

JL
D 513 m2, NS6
NS7.4.1.
2, 20, 088

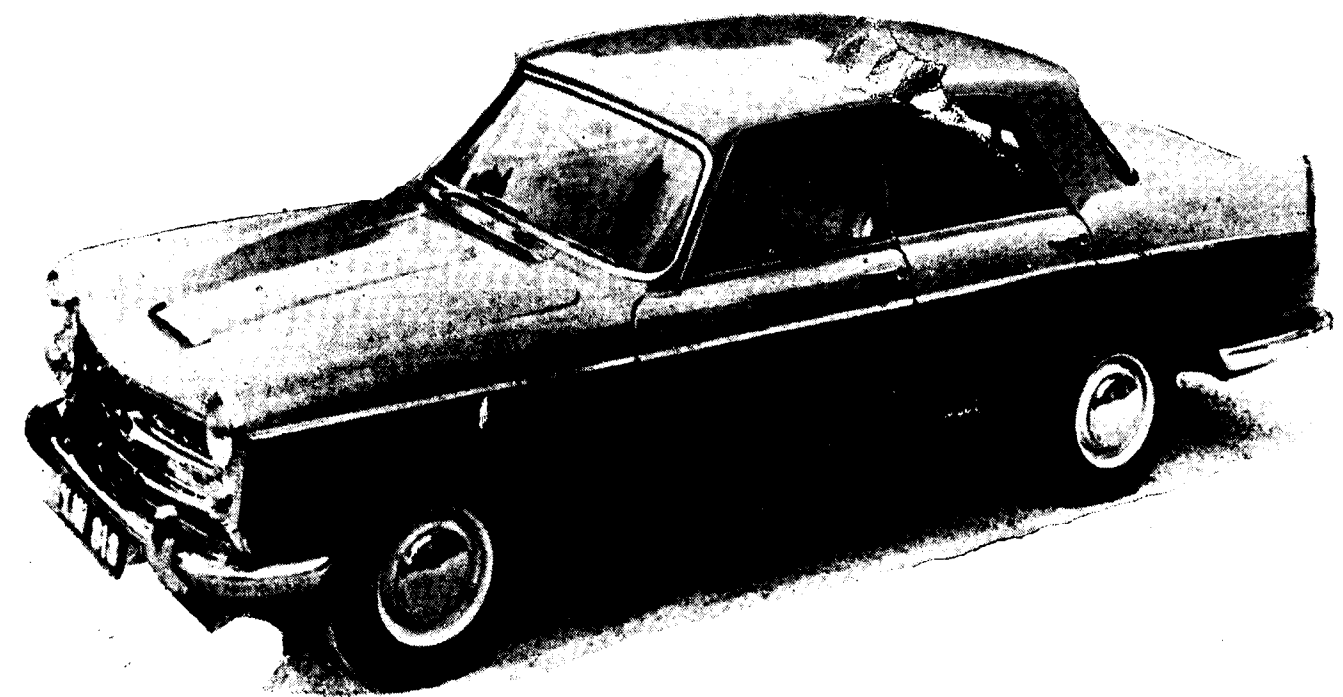
MOTORINDIA

VOLUME 4

AUGUST 1959

NUMBER 1

331
4.55



The B.M.C's new low-priced six-seater Austin A99 is said to be the best Austin ever built. Await full details in our September issue.

PAYEN TALBROS

Offer the largest
range of Gaskets

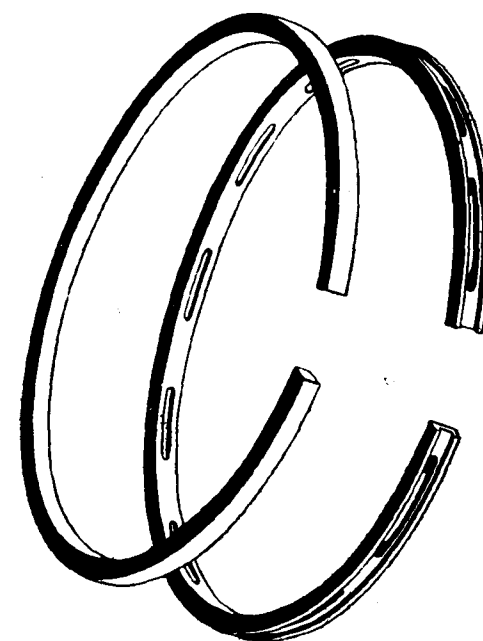


Payen Talbros Gaskets

ARE ORIGINAL EQUIPMENT
ON ALL AUTOMOBILES MANUFACTURED IN INDIA

**GASKETS & PACKAGED SETS FOR POPULAR MAKES
AVAILABLE FROM LEADING PARTS DEALERS**

Distributors for Automotive Gaskets :
M/S GEORGE VINT & BHALLA (India) PRIVATE LIMITED :: NEW DELHI & BOMBAY
M/S SPEED-A-WAY PRIVATE LTD., MADRAS • M/S JAMES WARREN & CO., LTD. CALCUTTA



**Engineered to outperform
and outlast all other rings!**

Manufactured by :

GOETZE (INDIA) PRIVATE LTD.

Sole Selling Agents :

Under Licence

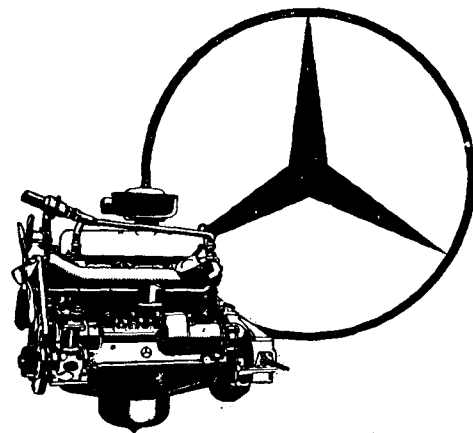
ESCORTS (AGENTS) PRIVATE LTD
PRATAP BUILDINGS, CONNAUGHT CIRCUS, NEW DELHI-1.

CPH-GT/B-18

August 1959
M-1

MOTORINDIA

1



The Star that
hauls a fortune

Announcing... engine exchange plan for your **TATA-MERCEDES-BENZ** vehicles

Give a new lease of life to your truck by installing a Tata-Mercedes-Benz OM-312 type good-as-new factory-reconditioned engine. These fully guaranteed engines will be available with our dealers to exchange with your present OM-312 engines. The direct sale of these factory-reconditioned engines is not possible.

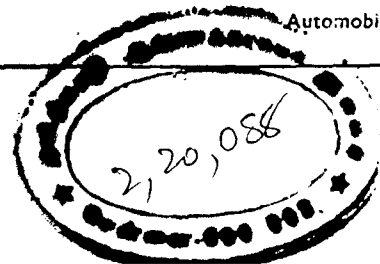
Just drive your vehicle into our Dealer's workshop in your district and ask for the replacement of your old engine by our reconditioned engine which carries the same guarantee as the

new one; it will perform like a new one. The replacement will take just a few hours, saving you time and money. Your vehicle will not be laid up for weeks and you will be absolutely certain that it is equipped with an engine capable of giving top-rate performance all over again for thousands of miles.

Contact our nearest authorised dealer for full information and see how quickly and economically you can double the life of your Tata-Mercedes-Benz vehicle.

TATA LOCOMOTIVE & ENGINEERING CO. LTD.

Automobile Division: 148, Mahatma Gandhi Road, Bombay-1



MOTORINDIA

August 1959

WAXPOL

GIVES YOU
SOMETHING
EXTRA



CAR POLISH
It brings out
the shine and
gloss of cars
and is equally
good for wooden surfaces

HYDRAULIC

BRAKE FLUID

Its regular
use ensures
the perfect
working of
the brakes
all the time



**VALVE
GRINDING
PASTE**

It is used
for grinding valves, joints etc.

other products

Auto Cleaner, Cycle Polish, Metal
Polishes, Rubbing Compound,
N. C. Thinner, Gasket Cement.

Manufactured by

**THE WAXPOL
INDUSTRIES LTD.**

No. 9 MITTER HOUSE
71 GANESH CHANDRA AVENUE
CALCUTTA 13

MOTORINDIA

TELEGRAMS : GOPALIS

TELEPHONE : 85287

Vol. 4

AUGUST 1959

No. 1

Price Re. 1

Annual Subscription Rs. 10

CONTENTS

	PAGE
Editorial	5
Miniature Bus by our London Correspondent	7
Austin Healey	11
New Models from Germany	15
Jaguar Mark 9	17
Hydro-static Transmission	19
An outstanding small car	23
Mystery of Hawthorn Crash	26
Lower Costs in Oil Industry	28
Automobiles for all purposes	30
Foul Work on the Highways by A. Holden	32
Perkins News	34
Italian Automobile Industry	36
Angles on Steering	38
Persons and Events	40
Letters to the Editor	41
Mysore Automobile Parts & Allied Merchants' Assn.	43
Madras Motor Sports Club	45
Independence Day celebrated	46
Models and Their Prices	48

INDEX TO ADVERTISERS

Amco Batteries Ltd	24 & 25
Armstrong Smith Private Ltd.	18
Asbestos Magnesia & Friction Materials Ltd	14
Bharat Motors	33
Bower Battery Manufacturing Co Private Ltd	15
Burmah-shell Oil Storage & Distributing Co of (I) Ltd	45
Caltex (India) Ltd.	6
Canara Workshops Ltd	22
Chandulal Mehta Private Ltd	29
Chloride & Exide Batteries (E) Private Ltd	20
Firestone Tyre & Rubber Co (I) Ltd	12
George Oakes Private Ltd	16
Glass & Miniature Bulb Industries	32
Goetze (India) Ltd	1
Himco Batteries (Madras) Private Ltd	27
Hindustan Motors Ltd	10
Indian Engineering & Trading Co	13
India Pistons Private Ltd	4
Jairamdas & Sons.	9
Jayaraj Nadar & Sons, S. G.	18
Kasi & Sethu	32
Lucas Indian Service Private Ltd	16
Madras Mercantile Agencies Private Ltd	31
Miniature Bulb Industries of India	9
Motor Industries Co Ltd	20
Narayan Trading Co	31
Payen-Taibros Private Ltd	Second Cover
Premier Automobiles Ltd	Third Cover
Purushotham Murarjee	32
Sri Ram Motor Works	9
Standard Vacuum Oil Co	Back Cover
Sundram Iyengar & Sons Private Ltd T. V.	8
Tata Locomotive & Engineering Co Ltd.	2
Waxpol Industries Ltd	3
Western Battery Corporation	9

THE REDEX CAR CLUB

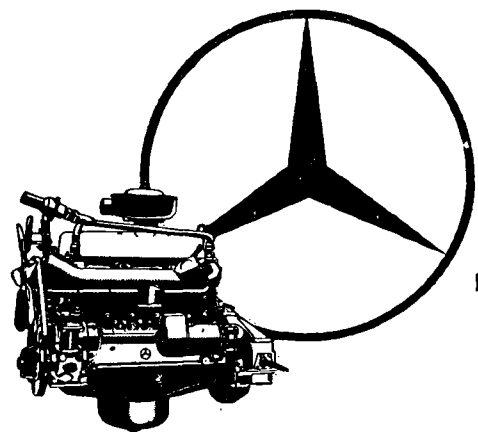
THE MADRAS MOTOR PARTS DEALERS' ASSOCIATION

THE MYSORE AUTOMOBILE PARTS & ALLIED

MERCHANTS' ASSOCIATION

THE TAMILNAD MOTOR PARTS DEALERS' ASSOCIATION

APPROVED ORGAN OF :



The Star that
hauls a fortune

Announcing... engine exchange plan for your **TATA-MERCEDES-BENZ** vehicles

Give a new lease of life to your truck by installing a Tata-Mercedes-Benz OM-312 type good-as-new factory-reconditioned engine. These fully guaranteed engines will be available with our dealers to exchange with your present OM-312 engines. The direct sale of these factory-reconditioned engines is not possible.

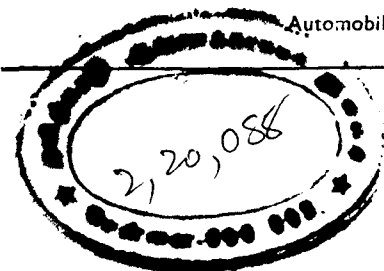
Just drive your vehicle into our Dealer's workshop in your district and ask for the replacement of your old engine by our reconditioned engine which carries the same guarantee as the

new one; it will perform like a new one. The replacement will take just a few hours, saving you time and money. Your vehicle will not be laid up for weeks and you will be absolutely certain that it is equipped with an engine capable of giving top-rate performance all over again for thousands of miles.

Contact our nearest authorised dealer for full information and see how quickly and economically you can double the life of your Tata-Mercedes-Benz vehicle.

TATA LOCOMOTIVE & ENGINEERING CO. LTD.

Automobile Division: 148, Mahatma Gandhi Road, Bombay-1



MOTORINDIA

August 1959

WAXPOL

GIVES YOU
SOMETHING
EXTRA



CAR POLISH
It brings out
the shine and
gloss of cars
and is equally
good for wooden surfaces

**HYDRAULIC
BRAKE FLUID**

Its regular
use ensures
the perfect
working of
the brakes
all the time



**VALVE
GRINDING
PASTE**

It is used
for grinding valves, joints etc.

other products
Auto Cleaner, Cycle Polish, Metal
Polishes, Rubbing Compound,
N. C. Thinner, Gasket Cement.
Manufactured by
**THE WAXPOL
INDUSTRIES LTD.**

No. 9 MITTER HOUSE
71 GANESH CHANDRA AVENUE
CALCUTTA 13

MOTORINDIA

TELEGRAMS : GOPALIS

TELEPHONE : 85287

Vol. 4

AUGUST 1959

No. 1

Price Re. 1

Annual Subscription Rs. 10

CONTENTS

	PAGE
Editorial	5
Miniature Bus by our London Correspondent	7
Austin Healey	11
New Models from Germany	15
Jaguar Mark 9	17
Hydro-static Transmission	19
An outstanding small car	23
Mystery of Hawthorn Crash	26
Lower Costs in Oil Industry	28
Automobiles for all purposes	30
Foul Work on the Highways by A. Holden	32
Perkins News	34
Italian Automobile Industry	36
Angles on Steering	38
Persons and Events	40
Letters to the Editor	41
Mysore Automobile Parts & Allied Merchants' Assn.	43
Madras Motor Sports Club	45
Independence Day celebrated...	46
Models and Their Prices	48

INDEX TO ADVERTISERS

Amco Batteries Ltd	24 & 25
Armstrong Smith Private Ltd...	18
Asbestos Magnesia & Friction Materials Ltd	14
Bharat Motors	33
Bower Battery Manufacturing Co Private Ltd	15
Burmah-shell Oil Storage & Distributing Co of (I) Ltd	45
Caltex (India) Ltd...	6
Canara Workshops Ltd	22
Chandulal Mehta Private Ltd	29
Chloride & Exide Batteries (E) Private Ltd	20
Firestone Tyre & Rubber Co (I) Ltd	12
George Oakes Private Ltd	16
Glass & Miniature Bulb Industries	32
Goetze (India) Ltd	1
Himco Batteries (Madras) Private Ltd	27
Hindustan Motors Ltd	10
Indian Engineering & Trading Co	13
India Pistons Private Ltd	4
Jairamdas & Sons...	9
Jayaraj Nadar & Sons, S. G.	18
Kasi & Sethu	32
Lucas Indian Service Private Ltd	16
Madras Mercantile Agencies Private Ltd	31
Miniature Bulb Industries of India	9
Motor Industries Co Ltd	20
Narayan Trading Co	31
Payen-Talbro Private Ltd	Second Cover
Premier Automobiles Ltd	Third Cover
Purushotham Murarjee	32
Sri Ram Motor Works	9
Standard Vacuum Oil Co	Back Cover
Sundram Iyengar & Sons Private Ltd T. V.	8
Tata Locomotive & Engineering Co Ltd...	2
Waxpol Industries Ltd	3
Western Battery Corporation	9

THE REDEX CAR CLUB

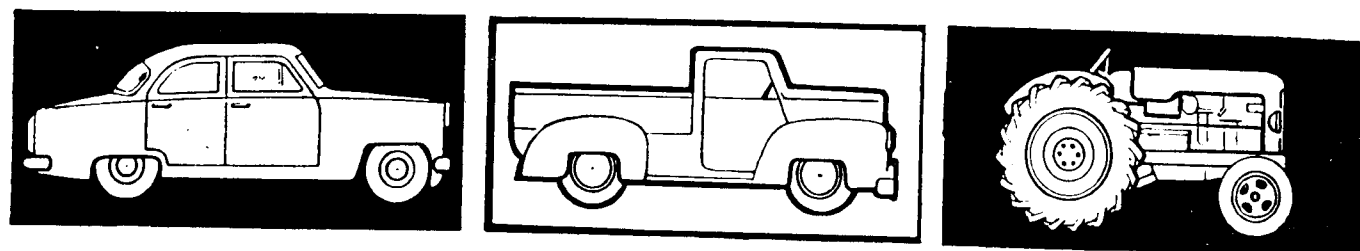
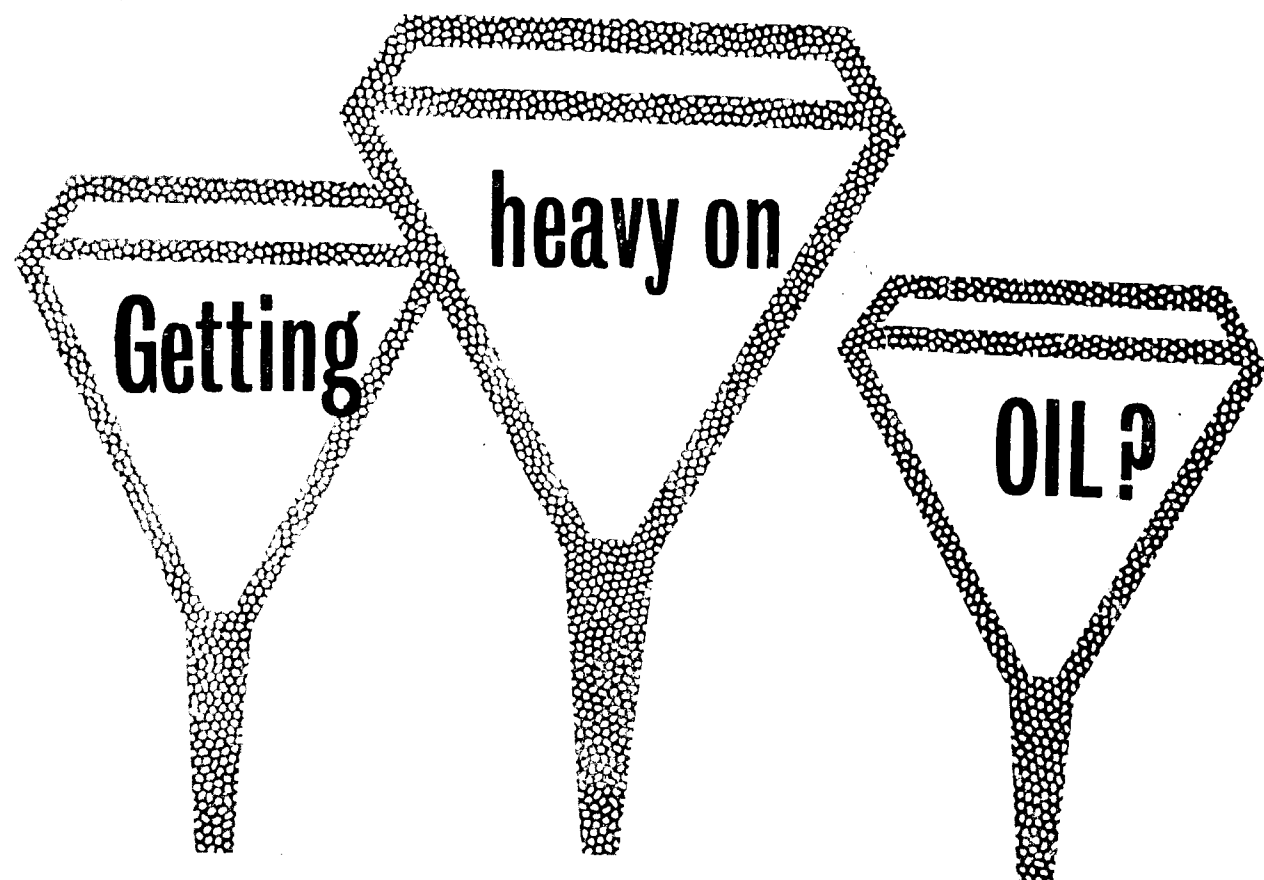
THE MADRAS MOTOR PARTS DEALERS' ASSOCIATION

THE MYSORE AUTOMOBILE PARTS & ALLIED

MERCHANTS' ASSOCIATION

THE TAMILNAD MOTOR PARTS DEALERS' ASSOCIATION

APPROVED ORGAN OF :



then recommend Duaflex Oil Control Rings. You'll create goodwill with your customers by fitting Duaflex Oil Control Rings.

Duaflex is the answer to rising oil consumption when general engine condition does not warrant a major overhaul.

DUAFLEX

PATENT NO. 137333

OIL CONTROL RINGS

INDIA PISTONS PRIVATE LIMITED, MADRAS-11

1P-103

editorial

CAR PRICES

The Committee appointed by the Government of India under the presidency of Mr. Jha to enquire into the feasibility of a small or low-priced car, we are glad to note, has started functioning.

While it gives a sense of satisfaction for the Indian motorist to know that the Government do feel the necessity to examine the possibility or the feasibility of a small car, we are sure that most motorists and prospective car owners in India will not rejoice at the possibility of manufacturing cars smaller than the present 10 h. p. cars. Perhaps there is some scope for a good roomy 8 h. p. car.

The main thing about which the motoring population of the country is concerned at present is not so much about the size of the cars, but the cost of such cars on the one hand and the difficulty of maintaining a car once it is bought. While it used to be the practice in the good old pre-Independent days for car dealers to keep in touch intimately with the motorists even after the cars have been sold to them, at present, however, the tendency is almost to forget the person once a car is sold to him. It has become almost the fashion for any workshop attached to dealer, who has already sold you a car, to tell you, "Well, for another three months we cannot think of taking this car," or "we are afraid you will have to supply all parts that may be necessary if once we undertake this particular work. We do not guarantee any parts." Such has become the attitude of the dealer to the motorist, thanks to the shortage of spare parts.

Taking for example any kind of production, a house costs more when the bricks, the wood and the cement also cost more, and the labour is dearer. Similarly, when automobile parts are not available even at a figure 100 per cent more than the imported cost from the dealers to the motorist the cost of maintenance of second-hand cars becomes much more than what it should be. This immediately puts up the prices of second-hand vehicles. When second-hand vehicles are dear, naturally the tendency is for the new car prices also to go up; or at any rate, the demand for new cars goes up much faster than it would, if maintenance of second-hand cars is what it should be.

This, therefore, is the crux of the problem facing the automotive India today. Unless the dealer is compelled to supply whatever spares that may be necessary for maintenance, the scarcity of parts and high prices of cars cannot perceptibly come down. Further, all manufacturers of motor cars should also be compelled to keep in readiness, with their various dealers, spare parts enough to service such vehicles for at least the next ten years. Such a procedure would bring in an enormous amount of spares which the Indian automotive ancillary industry can well manage to supply with advantage to the consumer.

It will also be worthwhile examining whether spare parts for such of those cars now being manufactured in India by the various manufacturers should be allowed to be imported. The number of pre-Indian manufacture vehicles on the roads today is so great, and the need for servicing and maintaining them greater, that there is enough scope for the parts dealer to import only such of those parts that will be necessary for, say, pre-1953 or 54 models of cars.

this sign means **ECONOMY**



CALTEX Big 3 for motorists

gives proof in any car



TO POWER YOUR ENGINE

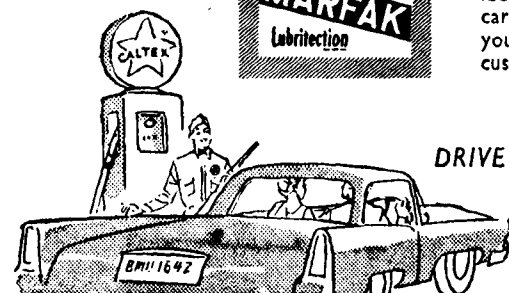
That great petrol—IC-PLUS, to give you all the knock-free power your engine, new or old, can deliver. Plus protection against harmful engine wear and deposits. Plus greater mileage.

TO PROTECT YOUR ENGINE

It's actually 3 Oils in One—the all season, all temperature motor oil that not only lubricates, but protects against wear, adds life to your engine. The only motor oil that can save you up to 15% petrol consumption.

