Massey Ferguson 1200 Collection Preview

This single sample file contains samples for

Massey Ferguson 1200 Ops [152p]
Massey Ferguson 1200 WSM [399p]

Ops = operators manual
WSM = workshop manual
[*p] = *** pages**

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Massey Ferguson

MF 1200

Operator Instruction Book

819 456 M1

MF 1200 TRACTOR

MF 1200 TRACTOR
OPERATOR INSTRUCTION BOOK

This book has been divided into the following sections:

NOTE: Throughout this book the abbreviations R.H. and L.H. are used to denote Left Hand and Right Hand. These terms apply when the tractor is viewed from the rear, facing forwards.

FIG. 1

SPECIFICATION

Engine	
Make	Perkins, to MF specifications.
Type and Model	Four-stroke, direct injection diesel, A6.354.
Number of Cylinders	Six
Bore	98,47 mm (3.875 in)
Stroke	127 mm (5.0 in)
Capacity	5,8 lit. (354 in^3)
Compression Ratio	16 : 1
Firing Order	1, 5, 3, 6, 2, 4.
Lubrication	Replaceable cartridge type, full flow, external filter.
Valves	Overhead – push rod operated.
Valve Tip Clearance (Inlet and Exhaust)	0,305 mm (0.012 in) Cold 0,254 mm (0.010 in) Hot
Fuel Lift Pump	A.C. Delco, diaphragm type with hand lever for priming.
Fuel Filter	C.A.V., parallel type filter with twin elements and sediment bowls.
Fuel Injection	C.A.V. Distributor type, with a mechanical governor. Governed engine rev/min. Idling 850 rev/min, Max. 2600 rev/min } No load
Fuel Injection	C.A.V. type nozzles and nozzle holders. Injection Timing 22° B.T.D.C. Working Pressure 170 atmospheres Initial Setting, for new injectors 175 atmospheres.
Easy Starting Aid	C.A.V. Thermostart Type 375-5
Air Cleaner	Two stage, dry element, removeable for cleaning with safety element and pre-cleaner.

Electrical System	
Voltage	12 Volt NEGATIVE EARTH.
Batteries	2 off, 17 plate 96 amp/hour Lucas Aqua-lok AV17T-8 or Exide Auto-Fill 6-TXAZ15L
Starter Motor	Lucas M50G with solenoid engaged pinion. Safety start device operated by the dual range selector lever
Generator	Lucas 18ACR Alternator with 45 amp/hour maximum output. Alternator has a built-in control box.
Lamp Bulb Sizes	
Headlamp	12 v. 36/36 watt.
Plough Lamps	12 v. 36 watt.
Side Lamps	12 v. 6 watt.
Tail Lamps	12 v. 6 watt.
Cab Interior Light	12 v. 6 watt.
Fuses	50 amp. protect thermostart, cigarette lighter, wiper motor, fresh air blowers etc.
Fresh Air Blowers	Two Clayton Dewandre type CH5A 490/2 blowers with independent switching to give a maximum of 12,75 m^3/min (450 ft^3/min).

Cooling System	Engine mounted centrifugal pump, flow controlled by twin thermostats, assisted by a six blade, 457 mm (18 in) dia. fan, belt driven from crankshaft.
System Pressure	N/mm^2 (7 lb/in^2)
Fan Belt Deflection	19 mm (¾ in) across widest pulley span.

Transmission	
Clutch	Single Clutch – ventilated type, coil spring operated, with 330 mm (13 in) diameter main drive disc. There is continuous drive to the i.p.t.o.
Multi-Power Transmission	Three forward and one reverse speed gearbox, compounded by a planetary gearset on the rear end of the mainshaft and further compounded by a hydraulically actuated overdrive gearset to give twelve forward and four reverse gears.
Planetary Reduction Ratio	4 : 1
Final Drive	Spiral Bevel type crownwheel and pinion, with epicyclic hub final reduction.
Crown wheel and Pinion Ratio	5.14 : 1
Epicyclic Hub Ratio	3.14 : 1
Overall Transmission Constant Reduction Ratio	16.15 : 1
Mk. II Multi-Power Transmission	Three forward and one reverse speed, compounded by a planetary gearset on the rear end of the mainshaft and further compounded by a hydraulically actuated overdrive gearset to give twelve forward and four reverse gears. All gear teeth are of involute straight cut spur type, designed to run in constant mesh, except for first gear which has helical gear teeth. Where movement of the gears is required to change ratio, a sliding coupler arrangement has been introduced.
Power Take-Off	Proportional Engine Speed drive is engaged by a handle to the right of the driver's seat. The i.p.t.o. clutch is a multi-plate, wet type clutch with hydraulic actuation. The clutch is situated in the rear axle centre housing.
P.t.o. Shaft	35 mm (1⅜ in) diameter, with 21 involute splines, plus an annular groove and a transverse hole for securing p.t.o. couplings.
P.t.o. Reduction Ratio	2.216 : 1
Standard Working Speed	1000 p.t.o. rev/min @ 2216 engine rev/min.
Micronic Filtration	A micronic filter with replaceable cartridge type element is fitted to the I.p.t.o./Diff. lock pump circuit to provide filtration for the rear axle. The filter body is mounted on the L.H. side panel of the rear frame.
Pressure Maintaining Valve	An externally mounted pressure maintaining valve is added to the I.p.t.o./Diff. lock pump circuit.
Brakes	223,7 mm (8.81 in) Girling mechanical multi-disc wet brakes, with hydraulic actuation to all four wheels.
Parking Brake	Operates on front wheels from ratchet and pawl lever.
Trailer Brakes (certain markets)	The system provides automatic operation of the trailer brakes when ever the tractor brakes are applied.
Steering	Centre pivot articulation actuated by a hydrostatic, double acting ram. Steering is obtained by use of an orbital hand pump controlled by the steering wheel and fed from a belt driven, chassis mounted gear type hydraulic pump.
Pump Output	72,7 lit/min (16 Imp gal/min) @ 2400 rev/min
Pressure	140 kg/cm^2 (2000 lb/in^2).
Filtration	33 micron filter with replaceable cartridge type element.

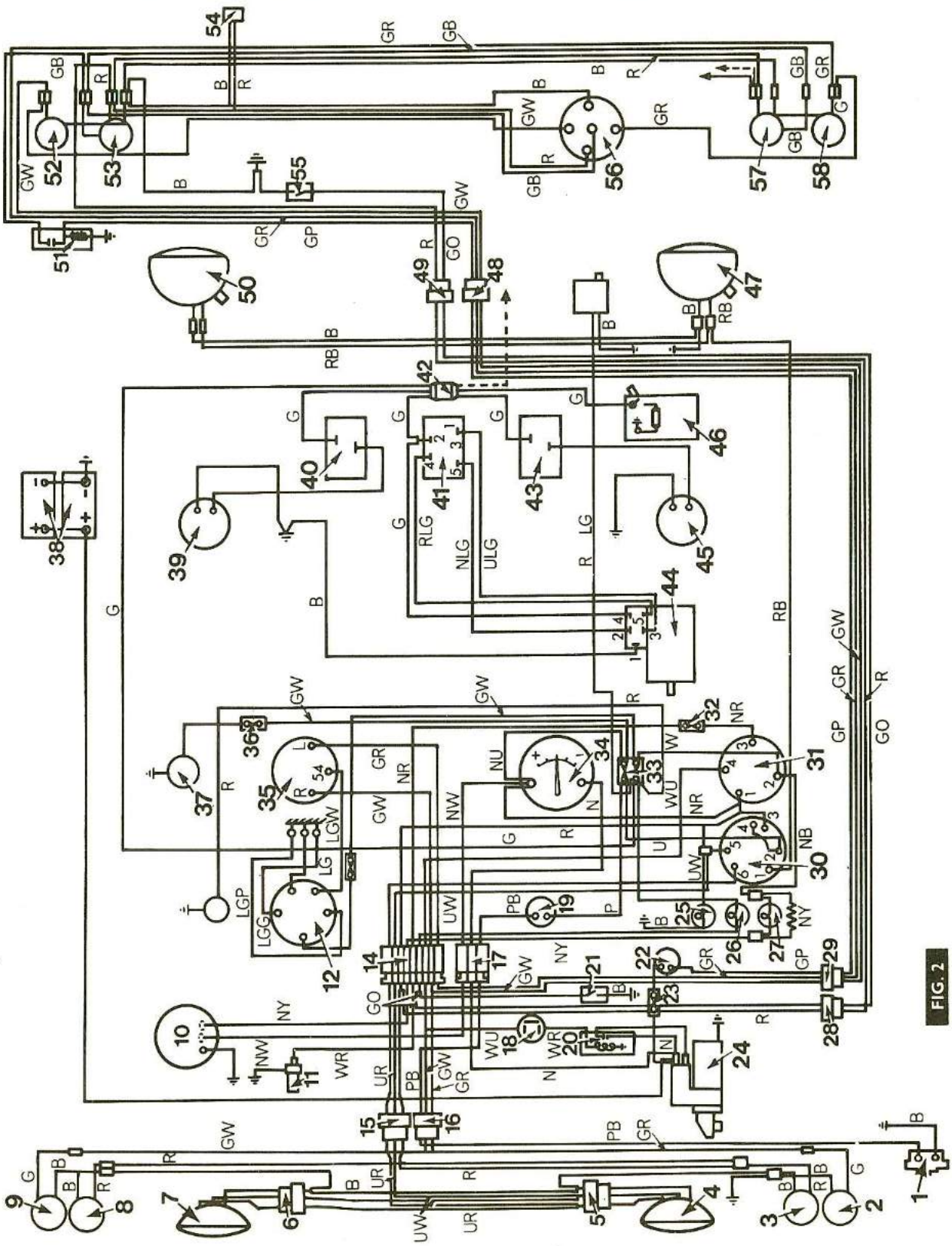


FIG. 2

INSTRUMENTS AND CONTROLS

INSTRUMENT PANEL

Tractormeter (1, Fig. 1 and Figs. 2A and 2B)
The tractormeter is a multi-purpose instrument which indicates engine rev/min, miles, or kilometers per hour and equivalent engine running hours on one dial. The layout of the dial is as follows:—

1. The top outer set of figures and graduations indicate the engine speed in rev/min.
2. The top inner set of figures and graduations are subdivided into bands and indicate the tractor ground speed in high range, 5th, 6th, 7th and 8th gear respectively, (8 speed transmission — Fig. 2A), or high range, high ratio, 8th, 10th and 12th gears respectively (Multi-Power transmission — Fig. 2B), working from the inner band, outwards.
3. The lower set of figures indicate ground speeds for low range, 1st, 2nd, 3rd and 4th gears respectively (8 speed transmission), or low range, high ratio, 2nd, 4th and 6th gears respectively (Multi-Power transmission), working from the inner band outwards.
4. The rectangular aperture in the lower centre of the dial shows the readings on an odometer which is geared to register one unit for every hour of work that the tractor engine performs at 1800 rev/min. If the engine speed is higher, or lower, units will be registered more quickly, or slowly respectively. The tractormeter dial also incorporates a marking to show standard p.t.o. speed at rev/min.

