

Operator Manual

1691 678 M1

MF 50E Tractor/Loader/Digger



MF

Massey Ferguson

Operator Manual
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MF 50E Tractor/Loader/Digger

Massey-Ferguson Industrial Limited

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Introduction

The purpose of this publication is to enable the owner/operator to maintain the machines efficiently. If these instructions are followed carefully they will contribute to years of efficient and profitable operation of the machines in the true Massey-Ferguson tradition.

The installation procedure ensures that these instructions are understood; observe the recommendations and make daily maintenance a routine.

Wide variations in operating conditions make it impossible for the company to make comprehensive or definite statements in its publications regarding performance and methods of use of its machines, or to accept any liability for any loss or damage which may result from these statements, or from any errors or omissions. IT IS THE DUTY OF THE USER WHEN TRAVELLING ON THE PUBLIC HIGHWAY TO ENSURE THAT THE VEHICLE ATTACHMENTS (IF ANY) CONFORM WITH THE LOCAL ROAD TRAFFIC REGULATIONS. Users are strongly advised to make use of the widespread network of Massey-Ferguson Distributors in connection with any service problems and adjustments which may arise. Massey-Ferguson Distributors are specially trained and equipped for the purpose of advising users on any special problems arising as a result of local conditions, and are able to call on the Technical Staff of Massey Ferguson Industrial service department for advice.

When replacements are required, insist on genuine Massey Ferguson parts from your Distributor, as extensive damage is liable to result from the use of inferior quality parts.

If you require the name and address of the MF Industrial distributor, in any particular area, write to Massey Ferguson Industrial Ltd Service Department, Barton Dock Road, Stretford, Manchester M32 0YH England.

In accordance with the Company's policy of continuous improvement to its machines, alterations in the specifications of machines may be made at any time without notice and the Company accepts no responsibility for any discrepancies which may occur between the specifications of its machines and the descriptions thereof contained in its publications.

This operator manual has been written to include all factory fitted options and specifications for world wide use, but this does not imply that all or any of these options are included in the standard machine configuration. Therefore local Massey Ferguson Distributors must always be consulted about tractor specifications.

On all MF tractor models the right and left hand references are as viewed from the relevant operating position.

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Safety Precautions



- Study the Operator Manual and become fully familiar with the controls before operating the machine.
- Do not drink alcohol or take drugs whilst working and beware of medicines which can cause drowsiness.
- Only start the engine or work the machine from the drivers seat.
- Ensure all controls are in neutral before starting the engine.
- Before commencing work test footbrake, parking brake, lights, horn and all safety devices. Be sure that steering, transmission and engine speed controls are working effectively.
- If a machine is defect, report it immediately. Do not operate the machine.
- Adequate ventilation must be provided when working the machine in enclosed areas – exhaust fumes can kill.
- Only the operator should be on the machine.
- When getting on or off the machine, always use the handles and footsteps provided, do not jump.
- Maintain steps and cab floor free from mud, ice or grease, and loose objects that may obstruct the functioning of controls.
- Keep cab windows clean to provide maximum visibility.
- Always match the machine operating speed according to the difficulty of conditions, if in doubt, SLOW DOWN.
- **Look** to ensure there are no persons or obstructions in the path of the machine **before** changing direction.
- **Always** keep in gear when driving down-hill, **never** select neutral or depress the clutch pedal and coast downhill.
- Ensure the machine is parked on firm, preferably level ground. If the machine must be parked on a hill, position the machine **across** the slope, never facing up or down the slope.
- Do not drive the machine against solid objects. If a load is too great to move, use alternative operating techniques which work the machine within its capacity.



Safety Precautions



- **Never** refuel when the engine is running and extinguish cigarettes or any other burning material.
- As a further safety precaution it is recommended that a fire extinguisher is carried in a convenient location on the machine at all times.
- When checking engine coolant, remove the radiator cap slowly to relieve pressure and **always** use hand protection if the engine is hot.
- Never use a naked flame to check the battery electrolyte level, the acid gases could explode.
- **Prevent** battery electrolyte or hydraulic oil contacting your eyes or sensitive parts of skin.
- **Always** use lights, reflectors and emblems to comply with relevant regulations whenever the machine is being driven on public roads.
- **Securely attach** loose equipment carried on the machine during transportation. Observe local road regulations.
- Observe the appropriate road regulations when towing the machine on public roads.
- **Both** brake pedals must be latched together when driving the machine on any road or between jobs on the same site. Maintain the brakes in the specified adjustment.
- **Ensure** towing cable or chain is long enough, strong enough and in good condition. **The towing machine must always be driven smoothly. Rough driving can easily break cables, which will whiplash dangerously.**
- Ensure safety guards are refitted after servicing the machine.
- When preparing calcium chloride solution for liquid tyre ballast **always slowly add calcium chloride to water**, stirring until dissolved.
- **Never** pour water on calcium chloride, a gas is produced which is explosive.
- **Always** deflate tyres before removing objects which have penetrated the tyre carcass.



Safety Precautions



- It is safer to use a tyre cage when reinflating repaired tyres.
- Loose clothing is prone to catch in moving machinery especially p.t.o. drives where extra caution is needed.
- **Always** disengage p.t.o. drive, stop tractor engine and remove start key before attempting to connect/disconnect p.t.o. shaft, or adjust/clean p.t.o. driven machinery.
- P.t.o. master shield must be in place at all times during operation.
- Before disconnecting hydraulic couplings always thoroughly depressurize the hydraulic system.
- Use a piece of cardboard or wood when tracing leaks in a hydraulic system. Fluid escaping under high pressure can penetrate skin tissue causing infection or reaction. **Seek immediate medical attention if injured by escaping fluid.**
- Towing chains or trailed equipment must only be attached to the drawbar or MF approved hitch.
- **Always** lower implements to the ground when stopped.
- **Never** use tractor hydraulic system as a jack while working on attached implements, always use robust blocks or axle stands.
- Before driving the machine on public roads remove excess mud, move digger to transport position and lock it with the transport pins provided.
- Fully raise both stabilizers and secure with transport links.
- Operate straight up and down slopes wherever possible, side-hill operation could cause the machine to roll over, especially if operating digger or loader.
- Before dismounting from the machine always lower the loader or digger to the ground, apply the parking brake and stop the engine.



Safety Precautions

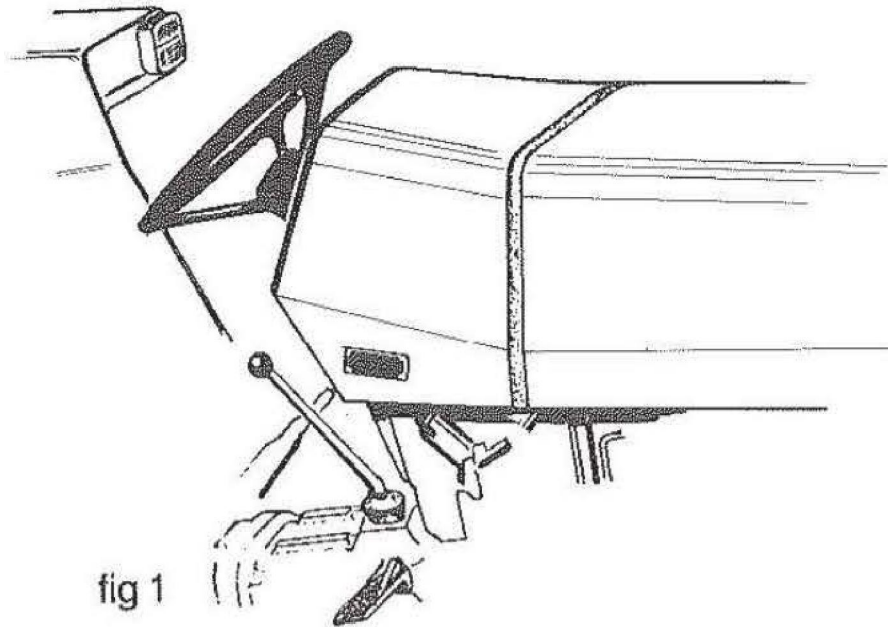


- **Never** stand or walk on the edge of excavations, especially if they are not supported.
- **Never** stand or operate the machine under over-hanging banks.
- ALWAYS FIT SAFETY BARS, FRAMES OR PINS, stop the engine and depressurize all hydraulic systems before repairing the machine. DO NOT allow anyone to walk or stand under the loader or digger or reach through the loader arms without these precautions being taken first.
- **Do not exceed lift capacity** of the loader, or digger.
- **Do not** use the loader or digger for crane duties unless the appropriate modifications have been made to comply with local regulations.
- Do not use either loader or digger as a brake except in emergency.
- Always check overhead clearance of doorways, bridges, telephone and power cables, especially when transporting the machine on a truck or trailer.
- Keep the loader bucket close to the ground at all times, especially when operating with a full load or on sloping ground.
- Ensure trucks or hoppers are sited on flat level ground, for safe loading.
- Use loader bucket to maintain worksite in flat, level condition for safe operation and improved output.
- Always locate underground services such as gas, electricity, telephone and water mains, before starting work.

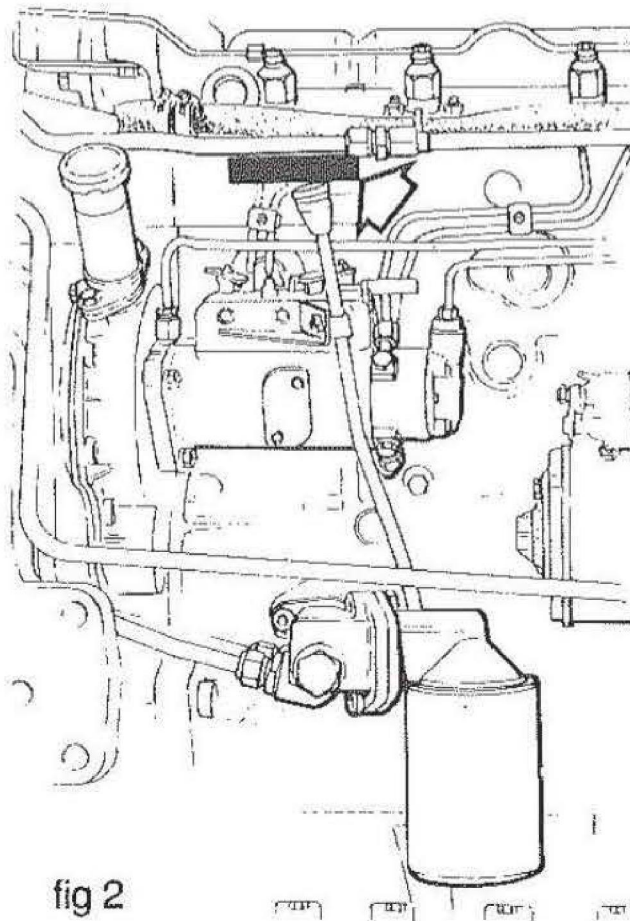
Serial Numbers

Make a note of the serial numbers of your machine and always quote them in any communication with your local MF Industrial dealer.

Tractor Serial No.



Engine Serial No.



General Dimensions

General Dimensions

MF 50E Tractor (fig 3)

All dimensions are in mm with (inches)

			16.9 - 28 rear tyres
A	Wheelbase	2070	(81.5)
B	Overall length (linkage horizontal)	3590	(141.3)
C	Height to top of steering wheel	1610	(63.4)
D	Front track	1550	(61.0)
E	Rear track	1448 -	(57 - 85)
		2176	(85.7)
F	Overall width	1897	(74.7)
	Turning circle without brakes (LH)	8040	(316.5)

Mounting points (fig 4)

1	102 (4)	10	92 (3.62)
2	102 (4)	11	4 holes ($\frac{5}{8}$ in 11 UNC x 1 $\frac{1}{4}$ in)
3	5 holes ($\frac{3}{4}$ in 10 UNC x 1 $\frac{1}{2}$ in)	12	102 (4)
4	57 (2.25)	13	1092 (43)
5	73 (2.87)	14	4 holes ($\frac{3}{4}$ in 10 UNC x 1 $\frac{1}{8}$ in)
6	60 (2.38)	15	76 (3)
7	1836 (72.3)	16	152 (6)
8	254 (10)	17	43 (1.69)
9	184 (7.25)	18	86 (3.38)

Capacities

	litres	(US gals/pints)
Fuel tank	79.6	(21 gals)
Cooling system	14.2	(3.75 gals)
Engine sump (including filter)	8.5	(2.25 gals)
Transmission	43.5	(11.5 gals)
Power steering	0.9	(1.9 pints)
Hydraulic system when loader fitted	49.0	(13 gals)
loader/digger	64.5	(17 gals)

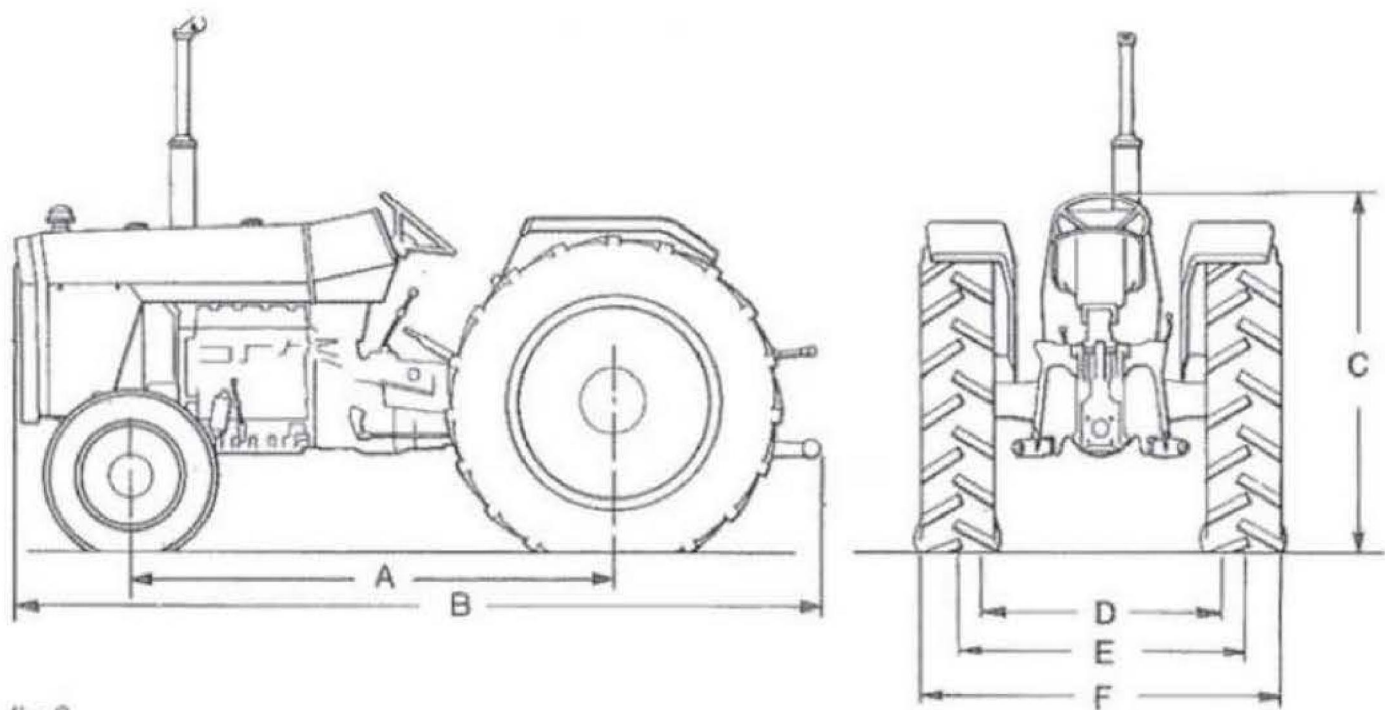


fig 3

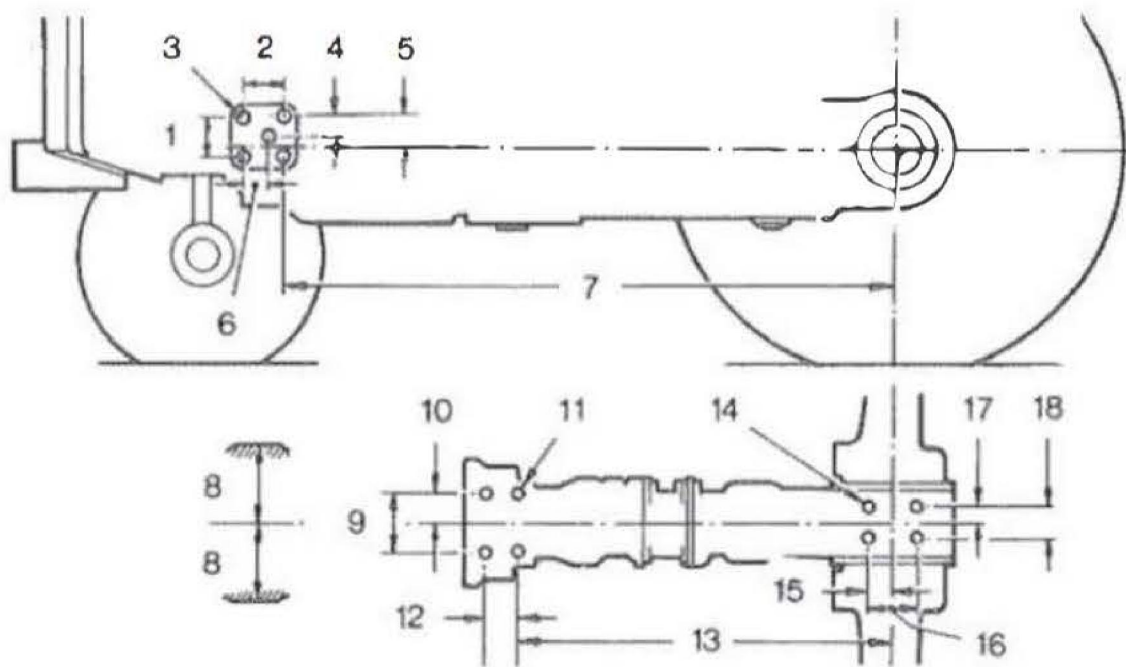


fig 4

General Dimensions

MF 34 Loader (fig 5) 11 L - 16 front, 16.9 - 28 rear tyres

All dimensions in mm width (inch)

A	Forward reach at ground level	1956	(77)
B	Maximum cutting height	3937	(155)
C	Maximum height to bucket hinge pin	3175	(125)
D	Dump height - bucket at 45°	2642	(104)
E	Forward reach at maximum height/4° dump	792	(31)
F	Digging depth	102	(4)
G	Maximum dump angle at full height	48°	
H	Maximum roll-back angle at ground level	47°	

Tractor/loader/counterweight

Overall transport length	5601	(220.5)
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MF 250 Loader (fig 6) 9.00 - 16 front, 16.9 - 28 rear tyres

A	Overall height fully raised	4204	(165.5)
B	Height to bucket hinge pin	3454	(136)
C	Dump height - dump angle 45°	2750	(108.3)
D	Forward reach at maximum height/45° dump	711	(28)
E	Digging depth	76	(3)
F	Dump angle at maximum height	50°	
G	Rollback at ground level	48°	

Tractor/loader/counterweight

Overall transport length	5610	(220.9)
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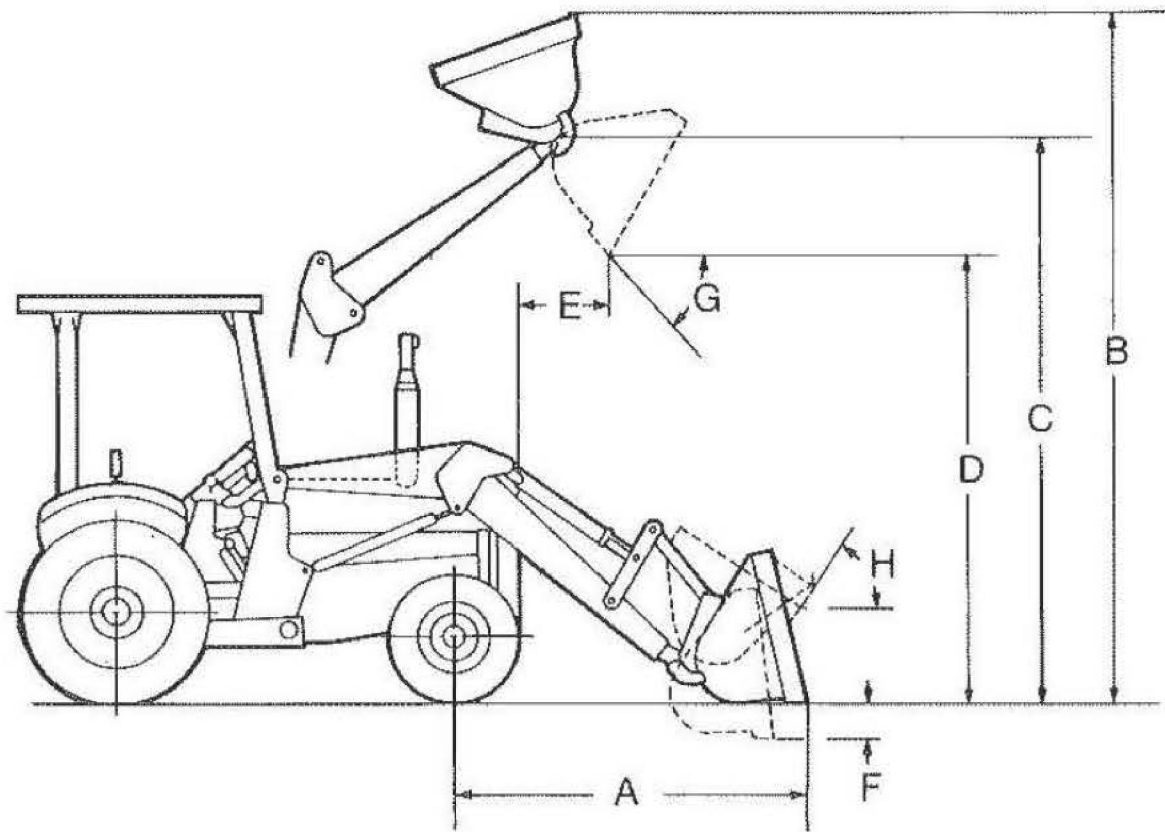


fig 5

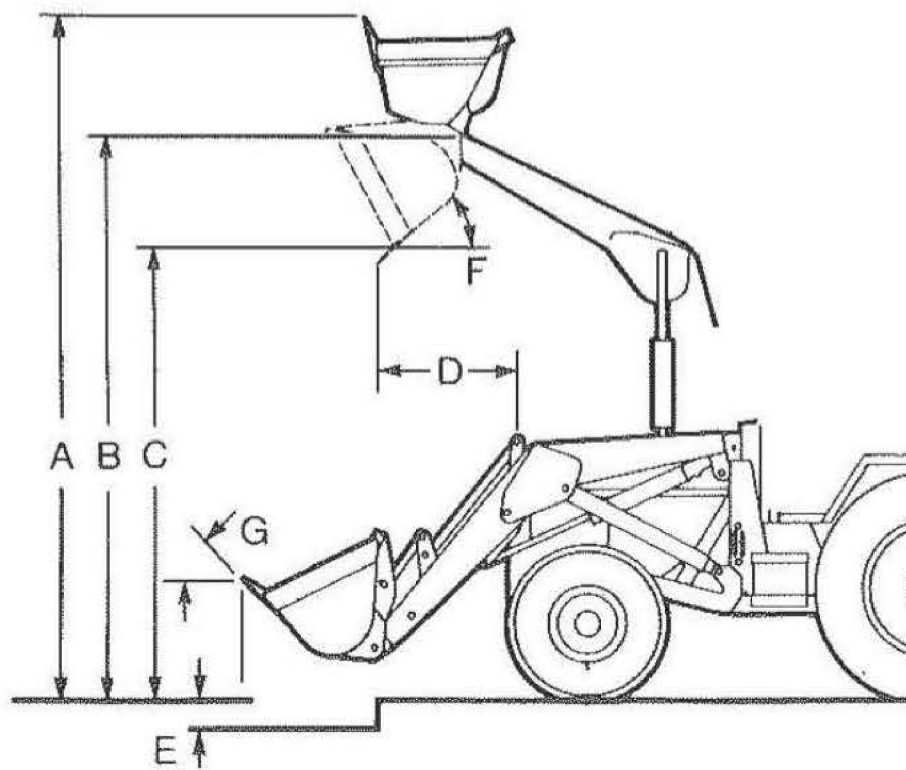


fig 6

General Dimensions

All dimensions are in mm with (inches)

MF 54 centre-mount digger (fig 7)

A	Transport height	3400	(134)
B	Maximum height	4648	(183)
C	Loader-over height	2921	(115)
D	Maximum digging depth	4395	(173)
E	Surface reach	5461	(215)

MF 50E/MF 250 loader/MF 54 digger

Overall length	7780	(306.3)
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MF 252 side-shift digger (fig 8)

A	Transport height	3182	(125.3)
B	Maximum height	4765	(187.6)
C	Loader-over height	3214	(126.5)
D	Maximum digging depth	4177	(164)
E	Surface reach	5308	(209)
	Side shift, full travel	1497	(38)

MF 50E/250 loader/252 digger

Overall length	6550	(257.9)
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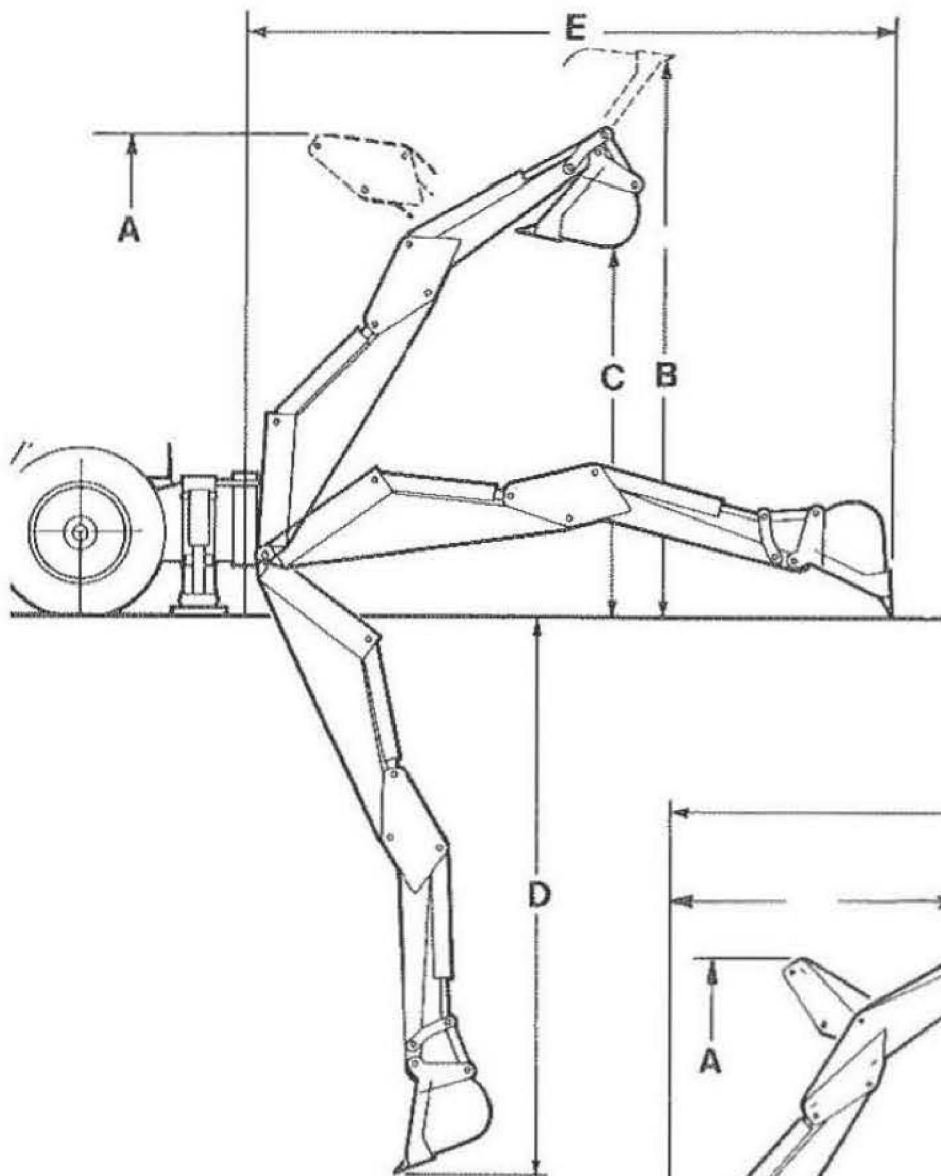


fig 7

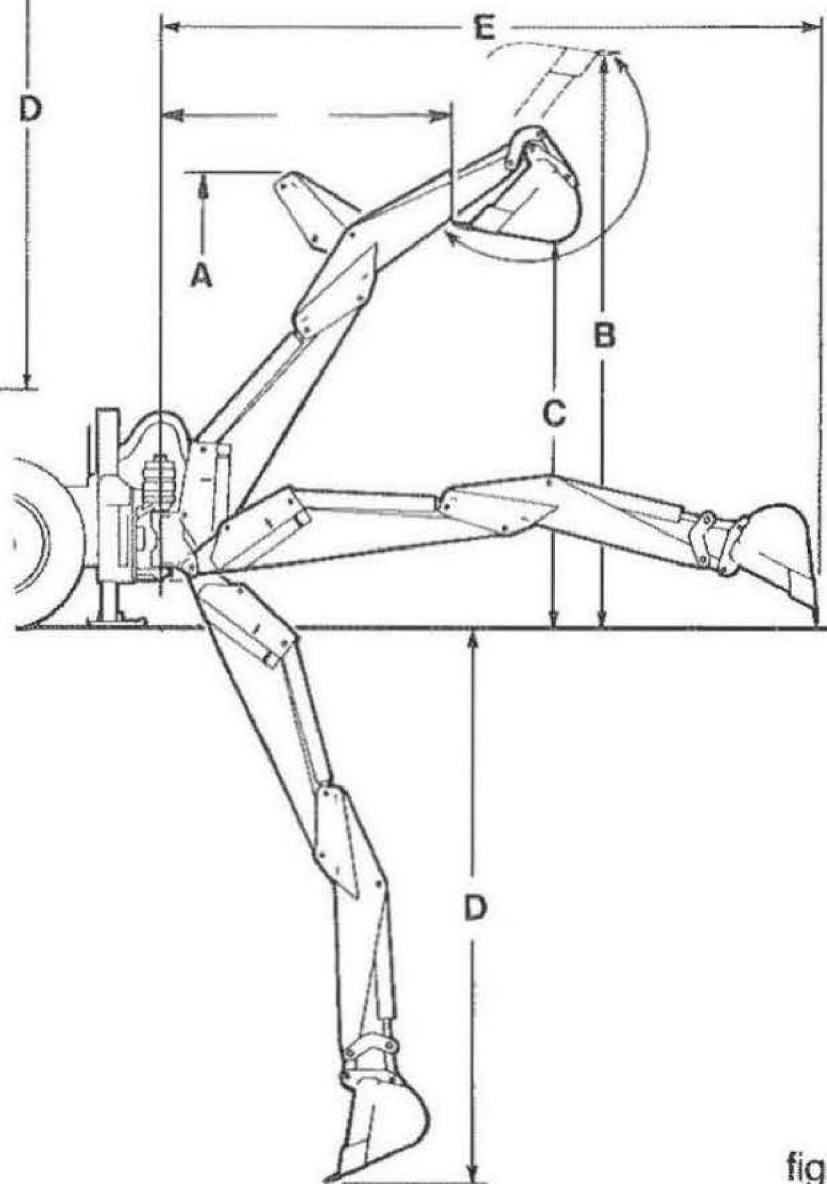


fig 8

General Dimensions

Weights

	Kg	(lbs)
MF 50E bore tractor with 3 point linkage and p.t.o.	2399	(5285)
MF 50E/34 loader/counterweight	4874	(10737)
MF 50E/250 loader/counterweight	4876	(10741)
MF 50E/250 loader/54 centre-mount digger	5460	(12028)
MF 50E/250 loader/252 side-shift digger	5930	(13064)

Add the following weights to the appropriate machine configuration.

Multi-purpose loader bucket	208	(459)
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If tyres are 75% filled with water/calcium chloride solution each wheel will be increased by the weight shown.

	Kg	(lbs)
16.9 x 28 tyre	317	(699)
16.9 x 30 tyre	339	(746)
16.9 x 24 tyre	280	(616)
17.5 x 24 tyre	253	(557)
19.5 x 24 tyre	322	(710)

Specifications

Specifications

Engine

Model	Perkins A4 236 to Massey Ferguson specifications.
No. of cylinders	4
Bore	98.4 mm (3.875 inch)
Stroke	127 mm (5 inch)
Capacity	3.86 litres (235.9 in ³)
Compression ratio	16 : 1
Power	52.2 Kw (70 bhp) at 2000 rpm (BS Au 141a)
Torque	263 Nm (193 lbf ft) at 1400 rpm (BS Au 141a)

Fuel system & air cleaner

Fuel lift pump	AC Delco, with manually operated priming lever.
Fuel filter	Single, long body type, replaceable paper element with transparent sediment/water separator bowl.
Fuel injection pump	CAV distributor type with mechanical governor.
Engine speeds (no load)	Low idle 700 - 750 rpm Maximum 2160 rpm
Injection timing	23° before top dead centre. A4 236 engine 24° before top dead centre. A4 248 engine
Injectors	CAV nozzles and holders
Cold-starting aid	CAV Thermostart Mark III C, – Europe/Export Optional ether start system – North America only.
Air cleaner	2 stage dry type paper element with additional safety element. Air cleaner restriction warning light on main instrument panel.

Specifications

Transmissions

Instant Reverse	4 forward and 4 reverse speeds. Forward/reverse direction shift by hydraulically powered, multi-plate wet clutches. Borg and Beck S-11 single stage, two phase unit having 2 : 1 torque multiplication ratio.
Manual Shuttle	6 forward and 6 reverse speeds. Direction change is by sliding coupler controlled by separate shift lever.

Road Speeds

Manual shuttle transmission

Engine speed 2000 rpm rear tyre size 16.9/14 x 28

Europe/Export

Gear	Range	Direction	K.p.h.	m.p.h.
1	L	F	2.79	1.73
2	L	F	5.78	3.59
3	L	F	7.49	4.66
4	H	F	11.40	7.08
5	H	F	23.64	14.69
6	H	F	30.65	19.05
1	L	R	2.52	1.57
2	L	R	5.24	3.25
3	L	R	6.79	4.22
4	H	R	10.32	6.41
5	H	R	21.42	13.31
6	H	R	27.77	17.25

Specifications

North America

Gear	Range	Direction	K.p.h.	m.p.h.
1	L	F	2.77	1.72
2	L	F	5.74	3.57
3	L	F	8.72	5.42
4	H	F	11.32	7.04
5	H	F	23.49	14.60
6	H	F	35.67	22.16
1	L	R	2.44	1.52
2	L	R	5.07	3.15
3	L	R	7.70	4.79
4	H	R	10.00	6.21
5	H	R	20.75	12.89
6	H	R	31.51	19.58

Instant Reverse transmission

Engine speed 2000 rpm rear rear tyre size 16.9/14 x 28
5% torque converter slip has been considered.

Europe/Export

Gear	Range	Direction	K.p.h.	m.p.h.
1	L	F	2.87	1.78
2	L	F	7.45	4.63
3	H	F	11.73	7.29
4	H	F	30.50	18.95
1	L	R	2.88	1.79
2	L	R	7.50	4.66
3	H	R	11.79	7.33
4	H	R	30.66	19.05

Specifications

North America

Gear	Range	Direction	K.p.h.	m.p.h.
1	L	F	2.68	1.67
2	L	F	7.45	4.63
3	H	F	10.98	6.82
4	H	F	30.50	18.95
1	L	R	2.70	1.68
2	L	R	7.50	4.66
3	H	R	11.04	6.86
4	H	R	30.66	19.05

Power take-off

Type Independantly controlled p.t.o. via an oil pressurised multi-plate wet clutch.

PTO shaft
1 $\frac{3}{8}$ inch six splines

PTO power 40 Kw (53.6 bhp) at 540 r.p.m.
(p.t.o. shaft speed)

PTO speed 540 rpm pto at 1684 engine rpm
641 rpm pto at 2000 engine rpm

Linkage Hydraulics

Pump 4 cylinder Scotch-yoke type

Flow Infinitely variable from 0 - 16.25 litres/in
(0 - 4.3 US gal/min)

Pressure Main relief valve pressure set at 193 bar.
(2800 lbf/in²)

Specifications

Steering System

Type	Full power hydrostatic system with gear pump
Pressure	110 bar (1600 lbf/in ²) maximum
Turning circle	8040 mm (316.5 inches)

Brakes

Service brake	Multi-plate oil immersed disc brakes mounted inboard on the rear axle drive shafts. Hydrostatic operation by brake pedal master cylinders, incorporating independent and coupled functions for site and highway use.
Parking brake	Hand lever and linkage operating on service brake mechanism.

Specifications







Electrical System

Voltage	12V – Negative earth
Battery	125 amp hour heavy duty type, Europe/Export Two maintenance-free batteries type 029
Starter Motor	2.2 Kw for North America and cold climates in Europe/Export. 1.8 Kw standard for Europe/Export
Alternator	35 amp output with integral regulator.