TO CUSHION YOUR DRIVING

Your car chassis lubricated according to a special lubrication chart covering your make and model car—with superior Caltex Marfak. It assures you quieter driving, easier handling, and that cushioning feeling for 1000 miles or more.



DRIVE IN AND SEE YOUR CALTEX DEALER



Miniature Bus Popular in Europe

Renault estafette. Light Front-wheel drive vehicle available as pick-up Van or Miniature Bus.

(By our London Correspondent)

The small light commercial vehicle based on a rectangular box-like structure which can be adapted as pick-up truck, van or miniature bus is now a popular feature of European production and increasing numbers of private motorists are adopting them as compact motor caravans, station wagons, or transporters for camping gear and sports kit. Most designers group engine and transmission together to give front engine and front wheel drive, or rear engine and rear drive, the British constructors and Ford in Germany being exceptions who stick to front engine and rear drive.

In producing their new Estafette Series, Renault have found the arguments for front engine and front drive so strong that they have adopted it despite their large commitment in rear-engined Dauphine and 4 CV passenger cars. In fact they now pursue a completely eclectic design policy, using front drive for light commercials, rear engine for small cars, and front engine-rear drive for larger cars and commercial vehicles.

Profound changes

At first sight they appear to have taken the Dauphine engine-transmission unit, turned it round and



hung it at the front, but the changes are more profound. The engine is little changed, except for a higher compression of 8 to 1 and shot peening of the crankshaft to increase fatigue resistance. But the gearbox is entirely new, with four-speeds all synchronised. Normally gearboxes for this type of application are all-indirect but by ingenious construction this one has been provided with direct drive for top gear. A light clutch shaft runs past the crownwheel and through to the rear of the box inside a hollow pinion shaft on which the pinions for the indirect gears together with the dogs and synchromesh are mounted. The end of the clutch shaft carries the constant mesh pinion driving the second motion shaft below it on which are the constant mesh pinions for the indirects and the reverse gear engaging with a sliding gear on a countershaft. For top gear, the clutch

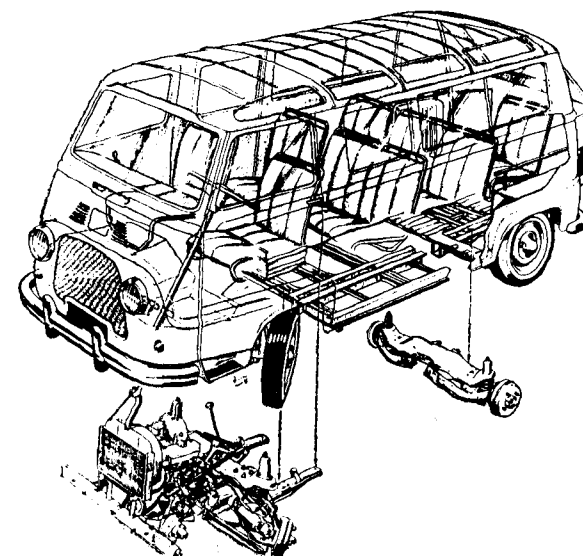
shaft is locked to the pinion shaft which surrounds it. Being torsionally flexible, the clutch shaft assists in damping out torsional vibrations. The gearbox has a cast iron casing which also houses the hypoid final drive and differential unit. Superficially it would appear very attractive for the passenger cars, but is said to be too bulky and too heavy.

Transmission to each front wheel goes via a universal joint with sliding spline, then a Repousseau sleeve made of rubber bonded between two cylinders to absorb vibrations and take up slight variations in drive shaft length, and finally a constant velocity universal joint adjacent to the wheel.

Front suspension is by pairs of pressed steel wishbones with coil springs and telescopic dampers bearing on the upper wishbones. Ball joints form the steering pivots. Engine, transmission and front suspension are mounted together on a cradle which is attached to the underside of the body structure by only eight bolts so that the whole mechanical assembly can be removed in a few minutes for repair or overhaul. Routine access to the engine is via a removable cover between the front seats. Rear suspension is by single pressed steel wishbones giving a swing axle geometry, with coil springs and telescopic dampers mounted on a separate cross member which is attached to the body by four bolts.

Advantages

Advantages of this layout are an unobstructed flat floor throughout, only 14 in. above the ground, and





COMFORT for the V. I. P.

The fair is over. The car speeds smoothly as if it is conscious of the sleeping child in the rear seat.

Father at the wheel marvels at the way it almost anticipates his every move. "I bought it the year I got married - and that's nearly 7 years ago!" he reflects proudly. "Its paint doesn't gleam, the lines are definitely out of date; but I wouldn't exchange it for the latest limousine."

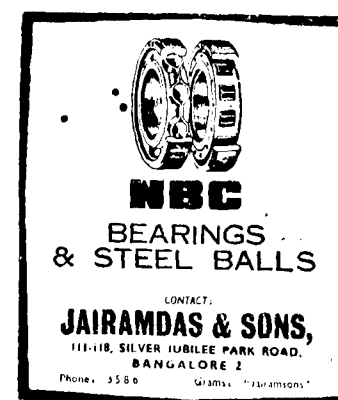
A car is more than a beautiful vehicle; it is a bundle of sweet memories, happy associations. It is a matter of pride to us, therefore, that those who buy a car from us believe that with our servicing it will run merrily, long after its companions have joined the junkyard. It is this customer confidence that sustains our progress.

Today, TVS, with its several units, meets the increasing demands of the automotive industry in all its aspects in South India.

T. V. S. UNITS INCLUDE		
T.V. SUNDARAM IYENGAR & SONS PRIVATE LIMITED Madurai Motor Vehicle Dealers, Automobile Engineers & Body Builders MADRAS AUTO SERVICE PRIVATE LIMITED Madras-Bangalore Distributors of Motor Parts & Accessories	SOUTHERN ROADWAYS PRIVATE LIMITED, Madurai Passenger & Parcel Road Transport Undertaking SUNDARAM MOTORS PRIVATE LIMITED, Madras Dealers: Fiat, Plymouth, Fargo, Leyland, Willys Jeeps & Ferguson Tractors.	SUNDARAM INDUSTRIES PRIVATE LIMITED Pudukkottai-Madras Tyre Retreaders THE MADRAS MOTOR INSURANCE COMPANY LIMITED, Madras SUNDARAM FINANCE PRIVATE LIMITED Madras
INDIA MOTOR PARTS & ACCESSORIES PRIVATE LTD., Madras Distributors of GM parts and accessories for all India.		

T. V. SUNDARAM IYENGAR & SONS PRIVATE LIMITED, MADURAI

TVS/285a



unrestricted access from the rear, besides the two side doors (three on the van).

Basis of the structure is a corrugated floor stiffened by two top hat longitudinal members and three cross members forming box sections. Rear wheel housings are extended to form box sections, one of them enclosing the fuel tank. On the pick-up the cab is a separate unit bolted on. External panels are radiused and weld lines sited in a way which avoids the creation of angles where moisture might be trapped. The driver's door and the second side door on van and bus slide within the body as a safety measure.

The Small Bus

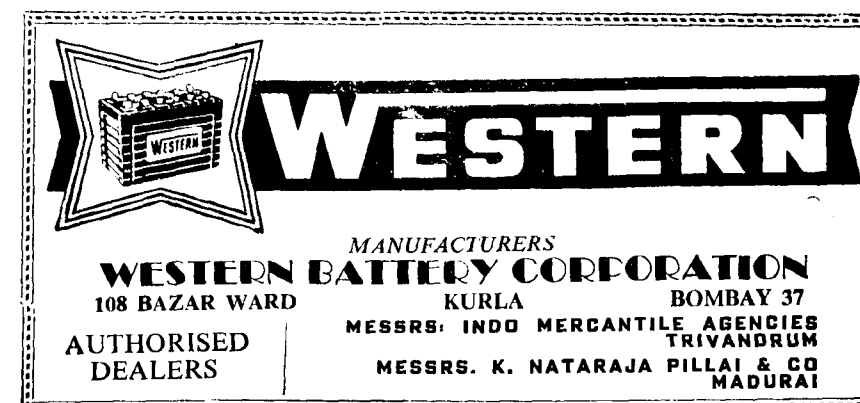
The van has 6.67 cu. yd. of loading space and weighs 2150 lb. Rated payload is 1323 lb. The small bus has seats for driver and eight passengers and space for luggage in an overall length of only 13 ft. 3½ in., with a width of 5 ft. 10½ in. It weighs 2458 lb. The turning circle is only 32 ft.

The 845 c.c. engine develops 32 b.h.p. (SAE) at 4,350 r.p.m. and a torque of 49.9 lb. ft. at 2,000 r.p.m. It is geared to 12.42 m.p.h. per 1,000 r.p.m. in top gear. Maximum speed is given as 56 m.p.h. and fuel consumption 28-31 m.p.g. Production will begin in early autumn and prices in France are expected to be from £ 645.

All kinds of automobile works are undertaken

SRI RAM MOTOR WORKS
KITCHIPALAYAM ROAD
SALEM 1

August 1959
M-3



MANUFACTURED BY
THE MINIATURE BULB INDUSTRIES OF INDIA
DEHRADUN, U.P.

Sole Selling Agent in India :- M/s. The Doon Industrial Corporation, Dehradun

MOTORINDIA

9

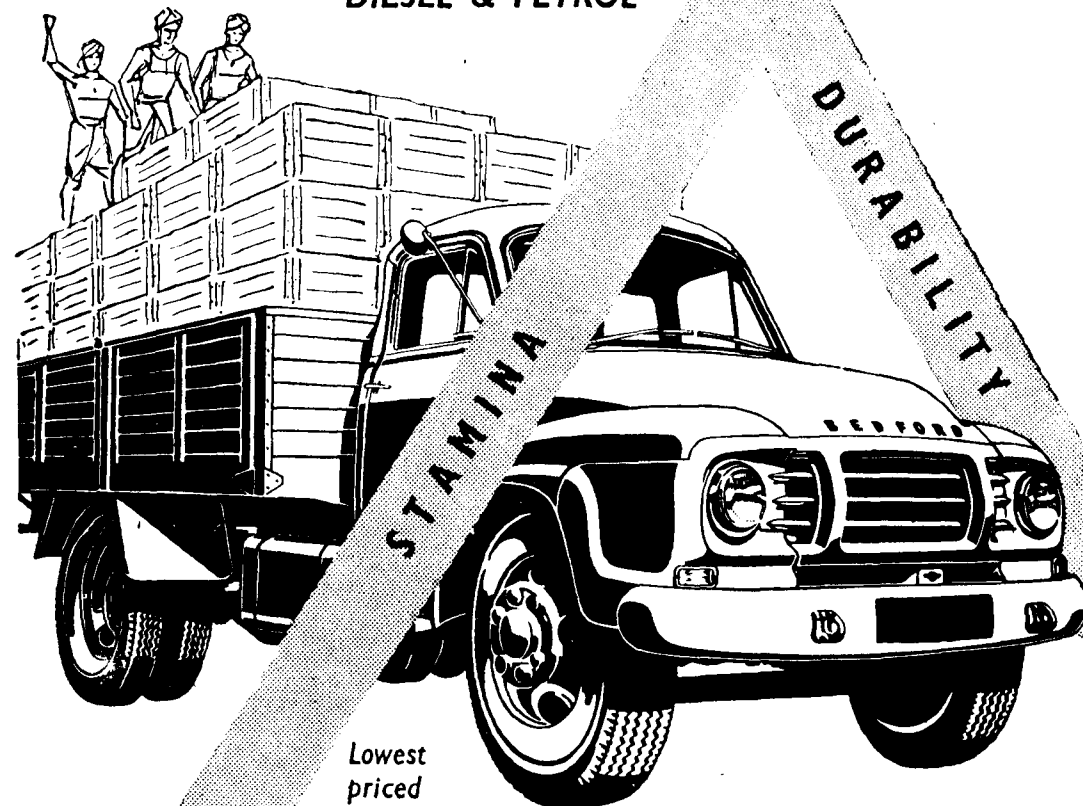
on difficult roads ... and for different loads

The sturdy Bedfords live up to their reputation as the world's tougher-than-ever trucks...built to handle almost any type of hauling job.

Rugged chassis frames, tough new springs, dependable braking and an excellent power-to-weight ratio enable the Bedfords to deliver the goods efficiently and economically.

BEDFORD

DIESEL & PETROL



Lowest
priced
in its class

ECONOMY

Prices
BEDFORD 167" V.B. Diesel Chassis Rs. 23842/-
BEDFORD 167" V.B. Petrol Chassis Rs. 17880/-
Ex plant Uttarpara (Calcutta)
Exclusive of taxes

Easy and attractive hire purchase terms offered by
Hindustan Motors Corporation Ltd. Contact your
dealers for particulars.

BEDFORD

a product of General Motors

World's biggest automobile manufacturers

HINDUSTAN MOTORS LTD. 8, India Exchange Place, Calcutta-1

DEALERS :

At Agra; Ambala Cantt; Ajmer; Ahmedabad; Ahmednagar; Allahabad; Baroda; Bangalore; Bhopal; Berhampur; Bombay; Bareilly; Calcutta; Cuttack; Coimbatore; Dehradun; Durg; Dumka; Dibrugarh; Dhanbad; Gauhati; Imphal; Indore; Jaipur; Jabalpur; Jodhpur; Jalgaon; Jorhat; Jamshedpur; Jullundur City; Jammu; Kanpur; Kharapur; Lucknow; Muzaffarpur; Madras; Madurai; Mangalore; Meerut; Nagpur; New Delhi; Nepal; Patna; Poona; Pondicherry; Rajkot; Ranchi; Sambalpur; Shillong; Secunderabad; Silchar; Srinagar; Satna; Tezpur; Tanjore; Trivandrum; Varanasi Cantt; Vijayawada; Vizianagaram City.



Gordon Wilkins Seen Test Driving the new AUSTIN

AUSTIN HEALEY 3000

Bigger Engine, Disc Front Brakes.

Choice of two-seater or occasional four-seater body.

The Austin Healey sports car which began in 1952 with a 2.6-litre four-cylinder engine and because the 100-Six with a 2.6-litre six-cylinder engine on a longer wheel-base in 1956, now enters a third phase of its career as the Austin Healey 3000 with an enlarged engine of 2.9-litres and Girling disc brakes on the front wheels. There is a choice of two body styles; an open two-seater and an occasional four-seater of similar outward appearance. A detachable hard top is optional.

The engine is unchanged in basic

design, but the cylinder bores have been increased from 79.4 to 83.36 mm (3.125 to 3.281) raising the swept volume from 2641.7 cc to 2912 cc. (177.7 cu.in.). Without modification of the combustion chamber, the increase in cylinder volume has raised the compression ratio from 8.6 to 9.0 : 1. Maximum installed power has risen from 114 b.h.p. at 4,500 r.p.m. to 124 b.h.p. at 4,600 r.p.m. Maximum nett torque has risen from 150 lb. ft. at 3,000 r.p.m. to 175 lb. ft. at 3,000 r.p.m. and maximum BMEP nett goes up from 139 psi at 3,000 r.p.m.

to 149 psi at 3,000 r.p.m. An increase of 10 per cent in swept volume has therefore produced a rise of 9 per cent installed power and a gain of nearly 17 per cent in torque.

Thermostatically Controlled Starter

To make space for the larger bores, the cylinders are siamesed in pairs, with waterways only between 2-3 and 4-5. Bearing sizes are unchanged but lead indium is not used for main bearings as well as big ends. Solid skirt pistons with fully floating gudgeon pins have three compression rings and one scraper. No changes have been made to valves or valve gear except minor adjustments in running clearances. The separate six-branch aluminium inlet manifold is now more securely clamped to the exhaust manifold at the two hot

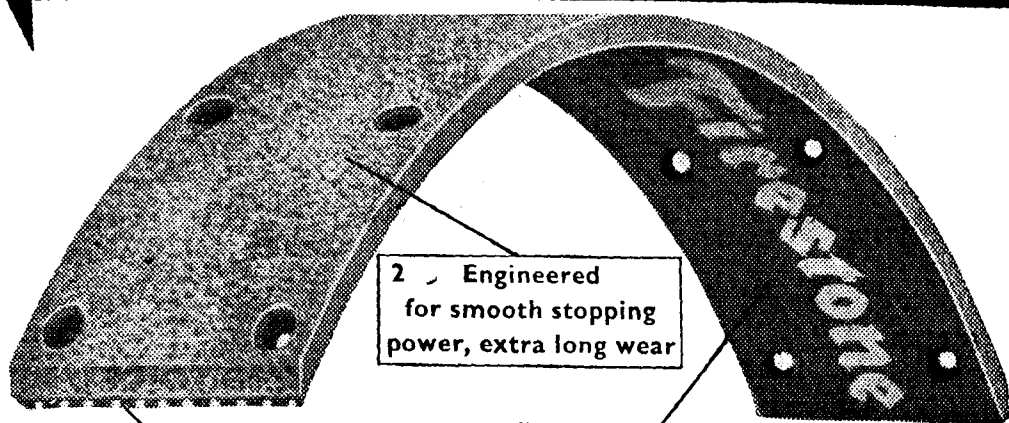
August 1959

M-4

MOTORINDIA

11

Firestone WIRE-BACKED BRAKE LINING



1. Strong Wire Mesh well embedded

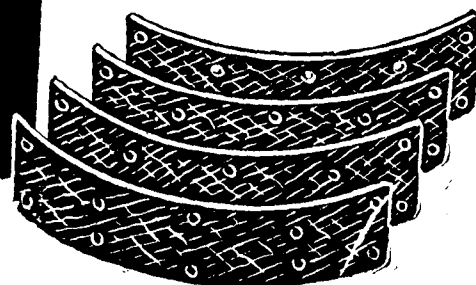
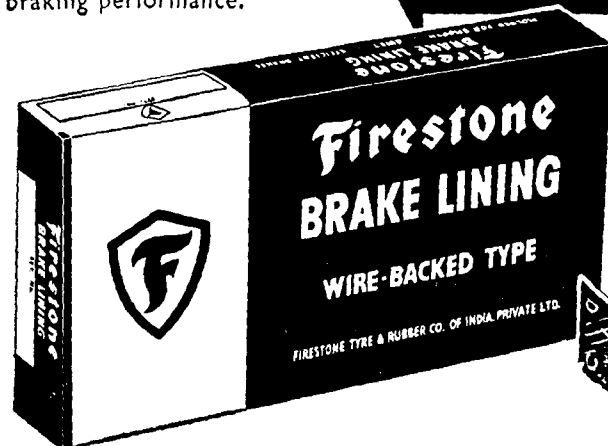
2. Engineered for smooth stopping power, extra long wear

3. Resilient construction to fit shoe

Firestone Wire-Backed Brake Lining is now available for most cars, buses and trucks. Special compound with wire mesh embedded to ensure proper seating of rivets, provides long-lasting, superior braking performance.

Firestone Brake Lining for

- ★ SAFETY and
- ★ LONG WEAR
- ★ at LOW COST



spots to improve heat transfer and has adaptors for a starter carburetter. Main carburetters are two SU 30 deg. semi-downdraught HD-6 as before but there is in addition a thermostatically controlled starter unit on the rear carburetter. It is switched in automatically when the ignition is switched on and cuts out when water temperature in the cylinder head reaches 40 deg. C. Cold starting tests have been made successfully at 10 deg. F (—12 deg. C) with a 70 per cent charged battery.

Speed raised

Speed of fan and water pump has been raised from 12 to 1.4 times engine speed, and a new dynamo, running faster, (1.6 vs 1.5 times engine speed) raises output from 22 to 25 amps.

To cope with the extra torque, clutch diameter is raised from 9 to 10 in. A gear type oil pump replaces the previous rotor pump. Gear teeth in the four-speed box have been strengthened and ratios changed slightly as follows:

	2.6-litre	2.9-litre
First	3.07	2.93
Second	1.9	2.053
Third	1.33	1.309
Top	1	1
Rev.	3.17	3.78
Overdrive ratio	0.778	0.822

Second, third and top gears have synchromesh. Overdrive, when fitted, acts on third and top gears.

Normal axle ratio of 3.545 to 1 gives a road speed of 20.9 m.p.h. at 1000 r.p.m. in top. When the Laycock de Normanville overdrive is fitted, axle ratio is changed to 3.91 to 1 and overdrive top gives an overall ratio of 3.214 to 1, producing a road speed of 23.1 m.p.h. per 1000 r.p.m.

A master switch

The girling disc brakes now fitted to the front wheels have discs of 11½ in. diameter. At the rear are drum brakes 11 × 2½ in. General chassis design is unchanged, and externally only the "3000" flash on the radiator grille proclaims the difference. On the two-seater, the spare wheel now lies flat on a shelf above the axle, projecting partly into the rear of the passenger space, where it is covered by a

plastic envelope. Two six-volt battery units are coupled below it, leaving most of the trunk free for luggage. On the occasional four-seater, which has two small seats suitable for children, the spare wheel lies flat in the trunk and the battery lies at one side, so that luggage space is limited. A master switch is provided in the trunk, which can be locked.

I tried one of the new models with overdrive and the 3.214 axle on the French Riviera and in the Alpes Maritimes. With lead induct bearings throughout, engine speeds up to 5250 r.p.m. are permissible (against 4800 r.p.m. before) and maximum speeds in the gears are approximately 1st 34 m.p.h. (55 kmh.), 2nd 49 m.p.h. (79 kmh.), 3rd 67 m.p.h. (122 kmh.) overdrive third 93 m.p.h. (150 kmh.). The "3000" went soaring on past 100 m.p.h. (160 kmh) in top but I had no opportunity to check the all-out maximum which should be in the region of 115 m.p.h. (185 kmh.). After correcting for speedometer optimism of 3-4 per cent, acceleration figures were 0-30 m.p.h. 3.6 sec., 0-50 m.p.h. 7.8 sec., 0-60 m.p.h., 11.0 sec. The car was almost new, and after more use should certainly improve on these figures. Running with the car open, air eddies round the cockpit began to affect acceleration at high speeds and it would presumably need a fully run-in-car with top and side screens erected to achieve the excellent figure of 0-100 m.p.h. in under 31 sec. claimed by the makers.

The new power unit is smooth and flexible so that one does not have to change gear continuously when touring. The brakes are excellent and seem well able to cope with the performance. If used hard at high speeds, they seem softer on the pedal than air-disc servo-assisted installations but repeated stops from 80 m.p.h. and over produced no deterioration.

Comfortable ride

However, the performance should be used with reasonable discretion. If you slam the throttle open in the lower gears it is fairly easy to set the tail sliding. If this happens, correction is helped by the fairly quick steering which needs only 3½ turns from lock to lock. The seats are well tailored and the ride is unusually comfortable by sports car standards even over rough tracks, but drivers who like to drive with their arms well extended may find that the pedals are then too far away. It is almost impossible to use heel and toe on brake and accelerator, so that clean downshifts are not easy to achieve when braking hard for a sharp corner and on three cars I tried there was two inches of lost motion on the accelerator pedal before the throttles began to open. This made progress rather jerky when running slowly in traffic and did not assist rapid gear changing. Steering was light and responsive and the central hand-brake is handily located. Finish is up to usual good Austin Healey standards; duo-tone paint costs nothing extra; vinyl cockpit cover, windshield washer and Dunlop Road Speed tyres are standard. Clip-on-rigid-framed side screens stow in an envelope in the trunk when not in use. Besides overdrive, optional extras include an effective heater and demister, centre lock wire wheels, detachable hard top.

Current production of six-cylinder Austin Healeys is about 175 a week, and at present 97 per cent of output is being exported. Although not a sports racing car, the "3000" is a fast, well-equipped and moderately priced road car which handles nicely, is fun to drive and gives a comfortable ride. The latest brakes match the increased performance. British home market price is £824 for the two-seater, or £829 for the four-seater. This is a slight increase over the old model.