Ammeter (2, Fig. 1)
The ammeter indicates whether the battery is being charged, or is discharging.

Oil Pressure Gauge (3, Fig. 1)
This gauge indicates the engine oil pressure. The GREEN sector is the normal operating pressure area.

Water Temperature Gauge (4, Fig. 1)
The temperature gauge indicates the temperature of the coolant in the radiator and engine.
The GREEN sector indicates normal working temperature.

Starter Switch (5, Fig. 1)
The starter switch has four positions:

1. OFF — This position isolates all electrical services.
2. AUX — This position permits electrical services (cab blowers, lights, wipers, etc., etc.) to be switched on with the engine stopped.
3. HEAT — Moving the key to the HEAT position energises the thermostart heater coil for cold weather starting.
4. START — Movement of the key to START supplies power to the starter motor.

Light Switch (6, Fig. 1)
The lighting switch has six positions:

1. OFF
2. Side lights and tail lights.
3. Dipped headlights, side lights and tail lights.
4. Main beam headlights, side lights and tail lights.
5. Main beam headlights and plough lamps.
6. Plough lamps only.

When the main beam headlights are switched on a warning light (7, Fig. 1) lights up (Blue —some territories only).

Flashing Indicator Switch (8, Fig. 1) (Some territories only)
The flashing indicator switch has three positions:

1. Central OFF.
2. Left — L.H. indicator operates.
3. Right — R.H. indicator operates.

When the switch is operated, the L.H. warning light flashes, irrespective of whether L.H. or R.H. is selected. When using the tractor flashers only, all three lights will flash once, then only the L.H. light will flash. With one trailer fitted, the L.H. and centre lights will flash. When two trailers are used, all three lights will flash. The warning lights show that the trailer flashers are working correctly.

Fuel Cut-off Control (9, Fig. 1)
TO STOP THE ENGINE, PULL THE KNOB FULLY OUTWARDS. Push the knob fully in before starting the engine.

Hand Throttle Lever (10, Fig. 1)
Move the lever forwards to increase the engine speed. The fully down position will permit the engine to 'tick-over' at approximately 850 rev/min.

Horn Push (11, Fig. 1)
To sound the horn, press the button.

Multi-Power Switch (12, Fig. 1)
The Multi-Power switch is used to change to or from HIGH and LOW ratio, whilst on the move. See also page 28 for further details of Multi-Power operations.

Cigarette Lighter (13, Fig. 1) (Optional)
To operate the lighter, push the lighter unit head in. When the element has heated, the head will partly eject, ready for withdrawal and use. Replace the head to its original position after use.

Heater Temperature Lever (14, Fig. 1) (Optional)
This lever controls the flow of coolant to heater. To alter the temperature in the cab, move the lever to the required setting and switch on the R.H. blower.

NOTE: The cab heater will only be effective when the engine has fully warmed up.

Warning Lights (7, 15 & 16, Fig. 1)
There are three warning lights on the instrument panel:

7. Headlamp Main Beam
   Blue — This is fitted only in some territories.
15. Alternator Charge
   Red — This light is illuminated if the starter switch key is in the AUX position and the engine is stopped, or not charging the battery.
16. Differential Lock
   White — This light is illuminated when one or both of the differential locks engages. Immediately both the differential locks are disengaged, the light goes out.

Rear Screen Wiper
The rear screen wiper is a single speed unit with a built in ON/OFF switch. The wiper motor will only operate when the starter switch is in the AUX. position.

Panel Light and Switch (35, Fig. 1).

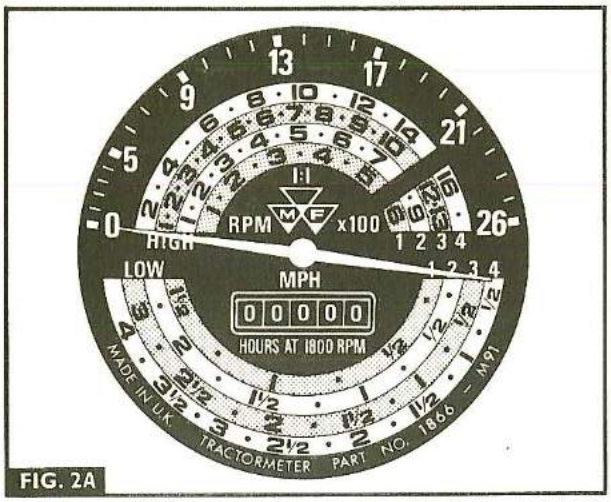


FIG. 2A

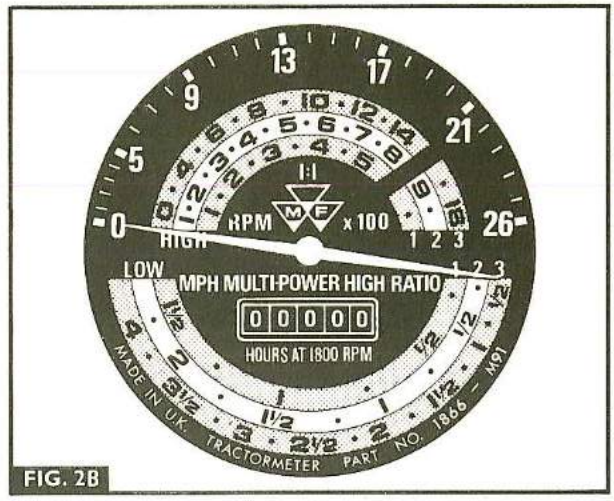


FIG. 2B

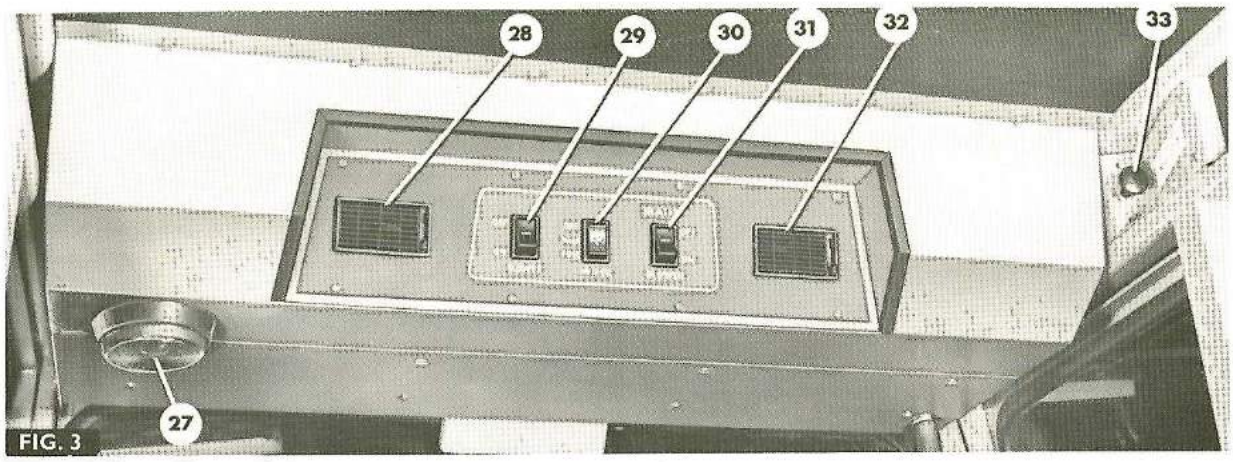
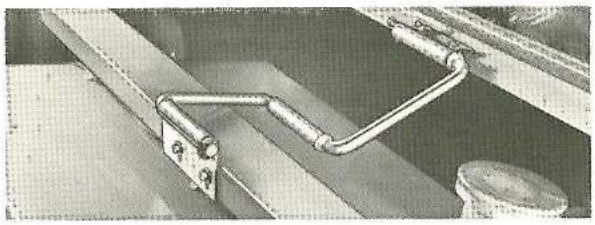


FIG. 3



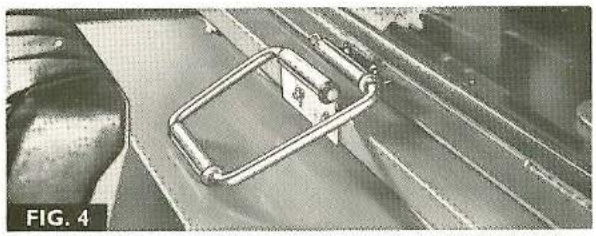


FIG. 4

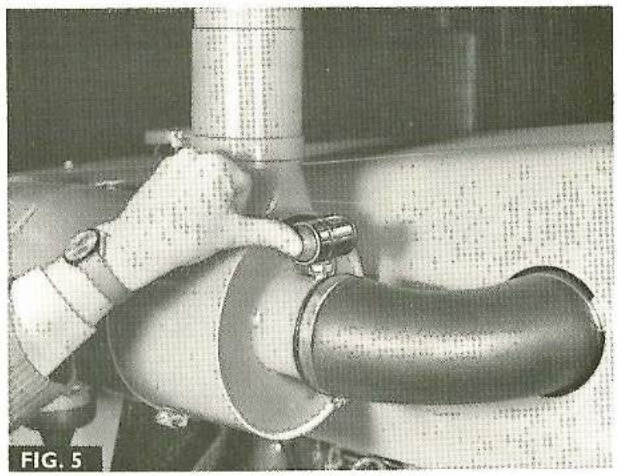


FIG. 5

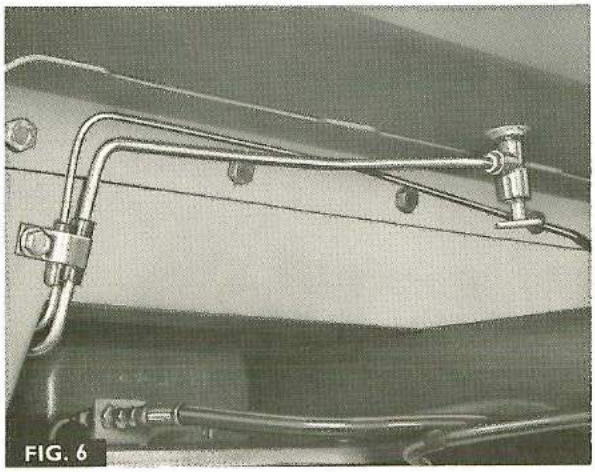


FIG. 6

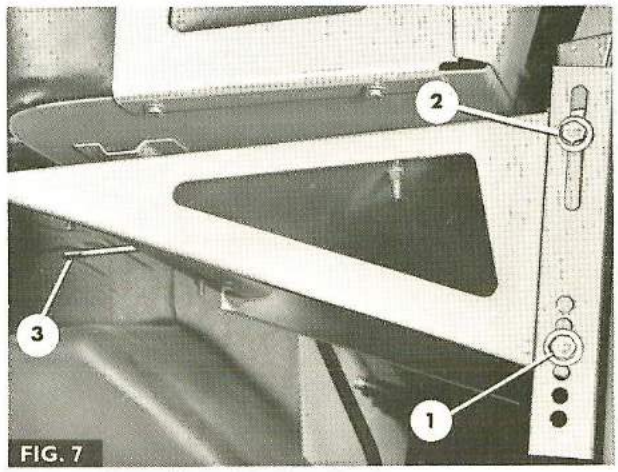


FIG. 7

Auxiliary Hydraulic Control Levers (17, Fig. 1) (Optional Extra)
Move the levers either up, or down for oil supply. The levers are spring loaded to the central NEUTRAL position, when not in use. For full details of auxiliary hydraulic operation, see page 38.

