

**SALESMAN'S MANUAL**



**LAND-  
-ROVER**

*Rodney H. Lonsdale*



By Appointment to Her Majesty Queen Elizabeth II  
Manufacturers of Land-Rovers  
The Rover Company Limited

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**THE ROVER COMPANY LIMITED**  
**SOLIHULL • WARWICKSHIRE • ENGLAND**

# A VERY REMARKABLE VEHICLE . . .

The Land-Rover is a highly effective and efficient working machine that will operate happily under conditions recognised as impossible for any normal four-wheeled vehicle. It will negotiate soft sand, thick mud, scrub, jungle, snow and ice; it will ford a river or climb a gradient of 45 degrees, it will tow a trailer or drag a tree trunk; it will carry loads of 1,000 lb. or take the family out shopping. It is easy to control, comfortable to ride in and has a road speed of nearly 60 miles an hour.

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But the uses of the Land-Rover do not depend entirely on the revolutions of its own four wheels. Its power can be harnessed to suitable take-off equipment to drive many varied forms of machinery.

What gives the Land-Rover its extraordinary versatility? What is there special about its construction? How many models are there and which is best suited to what job? Just what *will* it do? Prospective Land-Rover owners will want detailed answers to questions such as these and it is the object of this book to provide them. Read it, keep it handy and refer to it. It is the Salesman's guide to a very remarkable vehicle.

The Land-Rover logo is displayed on a green rectangular background. The word "LAND" is in a bold, sans-serif font, with a horizontal line extending to the right from its end. Below this line, the word "ROVER" is written in a similar bold, sans-serif font, with a horizontal line extending to the left from its start, meeting the line from "LAND".

LAND-  
-ROVER



*LAND-  
-ROVER*



The 88 in. wheelbase 'Regular' Land-Rover complete with standard waterproof hood. The winch shown above is an optional extra.

# LAND- ROVER



In its completely open form with hood and hood-sticks removed, the 88 in. wheelbase model is neat and compact.

For personnel or goods carrying—the 88 in. wheelbase 'Regular' Station Wagon.



LAND-  
-ROVER

The 107 in. wheelbase 'Long' Station Wagon.

Five doors provide excellent access to seats and load space.



LAND  
- ROVER



109 in. wheelbase 'Long' Land-Rover. The truck-type cab is standard on this model, but an optional extra on the 'Regular'.



**LAND-  
ROVER**

The Land-Rover Fire Engine is a well equipped unit of great mobility and manoeuvrability. Pump hose couplings and truck-type cab shown below are optional extras.



**LAND-  
ROVER**

PETROL ENGINE

TRANSMISSION

RANGE OF MODELS

## **RANGE OF MODELS**

The normal Land-Rover range consists of five models, all with four-wheel drive and all equally tough and suitable for road or cross-country work. The same chassis components generally apply to all models although alternative 88 in., 107 in. (Station Wagon only), and 109 in. wheelbases are available.

## 88 in. WHEELBASE 'REGULAR'

This is the "maid of all work" of the Land-Rover range and the model with the most general applications. It has a speed of nearly 60 m.p.h. on the road and is also extremely mobile across country. Its carrying capacity is three people and a payload of 1,000 lb.

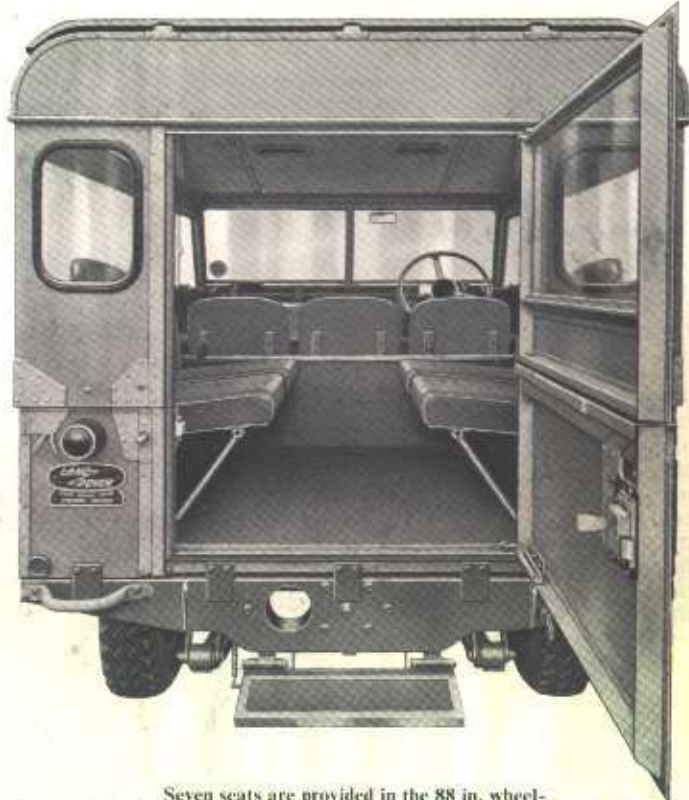


There is excellent load space in the body of the 88-in. wheel-base vehicle.



88 in.  
WHEELBASE  
'REGULAR'  
STATION WAGON

A fully enclosed seven-seater vehicle with all-metal body and very good all-round visibility for driver and passengers. Accommodation is provided for three people in front and four at the rear. The individual rear seats can be folded upward to leave an unobstructed floor for carrying goods or equipment. A vertical door at the back of the body affords easy loading and straight-forward access for passengers.



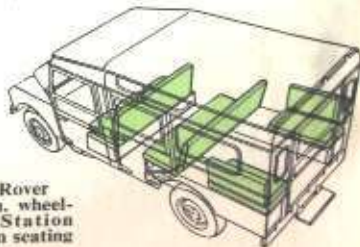
Seven seats are provided in the 88 in. wheel-base Station Wagon. The four rear seats can be folded upward.

## 88 in. WHEELBASE FIRE ENGINE

A highly efficient Fire Tender for cross-country duties. It has great value on airfields, in rural districts, forest areas and similar locations where speed and extreme manoeuvrability are essential. It will also prove very effective with City Fire Brigades in dealing with minor outbreaks, and for negotiating narrow passageways and other restricted places. As a fire-fighting unit for factory premises it has no equal. A variety of equipment can be supplied to meet particular needs.

## 107 in. WHEELBASE 'LONG' STATION WAGON

The latest addition to the Land-Rover range is the 107 in. wheelbase Station Wagon. It is a longer and a more capacious version of the 88 in. wheelbase model and provides seating for ten persons or a generous load carrying capacity. Additionally, when required, a comfortable bed can be formed by a rearrangement of the seats. Possibilities for this vehicle are numerous; survey oil-field and safari duties being among the most interesting.



Land-Rover  
107 in. wheel-  
base Station  
Wagon seating



109 in.  
WHEELBASE  
'LONG' VEHICLE

Where bulky loads of up to 1,500 lb. have to be carried and where cross-country speed is not of prime importance, the extra body area of this vehicle will be most acceptable. The cabin is available in basic or de luxe form, providing outstanding accommodation for the driver and two passengers.

Exceptionally large carrying capacity is a feature of the 109 in. wheelbase model.

## SPECIAL VEHICLES

Although there is something for nearly everyone in the Land-Rover range, non-standard extra equipment and special modifications are sometimes required to meet unusual needs. Never refuse. Refer all out-of-the-ordinary requests to the Technical Sales Department at the factory. In a great many instances something can be done to "fill the bill".

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# TRANSMISSION

The Land-Rover has been described as the "Go Anywhere Vehicle". Literally speaking this must be an exaggeration for there are situations with which no vehicle, not even the Land-Rover, could possibly cope. It will not, for instance, climb a wall, navigate on the sea, or fly in the air under its own power. But exceptions whether absurd or sensible, are surprisingly few — to all intents and purposes this remarkable vehicle *will* go anywhere.

This outstanding ubiquity is largely attributable to the fact that the drive of the Land-Rover can be taken by the front axle as well as the rear, and that high or low ratio gears may be engaged.

There are thus three different drives available:

- (1) High ratio with drive on rear wheels only.
- (2) High ratio with drive on front and rear wheels.
- (3) Low ratio with drive on front and rear wheels.

Note that when low ratio is engaged the drive is automatically taken up by both axles.

The main gearbox incorporates four forward speeds and one reverse. The gears themselves are of the single helical constant mesh type, and synchromesh engagement is provided for third and top speeds.

Ratios: Top direct; third 1.377 to 1; second 2.043 to 1; first 2.996 to 1; reverse 2.547 to 1.

## MAIN GEARBOX

The main and transfer gearbox unit with controls and transmission brake.



## TRANSFER BOX

Output from the main gearbox is converted by the transfer unit into an alternative range of speeds which are termed "High" and "Low". Since the main gearbox provides four forward speeds and one reverse, these are available in each of the two transfer ratios making a total range of eight forward speeds and two reverse.

Ratios: High 1:148 to 1; low 2:888 to 1.

## OVERALL RATIOS

Main Gearbox	Transfer Box	
	High Ratio	Low Ratio
Top Gear ...	5.396	13.578
Third Gear...	7.435	18.707
Second Gear	11.026	27.742
First Gear ...	16.171	40.688
Reverse ...	13.742	34.585

## FRONT AND REAR AXLES

Both front and rear axles are of the same spiral bevel design, each having a ratio of 4:7 to 1. They have been designed and built to withstand the severe buffeting that many Land-Rovers are called upon to undergo, and give exceptionally long service.

As shown in the table of ratios (below, left) the gear range covers an exceptionally wide field from 5.396 to 1 right down to 40.688 to 1. This very comprehensive gearing used in conjunction with four-wheel drive and suitable tyre equipment gives the Land-Rover its amazing "Go Anywhere" qualities.



Sturdiness is exemplified by the front axle with its tough suspension and hydraulic telescopic shock absorbers.

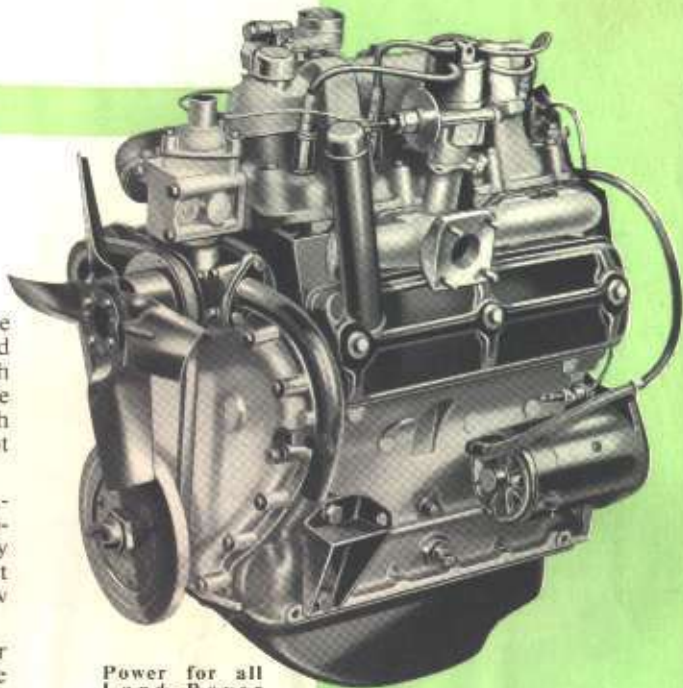
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## PETROL ENGINE

An engine for a vehicle such as the Land-Rover must be able to withstand the wear and tear of extremely rough operating conditions and give reliable and prolonged service in outlandish places where repair facilities are not readily available.

Further, to give the complete versatility that is required it must be economical to run, provide a lively performance on the road and yet maintain good pulling power at low revs to undertake heavy work.

That the four-cylinder Land-Rover engine does in fact meet these severe demands upon its power output, has been amply proved by the many millions of operational miles it has covered on and off the roads of the world.



Power for all Land-Rover activities is provided by a 4-cylinder engine of exceptionally efficient design.

## CYLINDER BLOCK AND HEAD

The cylinder block and head of the Land-Rover power unit embody the combined strength of both side and overhead valve designs. Thus, the cylinder block is given side valve rigidity by the inclusion of side exhaust valves, combustion chambers and the necessary webbing to carry the camshaft housing and bearings. The cylinder head is provided with overhead valve stiffness by the overhead inlet valve chambers and induction ports cast integrally. The immense strength afforded by this form of construction greatly minimizes the tendency to distortion and prolongs cylinder bore life to an exceptional degree.



The rugged cylinder block casting showing the highly finished sloping top.



Cylinder head with overhead inlet valve rocker gear.



## VALVES

The Land-Rover engine is of the sloping head or opposed valve type in which the inlet valves are positioned above the pistons, with the exhaust valves at the side. In this way maximum efficiency has been achieved.

The overhead inlet valves are of extra large diameter and operate with a low lift. Large inlet valves closing quickly admit the greatest volume of fuel/air mixture in the shortest possible time. This induces good low speed torque, or pulling power. The inlet valves are push-rod operated from a camshaft mounted in the side of the cylinder block. Small, high lift exhaust valves are located beside the pistons and operate directly from the camshaft. Exhaust valves are small for better cooling and their high lift ensures the complete evacuation of all burnt gases from the combustion chambers.