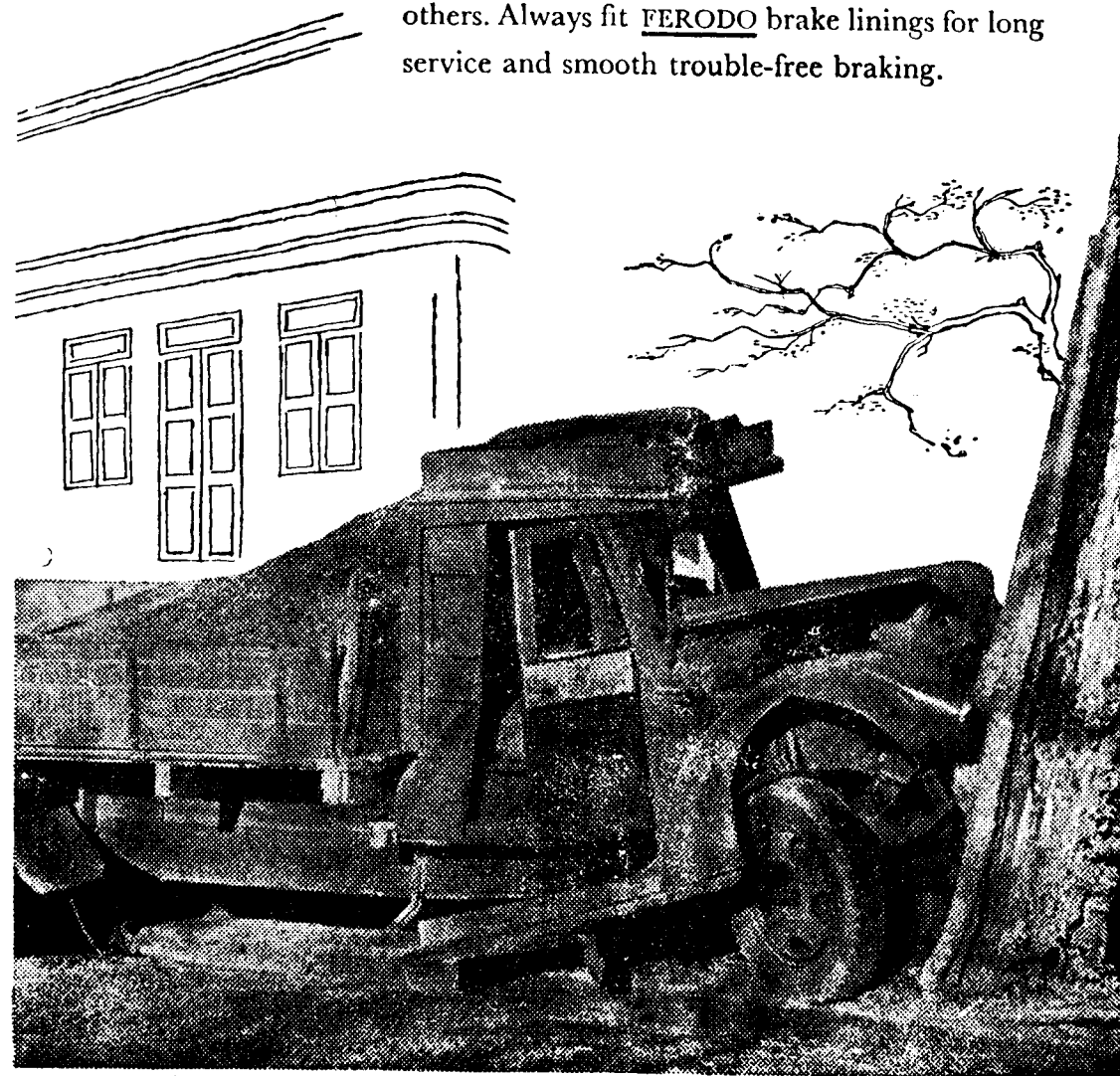
for **DIESEL ENGINES**

Spare parts **TRUCKS & TRACTORS**

THE INDIAN ENGINEERING & TRADING CO.,
26, Wallers Road, Mount Road, Madras 2.

are you sure you can stop in time?

If not, it's time you had your brakes tested. Regular brake testing every 2,500 miles means greater road safety for you... for others. Always fit **FERODO** brake linings for long service and smooth trouble-free braking.



AM&FM

Manufacturers in India:
ASBESTOS, MAGNESIA & FRICTION MATERIALS LIMITED
(Turner & Newall Ltd.)
(Incorporated with limited liability
in England)
CALCUTTA · BOMBAY · MADRAS

MOTORINDIA

August 1959

TWO NEW MODELS FROM GERMANY

Lloyd 900 and BMW 700. Lloyd 900. Sedan with Flat-Four engine and Front Wheel Drive.

(By Our German Correspondent)

Lloyd steps out of the minicar class and into the small family car class with the new Lloyd 900, a two-door four-seater sedan which is competitive with Volkswagen, Dauphine, Morris Minor, Goggomobil T 700 and the new DKW Junior.

The unit construction sedan body is built round a central tube backbone following usual Lloyd practice but the flat-four engine represents a new development for them; it is water cooled, not air cooled. Nor is it a development of the engine used by the associated Goliath concern, but a new unit formed basically of two iron castings, each forming two cylinders and half of the crankcase. The crankshaft has three bearings and the valves are operated by pushrods from a central camshaft. The claimed output of 30 b.h.p. from 897 c.c. is one of the highest outputs for size in the small car field. Transmission is via a four-speed gearbox with synchromesh on all four speeds. The makers claim the car will accelerate from 0 to 50 m.p.h. in 16 sec., 0 to 60 in 26.5 and reach a maximum of 75 m.p.h.

Springing is of conservative design; twin wishbones with a coil spring and telescopic damper above the top one at the front; trailing arms, coil springs and anti-roll bar at the rear. The hydraulic brakes have a total lining area of 105 sq. in.

Instruments are combined in one dial under a cowl in front of the driver. The steering wheel has two spokes and a recessed centre. Front seat backrests fold forward for access to rear seats but a safety catch prevents them being pushed forward in an accident. The rear seat folds to make a big cargo space extending back into the trunk. Equipment includes windshield washer, parking lamps, reversing lamp, cigarette lighter, warning lamp for fuel reserve and an indicator to show if a tail lamp goes out. The

trunk is lit by the licence plate lamp and the spare wheel lies in a cradle underneath. Estimated price when production begins; 5300 DM. £450. 1250 dollars. approx.

Lloyd 900 Technical details

Engine—Flat four, water cooled. 691-60 mm. 891 c.c. Compression 7.5 to 1 38 b.h.p. at 4,800 r.p.m. Max torque 44.75 ft. lb. at 2,500 r.p.m. Transmission. Front wheel drive. Single-plate dry clutch (Automatic clutch optional) Four-speed all-synchromesh gearbox. Gearbox ratios 4.77 2.53 1.57 1.09 to 1. Reverse 4.54 to 1 Axle ratio 3.87 to 1.

Dimensions—Wheelbase 86.6 in. Truck front and rear 47.25 in. Length 149.6 in Width 59.3 in Height 54.9 in. Tyres 5.20-13. Kerb weight 1530 lb.

BM— 700. Small sport coupe with flat twin air-cooled rear engine. With the announcement of the BMW 700, the BMW company seems to be turning from miniature economy cars for the mass market to a small quality car with sporting performance. They tried at first to put a coupe body on the same tubular chassis as the front-entrance four-seater 600 but have finally evolved a new all-steel unit-construction job. Rear engine, transmission and suspension group is developed from the 600 but with many improvements. Now cylinders with larger cooling fins raise the bore to 78 m.m. and a new crankshaft raises the stroke to 73 m.m. giving 696 c.c. instead of 582. It has a vibration damper, bigger carburetter, and thermostatic control for the air cooling. Front suspension is by parallel arms, coil springs and telescopic dampers as on the 600. Steering is by rack and pinion and brakes are larger to give 90.5 sq. in. lining area. Transmission ratios are unchanged but the road speed for given engine revs is higher as wheel diameter is increased to 12 in. still with 5.20 tyres. There are two separate front seats and two small seats for children. The fuel tank is in front under the floor of the luggage trunk and the spare wheel stands vertical in the extreme

front. Michelotti did the styling. Works figures give acceleration from 0-50 m.p.h. in 16 sec., 0-60 in 25.5 sec. and maximum speed as 75-78 m.p.h. Price in Germany will be about 5300 DM. £450. 1250 dollars.

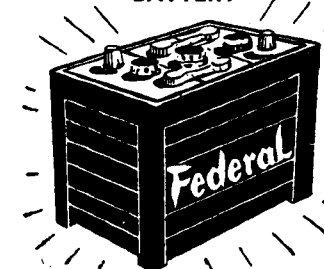
BMW 700 Technical details

Engine—Flat twin air cooled at rear. 78 x 73 mm 696 cc. ohv pushrod operated. Compression ratio 7.5 to 1 30 b.h.p. installed at 5,000 r.p.m. 35 b.h.p. SAE at 5,200 r.p.m. Max torque 37.1 lb. ft. at 3,200 r.p.m.

Transmission—Single plate by clutch. Four-speed all-synchromesh gearbox with central lever. Gearbox ratios. 3.54 1.94 1.27 0.846 to 1. Reverse 3.45 to 1. Final drive 5.43 to 1. Dimension. Wheelbase 83.4 in. Track front 50 in. rear 47.25 in. Length 139.4 in. Width 58.27 in. Height 49.6 in. Tyres 5.20-12. Kerb weight 1,395 lb.



Federal
FIBRE GLASS
BATTERY



**BOWER BATTERY MFG. CO.
(P) LTD.**

335, Sandhurst Road, BOMBAY 4
Phone: 71059 Gram: AUTOBATTERY

MOTORINDIA

August 1959
M-5

15

LUCAS
Service to the Nation for nearly 30 years

**GENUINE
LUCAS, C.A.V., & GIRLING**

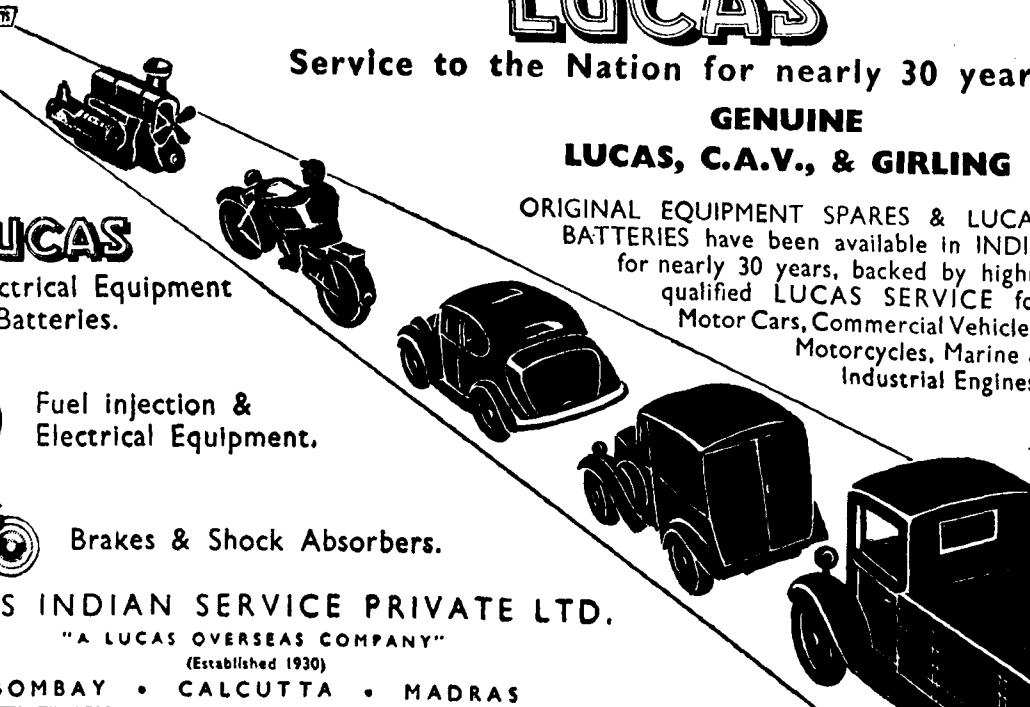
ORIGINAL EQUIPMENT SPARES & LUCAS BATTERIES have been available in INDIA for nearly 30 years, backed by highly qualified LUCAS SERVICE for Motor Cars, Commercial Vehicles, Motorcycles, Marine & Industrial Engines.

LUCAS
Electrical Equipment & Batteries.

C.A.V.
Fuel Injection & Electrical Equipment.

GIRLING
Brakes & Shock Absorbers.

LUCAS INDIAN SERVICE PRIVATE LTD.
"A LUCAS OVERSEAS COMPANY"
(Established 1930)
BOMBAY • CALCUTTA • MADRAS



BUY THE BEST
Buy an **Oakes**
BATTERY



Your Oakes Battery now carries the standard certification mark under the Indian Standards Institution (Certification Marks) Act, 1952

George Oakes Private Limited
Authorised Distributors
throughout India
New Queen's Road, Bombay 4

IS: 395

GO. 5733

Jaguar Mark IX with Automatic Transmission

Biggest of the Jags, the Mark IX has an outward resemblance to the Mark VIII and the earlier Mark VII but it is a very different car. A genuine 100 m.p.h. on the road is still a fairly rare experience for most people, but the Mark IX gets there with a smooth surge of power in 35 seconds from a standstill and in ideal conditions its super-smooth servo assisted brakes will bring it to rest again in five seconds. This is near to the maximum braking which is theoretically possible, but I tried it several times on Belgium's Ostend autocroute, timed with two stop-watches. Stops in six to eight seconds from 100 were routine and several in quick succession produced no sign of brake fade. 100 m.p.h. can therefore be used safely on clear open roads by an experienced and responsible driver who keeps his car and tyres in good shape. In 1,500 miles of testing in England, France and Belgium, the Mark IX was often travelling at 80 and over but those disc brakes, the fine steering and sure road holding always ensured a safety margin for emergencies.

Cruising at 80 m.p.h. there is only a murmur of wind and a whisper from the engine. If traffic forces a drop to 50 m.p.h., 80 is regained in 11½ sec. and from 80 to 90 takes only 6½ sec.

Such a fantastic combination of performance and controllability is almost unique but when it comes with automatic transmission, power assisted steering, top quality finish and lavish equipment it is a mystery how Jaguars do it for the price.

The 230 cu. in. six cylinder twin camshaft engine, largest yet used by Jaguar, started instantly in the coldest weather; it produces powerful low-speed torque and runs smoothly up to high revs like a sports unit but without the noise. It is finished almost like an exhibition engine.

With passengers on board there is about two tons to stop, but the servo-assisted disc brakes are

light, and quite fade-free. After really hard cornering the pedal travel increases, suggesting the pads had been pushed slightly away from the discs, but normal travel is restored at the second kick. The power-assisted steering is one of the best I have tried; it spins back swiftly after sharp corners, is light and accurate with sufficient road feel at all speeds and does not transmit severe road shocks. 3½ turns take it from lock to lock, permitting rapid correction if a heavy throttle foot should provoke tail wag on a slippery surface. Turning circle is 37 feet.

The Borg Warner transmission changes up to second at 30-35 m.p.h. and to top at 50-55 on full throttle. Second can be held up to about 75 by flicking a switch by the steering wheel. This prevents unwanted changes into top on winding roads or while overtaking. It does not provide much engine braking, but thanks to the excellent disc brakes this is less important than usual. Downshifts produced by the accelerator kick-down are not entirely smooth but performance is such that most driving is done in top. Low gear can be selected below 40 m.p.h. for engine braking on steep mountain descents.

This big luxurious carriage can be thrown about on mountain roads without excessive tyre squeal and without much roll. This ride is really smooth, with no pitching and little noise over cobblestones. The deep, high-backed bench seats have big centre armrests and the steering column is adjustable for length. Equipment includes beautiful toolkits in cases in the front doors, a bookshelf, map pockets, two glove boxes (one lockable) two-speed wipers, screen washer and very efficient fog lamps. Head lamps are adequate for fast driving though the main beam is rather narrow.

Twin fuel tanks in the rear fenders held 20 gallons, leaving space for a big deep trunk which is

fully lined, with a cover over the spare wheel. Twin visors, one with vanity mirror are neatly recessed into the roof; they cannot be turned sideways. Rear passengers ride in luxury with two picnic tables, electric clock, twin lighters, vanity mirrors, reading lamps, lockable document case and deep nylon rug, but knee room is not more than 8 in. with front seat in the midway position.

For a short driver the screen will seem rather shallow; the pillars are fairly thick and the driving mirror obstructs the view of the far fender but the view gains clarity because the glass is fairly close. The high, massive walnut screen rail with grab handle and the impressive cabinet work behind the front seat give the authentic atmosphere of high grade custom coachwork but do not conform with the latest ideas on passenger protection and although many will be glad of the sliding roof, the handle is rather prominent. Interior doors handles are particularly neat but the pull-out handbrake catches the driver's coat. Dim blue instrument lighting is restful but could be forgotten and run down the battery. It might well be wired through lights or ignition. Door locks without protective flaps occasionally iced up in winter.

However, even when you have listed all possible criticisms it remains difficult to think of any other car at any price which offers such luxurious high speed travel with such high safety factors.

Acceleration 0-30 m.p.h. 3.9 sec. 0-50 8 sec. 0-60, 10.8 sec. 0-100.35 sec. Maximum speed 109.5 m.p.h. Jaguar Cars later told me the plugs had shown signs of high-speed breakdown and reported a one-way 115 m.p.h. with a new set. Average fuel consumption for 1,500 miles 13.4 miles/U.S. gallon. Normal range 11.5-15.5 m.p.h. Oil consumption 6 pints per 1000 miles. Speedometer error. 30 m.p.h. indicated was a true 29.3 60 m.p.h. was 57.2 1000 m.p.h. was 96.4.

**THE FINEST
AND FASTEST
PLUG
ON EARTH**



SMITHS K.L.G.

Distributors:
Armstrong Smith Private Limited

BOMBAY • MADRAS • CALCUTTA • NEW DELHI

For CARS, LORRIES & BUSES
FULL MOULD TYRE
RETREAD

**JAYA TYRE
RETREADING**
(FULL MOULD TYRE RETREADERS)

PERIAKULAM Phone No. 11
MADURAI DISTRICT

**RETREAD TYRES
&
REDUCE COSTS**

Props:
S. G. JAYARAJ NADAR & SONS



DOWTY HYDROSTATIC TRANSMISSION

Single lever control—Infinitely variable ratios—Hydraulic brakings—Gearless Reverse.

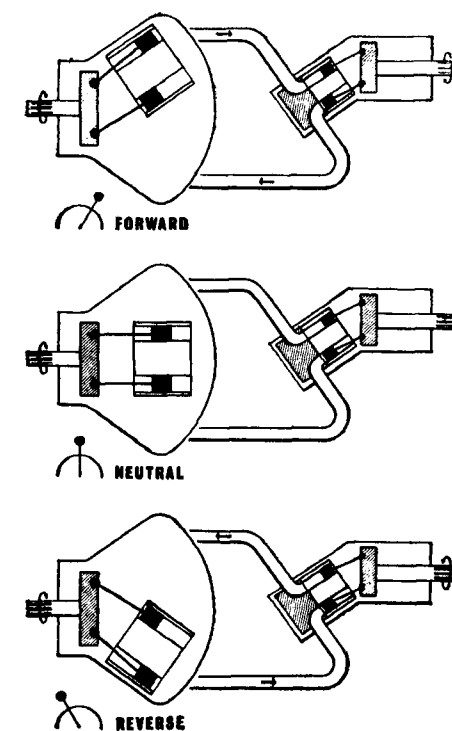
Imagine an 8-ton road roller controlled by a single lever with control so sensitive that it can be moved a quarter of an inch at a time. Push the lever forward and it accelerates forward at a rate proportional to the speed at which you move the lever. Pull the lever back to neutral and the big heavy roller is braked to a standstill, then moves slowly backwards as you continue pulling the lever.

Or imagine an agricultural tractor with engine set at little more than a tick-over advancing slowly on a loose gradient between 1 in 3 and 1 in 2 climbing it without a trade of wheelspin. Then as the driver pulls the lever back to neutral, the tractor is held stationary on the slope until he eases the lever further back and lets it drop back down the slope again.

Or watch a small quarry locomotive of 7½ tons push a 6-ton load of gravel up a 1-in-10 gradient where the wheels can only just get enough grip, and where the slightest jerk

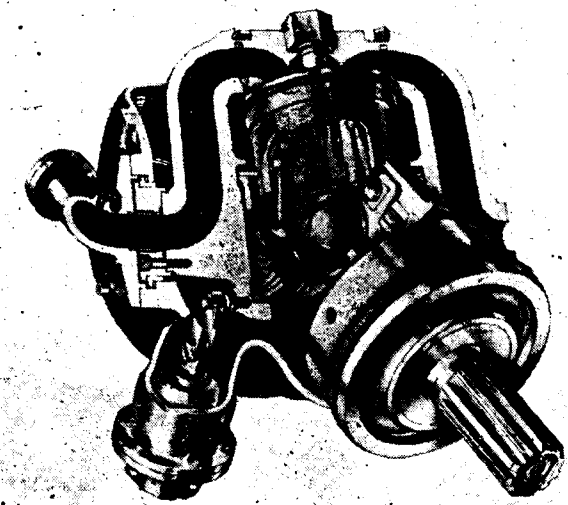
in the drive would break traction, sending the whole train sliding down the gradient again. With a single lever, the driver stops it, holds it on the slope and re-starts forward or backwards as he wishes.

These are three of the possibilities recently demonstrated with the new hydrostatic transmission produced by Dowty Hydraulic Units Limited, an offshoot of the famous British company making aircraft undercarriages and hydraulic systems.



There are two basic types of fluid transmission; hydrokinetic and hydrostatic. Torque converters used currently in automobile transmissions are the hydrokinetic type, using the kinetic energy in a high velocity stream of oil delivered from a centrifugal pump to a turbine wheel. They are usually linked to multi-speed gearboxes in order to obtain adequate torque multiplication without serious loss of efficiency.

The hydrostatic transmission uses a positive displacement pump (in this case a piston type) to supply oil at high pressure but relatively low velocity to a piston-type motor.



During torque conversion, even with the aid of a multi-step gearbox, a torque converter drive is not highly efficient, but designers minimise the disadvantages by keeping the torque conversion period to a minimum and designing the converter to function as a straight fluid coupling without torque multiplication in top gear, when the efficiency rises to about 96 per cent. Another way of achieving the same object is to use a lock-up clutch which "freezes" the drive in top gear.

Has higher efficiency

Over most of the speed range the hydrostatic drive has a higher efficiency than a torque converter, and it provides a stepless infinitely variable choice of ratios, but it cannot match the efficiency of the hydrokinetic transmission for top gear cruising. It is therefore attractive mainly for vehicles which spend most of their working life in the indirect gears; agricultural tractors, crawler tractors, road rollers, dumpers, trucks, bulldozers, fork lift trucks and locomotives.

The Dowty Transmatic drive offers a number of additional advantages. Single lever control, from full speed ahead to full speed in reverse,

MICO

LICENCE BOSCH

There is a Mico Plug to Suit Every Engine

MOTOR INDUSTRIES CO. LTD., BANGALORE

Proved best in service

Exide

Silver Exide

CHLORIDE & EXIDE BATTERIES (EASTERN) PRIVATE LTD.

Exide

giving greater safety and reduced driver fatigue. Stopless drive with no gears to shift. Particularly important on caterpillar vehicles, where a separate transmission would be used for each track.

More flexibility in vehicle design and better space utilisation. There are no shafts, only pipe lines between the motor driven pump and the motor driving the wheels.

Much greater manoeuvrability on gradients or loose surfaces.

Transmission also functions as a powerful hydraulic brake.

Engine can be run constantly at optimum speed, making the most economic use of its power.

Smoothness of drive and reduced dependence on the driver's skill reduce wear and maintenance.

The basic elements

The basic elements, as shown in the diagram, are a variable delivery swash plate pump driven by the engine and a motor with fixer swash angle. On the engine shaft is a circular plate carrying a ring of ten ball joints supporting ten small connecting rods and pistons. The pistons lie in a ring of ten cylinders in a pump block which is connected to the drive shaft through a Hzeppa constant velocity universal joint. When drive shaft and pump block are in line the whole assembly resolves as a unit with the pistons stationary in the cylinders. This is the neutral position. If the pump block is tilted one way or the other, the pistons move up and down the cylinders as the assembly revolves, drawing oil through one port in the top of the block and delivering it under pressure through another.

The motor is of similar construction, but the cylinder block is fixed at angle of 35 deg. to the output shaft.

The pump block is carried on a hollow stirrup containing the oil suction and pressure pipes. It is moved by a hydraulic servo piston and forward or reverse rotation is imparted to the motor according to the direction in which the pump block is tilted as this governs the direction of the oil flow.

Gear-type pump

There is also a gear-type pump driven by the engine which maintains a basic pressure of about 75 p.s.i. in the system and helps to work the servo which changes the pump angle. It also operates a low-pressure booster system which prevents secretion of the oil. The system uses an ordinary mineral oil of SAE 10 or 20 rating according to climate and is self-lubricating. On the first production model, Dowty themselves are making up the special roller thrust bearing on the drive shaft which has to take a load of 10,000 lb. at 2,000 r.p.m. Experience extending over many thousands of hours with experimental units has shown negligible wear in service. The only item expected to require periodical renewal is the set of phosphor bronze socket for the piston rod ball joints, but these should last at least 5,000 hours according to Dowty engineers. As one of their transmissions is now operating on a light locomotive doing the work of one which previously required new clutch linings every three weeks, the savings in maintenance are obvious.

The first transmission to go into production is designed for a diesel engine such as the Perkins four-cylinders, delivering 60 b.h.p. at 2,000 r.p.m. The rated performance is based on a maximum torque multiplication of 4 to 1. Within this range the transmission efficiency does not fall below 80 per cent, the maximum being about 90 per cent at half motor speed. Displacement of the pump and motor are 13.4 cu. in. and maximum continuous operating pressure is 4,000 p.s.i.