R.H. CONTROLS

Draft Control Lever (18, Fig. 1)
For full details of operation see page 38.

Position Control Lever (19, Fig. 1)
For full details of operation, see page 38.

Gear Lever (20, Fig. 1)
The gear lever knob has a diagram engraved on its top face to indicate the respective gear positions (three forward and one reverse – Multi-Power, or four forward and one reverse for eight speed).

Dual Range Selector Lever (21, Fig. 1)
The dual range selector lever is used to select high or low transmission range. The top of the gear knob is engraved L – S – H to indicate LOW, START (neutral) and HIGH respectively.

P.t.o. Lever (22, Fig. 1)
To engage the power take-off drive, pull the lever upwards. To disengage the drive, push the lever down.

Parking Brake Lever (23, Fig. 1)
The parking brake lever acts on the tractor front wheels. A pawl and ratchet retain the hand lever in the parking position. To release the parking brake, press the button on the end of the lever and push the lever down.

Footbrake Pedal (24, Fig. 1)
The brake pedal actuates four wheel, hydraulically actuated disc brakes.

Differential Lock Pedal (25, Fig. 1)
To engage the differential locks, press down the pedal. The locks will release when foot pressure is removed from the pedal. When the differential locks are engaged, a warning light (16) is illuminated on the instrument panel.

Clutch Pedal (26, Fig. 1)
The clutch pedal is used to engage and disengage drive from the engine to the transmission. This clutch pedal has no effect on the drive to the p.t.o. or hydraulics.

Foot Throttle (34, Fig. 1)
Operation of the foot throttle over-rides the hand throttle when increasing the engine speed. When the foot throttle is released, the engine will return to the speed set by the hand throttle. WHEN OPERATING THE FOOT THROTTLE, THE HAND THROTTLE MUST BE FULLY CLOSED.

UPPER CONSOLE

Interior Light (Figs. 1 and 3)
The interior light has a switch which is moved to the LEFT for ON and to RIGHT for OFF.

L.H. Air Flow Vent (Figs. 1 and 3)
To guide the flow of air in the required direction, move the central knob to pivot either the duct flaps, or the duct body. The lever on the R.H. side of the duct is used to switch the flow of air on or off. DOWN – ON, UP – OFF.

L.H. Blower Switch (Figs. 1 and 3)
This switch actuates the L.H. blower for cold air only and has two positions.
Top depressed – OFF. Bottom depressed – ON.

Front Screen Wiper Switch (Figs. 1 and 3)
A two speed windscreen wiper is fitted to this tractor, controlled by a three position switch. Switch operation is:–
Top depressed – SLOW. Central – OFF. Bottom depressed – FAST.

R.H. Blower Switch (Figs. 1 and 3)
This switch actuates the R.H. blower for either warm or cold air and has two positions.
Top depressed – OFF. Bottom depressed – ON.

R.H. Air Flow Vent (Figs. 1 and 3)
To guide the flow of air in the required direction, move the central knob to pivot either the duct flaps, or the duct body. The lever on the R.H. side of the duct is used to switch the flow of air on or off.
Up – OFF. Down – ON.

NOTE: The air flow vents can be switched off whilst the blowers are switched on, to divert full air flow on to the windscreen for demisting purposes. Normally, with one or both of the vents open, only a proportion of the total flow is diverted on to the windscreen.

Fresh Air Duct Knob (Figs. 1 and 3)
To permit fresh air to enter the cab through the front screen, pull the knob fully rearwards. To close off the flow, push the knob forwards.

Window Catches (Fig. 4)
The forward pair of side windows and the rear screen are hinged to permit further ventilation. To open the windows, lift the over-centre catches upwards, then push the window outwards and move the catch to the extended over-centre position.

NOTE: **Driving with the side windows open exposes the operator to much greater noise. Any open window will admit dust and insects. Therefore greater operating comfort will be available by driving the tractor with all windows closed and using the blowers and heater, as required, to control the cab temperature, in all but the hottest conditions.**

Dry Air Cleaner Service Indicator (Fig. 5)
The dry air cleaner service indicator, mounted on the top rear end of the air cleaner shows red when the air cleaner element requires attention (see also page 49). To reset the indicator, press the button on the end of the indicator body.

Fuel Tap (Fig. 6)
The fuel tap is fitted to the base of the fuel tank to the rear of the cab (exterior). To cut off the fuel supply, screw the tap fully IN.

Seat Adjustment (Fig. 7)
To adjust the seat for height:
1. Remove the lower bolts (1) on each side of the seat.
2. Slacken the upper bolts (2) on each side of the seat, until the seat can be just slid up or down.
3. Set the seat at the required height, then refit the two lower bolts (2).
4. Retighten the upper bolts (1).

To move the seat in a fore and aft direction, move the lever 3 under the front edge of the seat, to disengage the runner lock, then slide the seat either forwards or rearwards, as required.