Valve rockers and cam followers have a hard chrome deposit on their pads to give exceptionally long life.

## VALVE SEAT INSERTS

Removable inserts are used for exhaust valve seats to give extra long life and, over a period, afford considerable saving in maintenance costs. Exhaust valve inserts are of "Brimochrome", a very hard substance that has almost indefinite resistance to wear, heat and the corroding effects of leaded fuels.

Special inserts are fitted to exhaust valve seats to give extra long service.



## COMBUSTION CHAMBERS

The patented design of the combustion chamber is an important feature of the engine, permitting, as it does, the burning of very weak mixtures. An air/fuel ratio of 20 to 1 has in fact been successfully dealt with. The significance of this in relation to fuel economy is obvious.

The relation between inlet and exhaust valves, sparking plugs and pistons is clearly shown in this illustration.



The combustion chambers are formed between the lower surface of the cylinder head, into which are fitted the sparking plugs and inlet valves, the top of the cylinder block with its inclined side exhaust valves and one face of the inverted-V shaped pistons. In this arrangement, sparking plugs are positioned ideally in the centre of the combustion chambers and produce a short, even flame.

## PISTONS

The pistons are made of tin-plated aluminium alloy and have an inverted-V shaped crown to conform to the patented design of the combustion chambers. In fact, one side of the 'V' actually forms part of the combustion chamber while the other side, immediately below the inlet valve, gives added turbulence to the charge by "squeezing" it under compression into the combustion chamber. Turbulence is a very necessary aid to efficient combustion, and this is an extremely effective method of imparting it.

Two compression rings and two scraper or oil control rings are fitted.

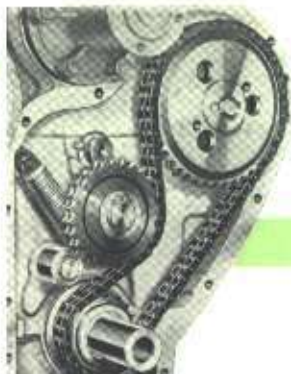
## CRANKSHAFT

Like all other components of the engine, the crankshaft is made to run smoothly and last long. It is a tough nickel chrome molybdenum forging dynamically balanced to 0.3 oz. in. The copper-lead main and big-end bearings give something like four times the life of white metal bearings normally used in a great many engines.

An interesting feature of this unit is the system of "sludge traps" incorporated in the journals. Passages are drilled in the crankshaft so that a constant oil supply is available for the bearings. In respect of the journals a branch drilling is made, the end being closed by a small screwed plug to form a pocket or trap.

Clean lubricant will find its way along the main oil passages to the bearings but the heavier foreign elements in the oil are forced into the traps by the rotary action of the crankshaft. These traps are mainly effective during the first few hundred miles running of a new or reconditioned engine when minute metallic particles may be suspended in the oil. They never become overfilled as the oil is subsequently cleaned by the strainer in the sump and by the full-flow filter.

The crankshaft is also provided with a harmonic vibration damper consisting of a bonded steel and rubber disc fitted at the front end. Although crankshaft vibration is indistinguishable except by extremely delicate instruments, the slight flexing of the rubber disc absorbs whatever tendency to vibration there might be.



Efficient timing chain tension and silencing is effected by a hydraulically controlled jockey wheel.

## TIMING CHAIN TENSIONER

One of the potential sources of noise in any engine is the timing chain which is of the roller type and must not be run at too great a tension. As wear gradually takes place the slack increases and, unless provision is made to prevent it, rattling is likely to occur.

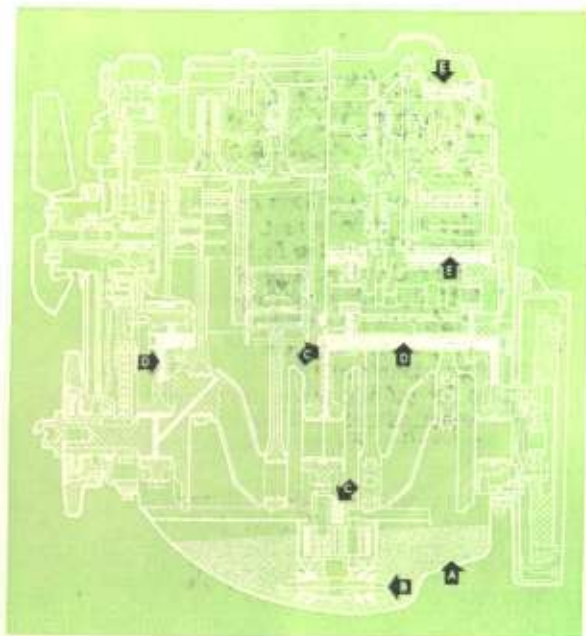
In the Land-Rover engine this matter is very effectively dealt with by means of a hydraulic tensioner which is fed from the engine lubricating system and maintains a predetermined and constant pressure on the chain through a jockey wheel. When sufficient chain wear has occurred, a ratchet and pawl automatically comes into operation to advance the jockey wheel by a notch and so regain the correct tension on the chain.



## LUBRICATION

A large capacity gear-type pump operated from the camshaft draws oil from the 10-pint capacity pressed steel sump and delivers it to the bearings and other working parts of the engine. There is thus a constant pressure feed of oil to the crankshaft main and connecting rod bearings, by way of drilled passages in the crankshaft, and to the distributor drive shaft, camshaft bearings, cam followers and the valve rocker gear. Each cam is fed separately, while jet holes in the connecting rod big-ends ensure a generous supply of oil for the cylinder walls. The engine lubrication system also provides the operating fluid for the timing chain hydraulic tensioner.

To make sure that only clean oil circulates in the engine, a wire mesh strainer is provided in the sump and a full-flow filter of AC-Delco design having a renewable element is fitted on the right-hand side of the crankcase.



- Oil in sump **A**      Suction through sump filter **B**  
Unfiltered oil **C**      High pressure filtered oil **D**  
Low pressure filtered oil **E**



## FUEL SYSTEM

A fuel tank of 10 gallons capacity is fitted under the driving seat. An S.U. electric pump delivers the fuel from the tank, via an AC sediment bowl filter to the Solex downdraught carburetter which incorporates an economizer and accelerator pump. This device on the carburetter ensures that ample power is available for pulling when the accelerator is depressed but prohibits excessive fuel consumption on part throttle and when idling.

The combined oil bath air filter and pre-cleaner extracts all dust particles and other contamination from the air before passing it through to the carburetter.

A sectional view of the oil bath air filter and pre-cleaner. The oil is held in the lower container.

A ten-gallon fuel tank is mounted on the right-hand side of the chassis.



## COOLING SYSTEM

The large water capacity of 17 pints indicates that the Land-Rover cooling system is prepared for all operational and climatic conditions. Circulation is by means of a centrifugal-type pump which is entirely self-contained and requires no maintenance, the water being directed through passages in the cylinder head and block to provide cooling where it is most required. The exhaust valve seats and cylinder bores, for instance, are surrounded by ample water jackets.

A thermostat is incorporated in the system to assist rapid warming up by restricting the circulation of the water until a temperature of 74 deg. C. has been attained. It then opens automatically permitting the water to flow freely through the engine and radiator. To prevent the radiator becoming clogged when the vehicle is employed for farm work, a fine wire mesh chaff guard can be supplied at extra cost. It fits neatly between the front grille and the radiator block.

## ELECTRICAL SYSTEM

Power for the electrical and ignition equipment is supplied by a 12-volt battery of 51 amp. hour capacity, accessibly mounted under the bonnet on the right-hand side. The output from the dynamo is automatically controlled to suit the needs of the battery so that it is maintained in a fully charged condition — the more the battery is used, the greater the dynamo output, and *vice versa*. This system is termed compensated voltage control. Ignition is by means of a coil.

**LAND-  
-ROVER**

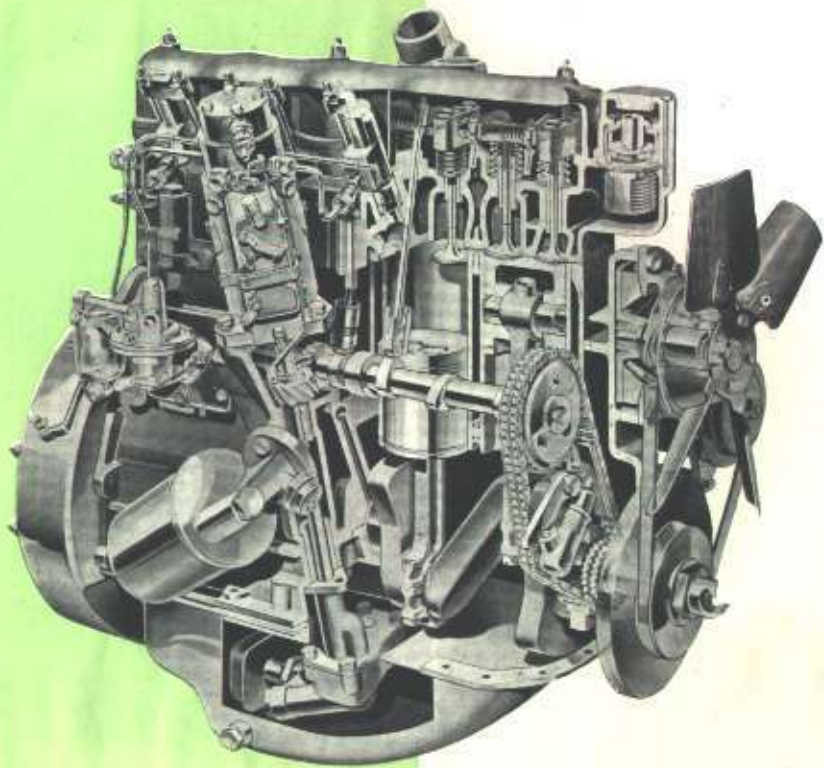
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# ROVER DIESEL ENGINE

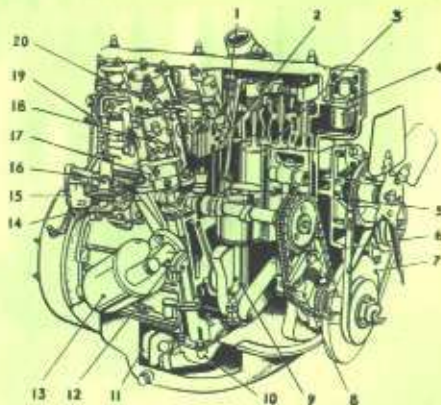


**LAND-  
-ROVER**





Rover Diesel Engine—Sectional



1. Pintaux Injection Nozzles
2. Ricardo Comet V Combustion Chambers
3. Wet Cylinder Liners
4. By-pass Thermostat
5. Roller Tappets
6. Rubber Damper Pad
7. Crankshaft Vibration Damper
8. Hydraulic Timing Chain Tensioner
9. Oil Jet to Cylinder Walls
10. Oil Pump
11. Gauze Strainer
12. Oil Pressure Warning Light Switch
13. Large Capacity Full-Flow Oil Filter
14. Hand Priming Lever
15. Sediment Bowl
16. Fuel Lift Pump
17. Stop Lever
18. Accelerator Lever
19. Glow Plugs
20. CAV.DPA Injection Pump with Mechanical Governor.

## DIESEL ENGINE

The demand for a diesel-powered Land-Rover has been steadily increasing during the past few years. Although diesel engines of various designs have been available, the Rover Company wisely decided that only a Rover engine, produced specifically for the job, would possess the necessary degree of efficiency, reliability, economy and long life to do justice to the "World's Most Versatile Vehicle".

So now, after over two years of intensive research and development, the Company is able to announce a Rover-designed, Rover-built, 2-litre diesel engine that in every way measures up to the high standard required.

Some of the more outstanding features of the new power unit are described in this section which also gives the general specifications.

## GENERAL

The new Rover diesel engine is a four-cylinder unit of 2-litres capacity, developing 52 b.h.p. at 3,500 r.p.m. Its maximum speed is only 500 r.p.m. less than the Land-Rover petrol engine, and this similarity permits the use of the same transmission units for both types of engine. This is an important characteristic which allows, on 88 in. and 109 in. wheelbase vehicles, the interchange of engines if desired.

Cylinder block and head are iron castings of exceptional rigidity. Ample water passages are incorporated in both components to ensure a free flow of coolant where it is most needed, *i.e.* round the cylinders and injector pockets, and between the valves.

Cylinder Block



Cylinder Head



## WET CYLINDER LINERS

Wet cylinder liners are fitted, their uniform and hard-wearing structure ensuring very long life. They are easily removed and replaced during overhaul.

Wet  
Cylinder  
Liners



Overhead Valves



## OVERHEAD VALVES

The overhead valves are operated by push rods and rockers from a Duplex chain driven camshaft. Valve heads are of large diameter to give efficient breathing, and they are cooled by ample water passages between the ports. Rubber rings are fitted to all valve guides to maintain good oil sealing.

## COUNTERBALANCED CRANKSHAFT

A three-bearing counterbalanced crankshaft is forged from steel machined in the hardened state. Journals and crankpins are generously proportioned to suit the high compression of the engine and give long life.