A relief valve

Powerful braking is exerted as the pump angle is reduced and when the angle is zero, the drive is locked hydraulically. A high pressure relief valve is provided to protect the system against sudden overloads and this valve is usually opened when the engine is stopped. It can for example be linked to the parking brake so that there is no unexpected vehicle movement if the engine should be started with the transmission control away from neutral.

A big advantage of the Transmatic

drive is the availability of maximum torque with the vehicle at a standstill. This was demonstrated by a Fordson tractor fitted with the drive, pulling an army track. With the truck brakes hard on, the tractor built up a drawbar pull of 5,000 lb., then very slowly began turning its rear wheels as the tarmac road surface gave way and began crumbling under the strain. As the truck brakes were slowly released, the tractor began pulling it away, snowing a pull of about 4,500 lb. on the drawbar, still with the engine turning at the same steady speed.

Later I tried the tractor, setting the engine speed for the load and the performance required by the hand throttle, then driving it around, controlling it forward and backwards, entirely with the single lever. Push the lever forward fast and the tractor leapt forward with maximum acceleration. Haul back on the lever and it stopped. Pull back further and it started off smoothly in reverse.

The Marshall Road Roller

From there to the big Marshall Road Roller, first machine to be offered with the Dowty transmission as the standard equipment. It is a modern design with fully enclosed cab and big window areas. ("Just the job for raising tomatoes" said the driver.) I climbed in and sat down. On the left, a handbrake lever like a fence post, which also unloaded the transmission relief valve. In the centre, engine and starter controls in a lockable recess to prevent interference by small boys. On the right, an immense vertical control lever. Lower down, by the left hand, a projecting lever for the servo steering and lower still, the footbrake.

With handbrake on we started the engine, set the running speed, took off handbrake, and then I eased the transmission lever forward. Smoothly as a city limousine the big machine rolled forward accelerating or checking in exact time with the lever. Straight ahead down the road we went, until it was time to turn right.

Handling the servo lever like a veteran car's tiller of the spoke of a wheel I swung it sharply clock-

wise. Instantly the great roller at the front swung round on to full lock, and the machine turned sharp *Left* straight for a line of parked cars. At a moment like this 5 m.p.h. feels like 105. With eight tons of roller apparently out of control, and with only feet to spare, I put my faith in Dowty hauled hard on the control lever, stopped as though siezed by a giant hand and began backing away. Then I stopped to sort it out.

Precise Control

For some reason known only to themselves Messrs. Marshall have made their steering control anti-instinctive. All right if you divide your time between driving road rollers and flying aeroplanes, but not if you drive car or truck, ride a bicycle or a motor bike. "Takes some getting used to," conceded the driver, who had stayed with me throughout the demonstration. At least I was told on the fully instinctive and instant-acting

control of the transmission and having got the feel of the steering, I settled down to enjoy the belated achievement of a boyhood ambition. There was no steam and no heat and no furnace to stoke. There was no little steering wheel to twirl a dozen times before anything happened. But there was precise control and ease of handling such as the old-time roller driver never dreamed of.

Question of Cost

Other sizes of transmission for vehicles with higher powers are currently under development. Both pump and motor can be given variable displacement to increase the torque and speed ranges. Alternatively this arrangement would permit higher powers to be handled at high efficiency ever reduced torque ranges. Torque multiplications of more than 4 to 1 could be provided by suitable matching of components and a higher maximum operating pressure. At present first cost

seems likely to be competitive with the more elaborate multi-speed transmissions and there should be a big saving in maintenance. Carefully controlled tests on a farm tractor are also said to have shown that a good deal more work is obtained from the same type of machine when the hydrostatic drive is used.

Drive past its peak

Performance curves plotting percentage of input power transmitted against the ratio of input to output speeds show that the efficiency of the hydrostatic drive is higher than that of a multistage torque converter, or even of a torque converter plus planetary gearbox over the whole operating range, except for the point where the converter plus planetary gearbox approaches the coupling point and goes into top gear. This is at an input/output speed ratio of about 1.25 to 1, where the efficiency of the hydrostatic drive is past its peak.

HERALD—AN OUTSTANDING SMALL CAR

Road Impressions

By GORDON WILKINS

It looks like something new with its clear cut lines, and gay colours. Michelotti's Italian custom styling has triumphantly survived the transition from prototype to production model. The service and repair story was good; no chassis greasing or lubrication to worry about beyond a change of engine oil every 6,000 miles and an annual check on oil levels in gearbox, differential and steering pivot pins. How about that accessibility they speak of? Release the catch, grab the handle on top of the hood and prepare to lift. But the pivot point is so cunningly chosen that hood, fenders and head lamps swing forward with a light pull that any woman could manage and there you have engine, accessories, radiator, steering, front suspension and brakes in full view.

Makes a lot of difference

Opening the wide doors reveals a neat piece of functional styling. The roof turns up at the edges, so the door is practically the full height of the car,—probably an inch or two higher than a door under a conventional domed roof, which makes a lot of difference when entering a small low-built car. Driving seat adjustment fore and aft is set by the usual runners; to change height and slope, just lift the seat and turn a pair of rubber blocks on the seat frame. To adjust the telescopic steering column takes a minute or so with a spanner but on four different cars I never found any case to move it.

All round vision excellent

All round vision is good on the coupe, excellent on the sedan which has practically no rear quarter panels.

Horns worked by a button on the centre of the two-spoked wheel have a penetrating note. A trigger on the steering column works self-cancelling flashing indicators and another switches from side lamps through dipped headlamps to main beam, but a separate switch must first be used to put on side and tail lamps, so one has to work two switches to

flash headlamps as a warning in daytime, or run with side lamps on.

The pendant pedals are small but spaced widely enough for big feet. The accelerator is unusual; the organ pedal presses against a Bowden cable, pulling it through a conduit and opening the throttle. It is simple and works smoothly. The short sports type gear lever and pull-up hand brake are nicely placed in the centre.

New in small cars

From the moment you swing away from the kerb you know that this is something new in small cars. Swing the wheel hard over and it parks as easily as a wheelbarrow. It turns in places where you wouldn't attempt it with other cars and on the straight it steers to an inch. The rack and pinion steering is quick and direct (3½ turns from lock to lock for that tiny 25 feet turning circle) and there is no more than a slight tremour in the wheel on bumpy roads.

Comfortable riding

If there's a small car that offers a better combination of good road holding, safe handling and comfortable riding I have yet to find it. In a series of tight corners it goes through with the grace of a slalom star; no roll, no running wide. Well balanced and taut, it holds its line exactly even on treacherous bends with a hump in the middle. Simple swing axle rear suspension usually has high adhesion up to a breakaway point which comes suddenly but on dry roads you'd have to be brutal indeed to find it. On wet corners, a stab on the gas pedal helps to bring the tail round smoothly. Driving hard in a down-pour it swooped swift as a swallow over the narrow winding roads of Southern Ireland.

Even in the back seats the ride is smoother than usual for this size of car; headroom is good thanks to the flat roof and knee room is adequate. The all independent suspension helps;—so does the wheel-base of 91½ in., longer than that of

the Austin A.35 or A.40, Dauphine, or Morris Minor. Braking is safe and sure wet or dry.

Clutch action—light and smooth

Clutch action is light and smooth and either car will start in second with two on board. The gear shift is easy and without over revving the engine the sedan does about 26 m.p.h. in second gear, 45 in third and 68 to 70 in top. The coupe, with higher compression, twin carburettors and higher axle ratio gets up to 50 in about 16 seconds. Second gear gives about 30, third gives nearly 50 and it does nearly 80 in top.

The Coupe and the Sedan

Handling of both models is very similar. The coupe has fewer leaves in the rear spring to compensate for the lighter weight and keep spring frequencies the same. Engine noise and road rumble are well below usual levels. Interior finish is simple but all essentials are provided. The sedan has a single dial combining speedometer (calibrated in miles and kilometres) and fuel gauge (there's a reserve tap in the trunk). Coupe has separate fuel gauge and thermometer. There's a central ashtray and the sedan has two more at the rear.

The trunk is roomy and easily loaded, the spare wheel being recessed in the floor. On the sedan the rear seat folds extending the cargo space right through to the front seats.

Painted bumpers formed in the lower body panels look vulnerable and easily scratched but Triumph engineers argue they can be removed and repaired more easily than conventional chromium plated bumpers. Rubber rubbing strips with bright metal inserts will be offered at extra cost.

Outstanding small car

Promise of low service and repair bills, easy handling, riding comfort, new safety features and smart appearance make the Herald an outstanding small car. One British insurance company has already signified its faith in the design by offering Herald owners a 12½ per cent reduction on normal insurance premiums.

For Airborne comfort on Roads

"Travel by Air on road"

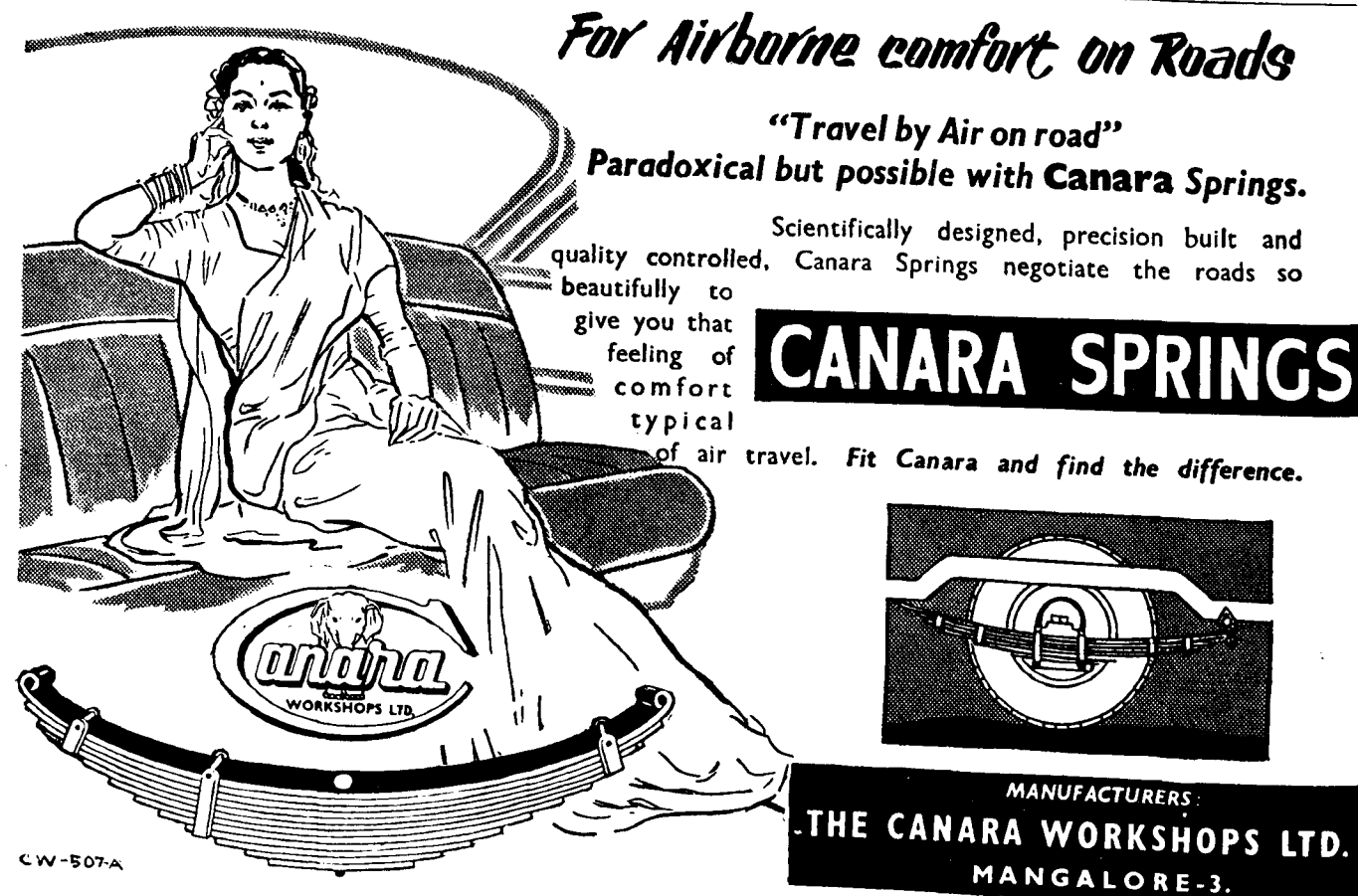
Paradoxical but possible with Canara Springs.

Scientifically designed, precision built and quality controlled, Canara Springs negotiate the roads so beautifully to give you that feeling of comfort typical of air travel. Fit Canara and find the difference.

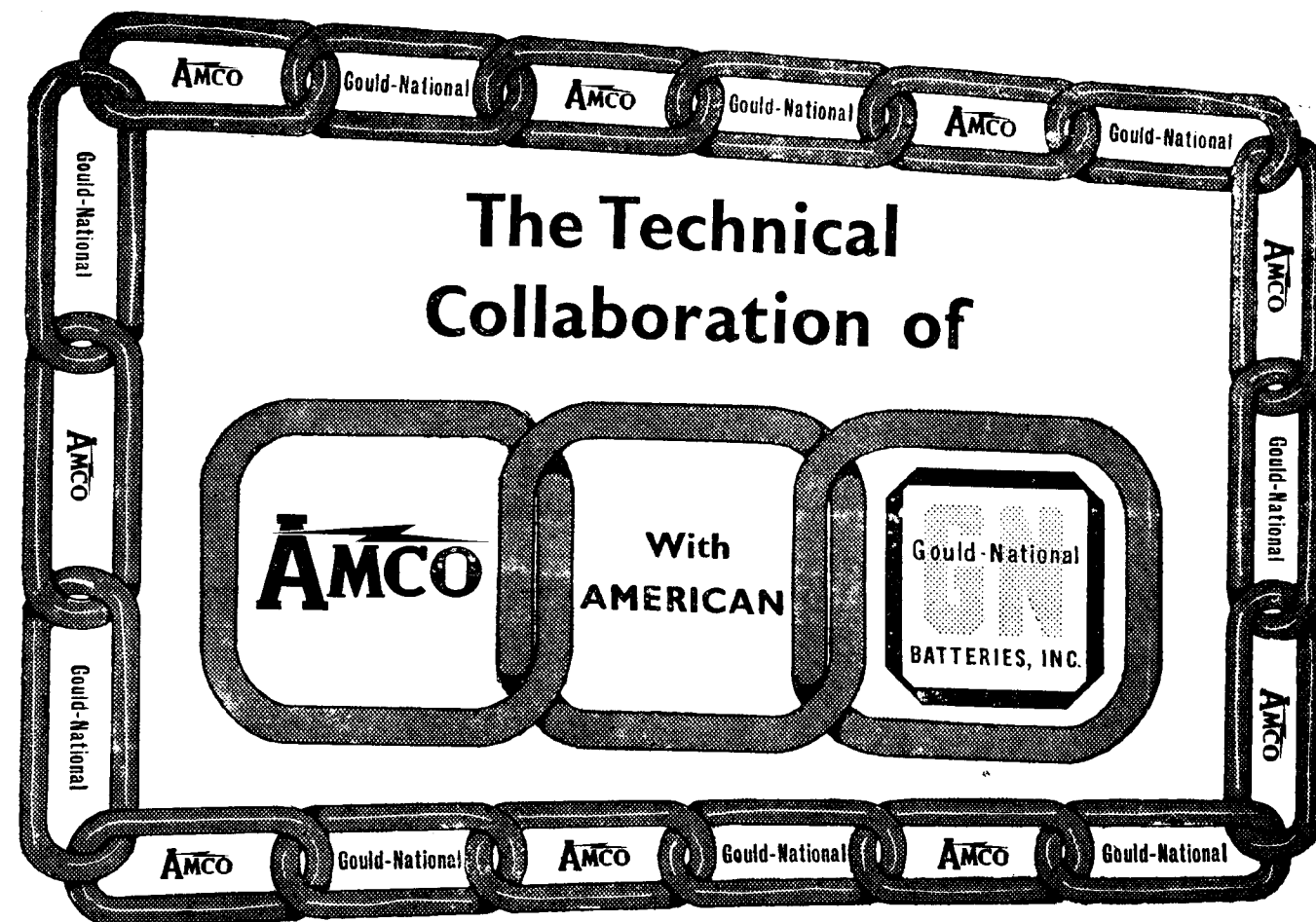
CANARA SPRINGS

THE CANARA WORKSHOPS LTD.
MANGALORE-3.

CW-507-A

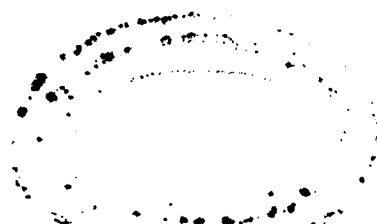


Announcing



AMCO BATTERIES
"STAY STRONGER LONGER"

AM-98

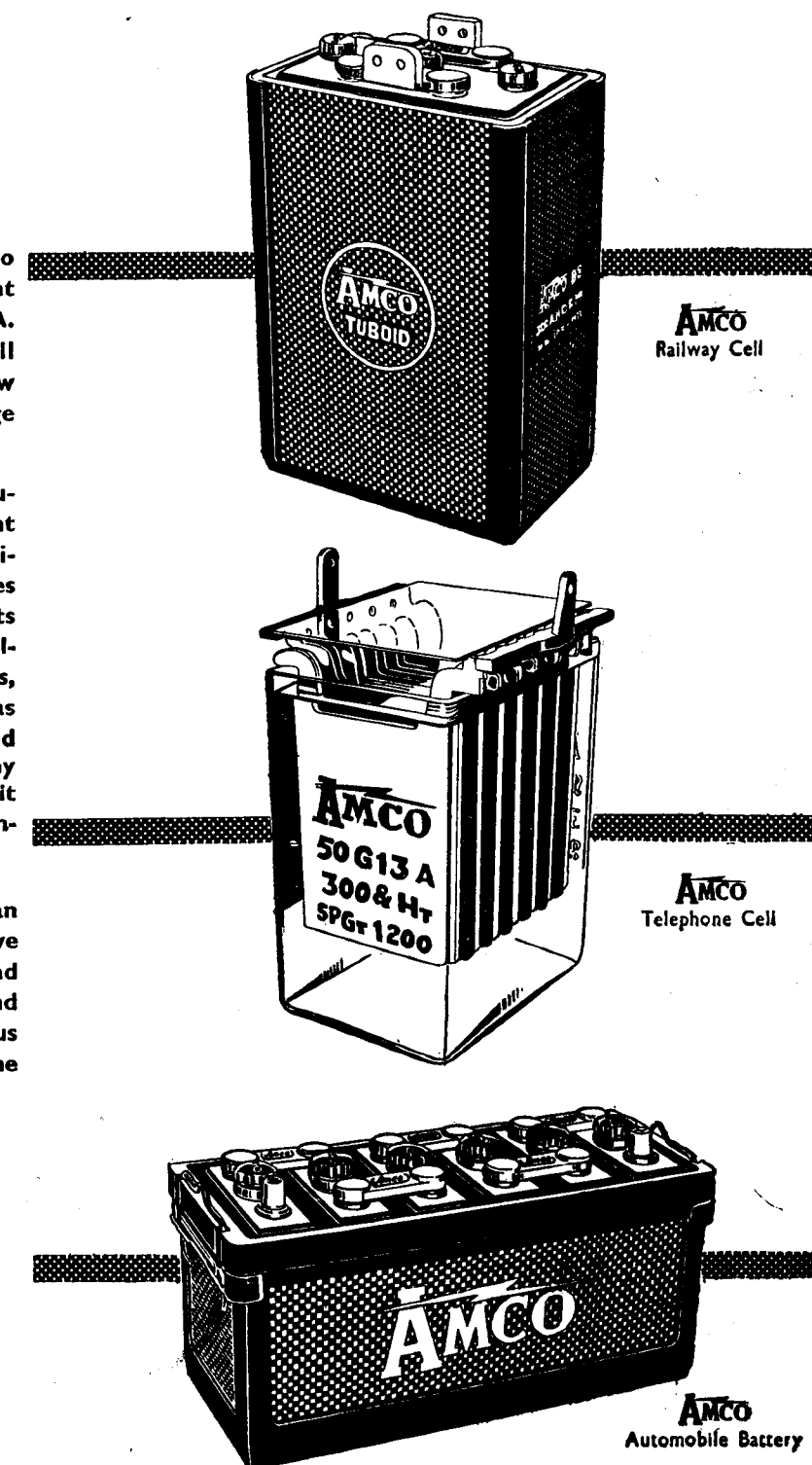


AMCO BATTERIES

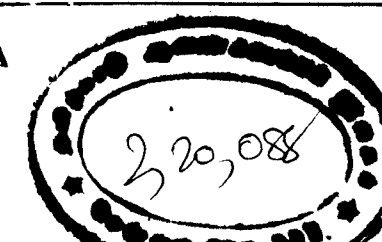
AMCO Batteries have now entered into a Technical Collaboration Arrangement with Gould-National Batteries Inc. U.S.A. Under this arrangement, AMCO will receive complete Technical Know-How for production of all types of Storage Batteries.

Gould-National, the world's largest manufacturers of Automotive Replacement Batteries, have 29 Battery Plants strategically located all over the United States of America and Canada. These Plants produce Batteries for Automobiles, Railways, Telephones, Telegraphs, Air-crafts, Ordnance, Missiles and submarines as well as for other Heavy Duty and Industrial purposes. It is noteworthy that Goulds were commissioned to fit the batteries for the World's First Atom-powered Submarine - "Nautilus."

Obviously, this Technical Tie-up with an organization of such eminence is a positive guarantee to revolutionise the Scope and Technique of Battery Manufacture and bring AMCO in line with the status attained by the Battery Industry in the most advanced countries in the world.



AMCO BATTERIES (PRIVATE) LTD., BANGALORE



Mystery of Crash that Killed Hawthorn!

WAS IT THE WIND?

BY GORDON WILKINS

When I found I was not fit enough to go on the Monte Carlo Rally Les Leston asked Mike Hawthorn to share the wheel of the Riley with him. The World Champion said, "Much too dangerous, I wouldn't do it for £5,000." He gave a similar answer to Ivor Bueb who offered him a drive in a Rapier. Weeks later, as the last competitors were straggling into Monte Carlo haggard after their mad all night ride over treacherous icy mountain roads, Hawthorn left his garage at Farnham to keep a lunch date in London. He never arrived. Turning on to the Guildford By-pass road in his highly tuned 3.4 litre Jaguar saloon VDU 881, he overtook Rob Walker, racing car owner and ex-racing driver in his 300 SL Mercedes.

There was high wind blowing and the road was wet. The sight of a Mercedes and particularly a 300 SL was a challenge to Hawthorn and he had had his Jaguar modified and geared so that he could out-accelerate them. He waved to Walker, smiled and roared past. Walker says they were not racing and he is too sensible a person to do such a thing on public roads but with the 300 SL behind him Hawthorn was going very fast when he went into a long sweeping downhill S-bend. He got round the first left hand curve safely but as he swept into the right hander in a cloud of spray Walker saw the tail of the Jaguar drift outwards. Said Walker "It was only a very slight breaking away. I did not think very much about it." "I know that it was Hawthorn. It was a normal thing to happen to him and I expected him to correct it. He did not slow at all."

at the far end of the dashboard—for the keen driver. Mike has made no changes other than fitting an accurate 160 m.p.h. speedometer; he grew tired of going "off the clock" with the standard one."

"A most important modification, one which many people would not even notice, is the fitting of special rear wheels, which increases the rear track by two inches, and have a very considerable effect on the car's roadholding. Suspension has been stiffened up—by the use of harder springs and competition shock absorbers all round—and although some body roll is still experienced during vigorous cornering it is quite predictable and does not have any undue influence on the car's handling."

"The only other major departure from standard is the fitting of a crown wheel and pinion which give a final drive ratio of 4.05 to 1 (Standard is 3.77 to 1). Mike's reason for this is simple; he doesn't like being out-accelerated by "Kraut cars," referring to a well-known species with an unusual method of door opening."

"The Hawthorn Jaguar really goes. The low axle ratio gives it tremendous acceleration, especially in second gear, and instead of the forward surge abating as frontal area asserts itself the car hurtles onwards in third and top gears until, at around 5,000 r.p.m. in top a flick of the overdrive control "switches off" a thousand r.p.m. and settles the car into its best long-striding cruising gait."

"Christmas traffic, patches of mist and an unpleasantly wet road made the completion of performance figures too hazardous to be worthwhile. Maximum speed is something in excess of 120 m.p.h. (Mike has seen over 130 m.p.h.) but at this velocity the 3.4 became a little unstable, due, perhaps to the undulating road surface."