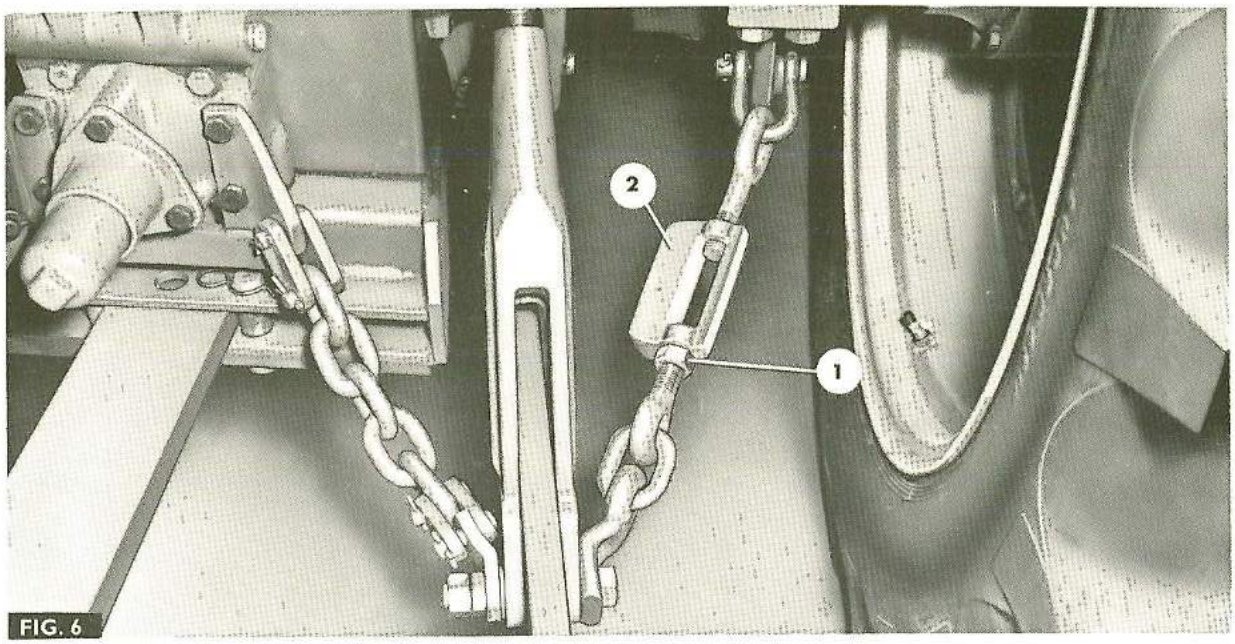


FIG. 6

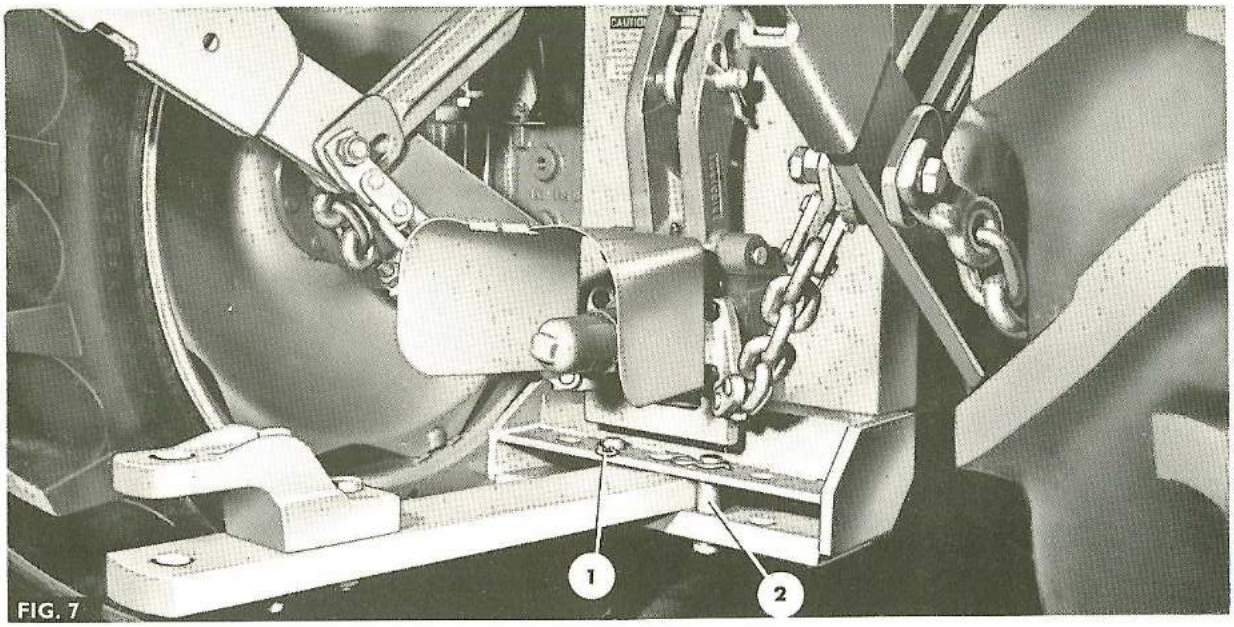


FIG. 7

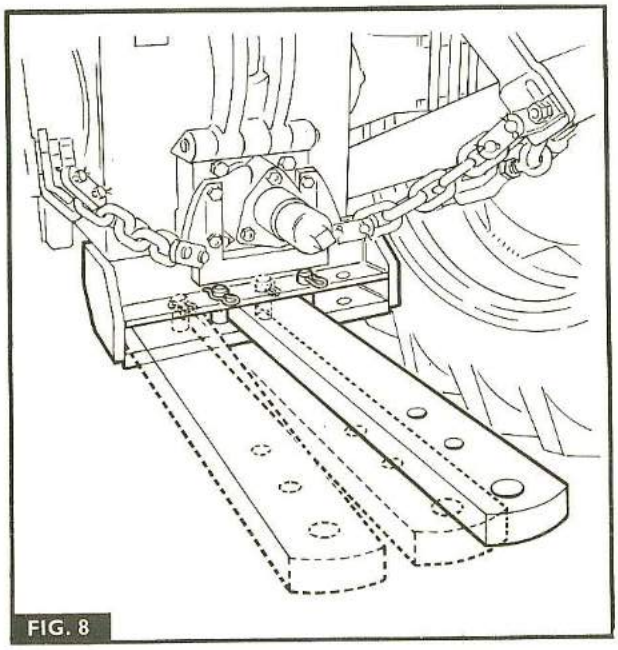


FIG. 8


FIG. 9

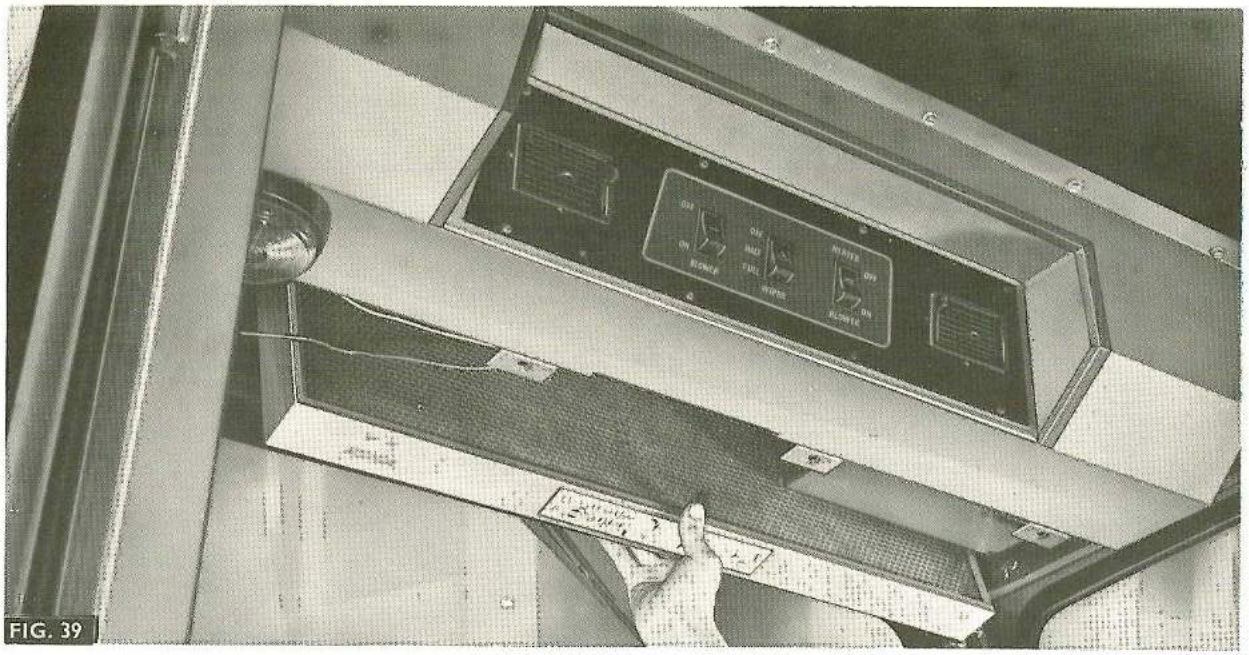


FIG. 39

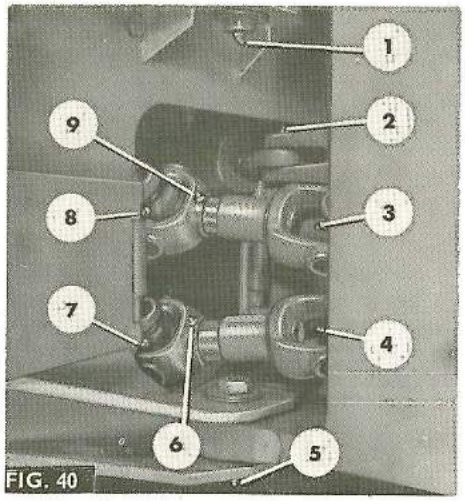


FIG. 40

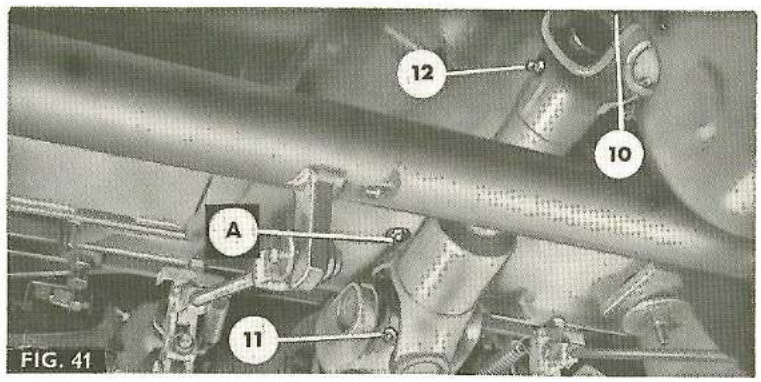


FIG. 41

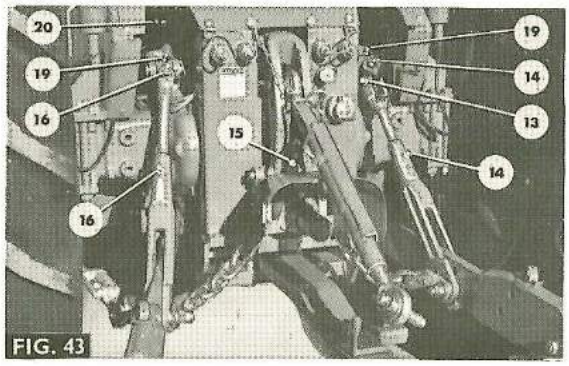


FIG. 43

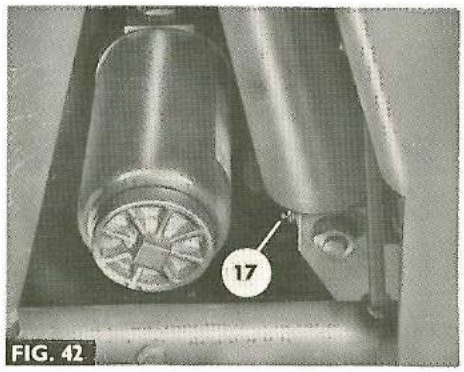


FIG. 42

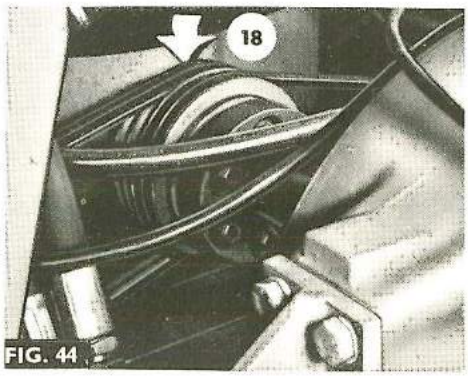


FIG. 44

TRACK WIDTHS

Track Settings and Adjustments

Seven track settings, from 1523 mm (60 in) to 1727 mm (68 in) with the discs set normally and from 1828 mm (72 in) to 2134 mm (84 in) with the discs reversed.

Adjustment procedure is as follows:

1. Select the required track adjustment (see Fig. 1).
2. Slightly slacken either the wheel to axle, or rim to disc nuts, or both according to requirement.
3. Insert a ⅝ x 150 mm (6 in) bolt through the pivot joint (see page 5).
4. Using a jack capable of lifting 5080 kg (5 tons) raise the front and rear wheels in turn just clear of the ground.
5. Remove the rim from the disc, or complete wheel, or both and re-assemble them with the rim and disc in their new positions.

NOTE: **If the wheels are to be reversed to make use of a wider set of track settings, the wheels must be transferred to opposite sides of the tractor to maintain the correct tread pattern direction.**

6. Refit the wheel and tighten the nuts progressively to the following torques:
   (a) Disc to axle – 27,5 kg-m (200 lb ft)
   (b) Rim to disc – 13,5 kg-m (100 lb ft)
7. Lower the tractor wheels to the ground and check the wheel nuts for full tightness.

NOTE: **Where large section tyres, with liquid ballast are used, a crane may be required to manoeuvre the wheels due to their considerable weight.**

TYRES

The correct choice of tyre is a factor which can greatly influence tractor performance. As an aid to best performance, the following hints should be applied.

Clay:– Large diameter, narrow section tyres are required. These will concentrate the weight acting on the ground on to a small contact area and thus force the tyre lug-bars to bite into the soil and give good traction.

Very Light Sandy Soil, or Peat:– Any wide section tyre will allow the weight of the tractor to be spread over a larger contact area than with a narrow section tyre, thus preventing sinkage.

Stony, Flinty Ground:– Large diameter wide section tyres will spread the load and wear over as large a section of the cover as possible, as well as giving good flotation.

The above summary is intended only as a guide, bearing in mind that a compromise must often be made where the tractor has to work in a variety of conflicting conditions.

Liquid Ballasting

To improve traction in difficult conditions, tractor tyres can be filled with a solution of calcium chloride and water. Water alone must only be used in conditions where there is no risk of freezing, as ice in the tyres can cause extensive damage.

There are two methods of liquid filling tyres: i.e. 75% full, or 100% full.

The weight increase per tyre is as follows:

TYRE SIZE	75% FILL		100% FILL	
	lb	kg	lb	kg
12–38	465.5	207,1	605.5	274,6
14–34	725	328,9	906	410,9
15–30	787	338,82	1062	481,1

For details of correct procedure for liquid ballasting, consult your local Distributor/Dealer.

The following summary gives brief details of the most suitable type of tyre for a given ground condition. Tractor tyres fall fairly easily into distinct categories: Field (Dunlop RT 40, Goodyear Traction Sure Grip) Universal Field and Road (Goodyear Sure Grip All Service) type tyres are best for ploughing and similar operations, but do not give good wear when used for extensive road work. Universal tyres combine fairly good road wear with average ploughing performance.