Counterbalanced  
Crankshaft

## CAMSHAFT WITH SPECIALLY DESIGNED CAMS



Camshaft

The camshaft is made of case-hardened steel. The special design of the cams allows a high valve lift while ensuring the minimum of stress on the valve operating gear. Thus, good engine breathing has not been achieved at the expense of the components which, in fact, have an exceptionally long life.



## COPPER-LEAD BEARINGS

Main and big-end bearing shells are of copper-lead with tin overlay. Bearings of this type are well known for their great lasting qualities and are, indeed, used in all Rover engines.



Copper-Lead Bearings

## ROLLER-TYPE TAPPETS

One of the many interesting features of the Rover diesel engine is the novel design of the roller-type tappets. The roller which follows the cam runs in a lead-tin plated bronze shoe which in turn slides in a steel tappet guide. In this way the high valve lifts and consequent high accelerations needed for good engine breathing are obtained with the absolute minimum of wear on the cams. Here is another important contribution to the efficiency and long life of the engine.



Roller-type Tappets



Hydraulic Timing Chain Tensioner

## HYDRAULIC TIMING CHAIN TENSIONER

Following normal Rover practice, tension on the timing chain is maintained by an hydraulic tensioner which is fed with oil from the engine lubricating system. It exerts pressure on the chain by means of a jockey sprocket, and ensures smooth, silent operation throughout the life of the engine. At engine idling speeds when oil pressure is low a special ratchet device keeps the tensioner in position and prevents the chain from slackening. A rubber damper pad is also fitted on the taut side of the chain to prevent whip.

## PISTONS AND CONNECTING RODS

Pistons are made of low expansion aluminium alloy and have provision for three compression rings and two oil control rings. The lower oil control ring is not initially required but can be fitted at a later stage in the life of the engine to counteract any increase in oil consumption after arduous and prolonged service. The familiar recess used in conjunction with the latest Ricardo Comet combustion chamber is cast into the piston crown.

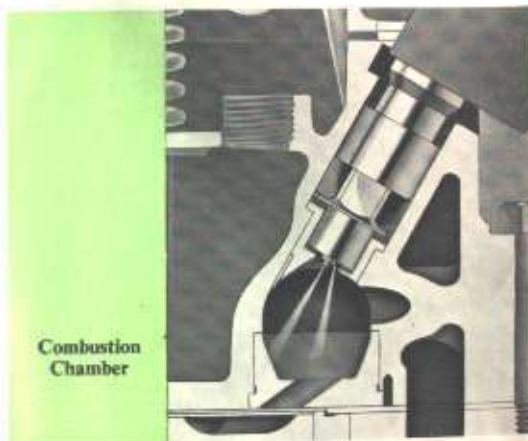
Connecting rods are of forged steel and incorporate a jet hole through which oil from the big-end bearings is squirted on to the thrust side of the cylinder walls. The upper part of the big-ends is so made that pistons and connecting rods may be withdrawn upward through the cylinder bores to facilitate servicing.

Pistons and  
Connecting Rods



## RICARDO COMET V COMBUSTION CHAMBER

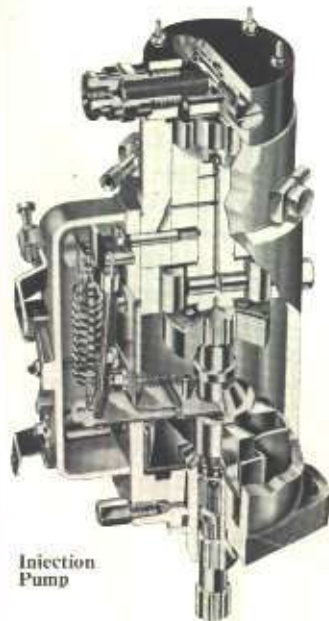
The Ricardo Comet V Combustion Chamber is of an exceptionally efficient design which ensures the highest possible degree of air utilisation. Fuel is sprayed into the hottest zone of the compressed air in the chamber when the engine is started from cold, and is directed tangentially in the direction of air swirl for normal running. This is an important feature providing for the complete combustion of the fuel/air mixture and the most economical operation of the engine. A heat-resistant steel thimble is fitted into the injection nozzle cavity to give extra long life to the nozzle by preventing the hot gases from circulating around it.



## CAV.DPA INJECTION PUMP WITH MECHANICAL GOVERNOR

The CAV.DPA injection pump may be briefly described as a single-cylinder, opposed plunger, inlet metering distributor pump. It incorporates an all speed mechanical governor which operates both during normal running and for stationary work when the power take-off drives are in use.

This type of injection pump has many advantages, being compact in construction, relatively simple in design and containing no ball or roller bearings, gears or highly stressed springs. The complete pump is an air-tight unit in which pressure is maintained thus preventing the entry of dust, water or other foreign matter during operation. No special lubrication arrangements are necessary since the pump lubricates itself with the filtered oil that it handles.

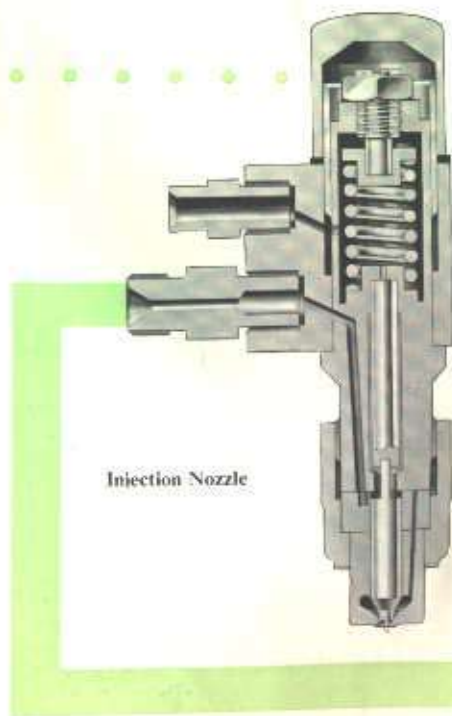


Injection  
Pump



## PINTAUX TYPE INJECTION NOZZLES

Fuel injection nozzles are of the Pintaux type which incorporate two jets. The auxiliary jet sprays the fuel into the hottest portion of the combustion chamber and enables the engine to be started easily from cold. The main jet comes into operation at normal running speeds. Glow plugs are also fitted as an additional aid to starting the engine in extra low temperatures. They are controlled from the instrument panel and their use for a brief period before starting ensures an instantaneous result with the minimum of current consumption.



# SPECIFICATION

## GENERAL

Four cylinders, overhead inlet and exhaust valves.

Bore and Stroke  $3\frac{1}{2}'' \times 3\frac{1}{2}''$  (85.7 mm.  $\times$  88.9 mm.).

Cubic capacity 2052 c.c.

B.H.P. (max.) 52 at 3,500 r.p.m.

Torque (max.) 87 lb. ft. at 2,000 r.p.m.

Compression Ratio 19.5 : 1.

**Cylinders:** Wet cast iron liners.

**Cylinder Head:** Detachable, cast iron carrying all valve gear. Ricardo Comet V combustion chambers.

**Valve Operation:** By rockers, solid push rods and roller cam followers.

**Crankshaft:** Forged steel. Fully balanced and with counterweights.

**Main Bearings:** Three, thin shell, steel backed, copper-lead. Thrust taken at centre bearing.

**Camshaft:** Forged steel. Four bearings of wrap round white metal on steel backing. Drive by duplex roller chain. Chain tension maintained by self-adjusting jockey sprocket controlled by coil compression spring and oil pressure.

**Tappets:** Hardened steel rollers running in lead tin plated bronze shoes.

**Pistons:** Low expansion aluminium alloy, tin plated with Ricardo Comet recesses cast in the crown. One parallel faced chrome compression ring. Two taper faced iron compression rings. One slotted scraper ring. Fully floating gudgeon pins.

**Valves:** Exhaust: XB Steel bright ray faced. Inlet: Silchrome No. 1 Steel.

**Connecting Rods:** Forged steel with thin shell steel backed copper-lead big-end bearings.

## LUBRICATION

By submerged gear type pump driven from camshaft. Oil delivered to main, big-end and camshaft bearings and to tappet gallery under a running pressure of 50-60 lb./sq. in. Rocker shaft and rockers lubricated by external pipe from the camshaft bearing oil gallery. Gauze pump intake filter in the sump; removable full flow external oil filter.

**Oil Filler:** Tube from front camshaft housing side cover plate incorporating oil wetted breather. Similar breather fitted to valve rocker cover.

**Sump Capacity:** 11 pints. Level determined by dipstick.

## COOLING SYSTEM

Pump operated and by-pass thermostat controlled. Water gallery cast on the side of the cylinder block directs water between the liners, it is then routed up to the head where it passes round injector and combustion chamber bosses. From here the water is directed through tube inserts which squirt the water between the portings.

**Pump:** Centrifugal type, belt driven, mounted on front end of cylinder block.

**Radiator:** Film block type.

**Fan:** Four bladed (fabricated), Mounted on water pump spindle and both driven by common belt. Belt tensioned by pivot mounted dynamo method.

**Thermostat:** A.C. bellows type by-pass.

**Capacity of system:** 15½ pints.

## INDUCTION SYSTEM

Separate induction manifold.

## AIR CLEANER and SILENCER

A.C. large capacity oil bath type.

## EXHAUST SYSTEM

**Silencer:** Flexibly mounted transversely behind rear axle.

**Tail Pipe:** Integral with silencer.

## FUEL SYSTEM

**Fuel Lift Pump:** A.C. mechanical, driven off eccentric on camshaft.

**Fuel Filter:** CAV F4/1 paper element type with air bleed.

**Injection Pump:** CAV.DPA type with mechanical governor.

**Injector Nozzles:** Pintaux type.

**Combustion Chambers:** Ricardo Comet V.

**Glow Plugs for Cold Starting:** K.L.G. 14 mm., 17V., 38A., 2-P. operated by press button on starting lever.

## ENGINE UNIT MOUNTING

Flexibly mounted on bonded rubber at four points, two at front of crankcase and two on transfer box.

Rear Power Take-Off Drive . . .	44
Rear Power Take-Off Pulley . . .	44
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Engine Oil Cooler . . . . .	46

## POWER TAKE-OFF

On the Land-Rover, the power of the engine is employed to the greatest effect, the one unit providing a reliable drive for an almost unlimited number of purposes. In order to make this possible several types of power take-off unit are made available. This is an important side of the Land-Rover operation, being applicable to agriculture in its broadest sense and to certain industrial undertakings.

The Land-Rover transmission has been so arranged that power take-off drive for auxiliary equipment can be taken from two points: a pulley drive fitted immediately behind the gearbox, called the centre power take-off, and spline and pulley drives at the rear of the vehicle, called the rear power take-off.

The centre power take-off can be used for driving appliances mounted on the vehicle—pumps for crop spraying equipment, reciprocating compressors, or generators to provide mobile electric power for lighting or welding are some of the more usual ones. The rear take-off unit will operate all kinds of machinery both stationary and towed. In this category, saw benches, rick elevators, hammer mills and silage blowers come to mind, while certain types of rotary compressors can be quickly mounted in place of the tail-board. Grass cutters can also be driven and towed by the vehicle.

Either or both of these take-off drives may be installed, and their presence in no way affects the normal running of the vehicle.

It is worth noting that a buyer requiring power take-off equipment for his Land-Rover should include it on his initial order so that it may be fitted during production. Extra expense and trouble will be involved if any unit has to be fitted as an afterthought.



## REAR POWER TAKE-OFF DRIVE

This transmits the engine power from the rear of the gearbox to a six-splined output shaft supported on the rear cross-member of the vehicle. In this form it can be used to provide power for machinery while it is being towed, or, with the addition of a Vee belt, drive an appliance mounted in the rear of the body. Special towing equipment is available when this type of take-off unit is fitted.

The rear power take-off is suitable for both 88 in. and 109 in. wheelbase vehicles. A two-piece drive shaft is however employed with the longer wheelbase model.

Rear power  
take-off drive.



## REAR POWER TAKE-OFF PULLEY

This is used to drive standing machinery by means of a flat belt and a steel pulley fitted at the rear of the vehicle.

Rear power  
take-off pulley.



## CENTRE POWER TAKE-OFF DRIVE

Two drives are available, one for use in conjunction with a rear power take-off, when both types are fitted, and the other for use when the centre unit only is required.

## CENTRE POWER TAKE-OFF PULLEY

For use with the centre drive, it consists of a cast iron pulley with three Vee belt grooves.

Centre power take-off pulley



## ENGINE SPEED GOVERNOR

The governor is attached to the engine and controls its speed between 1,500 and 3,000 r.p.m. It is regulated by an adjustable quadrant mounted below the dash, and must be fitted when a centre power take-off or rear drive pulley is employed. Its use is also advisable in conjunction with the rear splined output shaft.

## FRONT CAPSTAN WINCH

A rope bollard type of winch can be mounted on a platform immediately behind the front bumper. It is designed for a maximum pull of 2,500 lb. (1,135 kg.), and the rope speed, at a normal engine speed of 600 r.p.m., is 12½ ft. per min. (4 metres per min.). A Manilla rope of 1¼ in. diameter can be handled.

