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VOLUME 2

NOVEMBER 1957

NUMBER 4

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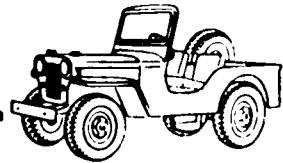
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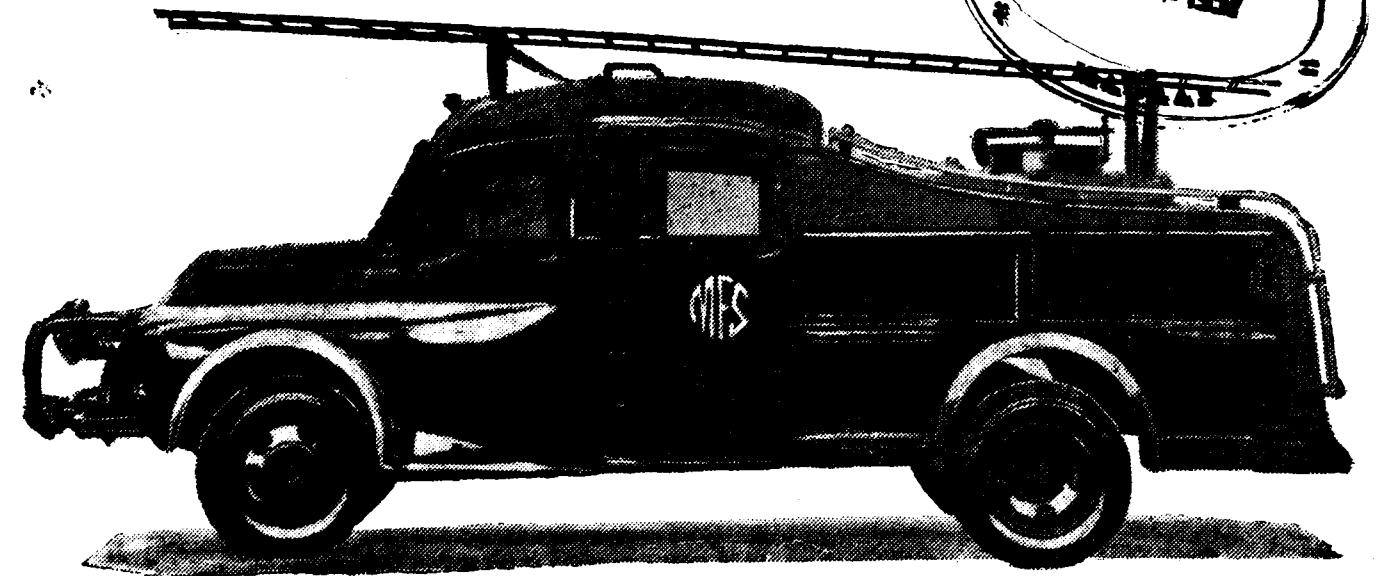


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MOTORINDIA

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CONTENTS

	Page
Editorial	5
About Your Car by Robot	7
Fiats at the Turin Show	9
More about the London Show	17
Backfires	21
Social and Personal	22
The Gas Turbine Car	25
Automotive Association and Ancillary Producers	26
Annual Day of Motor Parts Dealers Association	27
Parts Dealers' Representation to Import Controller	31
New Decision on Import of Brake Parts	32
Automatic Light Dipper	33
Transport Controllers Conference	33
Traffic Engineering by Professor S. P. Hore	35
Speed Maniac by Alfred Coppel	40
Models and Their Prices	44

81

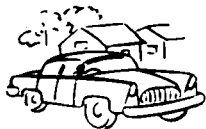
INDEX TO ADVERTISERS

	Page
Ashok Leyland Ltd.	6
Auto Tools Agencies	41
Bharat Motors	34
Burmah-Shell Oil Storage & Distributing Co. of India Ltd.	10
Caltex (India) Ltd.	2
George Oakes Private Ltd.	Front Cover
Glass & Miniature Bulb Industries	20
Himco Batteries (Madras) Private Ltd.	18
Indian Engineering & Trading Co.	8
India Pistons Private Ltd.	Facing Editorial
India Tyre & Rubber Co. (I) Private Ltd.	18
Laxmidas & Dwarakadas	42
Lucas Indian Service Ltd.	16
Madras Mercantile Agencies Private Ltd.	16
Mahindra & Mahindra Ltd.	Second Cover
Modern Automobiles	8
Modern Distributing Co.	32
Motor Industries Co. Ltd.	14
Overseas Manufacturers Sales Co.	20
Premier Automobiles Ltd.	Third Cover
Ravindra Trading Co.	8
Shantilal C. Mehta	21
Simpson & Co. Ltd.	Opening page
Standard Batteries Ltd.	14
Standard Vacuum Oil Co.	24
Tata Locomotive & Engineering Co. Ltd.	12
Waxpol Industries Ltd.	3

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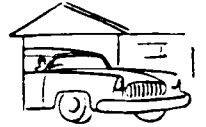
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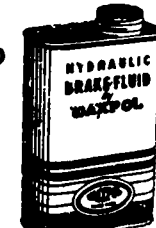


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editorial

A sharp increase in fatal motor vehicle accidents in Madras State has been reported according to answers given by Mr. V. Ramaiah, Minister for Transport and Electricity in the Legislative Assembly which commenced its session in the second week of this month.

Answering interpellations by Mr. K. Sattanatha Karayalar, the Minister has said that there were 354 fatal accidents involving 207 lorries in 1956 and that there were 381 fatal accidents involving 238 lorries till the middle of October this year. With 2½ months more to go, the accidents increase during this year has already exceeded last year's by 10%. The lorries for their part even showed a greater responsibility for the increase in that accidents involving lorries had increased by 15% even during the first nine months of the year. This situation calls for steps to minimise, if not considerably reduce, such accidents. It is of course easily said that the lorry light glare and the super speeds at which they are driven are mainly responsible, for most of the accidents. But, it should be understood that the lorry driver is as human as any other at the wheel of an automobile, and that the lorry driver's responsibility in charge of heavy vehicles increases along with problems with which he is confronted as a driver and as a human being. Driving of heavy vehicles and for long distances, is not so easy especially when conditions of service are such that they do not have enough rest during intervals and often they go about doing the same long routes with practically no change or rest worth mentioning for several days and nights at a stretch. The fundamental approach to this problem, therefore, should be one which would relieve the strain and stress to which the lorry driver is now being subjected to.

News of an interesting development which may help to solve such problems in the near future comes from the United States of America where the Yanks, as may be seen from elsewhere in this issue, are working on a gadget that will automatically dip headlights for lazy drivers and prevent accidents. Inventors there have been trying to evolve some kind of automatic or semi-automatic method to control dipping and so lessen atleast one highway danger which is unfortunately widely prevalent in the national highways of most countries. It is to be hoped, now that manufacture of automobile and allied parts have been started in right-earnest in India itself, that some enterprising manufacturer should study the possibilities of making a similar device if necessary with know-how obtained from the United States for finalising this automatic light dipping arrangement. Any amount of time and effort spent on such a device will be amply compensated by the results that may accrue, especially in the shape of reducing accidents and saving innocent lives.

While on this subject of traffic accidents, readers will welcome the publication in this issue in detail of an interesting survey of Traffic Engineering in all its aspects so ably prepared by Professor S. P. Hore, Professor of Automobile Engineering in the Madras Institute of Technology. As may be seen from the text of this survey, traffic accidents have a direct bearing on so many subjects including of course, Road Designing. The problem of traffic accidents is assuming such unfortunate proportions in this country, that it is better that Governments at the Centre and the States seriously consider the suggestion made therein to seek the assistance of qualified traffic engineers and, if necessary to create a separate Traffic Engineering Department which can work in close collaboration with the Police and Highways or Road Engineering Departments.

November 1957

MOTORINDIA



Large body space seats at least six persons more than any other chassis made in India.

LEYLAND is the first choice in over 50 countries around the world

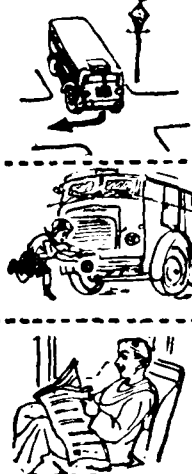
EVERY Road Transport Authority in India has rated a higher seating capacity for Leyland Comet than any other chassis made in India. The Leyland Comet provides accommodation for at least six more passengers in every trip, and it costs no more to run. Its low fuel consumption, and easy maintenance makes it the ideal passenger transport vehicle everywhere.

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AL 124

ABOUT YOUR



By 'ROBOT'

In the modern automobile electrical energy is required at as many points as you might need in your house containing four or five rooms. All this electrical energy is supplied by a combination of the Battery and the Dynamo. Electricity is required initially to start the engine; then the various other equipments such as head lights, side lights, tail lights, stop lights, signal lights, dashboard lights, interior lights, reversing lights, panel instruments, etc. consume electricity at one time or other. In many cars, it is required to operate window glasses; in convertibles, to operate the hood; if you have a cigar lighter, radio, clock or air-conditioning, again electrical energy is required by them. It is indeed a tremendous task for the battery and dynamo to provide the power for so many purposes.

It is very essential that the battery and dynamo are properly maintained to enable them to function efficiently. It is equally important that the wiring system is in faultless condition. I have given some hints (Motorindia, May, 1957) in connection with the maintenance of the battery. The dynamo is used to charge the battery. Without the dynamo, your battery will be exhausted within probably a couple of days' driving.

The simple cares to be taken in this regard is to see that the Carbon Brushes are in tact and in their proper position. It is also necessary to occasionally clean the dynamo commutator. The commutator can be seen if you remove the metal strip fixed around the dynamo at one end. This will appear to have been made of small strips of copper. This can be cleaned with a piece of clean cloth moistened with petrol, held pressed to the commutator and by slowly rotating the dynamo by hand. The carbon brushes are constantly rubbing against the commutator and naturally there will be wear on the carbon brushes. They may have to be replaced, if necessary.

In most of the modern cars, the dynamo is driven by a belt. In the course of a long period of driving the belt may become somewhat loose either due to wear or due to the belts holding the dynamo in position sliding in their slots. Try the belt by pressing it inward and the movement should not be more than one inch; if it is so, the belt is not likely to have a good grip and the dynamo cannot function efficiently. See that the dynamo is so adjusted that the belt stays as required. If the belt remains loose even after adjusting the dynamo to the full limit, it denotes that the belt should be replaced.

The next item is the wiring itself which carries electricity to the various components mentioned above. In the domestic wiring system there are two separate wires—positive and negative. In the older models of cars the same principle was employed. But due to various advantages, in the cars of recent models the single wire system is used while in the place of the other wire the metal of the car itself is used. In this system two things are most important: (1) There should be strong contacts of joints between the various metal parts of the car which serve as one wire of the system; (2) There should be complete insulation of the wire that is used for the other circuit, except where it is intentionally joined to some terminal or other. Any failure of these requirements may result in the current not reaching the particular part in item (1) and in the case of item (2) a short circuit occurs, sooner or later.

As a matter of safety, the wiring is divided into several circuits and each circuit is again connected to the battery by fuses. When one of your fuses blows out you may look for some trouble in the particular circuit of wiring. Although it may be beyond the capacity of the

'ROBOT' will be glad to answer in these columns, from the Readers of this Magazine, any questions pertaining to their Motoring problems. Questions may be addressed to 'ROBOT' C/o 'MOTORINDIA' 5/141, Mount Road, MADRAS-6.

average motorist to rectify the defects that may crop up in the wiring it may be of interest for him to at least know where the fault lies. This can be ascertained if you refer to the wiring diagram of your car or once note which fuse controls which circuit. The circuits, with some variations, may be arranged on the following lines:—(1) Battery—the nerve centre of the whole installation; it is a part of all circuits in the system; (2) Charging circuit, consisting of the dynamo and its regulator; (3) Ignition circuit, which may again be sub-divided into two circuits, primary and secondary. The primary circuit consists of ignition switch, coil primary winding and contact breaker points. Secondary circuit includes coil secondary winding, distributor cap and rotor and spark plugs. (4) Starting circuit consists of the starter motor and switch. (5) Lighting circuit includes all lights. (6) Accessories Circuit for direction signals, radio, cigar lighter, etc.

As the lighting circuit is the biggest in the wiring circuit of an automobile, most wiring problems are likely to be found there and practically all defects in the wiring of other circuits can be found and rectified in the same manner. However, it requires a good amount of knowledge and therefore it is good to obtain the services of a reliable workshop with proper instruments and other facilities to obtain satisfaction. The complete electrical system must be thoroughly examined at least once in ten thousand miles of running.

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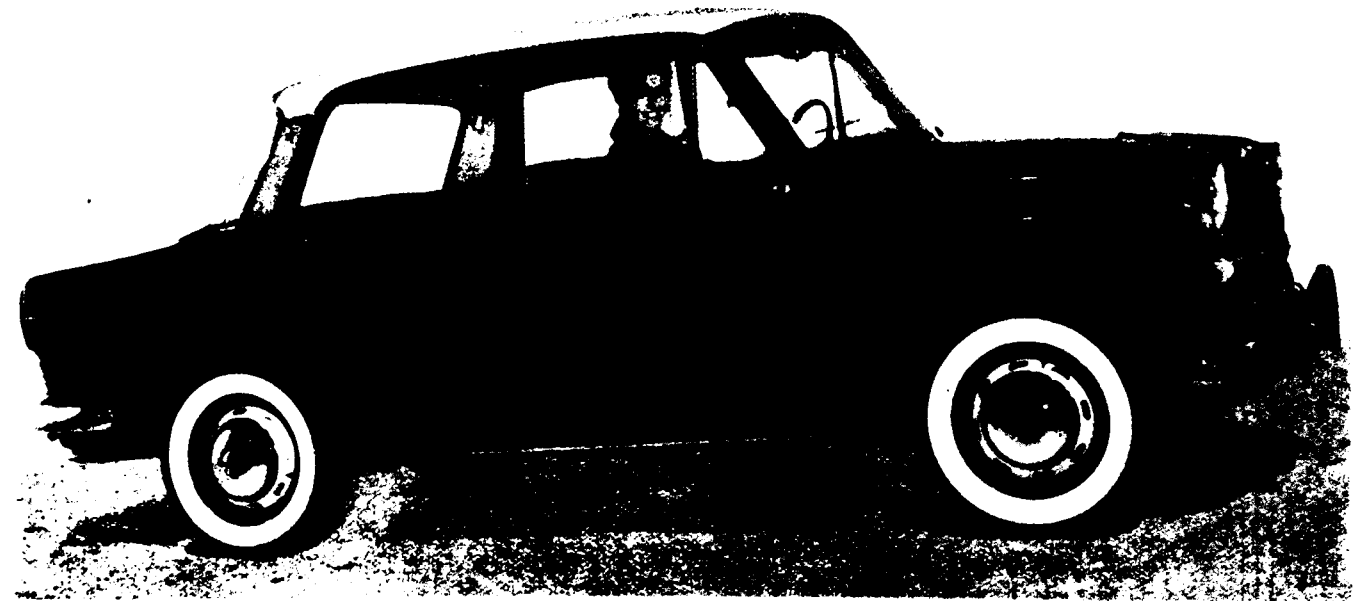
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The Fiat 1200 Granluce, is a modern car of superior quality

FIAT AT THE TURIN MOTOR SHOW

COVERS WHOLE RANGE OF PASSENGER AND GOODS VEHICLES

(BY OUR SPECIAL CORRESPONDENT)

Fiat presented at the Turin Show all its models : passenger cars, derivatives, commercial vehicles ; and in each sector there are some noteworthy novelties. In general, each model is improved and embellished, principally the new creation 1200 Full-Light, the 1100 T van and light lorry, the model C 40 N four-ton lorry.

All together Fiat is showing at the Exhibition some fifty units of at least twenty different types, covering the whole range of passenger and goods motor transport.

Fiat's motor car production is at present at a European level : an average of 1300 units a day, an average which is continually rising particularly owing to the constant crescendo of the small utilitarian models 500 and 600. The Fiat

Mirafiori Works (Central and South Mirafiori, which, together, occupy 50 acres of a 350-acre area of land) are of such modern efficiency, with ever-growing applications of automatism, as to keep pace with the productive developments demanded by the expansion of Fiat's markets in Italy and abroad.

On the Fiat car stand—which occupies about 8600 square feet of the main hall of "Torino-Esposizioni"—is shown, among the cars, a working mechanical group of of great attraction : a sectioned working "new 500" car. This is mounted on a revolving platform and opens out, automatically, into its principal parts, laying open to view and in motion all its mechanical and body details.

This new masterpiece of mechanical precision and ingenuity, made

by the Fiat Experimental Workshop (specialised in these original exhibition pieces, admired at every international Motor Show) is a singular demonstration of the technical excellence of the new 500.

The novelty : the "1200 Full-Light"

An absolute novelty, that Fiat had reserved for the Turin Show, this handsome car, of high performance and very convenient price, replaces the "1100 TV" and represents a noteworthy advance in construction, both as regards the mechanical parts and the body. This new model is shown in two versions : saloon and Roadster, and is certainly one of the biggest attractions at the Show.