TYRE MAINTENANCE

These simple rules, if followed carefully, will ensure maximum tyre life.

Tyre Pressures

1. The tyre pressures listed below are maximum and can be used in safety, at all times, without danger of sidewall rippling. In certain conditions the pressures may need to be lowered, particularly where wheelspin occurs.
   If the tyre pressures are reduced, have someone observe the tractor whilst it is working. Rippling of the sidewalls can cause rapid and severe tyre damage.

Maximum Tyre Pressures – Not to be exceeded

Tyre Size	Little or No Load on Rear				Heavy Mounted Equipment			
	Front		Rear		Front		Rear	
	kg/cm²	lb/in²	kg/cm²	lb/in²	kg/cm²	lb/in²	kg/cm²	lb/in²
13.4 (12)–38 8 ply	2,5	35	2,1	30	2,1	30	2,5	35
16.9 (14)–34 8 ply	2,0	28	1,5	22	1,5	22	2,0	28
18.4 (15)–30 6 ply	1,8	26	1,4	20	1,4	20	1,8	26

   If a reversible plough is fitted, the landside alternates according to the direction of travel, therefore, both tyres must be kept at the same pressure. When working across a hillside, the pressure of both rear tyres should be raised by 0,14 kg/cm² (2 lb/in²) as the wheel on the tractor nearest the bottom of the hill will be supporting most of the load at that time, but when the direction of travel is reversed, the load will then be transferred to the opposite wheel. For road work, tyre pressures must be raised by 0,28 kg/cm² (4 lb/in²) or to the maximum, whichever is the lower. (This does not apply to Firestone F151 tyres).
2. Keep oil, grease and strong alkaline, or acid fertilizers away from tyres to prevent deterioration of the rubber.
3. Have any small sidewall, or tread splits re-vulcanised as soon after they occur as possible. This will extend the life of the tyre.
4. If bolt-on weights are fitted, raise the pressure to suit the weight fitted (consult your Distributor/Dealer).
5. If you have been ploughing with low pressures and must drive on the road when the work is done, drive slowly.
6. For maximum efficiency when ploughing, never use tyres more than ⅓ to ½ worn.

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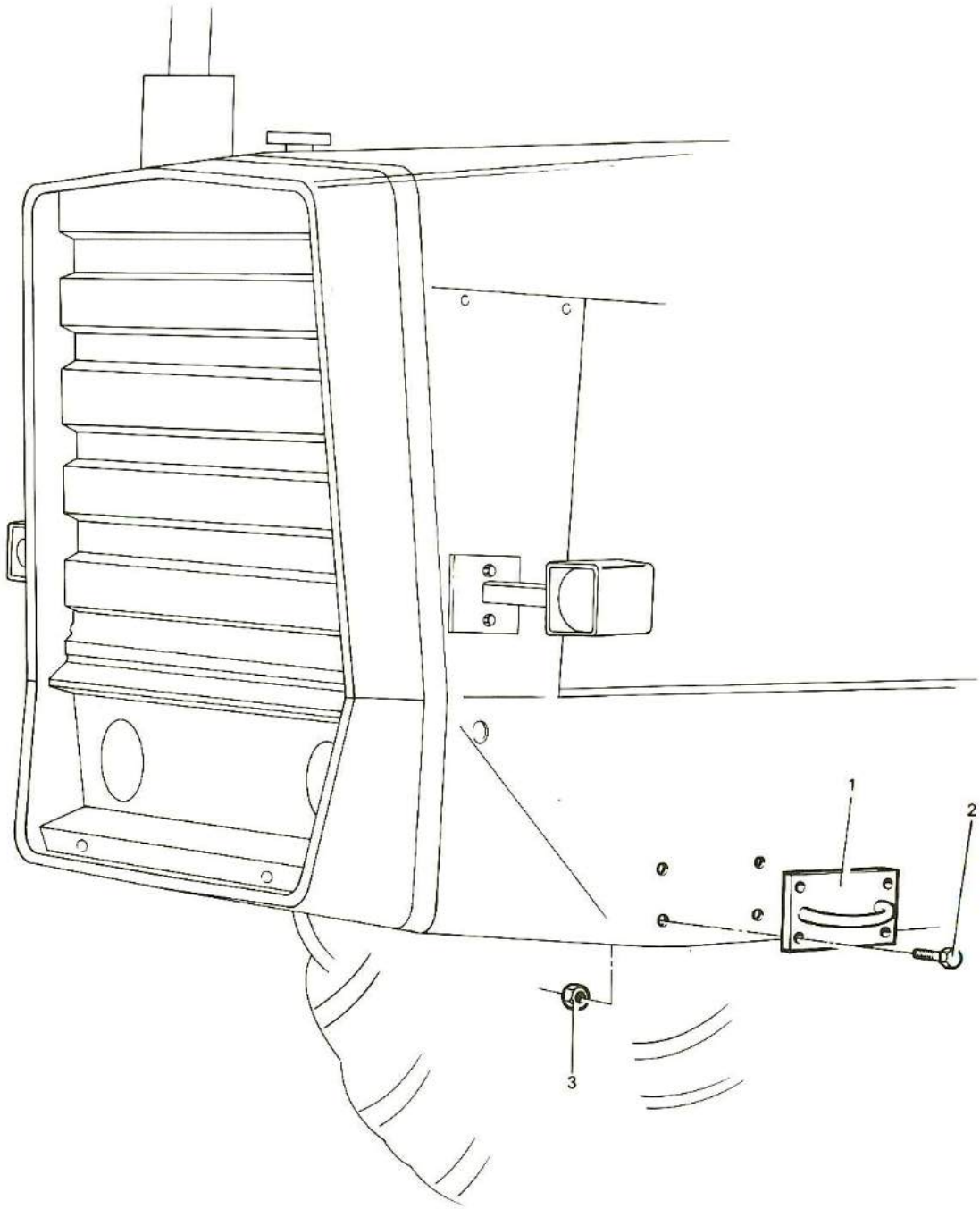
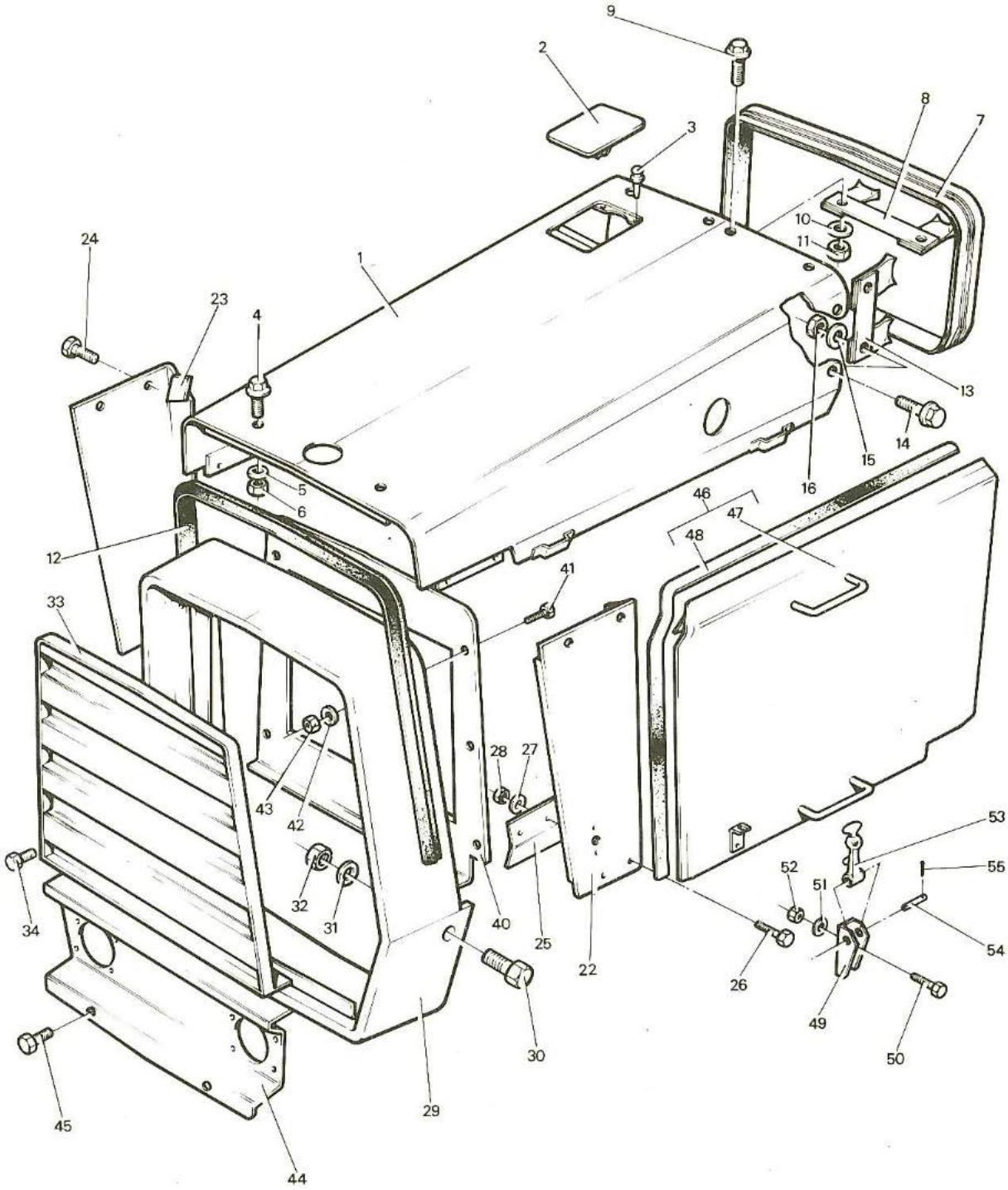


Towing Eye



Hood and Side Panel

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Massey Ferguson 1200

Workshop Manual

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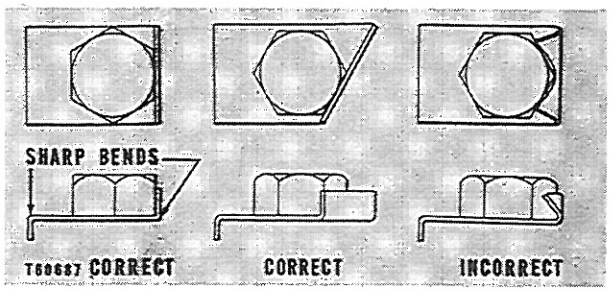
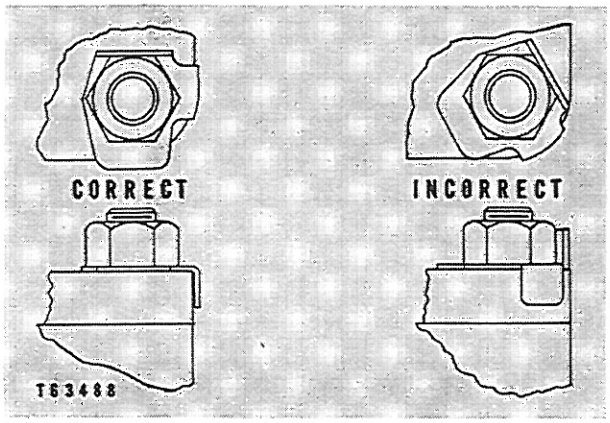
Issue 2

Apply proper torque values to all bolts and nuts when re-assembling equipment. When a specific torque value is required, the value is listed in the text. Tighten all other bolts and nuts for general usage or taperlock studs to the torque values given in the charts at the front of the SPECIFICATION.