Provision for inserting the engine starting handle is made at the front of the winch instead of the crankshaft dog.



Front capstan winch

## HAND THROTTLE CONTROL

This can be mounted on the dash and must be used in connection with the capstan winch. It is also useful for operating other equipment which requires a fast idling engine speed. Note that this control cannot be used when an engine speed governor is fitted.

## ENGINE OIL COOLER

Under certain expected conditions of stationary operation, the customer should be advised to have this appliance fitted to his Land-Rover. As a general guide it may be assumed that those conditions apply when the following figures are exceeded:

Power required —  
24 b.h.p.

R.P.M.—  
2,000

Ambient air temperature —  
20 deg. C. or 68 deg. F.

Continuous running time —  
30 minutes

The oil cooler incorporates a radiator introduced into the engine oil circulating system and mounted forward of the water radiator. The fitting of this unit entails the replacement of the standard oil pump assembly, cooling fan with its cowling and the engine oil sump. An oil temperature gauge is also provided.

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The chassis frame of the Land-Rover is a rugged unit of 14-gauge steel, welded throughout into box-section form. Two longitudinal members are supported by as many as five cross-members on the 109 in. wheelbase vehicle, the whole framework providing torsional and diagonal rigidity that is completely unshakable. The layout of the various components and assemblies is tidy and straightforward, affording excellent accessibility for routine maintenance and servicing.

Ground clearance is an important factor when cross-country travel is being considered, and in this respect the Land-Rover chassis is well provided. The clearance below the differential casings is 8 in. (0.20 m.) and the minimum clearance — beneath the road spring clamp bolts — is  $7\frac{1}{2}$  in. (0.19 m.).



## CHASSIS

The Land-Rover 88 in. wheelbase chassis.

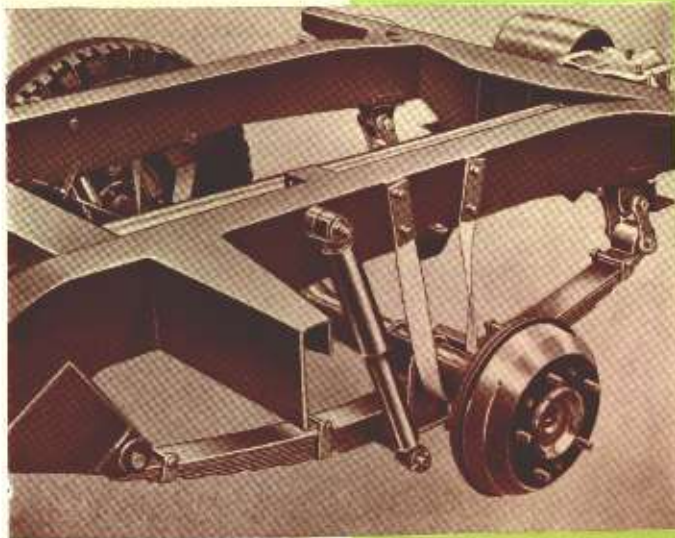


## SUSPENSION

Robust, semi-elliptic springs are fitted to front and rear axles. They are underslung and mounted on rubber bushes, the second-leaf ends being wound round the shackle pin eyes to give even greater strength. Monromatic telescopic shock absorbers are fitted all round.

The suspension as a whole has two jobs to perform. It has to give comfortable riding for main road running and provide reliable, tough resistance against the rough conditions of cross-country operation. The system has been designed with these facts in mind, combining flexibility with great sturdiness.

Higher rate front and rear road springs, and shock absorbers of larger diameter are available for extra heavy duty on 88 in. wheelbase models. They are specially recommended when a vehicle is to be used in a permanently loaded condition and for operation over abnormally rough terrain.



Tough underslung springs are controlled by Monromatic shock absorbers.

## BRAKES

There is no doubt that a vehicle with good brakes is one that inspires confidence. Without efficient power to stop, power to move is useless. Land-Rover brakes are of the Girling hydraulic type; they are highly efficient, providing smoothly progressive retardation during normal application and outstanding effectiveness in an emergency. Furthermore, they are easy to adjust, by means of a square-headed screw at each wheel, offering no excuse for neglect.

On 88 in. wheelbase models there are leading and trailing shoes all round, with a total lining area of 104.7 sq. in. (675 sq. cm.). The heavier 109 in. wheelbase Land-Rovers are provided with two leading shoe front brakes, leading and trailing rear shoes and a total lining area of 183.8 sq. in. (1186 sq. cm.).

Two leading shoes apply a greater braking force than the leading and trailing type, by the operation of expanders at both ends of the shoes instead of an expander and pivot at the leading and trailing ends respectively. In respect of the 88 in. wheelbase vehicle exhaustive tests have shown that the leading and trailing shoe type of operation affords ample braking power for the loads that can be carried. On the long wheelbase models which carry up to a 50 per cent greater payload, the extra efficiency of the two leading shoe mechanism has been incorporated in the front brakes as an added safety measure.

Two leading shoe front brakes are fitted to long wheelbase vehicles.



## STEERING

As with all Land-Rover components, the steering gear has been designed to take the rough with the smooth and afford proper control of the vehicle on and off the road. It is of the Burman worm and nut type, with a recirculating ball to give extra efficiency. Thrust adjustment is provided at the top of the column to take up wear. The spring spoke steering wheel is of 17 in. diameter and has a cellulose acetate covering. The drag link, track and longitudinal rods are tubular, fitted with non-adjustable ball joints which are sealed and do not require lubrication.

Turning circles: 88 in. wheelbase 6-00 × 16 tyres, 41 ft. (37.5 m.); 107 in. wheelbase Station Wagon with 7-00 × 16 tyres, 49 ft. (44.8 m.); 109 in. wheelbase with 7-00 × 16 tyres, 50 ft. (45.7 m.).

**LAND-  
-ROVER**

## WHEELS AND TYRES

All Land-Rover vehicles are normally fitted with pressed-steel easy clean type wheels with well-base rims. Detachable-rim wheels may be supplied to special order and at extra cost in respect of 88 in. wheelbase vehicles.

Tyres — 88 in. wheelbase 'Regular':

Standard Equipment —

6-00 × 16 R.K.3 Tread

Optional Equipment —

6-00 × 16 'Trakgrip'

6-50 × 16 'Super Trakgrip'

7-00 × 16 'Fort'

7-00 × 16 R.K.3 Tread

7-00 × 16 'Super Trakgrip'

7-00 × 16 'Sand'

Tyres — 107 in. and 109 in. wheelbase 'Long':

Standard Equipment —

7-00 × 16 R.K.3 Tread

Optional Equipment —

7-00 × 16 'Super Trakgrip'

7-00 × 16 'Fort'

7-00 × 16 'Sand'

(These tyres are all of Dunlop Manufacture.)

'Fort' tyres may be used when the vehicle is mainly employed for road work. The tread design will give long life and quiet running.

'Trakgrip' tyres should be fitted when approximately 90 per cent of the running consists of off-the-road work and cross-country towing, when good grip will be required. They should not be used for continuous road operation as the pattern is likely to wear unevenly on hard, smooth surfaces.

*[Cont'd]*

'Super Trakgrip' tyres are for operation in thick mud and over ploughed land, especially when towing agricultural implements and the like, where maximum grip is needed. The specially designed tread with its deep, widely spaced bars is ideal for such purposes but unsuitable for use on hard, dry surfaces where it is noisy and subject to rapid wear.

'Sand' tyres, as the name suggests, are used for desert conditions and should be fitted only when those conditions apply.

The Land Rover logo is centered within a white rectangular box. It features the words "LAND" and "ROVER" in a bold, sans-serif font, with a diagonal slash between them. The "LAND" is positioned above the slash, and "ROVER" is below it.

**LAND-  
-ROVER**



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## BODYWORK

Land-Rover bodies are constructed almost entirely of non-corroding, rust-less aluminium alloy — 18 gauge for side panels, 16 gauge for the floor. The few steel portions of the body such as bumpers, hinges, door handles, locks and the like are galvanised to give them complete protection from the ravages of bad weather and changes in climate.

Considered in terms of the work that Land-Rovers are called upon to do, the cab provides an excellent standard of comfort for driver and two passengers. Make no mistake, very long journeys can be undertaken without fatigue and with a measure of control, spaciousness and visibility not offered by every modern car of sleek and slinky appearance.

The cab of the long wheelbase model, in its de luxe form, does in fact afford comfort of a very high order indeed. And all cabs enclosed by any of the alternative styles of superstructure possess a high degree of dust- and draught-proofing.

When no body or cab covering is fitted, the windscreen can be folded forward to make a completely open vehicle of low overall height.

As shown in the following sections, a comprehensive range of standard and optional equipment is available to cover the widest possible field of operation.

The windscreen can be folded flat when required.

The three-seater front compartment showing instruments and controls.



# Standard Body Equipment

---

## 88 in. WHEELBASE

Two aluminium doors with metal framed Perspex sliding windows; full hood with rear panel; cushions and back-rests for three front seats; driving mirror; scuttle ventilators beneath the windscreen; single windscreen wiper.

## 109 in. WHEELBASE BASIC

Enclosed metal cab; two aluminium doors with metal-framed Perspex sliding windows; cushions and back-rests for three front seats; driving mirror; scuttle ventilators beneath windscreen; single windscreen wiper; door locks.

## 109 in. WHEELBASE DE LUXE

As for Basic vehicle plus the following: roof headlining of plastic covered felt; leathercloth casings fitted to rear of cab and doors; door pockets; padded waistlines and arm-rests; floor carpet of plastic covered felt; one-piece seat squab; roof lamp with integral switch.

### 88 in. WHEELBASE STATION WAGON

Complete, enclosed body with side and rear doors; cushions and back-rests for three front seats; back rests and folding seats for four in rear compartment; driving mirror; single wind-screen wiper.

### 107 in. WHEELBASE STATION WAGON

Complete, ten-seater enclosed body with seats for three in front, folding rear seat for three and wheelbox seats, facing inward, for four; four side doors, and one rear door; driving mirror; windscreen wiper.



On the 109 in. wheelbase open vehicle, a de luxe cab can be fitted at extra cost to give a high standard of comfort.

## Optional Body Equipment

Information given under this heading refers to the 88 in. wheelbase 'Regular' vehicle unless otherwise stated.



### DETACHABLE METAL TOP

- 
- 
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A metal top of light alloy can be provided to replace the canvas cover normally supplied. It is quickly fitted or removed, no alteration to body structure being required to accommodate it. The lift-up flap at the rear of the metal top is fitted with a window, and counterbalanced so that it will remain in the fully open position during loading. The normal tailboard of the vehicle is retained. Side windows are incorporated in export models only. On the home market, vehicles fitted with side windows are subject to Purchase Tax. Locking handles for all doors can be supplied at extra cost.

A detachable metal top is an optional extra on 88 in. wheelbase vehicles. Note that side windows are for export only.



## METAL CAB

A normal fitting on 109 in. wheelbase vehicles, the metal cab is optional on 88 in. wheelbase models. It consists of a light alloy roof and back panel which encloses the front compartment. When it is fitted as an extra, the spare wheel must be mounted on the bonnet, suitable fittings being automatically supplied for this purpose.

## TROPICAL ROOF

This consists of a light alloy heat-insulating panel, painted cream, which extends over the whole roof. The passage of air between the main roof and the false one has the effect of insulating the interior from the direct rays of the sun. It may be fitted to Detachable Metal Tops and to Metal Cabs, and applies to all models.

## DOOR LOCKS

These are available for doors on Detachable Metal Tops and Metal Cabs only. They consist of internally operated safety catch for the left-hand door and a private lock for the right-hand door. Internally operated catches are also provided for side and rear windows.

## CANVAS HOOD WITH SIDE WINDOWS

This hood is similar in all respects to that fitted to the basic vehicle except that side windows are incorporated. It is for export only as Purchase Tax would be payable in the home market.

## REAR HOOD FOR 109 in. WHEELBASE VEHICLES

Hoods to cover the load space are not normally supplied with the 109 in. wheelbase vehicle but are available at extra cost. Side windows may be fitted to hoods on export vehicles only as Purchase Tax difficulties arise in the home market in respect of hoods so equipped.

## REAR SEATS

Seating for four passengers can be provided in the body of the 88 in. wheelbase Land-Rover, one seat for two passengers on each wheelarch box. The seats may be folded up against the back-rests to give maximum load space when required. A handrail is fitted to the body capping on each side. It is often more convenient to have the spare wheel mounted on the bonnet when body seats are fitted, to give more leg-room to the passengers.

## REAR SEATS FOR 109 in. WHEELBASE VEHICLES

The body of the long wheelbase Land-Rover may be fitted with four seats, each accommodating two passengers, giving a total rear body capacity of eight. If the full complement of seats is not required, make sure that the order states in which position the required seats are to be fitted.



Spare wheel fitted inside the body.

## SPARE WHEEL CARRIER

When it is intended to make maximum use of the body load space, the spare wheel can be mounted out of the way on top of the bonnet. The order should state the required position of the spare wheel so that suitable fittings can be supplied.