Instruments and Controls

Instruments and Controls

Instruments and Controls (figs 9 and 10) Europe/Export

Item No	Symbol	Description
1.		Engine stop control
2.		Start switch
		Electrical system off
		Electrical system live/engine running
		Cold start aid on and electrical system live
		Cold start aid on/engine cranking and electrical system live.
3.		Fuel gauge
4.		Engine temperature gauge
5.		Speedometer

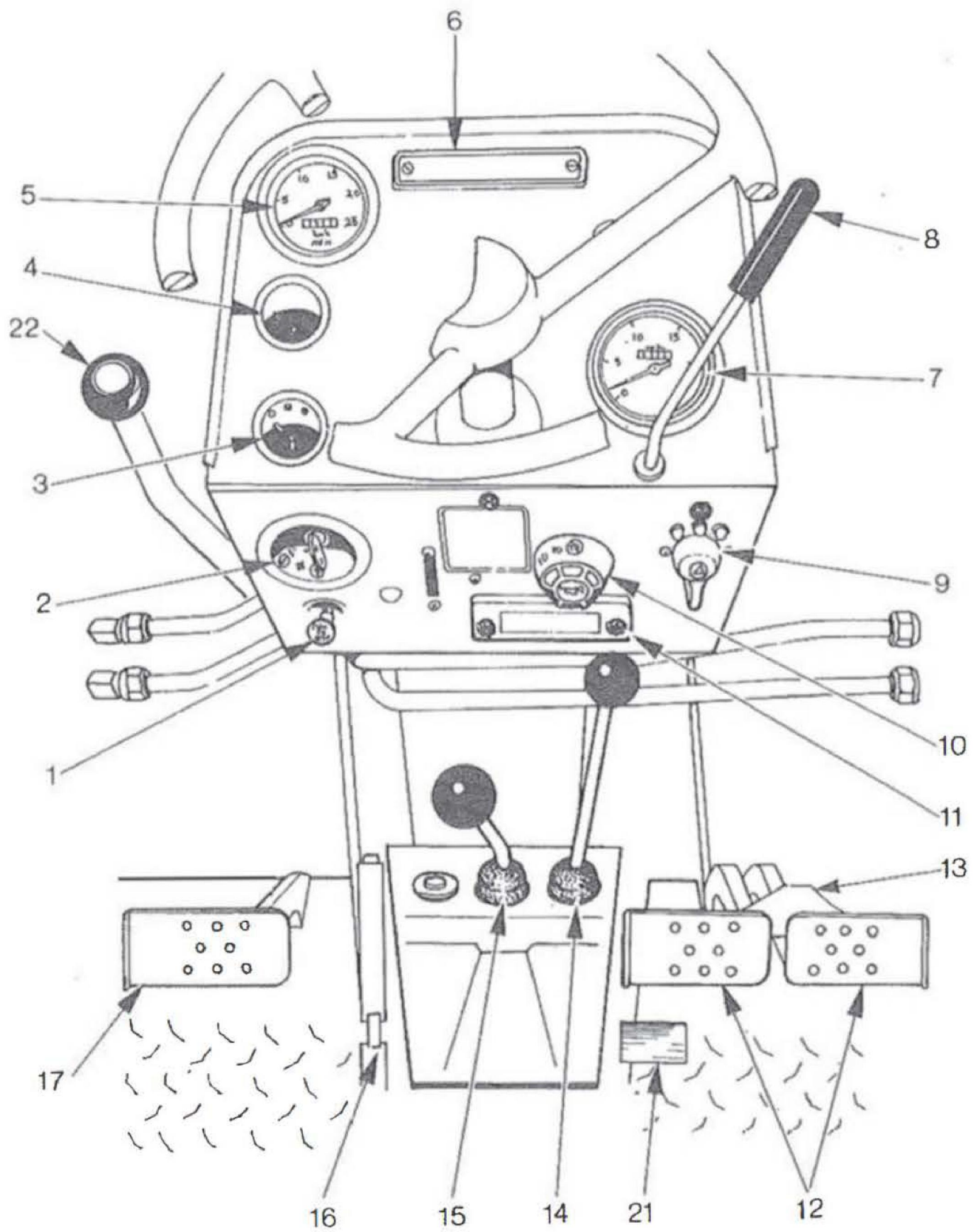


fig 9

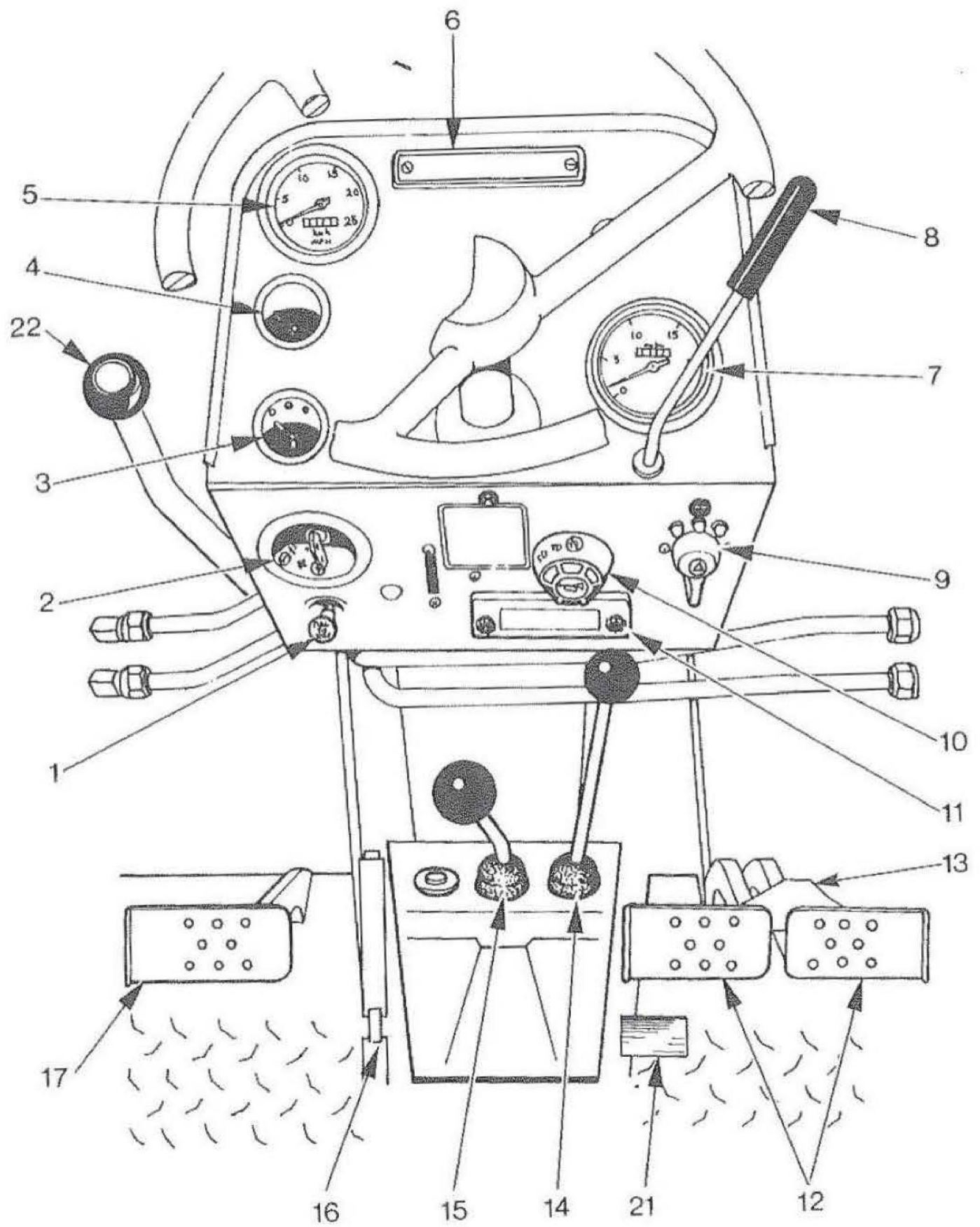


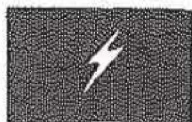
fig 9

Instruments and Controls

Europe/Export (figs 9 and 10)

Item no	Symbol	Description
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6.		Warning light panel
----	--	---------------------



Illuminates when start key is in + position, and alternator fails to charge battery.



Illuminates when engine lubricating is below safe working pressure.



Illuminates when air filter requires cleaning



Illuminates when main beam headlights are switched on.

7.		Tachometer
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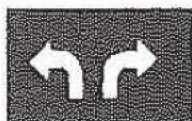


Hourmeter

8.		Hand throttle - moving lever up reduces engine speed.
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9.		Combined hazard warning and direction indicator switch.
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Move turn switch in direction of arrows
Left hand turn signal.



Right hand turn signal

Instruments and Controls

Europe/Export (figs 9 and 10)

Item no	Symbol	Description
		Left hand green repeater light illuminates when tractor direction indicators used.
		Left and central repeater lights illuminate when direction indicators used on tractor and one trailer.
		All three repeater lights illuminate when direction indicators used on tractor and two trailers.
		Push switch for hazard warning flashing lights.
		Combined horn button and light switch Push button for horn.
		Lights off.
		Front side lights rear red lights and panel lights
		Side lights, rear red lights, panel lights dipped headlights
10.		Side lights, rear red lights, panel lights, main beam headlights.
11.		Fuses
12.		Brake pedals

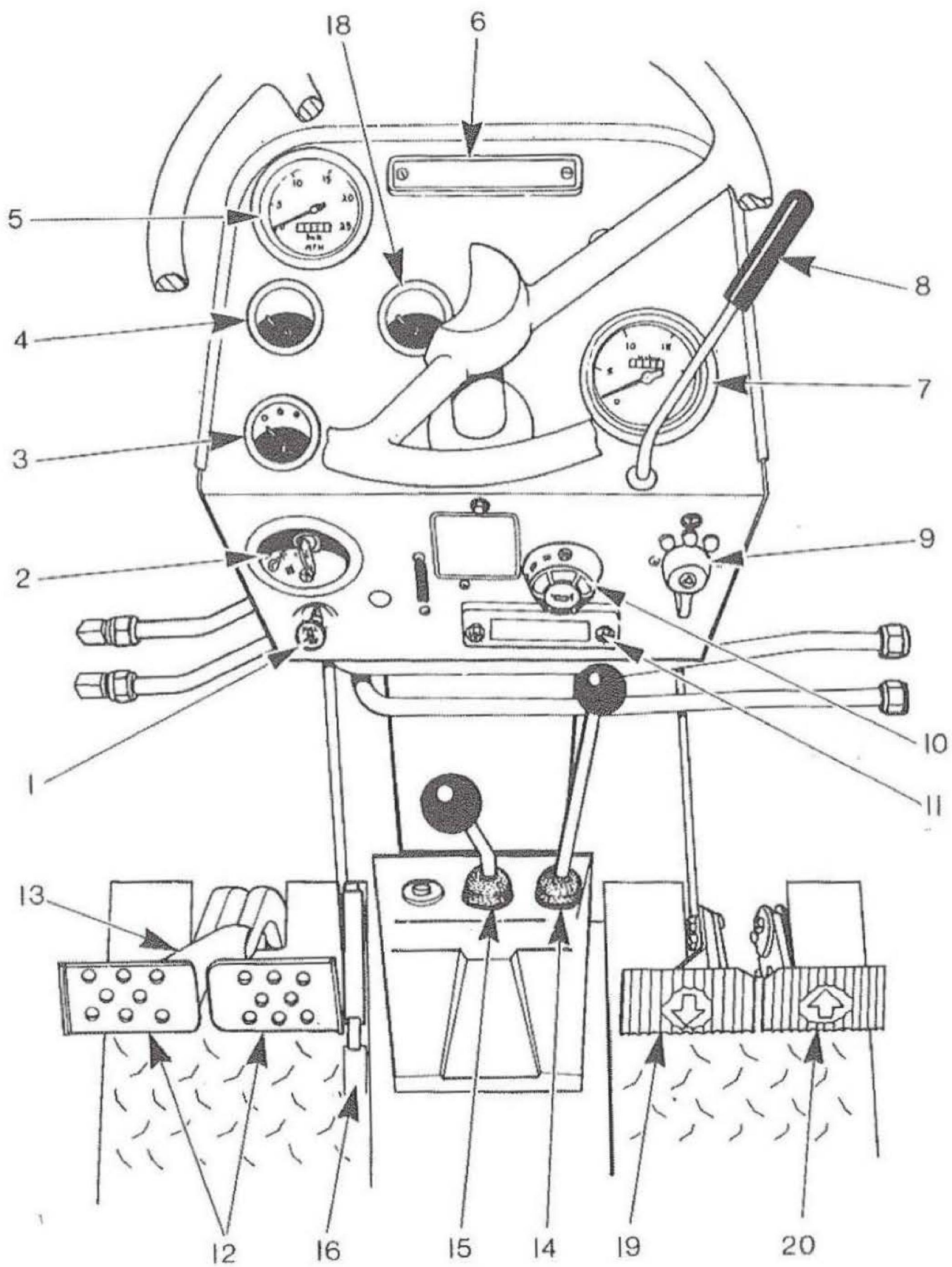


fig 10

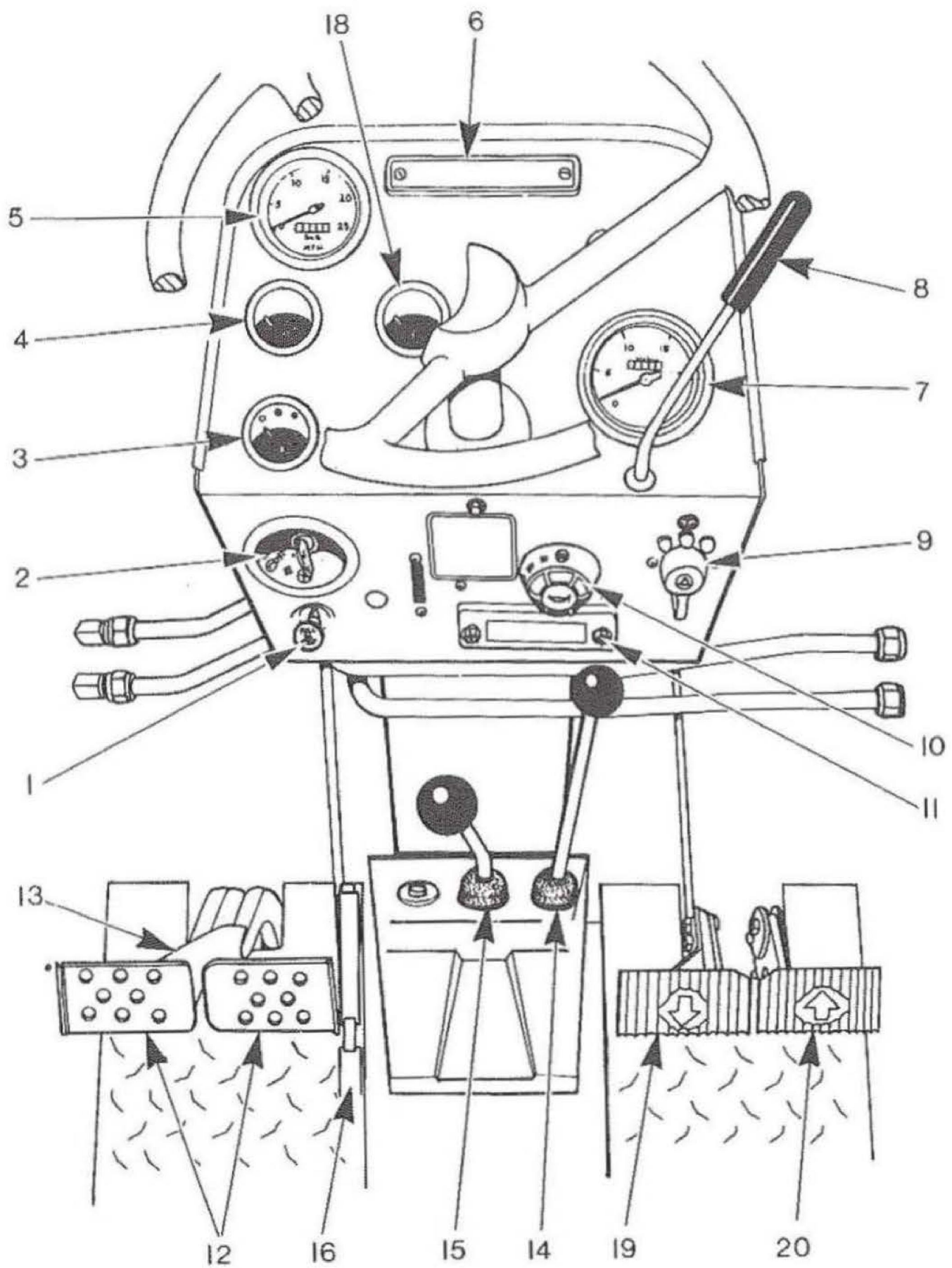
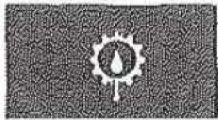
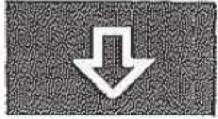



fig 10

Instruments and Controls



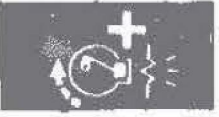



Europe/Export (figs 9 and 10)

Item no	Symbol	Description
13.		Brake pedal coupler
14.		High/low range shift lever
15.		Gear shift lever
16.		Parking brake lever
17.		Clutch pedal Controls transmission only P.t.o. controlled by separate clutch.
18.		Transmission oil temperature gauge
19.		Reverse direction shift pedal – includes engine throttle control in addition to reverse shift
20.		Forward direction shift pedal – includes engine throttle control in addition to forward shift
21.		Foot throttle
22.		Forward/Reverse shift lever – manual shuttle transmission.

Instruments and Controls

Instruments and Controls (figs 11 and 12)

North America only

Item no	Symbol	Description
1.		Engine stop control
2.		Start switch
		Electrical system off
		Electrical system live/engine running
		Electrical system live/engine cranking
3.		Forward/reverse shift lever – manual shuttle transmission only.
4.		Fuel gauge
5.		Engine temperature gauge
6.		Light switch
		All lights off.

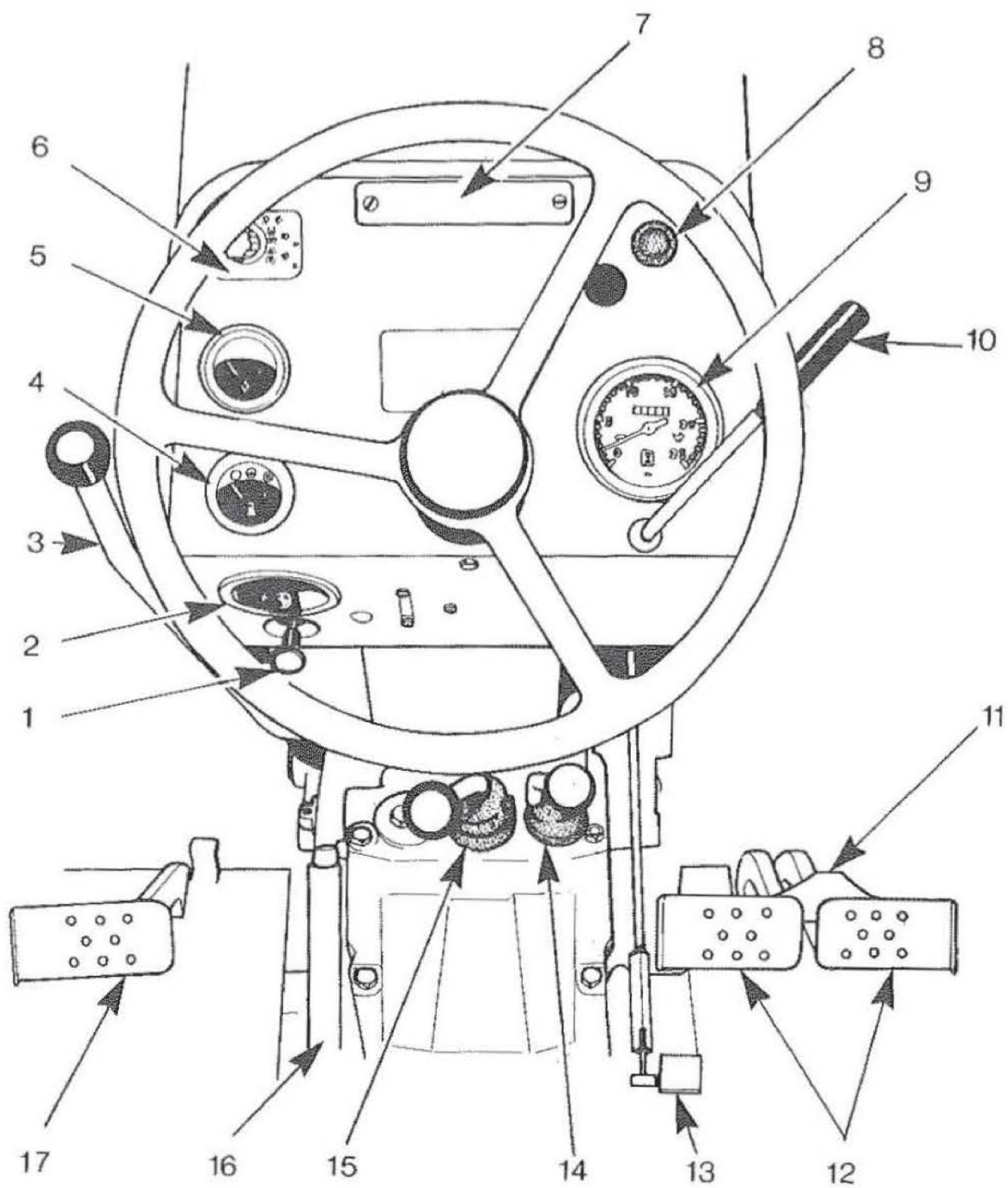


fig 11

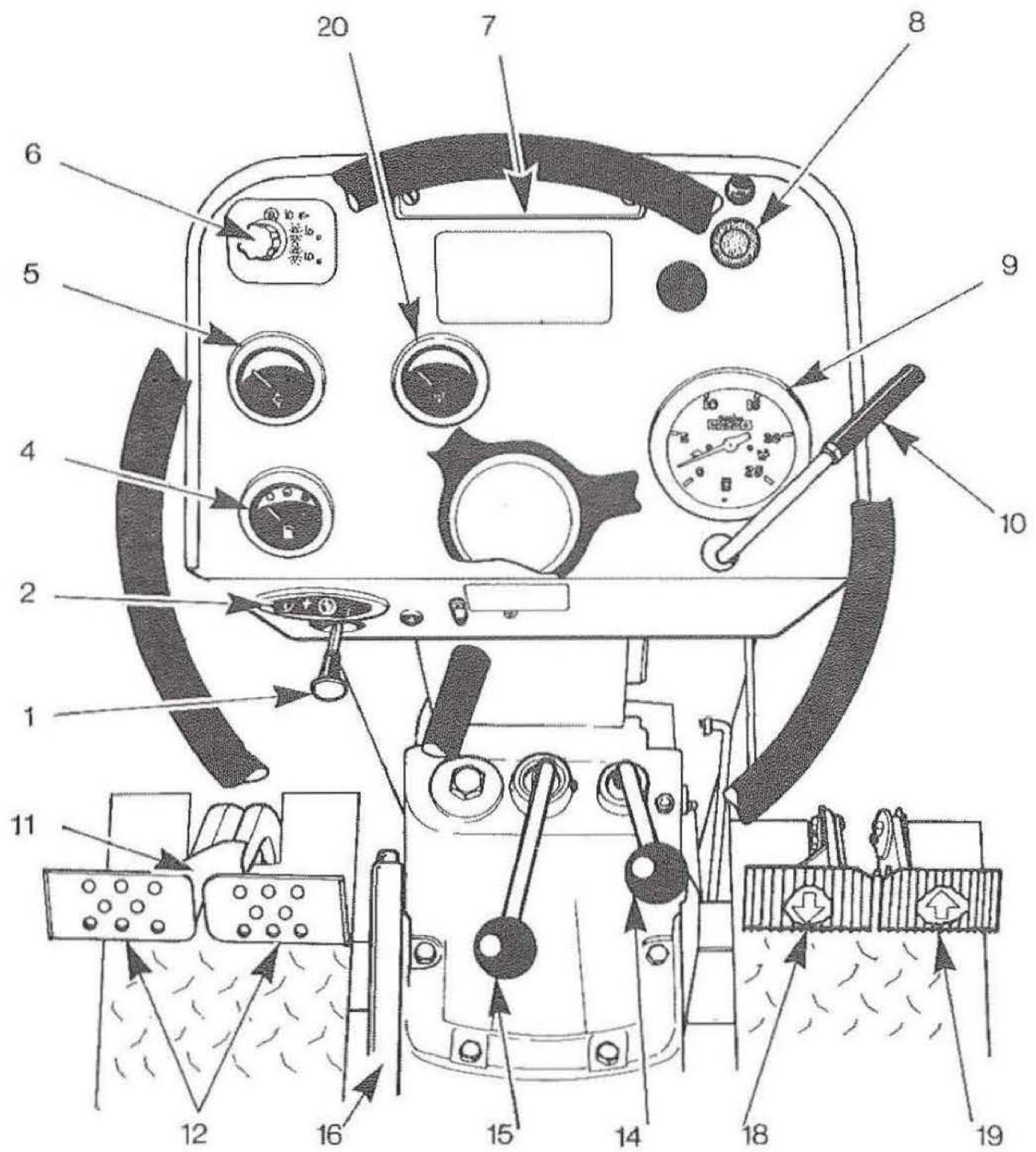

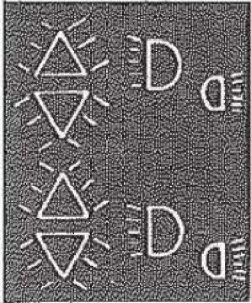
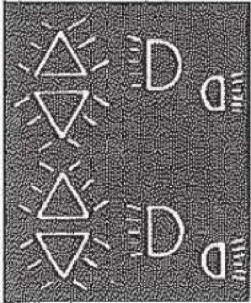

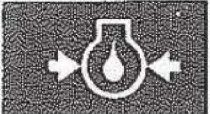





fig 12

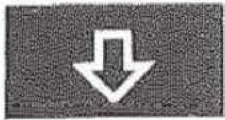


Instruments and Controls

North America only (figs 11 and 12)

Item no	Symbol	Description
		Panel lights, front floodlights, rear floodlights, headlights
		Panel lights, front floodlights, red rear lights, headlights, amber flashing lights
		Panel lights, headlights, red rear light, amber flashing lights.
7.		Warning light panel
		Illuminates when engine lubricating oil is below safe working pressure.
		Illuminates when air filter or linkage hydraulic filter requires cleaning.
		Illuminates when front floodlights are switched on
8.		Horn button
9.		Tachometer, indicates engine rpm in hundreds. Inset windows shows accumulated working hours at an average of 1500 rpm.

Instruments and Controls

North America only (figs 11 and 12)

Item no	Symbol	Description
10.		Hand throttle - moving lever up reduces engine speed, lever down increases engine speed
11.		Brake pedal coupler
12.		Brake pedals
13.		Throttle pedal – manual shuttle transmission only
14.		High/low range shift lever
15.		Gear shift lever
16.		Parking brake lever
17.		Clutch pedal; Controls transmission only, P.t.o. controlled by separate clutch
18.		Reverse direction shift pedal – includes engine throttle control in addition to reverse shift
19.		Forward direction shift pedal – includes engine throttle control in addition to reverse shift
20.		Transmission oil temperature gauge

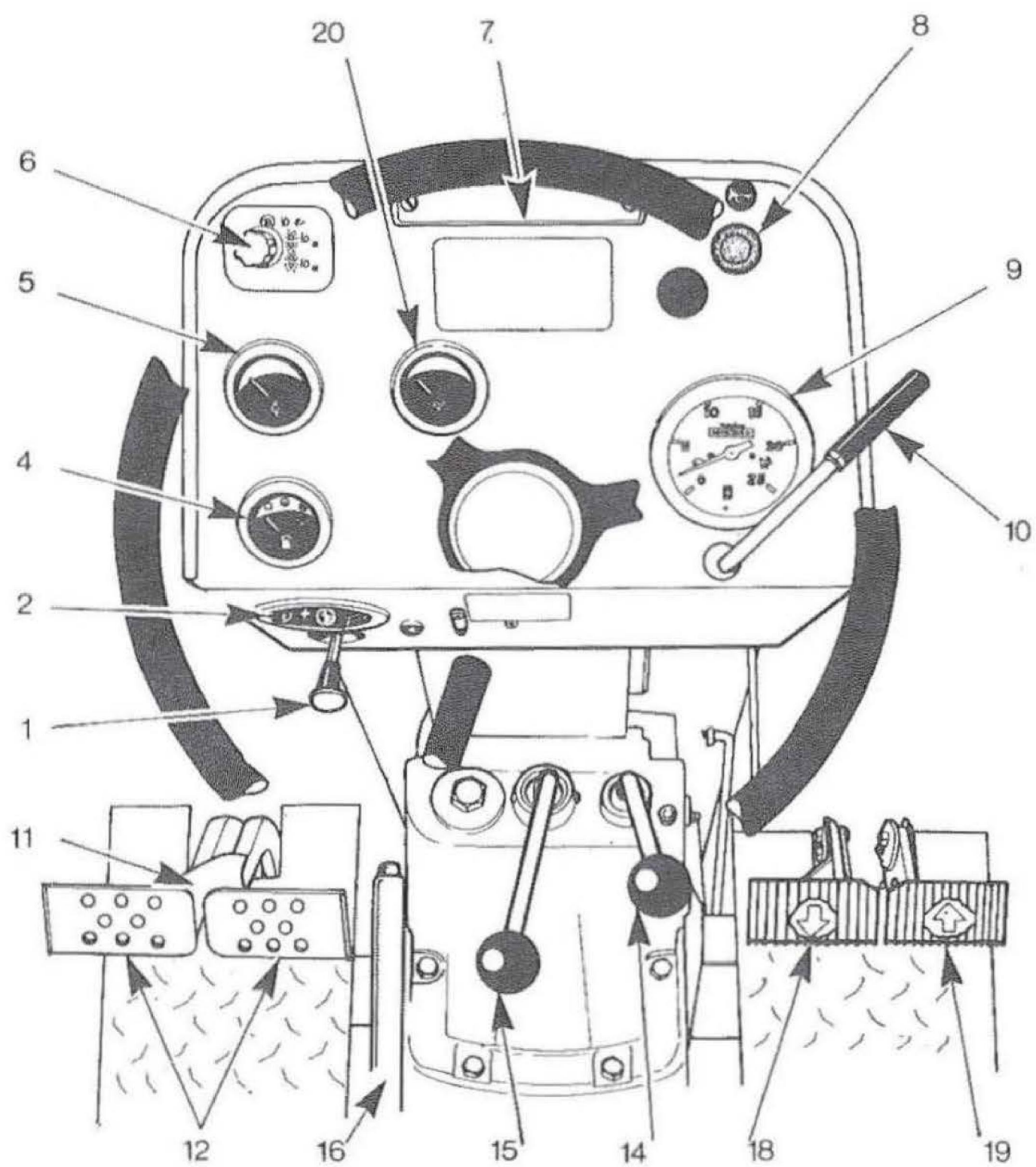








fig 12

Instruments and Controls

Loader Controls – MF 34 Loader (fig 13)

1.  Bucket roll-back – lever pulled sideways towards driver.
2.  Bucket dump – lever pushed sideways away from driver
3.  Boom lift – lever pulled directly backwards to first 'stop'.
4.  Boom lift with bucket self-level – lever pulled directly backwards into detented position.
5.  Boom lower (power down) – lever pushed directly forward to first 'stop' position
6.  Boom float-lever pushed directly forward to detented position.

Instruments and Controls

Loader bucket level indicator – MF 34 Loader (fig 14)

This indicator is used to set the bucket at the correct angle to enter the stockpile.

The red indicator rod should be flush with top of tube when the bucket cutting edge is parallel with the ground at ground level.

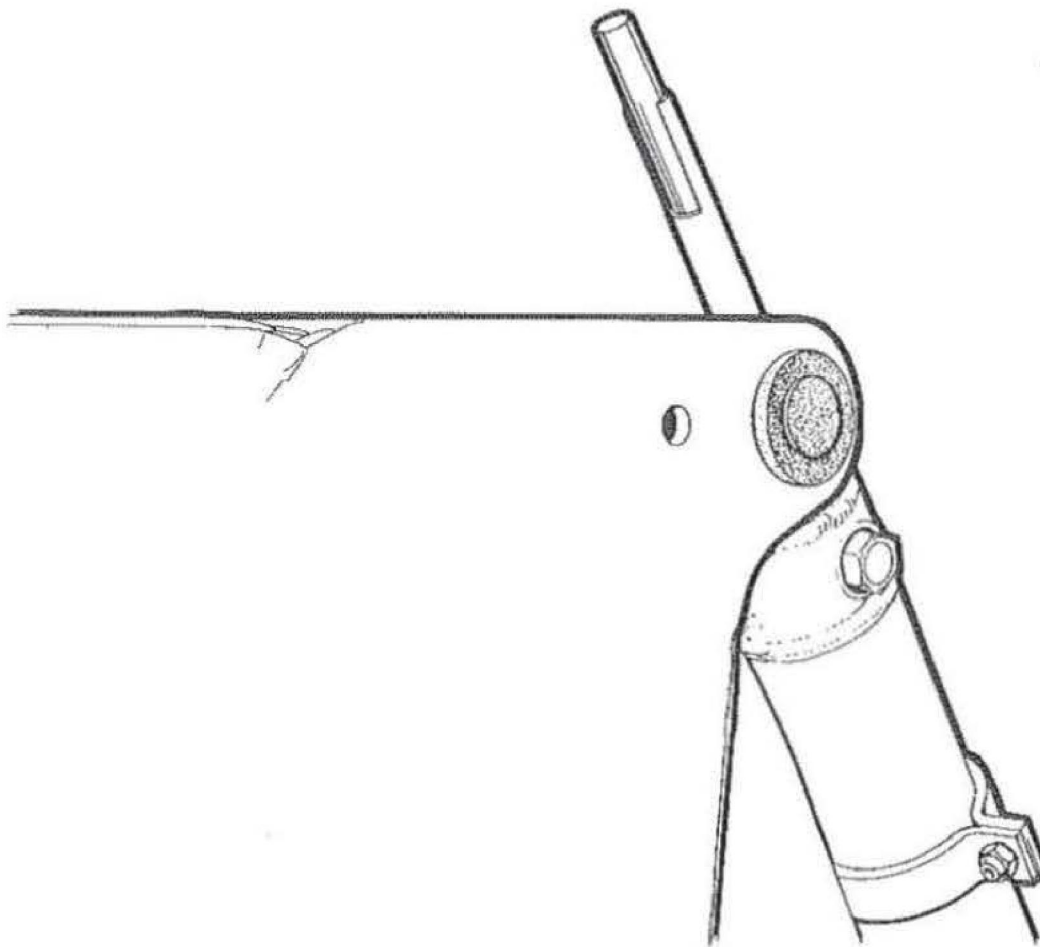


fig 14

Instruments and Controls

Loader Controls – MF 250 loader (figure 15)

The loader is controlled by a single lever operating 5 functions.

1.



Lever pushed sideways away from driver dumps the bucket.

2.



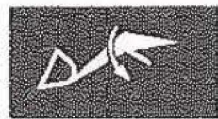
Lever pulled sideways towards driver provides bucket roll-back.

3.



Lever pulled backwards raises the loader arms.

4.



Lever pushed forward lowers the loader arms and will give power downwards.

5.



Lever pushed further forward to a locked position permits the loader arms to float up and down with no power. Pull lever back to release lock.

The lever will return to a central position which is NEUTRAL, when all functions are isolated.

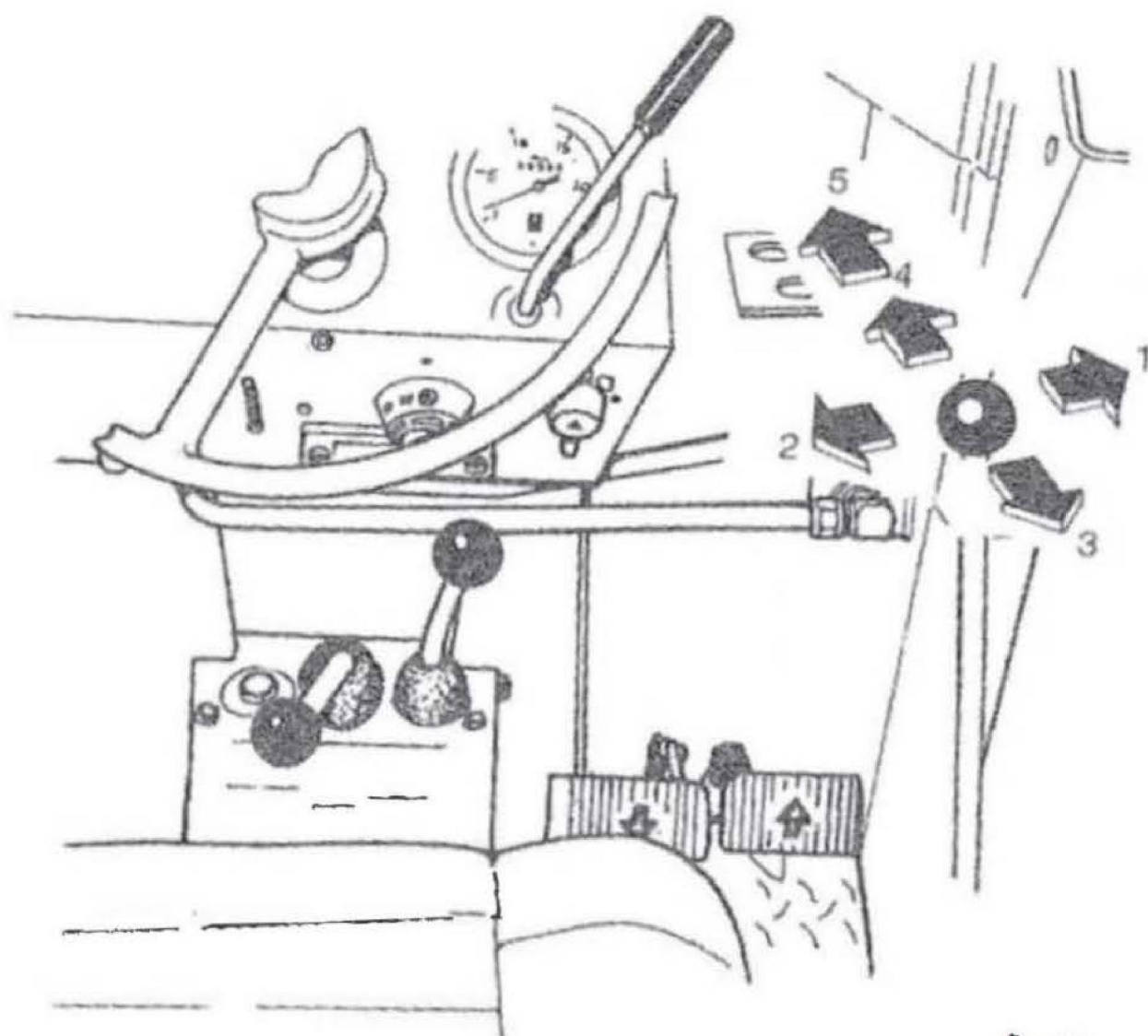


fig 15

Instruments and Controls

Multi-purpose bucket control (fig 16)

For multi-purpose buckets a third spool is added to give 2 more functions controlled by a second lever connected to the loader control lever.