The 1200 has the same advanced mechanical features as the revised 1100 (mod. 1958) and the new

November 1957

MOTORINDIA

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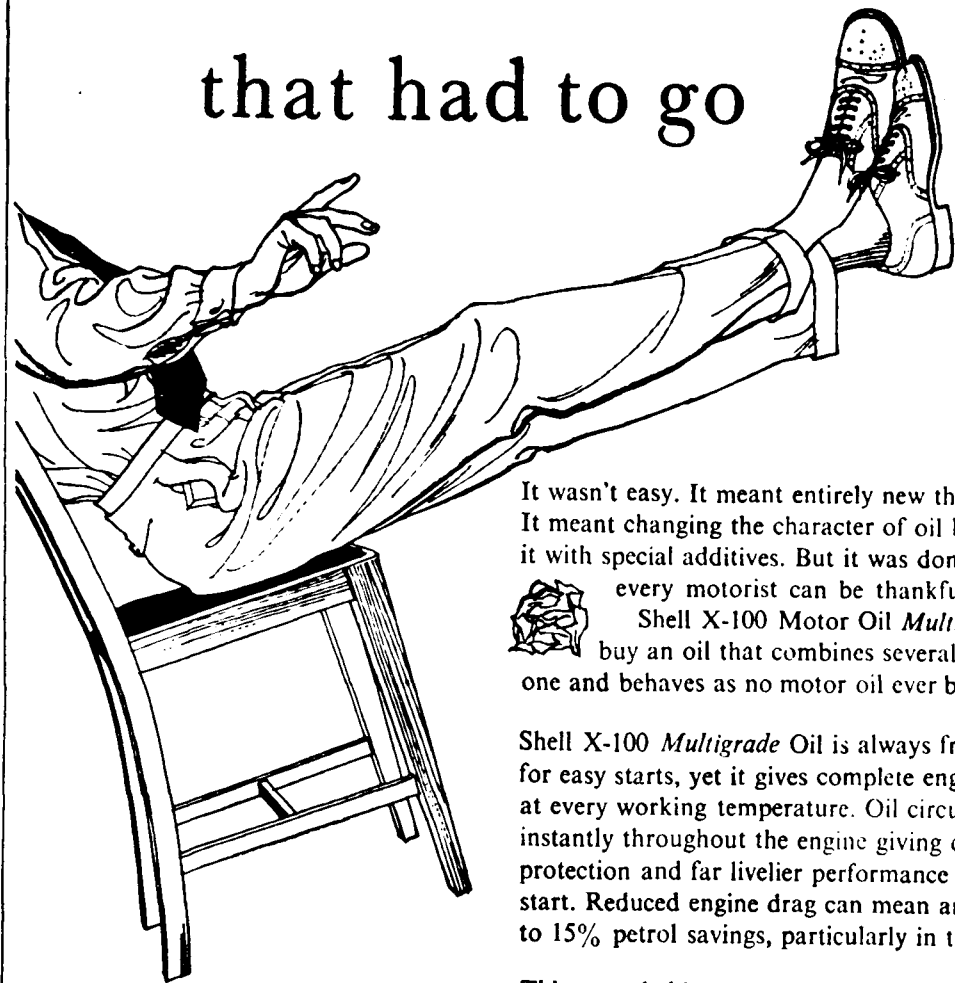
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MOTORINDIA

November 1957

8

The idea that had to go



Everyone knew that oil behaved in a certain way. In cold, it thickened up. With heat, it thinned out. It always had done. Why should it ever be otherwise?

It was a challenge to research. Why couldn't a new kind of motor oil be produced, an oil that would resist thickening up in cold and thinning out in heat?

It wasn't easy. It meant entirely new thinking. It meant changing the character of oil by blending it with special additives. But it was done and every motorist can be thankful; for in Shell X-100 Motor Oil *Multigrade*, he can buy an oil that combines several grades in one and behaves as no motor oil ever behaved before.

Shell X-100 *Multigrade* Oil is always free-flowing for easy starts, yet it gives complete engine protection at every working temperature. Oil circulates instantly throughout the engine giving quicker protection and far livelier performance right from the start. Reduced engine drag can mean anything up to 15% petrol savings, particularly in town driving.

This remarkable product is the result of a readiness to challenge existing ideas which is the mark of leadership. It is with such products that Burmah-Shell make your motoring better, easier and more economical.

BURMAH-SHELL... in India's life and part of it



Fiat 1100, Model 1958

brakes with self-centering shoes; but it has a larger engine (1221 c.c.) which gives more power at all engine speeds (max. 55 h. p.), still better acceleration and a speed of over 85 m. p. h.

The body is elegantly stream-lined, well-lighted, 4 doors, de luxe trimmings, duo-tone finish.

The 1200 *Roadster* is a particularly brilliant car. Speed about 87 m.p.h. The Roadster offers the convenience of an open car. The hood is of weatherproof fabric on a steel frame and when down is completely hidden in the body panelling.

"The 1100 mod. 1958"

First exhibited, at the Paris Show on October 3rd, this modernised and more powerful 1100 is also a novelty at the Turin Show. The 1100 is one of Fiat's best-known models and has a world-wide reputation. During its 20 years of life it has been rejuvenated several times by successive improvements in substance and form, and of this 1958 edition it has been said that it is "an ever-youthful car".

The engine of the 1100 mod. 1958 (4 cylinders, 1089 c.c., 43 h.p. at 4800 r.p.m.) owes its increased power to the re-designed cylinder

head. Speed over 75 m.p.h. Carburettor with accelerator pump. Separate inlet ducts to each cylinder. New braking system with self-centering shoes and ribbed drums for cooling, giving sure and fadeless braking of high efficiency.

The two-colour coachwork of the "1100 mod. 1958" has an elegant lengthened line. The luggage boot is longer and consequently considerably more capacious. Large rear window. New radiator grille. Bigger and more efficient headlamps. Reinforced bumpers.

The 500 and the 600

The "New 500" is on view in two versions: economical and standard: the latter has, besides the two bucket seats in front, a full-width bench seat at the rear. It has also wind-up windows and special accessories and trimmings. Both versions have draught deflectors which can be fixed in position.

Now the "New 500" is, in its two versions standard and economical, more than ever the small, utility, economical car within the financial reach of still more people. It gives further impulse to the popularity of the motor car for business and for family motoring.

The 600 is presented in all its versions: saloon, convertible (embellished and improved in their bodywork), the 4/5 seater multipla, the 6 seater multipla and also the 600 Taxi.

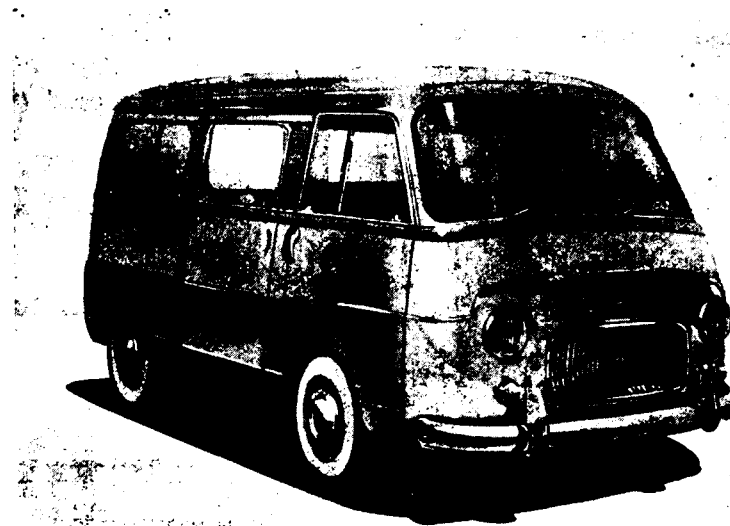
The 1400 B and the 1900 B

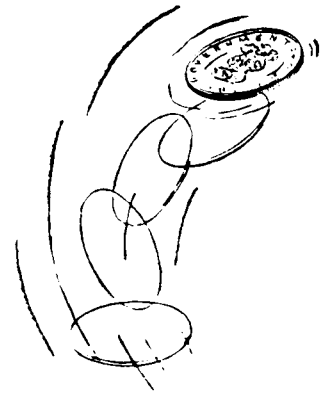
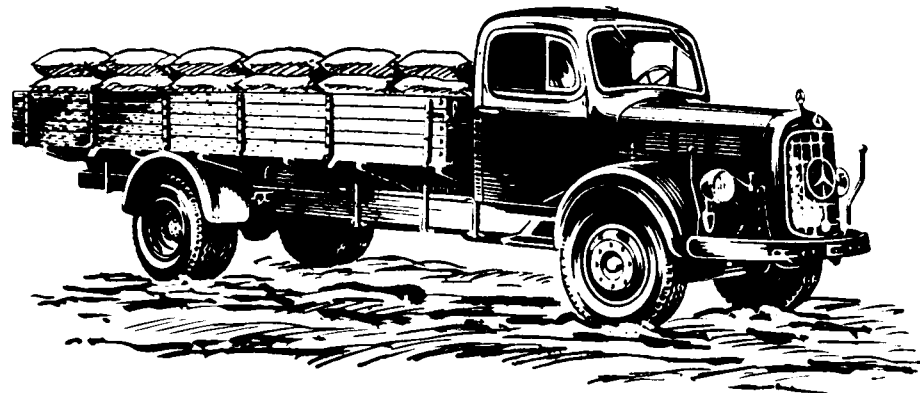
Of these two models, also improved in trim and finish, several cars are shown. The 1400 B is also shown with a diesel engine and the 1900 B with a "Full-Light" body.

Commercial vehicles

In the wide and varied range of derivatives and commercial vehicles

Fiat 1100 T Auto bus

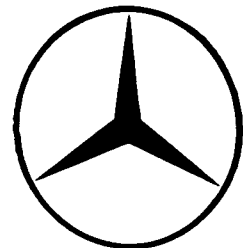




An operator does not toss a coin to
decide which vehicle to buy.

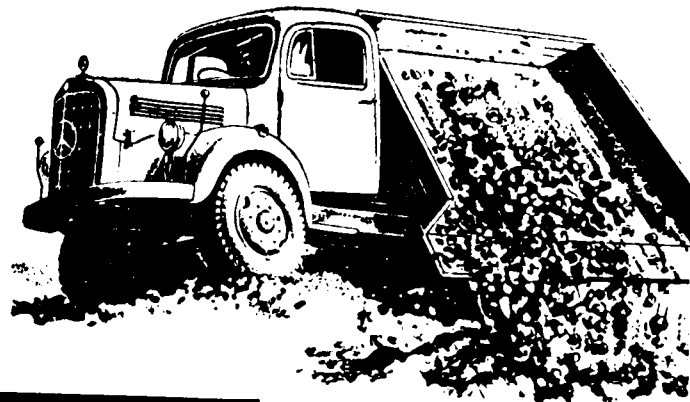
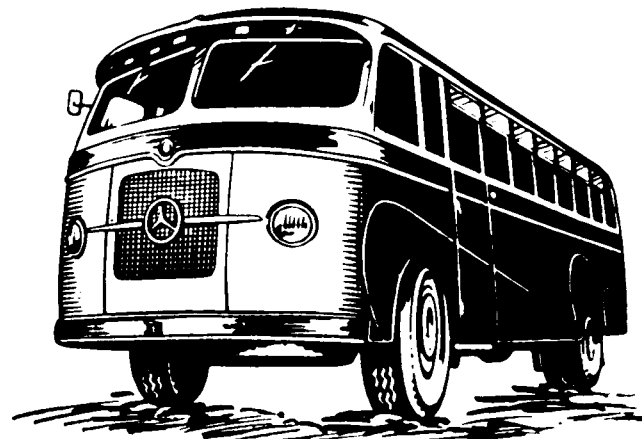
He wants his vehicle to be
sturdy and economical, with a long,
trouble-free life.

So he buys a —

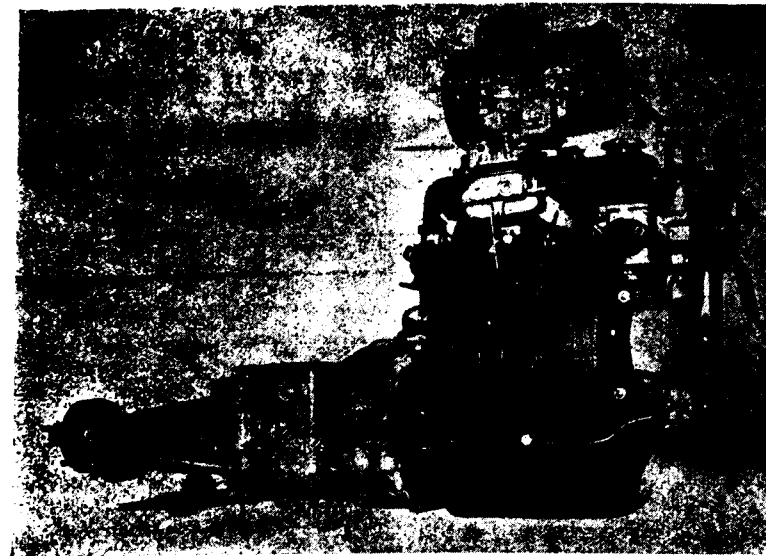


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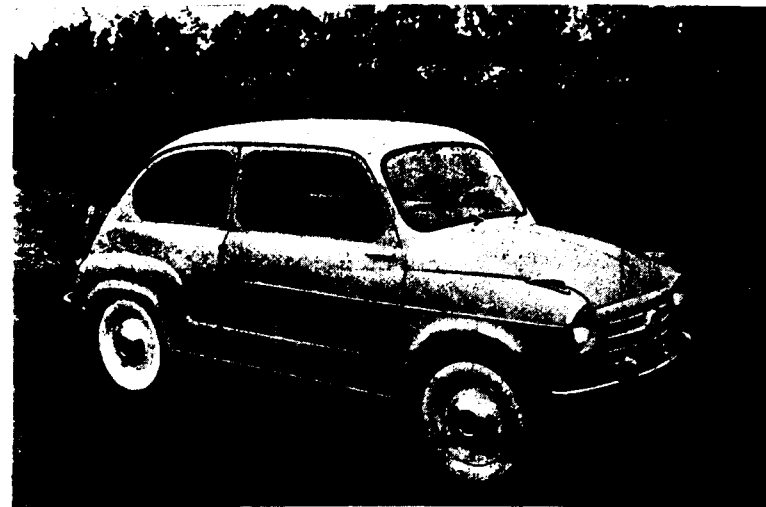


Fiat Nuora 500



Power Unit showing the Gruppo propulsor of the New Fiat 1200 Granluce

Fiat 600 Berlina



for goods and passenger transport, there are these two principal novelties :—the 1100 T" van and light lorry, derived from the 1100 car. These are economical light-duty vehicles with a load capacity of one ton. There is also a bus version : seats for nine passengers plus the driver. The model C 40 N four-ton lorry for rapid transport. A bus version of this model is also planned.

All the other types of lorries buses and trolley buses of various sizes and models, including the model 411 bus with a liquid gas engine, are to be seen at the Show. The headlamps of the 1200 Full-Light and Roadster 1400/B Saloon (petrol engine) 1900/B Saloon and Full-Light have asymmetrical dipping lights for better visibility in passing.

THE FIAT "1200 FULL-LIGHT" A CLASS TOURING CAR

FIAT had kept for the Turin Motor Show (October 30th—November 10th) the introduction of the new model "1200 Full-Light." This is really a modern car of superior quality : an elegant car of high performance at the lowest possible price.

The 1200 has the same advanced mechanical features as the revised 1100 (Model 1958) and the same new brakes with self-centering shoes ; but its engine is of larger cylinder capacity (1221 c.c.) which gives more power at all speeds (maximum 55 h.p.), smarter acceleration and a top speed of over 85 m.p.h.

The body is elegantly streamlined, with a roof of new, markedly taut and flowing line, a large curved rear window and a light chromium border around the side lights in the 4 doors (the forward lights have draught deflectors). Duotone finish with luxurious appointments and a spacious luggage boot. There is a shelf under the facia board for small packages, odds and ends, etc. The

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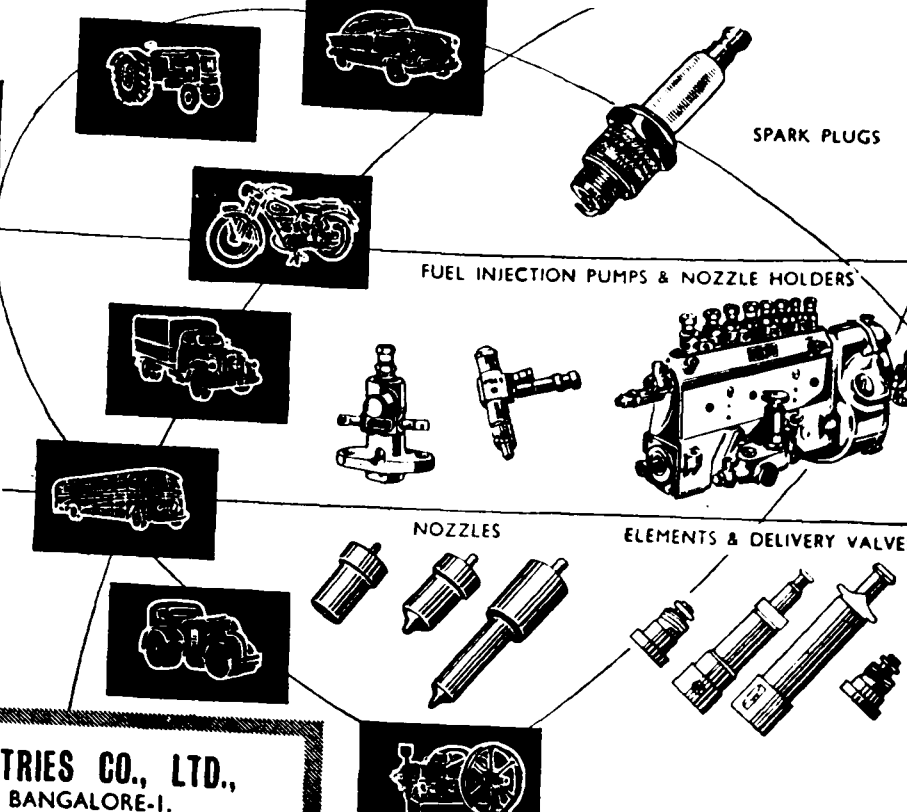
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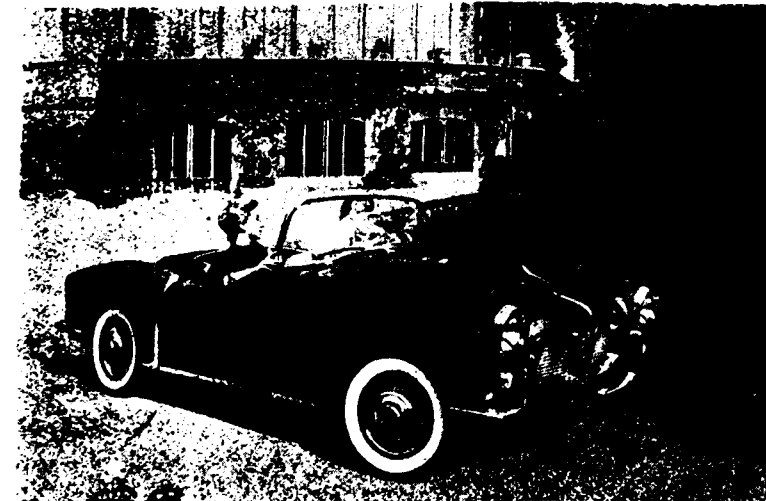
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Fiat 1200 Spyder Roadster has many specialities

efficient bumpers. Larger luggage boot. Gear change by small, centrally situated lever, as in sports cars.