Showing the bonnet-mounted spare wheel.

## INTERIOR HEATER

This is available for all models and comprises a small, circular radiator which can be fitted beneath the dash and supplied with hot water from the engine cooling system. It incorporates an electric fan which blows the warm air into the vehicle.

The speed of the fan can be regulated to control the flow of air.

This neatly fitted recirculatory heater can be supplied at extra cost.



## WINDSCREEN DEFROSTERS

Used in conjunction, and supplied with the interior heater, the defrosting equipment consists of two flexible tubes with nozzles which direct a flow of warm air on to the inside surface of the windscreen. This effectively deals with mist, condensation, snow and ice.

## EXTRA WINDSCREEN WIPER

A separate and independent windscreen wiper can be provided for the passengers' side of all vehicles. It is identical with the unit normally fitted for the driver.

## DIRECTIONAL FLASHING INDICATORS

These are standard on Station Wagons and may be fitted to other 88 in. and 109 in. wheelbase vehicles. A convenient switch with automatic warning light is fitted to the parcel shelf, while the sidelamps and stop-tail lamps are specially equipped and wired to provide front and rear flashers respectively.

## FLY SCREEN FOR SCUTTLE VENTILATORS

To prevent insects entering the cab through the scuttle ventilators when they are open, wire mesh panels may be fitted under the flaps. These screens are highly recommended for all models operating in tropical regions.

## EXTRA DRIVING MIRROR

This is identical with the mirror normally fitted on the driving side of 88 in. and 109 in. wheelbase vehicles and is mounted in a corresponding position on the opposite front mudguard.

## TRAILER REAR LAMP LEAD, PLUG AND SOCKET

When vehicles are to be used for towing trailers, special connections can be provided to operate the trailer stop/tail light. This extra is available for all models.



Showing the type of towing bar and trailer attachment that can be used with all Land-Rover models.

## RUBBER PEDAL PADS

For drivers of all Land-Rover vehicles who prefer rubber-topped pedals, pads can be provided which fix on to the clutch and brake controls by means of metal tabs.

All these impressive body features have been designed with the greatest thought and care to make the Land-Rover completely universal in its appeal. It is important that no customer is left in ignorance regarding the excellent equipment available.



## FIRE ENGINE EQUIPMENT

In general, the description of the 88 in. wheelbase Land-Rover given in this manual is applicable to the Fire Engine, but certain specific items of fire fighting equipment are supplied and detail modifications made to the body to enable this vehicle to carry out its own particular duties.

Rear view of the Land-Rover Fire Engine showing the hose reel, pump and control panel. Note that couplings shown on the pump are optional extras.



The water pump has a delivery rate of 210 gallons a minute at 100 lb. per sq. in. (7 kg. per sq. cm.) pressure for a 10 ft. (3.05 m.) lift. It is mounted on the rear cross-member and draw bar, and driven from the centre power take-off output shaft by means of a propeller shaft. An engine speed governor is fitted to limit the r.p.m. to a maximum of 2,850. An engine oil cooler is also provided. A control panel is located alongside the pump and incorporates the engine governor control quadrant, compound pressure vacuum gauge, pressure gauge, oil temperature gauge, two parallel slide-type selector valves and hydrant connections illuminated by light deflected from the rear lamps.



The first-aid water tank of galvanised steel has a capacity of 40 gallons (182 litres) and is carried in the body of the vehicle, between the wheelarches. Refilling the tank is by main pump suction or bucket filler.

A 120-ft. (36.6 m.) length of rubber first-aid hose is coiled on a drum mounted amidships. The nozzle of the hose is of  $\frac{1}{2}$  in. (3 mm.) bore and incorporates an on/off cock. Light alloy is used for the drum mountings to save weight. A roller guide is mounted centrally on the rear of the body, the first-aid hose being threaded through this guide can be run out at any angle from the vehicle.

Hose lockers are built over both wheelarches, each locker measuring approximately 3 ft. 6 in. (1.07 m.) long  $\times$  11 in. (0.28 m.) wide  $\times$  1 ft. 5 in. (0.43 m.) deep. They are made of steel and provided with canvas covers which are secured to the side of the vehicle by spring-loaded fasteners.

This equipment is fitted as standard and included in the price of the basic vehicle. A fuller specification cannot be supplied from the Factory as each Fire Brigade has its own particular requirements, and it is not possible to stock the almost unlimited variations necessary to meet every demand. It is the responsibility of the Distributor or Dealer concerned to make his own arrangements for the supply of additional, non-standard fire-fighting equipment requested by individual buyers. This can be obtained from Messrs. George Angus & Co. Ltd., 300 Grays Inn Road, London W.C.1, the manufacturers, and it is fully approved by the Rover Company. Assistance will be given by the Technical Sales Department at the Rover Factory to Distributors or Dealers in certain territories overseas, who find it difficult to obtain the necessary parts for themselves.

*NOTE* :—Non-standard fire-fighting equipment, carried in addition to a crew of three and the basic equipment supplied with the vehicle — including 40 gallons (182 litres) of water in the first-aid tank — must not exceed 500 lb. (227 kg.). Of this weight not more than 300 lb. (136 kg.) may be applied to the rear axle and not more than 200 lb. (91 kg.) to the front axle.

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## **WHAT WILL THE LAND-ROVER DO ?**

It has already been established that Land-Rovers will go virtually anywhere, that they are powerful, economical to run, surprisingly comfortable to ride in and provided with a wide range of body and power take-off equipment. Furthermore, they are non-corroding and non-rusting, and may therefore be operated continuously in every sort of climate and over the most appalling ground conditions.

These facts indicate an almost unlimited field of operation for the World's most versatile vehicle, and the following pages provide some interesting examples of its "do anything" "go anywhere" powers.

## HILL CLIMBING

One of the many practical aspects of the Land-Rover is its ability to tackle steep hills whether on good roads or in field conditions. Reference to the graph (opposite) in conjunction with its reading instructions will show very clearly what this means in terms of actual gradients on the various kinds of surfaces.

### To find the Gradient Climbable

1. Select the Adhesive Factor ( $\mu$ ) for the surface in question, from the table.
2. Multiply this factor by the total weight in pounds of the vehicle (standard 88-in. wheelbase Land-Rover, unladen, road equipped, 2,740 lbs., 109-in. wheelbase Land-Rover, 3,080 lbs.) plus two passengers.
3. The product obtained from (1) and (2) may now be read off on the vertical scale of the graph. (NOTE. If this product is greater than 2,770 for 7 in. section tyres or 2,890 for 6 in. tyres the corresponding top line must be used).
4. Transfer this point horizontally across the graph until it cuts the weight curve. Drop a vertical line from this latter point to the horizontal scale, and read off the gradient climbable. (NOTE. If the vehicle is pulling a trailer, then the curve corresponding to the total weight of vehicle and trailer should be used.)

### Table of Adhesive Factors ( $\mu$ )

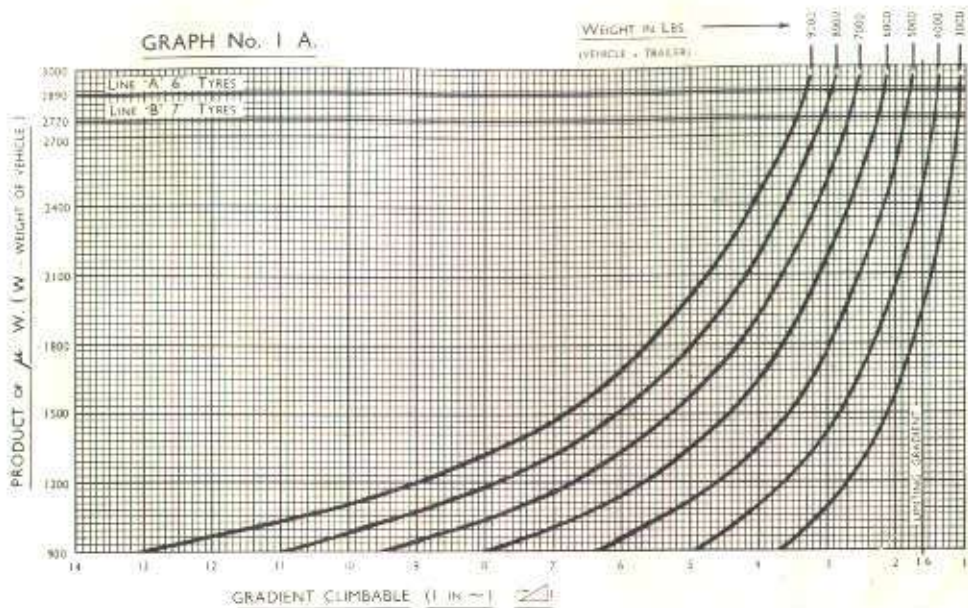
Tarmacadam, dry and free from oil	...	...	...	...	0.9
Concrete, dry, ridged surface	...				0.9
Clay, dry firm	...	...	...	...	0.75
Grassland, dry and well-drained, with firm under-surface					0.6
Ploughed land, dry	...	...	...	...	0.6
Ploughed land, wet	...	...	...	...	0.5
Clay and mud, wet	...	...	...	...	0.3

It is not considered practical to include figures for surfaces of snow and sand owing to the wide variation of conditions which may exist.

### Practical considerations affecting results

1. Incorrect tyres for the job in hand.
2. Condition of tyres, and incorrect pressures.
3. Driver technique, including gear selection.
4. Sub-soil affecting sinkage, consequently increasing rolling resistance and gradient build-up in front of tyres.
5. Wet or dry conditions.
6. Dissimilar surface conditions prevailing between off-side and near-side wheels.

GRAPH No. 1 A.





## IN AGRICULTURE

Land-Rovers are taking a very active part in the sphere of agriculture and will efficiently undertake the following duties:

### GENERAL

- Hay Sweeping
- Crop Spraying and Dusting
- Pumping
- Tree Felling and Ground Clearance
- Transporting Stock to Market

### TOWING

- Cultivators
- Harrows
- Rollers
- Gang Mowers
- Binders
- Combine Harvesters
- Water Trailers
- Horse Boxes
- Fertilizers
- Horse Rakes
- Two- and four-wheeled Load Carrying Trailers

### TOWING AND DRIVING

- Rick Elevators
- Hammer Mills
- Silage Blowers
- Saw Benches
- Mobile Milking Machinery
- Compressors for Paint, Sprayers, Scaling Tools, Riveters, etc.
- Hedge Cutters

### TYPICAL USERS

- Agricultural Development Teams
- Botanical Survey Teams
- Colonial Soil Survey Teams
- Forestry Commissions
- Game Wardens
- Game Preservation Units
- Estate Supervisors
- Dairy Companies

*The following illustrations are included to show some of the varied work the Land-Rover is called upon to carry out on the farm. These illustrations have been selected from the many photographs received by the Company from various sources. In many cases we have no working knowledge of the proprietary equipment illustrated and cannot therefore give any more details. However, the Technical Sales Department is actively engaged in testing and approving suitable proprietary equipment and will be interested to receive suggestions for consideration.*



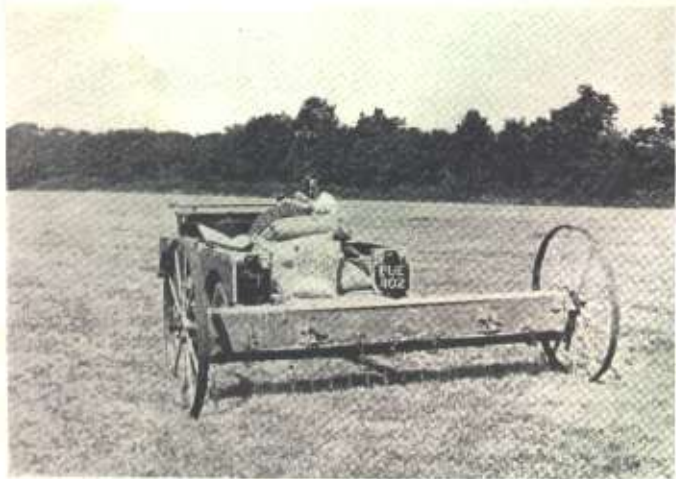
Helping in the Harvest



Reaping and Binding



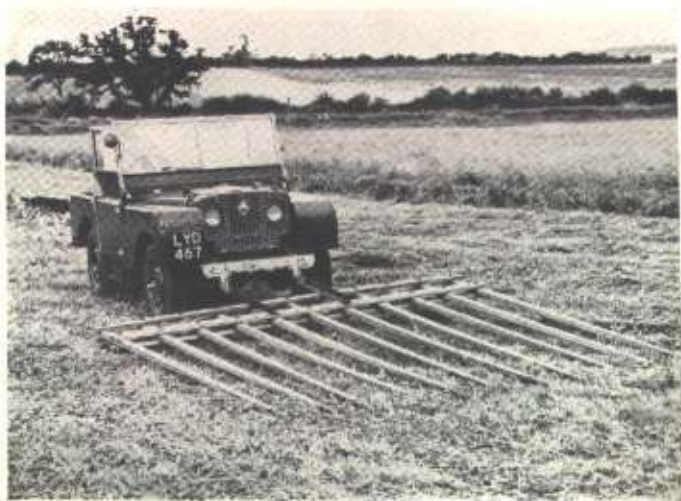
Harrowing



Fertilizing



Towing a Swathe Turner



Hay Raking





Mowing



Crop Spraying





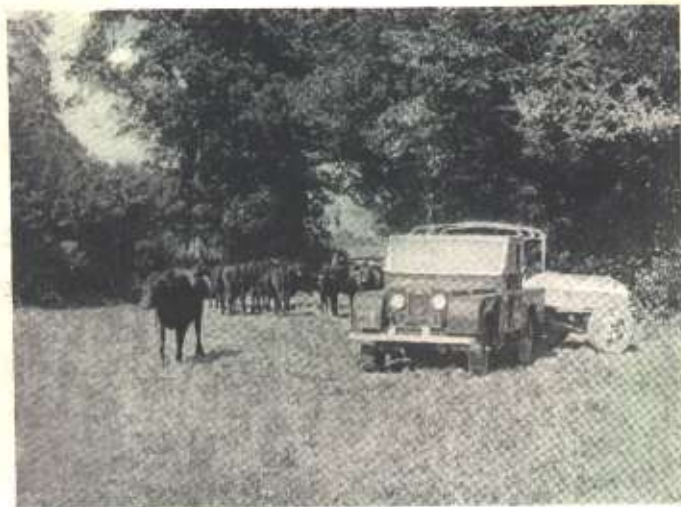
Potato Lifting



Transporting Potatoes



Transporting Labour



Watering the Cattle



Towing a Baler



Towing a Horse Trailer



Feeding the Pigs



Rounding up the Herd





Transporting Milk



Log Hauling





Driving a Chaffer



Driving an Elevator



Sawing Logs



Sawing Timber



Operating A Silage Lift



Hedge Trimming



Ditch Clearing





Repairing Fences — Welding



Pressing on Regardless!