"In respect of roadholding, the 3.4 can be driven round corners extremely fast but it really needs a Hawthorn to get the best out of it."

The Champion was dead

Then before Walker's horrified gaze, the tail of the Jaguar whipped out beyond the point of no return. The car spun, hit an island in the centre of the road, tearing off a bumper, then careered across the road, still spinning, flicked the back of a truck coming the opposite way, mounted the grass verge and was totally destroyed against a tree. Walker and the truck driver stopped and ran to the wreck followed by a doctor who has been filling up at the garage run by John Coombs, another racing driver, only a few hundred yards away but the World Champion was dead.

The Jaguar was well known to racing enthusiasts who had seen Hawthorn drive it in production car races at Silverstone in 1957 and 1958. Only a few days before the crash David Phipps, Associate Editor of *Motor Racing* had borrowed it for a road test and he reported.

"There were only two S.U. Carburettors under the bonnet. The fact that these are 2 inch instruments prompted a non-motorist friend to enquire the purpose of "those oil drum things alongside the engine."

"Mike's car also has high compression pistons, giving a ratio of 9 to 1, while the exhaust system with its twin tail pipes was specially made at the Tourist Trophy garage."

"A competition clutch is used, and this accommodates full throttle upward gear changes without a trace of slip. To the interior of the 3.4 which is obviously designed—except for the location of the tachometer

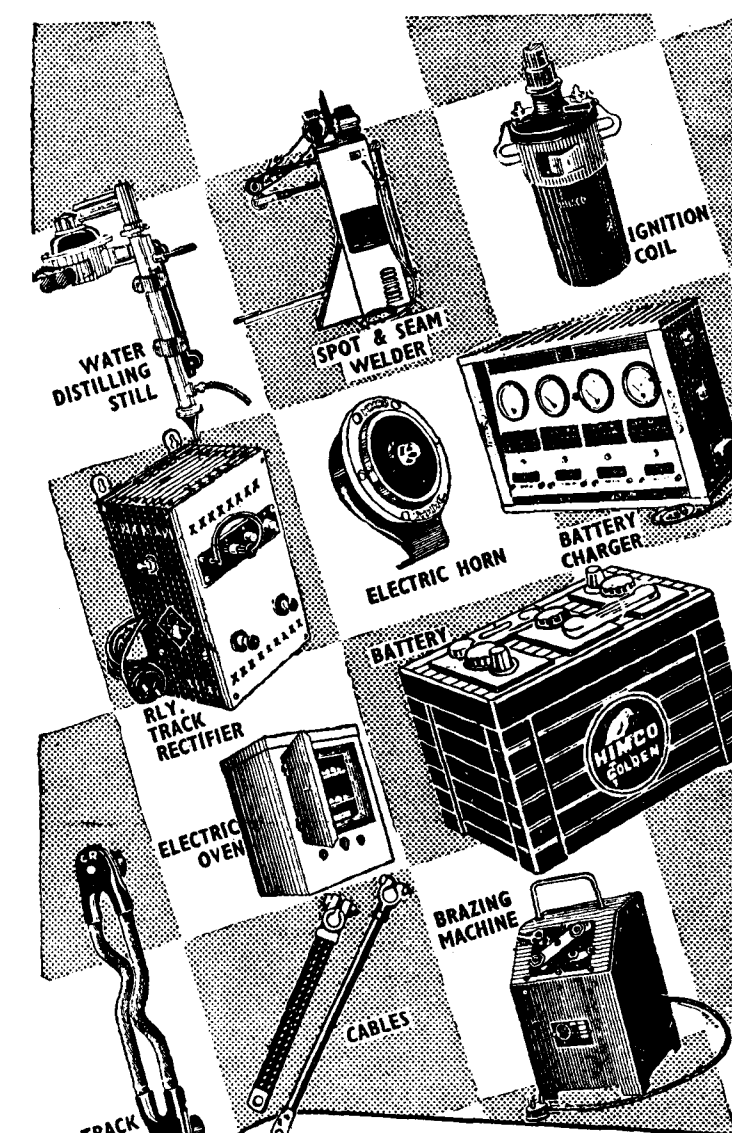
For ordinary mortals the combination of a wet road, spinning rear wheels and a sliding tail can become somewhat overawing, particularly as the relatively low-geared steering calls for rather a lot of wheel twirling when correction is required. Nevertheless, the tail of the Jaguar can be made to "go" a long way before one gets the feeling that all is lost, and for normal fast road use the car is obviously extremely safe."

However, neither this nor the official inquest provided the answer to why a driver of Hawthorn's skill should lose control of a touring car on an ordinary road and some people felt that wind might have been responsible.

Rob Walker said that only a few moments before a side wind blow him two yards sideways. "It was almost like having a cannon fired at you."

Can a gust of wind be powerful enough to cause a driver to lose control? In some conditions it can. It is rarely dead ahead or dead astern; usually it is blowing at an angle to the car and trying to push it off course. On a straight exposed road one can compensate for a steady wind by steering into it, although I have known as much as half a turn of these to be needed to hold a fast car on course in a strong wind. The danger comes when the car is hit by a sudden gust, or is struck by the wind on emerging from the shelter of trees or houses. The forces exerted by the wind rise with the speed of the car and a gust of only 20 m.p.h. striking the side of a car travelling at 100 m.p.h. can exert a sideways force up to 500 lb. trying to push it off the road.

As Rudolf Unlenhaut of Mercedes Benz once said "A car cornering on the limit is just like one travelling on ice; if you could reach out and touch it with your hand you could push it off course." All available tyre adhesion is fully employed driving the car or resisting the effects of centrifugal force and there is no margin left to resist any other forces. Hawthorn was obviously cornering near the limit at this particular moment and a sharp gust of wind might have been the final factor starting the fatal skid.



Playing a part in the
country's progress...

HIMCO'S ELEVEN!

In the India of to-day, developing by leaps and bounds, HIMCO products are winning fresh laurels day by day! Unrivalled craftsmanship, rugged construction and unmatched economy place HIMCO products in the country's preference!

HIMCO BATTERIES (MADRAS) PRIVATE LTD.

144, MOUNT ROAD, MADRAS 6

PHONE: 85501

GRAMS: HIMBATTERY

Associates: BOMBAY-41 DELHI-6

MOTORINDIA

27

The Drive for Lower Costs IN OIL INDUSTRY

How to secure the maximum output of goods or services with the minimum outlay is the perennial preoccupation of the business executive. This drive for higher productivity and lower costs owes much of its impetus to the forces of competition, for in a highly competitive industry efficiency is literally a matter of life and death. And when competition is intensified by a slackening of demand, or the expansion of other companies' activities, the quest for more economical methods gains added urgency.

This is a fair description of what has been happening in the international oil industry during the past year or two. Under the relentless pressure of declining prices and shrinking earnings, oil companies have been exploring every possibility of raising productivity and cutting costs; there are many references to these continuing efforts in the latest annual reports, which are well worth studying from this particular point of view. Only a selection of the illustrations there given can be quoted here.

Beginning with the search for oil, a number of companies refer to their efforts to increase the efficiency of exploration methods. Standard of Indiana, for example, has been testing new prospecting methods based on the trace-element chemistry of rocks—methods which it hopes may contribute towards the more speedy location of oil-bearing formations. Again, Gulf refers to, research aimed at extracting more significant data from field geophysical measurements, and at the development of new and more quantitative analyses of geological observations.

Close attention is also being paid these days to the technique of drilling and completing wells at minimum cost. The factors which have lately proved effective in this respect are admirably summed up by Humble Oil as follows: reduc-

tion of hole size, casing size, and length of surface and protective strings; slim hole wells and tubing-less completions; improved completion procedures such as reduced perforation density, minimum cost fracturing and the use of permanent-type well completion equipment; and improvements in drilling fluids and in general drilling practices. Partly as a result of these technical advances, and partly by reducing the number of (costly) offshore wells drilled (from 71 to 20), Humble was able last year to reduce its average well cost by 8 per cent to £157,000. The direct operating costs of its producing wells were cut by a similar percentage as the result of more efficient practices and improved equipment. Another aspect of cost reduction in the producing sector is the improvement in recovery methods—which was the subject of an article in our March 1959 issue. To take one example, the Royal Dutch report refers to the favourable result of further experiments with underground combustion and injection of superheated water or steam in order to increase the quantity of oil economically recoverable. Improvements in injection fluids to raise the efficiency of water-flooding operations in the U.S.A. are referred to by Shell Oil. Sunray Mid-Continent describes the formation last year of 13 field-wide pressure-maintenance and secondary-recovery units, which added 17 million barrels to its net developed reserves. There is reference also to new methods of hydraulic fracturing, for breaking open the formations and increasing the flow of oil.

Turning from production to transport, new equipment has been developed to measure, test and transfer oil automatically from producing lease to pipeline—an example of automation which is said to effect a substantial saving in operating costs as well as in investment in field facilities. A number of companies have converted their pipeline pumping stations to remote control, with

a significant saving in labour costs, while new methods have been developed for conveying waxy crudes without the use of costly heating equipment. This technique, in which the crude (at a temperature below its pour point) is pumped as a suspension in water, is to be used in the new pipe-line from the Tanjung field (Indonesia) to Balikpapan refinery.

In the sphere of tanker transport, too, the quest for operational efficiency is being persistently pursued. The main line of attack to which several reports refer is, of course, to scrap the smaller and older vessels, and to replace them by large, modern units, thus effecting an important saving in transport costs per ton-mile. Hand-in-hand with this transformation of the fleets goes the modernization of dock and harbour facilities, not only to accommodate the larger vessels, but also to speed up unloading. Reference is also made to the growing practice of tapping outside sources of finance for tanker building programmes. This is on a somewhat different footing from straightforward cost-cutting development, but it comes to much the same thing in the end because it enables the oil company to direct its own financial resources into the profitable channels.

In the refining sector of the industry some companies are practising a form of rationalization somewhat similar to that which is being applied to the tanker fleets, i.e., the closing down of marginal units which it would be costly to rehabilitate, and their replacement by much larger and more efficient units. As always, there is a constant search for new or improved processes to maximize the output of the highest-priced products—so far as the pattern of demand allows—at minimum cost. The Mobil report mentions the discovery of new catalysts to increase the yield of gasoline and to extract hydrogen-sulphide from natural gas

(for conversion to sulphur), also to a new process to permit the manufacture of high-grade lubricating oils from a wider variety of crudes. In a similar category is Shell's recently developed hydro-desulphurization process, which enables more effective use to be made of our (lower-priced) crudes.

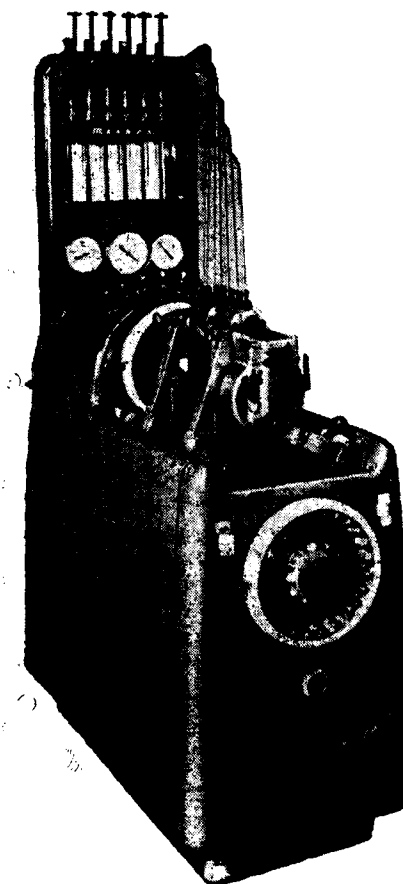
Perhaps the most striking development in refinery operation is the growing reliance on electronic computers. Using methods of analysis worked out at its Kwinna (Australia) refinery, B.P. has employed a computer to develop linear programming techniques for the control of its U.K. refineries. Continental Oil has used computers in the selection of crudes for its Lake Charles refinery. As a result, it is now possible in a matter of minutes to ascertain the relative advantage of processing any given crude oil, from the standpoints of yield, quality of

product, and overall economic results.

Going a stage further, Texaco has handed over to a computer the control of a 1,800-barrels-a-day catalytic polymerization unit at its Port Arthur (Tex.) refinery. Gathering its information from 110 sources, the computer controls 16 different flows, pressures and temperatures in almost every combination; it types out what it is doing and sounds an alarm if any part of the plant shows signs of impending failure. The company is hoping for a 6 to 10 per cent improvement in efficiency as a result of this new system of control. Savings from the more efficient use of catalysts alone are expected to be about £75,000 a year. Many other companies are now thinking in terms of more process automation as a means of raising efficiency and cutting costs.

Many of these cost-saving practices are, of course, dependent for their effectiveness on the co-operation of the companies' employees. Oil companies very often pay their work-people for suggestions which will help to raise efficiency, but much depends also on the operatives' unremitting alertness in their day-to-day work. The Phillip's report may be taken as typical in its reference to the way in which employees at all levels have been responding to the necessity for reduced expenditures. In the last analysis, however, productive efficiency is the responsibility of the management. And the record of the past year throws up many illustrations of managerial decisions taken to combat the cost-raising effects of continuing inflation and to maintain their company's position in the competitive race.

(Copyright)



FOR ACTUAL USERS ONLY
ON OUR IMPORT LICENSE

DIESEL FUEL PUMP TEST BENCH

(MADE IN HUNGARY)

ASK FOR OUR PRICE LIST No. 80/V/59

Also available Diesel Engine
Compression gauges, Nozzle Testers etc.

Selling Agents:

CHANDULAL MEHTA & CO (P) LTD

Saklat House, New Queen's Road, BOMBAY 4

Tel: 22191

Cable: ROMOILS

OTHER SPECIALISED TOOLS ON REQUEST

AUTOMOBILES FOR ALL PURPOSES

EASY LOADING VEHICLE FOR HOSPITAL AUTHORITY

To facilitate the transport of medical equipment, laundry hampers and similar supplies between hospitals, a specialised vehicle has been purchased by the Northern Ireland Hospital Authority.

As the body, which measures 10 ft. 10 ins. long 5 ft. 7 ins. high 6 ft. 3 ins. wide is constructed from light alloy sheet, it can be easily cleaned and maintained.

The body was constructed by Harkness Coachworks Ltd., Belfast, the vehicle being supplied by A.S. Baird Ltd., the Belfast Distributors for Rootes Group Products.

AUTOMOTIVE ELECTRICAL EQUIPMENT

Australian automotive equipment has been found to be particularly suitable for South East Asian countries. One reason is that electrical equipment has been developed to withstand Australia's wide range of climate—from tropical heat with extremes both of humidity and dryness down to extreme cold in the mountains—which is similar to that of South-East Asian countries. Battery charges and other equipment is robust and tropic-proofed.

MODERN AMENITIES FOR THE COUNTRYMAN

Prospective customers for bottled gas lighting, cooking and heating appliances and who live in isolated districts are now having the equipment brought to their door-step by a mobile showroom and demonstration vehicle.

The unit is a diesel engined 2/3 ton-Karrier Bantam fitted with a special body.

Based on Berwick on Tweed and operated by Scottish Rural Gas, the vehicle covers an area stretching from Dunbar in the North to Newcastle-on-Tyne in the

South and westward as far as Hawick and the North Tyne Valley.

The showroom bodywork was constructed by A. & C. McLennan (Perth), Ltd., Rootes main dealers, and consists of an ash framework externally panelled with light alloy sheet, crossbars being fitted to stiffen the wood framing. The interior is panelled out with hard-board, linoleum squares being provided as a floor covering. Two toughened glass windows are fitted to each side of the body and which are set at a height of 4 ft. 6 in. from the floor level thus allowing display units to be carried along the length of the vehicle interior.

Two half doors are provided at the nearside front of the body, the entrance steps being concealed when the doors are closed.

So that the appliances including washing machines, cookers, radiators and water heaters can be demonstrated, a gas supply is carried and which is also connected to the vehicle interior lighting system.

The outfit is operated by a driver/demonstrator, and owing to the exceptionally small turning circle and wheelbase of the Karrier chassis, it is capable of negotiating farm tracks and badly laid roads without difficulty.

MOBILE MASS X-RAY UNIT

A completely self-contained mobile X-ray unit has been put in service by the South West London Mass X-Ray Service. The vehicle enables well over 60 people per hour to be examined, and is the first of its type to be commissioned.

It consists of a Karrier 'Bantam' 4/5 ton petrol driven tractor and a special steel framed semi-trailer, the two units being fitted with B.K. fully automatic coupling gear.

The prime mover, of the latest type, is carried on 25 x 6 tyres and is fitted with an extended chassis frame giving a wheelbase of 8 ft. 2 in. This extension provides sufficient

space for an Auto Diesel 15 KVA diesel generating set to be transversely mounted immediately behind the cab.

The box type semi-trailer, built by Eagle Engineering Co. Ltd., is of composite construction and measures 24 ft. 8 ins. long by 7 ft. 6 ins. wide by 8 ft. 6 ins. high.

It is equipped with Shonander X-ray apparatus and to enable the maximum number of patients to be handled there are entrance doors at the rear and nearside rear. Upon entry, patients are checked at a reception desk whereupon they pass to an undressing area for the removal of their top clothing. From here, patients go forward to the X-Ray apparatus and after examination, they enter a dressing area where their clothes are awaiting. They then leave through a double exit door on the nearside front side of the semi-trailer. In this way a flow system is achieved and waiting time reduced to a minimum.

MOBILE BANK

A mobile bank based on a Karrier 'Bantam' 2/3 ton chassis has been supplied to the Standard Bank of South Africa Ltd. The vehicle is to be operated in and around Salisbury, Rhodesia, and it will provide banking facilities in areas where the volume of business is such that it would be uneconomical to open permanent offices.

The Luton type bodywork, by Rootes Ltd., Maidstone, is of all steel construction and fully insulated against heat. In addition, a 3/8" thick aluminium checker plate shield is fitted over the roof. The vehicle's interior is equipped with a counter, customers entering the body at the rear through two hinged doors which are designed to fold and clip against the body sides.

Provision for a safe is made below the counter, the floor adjacent to this area being specially strengthened.

The vehicle's exterior is in dark olive green, the interior paint work being in pale green.

MOBILE DENTAL CLINIC

One of the exhibits at the 40th R.A.I. Show, Amsterdam, Holland, was a Karrier 'Bantam' 2/3 ton chassis fitted with a mobile dental surgery body.

The all-steel body by Vermeulen, a firm of Harlaam coach builders, was constructed to a specification laid down by the Dental Department of the Municipality of Sittard.

The interior equipment is comprehensive and provision is made for an instrument cabinet, wash basin, writing desk, dental chair and auxiliary equipment and water heating equipment.

FIRST MOBILE KITCHEN

Catering for film units on location throughout the country is being provided by a new mobile canteen. Fully equipped with gas fires, ovens, hot water boilers and washing-up sinks, the vehicle is designed to supply hot meals, light snacks and teas.

To save weight, the gas used for firing the ovens and water heating equipment is Propane and the vehicle is the first mobile kitchen ever to be placed on the road so equipped.

The advantage of Propane as against the more widely used Butane gas is that it is possible to obtain a bigger offtake of gas from cylinders of the same size; a Propane gas cylinder giving 40 cu.ft. per hour in comparison with the 15 cu. ft. per hour output of a Butane gas cylinder of the same size.

Owing to this characteristic, it is possible to operate from one bottle instead of having to use up to three Butane bottles thus reducing the g.v.w. and eliminating wasted storage space. In addition, by using Propane for this application the operators were able to select a smaller, more manoeuvrable and, lower priced vehicle than would have been the case if Butane gas firing had been specified.

MOBILE TV VAN

Amongst the exhibits at the 40th R.A.I. Show, Amsterdam, Holland, was a mobile outside broadcasting

sound and television recording van. The vehicle, based on a Commer Avenger coach chassis was fitted with special bodywork by the Harlaam firms of Vermeulen.

MOBILE REPAIR SHOP

A mobile repair shop has been purchased by Brighton Corporation Waterworks. The vehicle, which is new to the Department, has been designed for service work on damaged underground mains and on specialized water mains laying operation.

The body interior is fitted with racks so that a power rammer, flood lights, trench pumps, protective clothing, first aid equipment and small tools can be carried. A Calor gas burner is also installed so that hot drinks can be made available to the crew. In addition, a two-way radio is installed in the cab.

NEW BRITISH FIRE ENGINE

A new type of fire engine, called the Firemaster, has been developed by Leyland Motors Ltd., for exhibition at the firm's stand at the British Fire Services Association's Exhibition in Blackpool, Lancashire, from June 27 to July 4.

One of the features of the Firemaster is the mounting at the front of the chassis, in place of the engine and radiator, of a large panel carrying instruments and gauges, pumping controls, and the pump intake and outlet nozzles. This enables the engine to be driven straight up to a water supply point and quickly coupled up.

The main pump, capable of pump-

ing up to 1,000 gallons per minute, is driven through a power take-off, pump engagement being made by an air-operated clutch and two dog-clutches. An interlock is provided to ensure that the pump cannot be run while the road wheels are driving.

The Firemaster is powered by a six-cylinder, 150 h.p. horizontal Diesel engine mounted with other chassis units below chassis frame level. Weighing eight tons, the vehicle has a top speed of 50 m.p.h. and, on preliminary tests, has accelerated from rest to 45 m.p.h. in less than 30 sec.

*There Are No Better
Brake Linings*

MINTEX

*Popular British product
well known for quality,
efficiency and durability.*

*Available in ready drilled sets for
all cars and trucks and roll
lining in all sizes.*

*We solicit forward orders against
your import licences. Please
contact us for your requirements.*

*Distributors for Andhra, Mysore,
Madras & Kerala*

The Madras Mercantile Agencies Private Ltd

1/18 MOUNT ROAD
MADRAS 2

GRAMS: TIPARTS

FOR THAT HARD-TO-GET PARTS

CONTACT NARAYAN TRADING CO

BEGUM SAHIB LANE

P. Box No. 2445 MADRAS 2

Specialists in PERKINS & BENZ PARTS

MOTORINDIA

FOWL WORK ON THE HIGHWAYS

BY A. HOLDEN

Four thousand day-old chickens recently held up traffic on the State Highway near Lodi, in Northern Italy, when a lorry carrying them crashed and overturned in heavy traffic. Police took two hours to capture the chickens, apparently making the most of their unexpected freedom, but nonetheless causing a traffic hazard to passing motorists.

Meanwhile, only a few months ago, a Sydney, Australia, Government bus driver stopped his crowded bus on a bridge, leading into the city, during the busy peak hours. His conductor "dismounted," gave chase and caught a fowl straying unconcernedly among the line of city-bound motor vehicles.

Last year, a cackling hen, in another daring bid to escape from its allegedly humdrum existence, managed to get out of its pen at

the back of tearooms in Pinjarra, in Western Australia. It dashed across the main street through the traffic, pursued by barking dogs and excited children. Avoiding motor vehicles by inches, the hen sought the shelter of a nearby hotel, where it duly secured "asylum" in a storeroom. When it emerged later, it had gratefully left behind an egg for the bar owner.

High rate of mortality

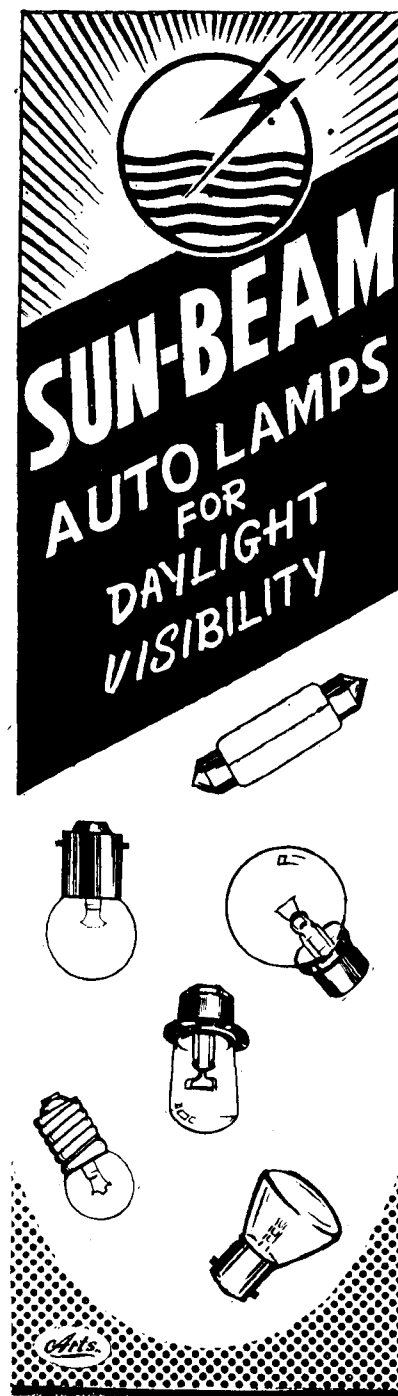
As one who has occasion to travel extensively by a car throughout the Sydney (Australia) Metropolitan and near-country areas, it is unfortunate fact that of the many road "casualties" seen on the roads, in the way of rabbits, possums, cats, and small birds, the domestic fowl (hen, rooster or chicken) has a high rate of "mortality."