With the "1200 Full-Light" Fiat has brought out a modern, elegant, high class touring car.

control knobs are so situated as to obviate all risk of injury in the event of a collision or a sudden stop. Push-button door handles.

Here are the main technical features of the new car :

Engine : 4 cylinders, 1221 c.c. Bore 72 mm. Stroke 75 m.m. Compression ratio 8 to 1. Twin-choke Weber carburetter with accelerator pump. 55 h.p. at 5300 r.p.m. Maximum torque 6076 ft/lbs at 2700 r.p.m. Single-plate dry clutch. Gearbox : 4 speeds forward and one reverse.

Max. speed in bottom gear, about 22 m.p.h.

Max. speed in second gear, about 37 m.p.h.

Max. speed in third gear, about 56 m.p.h.

Max. speed in top gear, about 85 m.p.h.

Max. speed in reverse gear, about 22 m.p.h.

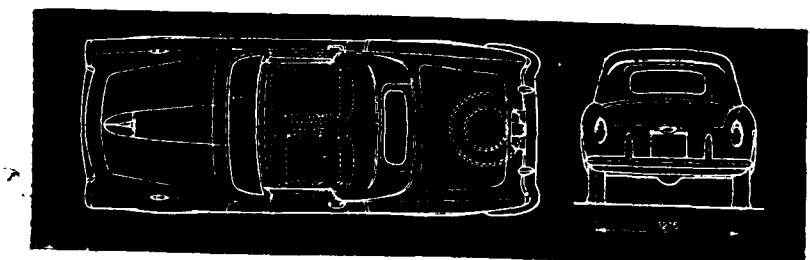
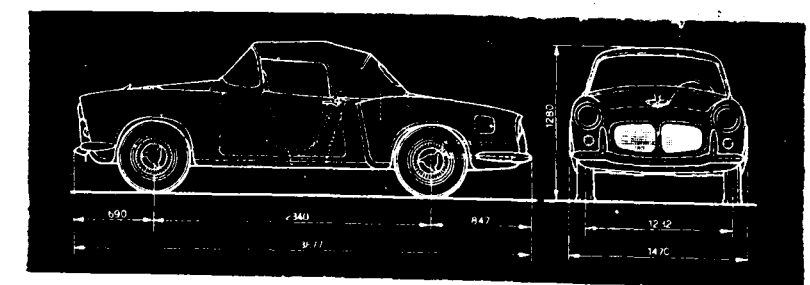
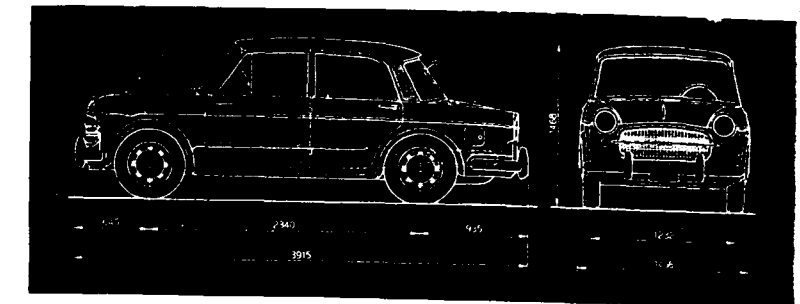
Consumption (Italian Bureau of Standards rating) about 33 m.p.g. Hydraulic brakes with self-centering shoes and drums finned for cooling.

The "1200 Roadster" has remarkably brilliant qualities, speed over 85 m.p.h. The Roadster can be used as an open car : the small

hood is of weatherproof fabric stretched over a steel frame and be easily and quickly lowered, in which position it is completely hidden.

Other features : improved interior finish. Revolving seats facilitating entry into the car. New type highly

The drawings below show from top to bottom (1) Side and front view of the Granlight full Light Model and (2) side, front and (3) top and rear views of the Fiat 1200 Spyder Roadster



November 1957

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More About

The London Motor Show

This year 310 cars—a record number—from British and overseas factories were displayed to the public at the 42-nd International Motor Show which opened recently in London.

New-design caravans, sleek motor boats, and a host of motor accessories and equipment, were also on display. New cars took their places against a score of redesigned and miniature models to provide a display larger in scope and wider in variety than ever before.

Britain's Prime Minister who opened the show, stressed the value of British exports of cars and chassis. "No Motor Show has been opened in greater confidence than this year," he said.

NEW TRENDS

The main trend of this year's show was the adoption by many British manufacturers of two-pedal control and semi-automatic transmission in the smaller car ranges, while fully automatic transmission systems continued to be available in the larger cars.

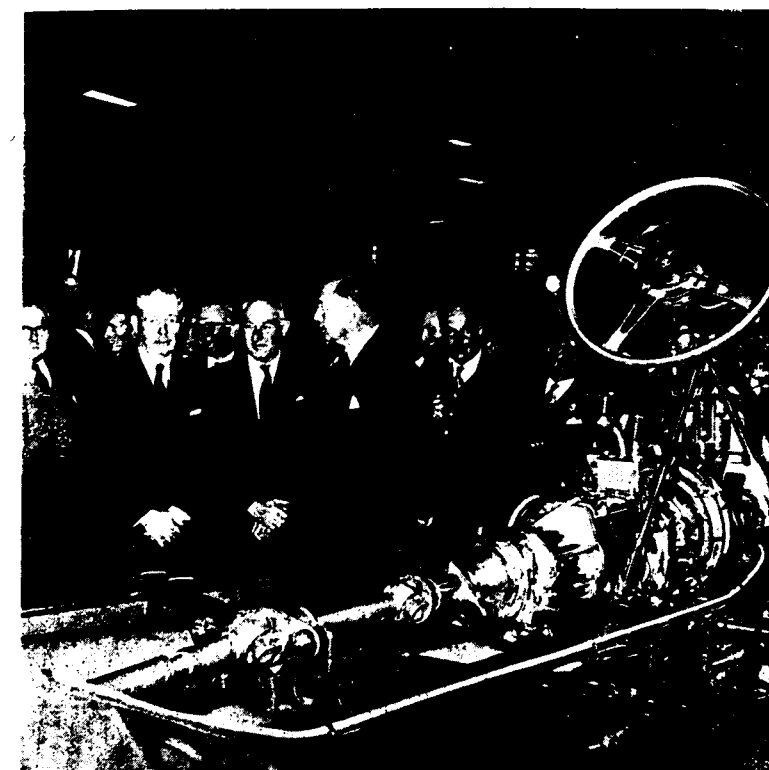
Among other noticeable features which aroused considerable interest among the thousands of overseas visitors and buyers, were such things as greater all-round visibility for the driver by the introduction of panoramic windscreens; increased engine efficiency and greater economy in fuel consumption; new colour ranges and duo-tone schemes; and the appearance of more production models fitted with disc-type brakes.

From the smallest accessories to the largest cars British motor industry displayed its achievements, which have put Britain among the world's leading exporters of motor vehicles.

For United Kingdom manufacturers, the Show is one of the

November 1957

5

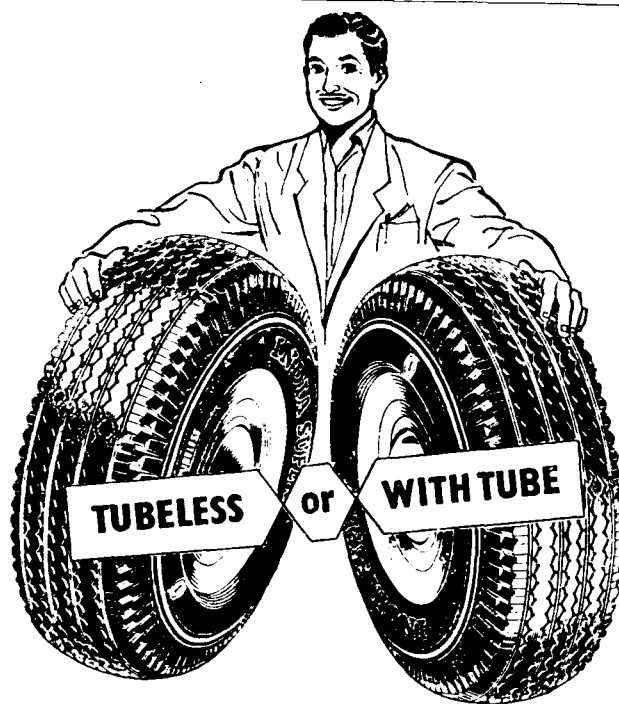


The British Prime Minister, Mr. MacMillan, inspecting the chassis and Engine of the Rover car, after opening the International Motor Show in London



A Rolls Royce "Silver cloud" fitted with a special body is known as the Honeymoon Express and is one of the most expensive cars at the show, everything in the car being electrical or push button operated. Picture shows the folding hood automatically closing

MOTORINDIA

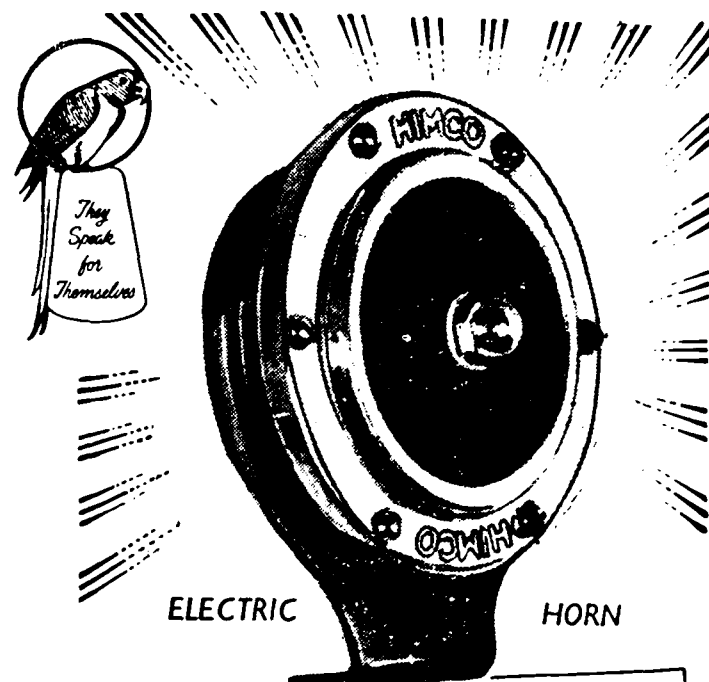


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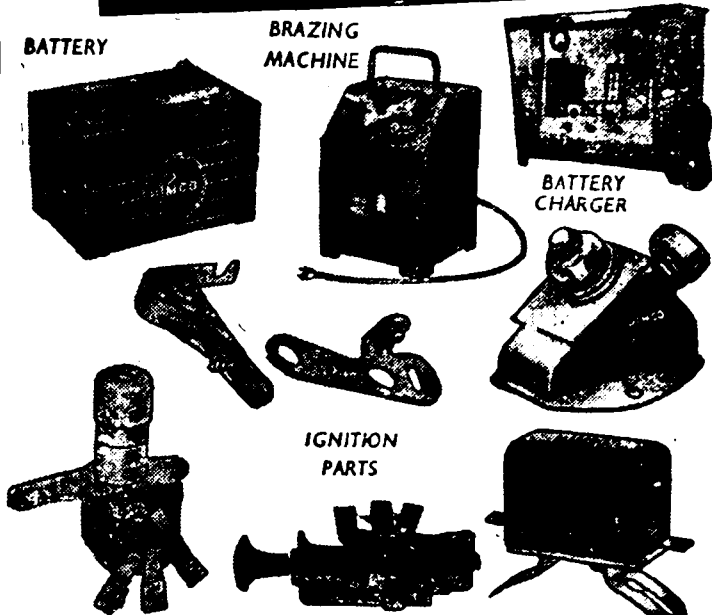
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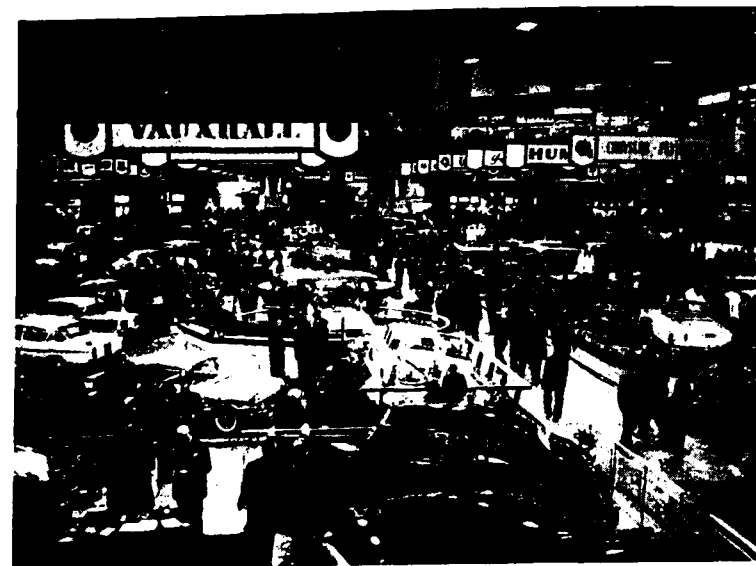
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A general view of the Motor show at the Earls Court

most important yet. Britain is now the world's largest exporter of cars and commercial vehicles and British manufacturers know that they must put their best feet forward at Earl's Court if the position is to be consolidated.

Fewer New Models

Gone, however, are the days when manufacturers thought valuable sales would be lost unless startling new models were announced at every Motor Show. Instead, Britain is concentrating this year on improving tried and tested cars which are already selling well in the markets of the world.

Visitors from overseas saw in the display a new awareness that styling and colour are important and that automatic transmissions are here to stay. Many of the cheaper and smaller cars on show are available with two-pedal control as an optional extra.

The two-pedal transmission is the main feature of the new Fords although the Zephyr will be available with a new-type steering. Apart from this, Fords have concentrated on redesigned radiator grilles, larger rear windows and more chrome, improvements which

should increase the demand for a range of cars whose output is steadily growing.

The Hillman Jubilee Minx celebrates the 50th anniversary of the company and the 25th anniversary of the very first Minx of all.

Yet two stands which probably provided the biggest attraction of all to overseas buyers were the stands of companies outside the ranks of big manufacturers. One was that belonging to the Lotus Engineering Company, Ltd., whose brilliant chief, Colin Chapman, showed the Lotus Eleven Club model and the Lotus Eleven Le Mans-type. Few will need reminding of the magnificent achievement of Lotus in winning the Index of Performance at Le Mans this year.

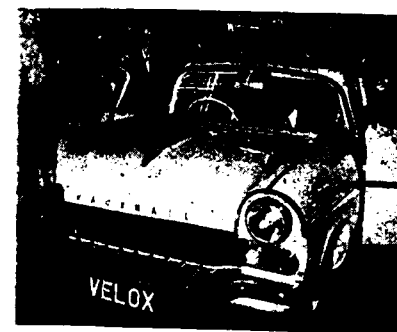
Sharing the spotlight was the Henry Meadows (Vehicles), Ltd., stand where a United Kingdom challenge to the economy car market, the Frisky has appeared. The Wolverhampton firm exhibited two models of its rear-engined product, an open sports three-seater and a hardtop saloon. The most significant feature of both are plastic bodies designed by the famous Italian, Giovanni Michelotti.

Vauxhall New Model at the International Motor Show

Vauxhall Motors have followed up the introduction of their new Victor 4-seater Saloon earlier this year with completely new designs of their larger cars.

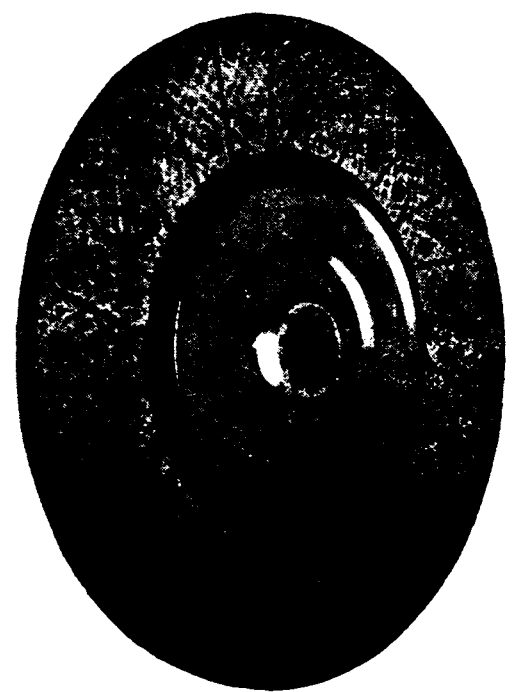
The new Vauxhall "PA" range retains the wellknown names 'VELOX' and 'CRESTA' for these 6-seater cars, but they are new throughout in design, and are a direct result of the £3 Million Development Programme at the Vauxhall Plant in LUTON, England.

As with the 'VICTOR', SILVER EXIDE Batteries have been chosen for original equipment, thus maintaining a long-standing practice. In India SILVER EXIDE Batteries are fitted by leading vehicle manufacturers in the country and for the most part on an exclusive basis due to thoroughly proved reliable service of this outstanding battery by world-standards.