## OTHER USES AND USERS

Agriculture is only one sphere of Land-Rover usefulness, for it plays a great many other parts. Some of its more interesting tasks include:

- Mountain Rescue
- Colonial Development
- Education
- Fire Fighting
- Ambulance Service
- Geological Survey
- Highway Maintenance
- Exploration
- River Maintenance
- Irrigation Control
- Locust Control
- Malarial Control
- Public Works
- Tsetse Fly Control
- Water Supply
- Seismograph Service
- Oil Field Prospecting and Maintenance
- Copper Mine Prospecting
- Scientific and Industrial Research

Land-Rovers also do important work for Government Departments, such as:

- Customs and Excise
- Coal Boards
- Electricity Supply Boards
- Fisheries Department
- Labour Departments
- Lighthouse Authorities
- Police Departments
- Post Offices
- Railways
- Income Tax Inspectors and Collectors
- Crown Agents

The Armed Services of many countries operate large numbers of Land-Rovers which are outstanding for this type of work:

Great Britain —  
Navy, Army, Air Force

New Zealand —  
Army, Air Force

Uruguay —  
Ministry of National Defence

Indo-China —  
Armee Royal Khmere, Forces  
Armee Hoa-Hoa, Garde  
Nationale du Nord-Vietnam

Angola —  
Navy Station, Frontier Guard

Ecuador —  
Ministry of Defence and Military  
Zone 2 Guayaquil

Ethiopia —  
Ministry of War

Australia —  
Navy

Brazil —  
Navy, Army, Air Force

Denmark —  
Military Service

Malaya —  
Security Forces

Lebanon —  
Army

Jordan —  
Arab Legion, Royal Palace Guard

Iran —  
Army

Casablanca —  
Auxiliary Forces

Belgium —  
Army

Holland —  
Navy, Marines

Libya —  
Armed Services

Spain —  
Army, Navy, Air Force

In addition, Land-Rovers are used by the Police Forces of the following territories:

Mauritius	Ceylon
Thailand	Martinique
Canada (Royal	Trinidad
Canadian Mounted	Turkey
Police)	Nigeria
Uruguay	Lebanon
Indo-China	Kenya
Angola	Uganda
Ecuador	Tanganyika
Ethiopia	Bahrain
Hongkong	Saudi Arabia
French West Africa	Iran
Brazil	Tunisia
Gold Coast	Belgium
Libya	South Africa
Spain	

The list is still not exhausted for this amazing vehicle has many further uses and users as indicated below:

Transport Corporations — as tram and trolley-bus tractors and tower wagons.

Commercial Travellers in “up-country” districts

Surf Bathing Clubs

Mobile Camera Cars for Film Industry

Posthole Digging

Circuses — for general duties including water pump driving to aid care of elephants

Hunting — with Indian Rajahs and other large estate owners

Tobacco and Tea Estate Overseers  
Colonial District Officers  
Mobile Surgeries  
Building Contractors  
Ski-run Chain Lifts  
Lumber Companies  
Banks — for wage deliveries to  
dispersed sites  
Cocoa, Coconut, Rubber and Sugar  
Plantation Overseers  
Towing White Line Painting  
Machines  
Towing Airfield Runway Sweeping  
Machines  
Mobile Welding Engineers

It also provides the right "go-any-  
where" kind of transport for:

Missionaries      Scouts  
Parish Priests      Salvation Army  
Doctors      Hunters on Safari  
Veterinary Surgeons  
Many of the world's major Airline  
Operators and Oil Companies.

There is no final list of Land-Rover  
applications, although the foregoing one  
is impressive enough, for these very  
remarkable vehicles are continually  
breaking new ground and helping to  
solve some difficult problem in Agri-  
culture, Industry and Transportation.

The Land-Rover logo is displayed in a white rectangular box against a green background. The word "LAND" is in a bold, italicized, sans-serif font, positioned above a diagonal slash. The word "ROVER" is in a similar bold, italicized, sans-serif font, positioned below the slash.

107 in. Wheelbase Land-Rover . . .	85
Land-Rover Station Wagon . . .	90



## ROAD TEST PERFORMANCE DATA

The information contained in the next few pages has been extracted from Road Test Reports published by some of the famous British Motoring Journals. It has been compiled by experts and gives a completely unbiased opinion of the Land-Rover in terms of speeds, acceleration, fuel consumption, climbing power, braking, ground-holding and so on. The performance figures quoted can be taken as a good average guide although they may vary slightly in respect of individual vehicles.

### 107 in. Wheelbase Land-Rover

The following extracts have been taken from a report, written by Laurence J. Cotton, M.I.R.T.E., which appeared in the 21st May 1954 issue of the *Commercial Motor*.

### "SMOOTH AND WILLING — THE BIG LAND-ROVER"

"Nothing could stop the Land-Rover in over 250 miles of road and cross-country trials in which it carried a full load, and hauled a trailer with 15-cwt. load up the notorious Succombs Hill, in Surrey, with its 1 in 4½ gradient. Lengthening the wheelbase of the Land-Rover has not impaired its willingness for hard work whilst the degree of riding comfort can now be classified as superior, and there is considerably more body space.

This was especially noticeable in the 107 in. wheelbase model tested, which was supplied with de luxe trim including an upholstered bench-type seat, lined roof, padded waistline and arm rests, and leathercloth covering to all metal parts in the cab. Additional pampering for the driver is represented in the heater and demister unit which was particularly welcome in the cold morning air.

With the larger engine and eight forward gears providing an overall spread, in conjunction with the final drive, of 5.396 to 40.676 to 1, the machine is virtually potted power, as I found during my trials when it was hauling a trailer. As evidence of this it is used by one municipality for towing disabled trolley-buses.

The 107 in. wheelbase chassis is provided with a standard body of just over 6 ft. internal length which, carrying a nominal 10 cwt. load, gives practically equal weight distribution on the axles. This constitutes an important factor in cross-country driving over loose or soft ground.

There are many body styles available on the Land-Rover basic chassis structure, the one supplied for test having a canvas tilt and inward-facing seats along the sides, the latter forming special equipment. The addition of the crew seats in the body increased the normal unladen weight to 1 ton  $8\frac{1}{2}$  cwt., with a full fuel tank, but the model supplied was not equipped with power take-off drive, which can be arranged at the centre or rear of the chassis.

In addition to an  $11\frac{1}{2}$  cwt. load of sand the Land-Rover hauled a Brockhouse 15 cwt. all-steel trailer which also carried a full payload. The Brockhouse trailer has a 16-gauge floor and 18-gauge side and end panels and is based on a sturdy rolled-steel channel-section chassis. It has a body measuring 6 ft  $\times$

3 ft. 2 ins. and the sides are 1 ft. 6 ins. deep.

At the Brompton railway sidings, which was the first stop after leaving the Rover service depot in London, the Land-Rover tipped the scales at 2 tons, complete with its load, and the Brockhouse trailer, with 15 cwt. of sand, added another ton to the gross weight. The trailer weighed 5 cwt. unladen.

The first run on Succombs Hill was made from a moving start, and the 1 in 5 and 1 in  $4\frac{1}{2}$  gradients were climbed using the normal-low ratio. After this, stop-start tests were staged, and here the lower ratio of the auxiliary box was required.

The ample power available was demonstrated at this stage by using the second and third ratios of the main gearbox and releasing the accelerator almost back to the idling position after moving away from rest. With the trailer detached the Land-Rover romped up the hill in second gear from a moving start and normal-low ratio sufficed after stopping on the steeper sections.

The trailer was hitched up for the initial consumption test, the combined payload being 1 ton 6½ cwt. This trial was conducted over a 20-mile out-and-return course between Godstone and East Grinstead and included normal main-road undulations of up to 1 in 16. An auxiliary petrol tank was fitted and the speed controlled to 35-38 m.p.h. Under such conditions, a fuel return of 17.4 m.p.g. at 33.1 m.p.h. was obtained.

Load on Land-Rover	Load on trailer	m.p.g.	Average speed
11½ cwt.	15 cwt.	17.4	33.1
11½ cwt.	8 cwt.	18.05	33.1
11½ cwt.	No trailer	19.85	33.9
6 cwt.	No trailer	20.2	33.0

*Fuel consumption rate under differing conditions of operation*

I then removed 8 cwt. from the trailer which reduced the overall payload to 18½ cwt. This made relatively little difference to the performance on the gradients and gear changes were made at approximately the same points on the journey. There was, however, a small saving in fuel, the consumption rate being 18.05 m.p.g. at 33.1 m.p.h.

There was a marked difference with the trailer detached, and I noticed the improvement, with 13 cwt. less on the tail as represented by the trailer with part load. The Land-Rover was sharp off the mark and completed the course without need for indirect ratios apart from turning at the end of the outward run. Carrying an 11½ cwt. payload the return was 19.85 m.p.g. at 33.9 m.p.h. average speed.

To complete the trials I reduced the load by 5½ cwt. which would be generally representative of normal operation. This produced little effect from the economy angle, the consumption rate working out at 20.2 m.p.g. It appears likely that solo operation would generally give about 20 m.p.g., and 18 m.p.g. when used with a trailer.



Braking tests with full load produced an average stopping distance of 39 ft. and with the laden trailer attached this was increased to 45 ft., indicating well-above average deceleration in both trials.

The Land-Rover was put through strenuous exercises and made to climb seemingly impossible gradients. It failed on one, a loose-surfaced bank of 1 in 2½ incline, when the rear wheels churned through the soft soil and then failed to find further hold. When tackling the same gradient at speed, the tow hitch fouled the road, so I reversed and set an oblique course up the slope.

Had the load been less stable the truck might have over-turned, such was the steepness of the slope, but this tactic was successful in overcoming the obstacle. I stopped the engine and paused for any sign of oil or petrol leakage, but there was neither, and the engine restarted without any marked trait of over-enriched fuel supply.

Although carrying an 11½ cwt. load the performance was beyond reproach and I found the Land-Rover capable of overcoming any obstacle where the tyres could find a reasonable grip. There was adequate power, as proved by wheelspin on the 1 in 2½ slope, and the suspension provided smooth riding on the broken or corrugated surfaces.

The performance of the vehicle exceeded my expectations under all conditions, and I have high regard for its economy, eight-speed gearbox, and ability to win through over nearly impossible ground. In de luxe form it has all the refinements which could be desired by an owner-driver, and long periods can be spent behind the wheel without strain."

## MODEL

Land-Rover 107 in. wheelbase model  
with Brockhouse 15 cwt. trailer.

## WEIGHTS

	Tons. cwt. qr.		
Unladen (full tank) solo	1	8	3
Payload ... ..		11	2
Driver, observer, etc. ...		3	2
	<hr/>		
	2	3	3

## DISTRIBUTION

Front axle ... ..	1	1	2
Rear axle ... ..	1	2	1

## FUEL CONSUMPTION

With full load and no trailer 19.85  
m.p.g. at 33.9 m.p.h. average speed,  
that is 43.5 gross ton m.p.g. as  
tested, giving a time-load-mileage  
factor of 1.473.

## TANK CAPACITY

10 gallons, range approximately 180  
miles.

## ACCELERATION

Through gears, 0-30 m.p.h. 9.4 sec.;  
0-40 m.p.h. 20 sec.

## BRAKING

From 20 m.p.h., 17½ ft. (24.8 ft. per  
sec. per sec.); from 30 m.p.h., 39 ft.  
(24.8 ft. per sec. per sec.).

