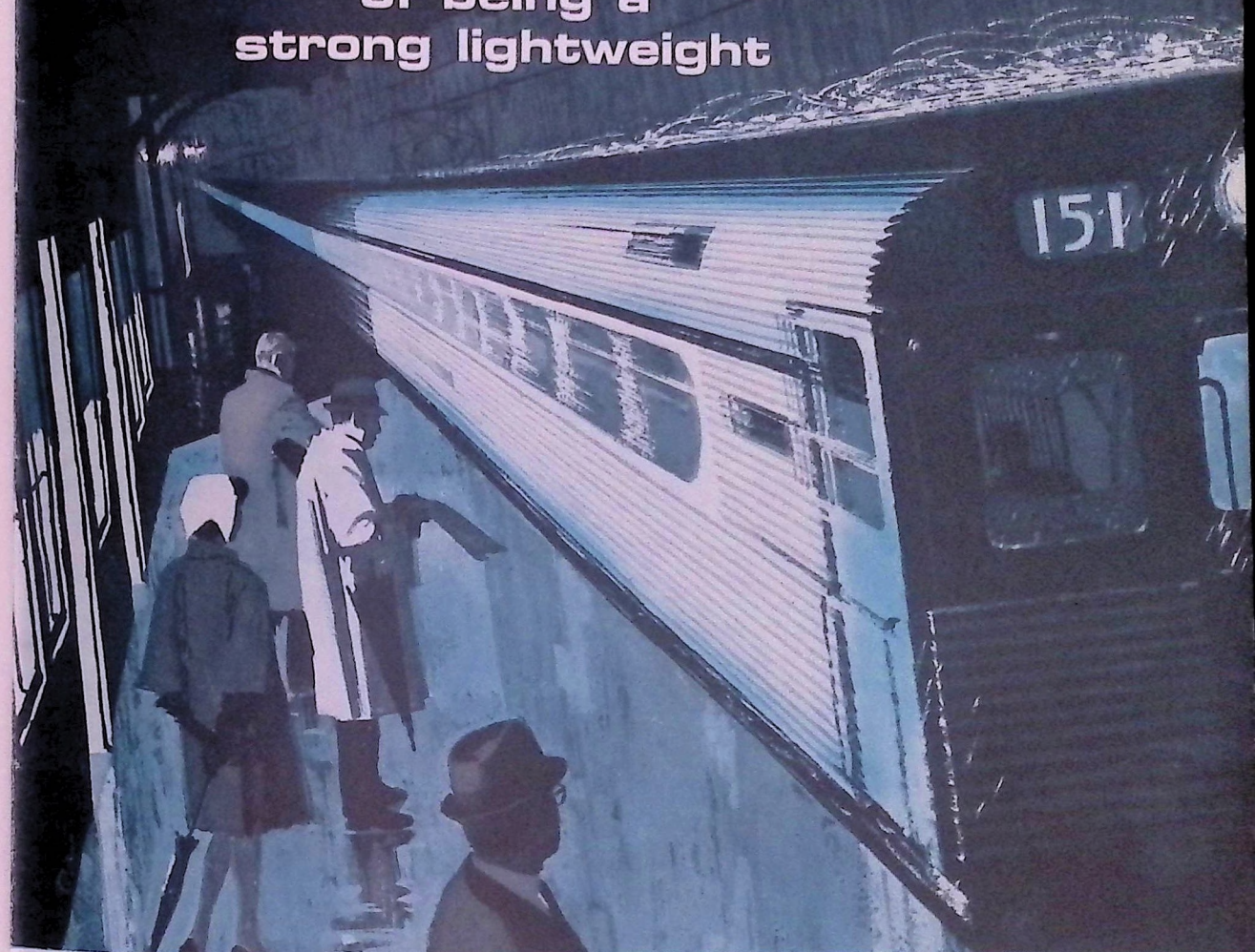
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