LOCKS



Correct and incorrect methods of installing flat metal locks.



Correct and incorrect method for lock positioning and bending.

Lockwashers, flat metal lock or cotter pins are used to lock nuts and bolts.

Flat metal locks must be installed properly to be effective. Bend one end of the lock around the edge of the part. Bend the other end against one flat surface of the nut or bolt head.

Always install new locks in compartments which house moving parts.

When installing lockwashers on housings made of aluminium, use a flat washer between the lockwasher and the housing.

CABLES AND WIRES

When removing or disconnecting a group of cables or wires, tag each one to assure proper assembly.

LUBRICATION

Where applicable, fill the compartments of the components serviced with the amount, type and grade of lubricant recommended in the Regular Maintenance Section (1B) of this Manual.

RUST PREVENTITIVE COMPOUND

Clean the rust preventitive compound from all machined surfaces of new parts before installing them.

SHIMS

When shims are removed, tie them together and identify them as to location. Keep shims clean and flat until they are reinstalled.

BEARING BUSHES

Do not install bearing bushes with a hammer. Use a press if possible and be sure to apply the pressure directly in line with the bore. If necessary, drive on a bearing using a bearing driver or a bar with a smooth flat end. If a sleeve bearing has an oil hole, align it with the oil hole in the mating part.

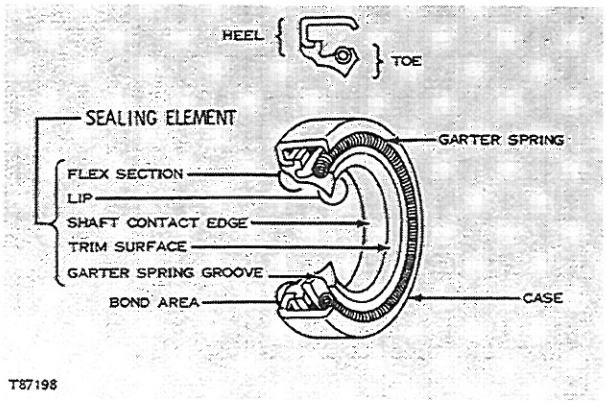
GASKETS

Be sure the holes in the gaskets correspond with the lubricant passages in the mating parts. If gaskets are to be made, select material of the proper type and thickness. Be sure to cut holes in the right places. Blank gaskets can cause serious damage.

LIP-TYPE RUBBER SEALS

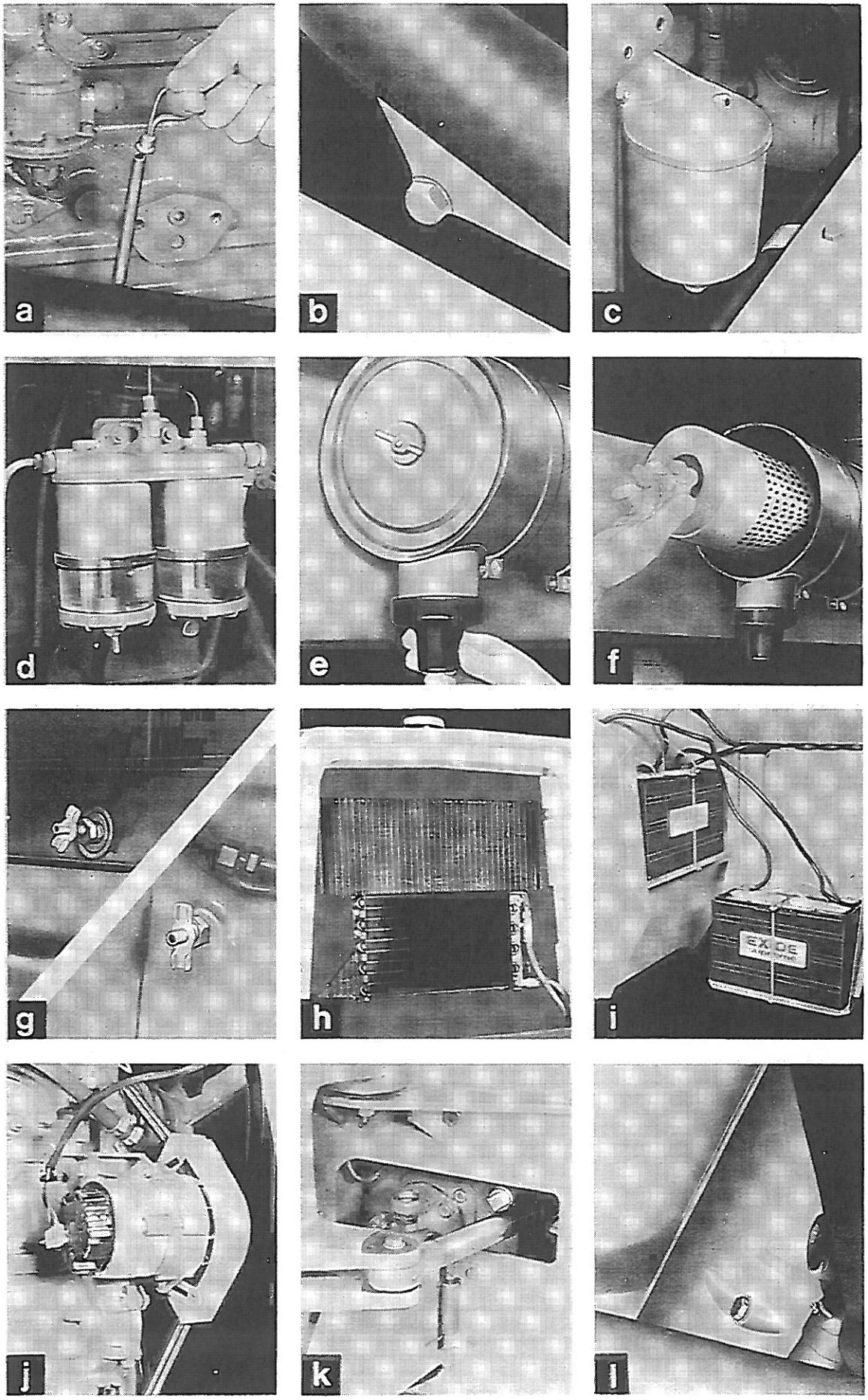
Lubricate the lips of lip-type rubber seals before installation. Use petroleum jelly. Do not use grease on any seal except a grease seal.

The main parts of a lip-type seal are the case, sealing element, and garter spring. The picture below illustrates the construction of a simple lip-type seal. The cross section at the top shows the terms "heel" and "toe" used to identify the sides of a single element seal. With few exceptions, the toe of an oil seal with one lip is next to the lubricant that is sealed. Some seals have a second auxiliary lip, which does not carry a garter spring.



Lip-type seal construction.

If, during installation, the seal lip must pass over a shaft that has splines, a keyway, rough surface or a sharp edge, the lip can be easily damaged. Always use a seal protector, when one is provided.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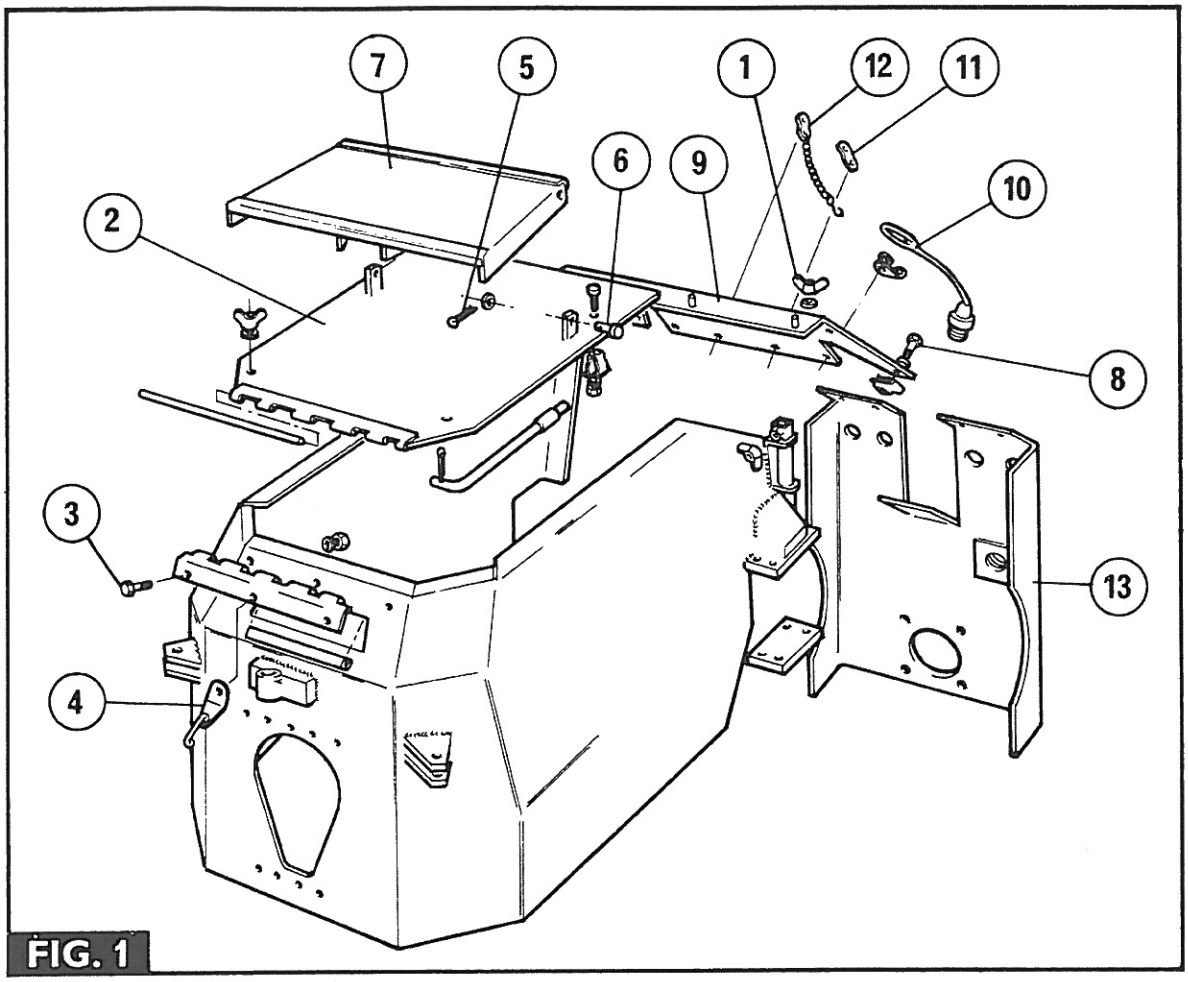