This year 310 cars—a record number—from British and Overseas factories were displayed to the public at the 42nd International Motor Show which opened recently in London

Visitors to the Motor Show are seen inspecting the new Vauxhall "Velox". Completely new in appearance, this year's model is longer, lower and wider and has a 6-cylinder engine capable of 90 m.p.h. In the new Vauxhall there is more entrance space and much wider seats—each capable of seating three persons comfortably. Its panoramic windscreen provides visibility for the driver and passengers comparable with that of an open car. The Velox has a newly designed grille and a luggage boot big enough to lye in.



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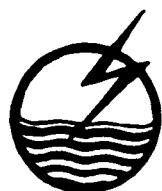
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BACKFIRES

The urge to decorate seems to be very strong with car owners. After passing through an era of hanging skeletons, wobbling dolls, and clicking birds, we are now enjoying the spectacle of dangling chains clanking their way behind more and more cars, in more and more countries. Technicians have been trying to convince us these are used to prevent carsickness, but we refuse to be fobbed off with such a practical explanation. Our own opinion is that its just an extension of the zootsuiter's dangling key-chain fashion, as applied to cars. Another form of ornamentative mania, diagnosed as "reflectoritis decorativum," consists of arranging reflective tape in the most curious ways. This may take the shape of arrows, car names, suburbs of origin, rude words, or purely geometric or even surrealist patterns.

However, recent legislation, which made reflectors compulsory in most countries has dampened the enthusiasm of the exterior decorators probably because it took away that spontaneous feeling. True art simply cannot thrive under compulsion!

Grandad Started it:

Of course, this urge to decorate is not new. We can look back on cutglass flower vases, lace curtains, fingered blinds, crushed velvet upholstery; and even—in the dim days at the very dawn of motoring—buggy-whip holders and false horse-heads.

In attempting to find some logical explanation for the current craze, you might say that manufacturers are not putting enough ornamentation on the cars, but that won't hold water. Look at the acres of chrome on the higher-priced new U.S. models, and you will see what I mean.

Another theory is that people decorate their cars because they want to be different—yet why do the big manufacturers sell more and more cars every year, while the smaller firms keep on battling for sales? Why, too, have most makers of "distinctive" cars passed into history?

Let's expand the Idea

Whatever the reasons for it, this urge to decorate has great commercial possibilities which, we feel, haven't yet been fully exploited.

For instance, why not introduce leadlight windows for cars, or, better still, stained-glass windows expressing the artistic soul of the owners? What a field this would be for personal expression, and how much greater potentialities it would offer than cutting up bits of reflective tape? Do-it-yourself window kits could be supplied, allowing the purchaser to work out his own design. Color is another field that has hardly been touched. We have two-tone cars, and even three-tone models are appearing overseas; but why stop there? Why not have rainbow-colored cars, or cars that look like a slice of marble cake?

The judicious use of colored transfers could also be encouraged so that the artistic motorist could personalise his car with a heraldic symbol or two—perhaps a coat-of-arms or a family tree. Of course, as usual in these things, U.S. designers are showing us the way. One of their latest trends is to have

colored walls on tyres. Not just mudane black or a dirty scruffed white—but REAL colors.

It's a Woman's World

One can imagine the car of next year being described by the fashion writer of motorindia. She would find lots to say about the attractive styling in autumn tones, with its careful blending of forest-green, sunburnt pink and field-primrose. With a subtle trimming of scarlet tyres, bluetinted glass, gold-anodised chromework, and—as a final dashing touch—midnight—blue hubcaps. She would then go on to describe the new interior with Swedish-style seats, bright yellow venetian blinds with scarlet cords—the white color scheme being matched to a mockbamboo dashboard and a ceiling trim of sky—blue watered taffeta.

The Full Treatment

Then again, for the motorist with money we could go a step farther. How about custom-built car bodies expressing the main interests of the owner?

We could have cars looking like yachts; cars like a gold-bag, like a whisky decanter, moneybag, polo pony, deep-sea marlin, or a Tivolo chorus-girl. We are afraid, if we did this, we would only have two designs available—an irate bank manger or a nagging wife. Still, it provides food for thought.

Meanwhile, to keep up with the trend, we propose to paint the butterbox seating of our model T in pale puce—tie a four-foot chrome-plated chain on the back—and smother the whole thing in reflective tape.

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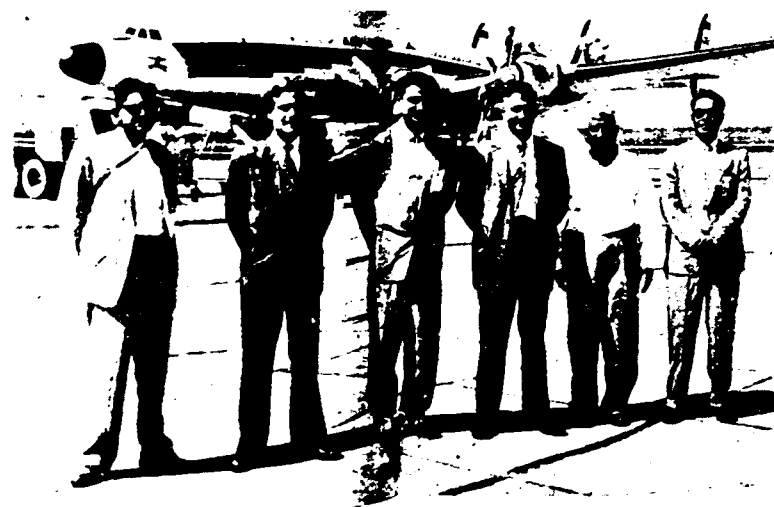
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MOTORINDIA

21



A rousing reception was given to Mr. T. S. Santhanam, of T. V. S. when he returned from a global tour recently. Photo shows Mr. & Mrs. Santhanam, Mr. T. S. Rajan, Mrs. Narayanan, Mrs. Soundaram Ramachandran, M.L.A. and others



An advance party consisting of Messrs. S. Narayanan, S. Vijayaraghavan, R. Ratnam, V. Nambi and T. P. S. Nandan of T. V. S. & Group Companies met Mr. Santhanam at Singapore and travelled with him on the last lap of his world tour, to Meenambakam. Photo shows the advance party with Mr. T. S. Santhanam on arrival at the air port.

Social & Personal

Members of the automobile and allied Trades gathered in very large numbers at Meenambakkam to give a fitting reception to Mr. T. S. Santhanam on his return home. Picture shows among others Messrs. Parasmal, P. S. Naidu, Sivaraman, Edwards, S. Natarajan, V. Kunjitapadam and T. V. Devaraja Mudaliar



Photo above shows Mr. T. S. Santhanam and Mr. D. R. Sondhi who were both visiting various countries in the course of their global tour, being received at the air port at Madras by T. S. Govindachari, G. Srinivasan, T. S. Rajam, T. S. Srinivasan, S. Subramaniam and others

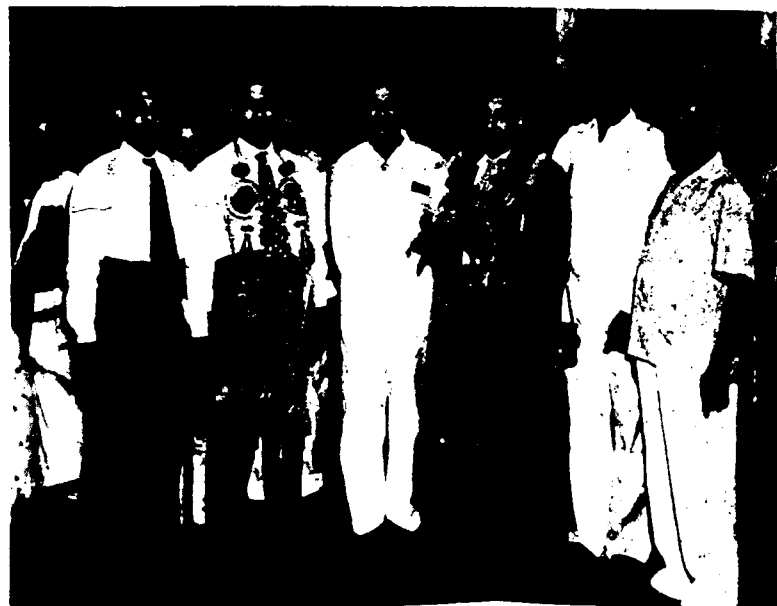


Photo taken at a lunch given by Mr. R. D. Char to the Hon. Mr. K. C. Reddi, Minister for Works at Tajmahal Hotel recently shows the guests among others, Mr. D. V. S. Iyengar, Architect & Director, Standard Batteries, Mr. P. C. Malhotra, Industrial Finance Corporation, C. Ramasubban of the Tariff Commission; Lalchand Hirachand, Sri K. C. Reddi and C. R. Rao of Tata Industries. Messrs. R. D. Char, M. G. Monani, N. Balakrishna and others are seen with back to the Camera



Photograph taken at Santa Cruz Airport shows Mr. I. A. Aler, President of the K.L.M. Airlines who visited India, being received by prominent personalities of the Air Company and its associates





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MOTORINDIA

November 1957

towards the Gas Turbine Car

Detroit, Michigan.—The General Motors Corporation, largest automobile manufacturer in the United States, is exhibiting the latest of its research program aimed at the development of a gas turbine car.

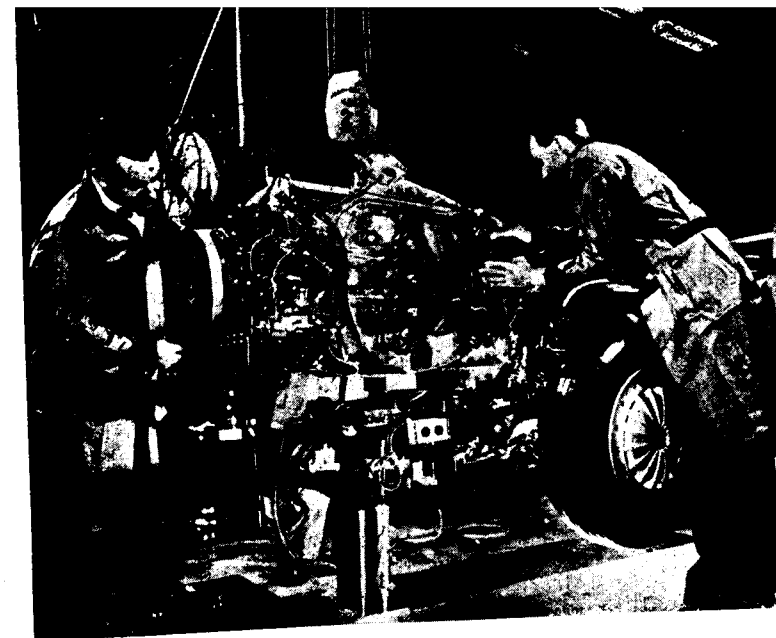
The Firebird II, first gas turbine auto designed for passenger use, was being shown to the public during the month of September in Atlantic City, popular East Coast resort in New Jersey. The first Firebird, a single seater, was built two years ago for use only on test tracks. The four passenger Firebird II has been operated successfully on the U.S. public highways as well as on proving grounds.

It is powered with a 370-horsepower whirlfire Turbo-Power motor, which resembles a small jet engine. Weighing 775 pounds, the motor has a weight-to-power ratio of about two pounds per horsepower unit, only one-third that of conventional power plants.

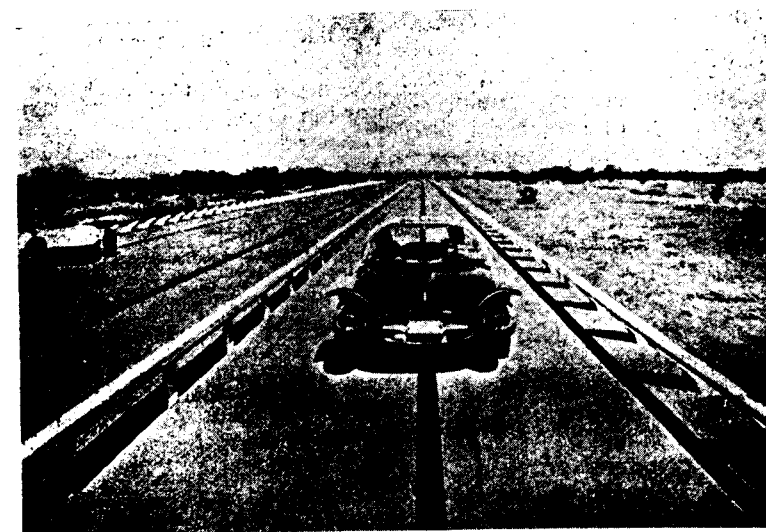
However, the major problem yet to be solved, according to General Motors engineers, is the motor's high fuel consumption, several times greater than present power plants.

The body of the car is made of titanium, a corrosive-resistant metal much lighter than steel but with great strength and good ductibility. Requiring no paint, the exterior surface is brush-finished to a satin lustre.

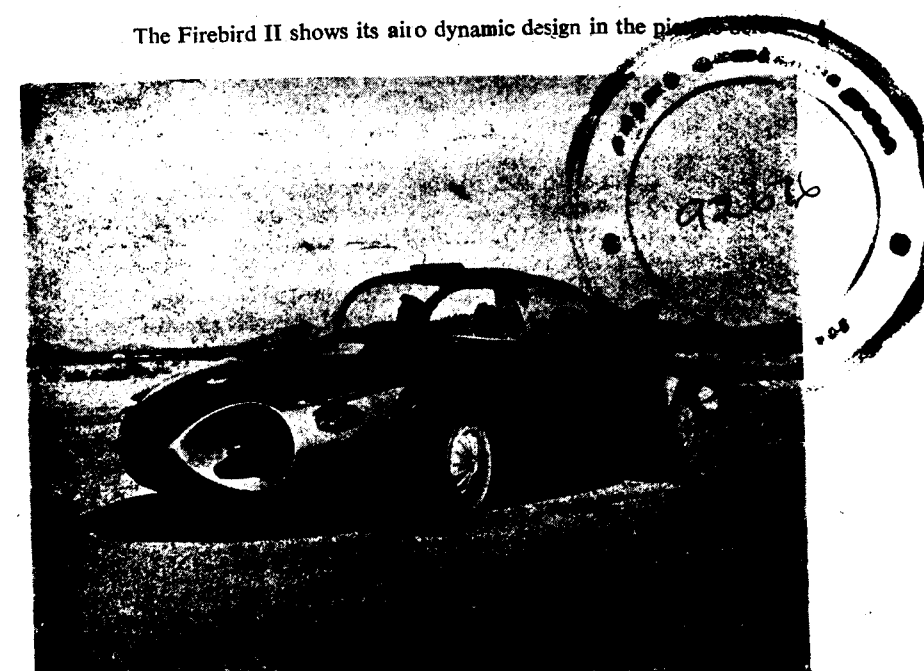
With airplane-type body styling, the Firebird II is designed to operate on to-day's highways as well as on the "ultra-safe electronically controlled highways of tomorrow." This concept of road travel involves putting the controls of the vehicle "on a radio beam" similar to current airline practices. General Motors has built such an experimental highway in Arizona, and reports successful test runs with the Firebird II.



Research technicians of the General Motors centre, near Detroit seen at the Gas Turbine Power House lowering the engine into the chest of Firebird II



The Firebird II begins a test run on the General Motors experimental Highway with the controls of the vehicle "zeroed in" on a guiding radio beam



Ancillary Industries to Organise

With Mfrs if possible, Without if necessary?

Bombay Meeting Decides on Exploration of Possibilities

A Meeting of Automobile Manufacturers and the Ancillary Producers was held in October in the premises of the Engineering Association of India, Bombay Region, at Brabourne Stadium, Bombay, Mr. Pranlal Patel presiding. Those present included Shri H. R. Aslot (M/s. Automobile and Agricultural Ind. Corpn.), Shri Bharat G. Doshi (M/s. Acme Mfg. Co. Ltd.), Shri T. R. Kapoor (M/s. Himco (India) Pr. Ltd.), Shri J. G. Paranjape (M/s. Hindustan Motors Ltd.), Shri W. N. Kamath (M/s. India Pistons Pr. Ltd.), Shri N. K. Firodia (M/s. Bachraj Trading Co.), Shri M. S. Shastri (M/s. Automobile Products of India Ltd. and M/s. India Radiators Pr. Ltd.), Shri M. De Melo, (Secretary, Engineering Association of India) and Shri V. S. Nair. (Secretary, Engineering Association of India.)

Opening the discussions, Shri Patel said that one of the recommendations of the Tariff Commission at the second public enquiry into the automobile industry held on the 28th and the 29th June, 1956 was that an Association of manufacturers of motor vehicles and ancillary parts should be formed for considering common problems of the industry, securing co-operation among the members and for bringing their difficulties to the notice of the Government and he felt that the time had come for the formation of such an organisation if the ordered progress of the industry under the phased programme of development was to be promoted. No doubt there was an organisation now in existence, namely, the Automotive Association of India with six members, all of whom were large-scale assembler manufacturers. The ancillary producers were not represented in that Association. Having regard to the fact that the six members of the Automotive Association were large-scale assembler manufacturers it was doubtful whether the numerous small-scale ancillary producers could be properly accommodated in that Association. In the interests of the co-ordinated development of the industry, it was desirable that a

single Association of large-scale manufacturers and the small-scale ancillary producers should be established and that vigorous efforts should be made in that direction. This was a consummation devoutly to be wished. If, on the other hand, the establishment of such a single organisation was not immediately feasible, an Association of ancillary producers could be formed and such an Association could work in very close co-operation with the main Association of automobile manufacturers.