Functions 1 to 5 are the same as the normal loader.

6.



Right-hand lever pulled backwards shuts clamshell of multi-purpose bucket.

7.



Right-hand lever pushed forwards opens clamshell of multi-purpose bucket.

This second lever will also operate the normal bucket crowd (2) and dump (1) functions.

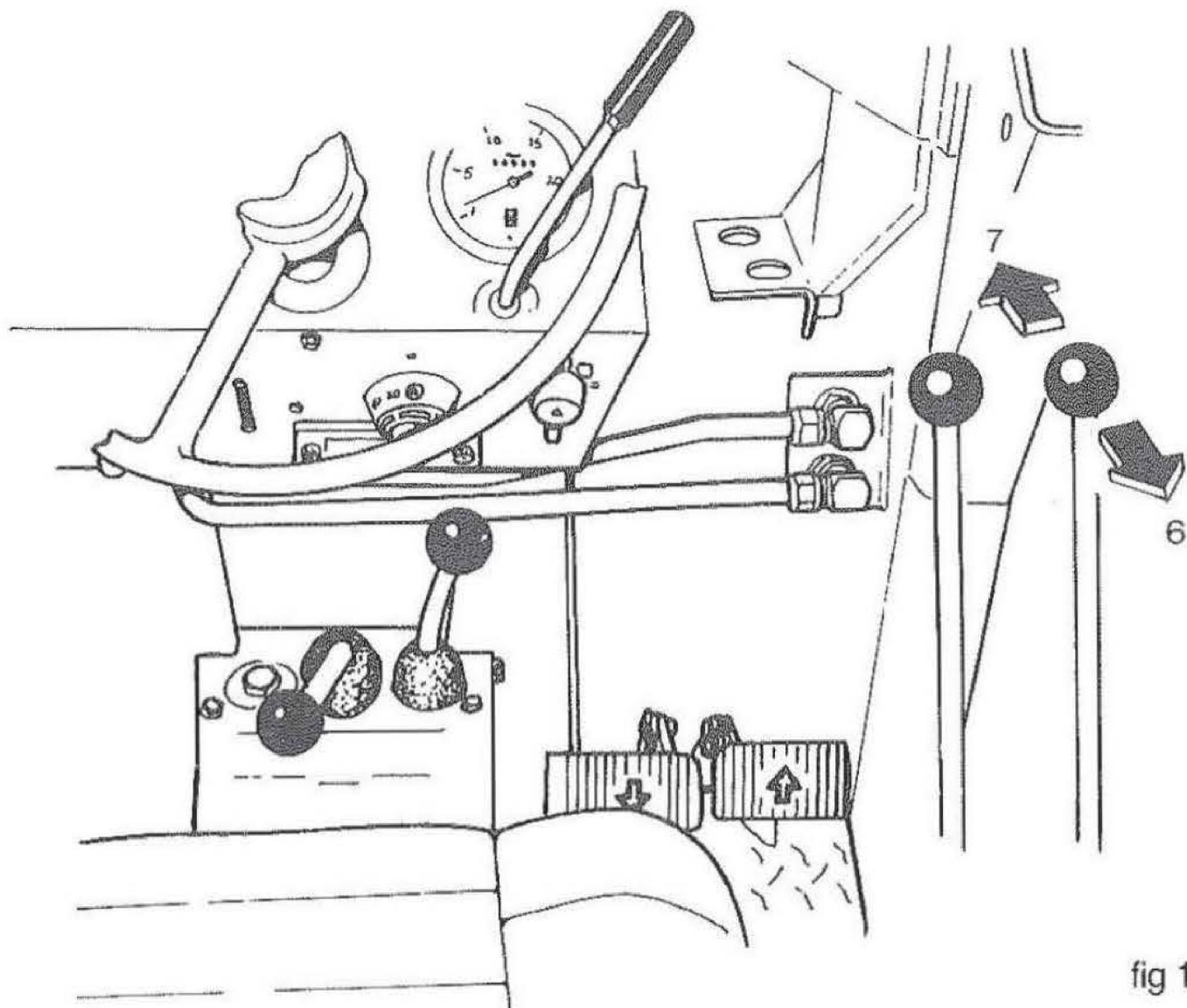


fig 16

Instruments and Controls

Bucket level indicator (Figure 17)

A bucket level indicator is fitted to the left hand bucket ram. The fixed index (1) should align with the moving red pointer (2) when the bucket is parallel to the ground at ground level.

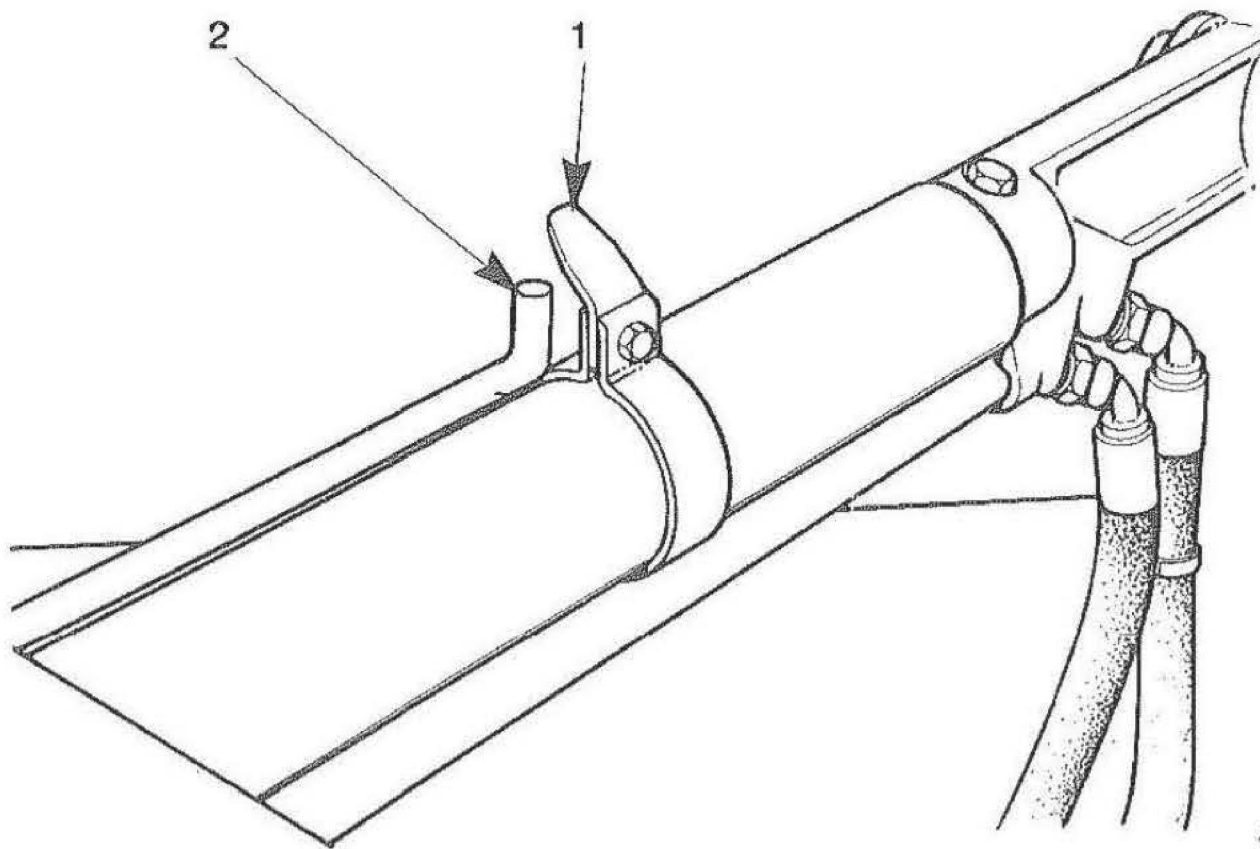


fig 17

Instruments and Controls

Digger Controls (figs 18 and 19)

The main digging functions are controlled by 2 four function levers (1 and 2). Another two levers (3 and 4) provide independent control of the stabiliser legs.

Symbol



Functions operated by **Lever 1.**

Lever moved sideways towards centre of machine will swing the digger arm to the right (clockwise).



Lever moved sideways away from centre of machine will swing the digger arm to the left (anti-clockwise).



Lever pulled backwards will lift the digging arm.



Lever pushed forwards will lower the digging arm.

Functions operated by **Lever 2**



Lever moved sideways towards centre of machine crowds the bucket.



Lever moved sideways away from centre of machine dumps the bucket.



Lever pulled backwards will move the dipperstick towards the machine.



Lever pushed forwards will move the dipperstick away from the machine.

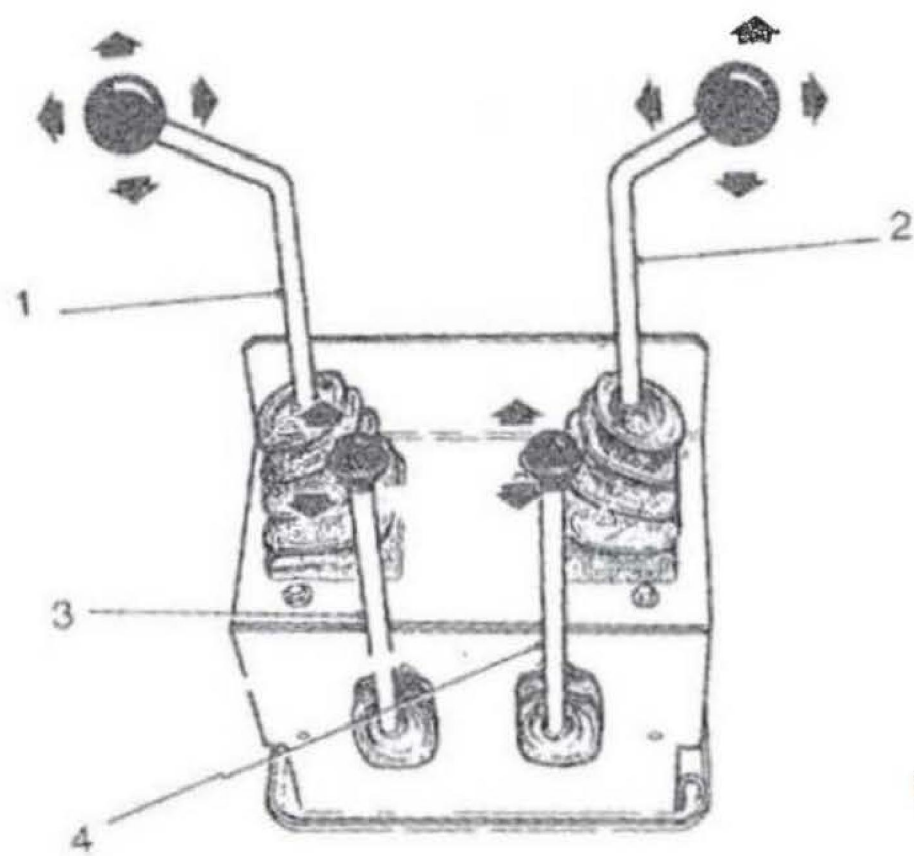


fig 18

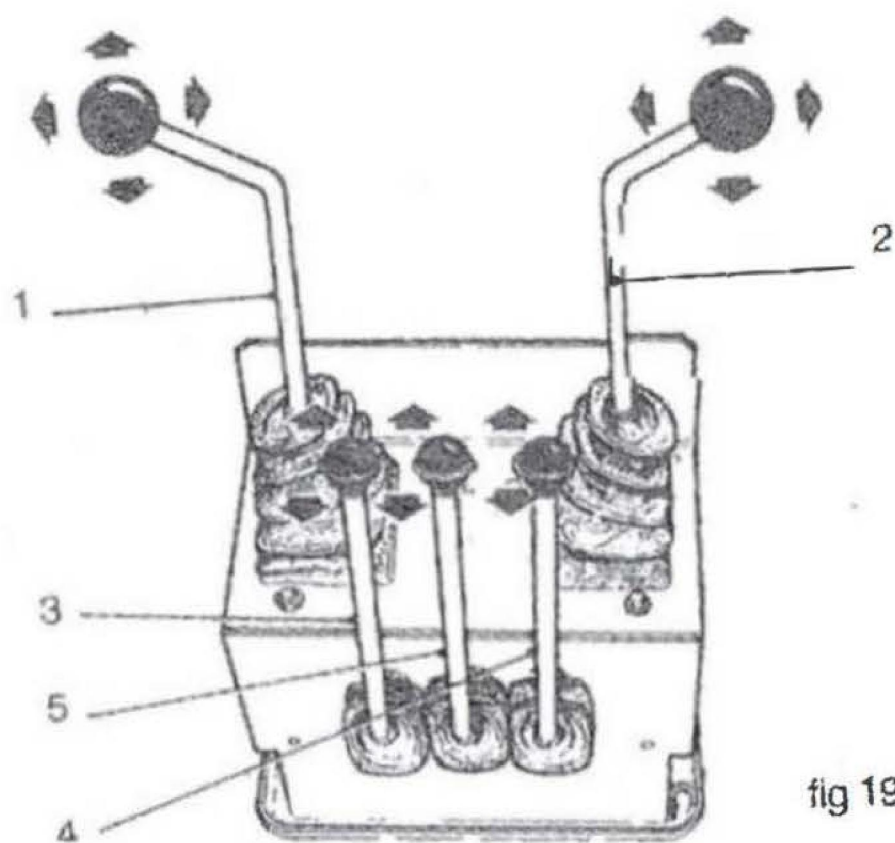
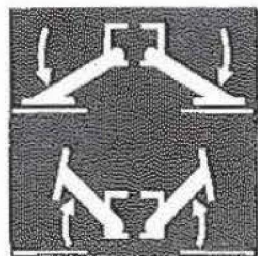


fig 19

Instruments and Controls

Centre-mount diggers only (fig 18)



Function operated by **Levers 3 and 4**

Both levers operate in exactly the same way each controlling one stabiliser leg.

Lever pushed forward will lower the stabiliser leg.

Lever pulled backwards will raise the stabiliser leg

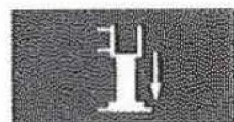
Side-shift diggers only (fig 19)



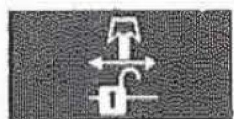
Functions operated by **Levers 3 and 4**

Both levers operate in exactly the same way each controlling one stabiliser leg.

Lever pulled backwards will retract the stabiliser leg.



Lever pushed forward will extend the stabiliser leg.



Functions operated by **Lever 5**

Lever pushed forward will unlock digging arm and allow it to side-shift across the backframe. (Lever locks in position. Pull lever back to release).



Lever in central position will lock digging arm to backframe as soon as any digger function is used.

Lever spring loaded to return to position 2.

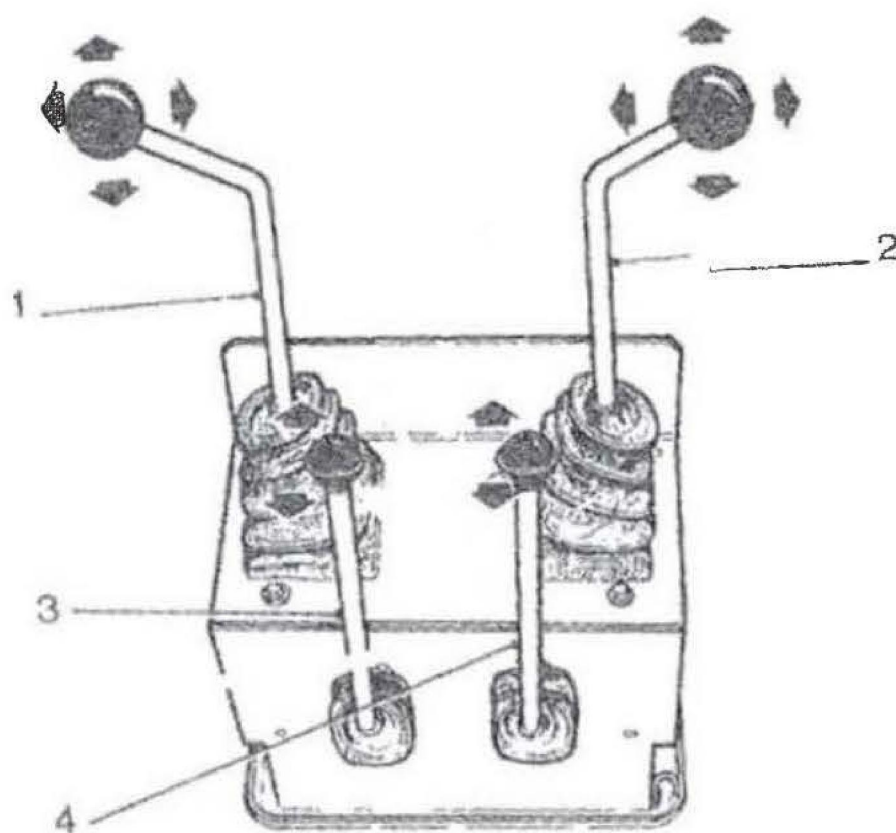


fig 18

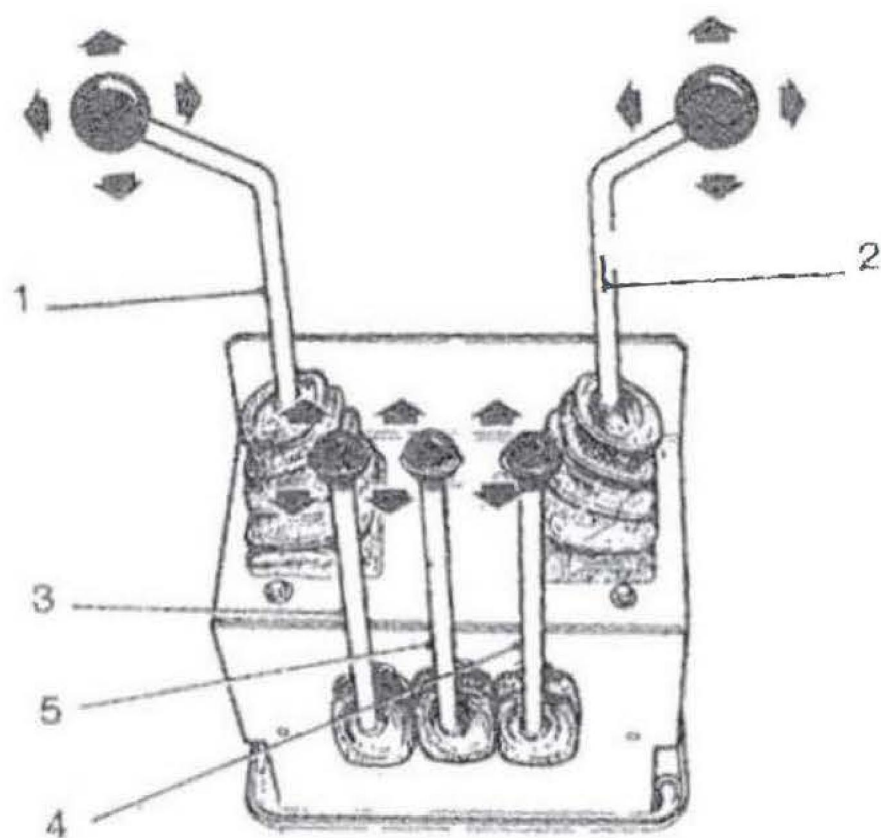


fig 19

Instruments and Controls

Brake fluid reservoir (figs 20 and 21)

There are two positions for the brake fluid reservoir, depending upon the transmission fitted. With **Instant Reverse** transmission the reservoir is located on the fender to the left hand side of the driver (fig 20).

With **Manual Shuttle** transmission the reservoir is mounted on the right hand fender, adjacent to the differential lock lever (fig 21).

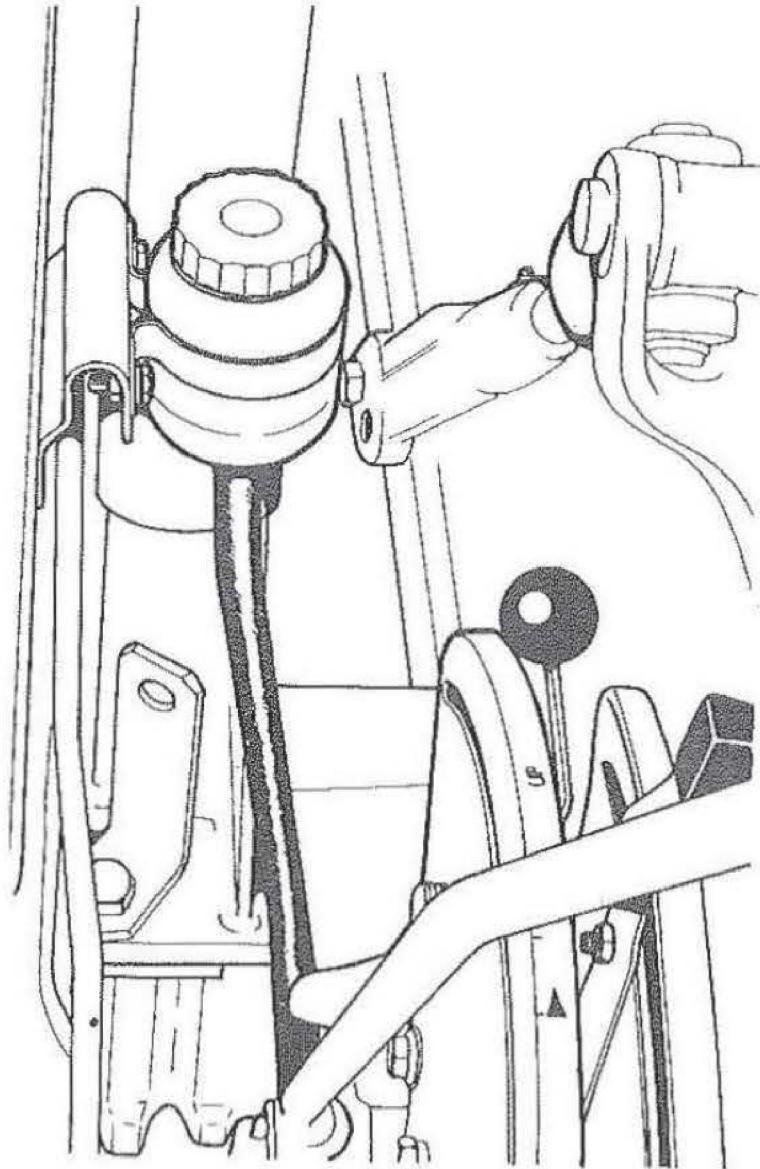


fig 20

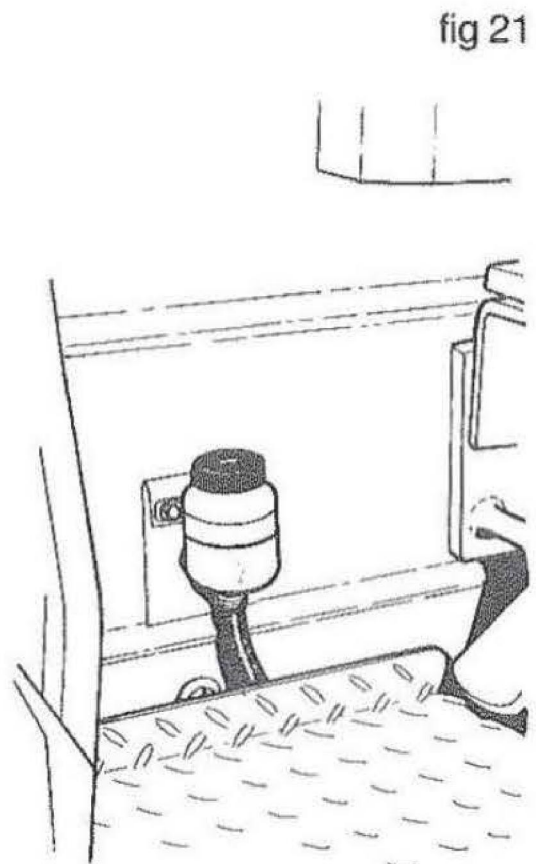


fig 21

Instruments and Controls

Differential lock lever (item 1, figure 22)

Hydraulic control quadrant for 3 point linkage (item 2, figure 22)

Response control quadrant for governing the lowering speed of the 3 point linkage (item 3, figure 22)

Transmission oil level dipstick (item 4, figure 22).

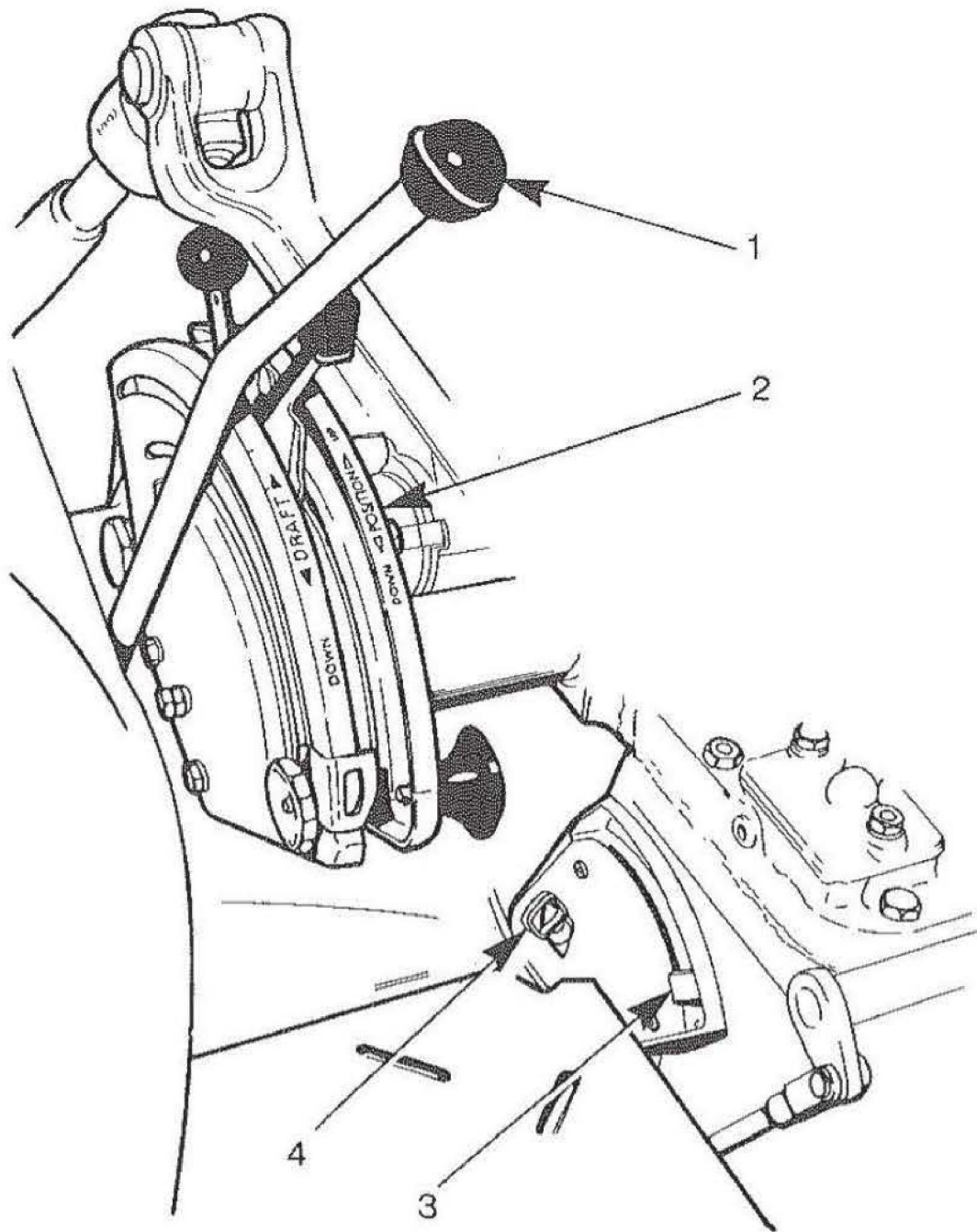


fig 22

Instruments and Controls

Power take-off (p.t.o.) selector (fig 23)

P.t.o. lever has two positions:



Neutral



Engine speed proportional p.t.o. drive.

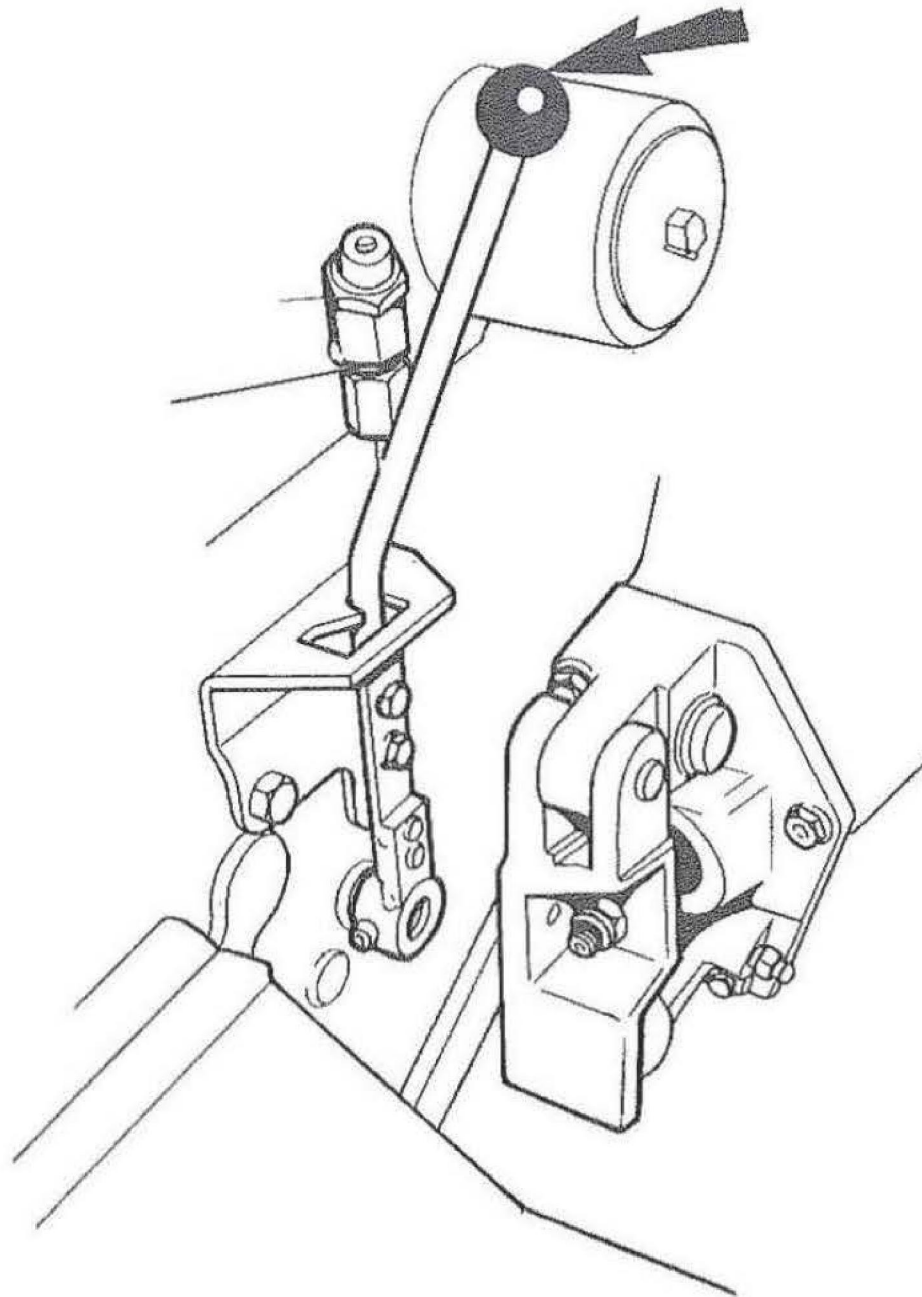


fig 23

Instruments and Controls

Spring Suspension seat adjustments (fig 24)

This seat has three forms of adjustment:

Fore and aft by pressing down on lever (1) and sliding seat to desired position.

Seat height by slackening knobs (2) one each side, then raising or lowering seat to the desired position.

Operator weight by turning knob (3) until comfortable resilience is obtained.

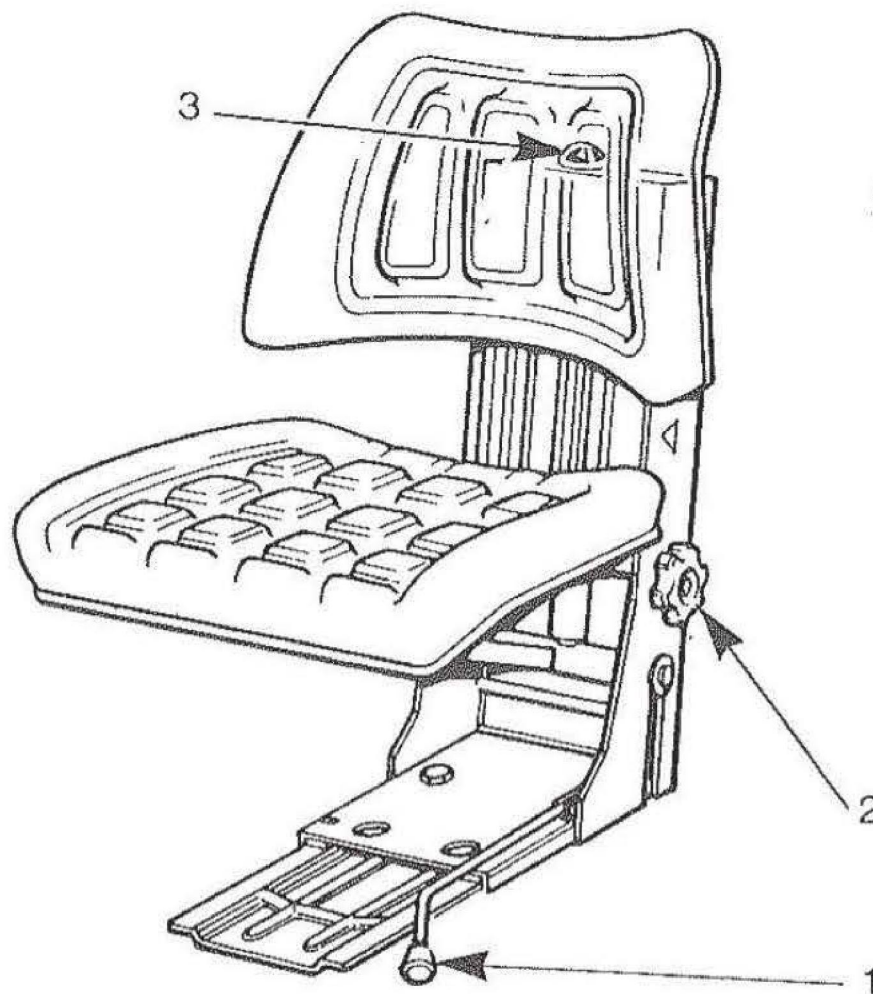


fig 24

Instruments and Controls

Tip-over seat – Digger/Loaders only (fig 25)

Move lever (1) to adjust fore-aft seat position, for both loader and digger operation.

Before operating the digger, lift the front of the seat and latch securely in the position for digging. To revert seat back to “loader position” press lever (2) and push seat back-rest forwards.