In addition, fowls have caused many near-accidents, because they have a very casual and unscientific approach to roadside manners or road courtesy. When possessed of the "waderlust" in the wide expanse of Australia Outdoors, many birds encroaching on the roadway, have met with a sudden and unexpected fate.

It would appear that some fowls are rather slow on "the uptake," and often will leave it too late to make their escape when danger is imminent, usually in the shape of a motor vehicle.

Yet, when the hen is proceeding along the highway with her brood of chickens she will fuss and lavish much care and attention on them, giving, where possible, due warning of any potential danger.

However, while a number of fowls on Australia's road have met their end—and evidence of this is common on country roads in an era of speed and motoring carelessness, similarly "near misses" are



GLASS & MINIATURE BULB INDUSTRIES
OF B. R. INDUSTRIES

Distributors

M/s. Jafer Abid Ali, 66 Commercial Chambers, Masjid Bunder Road, Bombay 3 (For Bombay States)
M/s. V. C. Ramalingam & Sons, 2/422 Mint Street, Sowcarpet, Madras 1 (For whole of South India)
M/s. Chimanlal Desai & Co., 54 Bentinck Street, Calcutta 1 (For West Bengal, Bihar, Assam, Orissa, Madhya Pradesh and Rajasthan)
M/s. B. D. Gopal Dass 8-B, Ajmere Gate Extension, New Delhi (For Uttar Pradesh & Delhi)
M/s. National Corporation Ltd., Nobra Gardens Road, Jullundur City. (For Punjab, Himachal Pradesh, Jammu and Kashmir)

symbolised in the amount of fowl feathers strewn on the road surface.

A hen's sad predicament

One time a hen, picking its way by the side of the road, was surprised at discovering a motor car in close proximity that she flew skywards with great force, apparently not looking nor caring in what direction she was headed. In her haste, she had landed herself in the centre of a dense, thorny bush, which held her firmly while she squawked loudly in anguish at her added predicament.

I don't know to this day how this situation resolved itself.

More than once fowls encountered wandering near the road that have been frightened by passing cars, hurtle themselves sideways, narrowly missing the wheels of one car to eject themselves into the air over another. A white hen finished its short "aerial journey" in this fashion by landing inside my own car, when it had been originally disturbed by a heavily-laden lorry proceeding in the opposite direction.

I believe the bird was as equally surprised, judging by the cacophony it set up, at finding itself obtaining a ride in the vehicle as I was at the unexpected "visitation."

Narrowly missed death

Then there was the time a proud hen, trying to keep an "eagle eye" on several of its fluffy chicks, feeding on the grass that ran along the main highway leading to the south of Sydney, Australia suddenly saw one of her offspring heading towards the bitumen. Narrowly missing death under the wheels of a truck, the hen clucked a heated disapproval of her "wayward" chicken and likewise at the lorry-despite the fact that the considerate lorry-driver had sounded his horn as a warning.

But a rooster, chased by a pugilistic dog, sped through the undergrowth bordering the roadway and disappeared beneath my car. Hurriedly, I braked, expecting to witness the demise of the creature, only to see amid a flurry of black

feathers, a dejected, scared, but otherwise unharmed rooster, making its way unsteadily for the open gate of a nearby farming property.

Another story

On one occasion a traveller was driving home with a fowl tied by its legs in the back seat of his car, when the rope snapped, and the hen, sensing freedom, endeavoured to fly through the closed window. It mistook the direction and banged against the glass, then flopped around the driver's head, forcing him to stop while the bird was re-captured and quitted.

Another time an inquisitive hen paid a visit to the interior of my car while it was parked at a picnic reserve on the south coast of N.S.W., where I had stopped for a meal. It was owned by the proprietor of the kiosk nearby, and had been foraging around the grounds for tid bits of food. Crumbs of bread and cake had fallen on to the running board of the car, into which the fowl hopped, and then ventured further inside in search of additional food. Finally, in exceptionally friendly fashion, it jumped up on to the back of the driving seat, cackling quietly and with evident satisfaction as it did so.

Diversity repast

On the other hand, a quick-thinking motorist was observed to run down and inadvertently kill an itinerant hen, on an "outing" in an otherwise deserted section of the highway leading through a town in the Southern Highlands of N.S.W. The driver brought his car to a stop, hopped out, looked quickly about him, then thrust the fowl into the boot of his vehicle. He immediately sped off, no doubt thanking his proverbial stars for the unexpected, but I would surmise, guilty repast at a later hour!

Then, too, perhaps, it was not surprising that the owner of an old motor car, temporarily "parked" in the yard of a farm in the country should find himself the possessor of two fresh eggs when later that day he came to drive his vehicle away.



FORDSON
MAJOR TRACTORS &
IMPLEMENTS



PERKINS
DIESEL ENGINES &
CONVERSION KITS

Authorised Dealers:

BHARAT
MOTORS

Proprs: N. R. PRIVATE LTD
35 MOUNT ROAD
MADRAS 2

Phone: 85501 Grams: BHARATCARS

Showrooms: 144, Mount Road
Service Station: 5, Greames Road
H. O.—MODI CHAMBERS
Sandhurst Bridge, Bombay - 4

In addition to popular Lines viz., HIMCO BATTERIES & ELEC. ACCESSORIES, KRALINATOR FILTER CARTRIDGES, WAXPOL PRODUCTS, LOCKHEED Brake Parts, BORG & BECK Clutch parts, Tools & Accessories, a wide range of parts for PERKINS Diesel Engine, FORDSON Tractor, BEDFORD Trucks and Vans, other G. M. Vehicles, FIAT, DODGE-FARGO are always carried in stock.

Motores Perkins

A new company named Motores Perkins S.A. has been formed in Brazil to manufacture a powerful six cylinder Perkins diesel engine for 5-8 ton trucks produced in Brazil and other applications.

This important British engineering development follows an agreement between F. Perkins Ltd., of Peterborough, and Murray Simonson, S.A., a well known Brazilian organisation.

The new company's capital will be about £60 million cruzeros, approximately £2 million. Part of this will be taken up in shares by F. Perkins Ltd., through the transfer of a comprehensive machining line from Peterborough worth between £500,000 and £750,000 sterling.

The project has been approved by the Brazilian Government's G.E. I.A. Committee appointed to consider all manufacturing projects connected with the automotive industry. The establishment of a neutral proprietary engine manufacturer is, it is understood, particularly welcome in Brazil.

B340 DIESEL ENGINES

The new company is to produce the Perkins Six B340 diesel engine, which is similar to the Perkins F.340 engine offered by the Ford Motor Company of the United States in its 154 inch wheelbase F.600 trucks. The Six B340 will be rated to develop 110 b.h.p. (British rating) at 2,850 r.p.m. and will have a maximum torque of 240 lbs./ft. at 1,700 r.p.m. It will have an in-line Bosch fuel pump with the Bosch mechanical governor. Other Perkins engines may be manufactured later.

Production of the Six B340 engine is scheduled to start during the second half of 1960 and to reach an annual production of 20,000 engines during 1962.

An up-to-date production line for manufacturing major components at the new factory has been dismantled at F. Perkins Ltd.'s big

Eastfield plant. Totalling about 1,000 tons it is being shipped next month and is probably the biggest single consignment of machine tools sent to Brazil from Britain since the war.

WILL BE THE FINEST

The machine tools will be installed in a factory with a covered floor space of approximately 100,000 sq. ft. at Sao Bernardo on the outskirts of Sao Paulo, South America's biggest industrial city. Besides the normal tools for machining cylinder heads, blocks etc. the equipment includes a crankshaft machining and heat treatment line which will be the finest in the Southern Hemisphere for diesel type crankshafts.

These machine tools, some weighing 26 tons, have been transported by Lep Transport Ltd., of London, in special low loader lorries to their Chiswick depot and then packed in huge wooden cases.

The majority are then being shipped by barge to London Docks, but larger machines will be taken by road to the docks under police escort.

PRODUCTION LINE REPLACED

This production line is being replaced at Peterborough by a new combined line for six cylinder engines in current production and certain new engines at present under development. A stock of engine components has been built up to cover the changeover.

In addition to the machine tools supplied by Perkins, more than £300,000 worth of new plant is being installed at the Brazilian factory, including equipment for a complete new toolroom, camshaft line and miscellaneous machining section.

Managing Director of the new Brazilian company will be Mr. Francis J. W. Holt, A.M.I. Mech.E., A.M. Inst.T., who has recently returned from completing the negotiations in Brazil. He is at present F. Perkins Ltd.'s export manager

for the Iberian Peninsula and South American zone. He lived for many years in Brazil and speaks fluent Portuguese and Spanish. He has been seconded to the Brazilian company by F. Perkins Ltd., which he joined in 1949.

Other members of the Board are to be Snr. Mario Simonsen (chairman) and Mr. Charles Murray, both of the Murray Simonsen group, and Dr. Rodolfo Borghoff, a director of Remma S.A., of Rio de Janeiro, Perkins distributors in Brazil.

Mr. R. G. F. Griffin, who has been F. Perkins Ltd.'s manager of overseas manufacturing, has been appointed technical manager of Motores Perkins S.A. He joined the Peterborough company three years ago and was previously 18 years with Rolls-Royce Ltd. Key shop floor personnel from Peterborough are also joining the company to train Brazilian foremen and chargehands.

BRITISH COMPANY'S POLICY

The new Perkins venture is in line with the British company's policy of fostering trade in overseas countries by full co-operation where governments desire to develop indigenous manufacture.

Brazil is developing her automobile industry as a first step towards opening up her vast and potentially wealthy territories. American, German, French and Swedish companies are already manufacturing in Brazil under the government plan to produce 160,000 vehicles a year by the end of 1960.

Enthusiastic welcome in Brazil

The British project to manufacture diesel engines of world repute in Brazil is regarded by the Brazilian Government as an important contribution and has also been welcomed enthusiastically by many of these manufacturers.

TWO SEPARATE EXPORT ZONES

Perkins Engines Ltd., has decided to divide Europe into two separate

export zones as a result of its increasing engine sales in Continental countries.

This export department reorganisation will assist the Peterborough company in its vigorous drive to develop still further existing markets and to seek new customers for its products.

Mr. Edward Bartlett, B.A. (Cantab), has been appointed manager of a new West European zone, which comprises Italy, France, West Germany, the Benelux countries, Austria, Switzerland and Algeria. Mr. Bartlett, who is 38, joined Perkins in 1951 and spent 18 months on special liaison duties in India. When he returned to England in 1954, he was made responsible for liaison between the Peterborough firm and its associated French company.

Mr. Bartlett, who speaks French and German, has spent much time in Europe on company business and has had wide sales experience on the Continent.

The other new zone consists of Scandinavia, Yugoslavia, East Ger-

many, Poland, Bulgaria, Rumania, Hungary, Czechoslovakia, Iceland, the U.S.S.R. and also Israel. Manager of this zone is Mr. Frank Wilkinson, M.A. (Cantab), who joined Perkins in 1953.

A NEW SUBSIDIARY

F. Perkins Ltd. have announced that a new subsidiary company named Perkins Engines Ltd., has been formed to handle sales and servicing of Perkins vehicle, agricultural, marine and industrial engine throughout the world.

The managing director of the new company is Mr. T. H. R. Perkins, who is also a director of F. Perkins Ltd., and other directors of the subsidiary are Mr. M. I. Prichard, managing director of F. Perkins Ltd., and Mr. W. N. Collins, a director of the parent company.

Perkins Engines Ltd., will be located at Peterscourt, Peterborough, former headquarters of F. Perkins Ltd.'s marketing divisions, and will be entirely separated from the main production centre at the Eastfield plant.

Mr. T. H. R. Perkins said to-day "The company's objective will be to extend sales of the wide range of Perkins engines in all applications for which they are suitable. At present, about 70 per cent of production is exported to 143 countries and it is our intention to obtain new customers wherever possible with the aid of our world-wide chain of distributors.

"Although every effort will be made to open up new markets, it will at the same time be our aim to safeguard the interests of manufacturers, their distributing organisations and operators already using Perkins engines.

"With the added demand for engines resulting from our association with the Massey-Ferguson organisation, we shall be able to maintain a high turnover with all the cost advantages that it will bring."

"Development of new engines, which is an extremely expensive business, will be intensified," Mr. Perkins added.

THE MOTOR INDIA'S ONLY TAMIL LANGUAGE

PUBLICATION BEAMED TO THE

**TAXI OWNERS
OPERATORS
DEALERS
DRIVERS and
ALL GARAGES**

SIXTH ISSUE NOW IN PRINT

Sell your products to the consumer by advertising regularly in

THE MOTOR
5/141 Mount Road, MADRAS 6

August 1959

MOTORINDIA

35

Italy's Automobile Industry wins world-wide recognition

It can truly be said that Italians look with affectionate interest to the developments of "their" automobile industry. It is an industry which, from its very beginning, was able to demonstrate, by its splendid successes both at home and abroad, the nation's productive capacity. Furthermore, it is an industry extremely congenial to the Italian creative talent, receptive as it is to new ideas and improvements not only in the technical field, but also in beauty of artistic designs. Thus, Italy's automobile production has long been established as a symbol of the country's industrial evolution and has often anticipated new trends in automobile production and design both at home and abroad.

14.7% INCREASE

Italy's automobile production further expanded in 1958. Figures released by the National Association of Automobile Manufacturers show that over 400,000 motor vehicles, including some 370,000 passenger cars were produced in Italy in 1958—a 14.7 per cent increase over 1957 and a 415 per cent increase over the first post-war year, when production had all but halted under the impact of the destructions by the war.

SPECTACULAR RECOVERY

Fortunately, thanks to its vital energies, recovery of this important branch of the Italian industry was extremely fast, as it is shown by the following production figures released by the National Association of Automobile Manufacturers :

Year	Auto-mobiles	Motor vehicles	Industrial Total
1945 ...	2,093	8,197	10,290
1948 ...	44,425	15,528	59,958
1950 ...	101,310	26,537	127,847
1953 ...	142,861	31,447	174,308
1955 ...	280,833	37,923	268,756
1956 ...	279,713	36,080	315,793
1957 ...	318,488	33,311	351,799
1958 ...	*369,009	*34,539	*403,548

* Estimated.

As the above figures demonstrate, the spectacular recovery of the Italian automobile industry is one of the most significant aspects of the progress made by the Italian industry in the post-war period. Such result would never have been achieved without the industry's sweeping programs of plant renewal, improved training for its technicians, and increasing plant automation, especially in recent years.

If it is true that in 1957-58 output of the automobile industries in all other leading European countries was at record or near record levels, it is no less true that the Italian automobile industry has stood up to its strongest foreign competitors.

STIMULANT FOR PRODUCTION

The ever growing diffusion of automobile ownership in Italy has been a keen stimulant for a large increase in automobile production. This upward trend has been on for some years now and still continues in full vigour. In 1948, the total number of motor vehicles in Italy was 400,000. A decade later in 1958, the number had increased to 1,850,000. Figures released by the Automobile Club of Italy show that 341,347 new motor vehicles were licensed from January 1, 1958 to October 31, 1958—a 3 per cent increase over the 331,742 motor vehicles licensed during the same period in 1957.

Thus, increases in automobile production and ownership, in a country where most buyers choose national makes, have of course stimulated each other. Aside from this consideration, it must be said, however, that the Italian market can absorb only a part of the heavy domestic production and that over 40 per cent of Italy's total automobile production is normally exported abroad. And especially in recent years, Italy's automobile export trade has made steady and impressive advances.

EXPORTS UP BY 42%

Once the most serious difficulties

of the first post-war period has been successfully negotiated, Italy's automobile export trade immediately began to catch up with its principal foreign competitors. Thus, Italy, exported 169,233 motor vehicles in 1958—a 42 per cent increase over the 119,123 total of 1957, which, in turn, had been considerably higher than the 1956 total figure of 88,185. Italy's automobile exports have now become a dependable and substantial contribution to the improvement of the national trade budget. In 1958 alone, automobile exports accounted for a value of almost 100 billion lire in Italy's trade income.

By countries of destination, 67 per cent of Italy's automobile exports in 1957 went to European countries (chiefly Germany, Austria, Switzerland, Belgium, Yugoslavia, France, United Kingdom, Portugal, Denmark); 20 per cent to the Americas; 7 per cent to Asia; 5 per cent to Africa; and 1 per cent to Oceania.

WEST GERMANY—THE BEST IMPORTER

West Germany and the United States, are the two largest buyers of Italian automobiles. In the first 9 months of 1958 (January to September), Germany imported almost 20 billion lire worth of automobiles from Italy and the United States nearly 13 billion.

Also Italy's exports of motor vehicle spare parts have developed to such extent that this topic would well deserve more than a passing remark. For the moment, it will be enough to say that West Germany is now the chief importer, with about 50 per cent of all her imports of motor vehicle spare parts in 1957 originating from Italy.

WIDE CHOICE OF MODELS

The Italian automobile industry provides now both the domestic and foreign markets with a wide choice of types and models, from the economical small sized family

car to the most luxurious high class models. Italy's bus production also includes practical, comfortable and elegant vehicles of all sizes and types for the most diverse requirements. With the constant expansion of its sales to foreign markets, Italy's Automobile industry is in fact operating in strict compliance with a policy of diversified production.

Every year, Italy's participation in the Turin Automobile Exhibition and in other international exhibitions gives a significant, although incomplete, picture of the progress made by Italian automobile industry.

Over 480 exhibitors from 12 countries participated to the 40th Automobile International Exhibits last November in Turin. On display at the Exhibit were not only the latest 1958 models, but also some of the 1959 new models. Italian manufacturers displayed many new technical appliances, as well as new coachwork designs, for which the Italian automobile industry, has always enjoyed a well deserved worldwide recognition.

SPECIAL ACHIEVEMENTS

Among the many achievements of the Italian automobile industry on display at the Turin Exhibition, a special mention should be made of the following :

The introduction of a Saxomat automatic clutch in the Flaminia and Appia models; two hardtop versions of the Flaminia Sport; the Abarth, a sport car equipped with a FIAT 500 engine; the Moretti 750 and the Siata 1700, both in the sport car class.

Among the industrial vehicles: four new FIAT models—two new lorries (the 642 N6 and 642 N6R) and two new buses (the 309 and the 314); a new OM bus, the Tigre; and two new models by Lancia, the Esadelta Lorry and the Jolly light motor van.

READY TO MEET THE CHALLENGE

The Italian automobile industry now stands ready to meet the chal-

lenge of the stronger competitions that will result from the gradual activation of the European Common market. At any rate, the Italian automobile industry, which now makes regular overseas shipments through its own fleet of special ocean-going freighters, fully loaded with its products, seems to have reason to look to its future with the justified certainty that any stronger competition will never in any way impair its success in European and other world markets.

ROAD TRANSPORT OPERATION IN U.K.

Mr. B. Ray Choudhury, depot manager with West Bengal State Transport, Calcutta, is now in Britain under the Technical Co-operation Scheme of the Colombo Plan studying road transport operation. The knowledge he is gaining during his six-month course will be, he says, "invaluable" when he returns to India.

Mr. Ray Choudhury is at present studying workshop methods at a motor transport depot in Preston, Lancashire. Soon he will move to the nearby Leyland motor works, and later will spend some time with the London Transport Executive and with firms producing equipment for the motor transport industry.

Two members of Mr. Ray Choudhury's organization—a foreman and a chargehand—are among the many oversea visitors studying at the Leyland works.

PRICES OF PETROLEUM PRODUCTS—A FURTHER CUT LIKELY

A further reduction in the prices of petroleum products is likely to be agreed to by the oil firms in India.

Mr. K. D. Malaviya, Minister of Mines and Oil, is understood to have stated this at a meeting of the Congress Parliamentary Party held in New Delhi.

Indian Road Research Officer in U.K.

A research officer in the Central Road Research Institute, New Delhi, Mr. S. Bagchee, is in Britain for six months under the Colombo Plan studying road construction, and in particular the utilization of tar as a binding material in road-making.

Mr. Bagchee is at present attached to the South-Eastern Gas Board, producer of large quantities of tar which are supplied to road-construction contractors. He is learning the dense tar surfacing technique by visiting roads and airfields where tar is being laid, and by taking samples which he analyses for density in the Gas Board's London laboratories.

He will later be going to the Midland tar distillers' plant at Oldbury, Worcestershire, and visiting the sites of the motorways under construction in various parts of the country.

Indian Studies Highway Engineering in U.K.

A 25-year-old Indian engineer who is taking a year's post-graduate course in highway engineering at King's College, Durham University, believes that this will equip him to play a bigger part in helping to build new roads and civil engineering projects when he returns to India.

He is Mr. Balchandra Rasiklal Bakshi, of Morvi, Bombay State. He took his B.E. (Civil) degree at a Morvi Engineering College, and since then has been for three years in Government service at Rajkot, in the Irrigation Circle of the Public Works Department of Bombay State.

Mr. Bakshi went to Britain last October and is staying with other Indian students at the Methodist International House, Newcastle-upon-Tyne.

TILLER STEERING

In times when mere mechanical movement was an achievement, single front wheel tiller steering was employed on motor tricycles. Even this had its problems. It had to be reasonably balanced, so that it tended to castor or centre itself, but did not require too much effort to hold off centre. This was done by the right amount of "trail" of "castor", an angle still important to modern systems.

Two front wheels present other problems. The very early system where the whole front axle moved (bogie fashion) was full of disadvantages. Today it is still used on steam rollers. Tractors and the like, where the slow speed makes it practicable. Such steering is sluggish and not positive. Above brisk walking pace it would be unsafe.

HARRY BANKS

Next time you walk up spiral stairs, spare a thought for the super efficiency of nature's steering gear. Consider the differential devices, the fine shades of angle and movement, in a steering system that caters for every kind of surface, speed, and rate of turn combination. All this is achieved with negligible wear and friction.

The most refined mechanical systems are clumsy by comparison, but engineers have developed some very clever ways of changing direction, in safety, comfort and at minimum cost. A good compromise of these three factors has been the aim of development, since somebody thought of a wheel.

BEFORE FOUR WHEEL BRAKES

Long before cars displayed the proud notice "Four wheel brakes," steering had become quite efficient. The common arrangement where the wheels turn on stub axles, pivoted at each end of a fixed front axle went through some interesting development.

ANGLES ON STEERING

Steering geometry of a motor vehicle is a specialized subject in the design of a motor vehicle and reproduced below is an interesting article from the British Road Services Magazine, of interest to the laymen as well as the technician.

DIRECTIONAL STABILITY

The various steering angles have their separate functions, but are all closely inter-related, misalignment in one case upsetting other angles, and affecting directional stability.

CAMBER AND INDEPENDENT FRONT SUSPENSION

Independent front suspension is an important advance on the original beam type front axle system and is designed to provide increased comfort and safety. Camber angle is an important element of steering geometry.

Camber is the inward or outward tilt of the wheels at the top. Usually it is outward or "positive" camber and 1 deg. is normal. It is achieved by downward tilting of the stub axles.

The design of independent front suspension (of I.F.S.) systems requires care to avoid undue tyre scrubbing. In the so-called double wishbone design, the upper wishbone is shorter than the lower, and therefore swings through a smaller radius, pulling the top of the wheel inwards and causing a change in the camber angle, as the load on the suspension spring increases on cornering. This feature gives improved steering stability. At the same time, the unequal wishbones largely prevent alterations in track, i.e., the distance between front tyres at the point of contact with the road, and so minimise scrub.

CASTOR ANGLE

Notice how the castors on a trolley fall into line when it is moved. This is "trail" or "Castor," and happens because the drag point (where the wheel touches the ground) is behind the leg axis or point from which the wheel is being towed. The point of drag on a cycle is arranged behind the point where the line of thrust throughout the forks meets the ground. Similarly, on a car, the line of thrust through the king pin meets the ground ahead of the point of drag where the tyre touches the ground. Castor angle is the angle between a line through the centre of the king pin, and the true vertical, viewed from the side. In some designs, it is set by bolting the whole of the front suspension on to the chassis at the desired angle. Castor greatly aid self-alignment.

KING PIN INCLINATION

K.P.I. or king pin inclination is another design feature which helps directional stability and self-alignment, but to a smaller extent than castor angle. It is the angle between king pin centre line, and the true vertical, when viewed from the front.

Since castor is a backwards tilting of the king pin, and K.P.I. on inwards tilt, the pin actually lies at a combined angle towards the centre of the car.

SELF-RIGHTING TORQUE

Another factor which aids directional stability is self-righting torque, which is the tendency for the wheel to maintain the straight ahead position.