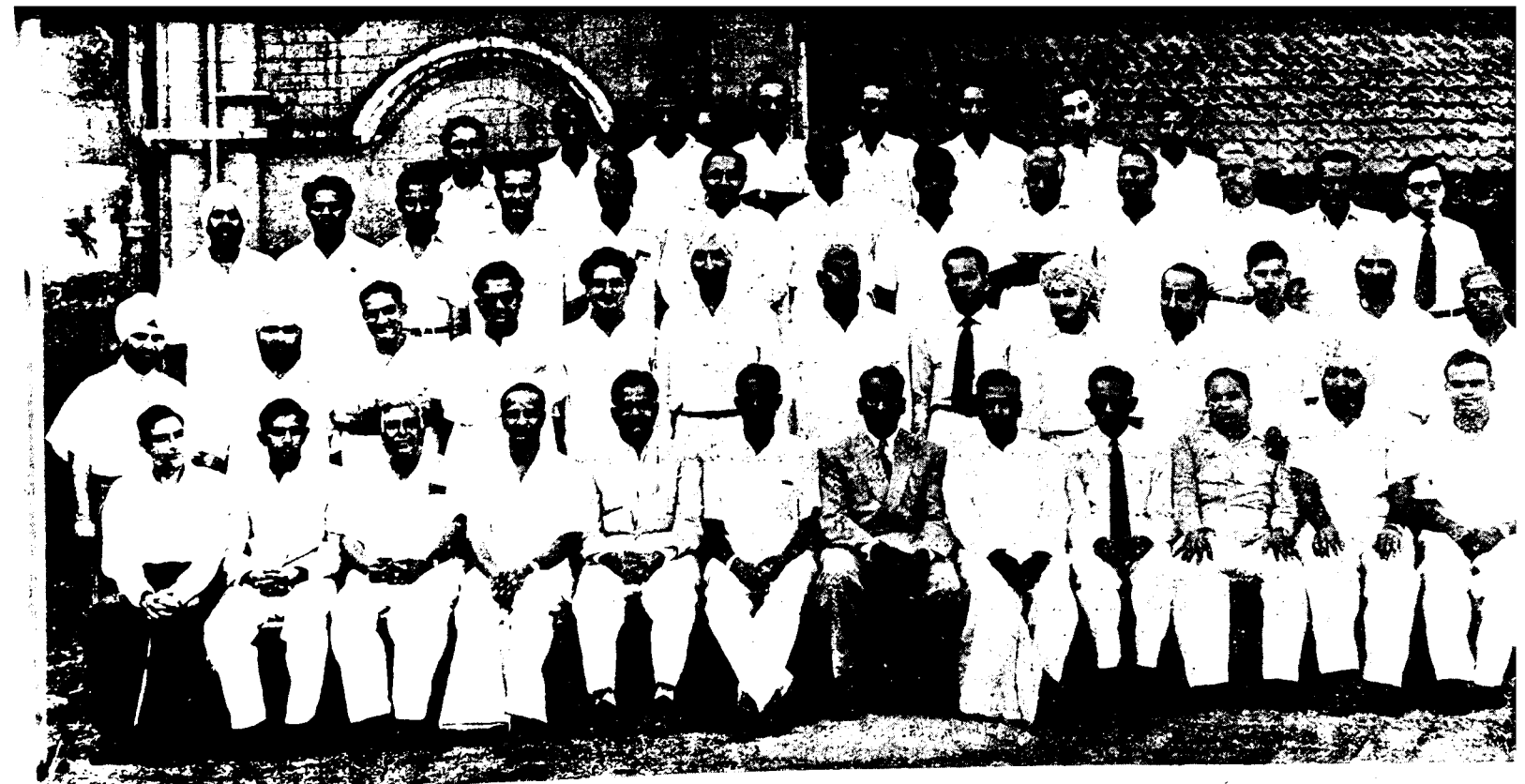
Continuing Shri Patel said that there were numerous small-scale ancillary producers scattered over this sub-continent and that neither the main assembler manufacturers nor the Development Wing of the Government of India knew who was manufacturing what. This was indeed a deplorable state of affairs which should be ended by the establishment of an organisation charged with the task of collecting statistical data and all the information regarding existing indigenous capacity, new capacity proposed to be developed, etc. in the ancillary sector and thus promote effective liaison between the main assembler manufacturers and Government on the one hand and the ancillary producers on the other. Such data which was lacking at present would also facilitate planning in the production of ancillary parts in the country in accordance with the phased programme of manufacture of automobile in the country.

While some of the members present expressed the view that a single Association to represent both the assembler manufacturers and ancillary producers was desirable, there was a section of opinion which had strong doubts as to whether the Automotive Association of India would suitably amend their constitution to admit the numerous ancillary producers which were very small units. This section was of the view that it was desirable to form a separate organisation of ancillary producers which could work in close co-operation with the Automotive Association of India.

It was finally resolved : (1) that consideration of the Memorandum & Articles of Association of the proposed All-India Automobile Ancillary Industries Association be held in abeyance; (2) that Shri Pranlal Patel should get in touch with Shri Lalchand Hirachand, the President of the Automotive Association of India, with a view to exploring the field for admitting the ancillary producers as members of the Automotive Association, thus establishing a single organisation for the main assembler manufacturers as well as the ancillary producers; and (3) that Shri M. de Melo, Secretary of the Engineering Association of India, Bombay Region, should ascertain the relationship between the bicycle manufacturers and the manufacturers of ancillary parts.

Shri Patel then informed the meeting that arrangements were under way for holding an exhibition of automobile and automobile parts in the premises of the Victoria Jubilee Technical Institute, Matunga, Bombay, on the 29th December, 1957, and Shri Manubhai M. Shah, Union Minister for Industry, had been invited to inaugurate the Exhibition. The premises of the V.J.T.I. were chosen for the Exhibition because that Institute had started a post-graduate technical course for M.E. (Auto) from this year and thus provided an excellent setting for the Exhibition and the Symposium on "Development in Automobile Industry" to be held on that occasion on which technical papers on various aspects of the automobile industry would be read. The Exhibition and the Symposium would show how much had been accomplished and how much remained to be accomplished in the planned programme of the development of the automobile industry in the country, on which accurate information was sadly lacking today. Shri Patel also placed before the meeting a blue-print of the exhibition lay-out.

It was decided to proceed with the Exhibition and extend invitations to main manufacturers as well as ancillary producers to participate.



Photograph taken on the occasion of the General Body of the Madras Motor Parts Dealers Association on November 16 shows left to right, sitting row : Messrs. Motilal Arora, T. S. Mani, V. A. Neelakanta Iyer, V. Narayanaswamy, P. Chandriah, V. Kunjitapadam, M. K. Govindaswamy, S. M. Subramaniam, S. Natarajan, S. S. Kalyanpur, Manohar Singh and K. Vasudevan. Standing first row : A. S. Sethi, Dhian Singh Suri, J. S. Bhalla, Madanlal Tholia, Sat Pal, Roshan Singh, K. S. Rama Iyer, I. K. Luv, Sardar Singh Suri, C. N. Alwar Chetty, T. V. Srinivasan, Punjab Singh Chadha, A. S. Sivanesan. Standing second row : Chaman Singh Kapur, Khader Mohideen, M. Nizamuddin, Gopal N. Pahalajani, A. V. S. Rajan, Indu Chandok, V. R. Mohanakrishnan, M. P. Narayanan, R. K. Sambasivam, R. Vanchi, M. V. Subramanian, S. Rajalingam, C. K. Arora. Standing top row : H. D. Bhandarker, M. R. Narayanan, M. M. Ibrahim, P. V. Ramamoorthy, K. V. Venkataraman, R. S. Mani, D. V. Grover, and K. P. Venkataraman.

ANNUAL GENERAL BODY OF M.M.P.D.A.— Annual Report Says 1956-57 Crucial Year

The Madras Motor Parts Dealers Association celebrated its Annual Day on November 16, when the Annual General Body meeting of the Association was also held.

It was announced at the outset that Mr. V. Kunjitapadam, President, was unanimously re-elected as President for the ensuing year, 1957-58.

The celebrations started at the Association premises with a group photo and light refreshments.

The General Body Meeting was held at the Association premises at 4 p.m.

The Annual Report and audited accounts of the Association in the past year were presented and adopted after consideration.

ANNUAL REPORT

According to the 14th Annual Report presented by Mr. V. Nara-

yanaswami, Honorary Secretary of the Association, the year 1956-57 has been a crucial one not only to the Motor Trade, but to the whole business community in general. Taxation measures both Central and Provincial, money-squeeze and other deflationary steps have all played their part. But perhaps the most significant factor has been the Government's disclosure about the acute foreign exchange position. Licences were not issued to established importers or new comers for the quarter July-September, 1957, and the policy announcement for the October 1957-March 1958 period has shown drastic cuts in quotas. The Association has made a strong plea to the Government that Road Transport is an essential and important element in the implementation of the Five Year Plans, besides being a growing necessity to the existence and successful development of the community itself.

They submitted a memorandum to the Government on 21st May, again the Association's representatives met the Chief Controller of Imports, Mr. Bilgrami, and presented a fresh memorandum to him, when he visited Madras in July. Special mention was made about the importance of increasing quotas of the restricted items and permission was sought to re-establish quotas on the basis of 56-57 imports. Considering the cut in the import of other items announced for the current October-March period, you will agree that Motor Parts and specially the important restricted items, have been treated comparatively much better, and their representations have been certainly fruitful. In addition, it has been made possible to re-fix quotas on the basis of 56-57 imports for motor parts and garage tools which should benefit all the importers in the Trade.



Mr. V. Kunjitapadam, President of the Association, addressing the gathering on the occasion of the Annual Day Celebrations

In April last, Mr. E. S. Krishnamurthy, Member of the Central Board of Revenue was in Madras and the Association's representatives met him and submitted to him some of the discrepancies observed in the assessment of motor vehicle parts, garage tools, etc. We are pleased to inform you that as a result, the assessment of Hydraulic Jacks at 50% by the local customs was amended to 35% and in the case of grease guns the same principle was being considered. Clarifications were given about the assessment of clutch release bearings, water pump bearings etc.

ARREARS COLLECTED

The year under review has witnessed some very active work by the committee in the collection of arrears of subscription, donations to the Association fund etc. Special mention should be made here about the tireless work of our Treasurer, Sri S. M. Subramaniam. As a result of the special drive on arrears 80 members out of 100 paid all their dues. It was then decided by the Committee that those who persisted in not paying (some of them since a considerable time) even after all these efforts, should be removed from membership rolls as per rules, in all fairness to others. Hence, as per clause 5 of our constitution, the long defaulters were removed from the rolls giving them sufficient notice by registered post. We hope that these few would, in due course realise the importance of being associated with the organisation

and come back to our fold, paying their arrears and playing their parts.

The Association has now on its rolls 93 members, 68 local and 25 mofussil. This year's collection of subscription and arrears amounts to Rs. 4,755 while Rs. 751.50 has been collected in addition as donation to the Association, from members as well as well-wishers. (Messrs Auto Pins (India) Faridabad Rs. 101, G.M. Automobiles Madras-2, Rs. 200, Indian Engineering Trading Co., Madras-2 Rs. 250 and Independent India Motor Co., Bombay Rs. 100.)

We are indeed grateful to those members and non-members who have generously donated to our fund and wish to take this opportunity of thanking them for their kind gesture.

While members showed an increasing interest in the activities of the Association, we feel that there is a lot more to be done to make this institution an effective and consolidated organisation to further the interests of the members and the trade. For instance, keeping their premises open on declared holidays, even if it be one or two members only, is an open flout which is derogatory and detrimental to the very conception of an Association. Those who are guilty of this or similar things are doing an injustice to themselves and to the organisation. We hope that better counsel will prevail and that each and every

Office-Bearers Elected

member would endeavour to do all their best to make the association, and thereby themselves, strong and effective.

In conclusion we would take this opportunity to thank you all for the co-operation extended to us during our tenure of office and sincerely hope that the steady progress maintained by the Association will show a further increase in the coming year and that all members will evince still greater interest in the activities of the Association, so that it could champion their cause undaunted and unchallenged.

The meeting unanimously re-elected Mr. V. Kunjitapadam as President and the following to the Committee:—Messrs. P. Chandriah, M/s. Modern Automobiles, Indersain, M/s. Upper India Trading Co. (P.) Ltd.; S. S. Kalyanpur, M/s. Automotive and Allied Industries (P.) Ltd.; T. S. Krishnamurthy, M/s. Motor & General Trading Co.; V. Narayanaswami, M/s. Madras Mercantile Agencies Private Ltd.; S. Natarajan, M/s. Auto Parts Trading Co.; Roshan Singh, M/s. Nishat Trading Co.; Sardar Manohar Singh, M/s. Singson Co. (India) and S. M. Subramaniam, M/s. Modern Distributing Co.

The President Mr. Kunjitapadam then delivered his presidential address. He said:

"I see quite a number of additions to the family of our membership and I thank you for the confidence and goodwill you have demonstrated in having called upon me to continue to be your President for the next year. I take this opportunity of thanking you all for all support everyone of you has extended to me during last year and I look forward to your continued and active co-operation in the coming year.

Barring food and clothing, Transport, it is said, is the next important industry. I should go a step further and say that in the present context of our country's needs, Transport has a more essential part to play in moving Food and Clothing.

President Kunju on the need for Replacement Spares for Automobiles

Expansion of other Industries, Trade and Commerce will be jeopardised should there be any lack of Transport capacity. Increasing production without being able to move it to places of marketing is no use. There are three means: Land, Water and Air. River navigation as a means of Transport will be hardly worth considering, because of geographic limitations and with more and more Dams built for diversion of water for irrigation. Airways is not in any way useful for bulk traffic.

Of Land Transport, the Railways have much too much to carry nowadays that they themselves foresee a short-fall in their capacity at the end of the Plan period. Hence the Roadways is the only agency to contribute any relief towards this problem. Governments, both at the Centre and State levels have envisaged the importance of Road Transport for the future and as a result, several measures followed recently including the Motor Vehicles Amendment Act, State Bank Amendment Act, permitting loans for the Hire Purchase of Vehicles and National Highways Act. These enactments relieved some of the retarding obstacles in the progress of the Road Transport Industry. Still there are many handicaps; viz., Taxation, Threat of Nationalisation, Restriction on permissible load of vehicles, Restriction

on Inter-State routes, Lack of bridges of National Highways, shortage of vehicles etc.

Needs of Commercial vehicles as envisaged by the Planning Commission would go only to replace the existing vehicle population, while the scope for putting more on the road is not bright. Let us see the figures: approximately, there were 1,20,000 Commercial Vehicles in the year 1950-51. After five years, viz., 1955-56, we have just over 1,60,000, thus, registering of an increase of 40,000 vehicles. During this period, our production and inflow of Commercial Vehicles have been 60,000. Deducting the increase in the vehicle population of the period viz., 40,000 the figure that would account for replacements already made is only 20,000. Hence there are 1,00,000 Commercial vehicles of models pre 1950-51 yet to be replaced and have to be maintained on the road; besides these, there are cars and other vehicles of models 1950-51 and earlier to the tune of 1,50,000 still running on the roads of India.

The Government have granted protection to this industry for another ten years and they look forward to our plants fulfilling the needs.

While the Ancillary Industries for the manufacture of Automobiles

in our land, have definitely made good progress, Planned production units to bring within its orbit the manufacturing of replacement spares required for maintenance purposes, we see, is lacking except in the case of a few items, such as Batteries, Tyres, Tubes, Spark Plugs, Pistons and Rings, Springs and Spring Leaves.

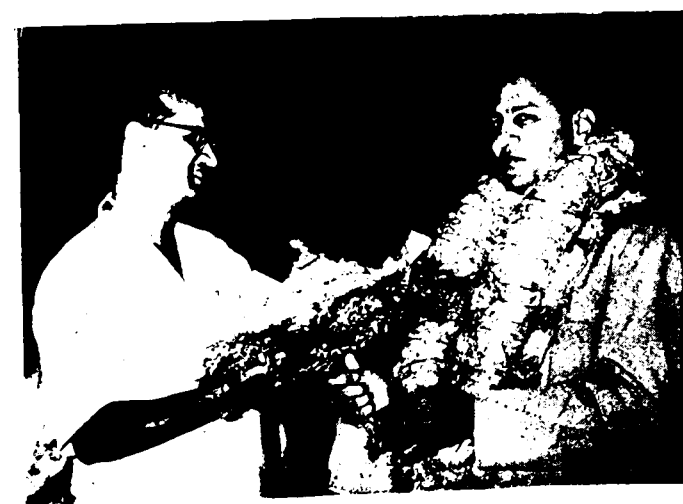
Import restrictions for whatever reasons they may be, so far inflicted on the Motor Spare Parts, have not in any way adversely affected the position, as to create a vacuum; thanks to the accidental larger inventories with Distributors and Dealers.

By the middle of next year, however, we may expect to have a lower inventory with a definite paucity of the imports coming in, with no brighter prospects of any relaxation on Import cuts.

We are thus passing through a very trying period, awaiting a still trying one to come requiring our careful planning for the future and immediate readjustment of our practices, so that we may also expect to flourish when the Industry as a

Mr. P. Chandriah, Vice President of the Association and Mr. Narayanaswamy, Secretary, garlanding Mr. Santhanam the President of the day and Mr. Kunjitapadam, President of the year

Mr. V. Narayanaswamy, Secretary of the Association presenting a bouquet to Mr. T. S. Santhanam, the Chief Guest of the day



November 1957



MOTORINDIA

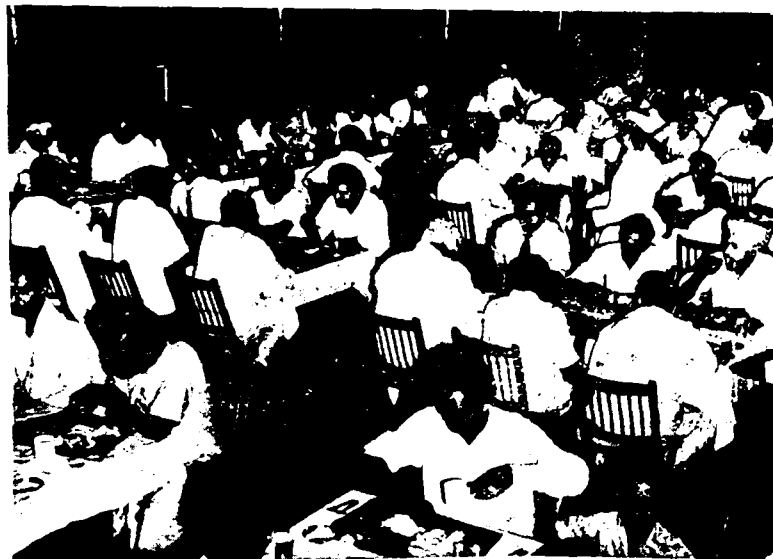
"Stock Pool" Suggested

whole fully develops to its zenith as envisaged.