FIG. 1

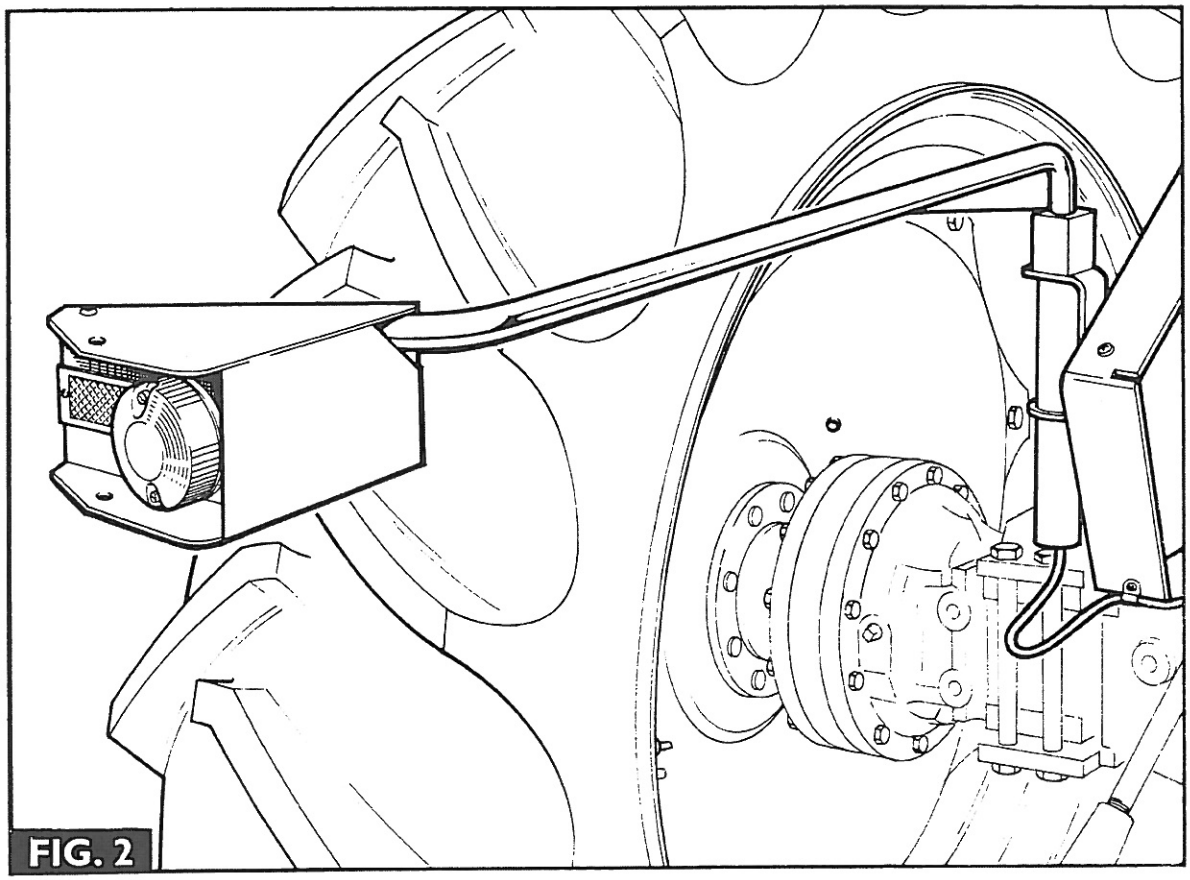
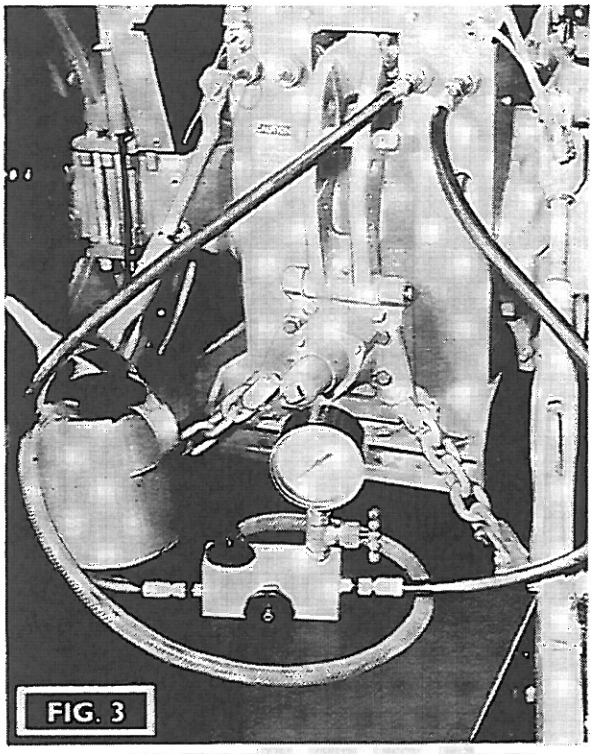


FIG. 2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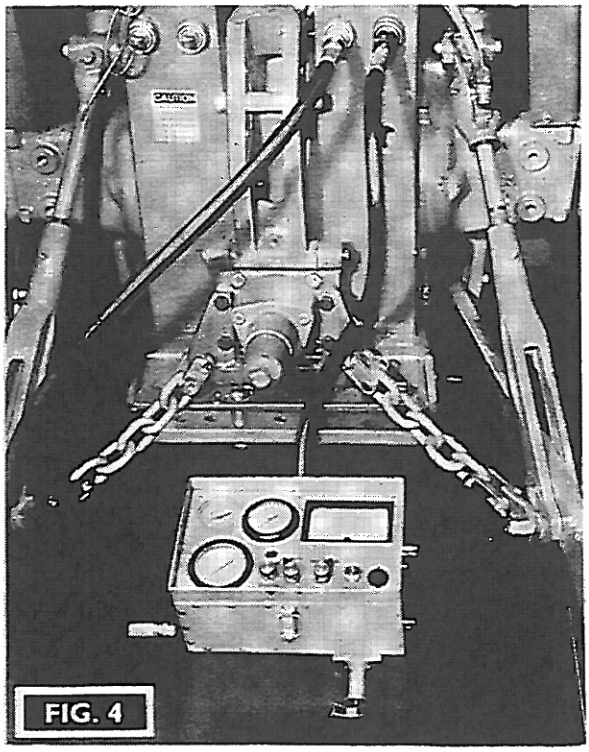