TYRE OFFSET

Viewed from the front, a vertical line through the centre of the tyre and one through the centre of the king pin, would meet just below the road surface. Tyre offset is the distance between those two lines, measured at the point where they meet the road. It is dependent on the sum of the K.P.I. and camber angles and the rolling radius of the wheel.

ACKERMANS PRINCIPLE

Toe-out-on-turns or Ackermans principle, is an important feature of steering design. When cornering, the inner wheel turns more sharply than the outer wheel. On a bend, each front wheel is on a different radius, and at a different angle to the turning centre. Without this arrangement friction and consequent wear on the front tyres would be very high, and the car would be less stable on turns. It is possible to arrange that each wheel turns very nearly at the correct angle, by setting the steering arms inwards, away from the back plate. The effect of this is to give more turning movement to the inside wheel, and less to the wheel on the outside of the turn, for the same amount of track rod travel.

SLIP ANGLE

Due to tyre distortion under working conditions, no car quite follows on a bend, the exact line steered by the wheels. The difference between the line followed by the car and the wheel centre line, is known as slip angle.

OVERSTEER

When cornering, if the rear of the vehicle slips out more than the front, oversteer results, and the car will be unstable.

UNDERSTEER

When the front slips outwards more than the rear the motorcar is said to understeer. A slight amount of understeer is desirable.

TOE-IN

Toe-in is another alignment factor to be considered. The front of the wheels points very slightly

inwards. Most rear wheel driven machines have their wheels slightly toed-in when stationary. The purpose is to allow for settling in the steering joints, so that the wheels run parallel when the car is in motion.

TOE-OUT

Toe-out, as the term implies, is the opposite from toe-in, and is usually employed in front-wheel-drive lay-outs. This too is to allow for settling in of the steering joints, but with F.W.D. this settling in takes place in the opposite direction, due to the traction of the front wheels.

ROAD WHEEL AND TYRE BALANCE

Wheel and tyre balance, or the equal distribution of weight of wheel and tyre around the axis of rotation, must be maintained within reasonable limits—otherwise steering instability is likely to result. Tyres should be fitted with the red or white spot on the cover (denoting the light side of the tyre) in line with the valve; the weight of the valve placed on the light side of the tyre acts as a counter-balance. When out-of-balance exceeds 25 oz.-inch, it should be corrected by balance weights fitted to the wheel rim.

LINKAGE AND COLUMN

In many modern I.F.S. designs, drag-link and one-piece track-rod, is superseded by a tie-rod and two connecting rods and the drop arm operates around a near-vertical axis instead of a horizontal axis. Usually in these systems, the drop-arm is connected direct to the tie-rod, dispensing with the drag-link. There are many variants—a description of them all is beyond the scope of this article—likewise there are many means of transmitting movement from steering wheel to drop-arm. Commonest is the worm and peg arrangement. The worm is at the lower end of the steering column and is engaged by a peg on the rocker-shaft arm. The worm moves the rocker-shaft to and fro and movement is thus transmitted along the linkage.

The Burman worm and peg follower system

Assembled, a column unit looks simple enough—actually it is full of clever design features and few makes have less than fifty parts. In the Burman worm and peg follower system, the peg is ball bearing mounted, while some systems have needle roller bearings and others plain bearings. As the peg must follow the radius of the drop-arm shaft rocking lever, it is positioned to engage the worm more closely at the straight ahead position. An adjusting screw on the steering-case cover is set to maintain this "high spot" so that there is no backlash when the road wheels point straight ahead, and minimum backlash at the right and left locks. With the linkage disconnected, the load required to rotate the steering wheel through 30 deg. over the high spot, should be no more than 1½ lb. when the adjusting screw is properly set. In workshops it is measured by a tool resembling a kitchen spring-balance.

A variety of materials used

The variety of materials used in the steering column are carefully chosen for their suitability to a particular job. The following list applies to the Burman gear.

Column and column cover—Mild steel.

Steering drop arm stamping—38 carbon steel.

Drop-arm shaft-bush lead—Steel-backed bronze.

Peg follower. Carbon Chromium. Steering gear case alloy.

Aluminium.
Worm ... Nickel molybdenum steel, casehardened. Steering wheel—mild steel, hard covered with rubber.

New metals and improved old ones have made modern steering components smaller and lighter, whilst retaining their strength.

Rack and Pinion

Rack and pinion is another type of steering, the term being self-explanatory. Reducing gearing between steering wheel and road wheels depends on the weight of the vehicle. Direct, or ungeared steering, is employed only on the lightest machines.

PERSONS and EVENTS

G. L. Anderson takes over from A. D. Wenzel

On the 1st of July, Mr. George L. Anderson was appointed Managing Director of Firestone Tyre and Rubber Co. of India Private Limited, in succession to Mr. Andrew D. Wenzel who left India on the 30th of June, to take over as Managing Director of Firestone in the United Kingdom.



Mr. Andrew D. Wenzel, known throughout India as 'Don,' came to India on 29th June, 1939 as Manager of Firestone's Bombay District Office. At the end of 1939, with the completion of the Firestone factory at Sewri, Mr. Wenzel was appointed Assistant Sales Manager and twenty months later, became Sales Director. Then in June 1945, Mr. Wenzel was appointed as Managing Director of Firestone, India.

Mr. Wenzel has not confined his interests to Firestone only, but has served in various fields trying to be of some help in forwarding the nation's progress. He served for many years on the Executive Councils of the Federation of Motor Transport Associations, the Indian Roads & Transport Development Association and the Indian Institute of Road Transport.

He is a past President of both the Federation and the Indian Roads and Transport Development Association. He was also a member of the General Committee of the Bombay Chamber of Commerce and the Executive Committee of the Safety First Association of India. In addition, Mr. Wenzel is a past President of the American Association of Western India and also served as a Director and Chairman of the International Service Committee and the Bombay Rotary Club.

Mr. George L. Anderson with his many years of experience as Production Manager and Factory Manager of Firestone, India, needs no introduction to the automobile industry. Mr. Anderson can proudly claim more than thirty years service with Firestone, in many parts of the world. He joined Firestone Tyre & Rubber Co. in Akron, U.S.A., on the 13th of June, 1928. After studying production methods in Firestone American plants, Mr. Anderson was selected to join a small group of highly qualified technicians to start production in the new Firestone factories being established in Argentina, Spain and Switzerland. In 1940, Mr. Anderson arrived in India as Production Manager of the new Firestone factory at Sewri and was made a Director of the Company in October, 1945.



Mr. Anderson has travelled extensively throughout India studying tyre performance and requirements in automotive, agricultural and construction fields and gas played a very important part through the years, in the rapid expansion of Firestone, India, carrying out that great Firestone tradition—"Best Today, Still Better Tomorrow."

V. R. V. RAGHAVAN

Mr. V. R. V. Raghavan, popularly known in the automobile and allied trade has been appointed as Deputy General Manager of Amco Batteries Private Ltd., Bangalore from July 1, 1959. Mr. Raghavan's new assignment with Amco's coincides with the implementation of the first phase of Amco's expansion programme.



Beginning his business career with the General Motors in Bombay in 1934 Mr. Raghavan became the Chief of the Finance Section of General Motor's Parts and Accessories Department and during the war years worked in General Motors Warehouse and Parts Military Projects where he also conducted training classes for Indian Army Personnel in inventory control and stock room maintenance. From the wholesale side of the Parts Business he turned to retail and was Parts Manager of one of the largest Chevrolet and Vauxhall dealers in the country. He joined Ford of India in 1950 as Assistant Parts Sales Manager. He joined George Oakes as General Parts Manager in 1954 when they took over the distribution of Ford Vehicles and spares from Fords and was promoted as General Manager, Vehicle Sales and Service Division. For the last two years, he was on special assignment with Messrs. Amalgamations (Private) Ltd., Madras.

Mr. Raghavan, brings to Amco his mature experience in the automotive trade and particularly to Amco's Sales Organisation which will now function under his able stewardship.

SHRI S. S. GUPTA

We have great pleasure in announcing the recent appointment of Shri S. S. Gupta, LL.B., as Publicity Officer of the Premier Automobiles Ltd.

As Publicity Officer, Shri Gupta is in-charge of the entire advertising and publicity of the company and the dealer-aid service.

Shri Gupta joined the company in 1951 as an Assistant in Sales Department. He was mainly responsible for organising and developing the advertising and publicity of the Premier Automobiles which ranks to-day as one of the leading national advertisers of the country. In 1955 he was placed in charge of the newly formed Publicity Department. He is also the editor of the company's house magazine "Premier Automobiles Journal."

Shri Gupta is a Law graduate of the Bombay University and was practising as an advocate in Bombay High Court for some time. Prior to joining the Premier Automobiles, he had a wide experience in journalism.

SHRI S. K. SHAH

The appointment of Shri S. K. Shah, B.E., A.M.I.E., as Commercial Manager of the Premier Automobiles Ltd. is announced.

In this capacity, Shri S. K. Shah is responsible for obtaining components and materials for our cars and trucks from the manufacturers according to the Premier's specifications. He is also responsible for marketing our other products like steel tubes, railway wagon springs etc.

Shri Shah has been the head of our Commercial Department for the last few years. With this new designation he has now been raised to the status of an executive of the company.

SHRI L. M. KIRPALANI

Shri L. M. Kirpalani has been appointed Assistant Service Manager of the Company of Premier Automobiles.

In this new capacity, Shri Kirpalani will be assisting the Service Manager, Shri C. G. Gopaldas in extending the service facilities to the dealers and the customers.

* * * *

MOBIL SERVICE STATION

A new Mobil Service Station is now in service for the motoring public at No. 78, Gopathi Narayanaswamy Chetty Road, T. Nagar.

The Service Station was declared open on 26th June by Sri A. L. Srinivasan, President of the South Indian Motion Picture Studios Association in the presence of a large gathering of motorists and others.

Called the "Kailas Mobil Service Station," it is built on a spacious ground with facilities for servicing cars, etc. The service station is under the management of Sri S. P. Karuppan Chettiar and will handle Stanvac materials.

LETTERS TO THE EDITOR

Madras-Bangalore Bus Service

The daily newspapers have published that as from August 1, 1959, one bus each of Madras and Mysore Governments will operate on Madras-Bangalore route. It is not published if the operation of this route is under a scheme of nationalisation or as an experiment. If it is a scheme of nationalisation, under Section 68-C of the Motor Vehicles Act, the scheme with full particulars ought to have been published in the Official Gazette. Since Bangalore-Madras is an inter-State route, prior permission of the Central Government is essential under the Statute. After the publication

of the scheme and hearing of objections and representations under Section 68-D, the scheme shall become an "approved" scheme under Section 68-F. Recently, in Mysore State it was held in a writ petition that Section 68-F governs operation by a State Transport undertaking. In the Bangalore-Madras Operation, no scheme under Section 68-C seems to have been published. As such it is indicated that this operation may function under Section 62(c), as the other Sub-sections (a), (b) and (d) do not apply in this case. But, it is stretching the language a bit if this operation is to be termed a "temporary need." It just means that both the Governments of Madras and Mysore are trying an experiment of this operation. Above all, this agreement establishes a parity between two Government undertakings, ignoring the interests of private operators who operate on routes like Salem-Bangalore, etc. The Madras Government over the past decade have been very solicitous about private operators and established parity in the number of buses as on the Ooty-Mysore route, irrespective of the fact whether the operation is by Government undertaking or by a private operator. As such, both from the legal aspect as well as the parity aspect, the above operation needs a closer study and correct decision.

S. Ambujam

TYRE SITUATION

The President R. Krishnan and Vice-President Sri K. H. Puttaramiah of the *Mysore Inter-State Lorry Operators' Association, Bangalore*, went on a deputation to the Chief Minister of Mysore and submitted a Memorandum explaining the difficulty in procuring Truck Tyres at list prices resulting in procurement at Black Market prices which is nearly 75 per cent more than the list prices at which they are to be sold by dealers. The Chief Minister gave a patient hearing and promised to look into this matter. They have issued the following appeal :-

"We appeal to the Tyre Manufacturers in the country as well as dealers in Truck Tyres to make available Truck Tyres at list price especially when Lorry-operators are undergoing innumerable difficulties to conduct their business. The high cost of running, cost of spare parts, recent increase in Excise Duty on High Speed Diesel Oil and black market rate for truck tyres have created great apprehension in the minds of the lorry operators and gloomy look for their future in this line of trade. Lorry operators have contributed a lot for the progress of the National Plans by carrying the cargoes to the remote corners of the country. Therefore, we appeal to all concerned to realise the importance of this Road Transport Industry in the country and come forward to help the lorry operators with heart-felt sincerity. We also appeal to all the operators to avoid buying tyres in the black market."

R. KRISHNAN,

President, M.I.L.O. Association, Bangalore.

TYRE SCARCITY

In continuation of the letter to the Editor, published by the President, Lorry Owners' Association, Mettupalayam, I wish to inform all concerned about another evidence. I went round to the Tyre Company on the 1st July 1959 to ascertain their views as to how far they can co-operate with the operators or associations for the supply of Tyres at list price. Messrs. Dunlops have offered a practicable solution which I am sure will help the operators to a very great extent. Messrs. Good-Year are prepared to accept any solution that the two major Tyre Companies are prepared to adopt. I also contacted the District Manager, Firestone Co., and he gave me a reply as follows :

"We have no control over our dealers and we cannot as business people direct them to sell the Tyres in any way. It is open to them to say in which way the Tyres are to be sold. We have only sent a circular not to sell the Tyres at more than the list price. The best solution that I could suggest is to request the Chief Minister during your interview to write to the Central Government to allow us more foreign exchange for the purchase of equipments for our expansion programmes. After all we are Traders. However, our blood is with the operators."

All concerned can have their own conclusions as to who is responsible for selling the Tyres at black market rate.

It is also open to the readers to conclude whether the blood of the lorry operators is with the Tyre Companies or vice versa.

This is the time the Road Transport operators need a helping hand from all concerned, instead it is unfortunate that the Tyre Companies whose main business is Tyres and have monopoly, have not realised the troubles and tribulations of the Road Transport operators.

An operator.

M. S. L. O. ASSOCIATION'S EFFORTS

Registration Certificates

The Secretary of Madras State Lorry Owners' Association writes :- We are glad to announce that the Regional Transport Authority, Madras, implemented the Government Order in issuing the Zonal permits to Madras City operators from 20th July 1959. We take this opportunity to compliment the R.T.A. Madras as the first to implement the same in the State. We have pleasure to inform that the Secretary, Regional Transport Authority, South Arcot District has also implemented the same.

We regret that our Government has not so far supplied Registration Certificate Books to the Registering Authorities in Districts such as Trichy, North Arcot Districts in the Madras State. As a matter of fact, they are issued only on paper.



Photo taken at the Social Gathering on 14th July of the Mysore Automobile Parts and Allied Merchants' Association, show (left) the President and Office-bearer of the Association arriving at the function. The photo on the right shows Mr. P. J. Fernandez and members of the Association at tea.



GOVERNMENT TRANSPORT DEPT. PURCHASES MYSORE DEALERS REPRESENTATION TO G.M.

A social gathering of all the members of the Association was arranged at the luncheon meeting at Madras Woodlands, Bangalore-1, 14th July, 1959.

Mr. P. J. Fernandes, I.A.S., General Manager, Mysore Government Road Transport Department, Bangalore was the chief guest and M/s. E. V. Seshadri, B.E., M.Sc. (U.S.A.), Dt. General Manager and C. S. Narayan, Purchase Officer of the M.G.R.T.D., attended by invitation.

Mr. S. Ujagar Singh, President of the Association, welcomed Mr. P. J. Fernandes, I.A.S., General Manager of the M.G.R.T.D., Bangalore and the other Executive Officers present. He said :

I have great pleasure in welcoming you this afternoon on behalf of the Mysore Automobile Parts and Allied Merchants' Association, and on my own behalf.

At the outset, I would like to assure you Sir, that this meeting is absolutely informal and has been arranged in order to bring about better understandings and foster fellowship among the members of our Association and Government Departments. I have, therefore, not to catalogue before you the difficulties the trade has been experiencing in their dealings with different Government Departments on account of various reasons. I would therefore like to limit my observations, as it is primarily a social gathering, with a different objective, rather than complaining against each other. I do hope that in the context of the present political and economical atmosphere in the country, such informal gathering will bring about understanding among Government Departments and the Trade at large, which would go a long way to prove and establish that these two sections of the society can live in friendship and harmony.

To acquaint you with the Association, Sir, I would like to briefly state that this Association was formed 4½ years ago with Mr. F. D. Ahmed as its President. During this period, the Association has been in the trusted hands of its successive Presidents and has, definitely made a march in bringing about its objectives for the welfare of the Trade and Society and bringing closer all the merchants in automobile parts, spread

They should consider the capital value of the vehicles and the nature of handling of the documents to be issued. The so-called paper Registration Certificates are sometimes out of sight to the concerned clerks in the offices while dealing with correspondence. They may also be easily lost or torn. Will the authorities look into the matter urgently ?

INDIAN BANK'S GESTURE TO OPERATORS

The Association is pleased to announce that our members would be benefited from sanction of loans under Hire purchase agreements to lorries from 1957 onwards from the Indian Bank, Ltd. The rate of interest will be 9% per annum and counter interest will be taken into account. The owners who desire to purchase new vehicles may apply in advance for sanction of the same. The investment by the owner should be 1/3rd of the purchase value of the vehicle plus, Rs. 2,000. The payment is in reasonable instalments. The members are requested to contact the Secretary of the above Association.

August 1959

MOTORINDIA

43



Mr. Ujagar Singh President of the Mysore Automobile Parts and Allied Merchants' Association is seen welcoming Mr. P. J. Fernandes, General Manager of the Mysore Government Road Transport Department at the luncheon.

all over Mysore State. We have at present 65 members on our rolls and this association is gradually growing and we do hope that this number of membership will be extended. I am proud to say that this association has not only represented the grievances of its members to the Government but has also taken concrete steps in establishing healthy business atmosphere among the members ; thereby obviating unhealthy competition.

In this direction, we had arranged a Seminar of Batteries, Tyres and Tube Dealers in the State whereby the fair prices were fixed by the Association and the trade has followed the resolution of that Seminar in right earnest. This has definitely created a feeling of confidence in the minds of the Consumers and the Trade.

I will be failing in my duty in not recognising how thankful we are to you, Sir, for the interview you gave to the Deputation of this association, led by its then President Sri C. K. Iyengar on 8th October, 1958, when we had discussions with you on the Purchase Policy of your department vice versa, to the interest of our members. Though we are receiving enquiries from your department to be circulated among our members, but still nothing substantial has been done in this direction in patronizing the interest of the local dealers. I would therefore recommend to you for suitable measures by which your purpose is also served and the local dealers' interest is protected.

At the time Mr. F. D. Ahmed and Mr. R. J. Agarwal waited on you for inviting you to this function you have kindly informed them that it has been decided in principle by the Government that in future the quotations from Mysore dealers will be considered at par with other dealers outside Mysore State notwithstanding the 7% Mysore Sales Tax which local dealers are forced to claim according to the Act. We do hope that this action on behalf of the Government will definitely result in bringing about closer relationship between your department and our members and in offering opportunities to our members in rendering their services to your department.

PLEA FOR CLOSER CO-OPERATION

Mr. P. J. Fernandes thanked the members of the association for their kind invitation. At the outset he stressed for closer co-operation between the department and the members of the association and assured them that the M.G.R.T.D. was acting fairly and squarely with regard to their transactions with the merchants !

He went on to say that even though M.G.R.T.D. was a Government Organisation it was, so far as business aspects were concerned, apt to act on a commercial scale.

He mentioned that the total purchases by the M.G.R.T.D., in a year is to the tune of Rs. 3,50,00,000 (350 lakhs) and said as such they have to ensure that the Purchase Policy is quite safe and sound ; that the best value for the money came out at the right place and at the right time with the right quality ! With this idea in view, Mr. Fernandes pointed out that their purchases are made throughout India. He, however, informed those present that should the members of the association be in a position to quote and supply at the rates competitive with that of the other suppliers, and manufacturers outside the State, he would prefer to have the purchases made within the State itself. He appealed to the members of the association to see that only quality materials are quoted for and supplied to the Mysore Government Road Transport Department.

On the subject of sales tax, Mr. Fernandes informed those present that the Government has issued orders that the question of sales tax should not prejudice the Purchase Policy of the M.G.R.T.D. while making their purchases within the Mysore State and he assured them that the same was being implemented.

After a short speech by Mr. F. D. Ahmed regarding the objects and also the difficulties encountered by the members of the association with the Mysore Government Road Transport Department, Mr. K. M. Nanjappa, Vice-President proposed a vote of thanks.

DELHI MOTOR TRADERS ASSOCIATION

The Delhi Motor Traders Association Executive Committee has elected the following office bearers unanimously : President : S. Rajan Singh Sethi ; Vice-President : Shri S. N. Mahajan ; Hon. Secretary : Shri Rattan Lal Kohli ; Hon. Jt. Secretary : Shri Pran Nath Chopra ; and Hon. Treasurer : S. Gulab Singh Sawhney.

The following will be members of the Executive Committee : Dr. Tirlok Singh, Shri P. D. Gupta, Shri Sain Dass, Shri Manohar Lal, Shri Mangal Dass Beri, Shri J. L. B. Reys, Shri Janak Raj Anand, Shri S. Harbans Singh Anand, Shri Bimal Parshad Jain.

The Annual Report of the Executive Committee for the year 1958 said there were 204 members on the Register at the beginning while it now increased to 219.

The Committee welcomed old friends who have rejoined this association and hoped they became the first nominees of their respective firms so that advantage could be taken of their mature advice and counsel.

MADRAS MOTOR SPORTS CLUB RALLY TO BE HELD

Not to be outdone by Bombay and Calcutta, the Madras Motor Sports Club is organising a non-stop Rally for Cars, Motor Cycles, Scooters and 3-wheelers of approximately 750 miles on October 25, 1959. Competitors will start leaving Madras from 6 p.m. on Sunday the 25th and going through Ranipet, Palmaner, Kolar, Bangalore, Mandya, Mysore, Gudalur, Ootacamund, Mettupalayam, Coimbatore, Pollachi, Udumalpet, Palni, Dindigul, Trichy, Villupuram, Tindivanam, Chingleput will return to Madras approximately at 10 p.m. on Monday the 26th.

THIS RALLY IS NOT A SPEED RACE AS IS MISTAKENLY UNDERSTOOD BY MANY MEMBERS OF THE PUBLIC ; BUT ON THE CONTRARY IT IS A TEST OF ENDURANCE AND, AS YOU WILL SEE FROM THE SPEEDS GIVEN, AT NO TIME A COMPETITOR IS EXPECTED TO GO VERY FAST.

The classification has been made under the four following headings :

- (a) Scooters, Motor Cycles and 3-wheelers—upto 1.50 c.c.
- (b) Scooters, Motor Cycles and 3-wheelers—over 1.50 c.c.
- (c) Motor cars upto 1500 c.c.
- (d) Motor cars above 1500 c.c.

While the overall average over the entire section for the different groups will be as follows, the average over different sections will vary according to road conditions, terrain, etc.—

- Group (a) 25 m.p.h. (b) 30 m.p.h. (c) 30 m.p.h.
(d) 35 m.p.h.

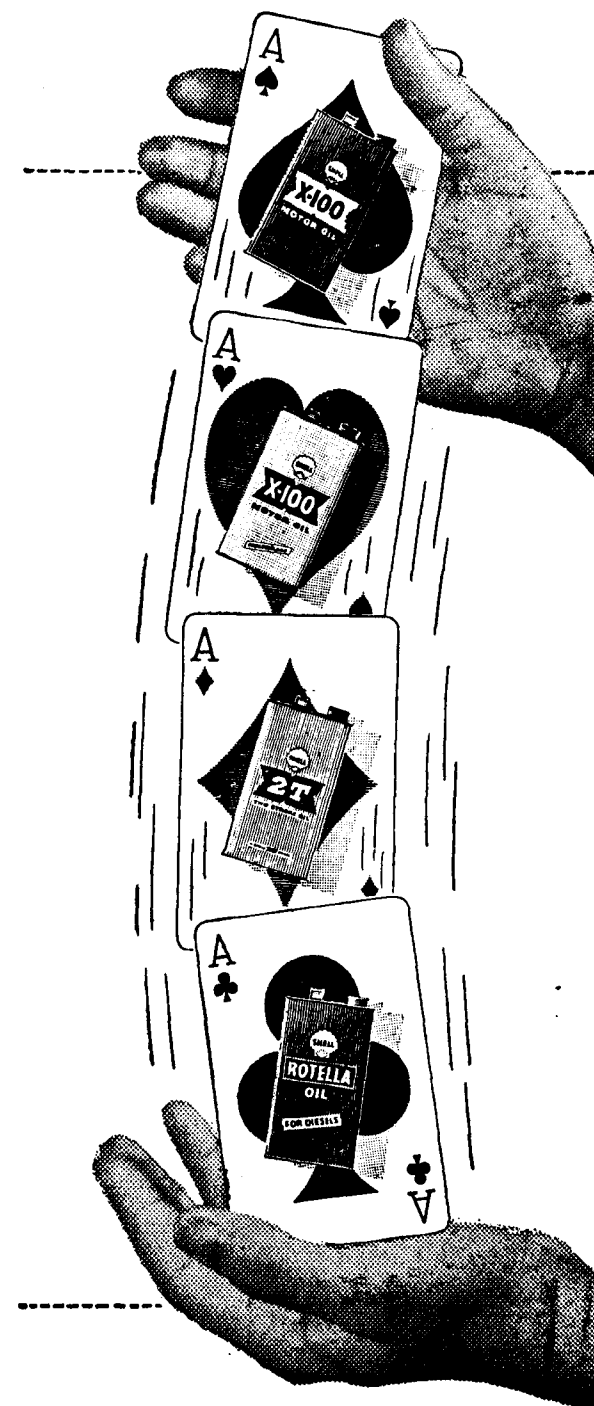
There will be as many as 8 Static Check Points en route to check if competitors are keeping up their average over the section as each section, from check point to check point, will be a separate unit by itself. Besides this, there will be numerous secret checks to make sure that competitors are not overspeeding, since the club is very anxious to see that there are no accidents due to high speeds.