## WEIGHT RATIOS

1.19 b.h.p. per cwt. gross weight as  
tested.



## Land-Rover Station Wagon

Extracts are here taken from the *Autocar* Road Test Report of 4th March 1955.

"The Station Wagon is an all-purpose vehicle based on the well-known Land-Rover, and containing the standard transmission with dual range gearbox and optional four wheel drive. In the design of the Station Wagon, emphasis has been laid on using as many of the standard Land-Rover components as possible. The result is a car that is essentially a Land-Rover, with additional equipment to meet the requirements of station wagon work. The robust character of the Land-Rover has been retained and the familiar galvanised finish is used for the usually bright parts such as windscreen frame and bumper.

The engine develops 52 b.h.p., and provides ample power for propelling a vehicle with a very large frontal area (by private car standards) at speeds approaching 60 m.p.h. The mean maximum speed recorded during the Road Test was 57.75 m.p.h., and although this is low compared with that of a 2-litre saloon car, it is very creditable for a vehicle of this type. In spite of a modest maximum, on several occasions journeys of around 80 miles were covered without difficulty at an average speed of 40 m.p.h.

As part of the test, the Station Wagon was driven up Hollingsclough, a motor cycle trials section near Buxton. The track was covered in snow, and in places there were rock steps, up to ten inches or a foot in height. The sides of the track were sloping in parts to form a V-section gully. With four wheel drive engaged, no difficulty was found in ascending the slope, and in fact several stops and restarts were made.

Like the open Land-Rover, the Station Wagon has non-independent front suspension with half-elliptic leaf springs at both front and rear. The suspension is firm, and there is very little roll on corners. For normal road driving, all passengers have a comfortable ride, although it is a little harder than that usually found on normal private cars. Off the beaten track the suspension functioned well, providing sufficient flexibility to enable the wheels to follow uneven surfaces. No bottoming was noticed.

Hydraulically operated leading and trailing shoe brakes are used for both the front and rear wheels, and under test conditions these returned very good figures. No brake fade was experienced,

and at all times the brake pedal had a firm and solid feel.

The Land-Rover Station Wagon is an outstanding car which can be driven almost anywhere. In addition to its suitability for cross-country work, it will put up commendable average speeds on normal roads. In Station Wagon form it provides satisfactory transport for up to seven persons while, if only three are carried, there is ample luggage space. The vehicle is ideally suited to towing a caravan or horse-box, it is robust and functional, completely free of unnecessary frills, and has the type of finish which is in keeping with the purpose for which it was designed. It is a first-rate machine of which the engineers of the Rover Company may be proud."

**PERFORMANCE FROM REST THROUGH GEARS TO:**

<i>m.p.h.</i>	<i>Rear Wheel Drive</i>	<i>Four Wheel Drive</i>
30 ... ..	7.1 sec.	7.0 sec.
50 ... ..	25.5 sec.	24.9 sec.

Standing quarter mile 25.7 sec., with four wheel drive 25.4 sec.

**SPEED ON GEARS:**

<i>Gear</i>	<i>m.p.h. (normal and maximum)</i>	<i>k.p.h. (normal and maximum)</i>
Top (mean)	57.75	92.94
(best) ...	59.5	95.76
3rd ... ..	40-46	64-74
2nd ... ..	27-32	43-51
1st ... ..	16-22	26-35

**TRACTIVE EFFORT:**

	<i>Pull (lb. per ton)</i>	<i>Equivalent Gradient</i>
Top ...	200	1 in 11.1
Third ...	270	1 in 8.2
Second ...	370	1 in 6.0

**BRAKES:**

<i>Efficiency</i>	<i>Pedal Pressure (lb.)</i>
92 per cent... ..	125
78 per cent... ..	100
63 per cent... ..	75
48 per cent... ..	50

**FUEL CONSUMPTION:**

21 m.p.g. overall for 315 miles (13.45 litres per 100 km.).

Approximate normal range 19-26 m.p.g. (14.9-10.9 litres per 100 km.).

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# SPECIFICATION

## Engine

### GENERAL

Four cylinders. Overhead inlet valves, side exhaust valves.

Bore and Stroke: 77.8 mm. (3.063 in.) × 105 mm. (4.134 in.).

Cubic Capacity: 1,997 c.c. (121.8 cu. in.).

B.H.P. (Max.): 52 at 4,000 r.p.m.

Torque (Max.): 101 lb./ft. (14 m. kg.) at 1,500 r.p.m.

Compression Ratio: 6.9 : 1.

**Cylinders:** Monobloc, cast integral with crankcase.

**Cylinder Head:** Detachable, cast iron and carrying inlet valve gear.

**Inlet Valve Operation:** By rockers, tubular push rods and cam followers.

**Exhaust Valve Operation:** By rockers direct on to valve stems.

**Crankshaft:** Forged steel. Fully balanced and with counter-weights.

**Main Bearings:** Three, thin shell, steel-backed copper-lead. Thrust taken at centre bearing.

**Camshaft:** Forged steel. Four bearings, split Mazak die castings. Drive by Duplex roller chain. Chain tension maintained by self-adjusting jockey sprocket controlled by coil compression spring and oil pressure.

**Pistons:** Low expansion aluminium alloy, tin plated. Two compression rings, one stepped scraper ring and one slotted scraper ring. Fully floating gudgeon pins.

**Valves:** Exhaust: XB steel with Bright Ray facing. Seat inserts fitted.

Inlet: Silchrome No. 1 steel.

The location of inlet valves in the cylinder head and exhaust valves in the cylinder block gives advantages such as:

- Greater area of inlet valve.

- Closer relation of water jacket to exhaust valve.

- More direct induction system.

- Most efficient location of sparking plug.

- Part-spherical combustion chamber promoting turbulence and more thorough burning of mixture.

- More efficient scavenging.

**Connecting Rods:** Forged steel with thin shell steel-backed copper-lead big-end bearings.



## LUBRICATION SYSTEM

By submerged gear type pump driven from camshaft. Oil delivered to main, big-end and camshaft bearings under a running pressure of 55-65 lb./sq. in. Tubular oil gallery, inserted in the crankcase supplying the oil feed for the camshaft bearings, exhaust valve gear, and the inlet valve gear in the head. Gauze pump intake filter in the sump; removable full-flow external oil filter.

**Oil Filler:** Integral with exhaust valve rocker cover and incorporating oil-wetted gauze breather. Similar breather fitted to inlet valve rocker cover.

**Sump Capacity:** 10 pints (5.68 litres). Level determined by dipstick.

## COOLING SYSTEM

Pump operated and thermostat controlled. Water pipe inserted in block directs water to the points of highest temperature.

**Pump:** Centrifugal type, belt driven, mounted on front end of cylinder block.

**Radiator:** Film block type.

**Fan:** Four bladed, mounted on water pump spindle and both driven by common belt. Belt tensioned by pivot mounted dynamo method.

**Thermostat:** A.C. bellows type.

**Capacity of System:** 17 pints (9.66 litres).

## FUEL SYSTEM

Separate induction manifold.

**Carburettor:** Solex downdraught type 32 PB 1-2.

**Fuel Pump:** S.U. Electric.

**Air Cleaner and Silencer:** A.C. large capacity oil bath type, with built-in pre-cleaner.

**Petrol Tank:** Carried outside side-member under right-hand seat and fitted with protective underplate. Electric petrol gauge fitted.

**Filler:** Telescopic filler tube and filter to facilitate filling from can. Filler cap incorporates air vent. Provision for padlock to secure the tank contents.

**Tank Capacity:** 10 gallons (45.46 litres).

## EXHAUST SYSTEM

**Silencer:** Flexibly mounted transversely behind rear axle.

**Tail Pipe:** Integral with silencer.

## IGNITION SYSTEM

Coil ignition. Lucas 12 volt.

**Distributor:** Driven from camshaft. Automatic advance and supplementary vacuum control.

**Sparking Plugs:** Lodge long reach 14 mm.

## ENGINE UNIT MOUNTING

Flexibly mounted on bonded rubber at four points, two at front of crankcase and two on transfer box.

## Transmission

### CLUTCH

Single dry plate type. 9 in. (0.23 m.) diameter. Spring cushion drive. Fitted in enclosed bell housing in which is mounted clutch operating shaft and levers. Light operating pressure.

**Clutch Operation:** Clutch pedal mounted on frame and operating through adjustable linkage. Control shafts lubricated by oil gun through nipples.

**Clutch Withdrawal Thrust:** Ball thrust race enclosed in special housing and fully lubricated.

### MAIN GEARBOX

Four forward speeds, one reverse.

**Synchromesh:** Top and third gears.

**Overall Ratios, including Axle:** First 16.171; second 11.026; third 7.435; top 5.396; reverse 13.745.

**Gear Change:** By direct central ball change lever on top of gearbox.

**Oil Capacity:** 2½ pints (1.42 litres).

### TRANSFER GEARBOX

Giving a reduction on the output from the main gearbox and providing additional overall ratios as follows: first 40.688; second 27.742; third 18.707; top 13.578; reverse 34.585.

**Transfer Gear Change:** By independent lever, also giving intermediate neutral position.

**Speedometer Drive Gear:** Incorporated with output shaft of transfer gearbox.

**Oil Capacity:** 4½ pints (2.56 litres).

### FOUR WHEEL DRIVE

Automatically selected when transfer box low ratio is engaged. Drive to front axle optional with high ratio engaged. Selected by an independent lever.

### POWER TAKE-OFF

Centre and rear power take-off drives available as optional extras.

### PROPELLER SHAFTS

Hardy Spicer open propeller shafts to front and rear axles.

**Lubrication:** By oil gun through nipples.

## REAR AXLE

Semi-floating type. Spiral bevel drive in banjo type axle case.

**Ratio:** 4.7 : 1.

**Bevel Pinion Bearings:** Taper roller journal, preloaded.

**Hub Bearings:** Single row ball journal. Fitted with oil seals.

**Oil Capacity:** 3 pints (1.70 litres).

## FRONT AXLE

Fully-floating type. Spiral bevel drive in banjo type axle case.

**Ratio:** 4.7 : 1.

**Bevel Pinion Bearings:** Taper roller, journal, preloaded.

**Hub Bearings:** Taper roller journal.

**Angularity of Universal Joint at Full Lock:** 26°.

**Oil Capacity, Differential:** 3 pints (1.70 litres).

**Oil Capacity, Universal Joint Housing:** 1 pint (0.57 litre).

## ROAD SPEED

In m.p.h. at 1,000 r.p.m.: first 5; second 7.34; third 10.9; top 15.

## Suspension

**Springs:** Semi-elliptic type, underslung. Silentbloc bushes all round. Second leaves wound round shackle pin eye to give extra strength.

**Shock Absorbers:** Monromatic double-acting telescopic type.

## Steering

Burman worm and nut type with recirculating ball. Thrust adjustment by nut at top of column.

**Ratio:** 15 : 1.

**Steering Wheel:** 17 in. (0.43 m.) diameter. Spring spokes. Cellulose acetate covering.

**Relay Unit:** Consists of spring loaded Tufnol damping cones.

**Drag Link, Track Rod and Longitudinal Tube:** Tubular with non-adjustable ball joints requiring no lubrication.

**Turning Circle:** 88 in. wheelbase with 6.00 × 16 tyres—41 ft. (12.50 m.) diameter. 107 in. wheelbase with 7.00 × 16 tyres—48/49 ft. (14.63/14.94 m.) diameter. 109 in. wheelbase with 7.00 × 16 tyres—50 ft. (15.24 m.) diameter.



## Brakes

### **Foot Brake:** Girling hydraulic.

88 in. wheelbase—leading and trailing shoes all round. Size of brakes 10 in.  $\times$  1½ in. (25.4 cm.  $\times$  3.8 cm.). Lining area 104.7 sq. in. (677 sq. cm.). 107 in. and 109 in. wheelbases—two leading shoes on front brakes, leading and trailing shoes on rear brakes. Size of brakes 11 in.  $\times$  2¼ in. (27.9 cm.  $\times$  5.7 cm.). Lining area 183.8 sq. in. (1182 sq. cm.).

**Hand Brake:** Internal expanding transmission type at rear of gearbox. Girling mechanical actuation.

**Hand Brake Lever:** Extending forward horizontally from seat box and accessible to driver's hand.

**Stop Light Switch:** Operated mechanically from brake pedal shank.

## Frame

Welded fabricated box section with box section cross-members, providing great-torsional and diagonal rigidity.

**Body Mounting:** On outriggers welded to side-members.

**Bumper:** Bolted to front dumb-irons. Channel section, heavily galvanised.

## Electrical Equipment

**Dynamo:** 12 volt Lucas. Fan ventilated. Compensated voltage control. Belt driven.

**Battery:** Lucas 12 volt. 51 A.H. Carried under bonnet.

**Ignition Coil:** Lucas. Mounted on engine side of scuttle.

**Starter:** Lucas type. Control by direct push switch situated below fascia.

## INSTRUMENTS AND CONTROLS

**Speedometer:** Large diameter with total mileage recorder.

**Petrol Gauge and Ammeter:** Combined in large dial, matching speedometer.

**Electric Horn:** Mounted under bonnet. Push button on steering column bracket.

**Electric Windscreen Wiper:** Mounted on lower edge of windscreen frame. Switch on motor.

**Panel Light:** Illuminating speedometer, ammeter and petrol gauge. Switch does not operate unless side and tail lamp switch is closed.