It is here, Friends, our unified efforts, should be conscientiously applied. We should think in terms of what we can manufacture, either individually or jointly, small scale or otherwise, with co-operation or collaboration. If not manufacture, at least, align ourselves with such manufacturers in the country for distribution, encourage local products, maintain a formulated policy and price levels on our imports. Foreign exchange must be saved, to meet the needs of the hour of our Government to implement the plan.

Many of you friends will be having considerable stocks of spares, *not moving* for several years. Your Association can be the medium through which the members can once in a month send a list of such stocks with them, so that the Association will circularise to all the members here, as well as the other sister Associations, in *Bombay, Calcutta, Delhi*, etc., so that you will be put in touch with the potential buyers. Similarly, when other Associations start reciprocating and I am sure, they are bound to do so, you will get to know who is having what and where. I trust this idea

Another view of the dinner showing Mr. Santhanam, Mr. Kunjitapadam and others at the main table, top left



A general view of the dinner held in connection with the Annual day celebrations of the Motor Parts Dealers Association at New Woodlands

of a Stock Pool will be welcomed by you all and you would contribute to its successful implementation.

Building Committee

You will be very happy to learn that the long cherished desire of this Association to have a building of its own for carrying out its activities has come to be keenly appreciated by all and during the past months, we had the co-operation and generous appreciation of some of our friends outside the Association who have been very

kind to donate to the extent of Rs. 2,000 for the construction of a building. I need hardly emphasize that we, as members of the Association having a keen interest in the development of the activities are fully aware of the necessity for this should not lack behind. I hence request every one of you to contribute very liberally for acquiring a place of its own for our Association. This is for your Association and I know you have the same interest as you have in your child."

With a vote of thanks to the Chair, the meeting terminated. The newly elected members of the Committee then met under the Presidency of Mr. Kunjitapadam to elect office bearers and to co-opt two members to the committee. Mr. K. Vasudevan of M.S. Overseas Manufacturers Sales Co., and Mr. Sat Dev of M.S. Auto Sales Co., were co-opted to the Managing Committee. The meeting then elected Mr. P. Chandriah as the Vice-President of the Association, Mr. V. Narayanaswamy as Honorary Secretary, Mr. K. Vasudevan as Joint Secretary and Mr. S. M. Subramaniam as Treasurer for the coming year.

The meeting also considered the question of raising a suitable building for the Association and appointed a special Building Committee with Mr. V. A. Neelakanta Iyer as Convener and the following as Members.

Messrs. V. Kunjitapadam; S. M. Subramaniam, Inder Sain and S. Natarajan.

DINNER, DANCE AT WOODLANDS

The Members of the Association and a large number of guests assembled at the new Woodlands Hotel in the evening under the Presidency of Mr. T. S. Santhanam of the T.V.S. Organisation, the Chief Guest. An interesting two hours of entertainment was provided by Kumari Chitralaka an amateur Danseuse and interspersed by the mimicry of Mr. M. O. Krishnaswamy another amateur. Mr. T. S. Santhanam at the request of Mr. V. Kunjitapadam, President of the Association, presented silver plates to the two artists who entertained them. Mr. Santhanam congratulated the artists, particularly Kumari Chitralaka for her excellent rendering of various dance pieces and hoped that along with her progress in education, she would also continue to have a growing interest in dancing which was particularly suited for our women folk, because dance, besides the entertainment value it had, also kept the dancer in good trim and grace.

After dinner, Mr. Kunjitapadam requested Mr. T. S. Santhanam to give them his experience during his recent world-wide tour so that the Members of the Association may be benefitted by such a talk.

Mr. T. S. Santhanam said he was struck by the way in which three countries, the United States, Germany and Japan have built up their economy in the recent years, particularly, the last two nations which had suffered very heavy and devastating damage during the recent war. He attributed the phenomenal growth in the economy of these nations to the sense of responsibility and unstinted devotion to duty that was being paid by each and every worker, high or low. This particular aspect had contributed in no small measure to the development of the nations concerned where surprisingly enough he found very few supervisors, as we see in India today. This was possible because of the very keen interest that each worker took in his own job which he did with keenness and sincerity thus fulfilling the targets. He was

November 1957



Mr. T. S. Santhanam, addressing the Members of the Madras Motor Parts Dealers Association following the dinner, at Woodlands

Madras Motor Parts Dealers Association

Representation to Import Controller

In a representation to the Chief Controller of Imports & Exports, Government of India, New Delhi, Mr. V. Narayanaswami, Secretary of the Madras Motor Parts Dealers Association says: "With regard to the IMPORT POLICY for Sl. No. 293, 295 & 297 of Part IV of October 57—March 1958 pertaining to motor parts and accessories, we

sure that given the know-how, Indians could not lag behind in the matter of efficiency and that there will be a keen desire among Indians as well in their particular jobs so that we may also march towards our desired economic goals.

MOTORINDIA

wish to submit the following for your due consideration:—

The quota of Motor parts licences has been cut to 25%. We need not stress that ROAD TRANSPORT is a no less an essential link in the development of Trade, Commerce and Industry. Even more is the vital part it has to play in the successful implementation of our PLANS. Hence you will agree that a curtailment of imports on VITAL ITEMS, especially when the indigenous products have neither come up to the standard nor produced sufficiently, would adversely affect our progress. Replacement

parts for the maintenance of existing commercial vehicles, are not manufactured in any planned manner except a very few items, such as Pistons, Springs, etc., though manufacturers do cover a major range of components necessary to assemble new vehicles in their units.

We therefore plead that our suggestions as below would be worthy of your consideration to ease up the situation.

LIST II OF APPENDIX XXVI:—In spite of our repeated requests that the 4% of the licence for items under List II of Appendix XXVI is absolutely inadequate, we find that even in this period viz. October 1957—March 1958, there has not been any improvement in the situation. Now that the quota of Motor Parts licences has further been cut to 25% the 4% of this 25% quota will be so small, particularly for the smaller importers, who form 75% of the trade. There are 7 items under this list all of which together

can be imported only for the value of 4%. This actually works out a virtual ban on the import of these items.

GASKETS:—Restrictions on import of Gaskets, Oil seals as per List II & III of Appendix XXVI are not understandable since the indigenous manufacture are not at all come to meet the requirements. In fact except for the incorporation of some firm with approved manufacturing scheme, indigenous products, as such, in these categories too have not yet been introduced into the market.

BRAKE-LININGS:—The quota for brake-linings have been drastically reduced and we feel that it should be restored to a minimum as January to June percentage if not better. We should also like to emphasise here that the only type of brake-linings now manufactured in India are the moulded types. Hence the licences issued for brake-linings may be confined to this category since understandably it

needs protection. The import of woven linings may be permitted against general motor parts licence.

SEALED BEAMS:—We find that Sealed beams which have hitherto been imported under motor parts licence, are now put under serial No. 38-A of Part II. Consequently separate quotas and licences have to be obtained for these. To our knowledge there are no indigenous make of Sealed beams in the market nor is there any scheme for production in the offing. We therefore feel that this is a restriction which is not required from any standpoint. Sealed beams should be allowed importation against Motor Vehicle Parts Licence as before, or at least, in the fixation of quota for Sealed beams, past imports made under Motor Vehicle Parts Licence should be taken into account as the basis.

We request you to take all the above into consideration and issue necessary amendments to the policy statement as early as possible."

Automatic Light Dipper!

Yanks are working on a gadget that will dip head-lights for lazy drivers and prevent accidents

We all know, only too well, the type of careless, lazy or badmannered driver who refuses to dip his bright headlights on dark roads; he is a frequent cause of accidents.

Inventors overseas have been trying for years to evolve some kind of automatic or semi-automatic method to control dipping and so lessen at least one highway danger. Now a new device which works on the photoelectric cell principle has been produced. It is still in the early developmental stage, but it should not be long before it is perfected.

The cell is mounted behind a lens system, installed in the radiator grille or above the instrument board and pointing through the front wind-screen; it is similar to the type used in motion-picture sound equipment, where a light through the film's sound-track strikes the cell and causes a varying electric current to flow.

Light hitting the cell lens makes a current flow in the cell; the resultant voltage goes to a small (usually two-valve) amplifier. The voltage operates a solenoid, which switches the headlights from high to low beam. A slow to release relay then holds the lamps dipped for several seconds until the other vehicle has passed. The device then returns to normal in the absence of any other light source, and the lamps are switched again to high beam.

All this seems reasonably simple and practicable—but there are drawbacks. For example, the lens should pick up the headlights of an oncoming vehicle at 1500 feet and taillights at 300 feet (so as not to blind a driver whom you are approaching from the rear). The difference in intensities of these sources is often 10 to 1.

The device should not respond to lights other than those of another

May be a "Godsend" for Drivers on Indian National Highways

vehicle. It should not be affected by the high ambient light of sunset, by illuminated signs, by moonlight, or (most important of all) by reflection from the headlights of your own car. Until recently the P.E. cell picked up all this unwanted light, as well as the headlights of approaching vehicles.

To overcome these drawbacks, a rotary scanning system has been evolved, in which a disc is rotated behind the lens slit. This disc has a series of holes in spiral fashion, so as to effectively scan the area covered by the lens aperture during every revolution. This light almost completely blocks out background while allowing the dipper to respond to small, intense light sources.

The problem of the great difference in light intensity between headlights and tail-lights has been largely overcome by having the disc scan the aperture twice every revolution, and having two spirals of fine holes. These holes are in turn covered by red and blue filters, and the output from the P.E. cell is switched (by means of a cam-operated switch from the disc drive motor) to a present amplifier, designed to give the desired amplification to the filter in use. These filters are chosen for their sensitivity to the wavelengths of light required; a tail-light, being red, will cause maximum energy transfer through the red filter, while the blue filter will barely respond. The reverse applies to the headlight source, where the blue filter will pass only the blue wavelengths. The amplifiers have their gain set so as to allow a certain energy level from either filter to operate the dipping relay.

The response of the equipment to street lights can largely be overcome by the fact that street lights operate almost universally on alternating current while the car system is direct current. By the insertion of an electric filter in the amplifier circuit, the device can be constructed so as to disregard entirely the effect of light originating from alternating current sources.

Attempts are now being made to eliminate the mechanical scanning but this, as yet, is still in the early stages. The presence of this mechanical system is one drawback to largescale adoption of the device by overseas motor manufacturers, because of the maintenance problems involved.

From a survey of world engineering reports, it would appear that most advances in the field of automatic vehicle equipment of electronic type come from the United States. As one recent periodical states, "The present problem is to design a headlight dipper that can be manufactured at a cost sufficiently low to receive widespread acceptance by the automobile industry."

Also, the device must be acceptable both to the user and to the traffic authorities if it is to replace entirely the foot-operated switch.

Road Transport Industry Curbs must be Removed

Moratorium on nationalisation of goods transport until the end of the Third Five-year Plan was recommended by the All-India Conference of State Transport Commissioners and Controllers, at Mussoorie on 18th October, Mr. D. D. Suri, Deputy Secretary, Department of Transport, Government of India, presiding. The conference was attended, for the first time, by representatives of non-official organisations concerned with road transport.

The conference among other things, recommended that the sales tax on motor vehicles, spare parts, tyres and motor fuel should be levied at the source by the Union

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Government and that the present takings of the State Governments in this regard should be guaranteed by the Centre. State Governments should levy only one consolidated tax on motor vehicles and they may, in turn, give subventions to the local bodies at least to the extent of the revenue collected by the latter in the form of octroi, wheel tax and terminal taxes, etc. The local bodies also, the conference felt, should have a share in the progressive increase in the total realisation of the consolidated tax collected by the State Government.

In view of the shortage of road transport capacity, the conference urged that every possible effort should be made to increase it to the maximum extent possible. Opinion was unanimous that to help the achievement of maximum capacity, all existing inhibitory factors should be eliminated.

The importance of adopting a very liberal policy in the matter of granting permits was emphasised by the conference. In addition, it was suggested that all possible efforts should be made to organise road transport by setting up viable units or unions of operators.

The pilot scheme for setting up goods transport co-operative societies, prepared by the Union Transport Ministry, was welcomed by the conference. The scheme aims at developing road transport and at the same time provides employment to educated persons. The representatives of State Governments are reported to have agreed to try the experiment with such modifications as might be necessary to suit local conditions.

Private operators according to one of their representatives, were keen to see that the scheme was a success and offered to contribute financially, if they were allowed to participate in the scheme.

The proposals envisage goods transport services within cities and between one city and another. The intra-city units would be composed of five vehicles each while the inter-city units would have a strength of 25 vehicles.

Allocating 500 vehicles to the two categories equally, there would thus be 50 intra-city units and 10 inter-city units. All the vehicles would be diesel, costing roughly Rs. 30,000 each or a total of Rs. 1.5 crores.

Each intra-city unit would be allotted to a town with a minimum population of 1,00,000. The area of operation of the inter-city units would be larger but not in excess of 300 miles.

As the number of co-operative transport units under the pilot project is not very large, preference will be given to States like West Bengal, Bombay, Kerala and Madras where the number of educated unemployed is the largest.

It would be necessary to train the educated unemployed as drivers and mechanics. This can be done in the State transport services which have well-equipped workshops attached to them.

The scheme is expected to cost about Rs. 1.7 crores including a contribution of Rs. 25 lakhs from the co-operative societies. Its employment potential is estimated at 2,500 educated unemployed and about 4,000 labourers.

The conference endorsed the principle of singlepoint taxation and agreed to a ceiling of 75 per cent of the total taxes of motor vehicles in Madras.

Among other recommendations made by the conference were the broad principles relating to the standardisation of bodies for Motor-cycle rickshaws, unrestricted movement of special taxis used by tourists and coach services for tourists within a selected number of cities and inter-State services between a number of important tourist centres.

Sub-committees were appointed by the conference to report on reorganisation of the administrative transport set-up in the States; measures necessary to meet the increasing demand for goods transport services, and freedom of movement of goods vehicles on a regional basis.



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TRAFFIC ENGINEERING

—the Need of the Hour

BY *PROF. S. P. HORE, PROFESSOR OF AUTOMOBILE ENGINEERING, M.I.T.

Traffic Engineering is a comparatively new branch of engineering which is devoted to the study and improvement of the traffic performance of road networks and terminals. Its purpose is to achieve efficient, free and rapid flow of traffic and at the same time prevent traffic accidents and casualties.

Through the studied use of traffic characteristics, operation improvements are achieved by the effective application of regulatory methods to existing facilities and the design of new facilities. Factual studies of the traffic operations provide the foundations for intelligent development of ways and means to improve performance. In this phase of traffic engineering work, the central purpose is to explore the true nature and characteristic of traffic phenomena. This is the experimental and analytical part of the work and requires the making of measurements and collection of facts. From an analysis of these facts, the diverse qualities, the magnitude and the inter-relationships of traffic and its environment become known and the performance characteristic of the road traffic is established.

The principal characteristic of traffic concern the abilities, requirements and performance (1) of human beings as road users and (2) of Road Vehicles. In vehicular traffic these two components the man and his machine, comprise the discrete unit of traffic. The primary characteristics of traffic movement, are concerned with speed, volume or time rate of flow, and origin and destination or the location, distance and direction of movement. The secondary phenomena of stream flow and intersection flow establish capacity and other performance value of traffic facilities. As an integral aspect of highway traffic parking and other terminal operation characteristic are examined.

*Being the subject of a talk at the Indian Institute of Road Transport, Madras.



Finally the characteristic occurrence of accident is explored since these are the measure of failure.

Characteristics

THE ROAD USER: More than any other sensory perception, road user's vision is significant for the traffic engineer in the design and operation of traffic facilities because in traffic the road user is most dependant upon his sense of sight. It is the usual aspect of the road ahead that starts the chain of events causing the road user to take some positive action in any traffic situation and the traffic engineer should realise that the road user's view of traffic is constantly changing.

The area of most acute vision is subtended by a cone whose angle is 3 deg. For very distinct vision the image of the objects should fall on the retina within this cone. However vision is quite sensitive within a visual cone of 5 to 6 deg.

and is still fairly satisfactory up to a range of 20 deg. To be accurately identified by the driver words and symbols on traffic signs must fall within a visual cone of 10 deg.

Time factor In Response—The time required for a response, such as, applying the brakes, is taken up by the psychological process of perception, intellection, emotion and volition popularly known to the traffic engineers as P.I.E.V. time.

Perception is the sensation received through the eyes, ears and body and transmitted to the brain.

Intellection is the forming of new ideas and thoughts, when something unusual is noticed on the road.

Emotion is the feeling or behaviour growing out of anger or fear and may vitally influence or affect the final message which is sent to the muscles to be carried out.

Volition is the will to produce some action. This process of P.I.E.V. requires a time ranging from as low as perhaps 5 seconds for simple problems to as much as 3 or 4 seconds for a more complex problem such as the decision to overtake or pass in a two lane road.

VEHICLE: The type of vehicle to be used on the road have been classified under the motor vehicles Act but there are some informations regarding a vehicle which a traffic engineer should know. Such as the Rolling Resistance, wind resistance, power requirement for traction acceleration and hill climbing, braking resistance and safe stopping

November 1957

MOTORINDIA

35

distance of vehicle, minimum turning radius, geometry of cornering, slip angle, cornering force, lighting requirements, etc.