Prizes : While M/s. Madras Motors Private Ltd., M/s. Motor Industries Ltd., Bangalore and M/s. C. C. Wakefield & Co. Ltd., have offered Trophies for the different groups, there will be an overall *First Prize* donated by the Madras Motor Sports Club, which will be worth approximately Rs. 700.

Numerous entries have been received from Coimbatore, Bangalore and other parts of India and we appeal to the public to join not only to make this Rally a success but also enjoy motoring through some of the most beautiful country sides in South India.

Further particulars can be had from the Madras Motor Sports Club, 29, Mount Road, Madras-2 or telephone 86952.

a winner every time...



you can be sure of SHELL

CW-1A

INDEPENDENCE DAY

TAKE MORE INTEREST IN THE ASSOCIATION MR. T. S. KRISHNAMURTHY'S APPEAL TO AUTO PARTS DEALERS

The Independence Day was celebrated on a grand scale as usual by the motor dealers of Madras as well as Bangalore.

At Madras, members gathered at the quadrangle of Bharat Buildings under the auspices of the Madras Motor Parts Dealers' Association. The National Flag was hoisted by Mr. T. S. Krishnamurthy, Vice-President.

In the absence of Mr. Inder Sen, President of the Association from the City, Mr. Krishnamurthy welcomed members of the trade to join the celebrations. He added that motor parts dealers have been celebrating the Independence Day every year, thus refreshing their minds about their free entity as a nation.

He added :
"This is also an occasion for us to cleanse our minds and search our hearts to see that we do not deviate and move off tangentially from the path of rectitude and character.

There used to be a wrong impression with some people some years ago that a businessman cannot be an honest citizen and he cannot be true to his conscience. This impression can no longer exist because the consumer has now all the available means to know the cost and source of production and the margin of profit that the dealer is making and there is no secrecy about these things.

It is being repeatedly said on the platform and in the press that what we have attained is only political independence and we must now try for economic freedom for our country. We, businessmen are not politicians, but we cannot refrain from taking interest in the political side also. We are affected by the various laws and rules made by the Government from time to time. We, as citizens of this country, have a right to offer our advice and constructive suggestions to the powers that be in all matters affecting our trade interests. We have to ask for representation on the various bodies that are constituted from time to time to formulate policies affecting transport operations, road development, taxation etc.

So far as automobile industry is concerned, we can take a proud look and mention that we in the South are making considerable progress and we have a number of Industries, big and small, coming up in this part of the country. We have for instance, Standard Motor Products, Ashok Leyland, Indian Pistons, Addison's Paints & Chemicals, Dunlop Rubber Co., Engine Valves, Oldham Batteries and several other Industries in and around Madras and a few smaller scale units in the Industrial Estate at Guindy. I am sure many more such indigenous industries in the Automobile Line will come up in the years ahead.

We are now feeling a general shortage of some of the very fast moving and important spare parts in this part of the country, for instance, batteries, tyres, etc., are in short supply. I hope the shortage is only temporary and the position will ease.

Road transport development which has been given a place of top priority must be worked up and periodically surveyed with regard to the progress made and the needs yet to be met and plans should be chalked out and implemented quickly. Decidedly Road Transport is more advantageous than other forms of transport for moving men and material and it has been acknowledged to be so by all people.

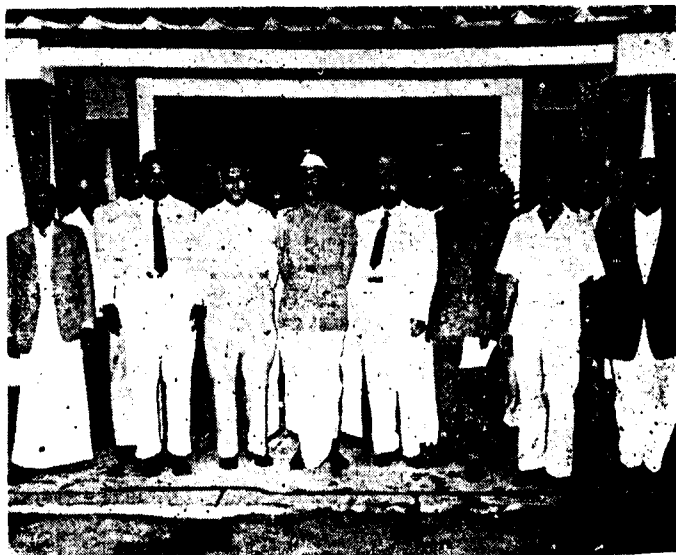
I want to take this opportunity to tell you that I personally wish that the various Associations of Motor Parts Dealers of our kind that are now independently functioning in South India should get together and merge into one Zonal Unit before we think of forming an All-India Federation. At present I think there are about 4 or 5 Dealers' Associations in the South including Andhra Pradesh and the idea of merging if acceptable we can go into the question in more detail.

Of late, it is seen that some of the Members are not taking as much interest in the activities of the Association as they could and should. No member is so free as to devote his whole spare time to the Association and its activities, but everyone must make a small sacrifice on his personal side and devote it to the cause of the Association. It must always be remembered that Institutions are above individuals. Any institution is made up of individuals and when the individual quits the institution goes automatically. We should not try to profit by becoming a member of the Association but should try to use the Association as a means to serve the other members and through them the public at large."

Light refreshments were served before the members dispersed.

MYSORE AUTO DEALERS CELEBRATIONS

Members of the Mysore Automobile Parts & Allied Merchants' Association photographed on the occasion of the celebration of the Independence Day by the Association.



MINISTER MARIAPPA STRESSES VITAL ROLE OF BUSINESS COMMUNITY

At Bangalore, Hon'ble Sri T. Mariappa, Minister for Finance, presided over the Independence Day Celebrations arranged under the auspices of the Mysore Automobile Parts and Allied Merchants' Association at the Madras Woodlands Hotel.

Sri Ujagar Singh, President, Mysore Automobile Parts and Allied Merchants' Association, welcoming the Hon'ble Minister, said that following the foot-steps of Mahatmaji, as a business community, the motor parts dealers pledged themselves to play a very vital role in the uplift of the masses by co-operating with the Government in the various developments that were now taking place in the country.

Mr. Singh continued,

"In celebrating this day, we cannot overlook taking stock of what we have achieved, after we became independent. We are at the edge of completing our Second Five-Year Plan and launching our Third Five-Year Plan, which is very ambitious. No doubt, under the present leadership and the National Government, the successive Five-Year Plans have been carried out to a certain degree of satisfaction. Our country has had an inherited culture and policies and certainly all these plans are in the direction of re-shaping the country to bring back its lost glory ultimately for the benefit of the people. The prestige of our country in the international sphere is very high to-day, as it has maintained the stability in the Government notwithstanding the fact that there had been major constitutional changes in the neighbouring countries. *We do hope that the policy of the Government will be suitably devised, enlisting the co-operation of all the sections of the Society to make this country agriculturally and industrially not only self-sufficient, but to export to other countries, resulting in earning foreign currency to our advantage.*

Coming to the problem of the Business Community and, particularly the Trade of Automobiles and their Parts, the interest being represented in a very large measure by this Association. In nationalising the Bus Routes, it is but natural that the trade we are in could suffer to a degree, for all along in the past, when these Bus Routes were run by private bus owners, a large amount of business was coming to dealers in the State, thereby, I would not be far wrong in saying that a fair amount of revenue went to the Government. As a result of this nationalisation, we would like to bring to your notice, sir, that we, as a Business Community, should in no way lose this large amount of trade turnover, with the Mysore Government Road Transport Department or Nationalised Transport making their purchases out of Bangalore, may be, with a very negligible advantage. **IT IS RIGHT TO SAY THAT NATIONALISATION IS A MEANS TO IMPROVE LOCAL CONDITIONS, NOT INTERFERING WITH TRADE AS A WHOLE, SO AS NOT TO DIVERT BUSINESS FROM THE STATE, WHICH WOULD GREATLY HANDICAP LOCAL DEALERS.**

Some time ago a memorandum was placed before you, sir, which has not been acknowledged in its entirety. This memorandum was in connection with purchases that are being made by Government departments from outside the State for the purpose of consumption under the provision of 'D' Form. We

have already emphasised that by the introduction of this 'D' Form the bulk of the purchases are being made outside the Mysore State, proving detrimental to the local dealers, as the local sales tax prevails at 7%, for there is no doubt that a difference of 6% would tell on the purchases of the commodities at a higher price by the Government departments. With this in view, an amendment was suggested for the introduction of local purchases under 'D' Form at an exempted salestax rate of 1% to the Government departments, envisaging a return of normal trade in the local markets.

You have publicly assured the Business Community that Government is not interested in victimising the local traders in any manner whatsoever, particularly at the cost of the State interest in the shape of taxes. You will, perhaps, agree with us, sir, that this deviation of purchases, as said above, from the Mysore State will not only kill the incentive of the local traders, but will also result in loss of revenue to the State. We therefore once again appeal to you, sir, in the interest of business not only in automobile but trade at large in the State, to give us all the co-operation that is necessary to circumvent these difficulties and to build up the morale of the trader for a fair return of the investment of the businessman.

If your goodself, in giving this matter very serious consideration, will make the local businessmen feel happy indeed, for the business community as such, is prepared to give all the co-operation that is necessary to Government in more ways than one.

In the last Sales Tax Act there was a provision for the assessment to be done every quarter, which was very convenient to the dealers in getting their assessment finalised promptly. With the new Amendment of the Mysore Sales Tax Act it is found that assessment for the purpose of sales tax can be taken in hand by the officers only after the completion of the Financial Year in spite of the fact that dealers are made to submit their returns every quarter. It is obvious that in taking up cases quarterly for assessment dealers have a greater advantage in submitting all the information that is necessary to support their case with documentary facts. May we request you, sir, that if the old system is revived, it would be more healthy and convenient to the Business Community."

MINISTER'S REPLY

Replying, Sri T. Mariappa said that he was very happy to be in the midst of the automobile dealers who were celebrating the 12th Anniversary Independence Day.

He emphasised the vital role the business community had to play in the all-round development and the need for consolidating political independence by bringing about rapid economic progress in India.

The Minister assured the Association that the representations with regard to the levy of sales tax will be examined with due respect, and revealed that in fact a reference has already been made to the Revenue and Law Secretary on this point. He had no doubt that a decision would be taken as early as possible in this matter.

Mr. R. J. Agarwal, Secretary of the Association proposed a vote of thanks.

MODELS AND THEIR Prices

CARS

	Rs. nP.
Hindustan Ambassador 1957 (Southern Automotive Corporation Private Ltd.) ex-plant Uttarpara	11,161 00
Vanguard Phase III (Union Co. (Motors) Ltd.)	14,700 00
Standard Super Ten Saloon (Union Co. (Motors) Private Ltd.) on the road	10,022 12
Standard Estate Car (Union Co. (Motors) Private Ltd.) on the road	14,889 12
The Fiat 1100 The Elegant (Sundaram Motors Private Ltd.) Ex-Factory	9,755 00
Willys C.J. 3B Universal Jeep ex-plant Bombay	12,621 00
Willys Model Station Wagon ex-plant Bombay	18,210 00
Willys 4-75 4 W.D. 118" Truck Chassis	13,108 00

MOTOR CYCLES

Royal Enfield (The Madras Motors (Private) Ltd.)—	
“150 Ensign” (any dealer point in India)	2,003 00
“350 Bullet” with spring frame (any dealer point in India)	3,568 00
Royal Enfield three wheeler chassis	4,670 00

SCOOTERS

Lambretta, manufactured by Automobile Products of India Ltd. Distributors, South India Automotive Corporation Private Ltd., Madras. Prices are ex-Factory, Bhandup, Bombay.	
48 c.c. Scooterette	827 00
150 c.c. ‘LD’ Model Deluxe Scooter	1,795 00

VANS

TEMPO Threewheeler Vans (Manufactured by Bachhraj Trading Corporation Private Ltd. Bombay and sold by Rane (Madras) Private Ltd. at Madras and Stanluc Services at Bangalore). Prices are ex-plant Bombay.	
Hanseat	6,129 00
Delivery Van	8,118 00
Prichet Van	7,776 00
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

CHEVROLET

(Assembled at Hindustan Motors Ltd., Calcutta and sold at Madras by Rane (Madras) Private Ltd.) at Kumbakonam by Kasi & Sethu and at Madurai by S. G. Jayaraj Nadar &

Sons). Prices are ex-plant Calcutta for Petrol Chassis.

132½" W.B.	19,350 00
156½" W.B.	20,080 00
174½" W.B.	20,380 00
196½" W.B.	19,580 00

TRUCKS & COMMERCIAL CHASSIS

Sundaram Motors (P) 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. and Pandyan Automobiles Ltd.) Tata-Mercedes-Benz. Diesel Truck and Bus Chassis L 312/42 165" W.B. 5-Ton Truck Chassis ex-Works, Jamshedpur	26,820 00
--	-----------

LP 312/42 165" W.B. Full Forward Control Truck Bus Chassis ex-Works, Jamshedpur	27,780 00
LP 312-48 190" W.B. Full Forward Control Bus Chassis ex-Works, Jamshedpur	28,570 00
L 312/36 142" W.B. 5-Ton Truck Chassis ex-Works, Jamshedpur	26,475 00
LK 312/36 142" W.B. 5-Ton Truck Chassis ex-Works, Jamshedpur	30,125 00

Fargo (at Sundaram Motors Private Ltd.) Dodge at Associated Accessories P. Ltd. Kurnool. Prices duty paid ex-Factory Premier Automobiles Ltd., Kurla, Bombay.

C3D6-116" (4) 7.00×16—6 Ply	11,615 00
C4D6-126" (4) 7.00×16—6 Ply	12,662 00
C3PW6-126" (4) 9.00×16—10 P.W. Ply	17,974 00

	Rs. nP.
C4G6-153" (6) 34×7—1 Ply	16,391 00
C4G6-153" (6) 32×6—10 Ply	16,062 00
C4H6-153" (6) 34×7—10 Ply	17,710 00
C4H6-153" (6) 34×7—12 Ply	17,979 00
C4H6-193" (6) 34×7—10 Ply	18,116 00
C4H6-193" (6) 34×7—12 Ply	18,385 00
C4H6-193" (6) 34×7—10 Ply	18,479 00
C4H6-193" (6) 34×7—12 Ply	18,748 00
K6D200-116" (4) 7.00×16—6 Ply	12,896 00
K6D200-116" (4) 7.00×16—8 Ply	12,961 00
K6D300-126" (4) 7.00×16—6 Ply	12,900 00
K6D300-126" (4) 7.00×16—8 Ply	12,965 00
K6W300-126" (4) 9.00×16—10 Ply	18,950 00
K6D400-129" (6) 34×7—10 Ply	16,372 00
K6D400-153" (6) 32×6—10 Ply	16,186 00
K6D400-153" (6) 34×7—10 Ply	16,531 00
K6D400-171" (6) 34×7—10 Ply	17,008 00
K6D500-129" (6) 34×7—10 Ply	18,092 00
K6D500-129" (6) 34×7—12 Ply	18,388 00
K6D500-153" (6) 34×7—10 Ply	18,331 00
K6D500-153" (6) 34×7—12 Ply	18,628 00
K6D500-171" (6) 34×7—10 Ply	18,606 00
K6D500-171" (6) 34×7—12 Ply	18,904 00

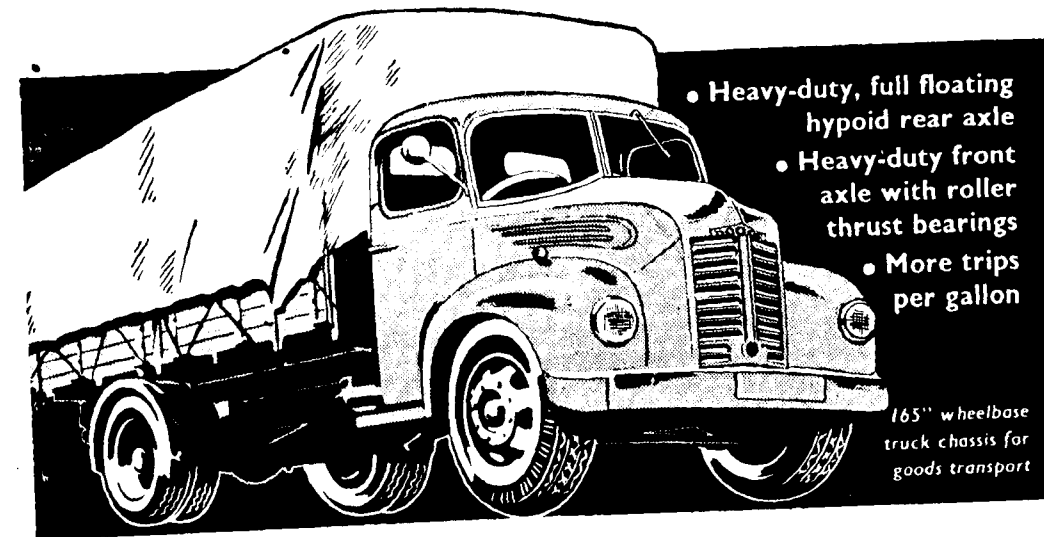
PICKUP

C3D6-116" (4) 7.00×16—6 Ply	15,012 00
C4D6-126" (4) 7.00×16—6 Ply	16,058 00
K6D200-116" (4) 7.00×16—6 Ply	16,293 00
K6D200-116" (4) 7.00×16—8 Ply	16,358 00

DIESEL CONVERSION

C4H6-153" (6) 34×7—10 w.b. Ply	22,668 00
C4H6-153" (6) 34×7—12 w.b. Ply	22,937 00
C4H6-171" (6) 34×7—10 w.b. Ply	22,903 00
C4H6-171" (6) 34×7—12 w.b. Ply	23,172 00
K6D500-153" (6) 34×7—10 w.b. Ply	20,997 00
K6D400-171" (6) 34×7—10 w.b. Ply	21,303 00
K6D500-153" (6) 34×7—12 w.b. Ply	22,930 00
K6D500-153" (6) 34×7—10 w.b. Ply	22,632 00
K6D500-171" (6) 34×7—12 w.b. Ply	23,414 00
K6D500-171" (6) 34×7—10 w.b. Ply	23,116 00

The prices and specifications are subject to change without notice.



- Heavy-duty, full floating hypoid rear axle
- Heavy-duty front axle with roller thrust bearings
- More trips per gallon

165" wheelbase truck chassis for goods transport

DODGE DIESELS

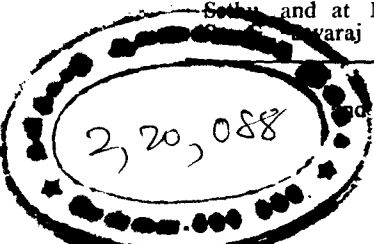


- Full depth frame of increased stock thickness
- Heavy-duty wrap-round front springs
- Five-speed gear box
- More seating accommodation

190" wheelbase bus chassis for passenger transport

Progressively manufactured by
THE PREMIER AUTOMOBILES LTD.
BOMBAY

Contact
your
Nearest Dealer



Regd. No. M 6788

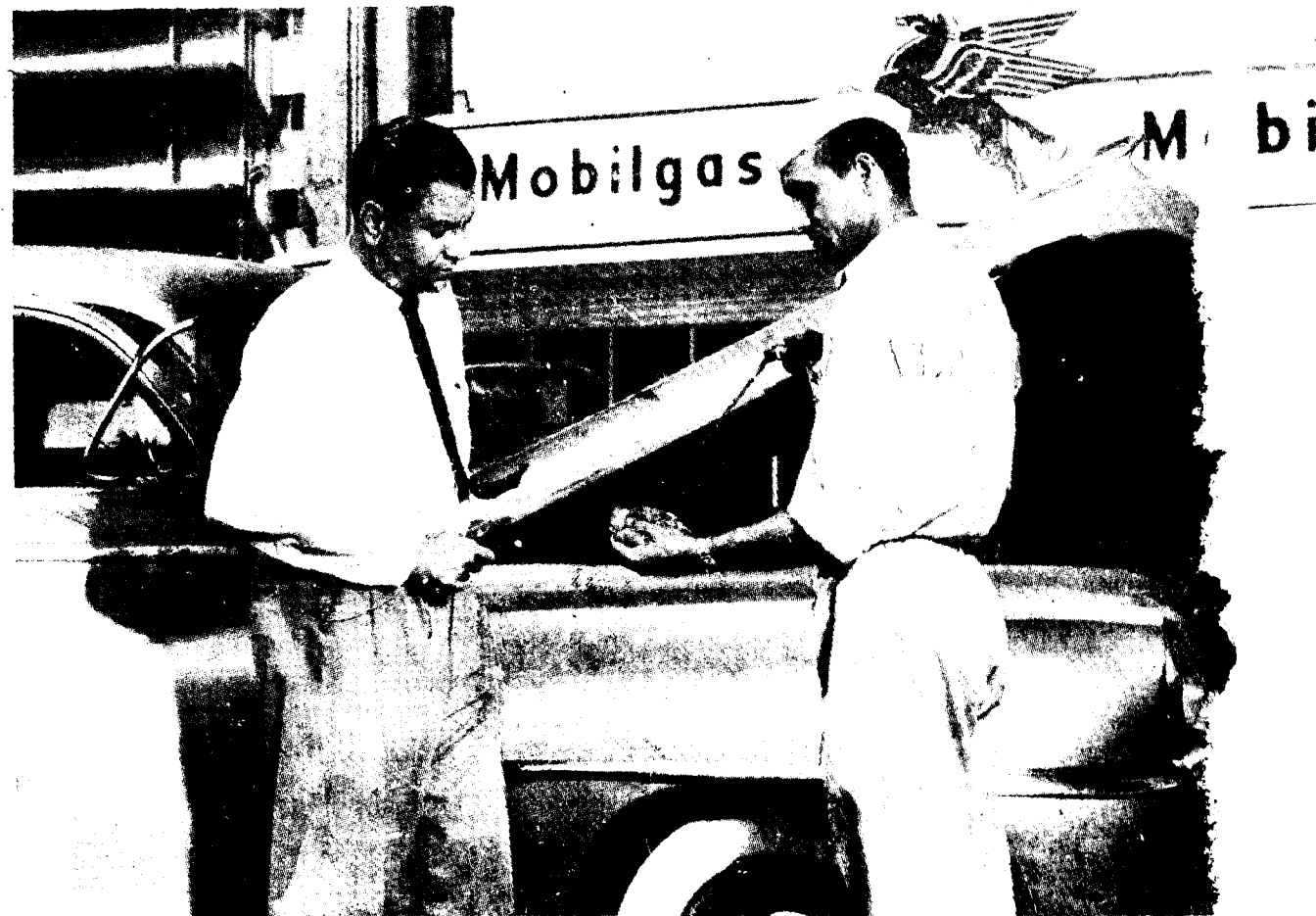
Your car is valuable

PROTECT IT WITH **Mobiloil**

YOUR car has cost you a big sum!
And the surest way to safeguard this
valuable investment is to give your
car complete protection, . . . keep it in
good condition all the time.

MOBIL OIL gives your engine full protection.

It maintains a tough, protective,
unbroken film between moving parts,
cold starts to high-temperature runs. It
also helps to cut down on excessive
friction, ensuring increased power
and longer life for your car engine.



Mobiloil

FIRST IN PROTECTION—FIRST IN WORLD SALES

STANDARD VACUUM OIL COMPANY (Incorporated in the U.S.A. with Limited Liability)