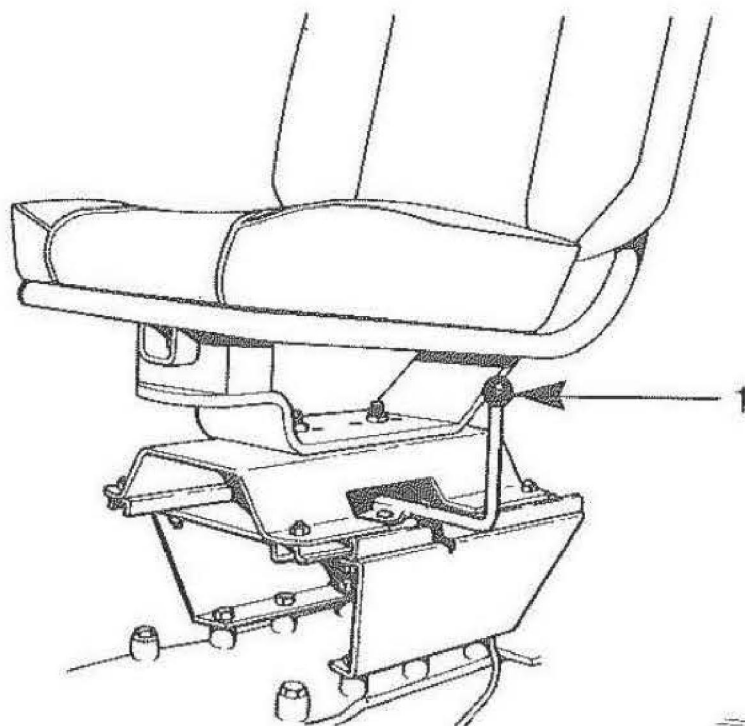
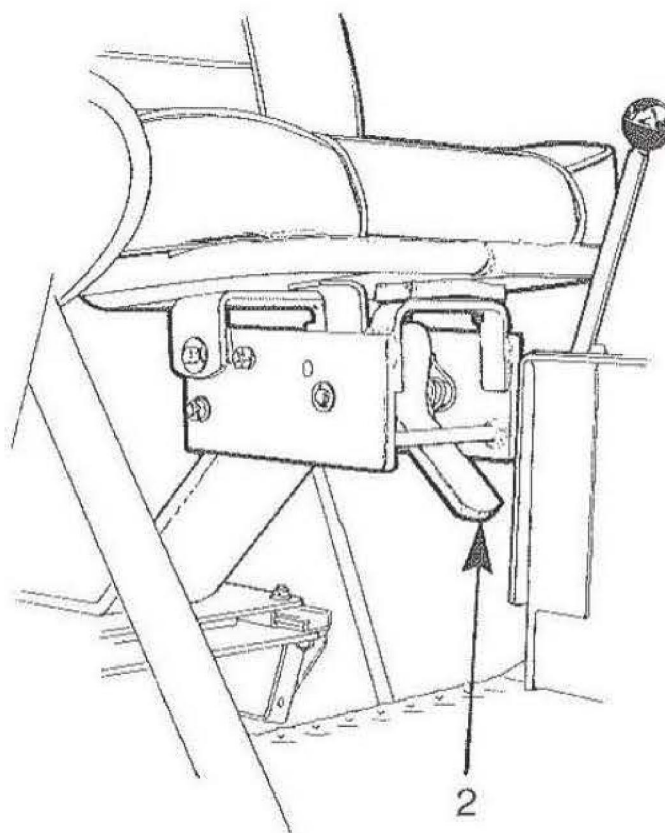


fig 25



Operation

Operation

The following precautions should be taken during the break-in period

- Experience has shown that the first 50 hours of tractor operation have a significant effect on performance and life of diesel engines.
From new, the machine should be worked so that the engine is subjected to near maximum load at speeds greater than 1200 rpm. It is not recommended to heavily load the engine below this speed.
- Use a low gear when pushing heavy loads
- Change engine oil and filter at 50 hrs
- Check wheel nut torques daily until stabilised.

Before Starting

- Carry out Daily Maintenance as per the maintenance schedule at the back of this book.
- Ensure that there is sufficient fuel in the tank.
- Operate fuel pump priming lever several times; this is particularly important if the tractor has been standing for some time.

Operation

Normal Starting

1. Attempt to start engine only when seated in driving position.
2. Ensure parking brake is engaged
3. Move gear and range shift levers to neutral and ensure power take-off drive is in neutral. Move linkage hydraulic controls down on the quadrant and ensure loader or digger hydraulic controls are neutralised.
4. Hand throttle must be set at minimum.
- 5a. Depress accelerator pedal fully on manual shuttle transmission machines.
- 5b. Depress BOTH direction shift pedals simultaneously and fully on Instant Reverse transmission machines.
6. Depress clutch pedal on manual shuttle transmission machines.
7. Push in engine stop control fully
8. Turn the switch key clockwise to operate the starter motor

After engine starts reduce speed to approximately 1000 to 1200 rpm to allow lubricant to reach all vital moving surfaces (three to five minutes). Do not work engine hard until temperatures and pressures stabilise.

Observe instruments and if a malfunction is indicated, stop engine and correct problem.

NOTE: If engine does not start and run after using normal starting procedure, de-aerate the fuel system using the procedure detailed in the Fuel System section of this book. If engine still fails to start, consult your Distributor.

To stop the engine pull stop control knob fully outwards.

Operation

Cold weather starting – Europe/Export machines .

The cold start aid fitted to machines in Europe/Export markets is a CAV MKIII Thermostart fitted to the engine inlet manifold. It is recommended to use the Thermostart.



In no circumstances use ether starting fluid when a Thermostart unit is fitted



Instructions 1 to 7 are the same as for normal starting.

8. Turn the key to the 2nd position clockwise, (HEAT) and hold it there for 15 to 20 seconds.
9. Turn the key to the third position clockwise (START) to start the engine.
10. If the engine is cranking satisfactorily but the engine fails to start after 15 seconds, return the key to the HEAT position for a further 10 seconds.
11. Turn the key to the START position again
12. In very cold conditions, when the engine starts, turn switch key to the HEAT position for up to 15 seconds, until the engine runs steadily. Release the key which will return to the + position.

Caution

- If the engine fails to start, ensure that the starter motor has completely stopped before re-attempting to start the engine.
- If the fuel system has been disturbed, or the Thermostart not used for some time, ensure that fuel is available at the Thermostart by using the priming lever on the fuel lift pump to bleed fuel from the Thermostart union. Failure to observe this precaution may result in damage to the Thermostart unit.
- If the engine does not start and run after using the normal starting procedure, de-aerate (bleed) the fuel system using the procedure detailed in the Fuel System section of this book. If the engine still fails to start, consult your MF Industrial dealer.

Operation

Cold Weather Starting – North American machines only

An ether injection system (accessory) can be installed on this Tractor to aid starting in cold weather.



Ether Injection must never be used with any other starting aid, such as the Thermostart system fitted to some MF machines. If in any doubt consult your Massey Ferguson dealer.



Caution: Store starting fluid where it is not subjected to extreme heat and is out of reach of children.

Ensure a viable ether container (12oz pressurised can MF Part No. 830999 M2) is available before attempting to start the engine.

Follow instructions 1 through 7 under Normal Starting.

8. Remove the cap from the starting fluid adapter and position the aerosol in the adaptor.
9. Push up on starting fluid aerosol to inject starting fluid into the engine air intake system. Use starting fluid sparingly and cautiously, injecting it into the adaptor in shots while the engine is being cranked.

Do not crank engine with starter for more than 30 seconds at a time, as this will overheat starter. If engine fails to start, allow 30 seconds for starter to cool.
10. After engine starts, additional fluid may be injected, until the engine runs smoothly.
11. Remove aerosol, replace screw-on cap on the adapter, being sure the rubber gasket is in place. Failure to replace the cap on the adapter will permit unfiltered air to enter the engine air intake system.
12. Reduce engine speed to approximately 1000 to 1200 rpm to allow lubricant to reach all vital moving surfaces (three to five minutes). Do not work engine hard until temperature and pressures stabilise.

Observe instruments and if a malfunction is indicated, stop engine and correct problem.

NOTE:

During cold weather starts, diesel engines will generally show white smoke which is a normal condition and is not an indication of a mechanical problem.

Operation

Manual Shuttle Transmission

This transmission is designed to make loader work more productive by providing slick forward/reverse gear shifting.

Though rapid direction changes can be achieved, it is **important to halt the machine completely before changing direction.** Unnnecessary wear of the mechanical shuttle coupling may occur if the machine is still moving, even slowly, when the opposite drive direction is selected.

Speed or range shifts should also not be made while the machine is moving.

Selecting the Correct Gear

Select the gear which will give the best fuel consumption without overloading the engine or transmission. Also remember that ground conditions may vary almost every few yards, therefore select the gear in which the engine will operate satisfactorily at three-quarters maximum power.

Never work the tractor by slipping and re-engaging the clutch and at all times avoid riding the clutch pedal, which can cause overheating and may lead to total clutch failure.

When engaged on loader work always pay particular attention to brake adjustment as this will ensure good brake efficiency, low pedal effort and help improve output.

When operating semi-stationary equipment, move the shuttle lever to FORWARD position and both transmission speed shift levers to NEUTRAL.

Do not abuse the clutch in an attempt to move objects which the machine cannot handle in the ordinary way.

Never coast down hills with the tractor out of gear or the clutch disengaged.

Operation

Instant Reverse Transmission

Having started the engine and **reduced engine speed to minimum:**

1. Move both the gear lever and range selector lever to obtain the desired gear. If the gear proves difficult to select, lightly press either forward or reverse pedals release the pedal and try gear selection again. **Never** force the gears into noisy engagement.
2. Release the parking brake
3. Once the required gear has been selected press the appropriate direction pedal. Only light pressure is needed to move the direction pedal over its initial stroke which hydraulically powers the respective clutch. Further pressure on the pedal will accelerate the engine and vehicle.

NOTE:

It is good practice to stop the machine fully by using the brakes **before** changing direction of travel. Repeated use of the transmission as a brake may cause premature wear of the hydraulic clutches.

Stopping the machine

1. Reduce engine speed to minimum
2. Apply the brakes until the machine stops and securely apply the handbrake
3. Move both the gear and range levers to neutral positions
4. Lower digger and loader (when fitted) to the ground
5. Pull engine STOP control.



CAUTION:



- Machines equipped with Instant Reverse transmissions cannot be tow started
- If machines equipped with Instant Reverse are towed for any reason **always ensure both gear levers are in NEUTRAL** or serious damage could result.
- Always keep the appropriate direction pedal depressed when travelling down hills, as this will provide engine braking.

Operation

Torque converter operation

The torque converter is a fluid coupling between engine and transmission. As the transmission load increases the torque converter increases the torque input to the gearbox. The need for changing gears, is therefore greatly reduced.

Towing the tractor

Before towing, shift p.t.o. level, dual range lever and gear lever to neutral. The towing speed must not exceed 15 mph (25 Kph). Allow plenty of time to turn, as with no power assistance much more effort is needed to steer.

Brakes

Always couple both brake pedals together for highway driving. Independent braking should only be used to assist turning while in-field: when conditions demand.

Differential Lock

If a rear wheel spins:

- Fully depress the clutch pedal (manual shuttle transmission) or release the direction shift pedal (Instant Reverse transmission).
- Engage differential lock by pushing the lever forwards
- Re-engage drive whilst maintaining pressure on the differential lock lever
- Releasing the lever will normally disengage the differential lock, but if it fails to do so, steer SLIGHTLY to either left or right.



WARNING: Always de-clutch before engaging the differential lock. Do not attempt to engage the differential lock while one wheel is spinning.

Steering is seriously affected while the differential lock is engaged.

Operation

Independent power take-off (i.p.t.o.)

This tractor is equipped with a single speed power take-off which is engaged and disengaged by an hydraulically powered multiplate wet clutch. The speed of the i.p.t.o. shaft is proportional to engine speed.

The i.p.t.o. drive can be engaged/disengaged when the tractor is stationary or moving.

IMPORTANT: Engage i.p.t.o. at low engine speed to protect light duty implement drive lines.

Ensure that the i.p.t.o. lever is in fully engaged or fully disengaged position. Partial selection or slow shifting will cause unnecessary clutch slip and wear.

The power take-off shaft (fig 26) is a standard $1\frac{3}{8}$ inch (34.9mm) diameter six spline type with an annular groove for positive fixing of implement couplings.



CAUTION: Before attaching, adjusting or working on p.t.o. driven implements, disengage the p.t.o. **and stop the engine.**

P.t.o. driven implements and machinery can have very considerable inertia and may therefore, be extremely difficult to stop quickly in an emergency.

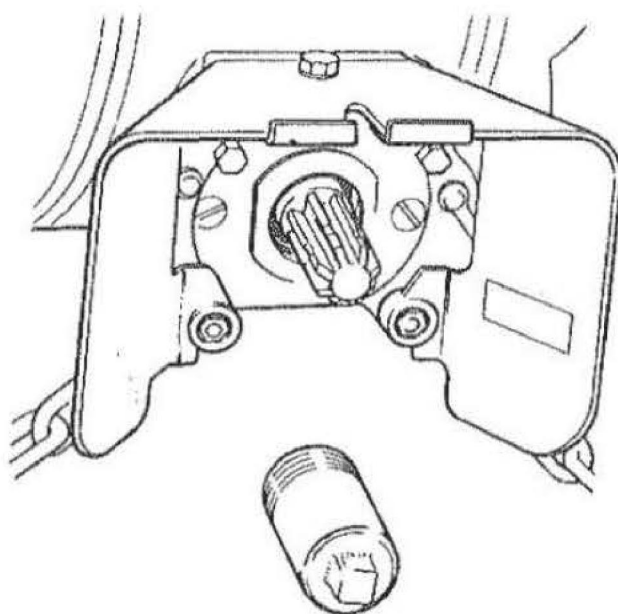


fig 26

Operation

Hydraulic Lift System

The Ferguson hydraulic system combines the tractor and implement into one unit with the implement hydraulically controlled. The system fulfils the following functions:

1. Depth control of soil engaging implements – Draft Control
2. Control and positioning of implements above the ground – Position Control.

NOTE: The speed of implement drop is further controlled by the Response Control.

3. Control of external equipment having hydraulic operation (Auxiliary Hydraulics) – trailer tipping, loader operation, hydraulic motor drive – constant pumping.

NOTE: Careful attention should be paid to the operation of the Hydraulic Quadrant Control.

Draft Control (fig 27)

outer lever – yellow quadrant

Type of Work:	Ploughing: subsoiling: heavy cultivation
Transport Position:	Lever fully back (A)
Entering Work	Push the lever forward until the implement reaches the required depth (B). Set the adjustable stop in line with the lever. Set the Response Control as shown.
Working	The Draft Control lever can be moved slightly to suit varying soil conditions. Set the Response as SLOW as possible, whilst still maintaining an even depth. If the implement 'bobs' move the Response Control towards SLOW.
Leaving Work	Pull the Draft Control lever back to (A).

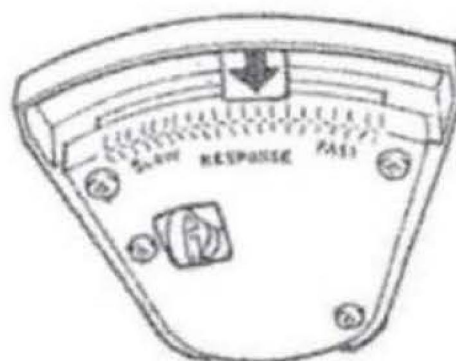
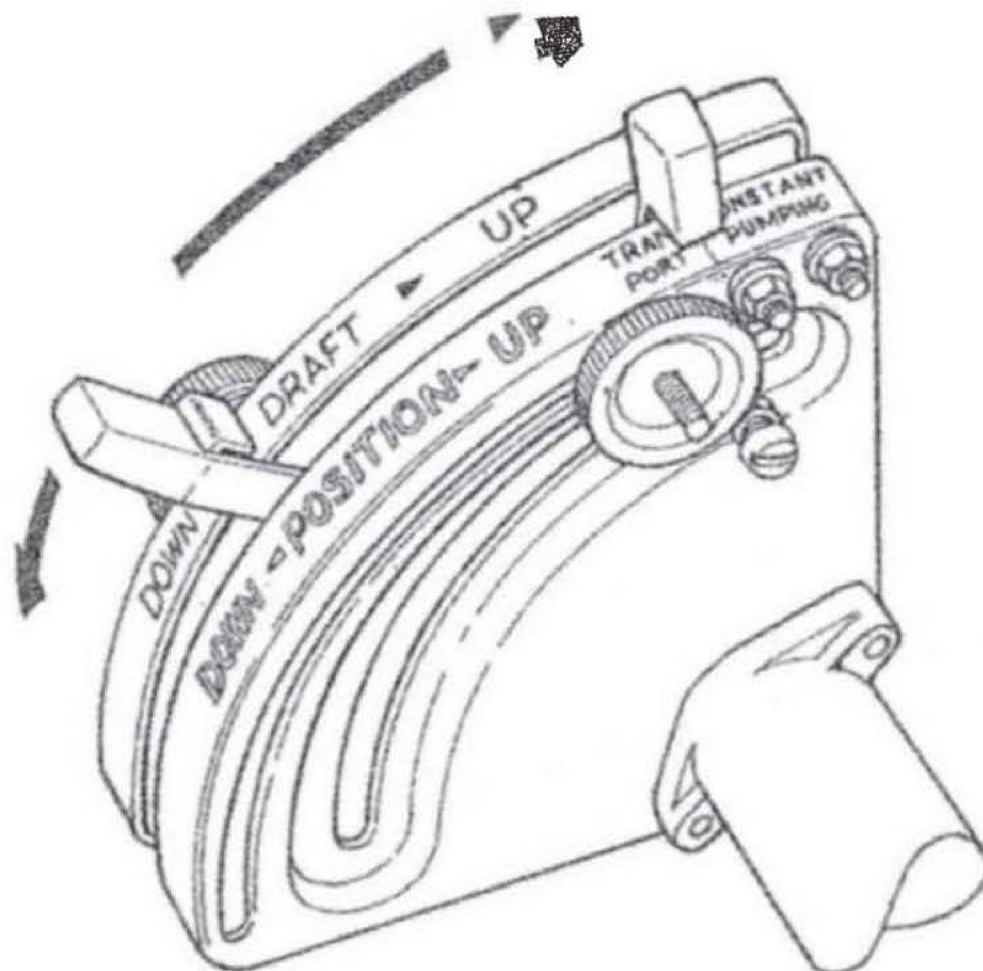


fig 27

Operation

Position Control (fig 28)

inner level – red sector

Type of Work	Operation which requires the implement to be kept at a constant height above the ground.
Transport	Pull the lever to line up with the TRANSPORT mark (A).
Entering Work	Push the lever forwards until the required implement position is obtained (B). Set the adjustable stop in line with the lever. Set the Response Control as shown.
Working	No further adjustment is necessary
Leaving Work	Move the lever forwards to the TRANSPORT position.

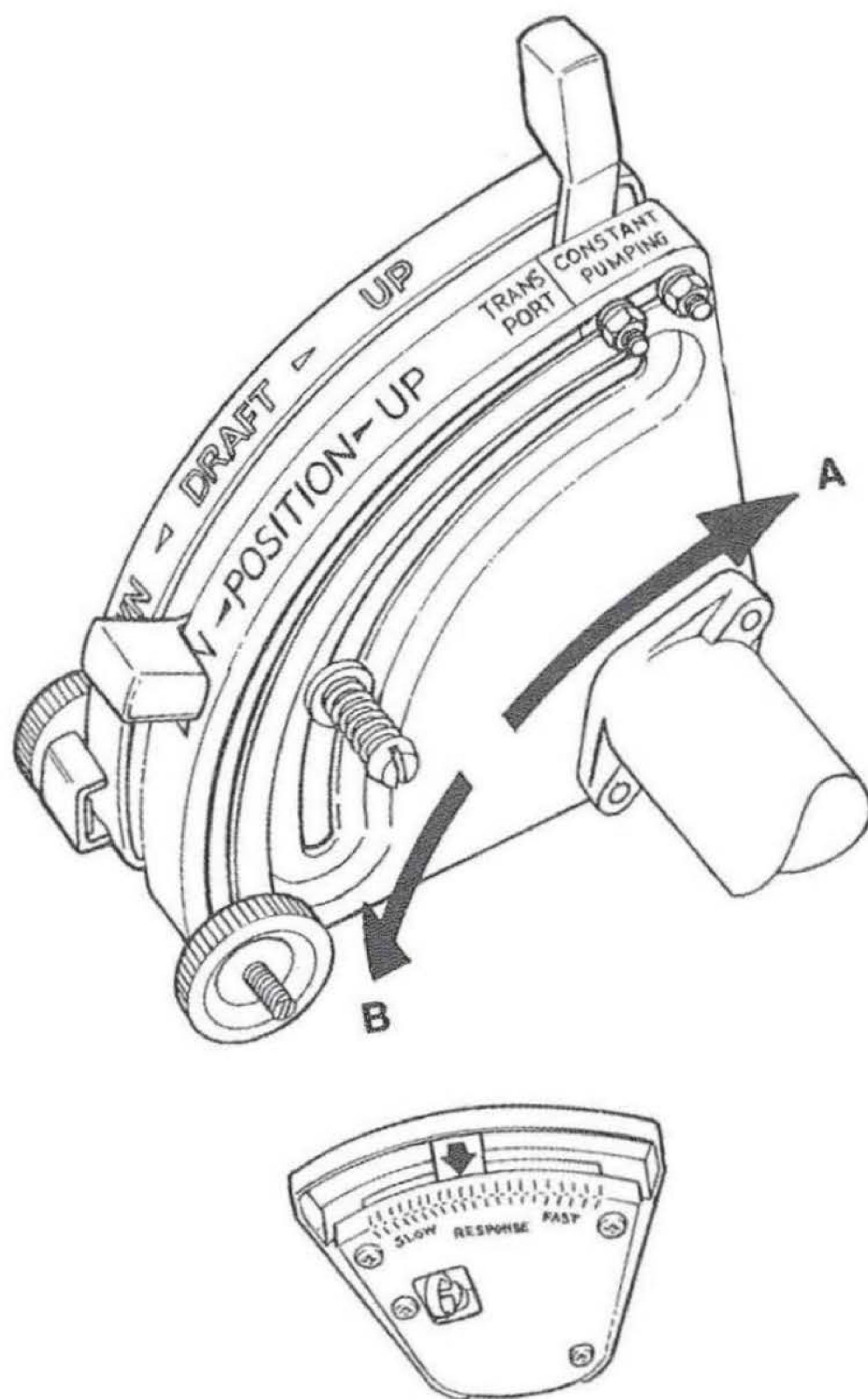


fig 28

Operation

Control of Hydraulic Equipment (fig 29)

Type of Work	Single acting hydraulic ram and low input hydraulic motors. Move the inner lever to CONSTANT PUMPING (A, blue sector), then move the outer lever to approximately position (B) to establish the point at which the ram neither extends nor retracts. Set the adjustable stop in line with the outer lever. Set the Response Control to FAST.
Operation	To extend the ram, move the lever to (C) To retract the ram, move the lever to (D).

IMPORTANT: When the ram is fully extended return the lever to (B) to prevent the internal pressure relief valve from discharging continuously.

Hydraulic Motors	Move the inner lever to CONSTANT PUMPING (A). Move the outer lever to (D).
Operation	Move the outer lever to (C) to engage the hydraulic drive and to (D) to disengage the drive. Response Control is not used.

CAUTION: If a quantity of oil in excess of 11 litres (2.9 US gals) is required for external use, the transmission can be filled to the 'MAX' mark on the dipstick, giving 20 litres (5.3 US gals).

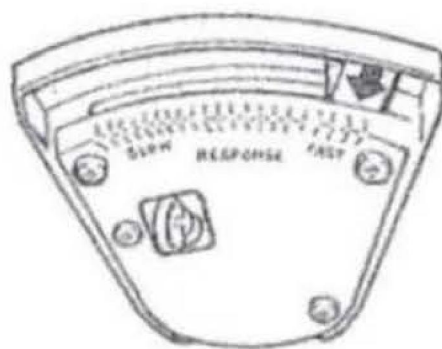
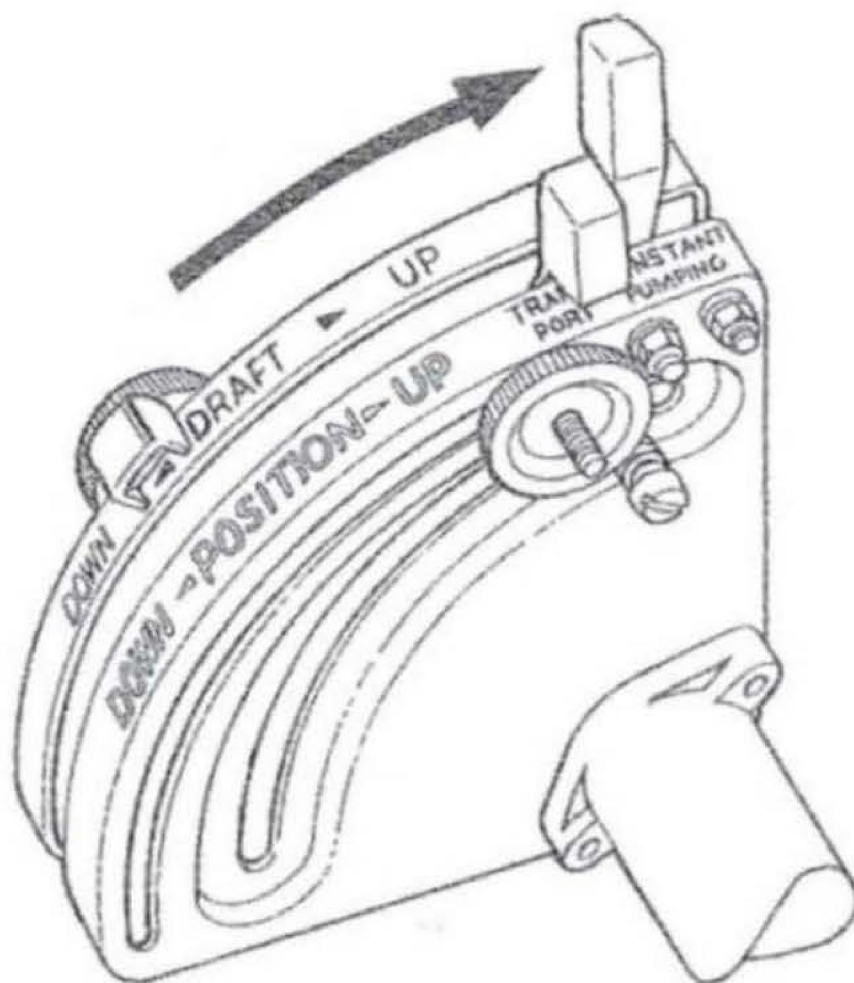


fig 29

Operation

Attaching an Implement (fig 30)

The Ferguson hydraulic system with three point linkage provides complete implement control at your fingertips.

Attaching and detaching implements with three point linkage is easy and fast if the procedure outlined below is adopted.

Attachment procedure:

1. Back the tractor up to the implement, aligning the lower link ball ends with the implement hitch pins.
2. Using Position Control, raise or lower the lower links until the left hand ball end aligns with the implement hitch pin. Push the hitch pin through the ball and secure it with the linch pin.
3. Attach the right hand lower link to the implement by unlatching ball-end or by using the levelling lever to adjust the height of the link if necessary. The ball-end will automatically re-latch when starting work.
4. Attach the top link to the implement 'A' frame and to one of the three top link attachment points on the tractor.

Top Link Attachment Point	Suitable for 'A' Frame with a Height of
Top Hole	560mm (22 inches) and above
Lower Hole	460-560mm (18-22 inches)

Using a higher than normal hitch point increases the sensitivity of the hydraulic system and provides more weight for penetration. It also reduces the ground clearance during transport and reduces the degree of control, which can cause uneven depth control.

Using a lower than normal hitch point causes opposite effects to the above.

5. If the levelling lever was used to facilitate the attachment of the right hand lower link, adjust the right hand lift rod to its normal operating length by screwing the lift rod in or out until the implement is level.

Operation

Detachment of Mounted Implements

1. Select a level area as this will make detaching much easier.
2. Lower the implement. Where necessary, fix parking stands in position.
3. Disconnect the tractor end of the top link, then secure the parking brake.
4. Dismount from the tractor and detach the lower links from the implement, replacing the linch pins to avoid losing them.

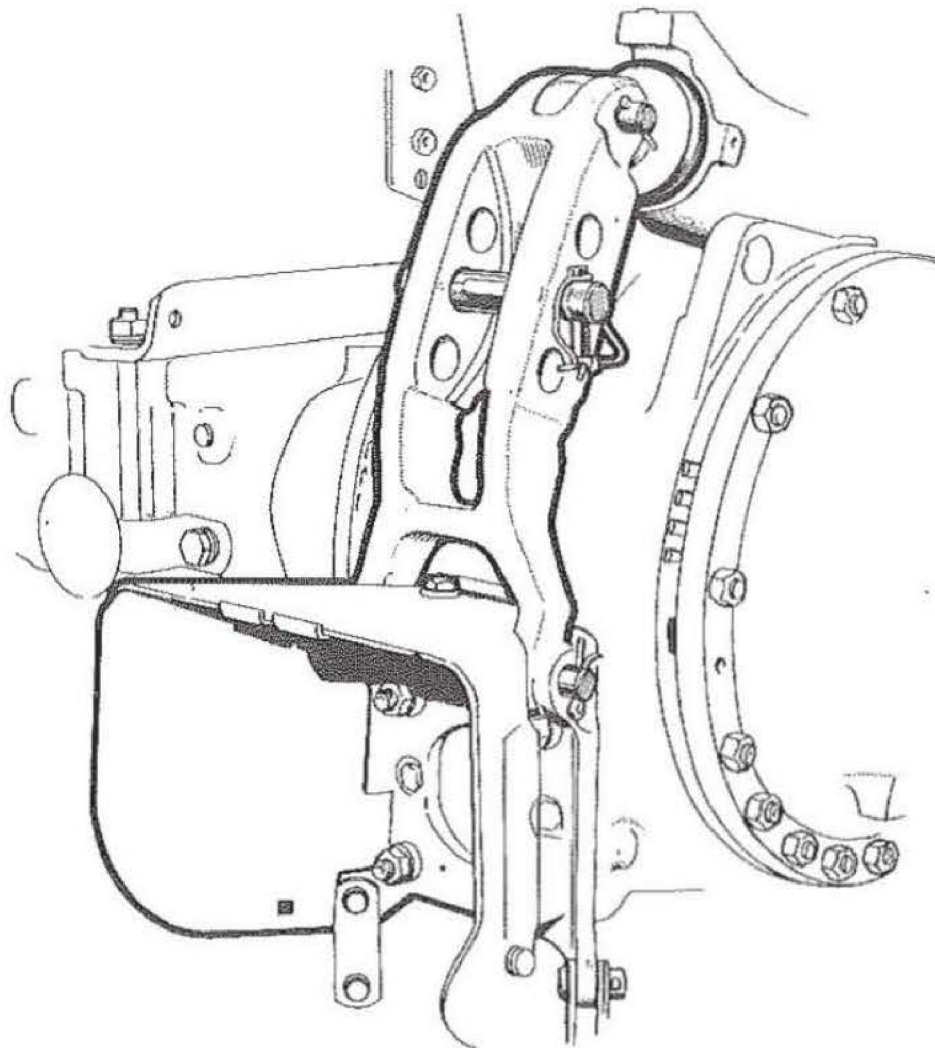


fig 30

Operation

Lifting Linkage

WARNING: Do not, in any circumstances, attempt to pull or tow directly from the top link connection.

The tractor is fitted with ball ends at the top link and lower links suitable for attachment of Category 2 implements.

Top Link (fig 31)

The top link is an adjustable barrel turnbuckle type.

Lower Links (fig 32)

The lower links are fitted with special ball-ends which can be unlatched by pressing latch-pin (1) forwards against spring pressure, the ball-end (2) can now be pivoted to assist attachment of implements. If the implement is very misaligned, the right hand lift rod is fitted with a levelling lever which adjusts the height of the right hand lower link.

The maximum recommended lift load for normal working is 1531 Kg (3373 lb).

Check chains (fig 31)

The check chains prevent the implement from swaying sideways into the rear tyres. Ensure chains are not twisted and are fitted correctly as shown, for category 2 implements.

Fitting of Implements

Careful attention must be paid, when fitting implements not specifically designed for the tractor, to ensure that there is adequate clearance and no possibility of any part of the linkage or implement touching the tractor while lifting and lowering.

Pressure Relief Valve

Although the pressure relief valve will prevent damage to the hydraulic system, unnecessary discharge should be avoided as this will rapidly increase oil temperature and prematurely diminish the pressure setting of the relief valve.

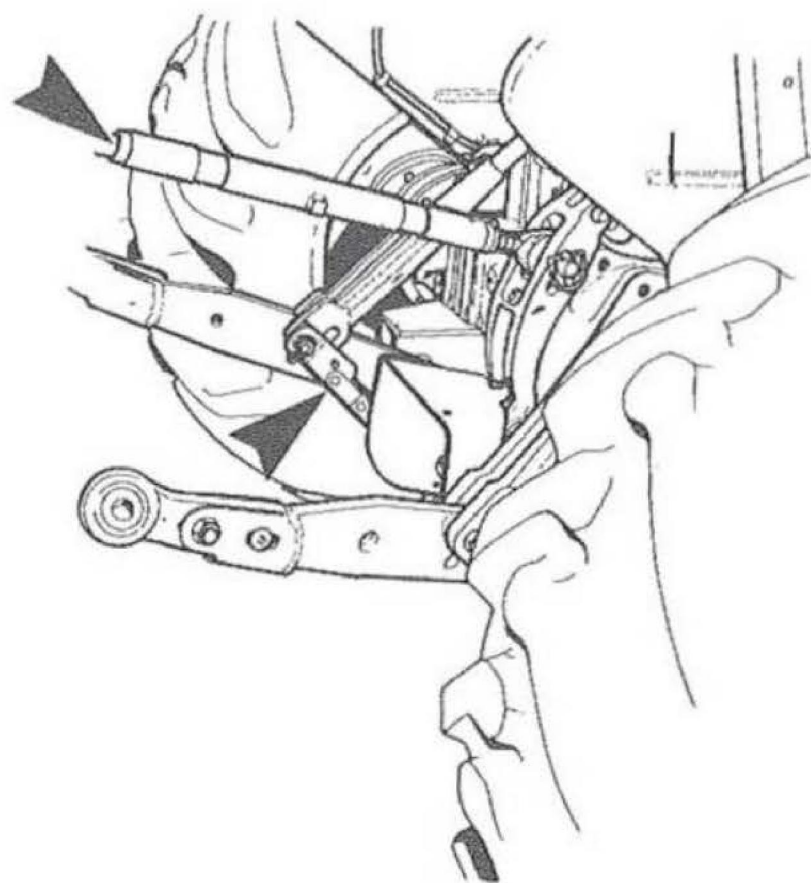


fig 31

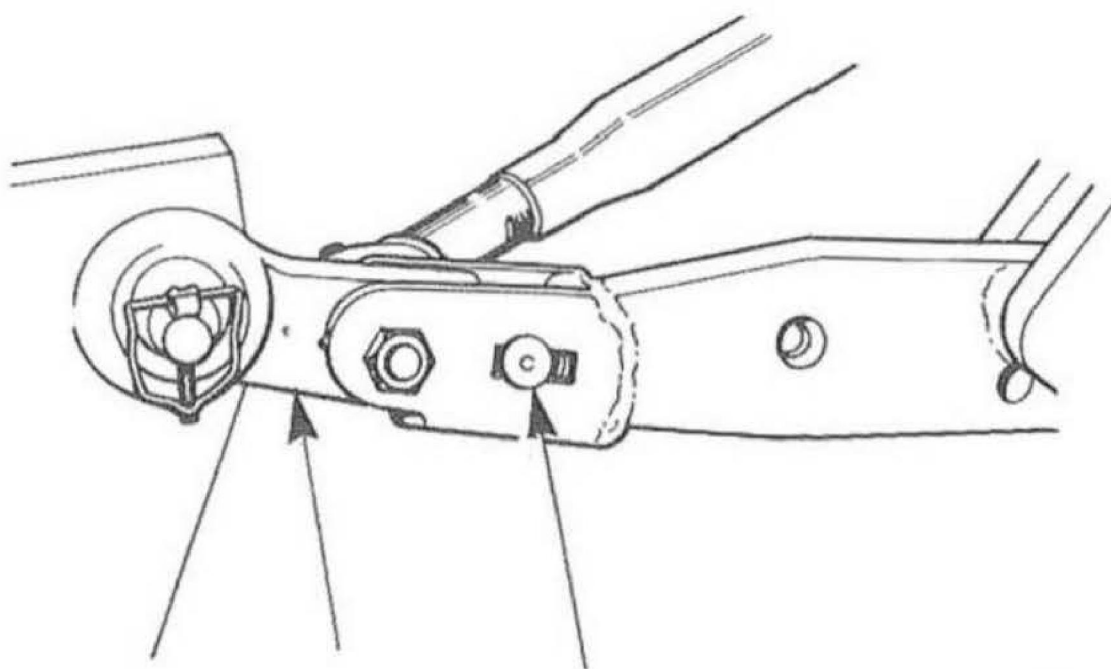


fig 32

Operation of the Loader

General

Moving the control lever fully in any direction gives maximum speed of loader/bucket while partial movement of the lever will correspondingly restrict the speed of movement. The driver should practice smooth operation for best service life of loader.

When loading from a stockpile, roll-back bucket and commence lifting as soon as cutting edge has fully penetrated stockpile.

Maintain loaded bucket close to ground at all times except during immediate approach to truck or hopper when the tractor should be driven with particular care and smoothness.

Keep worksite area flat by regularly skimming over it with the bucket, this improves safety and speeds operation.

When filling a trench with loose material, level the bucket on ground and commence backfilling, the full bucket will act as an effective dozer blade, finally dump material out of bucket when backfilling is completed.

For added traction use differential lock.

MF 34 Loader

When raising bucket to full height always pull control lever back into the detent position as the loader will hydraulically level the bucket during lifting, to prevent material spilling over back of bucket.

MF 250 Loader

The MF 250 loader is fitted with mechanical self-levelling linkage and automatically maintains constant bucket roll-back angle from ground level to maximum lift height.

Recommended practice

- Do not operate the loader without the correct counter-weight.
- Do not use FLOAT position for lowering loaded bucket.
- Do not lower a loaded bucket at high speed then stop it abruptly by neutralising the control lever. This causes unnecessary equipment abuse.

Operation of the Loader

- Do not lower a loaded bucket at high speed then stop it abruptly by neutralising the control lever. This causes unnecessary equipment abuse and creates a safety hazard that could result in personal injury.
- When transporting material, keep the bucket as close to the ground as is practicable, especially when working on sloping or rough ground.
- Always operate smoothly – especially with a full payload.
- Ensure tyre pressures are correct, a soft tyre can be dangerous.
- Keep the work site flat by regularly skimming over it with the bucket, this improves safety and speeds operation.

Operation of the Loader

Counterweight

If no digger is fitted, loaders must be equipped with counterweight boxes, which should be filled with foundry or press-shop waste metal.

Linkage mounted counterweight (figure 33)

This counterweight can only be fitted to machines equipped with internal hydraulics and 3 point linkage; which are used to mount/dismount the counterweight box.