SPEED AND VOLUME : Since speeds determine the distance a road user may travel in a given time it is vital in every traffic movement. A road user may wish to increase his speed to shorten time of travel or to increase the distance of travel or both. The time rate of change in speed is fundamental not only in starting and stopping but throughout the entire traffic stream. Average spot speed on a road depends upon the volume of traffic. As the volume increases the spot speed decreases. Available study of spot speed indicate that the average overall speed in cities range from 3 mph in dense business areas to 30 mph in limited lengths of route in outlying residential area. Whereas an average speed in rural high ways may range from 35 to 50 mph.

The volumetric measure of traffic movement is generally accepted as a true measure of the relative importance of any given traffic stream in a given area. In analysis of traffic volume it is customary to employ "flow maps" which show clearly the magnitude of traffic volume for any given location. Such maps are prepared by developing the width of the route in direct proportion to the traffic volume handled for a fixed period of time usually the average day.

One of the basic characteristics of traffic, shown by the distribution of volumes by routes is the concentration of traffic on relatively few routes and on a minor percentage of the total route mileage. This tendency is a vital factor in planning, design, regulation and administration or traffic improvements. More than 80% of the total travel occurs on 20% of the route mileage.

INTERSECTION : Intersections are of profound importance to traffic engineer because of their influence on the movement and safety of traffic flow. The place of intersection is determined by design and the act of intersection controlled by regulation. While in the vicinity of

an intersection road-users must load just their performance by reduced speed or change of path to avoid collision. In the area of intersection the individual road-user may transfer from the route on which he has been travelling to another route or cross the lanes of any stream which flows between him and his destination. As a road user transfers from one flow to another and continue in his original flow he will find it necessary to diverge from, merge with or intercept and cross the path of other road-user.

Parking : Demand for parking in a given area is strongly influenced by land use and by competing forms of transportation. Parking problems are likely to develop in areas devoted to multistoreied residential and Industrial Buildings and are specially acute in commercial and business districts. To evaluate amount and character of parking as well as the facilities available three basic type of field studies are required. (1) Cordan Count (2) Space inventory (3) Parking Practices ; Because of the outstanding importance of the central business district as a traffic generator and the resultant concentration of parking, most studies of parking are concerned with the district where land cost is high, land occupancy dense, land use is primarily business, major route and their flows converge and curbs are usually saturated with parked vehicles or "no parking" regulations.

Cordan Counts yield, the relative importance of each route as a traffic carrier by all forms of transportation. Algebraic summation of these directorial counts develops the amount of traffic by each mode of transportation which is accumulated within the district at any instant during the entire period of study. Parking space is divided into two general classes, Curb and offstreet. All types of parking space in the area are to be listed and classified.

ACCIDENT : Traffic accidents result from actual failure of the road-user, the vehicle or the fixed facilities to discharge properly their respective functions in traffic movement. Since traffic movement with safety is the objective of the traffic

engineer, study of the facts surrounding traffic accidents is vitally important. *Accurate accident reports and records are the foundation for the analysis and prevention of traffic failures. They serve not only in guiding engineering measures but also in shaping traffic law and administration of Motor Vehicles Act.*

Because engineering, police and education officials are concerned with information furnished by accident report, it is desirable to route all reports to a central record bureau which is properly managed, staffed and equipped to serve all agencies. This centralisation avoids duplication, provided specialists for analysis and research, fixes responsibility for preparation of summaries, maintenance of files and records and in general, leads to efficient utilisation of accident facts.

When accidents are distributed by days of the week the resultant distribution is markedly similar to the variation of traffic volume. When traffic volume is at normal level, so is the traffic accident. As volume departs from normal, accidents departure is in the same direction but in a higher rate.

Characteristic daily variation in accident occurrence shows clearly that the hours of darkness increase accident occurrence. During hours of daylight where traffic is above normal the index of accident is generally below the index of traffic volume, but in hours of darkness the index of accident occurrence is above that of the traffic. Fatigue, alcohol and glare from incoming headlight are some of the factors which may increase hazard in evening and night hours.

The characteristic of traffic there become the foundation on which the improvement of operation is founded. On this foundation the art and skill of formulating policies, programme and procedure towards better operations are exercised. It is in these aspects of traffic engineering work that the ultimate objectives, the achievement of efficient, free and rapid flow with minimum allowable hazard take place. Its methods include regulation and control on the one hand and plan-

ning and geometric design on the other.

TRAFFIC REGULATION : The regulation of traffic stems from the police power of the state and must be confined within the boundaries of public safety, welfare and convenience. Main points are limitations which are imposed on road-users and their vehicle, i.e., who may be given the privileges of operating motor vehicles and what kind of vehicles will be permitted to be operated on the public roads. The next set of traffic regulation deals with the road use which includes lateral placement of vehicles, speed, overtaking and passing, starting, stopping and turning, right of way, pedestrians right and duty, general parking rules and similar other regulations. Then there are other rules which apply to only particular time and places like speed control, one way regulations, curb parking controls, stop rules, turning regulations, etc.

The Job of regulating the public is difficult, since many persons feel that traffic controls are an encroachment on their individual driving rights. It becomes necessary to show that controls which might be interpreted as restriction on the part of a particular individual are necessary for the general welfare.

But the legislative body and traffic authorities must keep in mind that unreasonable restrictions or regulations such as over-restrictive speed limits are not likely to last very long.

To develop the most reasonable and effective traffic regulations facts must be sought through traffic surveys, accident studies, driver records and other sources of data so that bias and other undesirable approaches may be avoided.

The regulation of road traffic covers all aspects of the control of Road, Vehicle and Driver. The vehicle is controlled as to registration, ownership, mechanical fitness, accessories, size and weight. Drivers are regulated as to age, ability to operate specific types of vehicles, etc. Even with the basic control on the vehicles and drivers, regulation must be prescribed as to how they will operate in the traffic stream of public roads.

SPEED CONTROL : Paralleling with the growth of speed potential of vehicles there has been growing recognition of the necessity of regulation speed. A commonly accepted criterion of the need for and the importance of speed control is the relationship of speed and accidents. A summary of the 1952, accidents in the U.S.A. shows that in one of every three total accidents, a speed violation had been involved.

Three types of speed regulation and control are in use now-a-days. (1) Basic speed rule which states in effect that all motorists should travel at a reasonable and proper speed. (2) Numerical speed limits, generally in the form of max-posted limits in certain districts or under special road conditions. (3) Speed zoning which provides for the establishment of special numerical limits suited to physical and traffic conditions at a certain locations. Speed zoning is the area of speed control that most frequently involves the traffic engineer proper zoning becomes a guide to safe and proper driving rather than an arbitrary restriction. Advantages of zoning are (1) it aids motorists to adjust speed according to conditions (2) furnishes police a guide as to what is excessive speed (3) develops more uniform speed thereby reducing accident frequency. Speed zoning should be employed on at entrance to cities also. This induces the motorist to reduce their speed progressively from high rural speed to safe urban speed.

ONE WAY STREET : One way street generally afford the most immediate and least expensive methods of increasing traffic volume within a city costing little more the expense of signs and markings necessary to indicate the direction of flow.

One-way streets are effective because of the changes in the traffic characteristics (1) intersectional conflicts reduced between vehicles and also between vehicles and pedestrians (2) head on and sidewise conflicts eliminated (3) head-light glares eliminated (4) file of concern of Drivers and Pedestrians reduced (5) old lane of road ways efficiently utilised. But certain requirements must be met when one-way system is installed. (1) Traffic must be equally accommodated by

adjacent parallel streets usually not more than 500—700 ft. apart. (2) There should be frequent entrance and exit points 300-500 ft. apart. (3) Wherever possible the one-way movement should be applied to the predominant direction of traffic flow. (4) Where congested areas are concerned one way street should be designed to drain the traffic flow. (5) Transit routing and loading points must be carefully studied. (6) standard signs readily visible both day and night should be provided. (7) A carefully planned programmes of public education should precede the installation of the one-way system and police should be provided to assist in the direction of motorists until they become accustomed to the new system.

CONTROL DEVICE AND AIDS : The class of regulations specially applied to particular time and places, together with the warnings required for unusual road and traffic condition as well as the furnishing of useful information about road use to the travelling public requires traffic control devices and aids for their implementation. Accordingly an important branch of traffic engineering work involves (1) signs and marking (2) signals and (3) lighting.

Traffic control devices are the means by which the road-user is advised as to detailed requirements or conditions affecting road-use at specific places and times in order that proper action may be taken and accident or delay avoided. Control devices are even demanded by regular users and are absolutely necessary for strangers to the locality.

Traffic control devices fall into three distinct functional groups. *Regulatory*—devices have the authority of law and impose precise requirement upon the action of road-user. *Warning devices*—used to inform road-users of potentially hazardous road way conditions or unusual traffic movement which are not readily apparent to passing traffic, impose responsibility upon the individual to employ added caution as he approaches and proceed through the danger area. *Guiding devices*—are employed simply to

inform the road-user of route, destination and other pertinent information.

There are four elementary requirements which every traffic control device should meet (1) it should compel the attention (2) it should convey a simple clear meaning at a glance (3) It should allow adequate time for easy response (4) It should commend the respect of the road-users for whom it is intended. Signs and markings should be provided in such a way that adequate response time is provided to manoeuvre the vehicle to the required safe position.

Ideally all signs and markings should have same visibility at night as during the day either by reflectorization or illumination.

At intersections, where the demand for movement with safety heavily taxes the supply of road space, specially during certain period of the day, the right of the way is frequently assigned alternately to the diverse traffic flow. Any control device used for this purpose must not only fulfil those four basic requirements but in addition must, apportion available time among road-users. Traffic signals are widely used in the assignment of right of the way at intersections.

ROAD LIGHTING : From road operation point of view, road illumination should provide pleasant and accurate night seeing conditions so that traffic movement may be made easily and safely. There are four primary factors in visibility, (1) Time available to perceive and recognise an object, dependant on speed of travel and distance of visibility (2) size of the object to be seen (3) contrast between object and background (4) level and condition of illumination. While uniformity of pavement brightness is a desired objective in road-lighting, the level of brightness for a traffic condition is modified by the amount of glare. Glare not only causes discomfort but also reduces visibility. The glare from road-lighting may be controlled by mounting height, shielding the light source or reducing the brightness contrast of the light source with that of the general level of illumination. Mounting of

lights at a height below 17'-18' sharply increases the blinding effect. Studies of accident characteristic show that night ratio of accident per vehicle mile is 3 to 4 times that of day time experience.

Traffic Design & Planning: Traffic design includes not only the creation of new facilities but also the red sign of existing facilities. It applies to terminals as well as to streets and highways.

The construction of fixed traffic facilities is of special concern to the traffic engineer since these facilities vitally affect traffic operations. Reconstruction or new construction should therefore be designed so as to fit traffic requirements. There are many traffic factors which influence design. For example composition, volume and speed as well as starting, turning, and stopping abilities and performance values are significant. Traffic design is concerned with (1) Road surface because of their functional and light reflecting properties which affect not only starting, turning, stopping and laying of traffic movements but also visibility conditions (2) Cross section of the road (3) Sight distance (4) Horizontal alignment (5) Vertical alignment (6) Geometry of elemental manoeuvre area (7) The practical form of intersection and junctions (8) Design of parking and terminal structure not only for the acceptance and discharge of vehicles but also for internal movements and storage arrangements of these facilities.

The principal traffic values employed in planning work are (1) Composition of the traffic streams, which determines the character of the routes required, (2) Traffic volume, which determines the capacity required (3) Traffic origins and destinations which indicate the proper location of routes and terminals facilities.

Road surface : The Friction between motor vehicle tyre and road surface is a determinant of safe speeds and distance requirements in stopping, starting and turning. For the traffic engineer the max coefficient of friction offered by the surface under various driving conditions is significant with regard to

skid resistance. Smoothness of the surface and light reflecting properties are the two other factors with which the traffic engineer is also concerned. By *Cross Section* of the road is mainly meant the lane width, number of lanes, curb and road margin. A lane width of 12 ft is now considered ideal for all high speed roads and for low speed roads with a high percentage of trucks. An 11 ft. width may be considered satisfactory on urban low-speed roads. 9 and 10 ft. road width can accommodate substantial lane flow but drive tension and mental discomfort rendered them impractical in design.

Restriction of the *Sight Distance* may come such causes as parking, sign boards, shrubs on the inside of the curves and intersections or may be attributed to Hill Crests, curves and intersections located too close to sight obstructions of a permanent nature. Short sight distances seriously affect traffic operation because drivers do not see hazards of the roadway or turn off points in time to stop or make proper manoeuvres. Required minimum sight distance should be equal to the sum of the P.I.E.V. distance plus the safe stopping distance of the vehicle.

Vertical Alignment : Is the elevation of the road surface which consists of grades and curves. Grade is the number of feet of vertical rise and fall in each 100 ft. of horizontal distance. Grades over 10% are rarely employed in highway design except on unusual mountainous roads or special ramps. The transition from one grade to another is accomplished gradually by means of vertical curves. The grade angle of a vertical curve is fixed since it is the angle between intersecting grades but the path of the vertical curve is determined by its length. Minimum lengths are based on sight distance, vertical acceleration and other factors.

Horizontal Alignment: Consists of tangents and curves. A turning force is required to change the direction of the vehicle. When a vehicle turns along a path of horizontal curve at constant speed a force known as centrifugal force

acts on the vehicle which tries to throw the vehicle out of its path. This force is opposed by the friction developed between the tyre and the road and also by the superelevation of the road section. Theoretically superelevation could be designed to counteract completely this centrifugal force provided all vehicles run at the same speed. But super elevation or public roads must be designed for a wide range of speed and climatic conditions. The choice is a matter of pinion and values employed range for 7" to 1.4" per foot.

Again to follow a circular arc from a tangent, the steering angle and slip angle of the vehicle must be developed instantaneous. Drivers prefer gradual steering and gradual development of side forces, as a result, describe a path which is a transitional curve. There are two principal types of transitional highway curve. One curve is transitional throughout and the other which has transitional curve at both ends of a central circular curve.

Reverse horizontal curve should be avoided as far as possible. Where it is necessary to provide curve in opposite direction, it has been arbitrarily recommended that they be placed at least 1,000 ft. apart.

INTERSECTIONS AND THEIR MANOEUVRE AREAS: Both vehicular and pedestrian activities at intersections produce increased potential hazards and delays, when compared with the hazards and delays encountered by drivers between intersections. Intersection design is the most complex problem in the traffic design of road-ways.

Each intersection consists of one more manoeuvre areas. Manoeuvre areas include not only the area of potential collision, wherein the actual manoeuvre is performed, but also, its channel of approach or departure wherein design or regulation may influence the condition of manoeuvre. Multiple manoeuvre areas are to be avoided in design. The use of common collision areas by more than two flows confuses the driver and produces problem in capacity and safety. Crossing

manoeuvre areas designed for high relative speed should provide for crossing at approximate right angles. Drivers are more accustomed to right-angle crossing, and have formed better-driving habits for that angle of crossing. A rotary intersection at the confluence of 3 or more roads at which crossings and right-turn traffic movements weave on a road-way in a clockwise direction inherently separate conflict points and therefore may be designed to accommodate traffic efficiently.

INTERSECTIONS ACCOUNT FOR A HIGH PERCENTAGE OF TOTAL TRAFFIC ACCIDENTS AND IT IS CLEAR THAT THERE MAY BE A NUMBER OF ALTERNATE SOLUTION TO INTERSECTION DESIGN PROBLEMS. It is a cut and try process, knowledge of theory and practice of intersection design aids in the selection of the design to be analysed. But a benefit cost analysis of each trial solution should be used as yardstick in selecting the optimum design.

By title, traffic engineering department first appeared about 1924, in United States and has made a phenomenal progress in these few years. Practically all cities of U.S.A. has a traffic-engineering department. In India the duties of traffic engineer are still being performed by the police department.

" Since the police department do not have technically trained men to deal with the rapidly increasing traffic problems in all the big cities of India it is about time that they should seek the assistance of qualified traffic engineers. To start with traffic engineering function may be of advisory nature and later on as the traffic engineers prove their worth in dealing with traffic problems, a separate traffic engineering department may be established which will work in close co-operation with the police department on one side and highway or road-engineering departments on the other.

GOOD NEWS TO BRAKE PART IMPORTERS

AUTO & GENERAL WINS ASSESSMENT APPEAL

Members of the Parts Trade will be aware that for all rubber components of wheel cylinder and master cylinder the duty assessed so far has been the higher rate of 50% under 75 (9) (iii) I.C.T. "rubber components not otherwise specified."

However since these are parts of master and wheel cylinder assembly coming under 75 (11) (V) I.C.T. and thus form component parts thereof and so "specified", it was suggested that these parts, like master cylinder kits, wheel cylinder kits (both metal and rubber), master cylinder washers and wheel cylinder washers, etc., should all be assessed under 75 (11) (V) lower duty only, and not at the higher classification of 75 (9) (iii). The Customs department did not share this view, of the Madras Motor Parts Dealers' Association.

One of the Association members Messrs. Auto & General Supplies Company appealed against this decision of the Collector of Customs to the Central Board of Revenue.

Consequently the Government of India, Ministry of Finance (Department of Revenue) has up-held the contention and have passed orders, dated 19th November 1957 for refund of duty on the above items for which the members had paid the higher rate of duty of 50%.

Members therefore can now insist on payment of lower duty only under 75 (11) (V) I.T.C. for master cylinder kits, wheel cylinder kits and all washers and boots. They may also claim a refund of duty for those consignments cleared within the last three months.

MOTORINDIA

November 1957

SPEED



MANIAC

By Atfred Coppel

(Continuing from our last issue we give below the second and last instalment of the pulse — hammering auto race novelette)

They got it together in time for a meet at Torrey Pines, one we couldn't make with Wick's car because we had to work for a living. Carrington was leading at the hal-way point when the V-12 came unbuttoned on him again and he had to walk back to the pits. Swearing all the way, Pollard wrote me.

Another month and we were all getting ready for Pebble Beach. One of the big ones out here—run over some of the most beautiful roads in the country.

We hadn't seen much of Carrington since the affair of the track midget. Wick had sent the car over to him the day after their drag race and forgotten it—or tried to.