FIG. 4

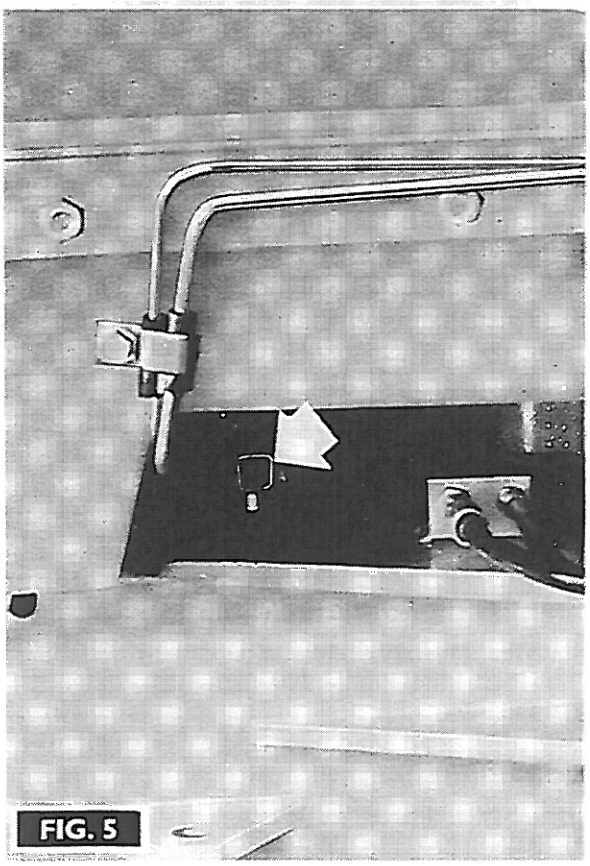


FIG. 5

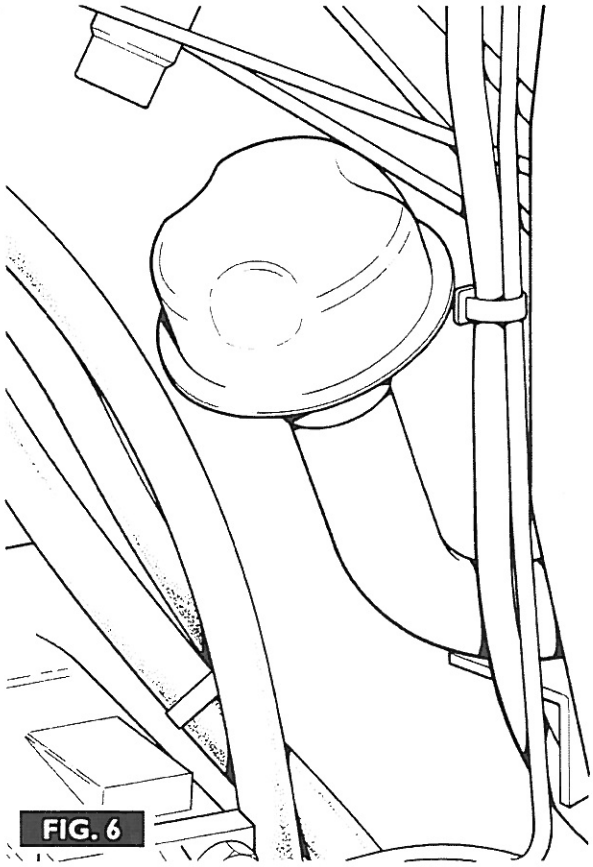
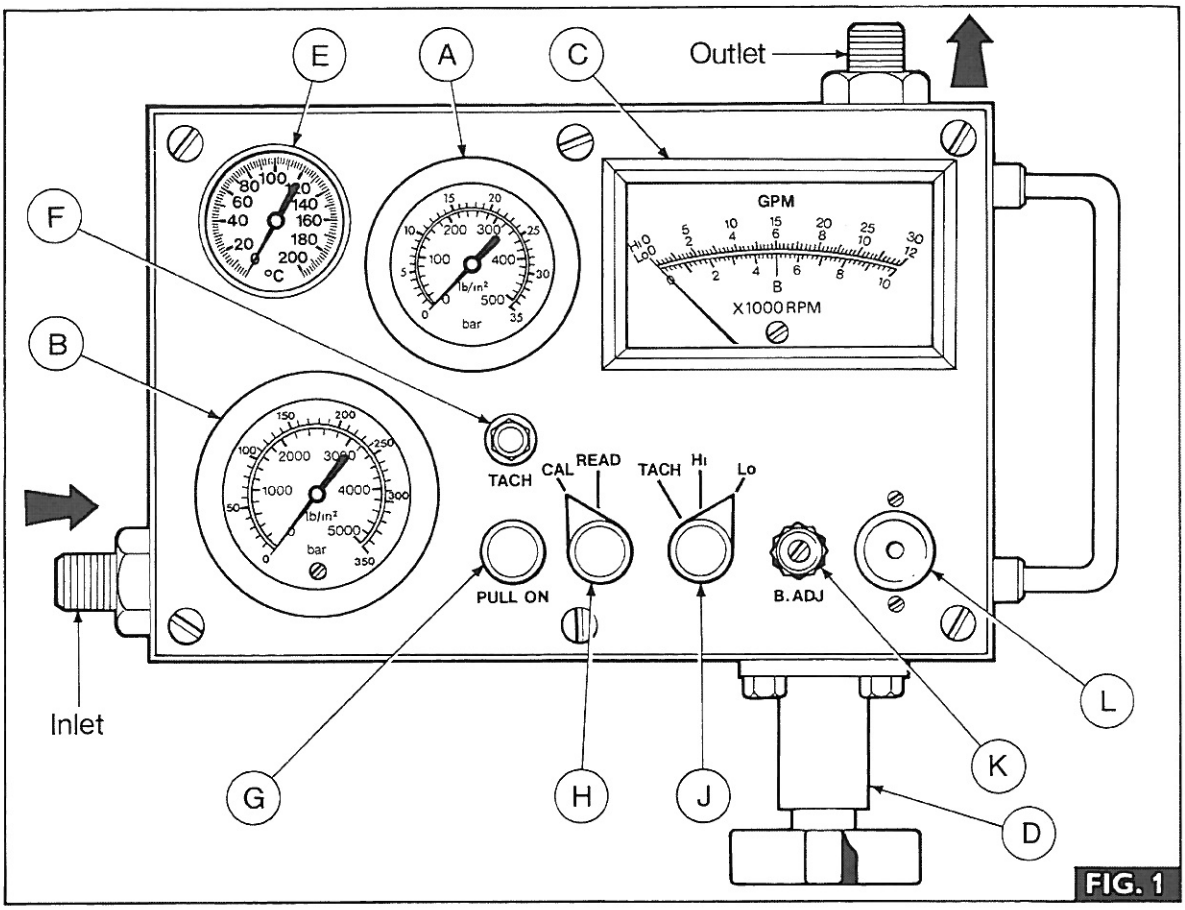


FIG. 6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A
C
Outlet
F
B
GPM
X1000 RPM
TACH
CAL READ
TACH Hi Lo
PULL ON
B. ADJ
Inlet
G
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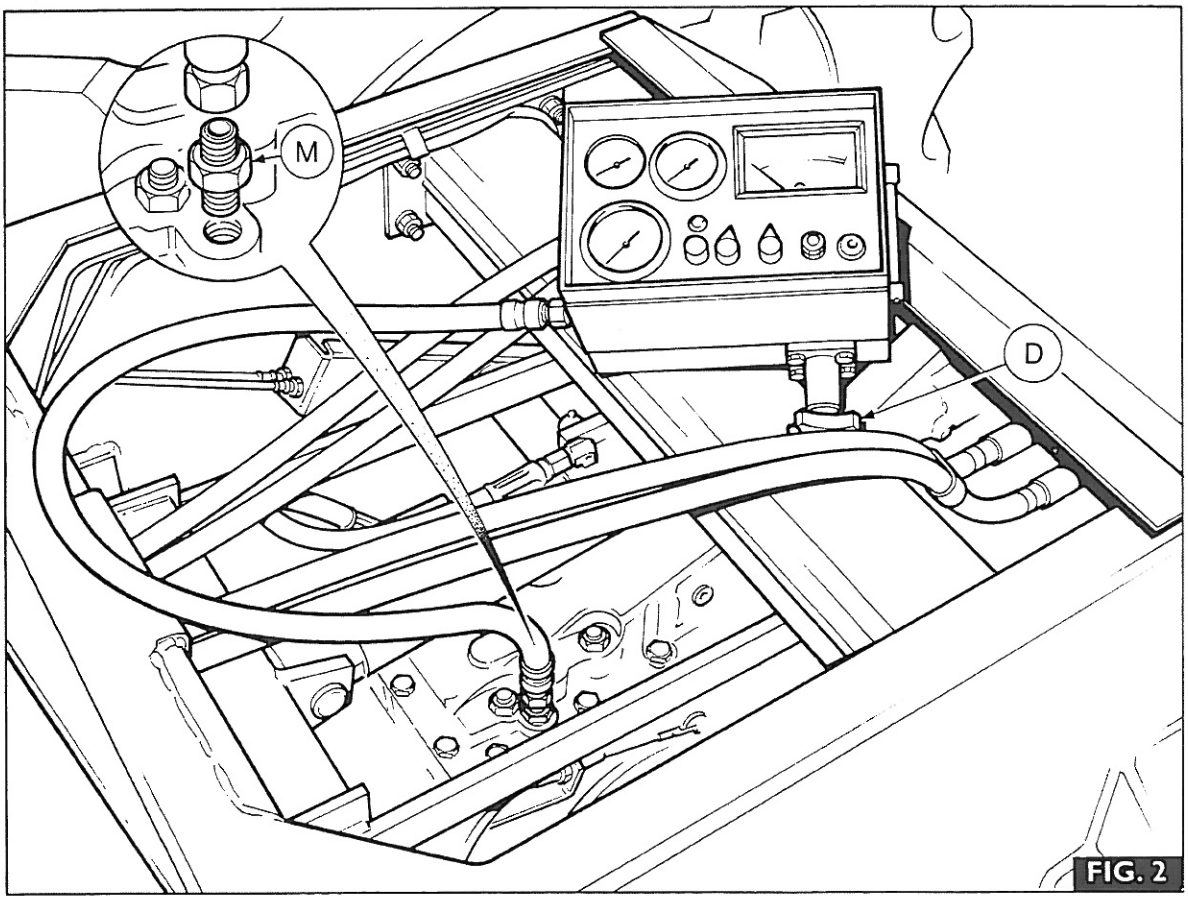
K
L
D
FIG. 1


M
D
FIG. 2

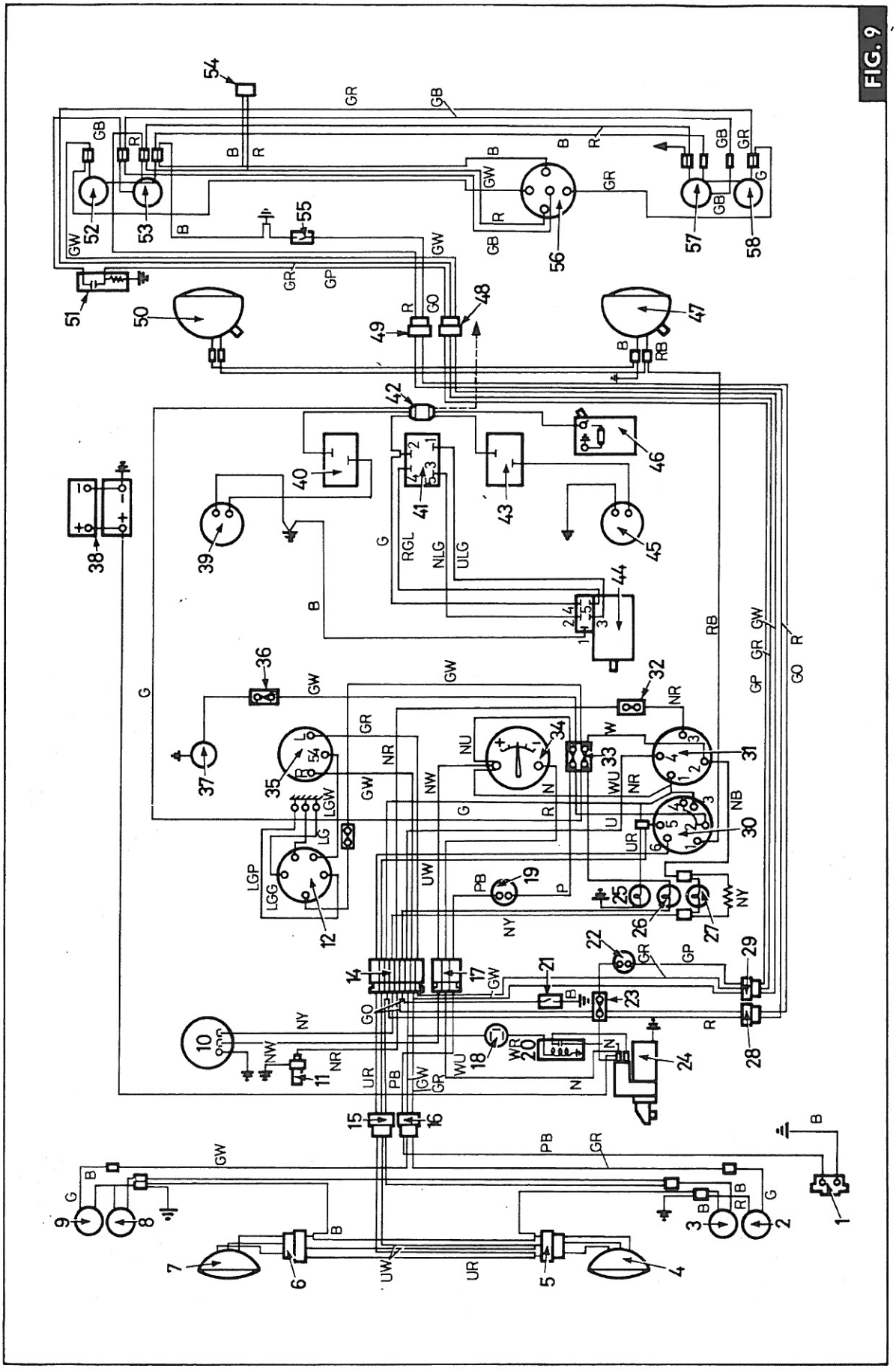


FIG. 9