To dismount the counterweight, start engine, remove linch pins (1 and 2) retaining the linkage stays (3 and 4) and, using POSITION control lever, raise the 3 point linkage until the stays can be slipped off the pins. Carefully lower counterweight to ground and remove top link (5) and then lower links (6 and 7) from counterweight.

Reverse this procedure to remount counterweight on tractor.

Fixed counterweight (figure 34)

This counterweight is fitted rigidly to the side frames to become an integral part of the loader. The box must be filled with foundry or press-shop waste metal to make up 1800 Kg (3968 lbs) ballast inside the box.

However if more weight is required on the rear wheels this can be added in the form of liquid filling inside the rear tyres. 75% fill of water/calcium chloride mixed in the proportion of 4.5 litres water to 1 Kg calcium chloride (1 gallon to 2 lb) will add 260 Kg (573 lb) per rear tyre 14/16.9 x 28 size. See weights listed in the GENERAL DIMENSIONS section of this book, for full details of incremental weight of liquid ballast.

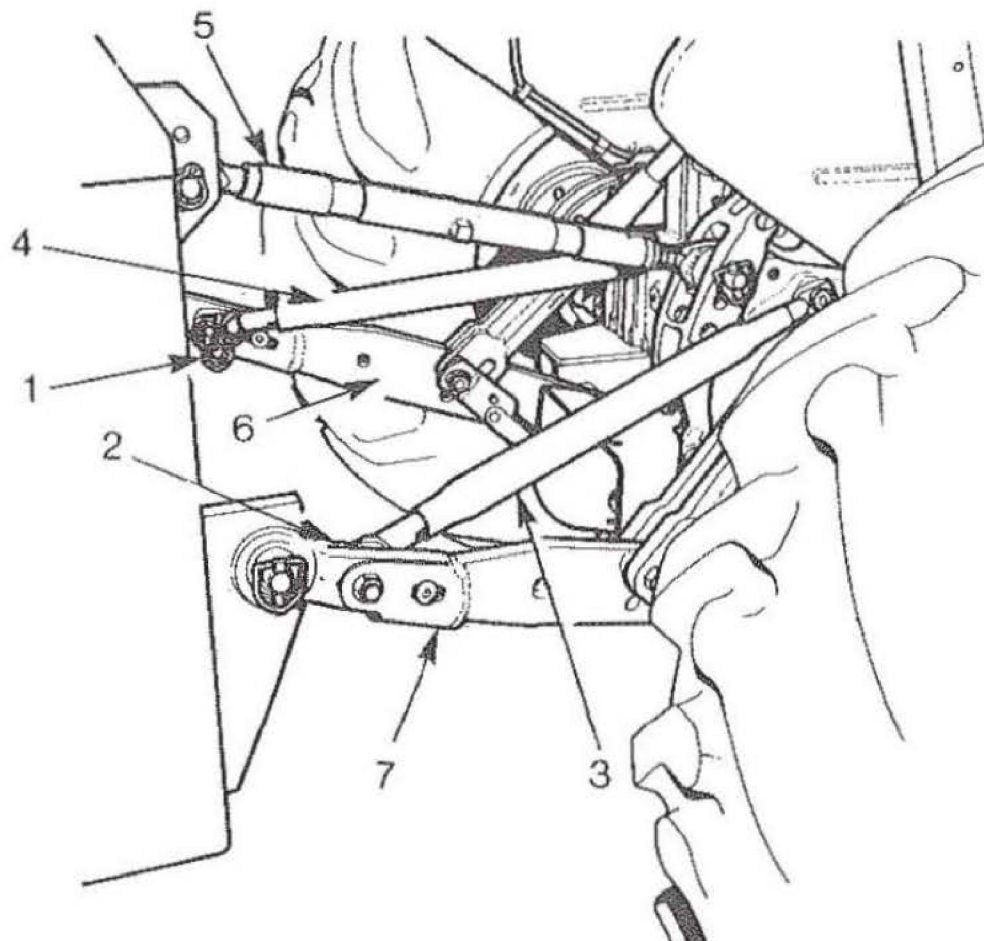


fig 33

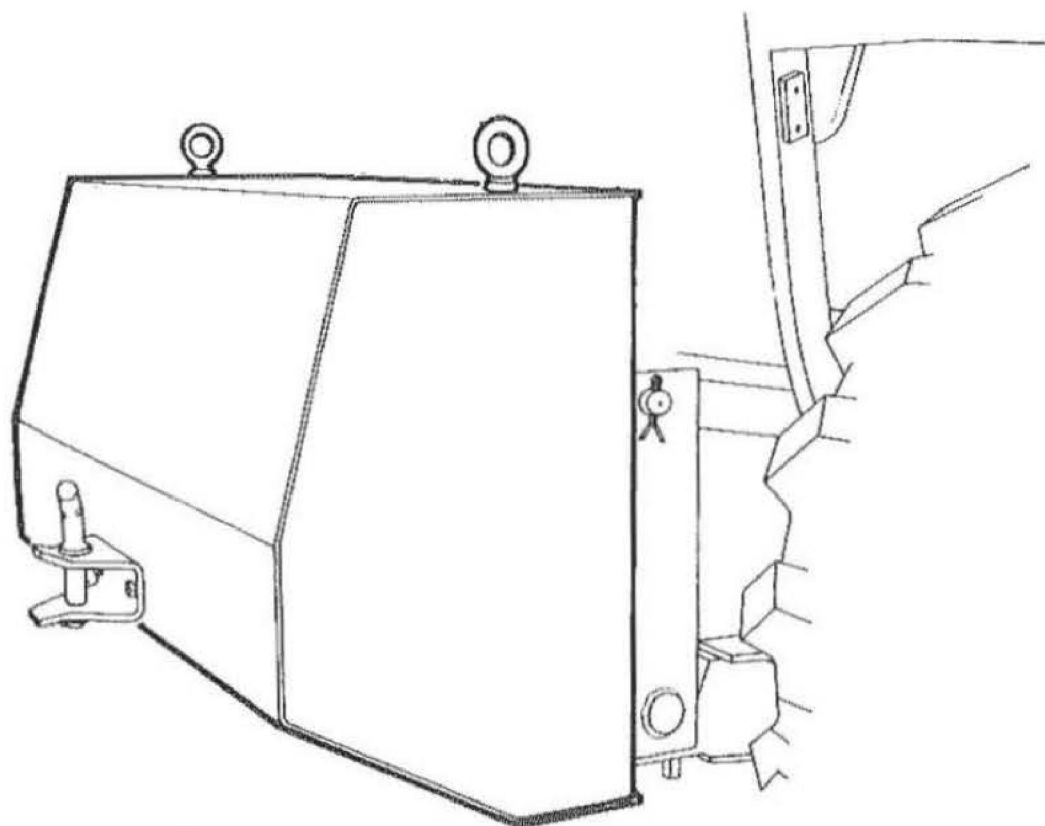


fig 34

Operation of the Digger

Operating speeds

Normal engine speed when working is 1500 - 1800 rpm. However, operate at a lower speed until operating skill develops or when working in very restricted conditions, particularly around underground cables or pipes and especially if other workers are in the vicinity.

Stability

To obtain maximum stability and anchorage during digging, fully dump the loader bucket at ground level and power the loader arms down to just lift the front wheels clear of the ground. Lower the digger stabiliser legs to take the weight of the machine, it is not necessary to lift the rear wheels completely clear of the ground.

Ensure the machine is level before commencing digging.

Excavating on slopes

Whenever possible start excavating at the top of the slope and work downhill.

When working across a slope make full use of the digger stabilisers to level the machine but **keep loader bucket just clear of the ground.**

Warning!



Remember that you cannot make use of the loader bucket for added stability when working across a slope **therefore reduce the payload and avoid swinging a fully loaded bucket at full reach to the downhill side of the machine – it may tip over.**

Off-setting the digging arm (figure 35) side shift model

The side-shift digger can be offset to any position within the limit stops on the backframe. This permits trenches to be dug adjacent to walls or other buildings or simply an efficient way of re-aligning the digging arm to the trench after moving the machine forward.

1. Lower the stabilisers
2. Swing the digging arm, in the direction it is to be offset, until the arm is parallel with the backframe and extend the digging arm to approximately $\frac{3}{4}$ reach, lower the bucket to the ground.

Operation of the Digger

3. Push the clamp control lever fully forward where it will lock in position. Dump the bucket fully and hold it stalled for a moment, the high pressure generate will unlock the digger clamp.
4. Operate boom and dipperstick controls to pull the digging arm across the backframe to the desired position.

Pull the clamp control lever backwards to the end of its travel, the digger will reclamp tightly to the backframe. Release the clamp control lever which will return to a central position. No further action is needed by the operator as the clamp system is then automatically pressurised as excavating progresses.

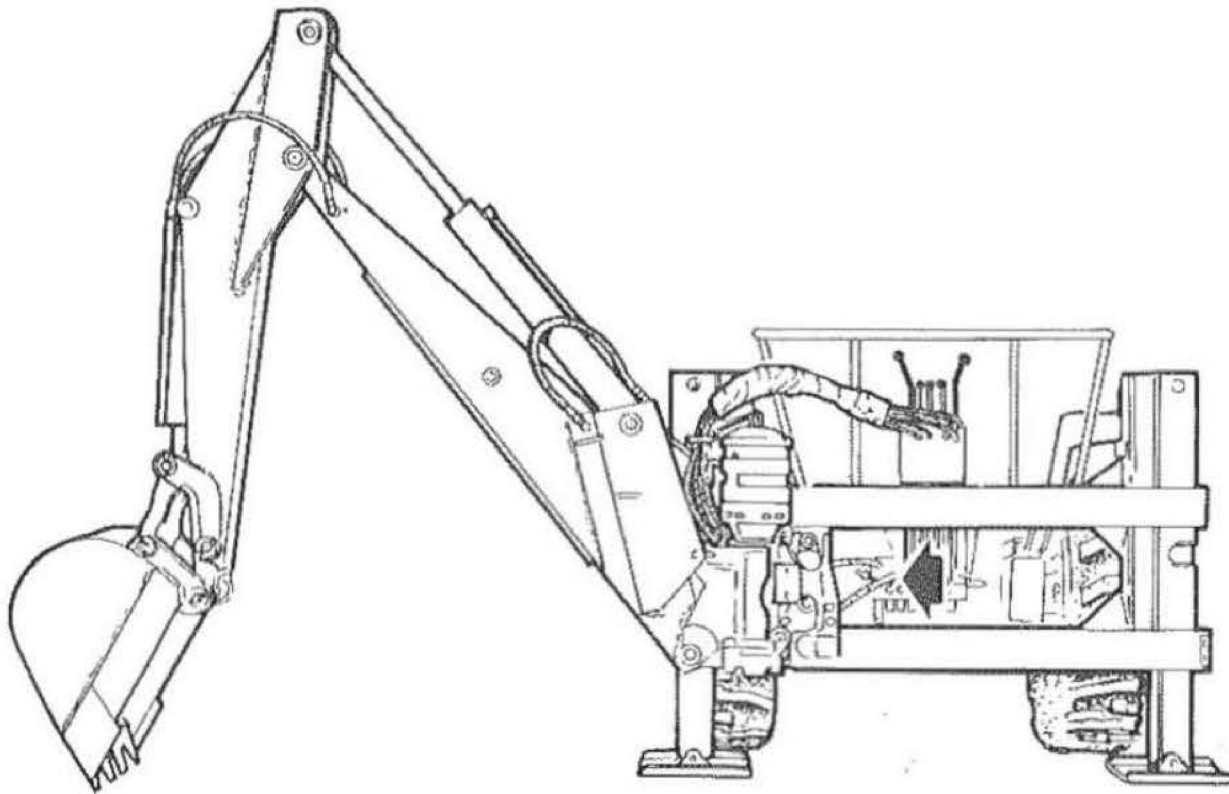


fig 35

Attachments

Attachments

Swinging Drawbar (fig 36)

The swinging drawbar has a number of positional adjustments to suit most types of trailed equipment.

Length

There are two positions measured from the p.t.o. shaft to the clevis pin centre line.

Short 254mm (10 inch) max. load 1633 Kg (3600 lb)

Long 356mm (14 inch) max. load 1179 Kg (2600 lb)

To adjust remove ring clip (1) and withdraw from mounting pin (3) allowing the drawbar frame to pivot around the rear mounting pin. Push drawbar anchor pin (2) up from inside of frame and extend or retract the drawbar, refit anchor pin, swing frame back into position and resecure with mounting pin (3). Refit ring clip to mounting pin.

Height (fig 37)

The drawbar can be adjusted for height relative to p.t.o. centre line.

When inverting the drawbar, the procedure is similar to that used when adjusting the length. The drawbar clevis can be mounted either above or below the drawbar, as shown.

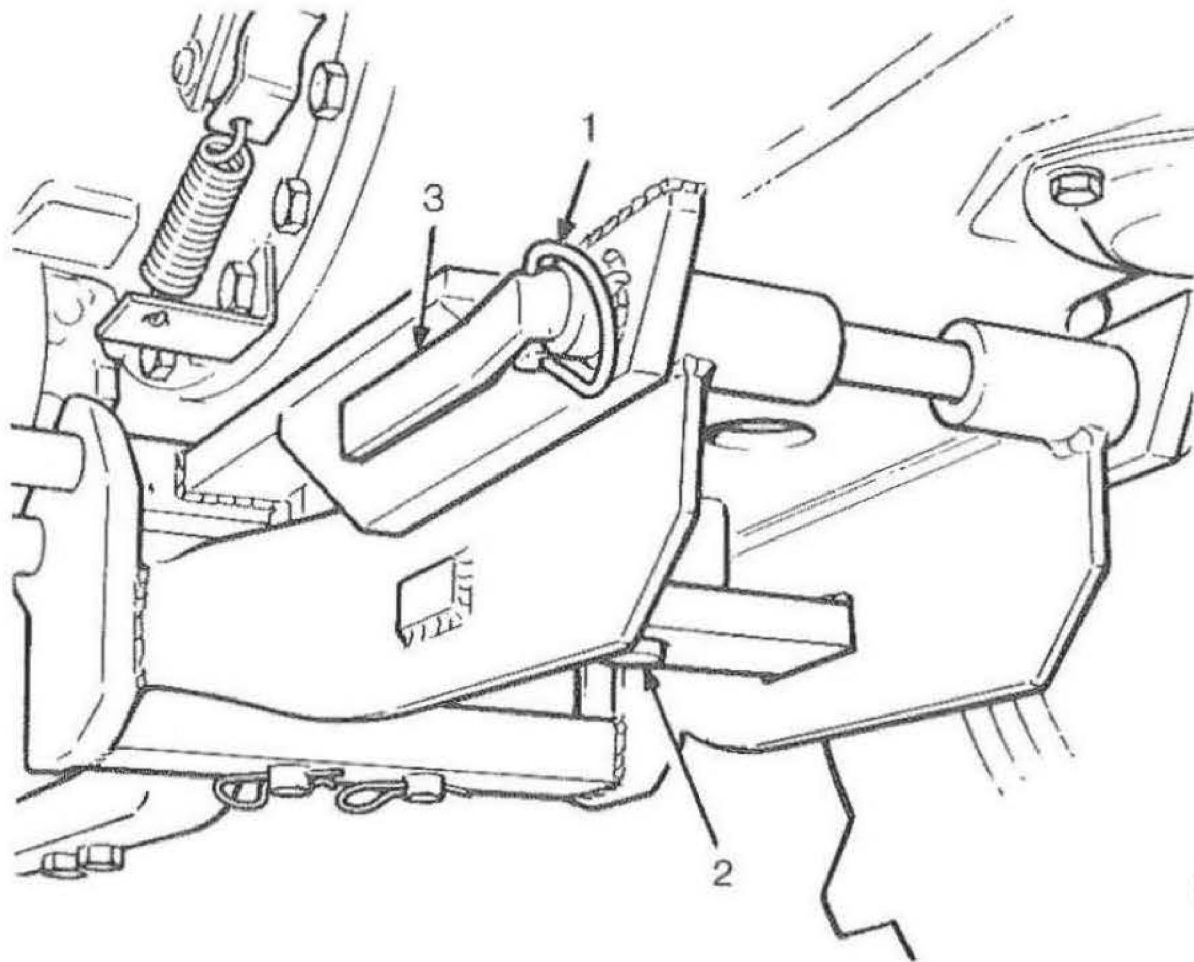


fig 36

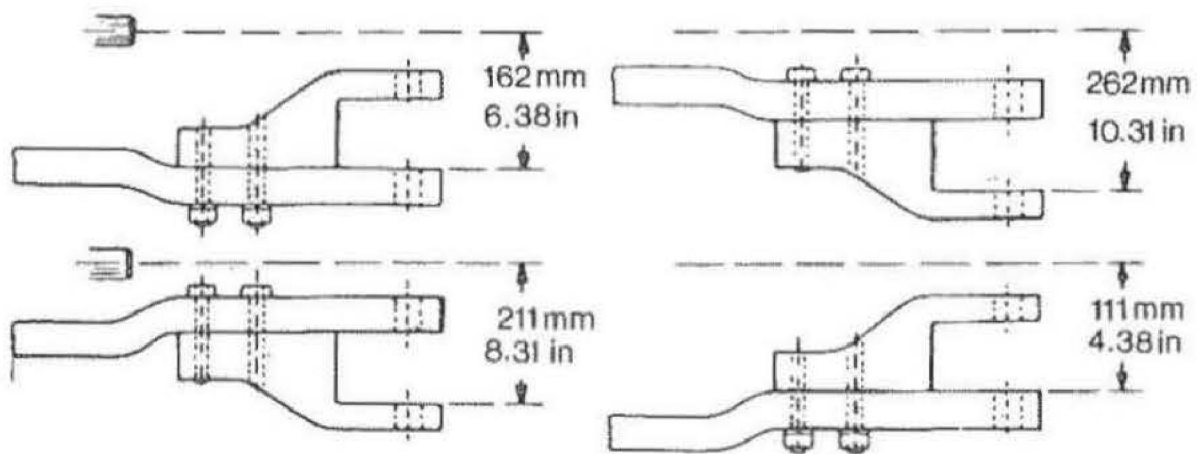


fig 37

Attachments

Offset (fig 38)

Remove ring clip (1), withdraw rear mounting pin (2) and swing drawbar assembly down. Remove clips (3) and withdraw locating pins (4).

Reposition drawbar and refit pins and clips. Swing drawbar up into position and refit rear mounting pin and ring clip.

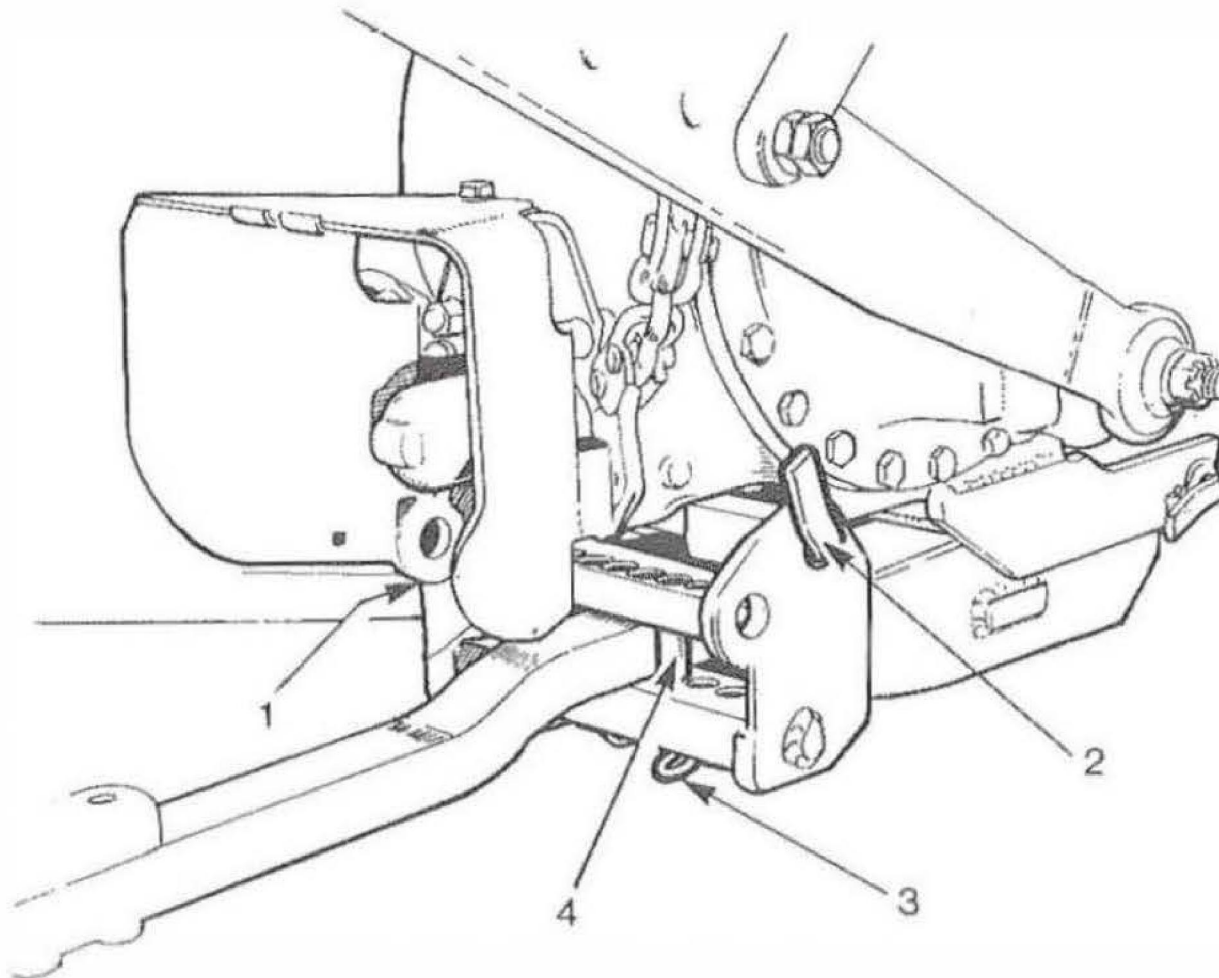
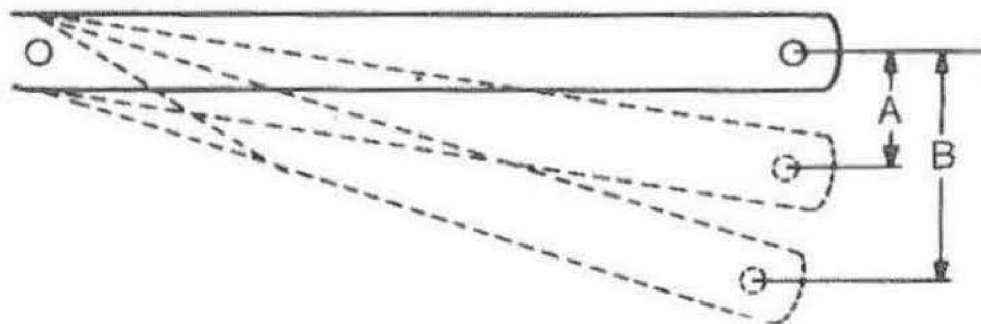


fig 38



A 71/60mm (2.81/2.38 inch)

The two figures are for the drawbar in extended and retracted positions.

B 200mm (7.87 inch)

Attachments

Auto Hitch

The Auto Hitch is a supplementary lifting mechanism which enables rapid and easy hitching of implements with a ring type drawbar adaptor. It is designed for use with either the hitch hook or the swinging drawbar.

The maximum static capacity of the hitch hook is 2268 kg (5000 lb).

The control lever can be attached either to the left or right hand pivot bracket, and is adjusted by slackening the trunnion locking nut, turning the handle to the desired position, then retighten the nut.

Operation

WARNING: Always operate the Auto Hitch from the tractor seat.

To Lower the Hitch

1. Place the Draft Control lever in the fully UP position.
2. Select CONSTANT PUMPING with the Position Control lever.
3. Push the release lever rearwards.
4. Whilst holding the release lever in the rearward position, move the Position Control lever to DOWN. The hitch will then lower.

To raise the Hitch

Move the Position Control lever to TRANSPORT; the hitch will raise and latch automatically.

WARNING: Do not attempt to use the Auto Hitch lifting mechanism to lift a load with the drawbar offset.

Maintenance

Grease the nipples on the latch pivot pins with Mobilplex Special or Mobilgrease Super, or other comparable lubricants.

Attachments

Stabilisers (figure 39)

Once fitted, linkage stabilizers need not be removed from the tractor but to ensure effective operation certain points should be noted.

Check chains must not be removed when linkage stabilisers are fitted.

The stabiliser turnbuckles should be liberally greased to ensure easy operation.

Adjustment

Before working with ground engaging implements the linkage stabilisers must be adjusted to allow 50mm (2 inch) of sideways movement at the end of each lower link.

NOTE: With the implement fitted, ensure the linkage can travel its full vertical stroke without straining the stabilisers.

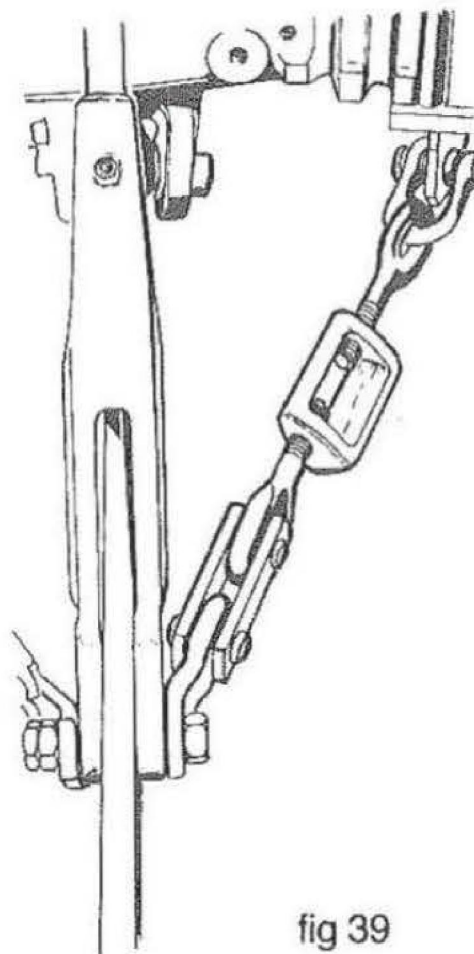


fig 39

Attachments

Multi purpose loader bucket (figure 41)

For increased versatility the loader can be fitted with a special bucket incorporating an hydraulically operated clamshell which simplifies the tasks of dozing, site stripping and scraping. The clamshell action can also be used to pick up posts or other building materials.

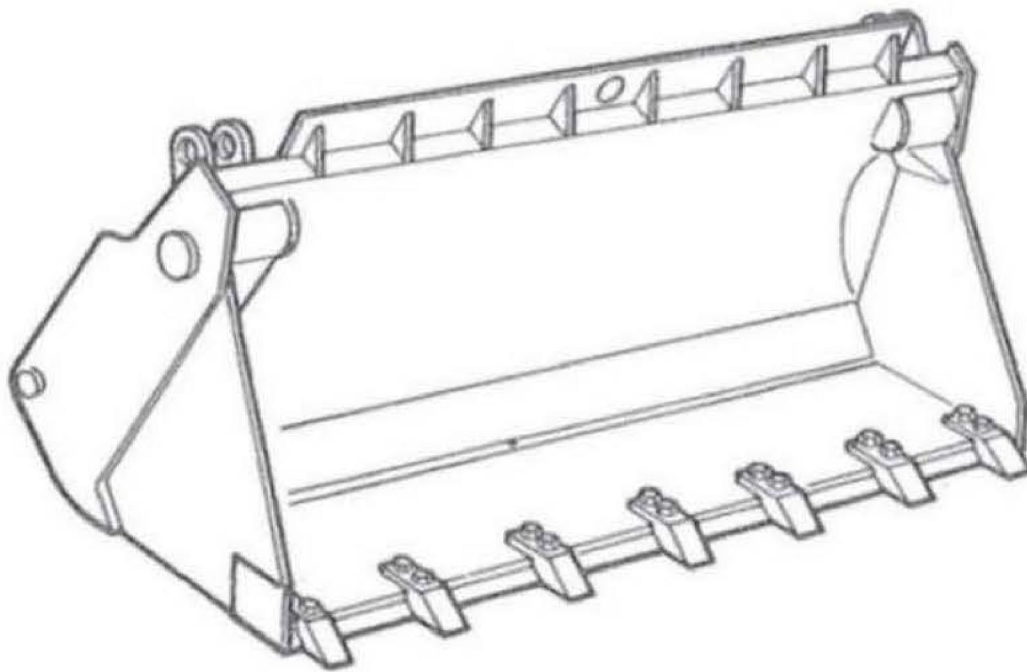


fig 41

Attachments

A special bucket angle indicator (figure 42) is fitted where pointer A = dozing, B = level bucket, and C = scraping.

The bucket is equipped with an indicator (figure 43) to show the position of the clamshell, 0 is closed, 2 is partly open, 4 is fully open.

fig 42

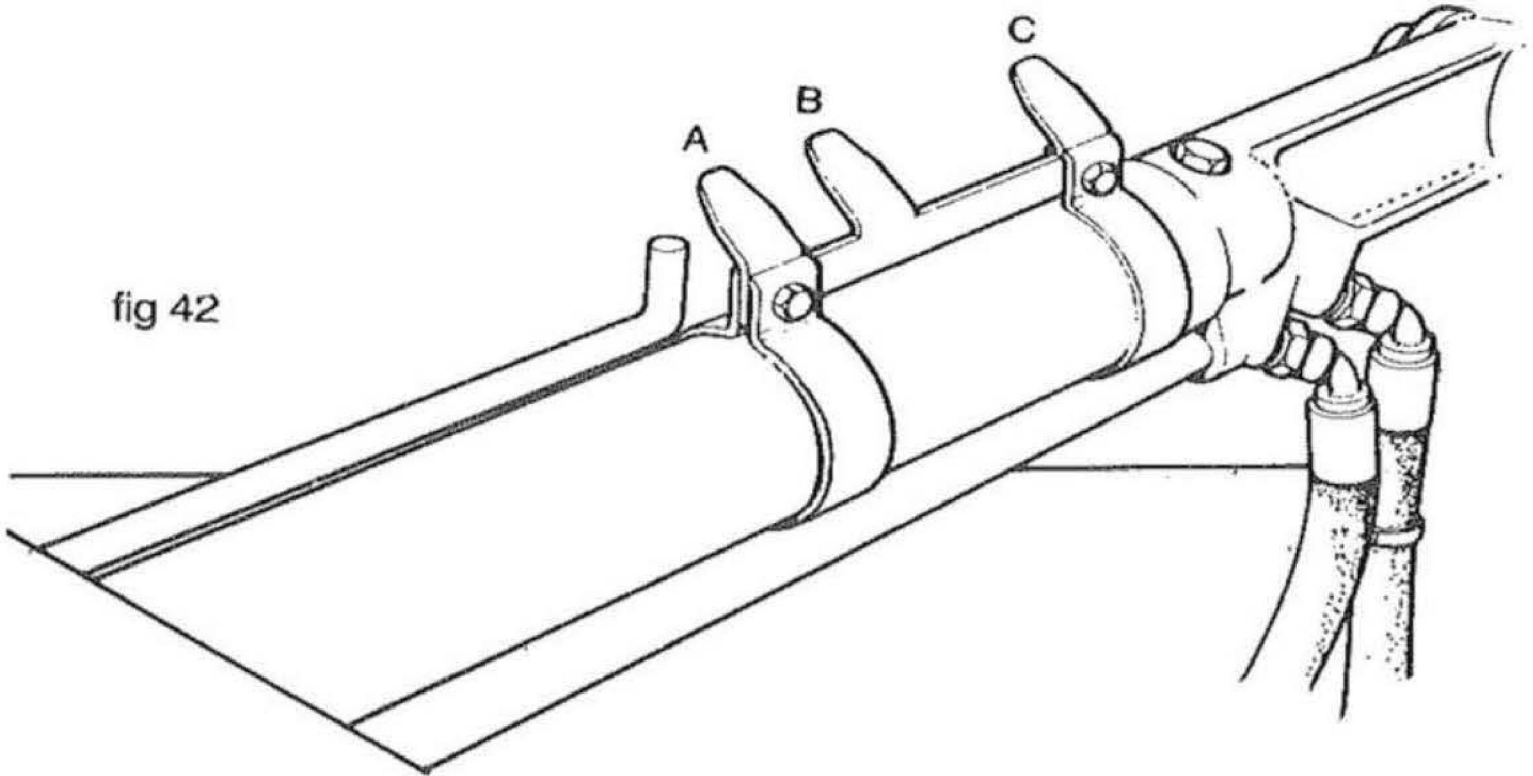
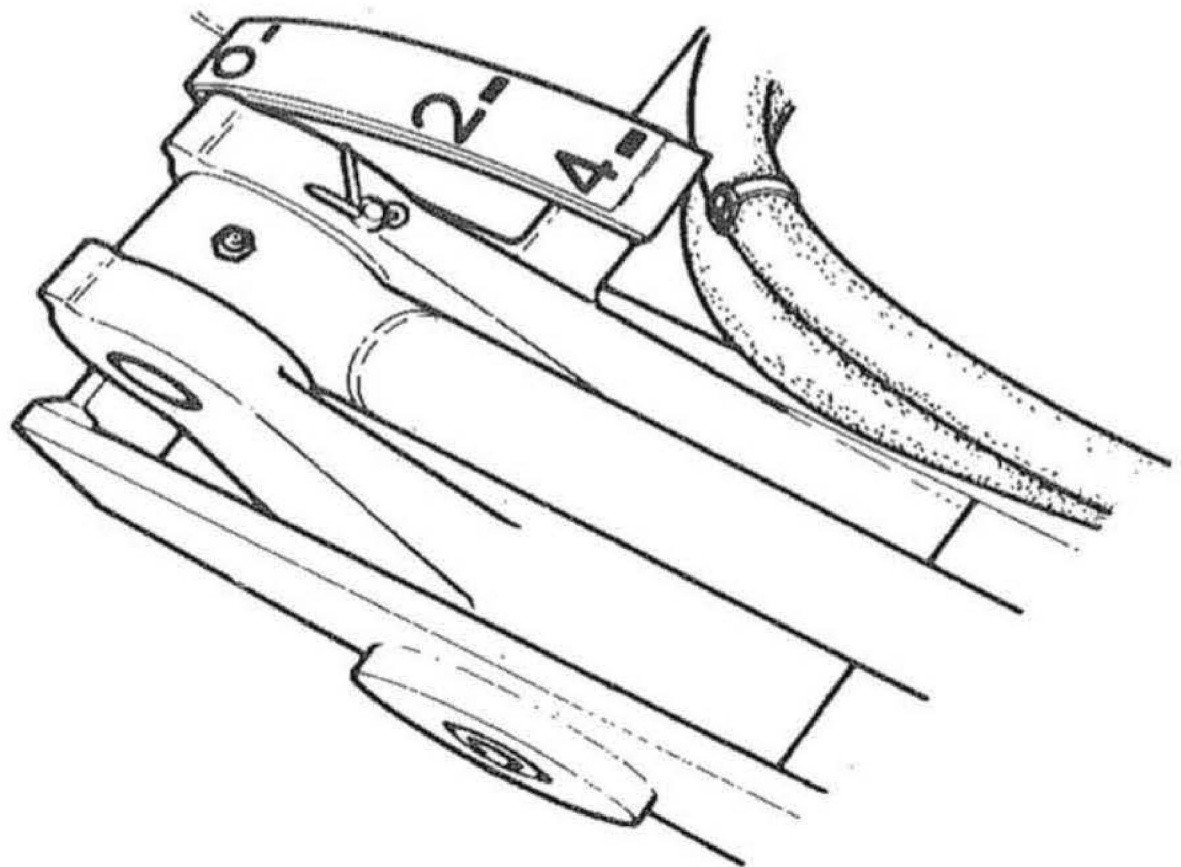


fig 43





Road Safety Precautions

Road Safety Precautions

Before driving the machine on public roads and highways the machine must be equipped properly to meet the specific local regulations.

In all instances the following measures should be taken.



Brakes – ensure brakes are in good adjustment and that both brake pedals are latched together.

Throttle – set hand throttle lever for minimum engine speed.

Lights – check function and setting of sidelights, brake lights, turn indicators and hazard warning.

When required, fit SMV (slow moving vehicle) sign and warning lights.



Side-shift digger (figures 44, 45)

Fully off-set the digger and slew the boom across the back frame, then secure the boom in the fully raised position (figure 44) and the boom to the backframe (figure 45). This considerably shortens the machine and adds extra weight on the front axle.