**Dip Switch:** Mounted on the floor. Red warning lamp on ammeter and petrol gauge dial indicates high beam.

**Ignition Switch:** Operated by key and concentric with rotary switch for head, side and tail lamps.

**Ignition Warning Light:** Red.

**Choke Warning Light:** Amber.

**Oil Pressure Warning Light:** Green.

**Headlamps:** Mounted in radiator cowling. Twin filament bulbs for double dipping.

**Side Lamps:** Mounted in front wings.

**Tail Lamps:** Twin units having double filament stop/tail bulbs, incorporating number plate illumination.

## Road Wheels

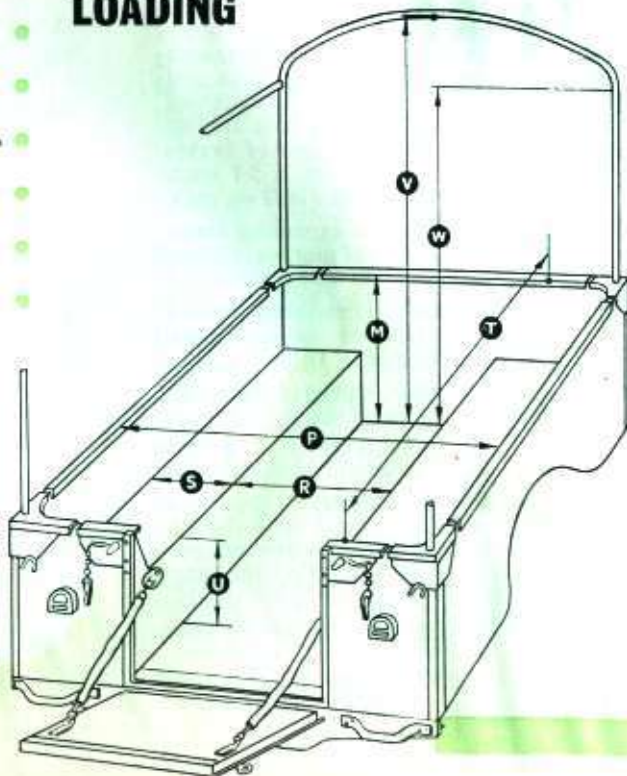
Pressed steel disc easy-clean type with ventilation slots. Five wheel studs.

**Tyres:** 88 in. wheelbase, basic equipment 6-00 x 16 dual purpose. 107 in. and 109 in. wheelbase, vehicles basic equipment 7-00 x 16, dual purpose. Optional tyre equipment specified on page 51.

## Tools

Full kit of hand tools in roll. Starting handle, wheelbrace, oil gun, jack.

## BODY DIMENSIONS AND LOADING





OVERALL DIMENSIONS	'Regular'		'Long'	
	English	Metric	English	Metric
Wheelbase ... ..	in. 88	m. 2.23	in. 107* 109†	m. 2.72 2.77
Track ... ..	50	1.27	50	1.27
Ground Clearance ... ..	8	0.20	8½	0.22
Overall Length ... ..	140½	3.58	173½	4.41
Overall Width ... ..	62⅞	1.59	62⅞	1.59
Overall Height (maximum)				
Station Wagon ... ..	76	1.93	78	1.98
Other Types ... ..	76	1.93	78	1.98
<b>INTERNAL DIMENSIONS</b>				
M ... ..	14½	0.36	20½	0.52
P ... ..	57½	1.45	57½	1.45
R ... ..	36⅞	0.92	36⅞	0.92
S ... ..	12	0.30	12	0.30
T ... ..	45⅞	1.16	72½	1.85
U ... ..	8⅞	0.22	8⅞	0.22
V ... ..	46½	1.18	52½	1.34
W ... ..	40½	1.04	47	1.19
<b>PAYLOADS</b>				
'Regular' ... ..	Three persons + 1,000 lb. (453.6 kg.).			
'Long' ... ..	<b>Roads:</b> Three persons + 1,500 lb. (680.4 kg.)			
	<b>Rough:</b> Three persons + 1,200 lb. (544.3 kg.)			
'Long' Station Wagon ... ..	<b>Roads:</b> Ten persons or six persons + 700 lb. (317.5 kg.)			
	<b>Rough:</b> Eight persons or six persons + 400 lb. (181.4 kg.)			

\* Station Wagon.

† Open Vehicle.

## WEIGHTS

<b>88-in. WHEELBASE REGULAR</b>	Front Axle	Rear Axle	Total
Unladen, plus 5 galls. petrol	lbs. 1530	lbs. 1210	lbs. 2740
<i>Max. allowable gross weights</i>			
Normal road work ... ..	1780	2510	4290
Cross country, normal springs	1780	2310	4090
Cross country, heavy duty springs ... ..	1780	2510	4290
<b>88-in. WHEELBASE REGULAR STATION WAGON</b>			
Unladen, plus 5 galls. petrol	1575	1393	2968
Approved pay load, normal roads, 7 persons plus 200 lbs. ... ..	1725	2493	4218
Approved cross country standard springs plus 7 persons ... ..	1725	2293	4018
Approved cross country heavy duty springs, 7 persons plus 200 lbs. ... ..	1725	2493	4218

## WEIGHTS—cont.

<b>109-in. LONG WHEELBASE</b>	Front Axle	Rear Axle	Total
Unladen, plus 5 galls. petrol	lbs. 1750	lbs. 1330	lbs. 3080
Maximum allowable weight, normal road work, driver plus two persons plus 1500 lbs. ... ..	2130	3055	5185
Cross country, driver plus two persons plus 1200 lbs.	2130	2755	4885
<b>107-in. WHEELBASE LONG STATION WAGON</b>			
Unladen, plus 5 galls. petrol	1806	1654	3460
Maximum allowable weight, normal roads, driver plus two persons plus 1500 lbs.	2130	2830	4960
Maximum allowable weight, cross country, driver plus 7 persons or driver plus 5 persons plus 300 lbs. ...	2130	2530	4660

88 in. Wheelbase 'Regular' . . .	101
109 in. Wheelbase 'Long' . . .	103
107 in. Wheelbase Station Wagon	404

# EXTRA EQUIPMENT FOR LAND-ROVERS

## 88 in. WHEELBASE 'REGULAR'

- E.3 Rear Pulley Unit, for use with E.61 (see Note)
- E.6a Pulley and Fittings, for use with E.83 (see Note)
- E.6b Pulley and Fittings, for use with E.83 when Rear Power Take-off is also fitted (see Note)
- E.8 Five Detachable Rim Road Wheels, instead of Five Standard Road Wheels
- E.10 Chaff Guard
- E.25 Universal Joint Covers
- E.28b Heavy-duty Pintle Hook for Towing
- E.29 Rubber Pads for Clutch and Brake Pedals
- E.39 Radio Interference Suppressors
- E.61 Rear Power Take-off Unit. Drive Section (see Note)
- E.62 Engine Speed Governor
- E.63 Metal Top Roof without Side Windows in place of hood
- E.65 Combined Water Thermometer and Oil Pressure Gauge
- E.68 Radio Installation
- E.72 Extra Driving Mirror
- E.75 Rear Seats (see Note)
- E.76a Truck type Cab for Driving Compartment, in place of hood (see Note)
- E.78 Road Speed Limiting Governor
- E.79 Interior Heater and Demisting Equipment
- E.83 Centre Power Take-off
- E.91 Windscreen Wiper for Passenger's side
- E.92 Hand Throttle Control
- E.93c Spare Wheel Carrier on Bonnet
- E.96 Extra Heavy Duty Road Springs and Shock Absorbers
- E.101 Flyscreens for Dash Ventilators
- E.103a Laminated Triplex Windscreen Glass, instead of Standard Glass
- E.107 Flasher Equipment
- E.109 Towing Equipment
- E.114 Lifting and Towing Rings
- E.115 Front Capstan Winch (see Note)
- E.116 Oil Cooler Equipment
- E.123 Trailer Socket, Plug and Leads
- E.124 Dummy Socket and Trailer Plug



**88 in. WHEELBASE**  
**'REGULAR' (cont)**

**E.183 Private Lock and Security Catches**

**TYRES**

- E.35** Dunlop 7-00 × 16", Fort
- E.47** Dunlop 6-50 × 16", T.29a  
'Super Trakgrip'
- E.67** Dunlop 6-00 × 16", T.28  
'Trakgrip'
- E.98** Dunlop 7-00 × 16", T.29a  
'Super Trakgrip'
- E.105** Dunlop 7-00 × 16", R.K.3  
Tread
- E.113** Dunlop 7-00 × 16", Sand

**Notes**

- E.3** { When any of these units are
- E.6a** { ordered it is essential that an
- E.6b** { Engine Speed Governor E.62
- is supplied also.
- E.61** { When either of these units is
- E.115** { ordered a Hand Throttle
- Control E.92 must also be
- fitted unless Engine Speed
- Governor E.62 has been
- specified.
- E.75** If 7-00 section tyres are to be
- fitted a Spare Wheel Carrier
- on Bonnet E.93c must also
- be supplied.
- E.76a** When this unit is ordered it is
- essential that the Spare
- Wheel Carrier on Bonnet
- E.93c is supplied also.
- E.109** This extra must always be
- called up when E.61 and Fire
- Tenders are ordered.
- E.124** Must be ordered when Flasher
- Equipment E.107 is fitted.



109 in. WHEELBASE —  
'LONG'

- E.3 Rear Pulley Unit, for use with E.184 (see Note)
- E.6a Pulley and Fittings, for use with E.83 (see Note)
- E.6b Pulley and Fittings, for use with E.83 when Rear Power Take-off is also fitted (see Note)
- E.10 Chaff Guard
- E.25 Universal Joint Covers
- E.28b Heavy Duty Pintle Hook for Towing
- E.29 Rubber Pads for Clutch and Brake Pedals
- E.39 Radio Interference Suppressors
- E.62 Engine Speed Governor (see Note)
- E.65 Combined Water Thermometer and Oil Pressure Gauge
- E.68 Radio Installation
- E.72 Extra Driving Mirror
- E.78 Road Speed Limiting Governor
- E.79 Heater and Demisting Equipment
- E.83 Centre Power Take-off
- E.91 Windscreen Wiper for Passenger's Side

- E.92 Hand Throttle Control
- E.101 Flyscreens for Dash Ventilators
- E.103b Laminated Triplex Windscreen Glass, instead of Standard Glass
- E.107 Flasher Equipment
- E.109 Towing Equipment
- E.114 Lifting and Towing Rings
- E.115 Front Capstan Winch (see Note)
- E.116 Oil Cooler Equipment
- E.123 Trailer Socket, Plug and Leads
- E.124 Dummy Socket and Trailer Plug
- E.175a Hood Hoodsticks and Tie Bars. Without Side Windows
- E.177 Rear Seats —
  - E.177/2 (2/4 seats)
  - E.177/4 (4/8 seats)
- E.184 Rear Power Take-off Unit. Drive Section (see Note)

## 109 in. WHEELBASE 'LONG'

### TYRES

- E.35 Dunlop 7-00 × 16". 'Fort'  
E.98 Dunlop 7-00 × 16". T.29a  
'Super Trakgrip'  
E.113 Dunlop 7-00 × 16". 'Sand'

### Notes

- E.3 { When any of these units are  
E.6a { ordered it is essential that an  
E.6b { Engine Speed Governor E.62  
is supplied also.  
E.62 A Hand Throttle Control E.92  
must NOT be fitted with  
this Unit.  
E.109 This extra must always be  
called up when E.184 is  
ordered.  
E.184 { A Hand Throttle Control E.92  
E.185 { must be fitted with these units  
unless Engine Speed Govern-  
or E.62 is fitted or ordered.

## 107 in. WHEELBASE 'LONG' STATION WAGON

- E.10 Chaff Guard  
E.25 Universal Joint Covers  
E.28b Heavy Duty Towing Pintles  
E.29 Rubber Pads for Pedals  
E.39 Radio Interference Suppressors  
E.65 Combined water Thermometer  
and Oil Pressure Gauge  
E.68 Radio Installation  
E.72 Extra Driving Mirror  
E.78 Road Speed Limiting Governor  
E.79 Car Heater and Demister  
E.91 Extra Windscreen Wiper  
E.92 Hand Throttle Control  
E.101 Flyscreens for Dash Ventilators  
E.103b Laminated Triplex Windscreen  
Glasses  
E.114 Front Lifting and Towing  
Rings  
E.115 Front Capstan Winch  
E.116 Oil Cooler Equipment  
E.123 Trailer Socket, Plug and Leads  
E.124 Dummy Socket and Trailer  
Plug

### TYRES

- E.35 Dunlop 7-00 × 16". 'Fort'  
E.98 Dunlop 7-00 × 16". T.29a  
'Super Trakgrip'  
E.113 Dunlop 7-00 × 16". 'Sand'