The Bomb came into my place in the late afternoon—looking as though he had been rolling in a grease pit. Wick was out playing with the Allard, and Carrington and I were alone. I decided to get

a few things straight that had been bothering me.

"Was it you," I asked him, "that tried to get Wick barred from the race at Palm Springs?"

His answer was a stright-out *no*. And for some reason I believed him.

"What are you made up for?" I wanted to know.

"I've been digging into the Ferrari," he said rather sheepishly.

I wanted to say *good* to him and tell him that he was getting on the right path to success in this racing game. But I couldn't. The Bomb wasn't the sort of guy one could be friendly with easily. All I managed was: "You'll find out you can't buy it."

I could see right away I'd hit a sore spot.

"Why is it all you guys hate to see anybody have money?" he demanded.

"I don't feel that way."

"The devil you don't. And Wick, too. Particularly him." He picked up a wrench and hefted it nervously, not looking at me. "I didn't want to take his stinking midget. I said so, too."

"Maybe," I suggested, "it was the way you said it."

"I just told him I didn't want it. What's wrong with that?"

"If you don't know, I can't tell you."

The Bomb looked at me, frowning. "I've tried to be friendly with Wick since then, and all I've gotten is more of the same old stuff. Well, okay, good enough. It doesn't matter." He tossed the wrench into the tool box and stood

with his hands on his hips. "When Wick comes back you can tell him for me I'm going to trim his ears for him at Pebble Beach."

"You don't have to tell me," said Wick's voice from the door. "I can hear perfectly well."

The Bomb turned around to face him, his mouth twisted into a half smile. "All right, listen again. I'm going to blow you off, Wick. But good. That's a promise."

And then he pushed past him and out into the street. I heard the Jag fire up and take off, while Wick stood looking after him.

Well, I thought, here we go again . . .

The Bomb said it, and the Bomb did it, too. Pebble Beach was all Ferrari, and Carrington drove a really smooth race from start to finish. He and Wick were on the pole, with Pollard in the second row in a new XK-120C one of the dealers had just brought over from England. There were about fifteen other really fast cars in the race, but it was all between those three from the start.

Wick took the lead for the first twenty miles, with Carrington right behind him, and Pollard third. And on the twenty-first lap, the Bomb urged the Ferrari past Wick's Allard with a really nice bit of driving.

Wick got anxious then and started pressing. He reverted to his track style of driving and it was almost fatal. Twice he ticked the straw-vales and the third time by he pranged them—hard. The Allard spun out and ended against a tree with a bent wheel. Pollard shoved by to take a comfortable second,

and the Golden Bomb had his first major victory.

Wick was furious. We came back home and started all over again, tuning the Allard and straightening out what the tree had bent.

Carrington had spoken his piece and had come through. You could see it eating at Wick like a cancer. The magazines got wind of the deal and made capital of it, too. The grudge match, and all that kind of stuff.

And that's the way it was as we went into the Golden Gate races—the biggest road racing event in the West.

We arrived in San Francisco two days early and checked in at the Hilliard—a sort of second rate place, but in keeping with our finances. The city press was giving the races a big play, and the sponsors were expecting a hundred and fifty thousand people to pour into Golden Gate Park.

The course, in case you've never seen it, is a three mile run through the centre of the big park—around a lake and through trees. The roads are fast and wide, but with tricky slopes and gradients that keep a car in a drift almost all the time. As a show, it's a perfect example

of why more people are watching road races than are watching the midgets, hard-tops, and big cars combined.

We lay doggo in our hotel until we were due for technical inspection, and then we took the Allard out to the park. There was more, exotic machinery in that square mile where the inspection was held than I've ever seen in my life. Talbots, Jaguars, Connaughts, MGs. and Simcas, Cunninghams—everything.

We were waiting in line when Carrington came up to us, a big wide grin on his face.

"You know what, Wick?" he said easily. "I think I'll do it again."

All the other drivers and crews were about, and may be a dozen people stood around waiting to hear what Wick would say.

He didn't say anything.

"What's the matter, Wick?" the Bomb laughed at him.

"All right," Wick said between clenched teeth.

"All right what? How about a bet? Carrington demanded.

Oh, no, I thought. Not again—

"My Ferrari against your Allard.

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MOTORINDIA

November 1957

41

Twelve thousand against five. You can't turn down those odds."

"Look," I said. "Knock it off."

The Bomb looked at me. "Stay out of this."

"Okay," said Wick softly. "you're on."

"And this time when you lose," Carrington said, "try to take it like a gentleman."

I thought Wick was going to start swinging again, so I dragged him away. "You," I told him, "are a plain, double-dyed fool."

The first race the next day was a hundred miler for one and a half litre cars. Some joker named David Gillespie in a red and blue MG special whaled the stuffings out of a flashy team of blue Simcas. I'm told it was a good race, but I was too nervous to watch.

And all too soon we were on the grid ready for the start of the over 1,500 c.c. race.

The band was playing, flags were whipping in a brisk breeze, and there must have been a million people lined up all around the whole blamed circuit—but I could only think of Wick and the Bomb, each of them going out to try and make the other look silly. They'd take chances they shouldn't, and racing in any form is dangerous enough without grudges to louse up judgment. I had a real hunch. A real bad hunch.

Both of them were starting well back—in about the seventh row. Pollard in his C-type Jaguar had the pole, and there were two or three other Allards on hand. All good and fast. The Bomb's red

Ferrari had a beautiful blown 2.9 Alfa for company, with an Eastern fellow behind the wheel.

I leaned over and fastened Wick's helmet for him and said: "For cripe's sake, take it easy. It's only a race."

"Yeah," Wick said, looking over at the red Ferrari.

There was nothing to do with him, so I went over to Carrington.

"Look," I said. "You've come a long way from the moneybags who would never get his hands dirty. You've learned to drive and to make your car go. Now try and learn one more thing."

He looked up at me, his eyes sombre behind the visor of his crash helmet. "Like what."

"Like there are things more important than winning."

"Sure," he said, turning away, "I'll keep it in mind."

So that was all I could do. I went back to the pits and climbed the hill so I could see most of the circuit as well as the start.

Engines were running now, and the sound was like a million tons of gravel in a ten mile drum. Blue

smoke sort of hazed the scene over, and the drivers revved their engines higher and higher as the starter lifted the bright green flag.

The flag dropped and there was that familiar shriek of tyres scrabbling for traction and the rising thunder of unmuffled engines.

Pollard in the XK was first away, with the red Alfa right on his tail. Wick and Carrington both pulled out of line—one to the right and one to the left. They rammed past a half dozen cars and closed in on Pollard and the Alfa. Wick in the lead, the Bomb not more than six feet behind him.

The cars roared into the first corner and the Alfa momentarily snatched Pollard's lead, only to have him stab the Jaguar and retake it. Wick slid past the Alfa on the next corner, and took after the fleeing Jaguar. The Bomb didn't give anything away either. He whistled past the Alfa on the downhill run into the hairpins and once again closed in on Wick.

They went through the wicked bends in order, nose to tail. Pollard and Wick and the Golden Bomb—leaving the rest of the cars farther and farther back. The three of them were clocked through the

timing traps at 111 and a fraction. That, on a cold first lap.

Speed! More speed!

They streaked past the pits still one, two, three, and already the crowd was beginning to yell itself hoarse.

On lap five, Carrington passed Wick to take over second place on the long run before the hairpins which seemed to favour the Ferrari's high top speed. But he couldn't get past Pollard or pull away from Wick. The Alfa pulled in with a sick engine, as the leaders were beginning to lap the slower cars.

The traffic gave Pollard a bad time, and Carrington slipped past him to take the lead. The people around me went wild pulling for the beautiful red Ferrari. And then Wick took a crazy chance on the run between the two hairpins, and passed Pollard, banging the straw-bales in the process, but holding on to the bucking Allard through brute force and blind luck.

Then it began in earnest. The Bomb leading and gaining on the straights, with Wick taking insane chances to catch up with him on the corners. Something simply had to give.

The Bomb gave. With three laps left, he let Wick push him into a corner too fast, and he went wide. The Allard slipped through and took the lead.

They went past the pits at over 119, with the nose of the Ferrari less than a yard from the round tail of the Allard. I could hear myself praying out loud over the continuous thunder of a hundred thousand people.

When they came around again, they got the white flag—last lap. The Bomb went crazy. He started to pass Wick before the first corner on the inside—and there wasn't room. The Ferrari ticked the Allard's rear deck, and all hell broke loose.

Wick's car swerved, the tank ruptured and burst into flames—



"Honest, officer; all I had was a little rum-flavored kum-kum on my forehead!"

a hideous yellow, full of oily smoke. And then he went broadside straight up the escape road and up a steep bank. Like a slow-motion study, we all saw the burning car roll over and come to a stop against a tree.

The Bomb was clear and still racing. He made the corner and was almost gone when he saw the fire. The Ferrari came to a spinning stop and Carrington jumped out, running toward the burning Allard.

He was there before anyone had moved a step. There and through the burning gasoline to pull Wick free and into the clear, where they both rolled in the grass to beat out the burning spots on their overalls.

They were sitting there, grey-faced and sheepish, when the ambulance

got to them, with me hanging on to the tailgate.

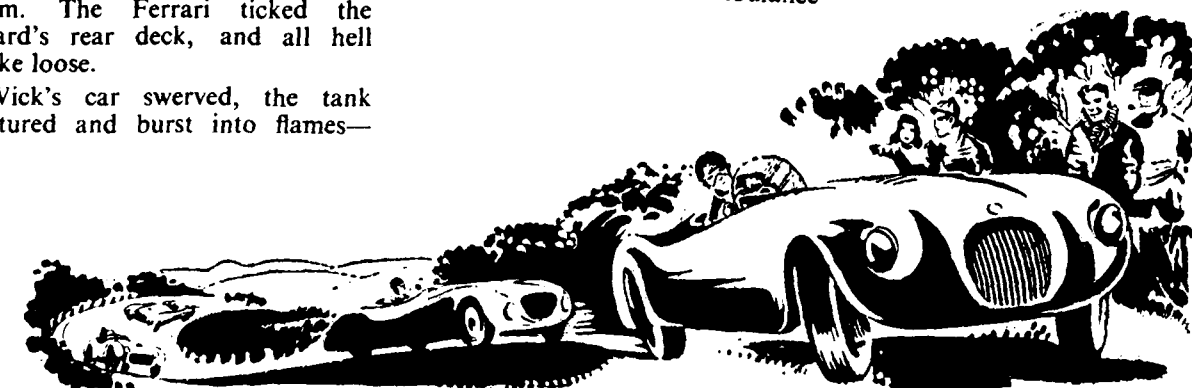
The Allard was still burning like a torch, a gone machine.

But while the Allard was lost, something good did come out of that race. We could all feel it even then, and nobody wanted to say anything for fear of spoiling it. We knew a team was shaping up. Wick and the Golden Bomb. So no one said a word while Pollard took the checkered flag and the race. We all sat there and watched the Allard burn, and finally Wick said:

"Anybody got any marshmallows?"

It was the beginning of a beautiful friendship.

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Studebaker 1956 Commander (V.S.T. Motors Private Ltd.) Including S.T. & Delivery Charges	22,239 86
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The Fiat 1100 The Elegant (Sundaram Motors Private Ltd.) Ex-Factory	9,755 00
Willys C.J. 3B Universal Jeep ex-plant Bombay	12,160 00
Willys Model Station Wagon ex-plant Bombay	18,150 00
Jeep 1 ton truck	13,046 00

MOTOR CYCLES

Royal Enfield (The Madras Motors (Private) Ltd.)—	
"150 Ensign"	1,890 00
"350 Bullet" with spring frame	3,430 00
499 c.c. Model 'j2'	3,500 00
"500 Bullet" with spring frame	3,950 00
"500 Twin" with spring frame and with Magdyno or coil ignition	4,450 00
"700 Super Meteor" with spring frame and with Magdyno or coil ignition	4,650 00

SCOOTERS

Lambretta, manufactured by Automobile Products of India Ltd. Distributors, South India Automotive Corporation Private Ltd., Madras. (At Visakhapatnam—Western

Automobiles Ltd.) Prices are ex-Factory, Bhandup, Bombay.
48 c.c. Scooterette ... 827 00
150 c.c. 'LD' Model Deluxe Scooter ... 1,795 00

VANS

Standard Delivery Van. (Union Co. (Motors) Private Ltd.) on the road ... 10,628 56
Hindustan Traveller, price on the road (Reliance Motor) Co. ... 14,700 00

TRUCKS & COMMERCIAL CHASSIS

(George Oakes Ltd.)
Leyland Comet "203" WB Passenger Diesel Chassis including S.T. & dely. charges ... 36,000 00
Leyland ECPO 2/2R-176 WB full forward control Passenger Chassis S.T. & dely. charges ... 35,500 00
Leyland ECOS 2/1R-163 WB goods chassis including S.T. & dely. charges ... 34,700 00
Leyland ECOS 2/2R-118 full forward Tipper chassis including S.T. & dely. charges ... 34,500 00

(V.S.T. Motors Private Ltd.)
Tata-Mercedes-Benz. Diesel Truck and Bus Chassis L 312/42 165" W.B. 5-Ton Truck Chassis ex-Works, Jamshedpur ... 26,340 00
LP 312/42 165" W.B. Full Forward Control Truck Bus Chassis ex-Works Jamshedpur ... 27,295 00
LP 312-48 190" W.B. Full Forward Control Bus Chassis ex-Works, Jamshedpur ... 28,085 00
L 312/36 142" W.B. 5-Ton Truck Chassis ex-Works, Jamshedpur ... 25,995 00
LK 312/36 142" W.B. 5-Ton Truck Chassis ex-Works, Jamshedpur ... 29,475 00

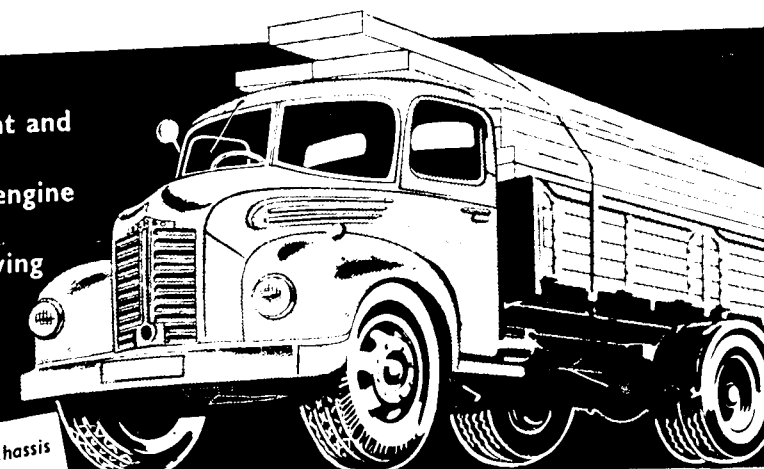
Fargo (at Sundaram Motors Private Ltd.) Dodge (at Rane (Madras) Ltd). Prices duty paid ex-factory Premier Automobiles Ltd., Kurla, Bombay.
C3D6-116" (4) 7.00 x 16-6 Ply ... 12,662 00
C4D6-126" (4) 7.00 x 16-6 Ply ... 17,974 00
C3PW6-126" (4) 7.00 x 16-6 Ply ... 16,391 00
C4G6-153" (6) 34 x 7-10 Ply ... 16,062 00

	Rs. nP.
C4H6-153" (6) 34 x 7-10 Ply	17,710 00
C4H6-153" (6) 34 x 7-12 Ply	17,979 00
C4H6-193" (6) 34 x 7-10 Ply	18,116 00
C4H6-193" (6) 34 x 7-12 Ply	18,385 00
C4H6-193" (6) 34 x 7-10 Ply	18,479 00
C4H6-193" (6) 34 x 7-12 Ply	18,748 00
K6D200-116" (4) 7.00 x 16-6 Ply	12,896 00
K6D200-116" (4) 7.00 x 16-8 Ply	12,961 00
K6D300-126" (4) 7.00 x 16-6 Ply	12,900 00
K6D300-126" (4) 7.00 x 16-8 Ply	12,965 00
K6W300-126" (4) 9.00 x 16-10 Ply	18,950 00
K6D400-129" (6) 34 x 7-10 Ply	16,372 00
K6D400-153" (6) 32 x 6-10 Ply	16,186 00
K6D400-153" (6) 34 x 7-10 Ply	16,531 00
K6D400-171" (6) 34 x 7-10 Ply	17,008 00
K6D500-129" (6) 34 x 7-10 Ply	18,092 00
K6D500-129" (6) 34 x 7-12 Ply	18,388 00
K6D500-153" (6) 34 x 7-10 Ply	18,331 00
K6D500-153" (6) 34 x 7-12 Ply	18,628 00
K6D500-171" (6) 34 x 7-10 Ply	18,606 00
K6D500-171" (6) 34 x 7-12 Ply	18,904 00
PICKUP	
C3D6-116" (4) 7.00 x 16-6 Ply	15,012 00
C4D6-126" (4) 7.00 x 16-6 Ply	16,058 00
K6D200-116" (4) 7.00 x 61-6 Ply	16,293 00
K6D200-116" (4) 7.00 x 16-8 Ply	16,358 00
DIESEL CONVERSION	
C4H6-153" (6) 34 x 7-10 w.b. Ply	22,668 00
C4H6-153" (6) 34 x 7-12 w.b. Ply	22,937 00
C4H6-171" (6) 34 x 7-10 w.b. Ply	22,903 00
C4H6-171" (6) 34 x 7-12 w.b. Ply	23,172 00
K6D500-153" (6) 34 x 7-10 w.b. Ply	20,997 00
K6D400-171" (6) 34 x 7-10 w.b. Ply	21,303 00
K6D500-153" (6) 34 x 7-12 w.b. Ply	22,930 00
K6D500-153" (6) 34 x 7-10 w.b. Ply	22,632 00
K6D500-171" (6) 34 x 7-12 w.b. Ply	23,414 00
K6D500-171" (6) 34 x 7-10 w.b. Ply	23,116 00

Prices and specifications are subject to change without notice.

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