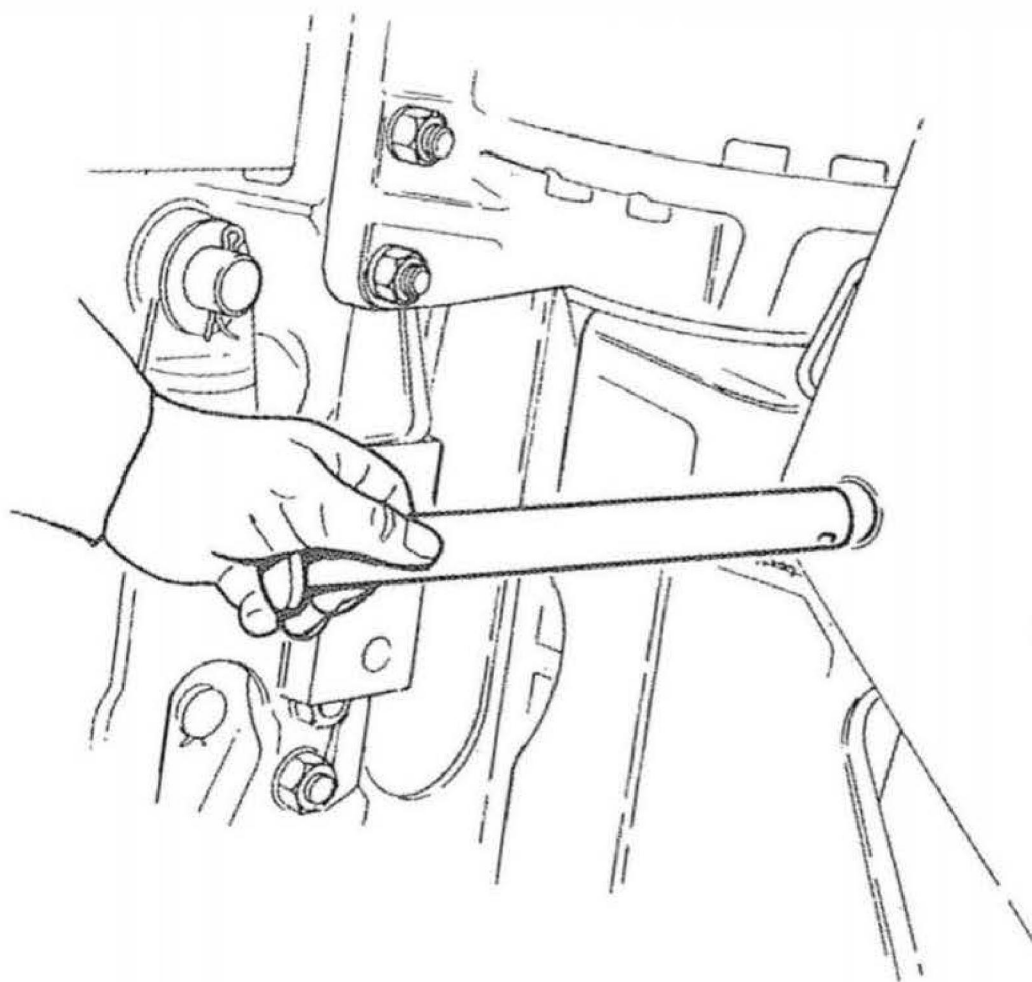


fig 44

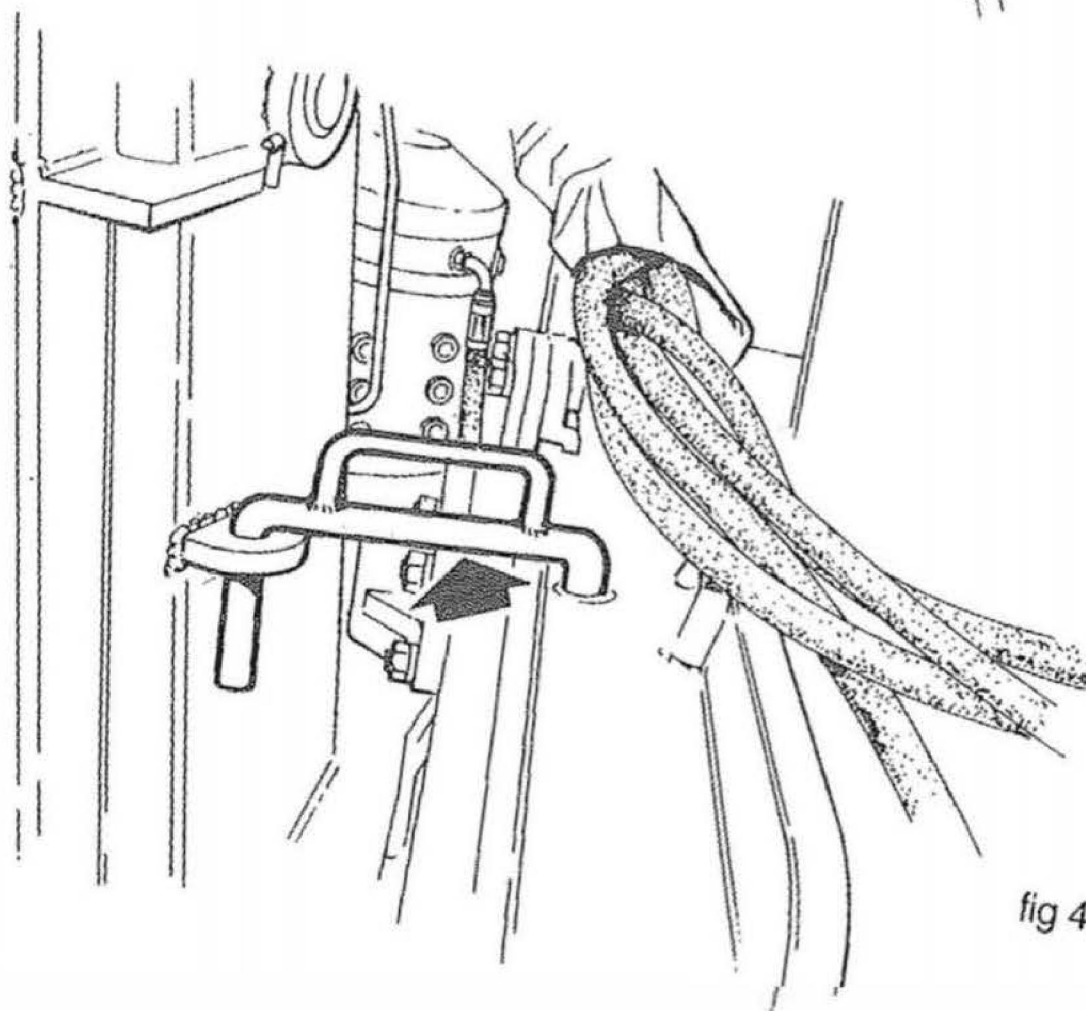


fig 45

Road Safety Precautions

Centre-mount digger (figures 46 & 47)

Lift digger boom and fit pin (2), slew boom to central position and fit the slew locking pin (1).

Ensure overhead clearances are sufficient.

Fit a chain between mountings provided, to secure stabiliser legs in the transport position (figure 47).

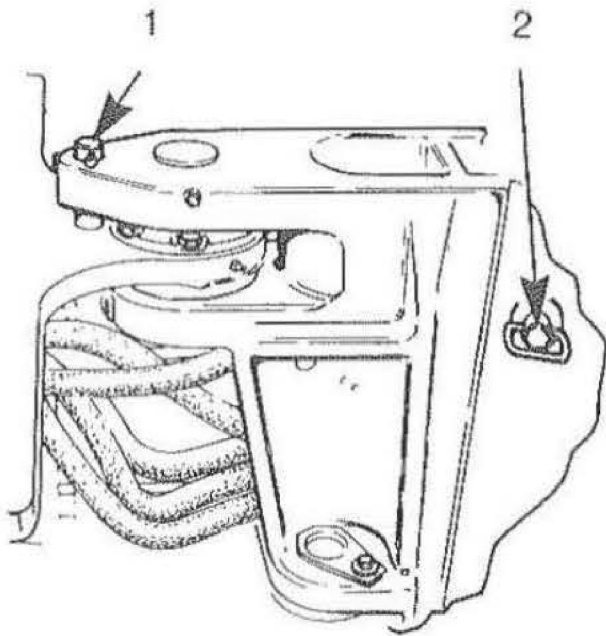


fig 46

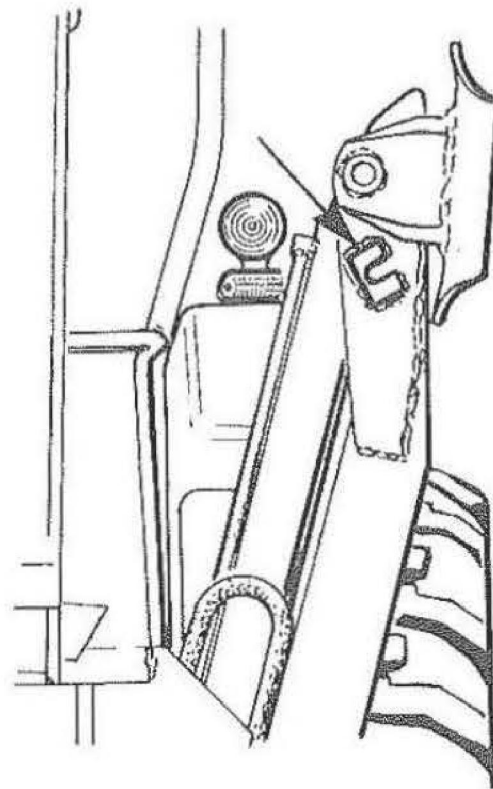


fig 47

Maintenance

General Service



Safety Notice



Before servicing any hydraulic machinery always read the safety notices and understand them. Safety notes are at the front of this operators manual.

Before servicing a machine – remember:

Never attempt to walk or work under the loader, or digger arms when they are unlocked, even if raised only a little distance from the ground.

Always fit the safety bar or transport pins if the loader or digger must be raised during servicing.

It is generally safer if only one person works on the machine, always lower the digger stabilisers, immobilise the engine and chock the wheels before working under the machine.

Thoroughly depressurise the hydraulic system with the engine stopped, before loosening hydraulic connections.

Hours referred to in this book are those recorded on the tachometer and the intervals given for service are for normal conditions. Extremes of climate and site conditions will affect the frequency of some maintenance operations. If in doubt consult your Massey Ferguson Distributor.

Use only genuine Massey Ferguson and Perkins parts, serious damage can result from using other makes of parts even though they may appear to be the same.

General Service

New Machines

Care of new machines during the first few hours of work is vital for continuing reliability.

It is important that the following items are serviced **after the first 50 hours**.

- I Change engine oil and filter
- II Change power steering oil and filter
- III Change transmission filter - Instant Reverse transmissions
- IV Change loader hydraulic filter on loader or digger/loader machines.
- V Check road wheel nuts for tightness daily, until stabilised.
 - rear wheels 300 Nm (30,4 Kgm 220 lbf ft)
 - front wheels 2 wheel drive 220 Nm (22 Kgm 160 lbf ft)

This wheel nut checking procedure also must be used for any wheel which is removed and replaced, for any reason.
- VI Check brake adjustment

Cooling System

Service period: **50 hours**

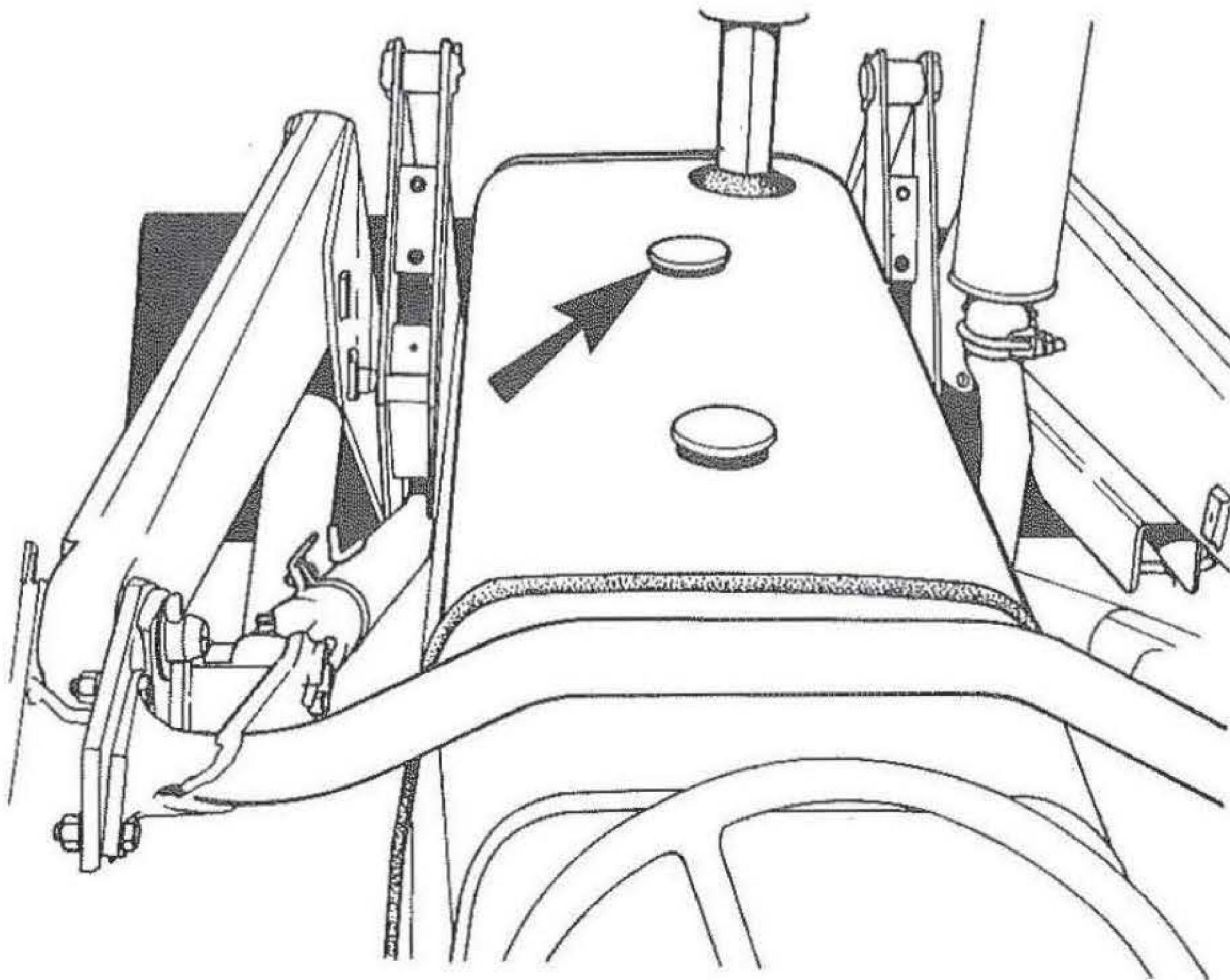
Check/top-up engine coolant level (fig 48)

Open forward cap on top of engine cover to check or fill radiator water level.

If engine is hot, protect your hand from escaping hot water and steam, turn cap anti-clockwise until a stop is felt, wait until all pressure has escaped then press the cap down and turn further until it can be lifted off.

Maintain liquid level 25mm (1 inch) below filler neck using water or anti-freeze solution mixed to same proportion as in the system.

fig 48



Cooling System

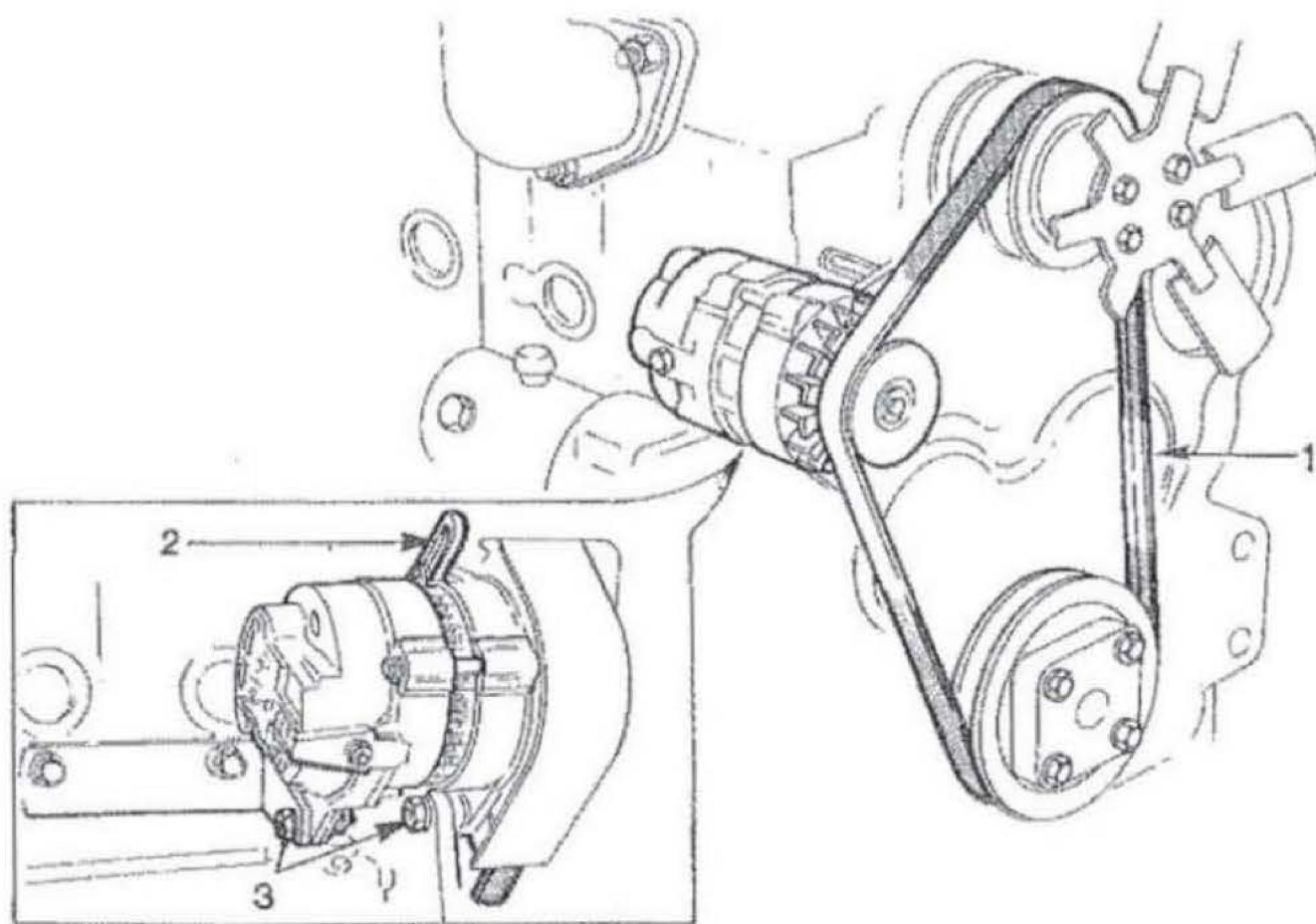
Service period: **250 hours**

Check/adjust fan belt tension (fig 49)

Depress fan belt by hand, in the direction and position of arrow (1). The deflection should be 10mm ($\frac{3}{8}$ inch). To adjust, slacken alternator mounting bolts (2) and (3) and reposition alternator to give the correct fan belt tension. Retighten bolts (2) (3) securely.

A new fan belt will relax soon after fitting, and requires retensioning after approximately one hour of useage, thereafter tension needs checking at 250 hour intervals.

fig 49



Cooling System

Service period: **As required**

Check anti-freeze solution

The tractor leaves the factory with the cooling system filled with an antifreeze/water solution giving frost protection down to MINUS 34° (-30°F), along with corrosion protection.

Antifreeze will generally retain its full properties for 12 months, when the coolant should be drained by opening drain taps shown in figs 50 and 51. Refill using fresh water/antifreeze solution in a concentration suitable for the lowest anticipated temperature. Use only approved antifreeze to spec. BS 3151 - 3152 or M-1130 (MF Part No. 841 565 M1).

Always use clean rain water (low mineral content) when refilling the cooling system and if antifreeze is not being used then a corrosion inhibitor (MF Part No. 1900 285 M1) should be added.

Warning:

- If antifreeze is not used during freezing conditions the cooling water must be drained after work to prevent serious engine damage.
- Do not use cooling system antifreeze in the screen washer system, it will damage paintwork.
- Where a cab heater is fitted, the cooling system **must** be filled with the appropriate antifreeze solution.

mixture %	amounts of antifreeze		commences freezing		frozen solid	
	litres	US pints	°C	°F	°C	°F
33⅓	4.7	10	-19	- 2	-36	-33
50	7.1	15	-36	-33	-48	-53

Service period: **As Required**

Check radiator matrix for external obstruction

It is advisable to check the outside of the radiator and oil coolers for obstruction especially if working in dusty conditions. Always repair water or oil leaks immediately to prevent dust build-up on wetted surfaces.

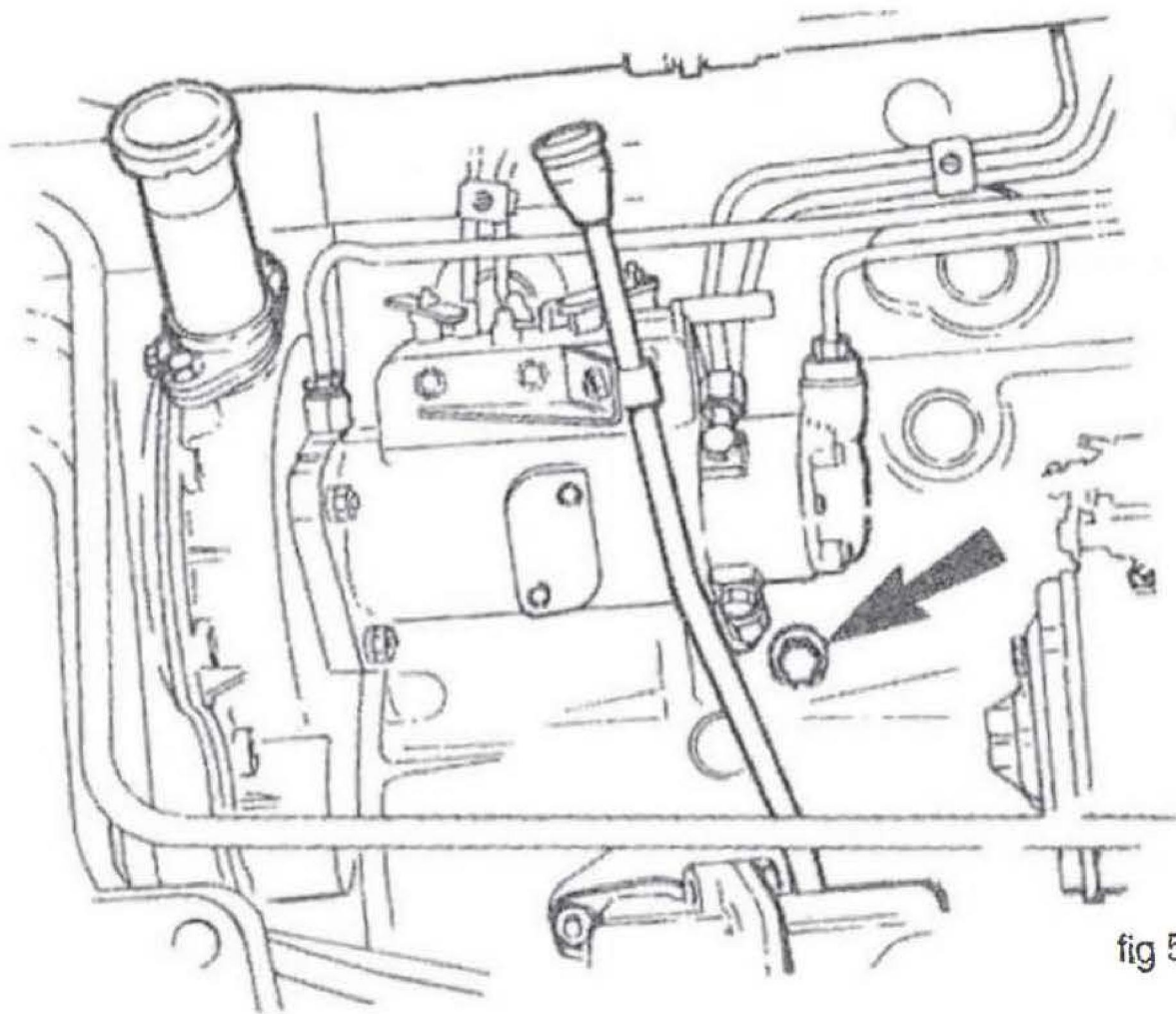


fig 50

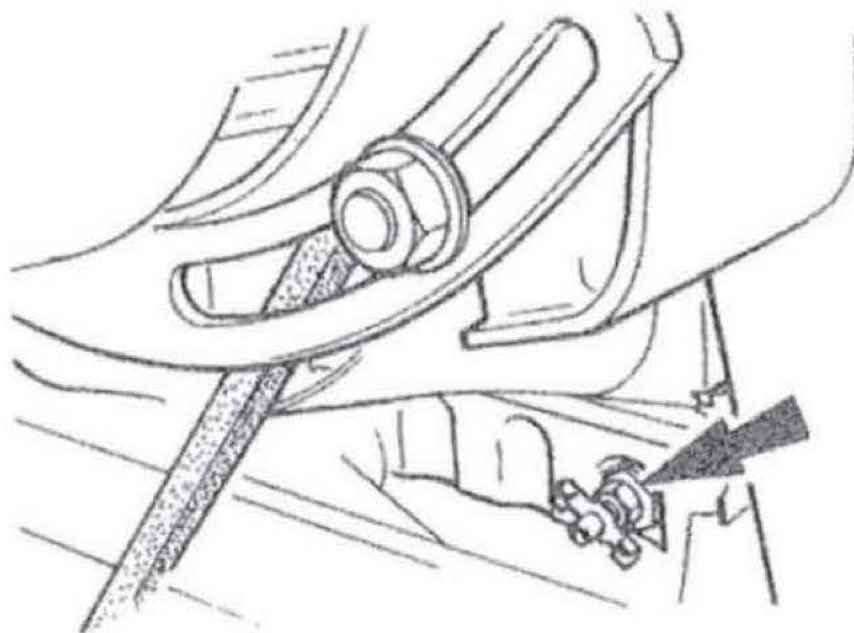


fig 51

Air Filtration

Service period: **As Required**

Clean Air Filter (fig 52)

A warning light illuminates when the air filter requires servicing. On machines fitted with i.p.t.o. the light also operates when the transmission oil filter is blocked, a simple procedure must be followed to determine which filter needs cleaning.

1. Disconnect blue wire in the clip mounted on the left hand side of lift cover, (figure 52).
2. If warning light stays on then air filter requires servicing as detailed below.
3. If warning light goes out then the transmission oil filter requires servicing. Refer to Transmission section of this book.
4. Reconnect blue wire.

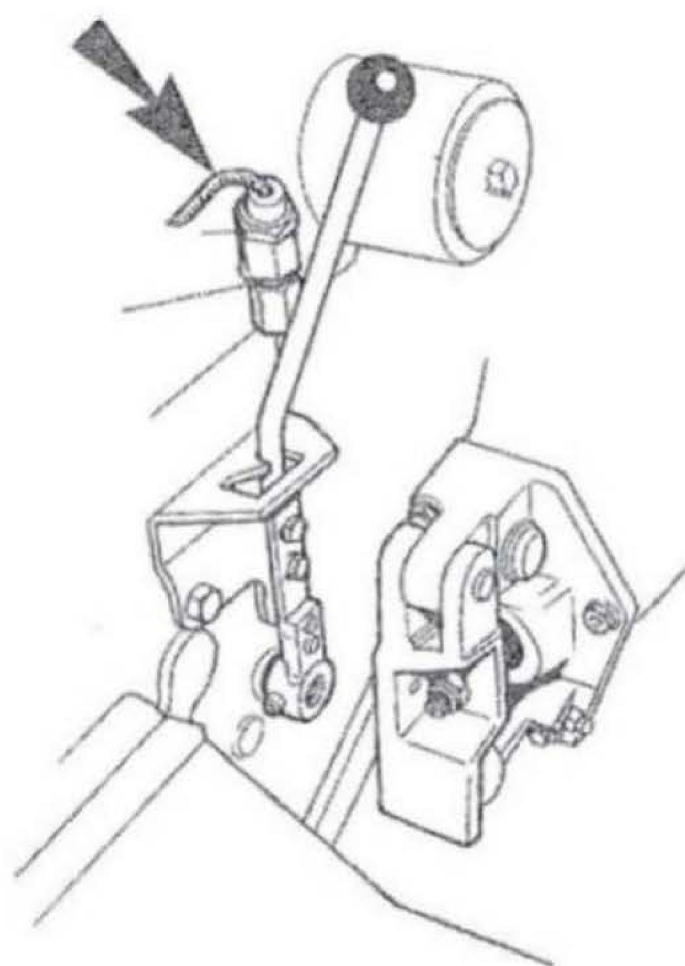


fig 52

Air Filtration

Air filter (figs 53 and 54)

Park tractor and stop the engine.

Remove front access panel and squeeze the rubber unloader valve to release any caked dust, release handwheel (2) and pull main filter element from the housing.

The large outer filter element (3) can be cleaned but the inner filter (4) is specifically designed to plug in the event of the outer filter being damaged.

The inner filter should not be removed for cleaning. If it is plugged or dirty, replace it along with a new outer filter element.

There are three ways to clean the outer filter element:

- The quickest and most effective way of cleaning away dry dust is to use clean, dry compressed air at not more than (100 lbf/in^2) (figure 55) and keeping the air line at least 250mm (10 inches) away from the element, blow the element clean from the inside. **Never use the tractor exhaust gases**, these will permanently damage the filter.

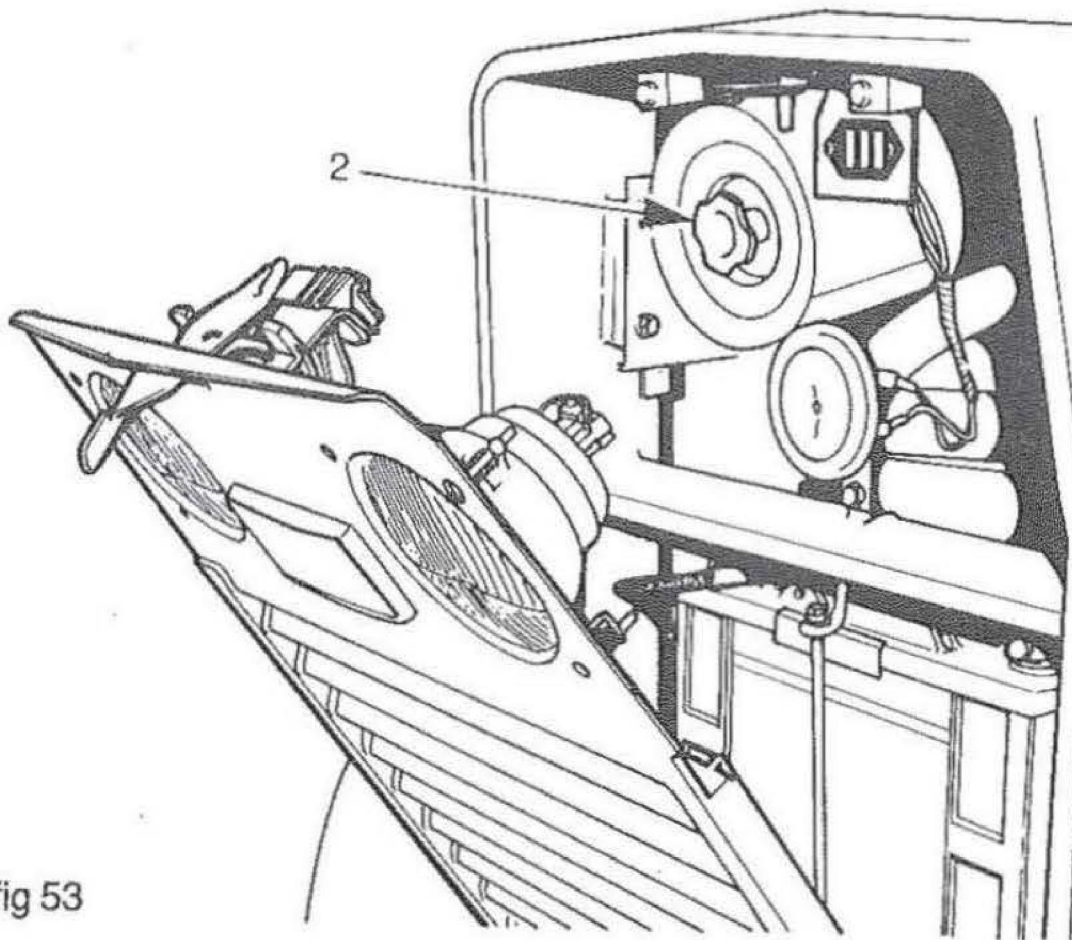


fig 53

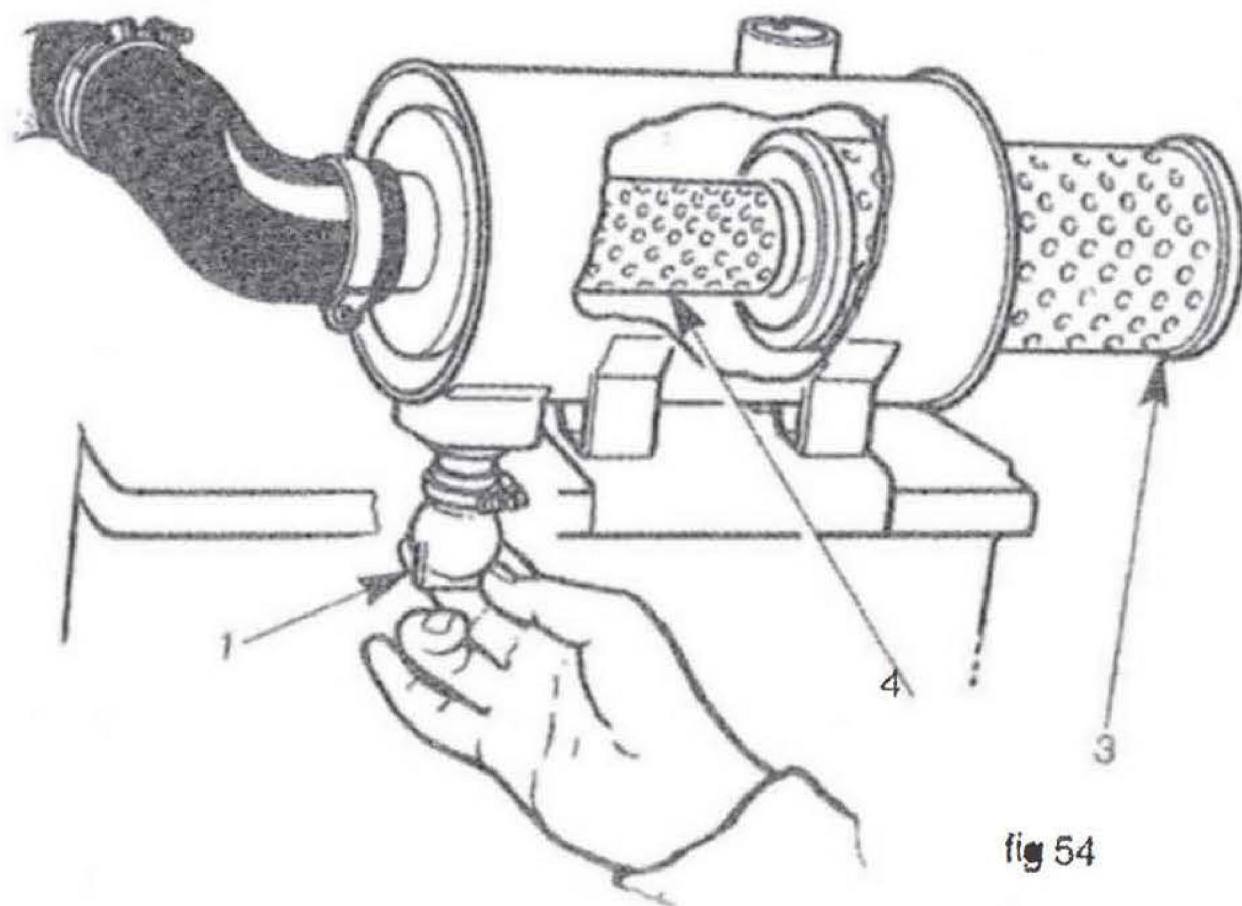


fig 54

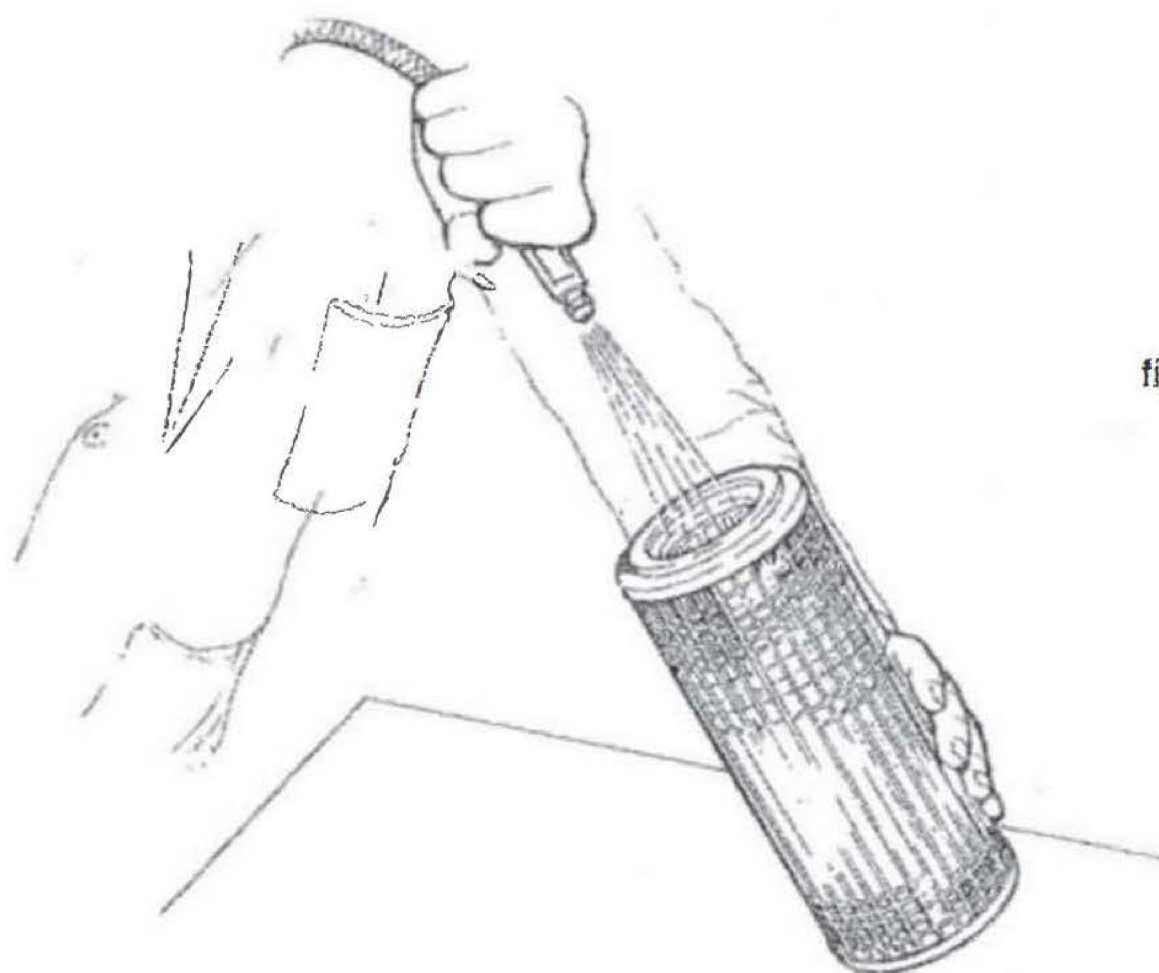


fig 55

- Light tapping of the filter element is also effective (figure 56) if the dust is dry. Hold the element lightly at each end and drop it from a height of **not more than 25mm** (1 inch) onto a **hard flat surface**.
Turn the element as you continue the tapping procedure until dust ceases to fall out in quantity.
- If the element is black and sooty or damp it can be washed in a warm 37°C (100°F) solution of water and NON FOAMING detergent obtainable from the air cleaner manufacturers or normal washing powder made for domestic automatic washing machines.
 1. Seal the open end of the element with a suitable plug.
 2. Immerse the element in the solution for 10 minutes and gently agitate to remove the dirt.
 3. Rinse the element in **clean** water, remove the plug and flush element from the inside until the water comes through clear.
 4. Dry the element which will generally take 12 hours or more.
 5. When dry, insert a small light bulb inside the element. If pin holes or thin areas are visible, scrap the element.

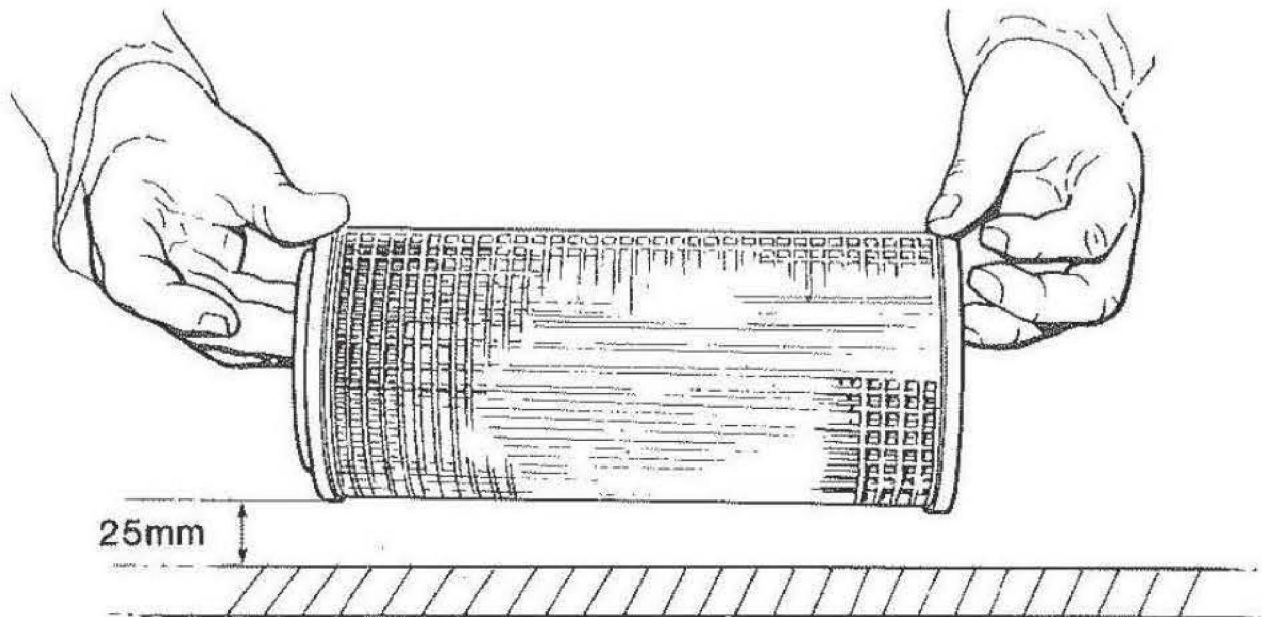


fig 56

Air Filtration

If the filter restriction light illuminates again after a very short time the filter element is no longer fit for service and should be scrapped. However if after replacement of the main element, the warning light stays on, the inner safety element is plugged and must be renewed – **DO NOT ATTEMPT TO CLEAN IT.**

Service period: **As Required**

Check air intake for security

Ensure all air intake hoses are in good condition, free from cracks or other damage and are tightly clamped to the manifold and air cleaner body. Dust ingress will quickly damage an engine.

Advice

Always keep at least one spare main element and inner element available ready for use to prevent excessive down time. Store the spare elements in a cool, dry place and protect them from dust and damage. Mark the element end plate after each washing – do not wash an element more than ten times.

Change the elements every 1000 hours, or sooner.

WARNING: Never blow the main element clean using the tractor exhaust gases.

Never add oil to a dry air cleaner.

Never use petrol (gasoline), paraffin or cleaning solvents to clean the element.

If servicing is not carried out when the warning light comes on the engine will lose power and produce excessive black smoke.

Never use filter elements which have been dented or the end plates distorted, or where the element pleats have bunched together.

Common sense and careful handling will ensure long, reliable filter life and provide a high degree of engine protection.

Fuel System

The fuel injection pump and injectors are very high precision components. Great care must be taken to keep fuel clean and to service the fuel system component at the recommended intervals.

On work sites where fuel is stored in barrels and contamination is likely, it is good practice to drain the fuel filter bowl daily and change the filter at 250 hours.

Service period: **10 hours or daily**

Fill fuel tank (figure 57)

It is preferable to fill the fuel tank at the end of a working shift while the engine is still hot, this helps prevent water condensation which will be drawn through the fuel injection system.

WARNING! Do not smoke while refuelling

Do not refuel while the engine is running.

Diesel fuel may cause skin disorders, therefore take care when refuelling.

Service period: **500 hours**

Change fuel filter (figure 58)

1. Clean the outside of fuel filter assembly and drain by removing tap (1).
2. Remove the centre bolt (2) and dispose of old filter cartridge (3) and thoroughly clean the glass bowl (4).
3. Reassemble with a new filter cartridge ensuring seals are in good condition. Do not overtighten centre bolt.
4. Bleed the fuel system as required.

fig 57

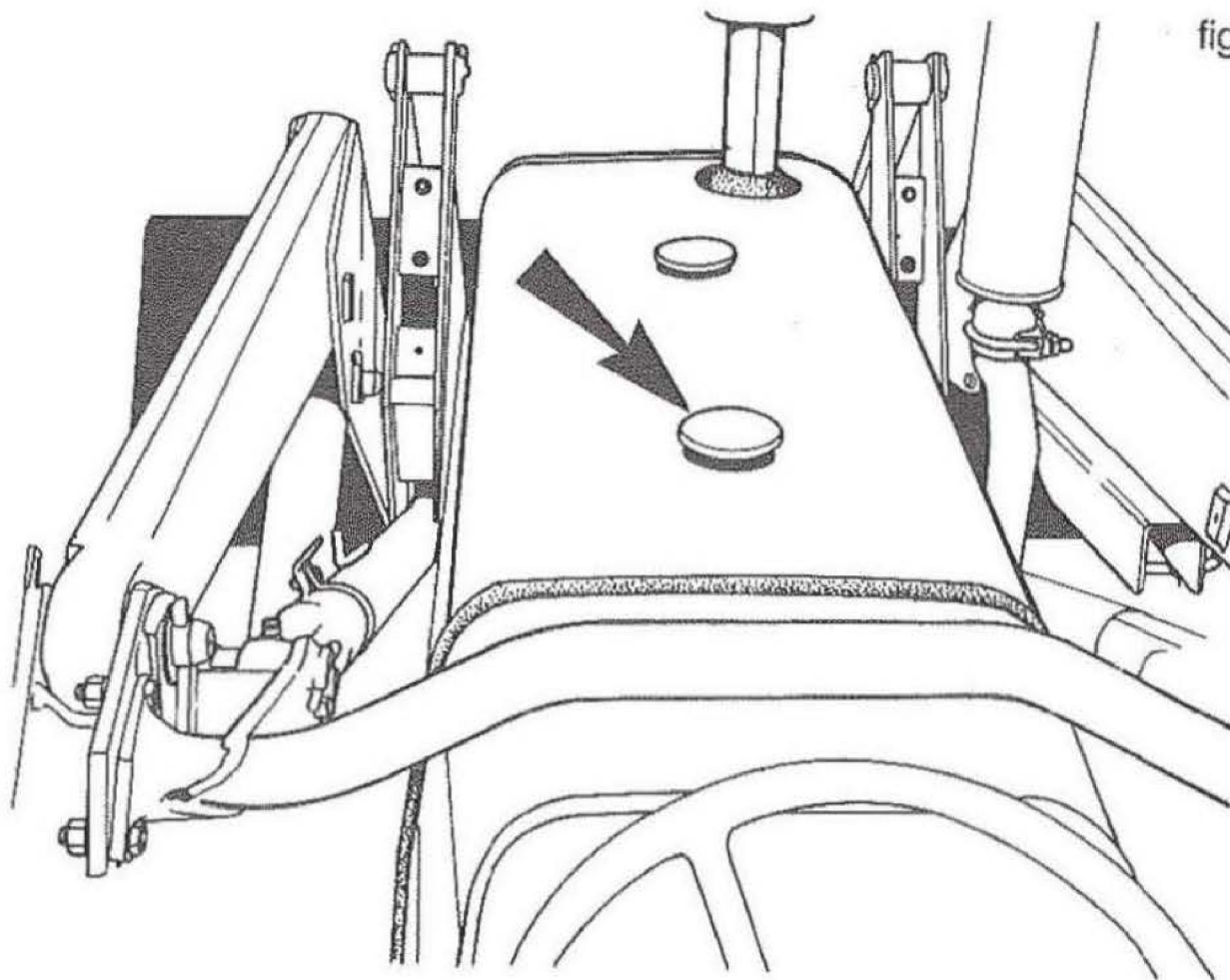
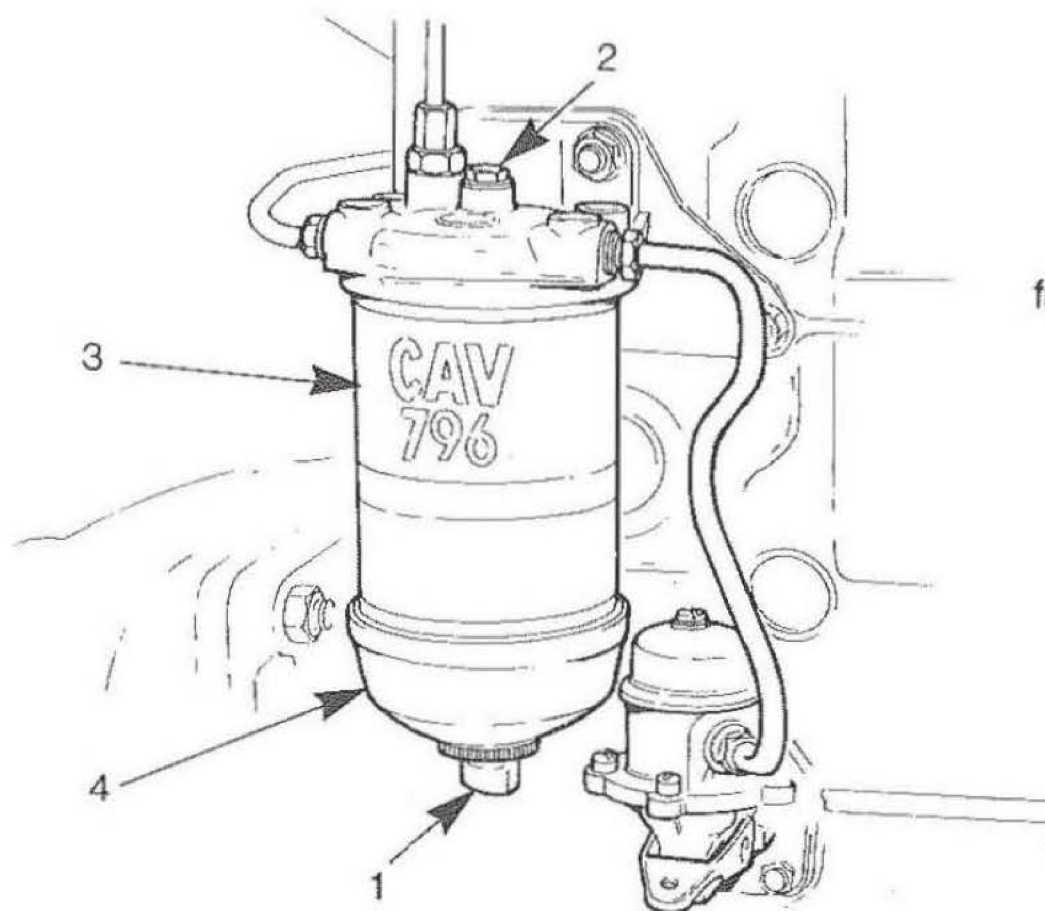


fig 58



Fuel System

Service period: **1000 hours**

Service the fuel injectors

Fuel injection atomisers require regular servicing to maintain efficient operation. This work must only be done by a CAV, Perkins or Massey Ferguson distributor.

Early signs of atomiser malfunction are:

- misfiring
- knocking in one or more cylinders
- engine overheating
- loss of power
- black smokey exhaust
- increased fuel consumption

Other faults can cause apparently similar symptoms and should be checked before removing injectors.

- water in the fuel
- wrong fuel
- dirty or damaged fuel filters

If none of these faults are present then call your Massey Ferguson Distributor.

Service period: **As Required**

Drain water from the fuel filter bowl (figure 59)

1. Open tap (1)
2. Operate pump priming lever (2) to purge water and impurities from filter bowl (3).
3. Close tap.

Drain and flush fuel tank

The frequency of this operation depends on the contamination level of the fuel and refuelling process. It is good practice to flush the fuel tank once a year if the fuel supply is clean, but more often if the fuel supply is stored in barrels on site.

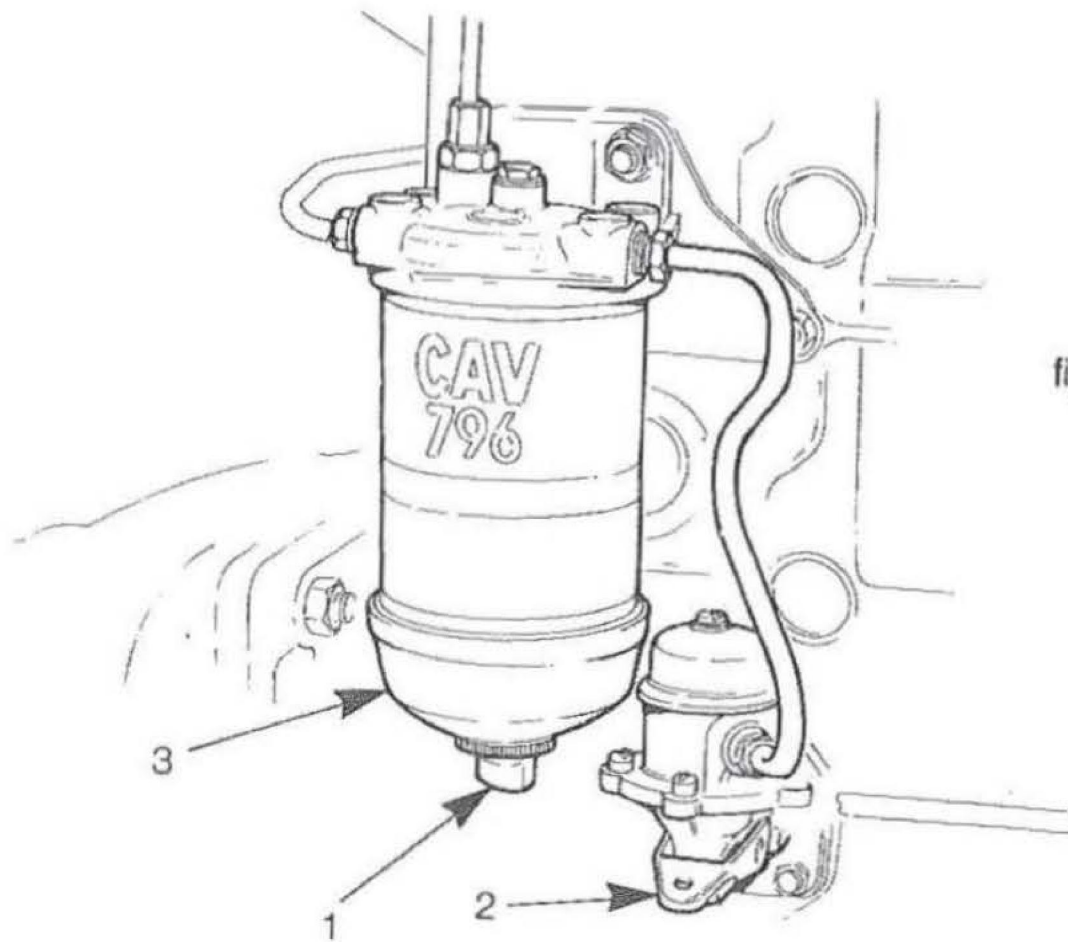


fig 59

Fuel System

De-aerating (bleeding) the fuel system

If at any time air enters the fuel system, either due to servicing or running out of fuel, the following procedure should be used:

1. Figure 60. Slacken the outlet union on the fuel filter (1).
2. Operate the hand priming lever (2) on the fuel lift pump until fuel, free of air bubbles, issues from the union, then retighten the union.
3. Figure 61. Slacken the lower vent plug (1) on the fuel injection pump and operate the fuel lift pump until fuel, free of air bubbles issues from the vent, then retighten the vent plug.
4. Slacken the upper vent plug (2) on the fuel injection pump and operate the fuel lift pump until fuel, free of air bubbles issues from the vent, then retighten the vent plug.
5. Slacken the unions (3) at numbers one and four injectors.
6. **Europe/Export only** – slacken the Thermostart fuel feed pipe at the Thermostart unit and operate the fuel lift pump until fuel, free of air bubbles issues from the pipe, then retighten the pipe.
7. Set the throttle fully open and ensure that the fuel cut-off knob is pushed fully in, then turn the engine over with the starter, until the engine begins to run. Retighten the injector unions.

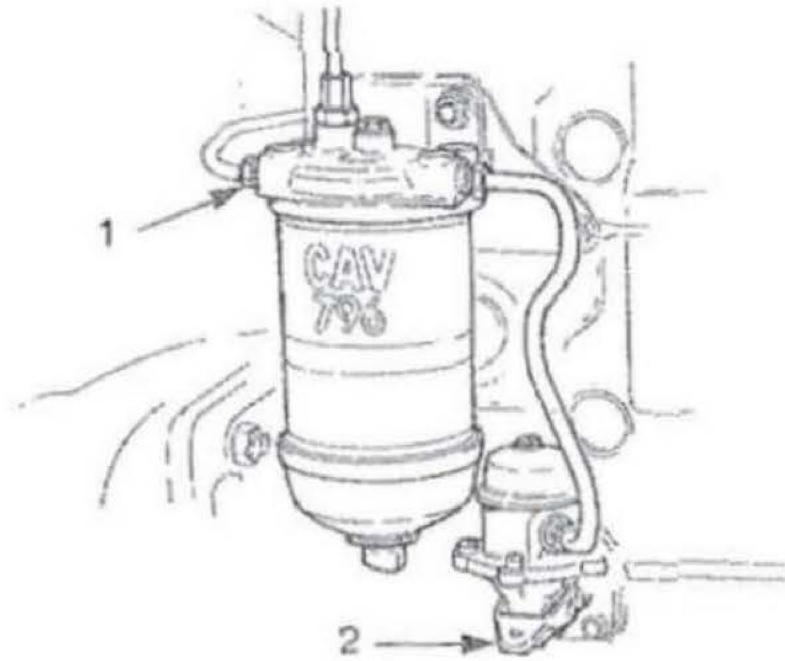


fig 60

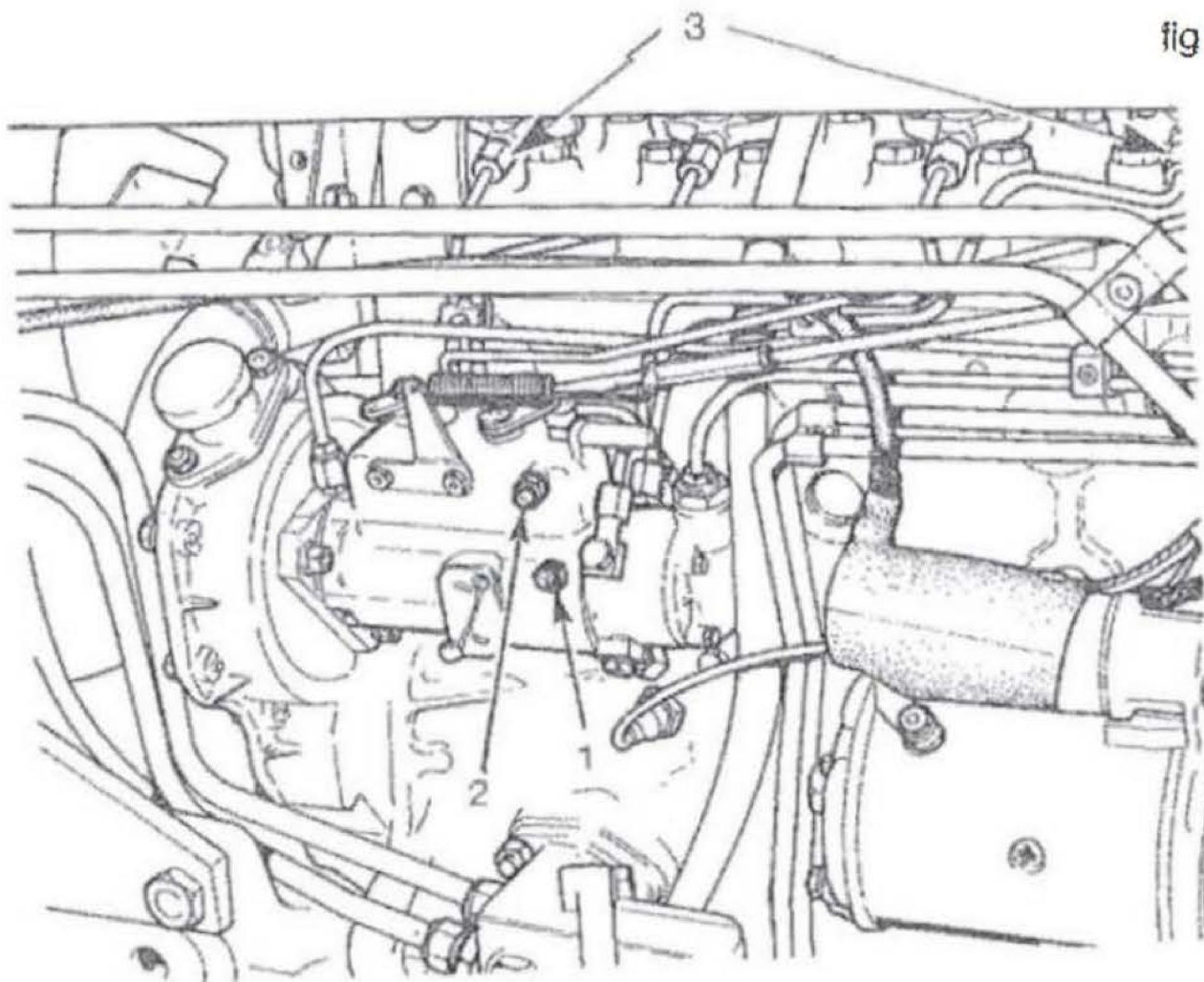


fig 61

Fuel System

Fuel Handling and Storage Recommended Fuels

Diesel Fuels, meeting British Standard Specification 2869: for 'A' class fuel. For example:

Esso Diesel Medium, Shell Gas Oil, Mobil Gas Oil, B.P. Dieselite. These may be referred to as 'regular grade' diesel fuels.

Also:

Diesel Fuels, meeting American Specification A.S.T.M.: Grade No. 1 D or Grade No. 2D.

No. 1 D may be called a 'premium grade' high speed diesel fuel, and No. 2D a 'regular grade' diesel fuel.

Cleanliness

The utmost care must be taken to keep fuel clean. The following advice is offered to promote satisfactory fuel handling and storage.

1. Never use galvanised containers.
2. Never clean the inside of containers, or any components of the fuel system with a fluffy cloth.
3. The size of the bulk storage tank should be such that intervals between drainage and refilling are not too long. 3,000 litre (600 gallon) capacity is sufficient for the average size operator.
4. Figure 62. The storage tank should be under cover and supported on cradles of sufficient height to enable the machine fuel tank to be filled by gravity, and should have a suitable manhole cover to provide access for cleaning.

The final outlet cock should be located to allow 75mm (3 in) settling depth for water and sludge; it should feed through a detachable filter with 120 mesh screen. There should be a fall of about 40mm per metre ($\frac{1}{2}$ in per ft) towards the sludge drain plug.

5. Figure 63. Drums should be stored under cover so affording adequate protection against entry of water. Drums should be stored at a slight angle, thus allowing any water to run off the top lip. Drums of fuel should not be stacked for long periods before use.
6. Drums in use outside must have the bung securely screwed down to prevent entry of water.
7. Bulk or drum-storage tanks should be allowed 24 hours to settle before use, after filling or servicing.

fig 62

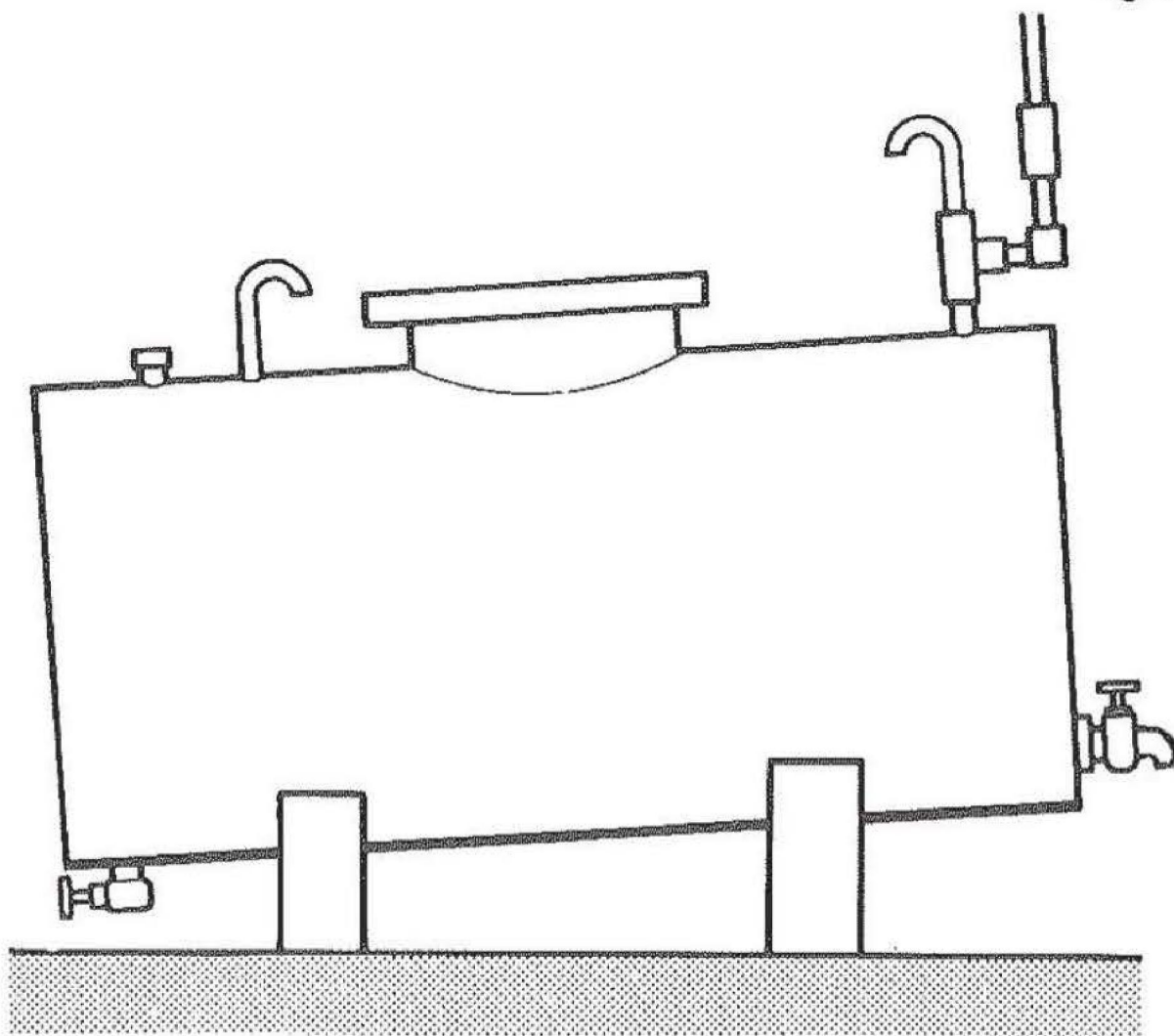
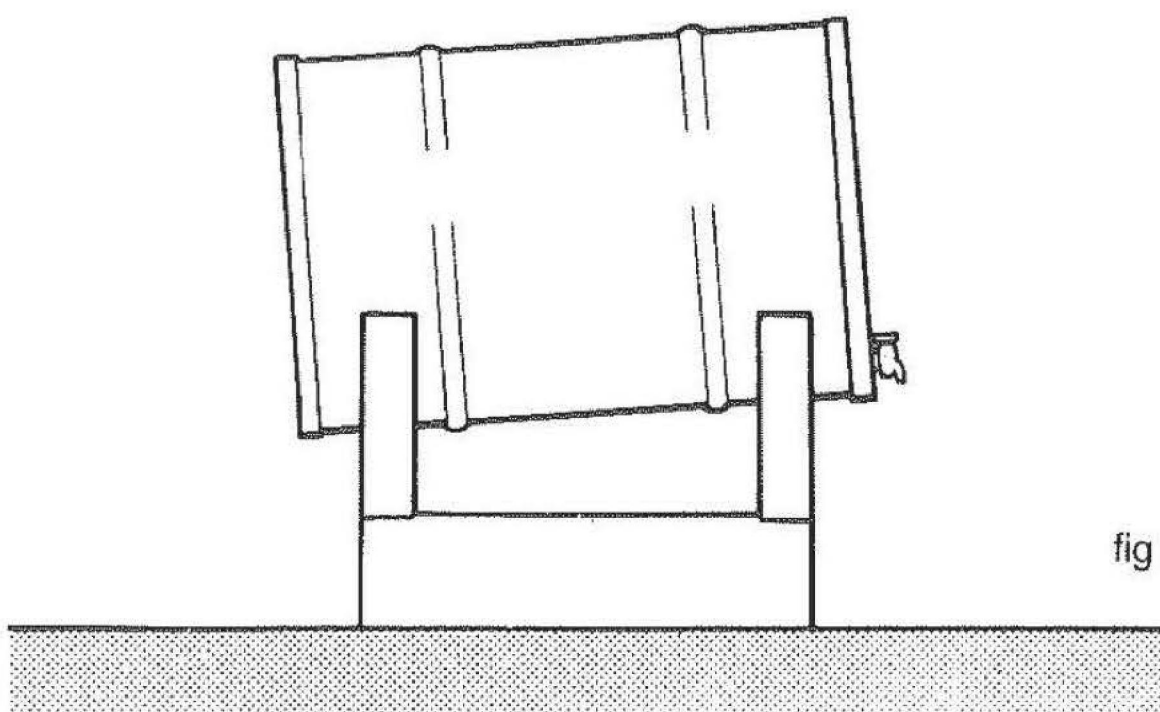


fig 63



Engine

Service period: **10 hours**

Check/top-up engine oil (figure 64)

Park machine on level ground, stop engine, unscrew dipstick (6), and check oil level, which should be between MAX and MIN marks. Top-up to MAX mark but do not overfill.

Service period: **250 hours**

Change engine oil and filter (figure 64)

It is preferable to drain oil whilst the engine is still hot.

1. Remove drain plug (1) and then oil filler cap (2).
2. Clean outside of filter head, filter casing and surrounding part of engine. Remove and dispose of oil filter (3).
3. Fill the new filter with new engine oil, of the correct seasonal grade, allowing time for the oil to pass through the element. Liberally oil the rubber seal (4).
4. Screw on the new filter assembly until rubber seal just touches filter head (5), then tighten, by hand, a further $\frac{3}{4}$ turn.

Do not overtighten as this will make the filter extremely difficult to remove at the next oil change.

5. Refit drain plug securely.
6. Refill engine with correct grade of oil up to the MAX mark on the dipstick. Allow time for the oil to settle in the engine.
7. Run the engine and check for oil leaks, then re-check oil level.

Service period: **1000 hours**

Reset engine valve tip clearances

To maintain performance of the engine, valve tip clearances must be reset at regular intervals not exceeding 1000 hours.

Your MF Industrial dealer should do this work.

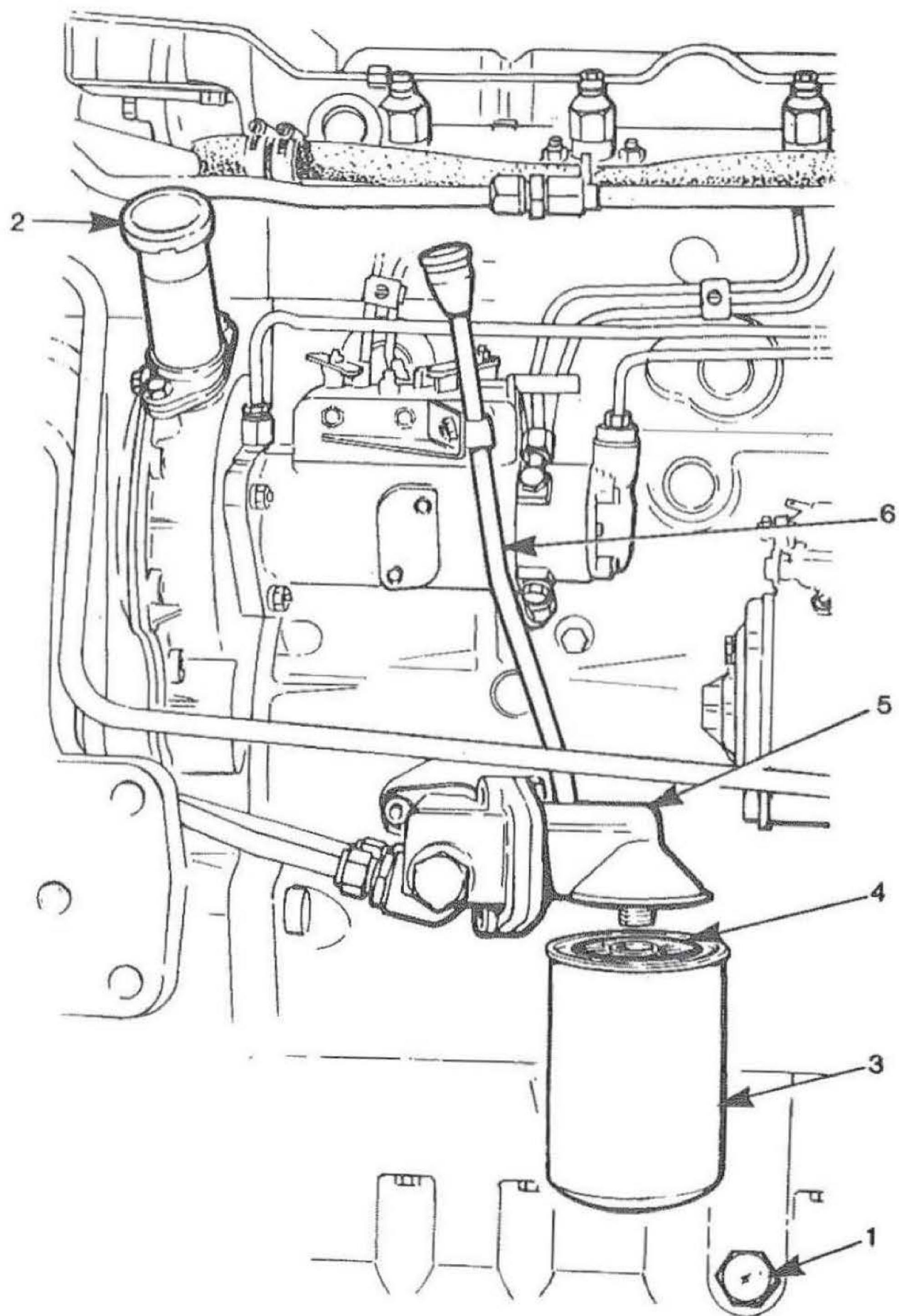


fig 64

Engine

Service period: **As Required**

Spark Arrestor Muffler (fig 65) – North America only



CAUTION: To avoid possibility of burns, muffler should be cold before attempting to clean out.

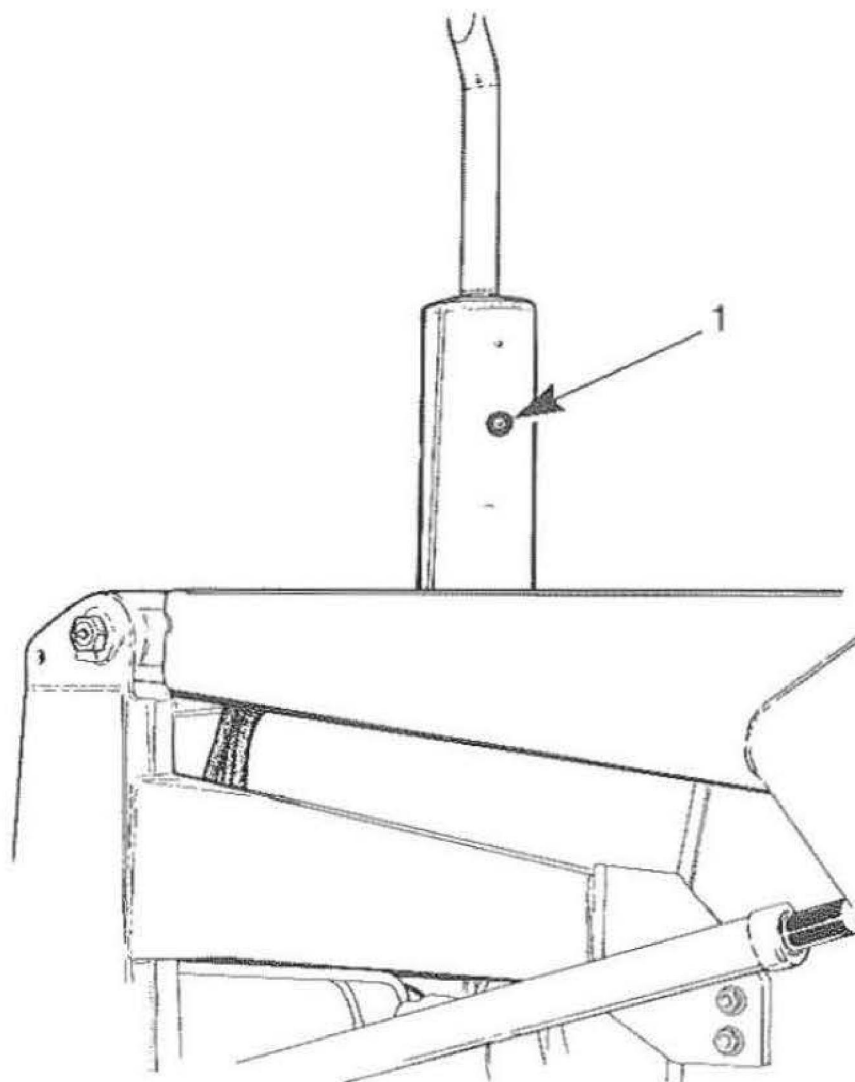
Remove vent plug (1) if the port is blocked by a crusty deposit, break it loose with a screwdriver or similar tool.

Start engine and run it at maximum speed to blow entrapped carbon particles through vent port.

The cleaning operation can be hastened by momentarily covering end of muffler with a cloth rag.

A proprietary anti-sieze compound applied to threads of vent plug before reassembly will assist removal at a later date.

fig 65



Steering System

Service period: 10 hours

Grease front axle pivots

Centre pivot – one fitting (figure 66)

King pins – two fittings (figure 67)

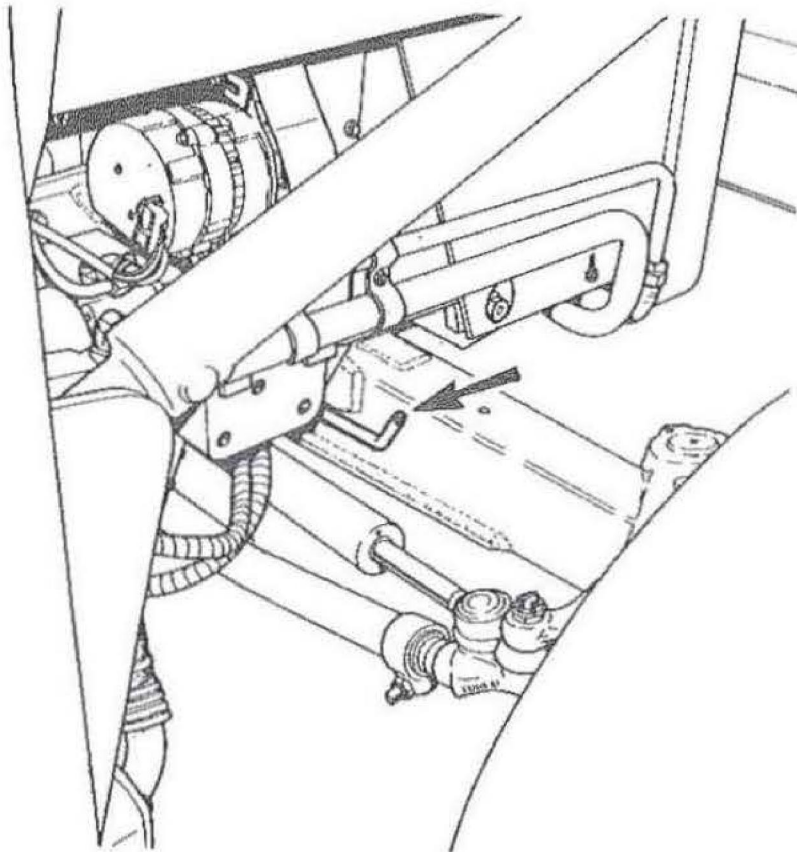


fig 66

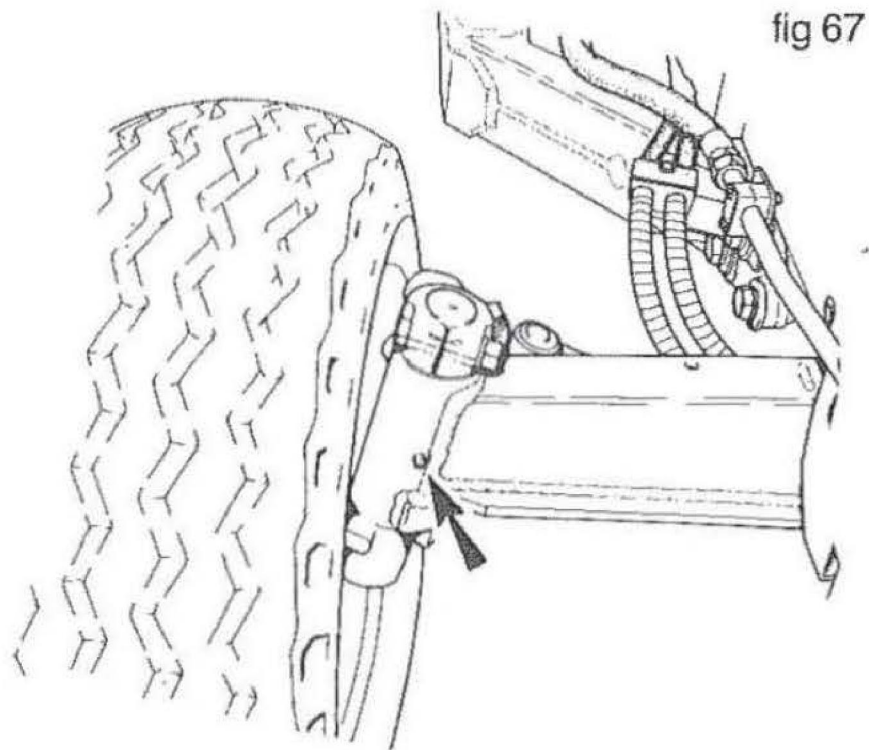
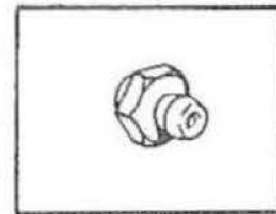


fig 67

Steering System

Service period: **50 hours or weekly**

Check/top-up power steering level (figure 68)

The fluid level must be maintained at the level of the filler plug with the machine steered one turn of the steering wheel to the left and with the engine running at 1200 rev/min.

Warning:

If the reservoir is filled with the wheels steered to right hand lock there will be excessive oil in the reservoir, which could be damaged. Do not run the engine without oil in the power steering reservoir.

Top-up when cool – don't remove plug when hot.

Grease front hubs – 2 wheel drive only (figure 69)

Grease each front hub until old grease exudes from the hub seals.

Service period: **250 hours**

Check all steering system fasteners and all ball joints and pivots for wear.

This regular inspection is a safety check.

If wear or excessive play occurs in the steering mechanism contact your Massey Ferguson distributor who is equipped and trained for this work.

Check power steering system pipes, hoses and unions for damage or leakage.

This machine is equipped with hydrostatic power steering and it is therefore important that hoses are maintained in perfect condition and that no leaks occur anywhere in the steering hydraulic system. Check if accessories added after the machine was purchased interfere with steering system hoses or components.

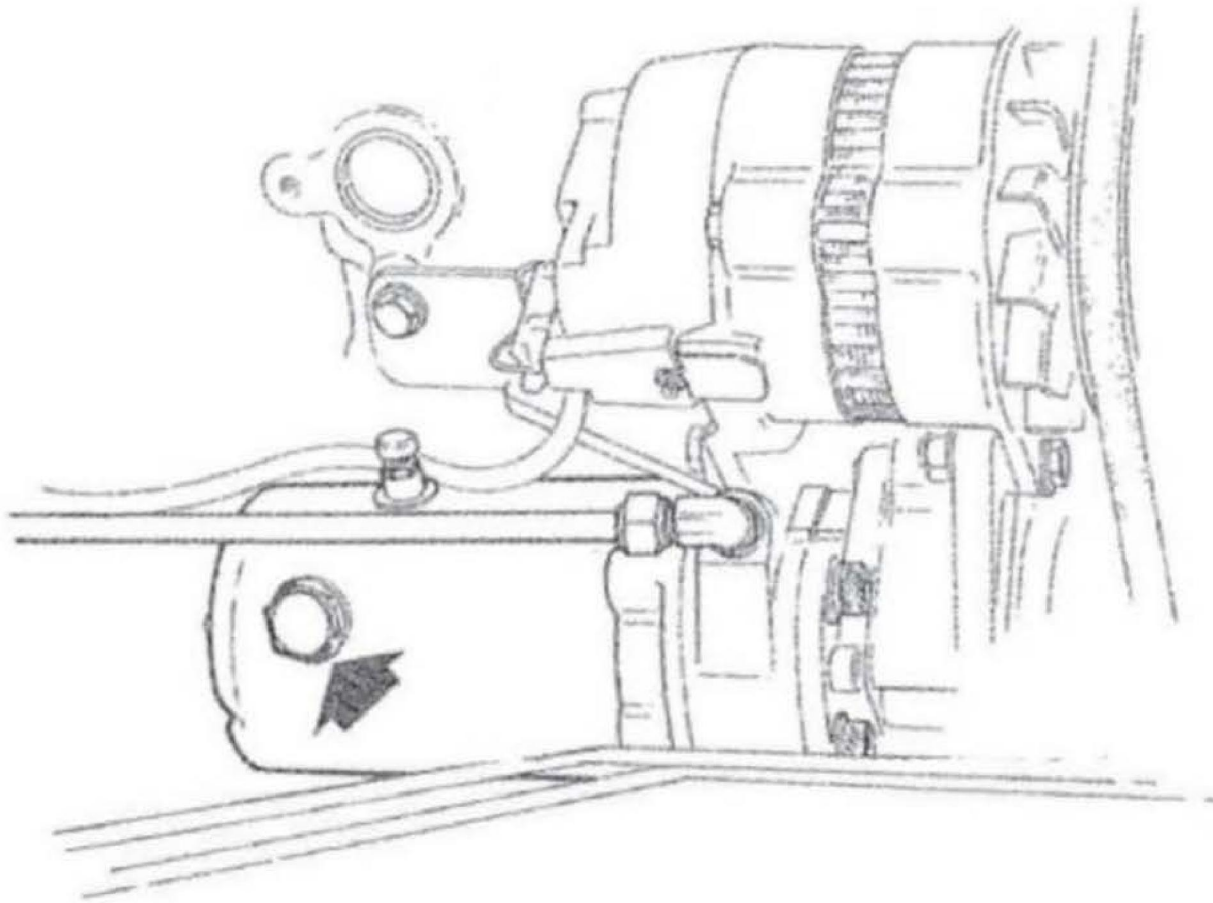


fig 68

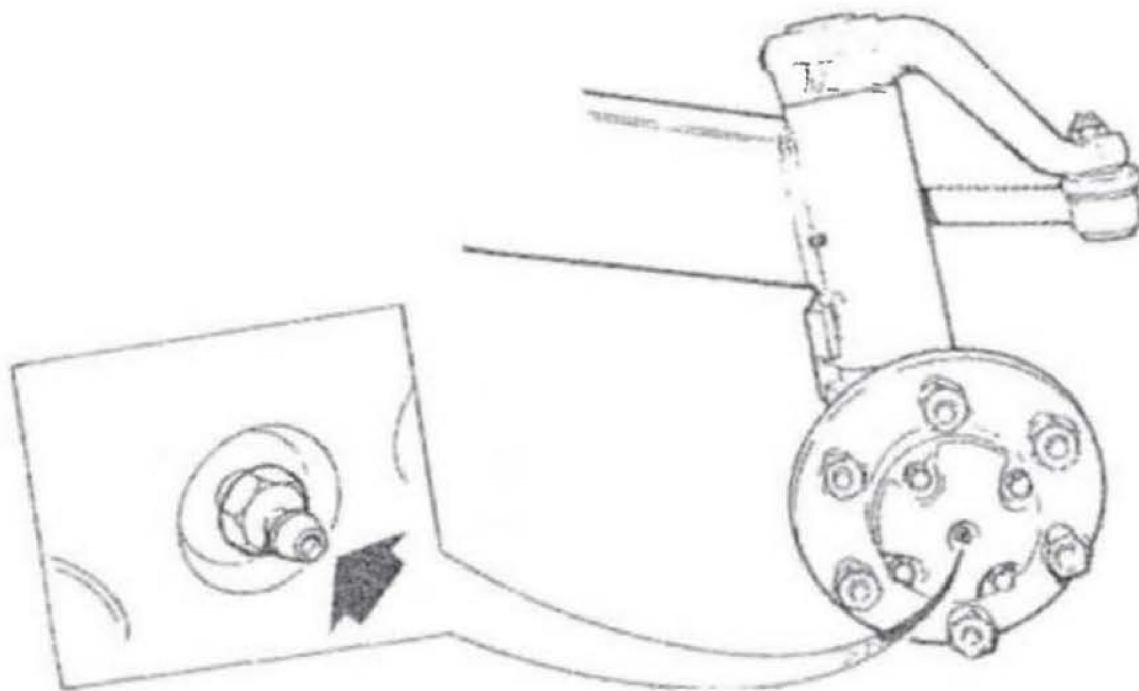


fig
69

Steering System

Check front axle cradle bolts for tightness (figure 70)

Ensure bolt torque of 270Nm (200 lbf ft) is maintained.

Service period: **500 hours**

Check/adjust front wheel bearings (figure 71)

1. Remove the four hub cover bolts (1) and raise the wheel off the ground.
2. Remove split pin (2) and tighten castellated nut (3) to 80 Nm (60 lbf ft), then unscrew nut to the nearest pin hole and then unscrew a further 1/6th turn (one flat) to give correct end float.
3. Fit new split pin and reassemble cover.
4. Inject grease until clean grease emerges past the seals. Wipe off all excess grease.

Service period: **1000 hours**

Change power steering oil and filter (figure 72)

1. Remove dome nut (1) and seal (2) then slide reservoir (3) off pump.
2. Remove nut (4), spring (5), washer (6) and seal (7).
3. Dispose of used filter element (8) and ensure spacer (9) is re-seated correctly in the pump body.
4. Fit the new element, with the five holes towards the pump body and reassemble reservoir onto the pump. Ensure seals (7 and 10) are undamaged.
5. Rotate steering wheel one turn towards left hand lock and fill reservoir to level plug with an approved grade of oil.
6. Start engine and run it at 1200 rpm, check/top-up oil level as required.

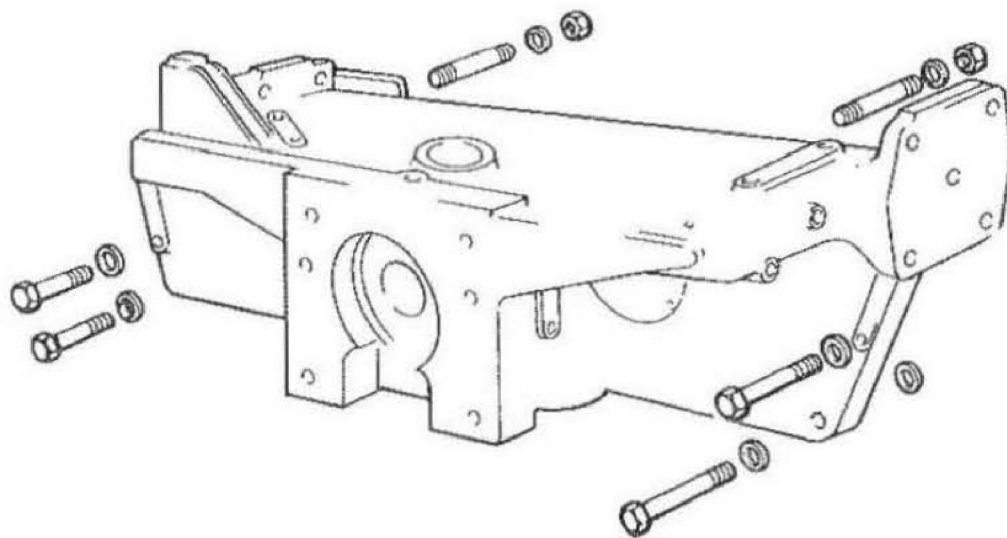


fig 70

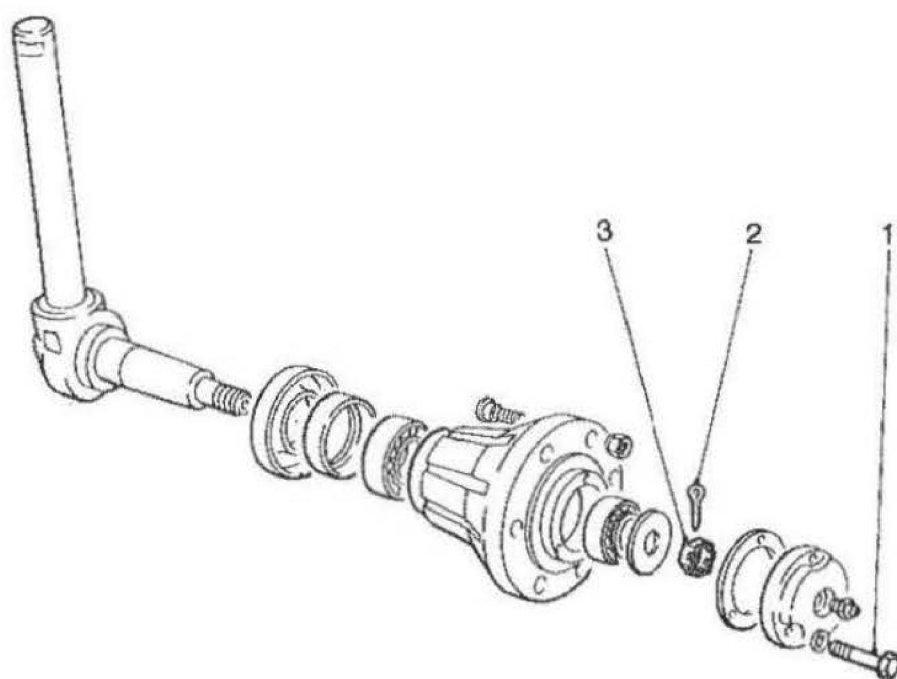


fig 71

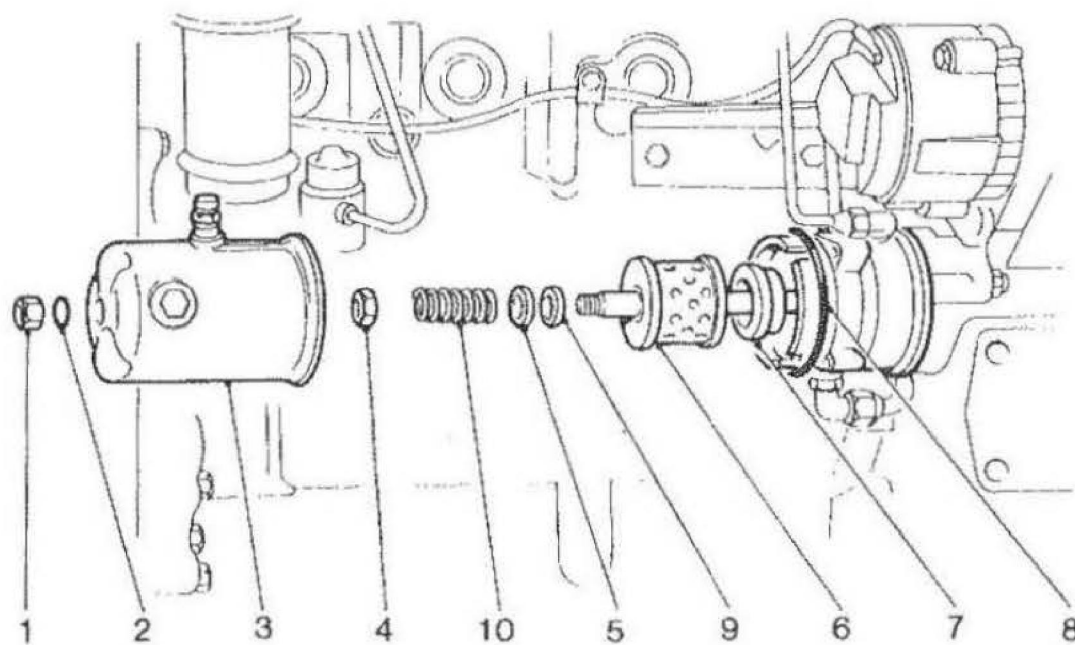


fig 72

Brakes

Service period: **250 hours**

Check/adjust brakes (figure 73)

The MF 50E is equipped with hydraulically operated brakes, each brake pedal being connected to its own master and slave cylinders so that independent braking can be employed to assist turning in poor tractive conditions.

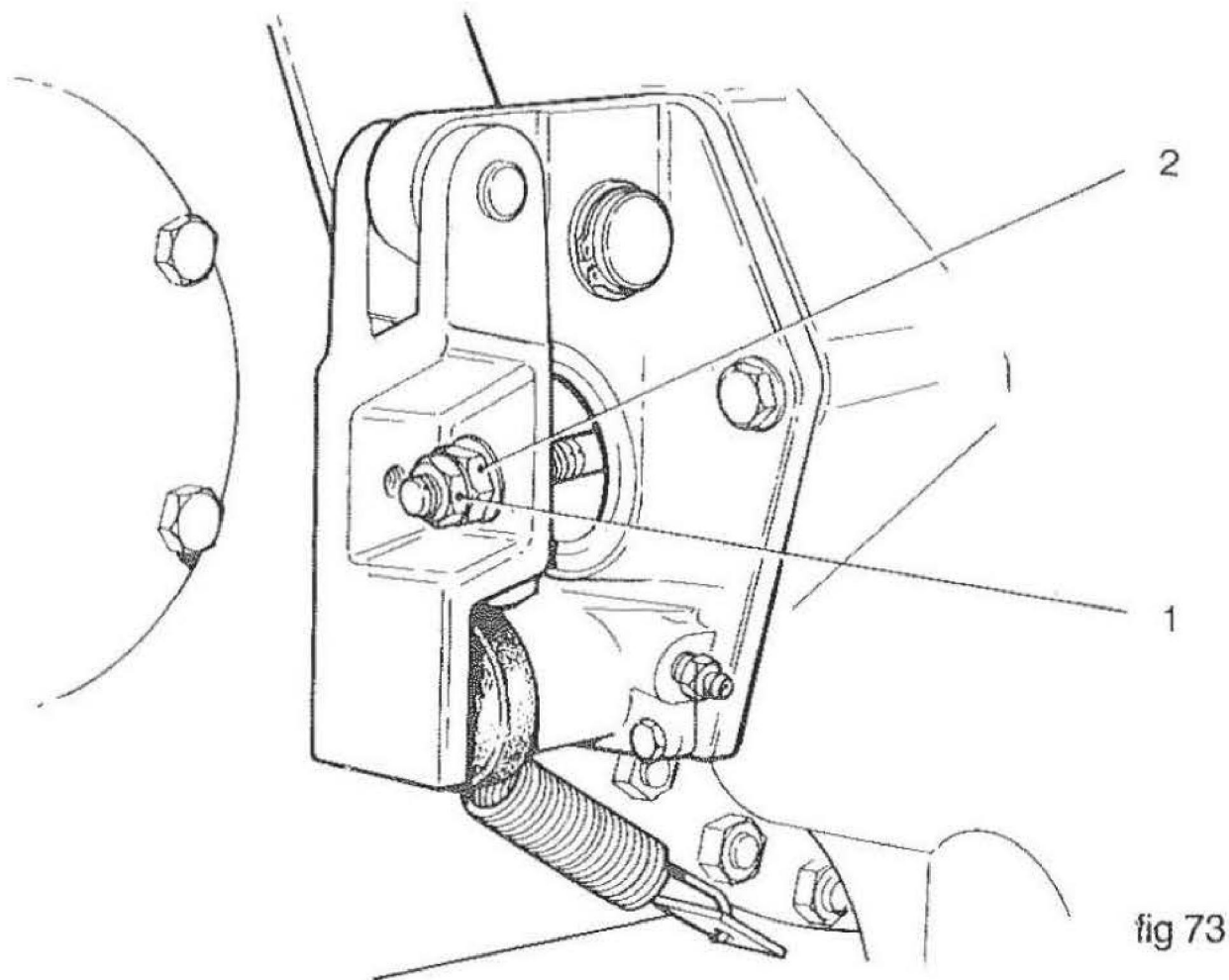
Periodically unlatch the brake pedal and press each brake pedal in turn. If the pedal free travel is excessive or the brakes are unevenly worn, the brakes must be adjusted as follows:

1. Stop engine and remove start key.
2. Push loader control into FLOAT position and shift gear and range levers to NEUTRAL.
3. Chock both front wheels and release the handbrake.
4. Jack both rear wheels clear of the ground.
5. Starting on one side, slacken locknut (1) and tighten adjusting nut (2) until the brake only just locks the wheel, then loosen adjusting nut by 7 flats (1 1/6 turns). Ensure that the brake is free then retighten the locknut.
6. Repeat procedure on the other wheel.

Parking brake adjustment

The handbrake will automatically adjust whenever the brakes are adjusted, and should move 3 - 4 'clicks' before applying the brakes.

Brakes



Service period: **As Required**

Change brake fluid

Brake fluid absorbs moisture and to avoid corrosion inside the brake system it is recommended to change brake fluid annually. In severe conditions change brake fluid more frequently.

Use only brake fluid to SAE J1703 specification **incompatible or inferior grades of fluid are dangerous.**

Brake fluid reservoir

Brake fluid should be maintained at the full mark moulded onto the reservoir.



Warning!

Do not overfill, as this can cause fluid spillage from the breather when working on steep gradients.

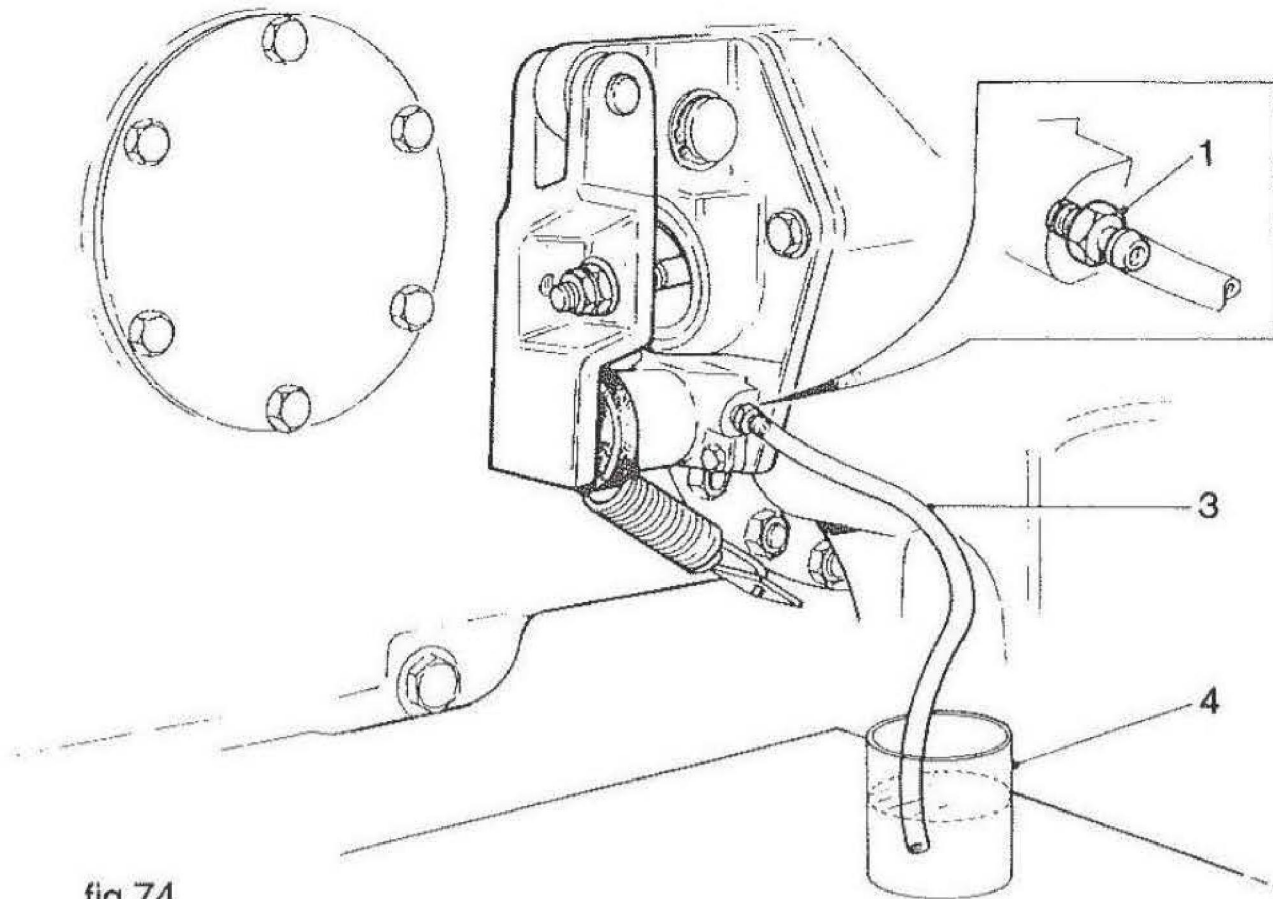
Brakes

De-aerating (bleeding) the brake system (figure 74)

The MF 50E is fitted with hydraulically operated brakes which will need bleeding if any part of the brake system has been disconnected.

As the left and right brake circuits are completely separate de-aeration is simple.

1. Slacken left hand brake slave cylinder bleed screw (1) and fit a rubber/neoprene tube (2) to drain displaced fluid into a container (3).
2. With the bleed screw open press/release left brake pedal 5 times in quick succession, then retighten bleed screw. Ensure brake fluid level in reservoir does not fall below the LOW mark.
3. The left brake pedal should now feel firm and positive, if not repeat the de-aeration process but close the bleed screw before each return stroke of the brake pedal.
4. Repeat operation on the right brake system.
5. Recheck fluid level before starting work.



Transmission and Hydraulics

Grease linkage leveling box and lift rods

Service period: **10 hours**

Grease linkage levelling box and lift

Three grease points, figure 75.

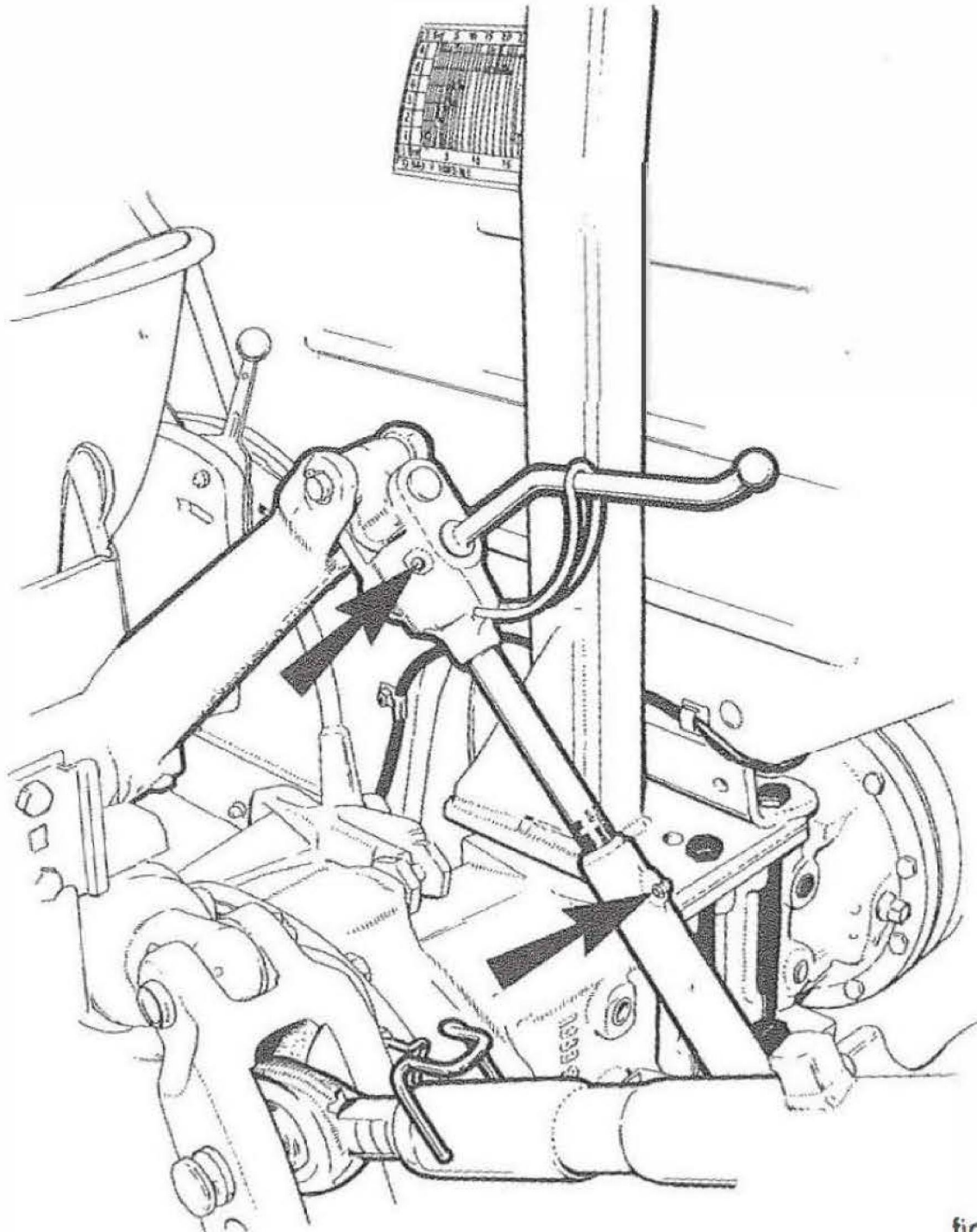


fig 75

Transmission and Hydraulics

Service period: **50 hours**

Check transmission oil level (figure 76)

Transmission oil should be maintained at the 'XX' mark on the dipstick for normal use, or the 'MAX' mark when working on steep slopes or when using hydraulics for implements/trailers requiring a large quantity of oil.

The MIN mark on the dipstick represents the least amount of oil with which the hydraulics will still function properly, on level ground.

Grease Instant Reverse transmission control shaft (figure 77)

Give only a single injection of grease to transmission control shaft.

Service period: **250 hours**

Clutch adjustment (Manual shuttle transmission) (figure 77a)

Press clutch pedal lightly to the extent of its free travel and measure the distance between the front edge of the clutch actuator lever and the gearbox housing which forms the pedal return stop.

The clearance 'A' should be 5mm (3/16 inch). If the clearance is different, adjust as follows:

1. Insert a bar through the hole in the clutch actuator shaft (1) and turn until firm resistance is felt.
2. Slacken the pinch-bolt (2) and move actuator to achieve dimension 'A'.
3. Tighten pinch-bolt securely and recheck adjustment.

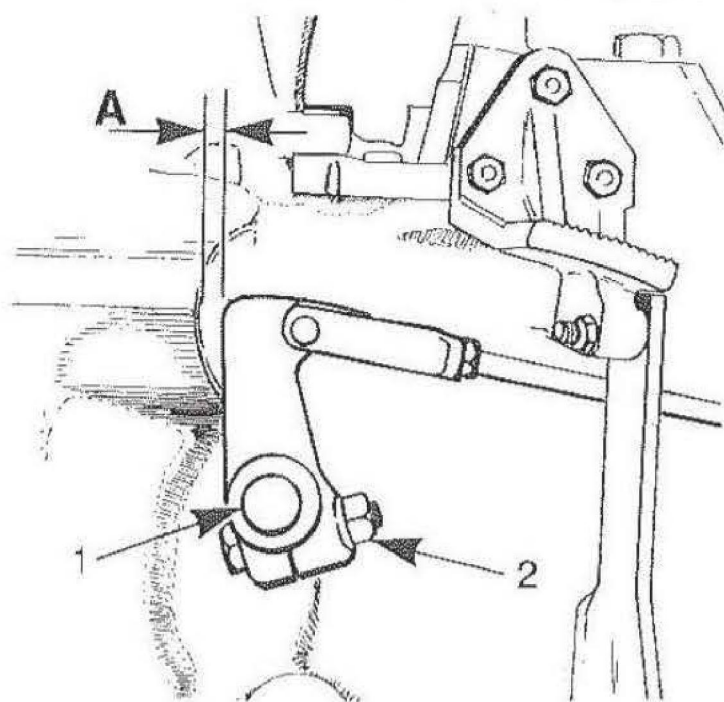


fig 77a

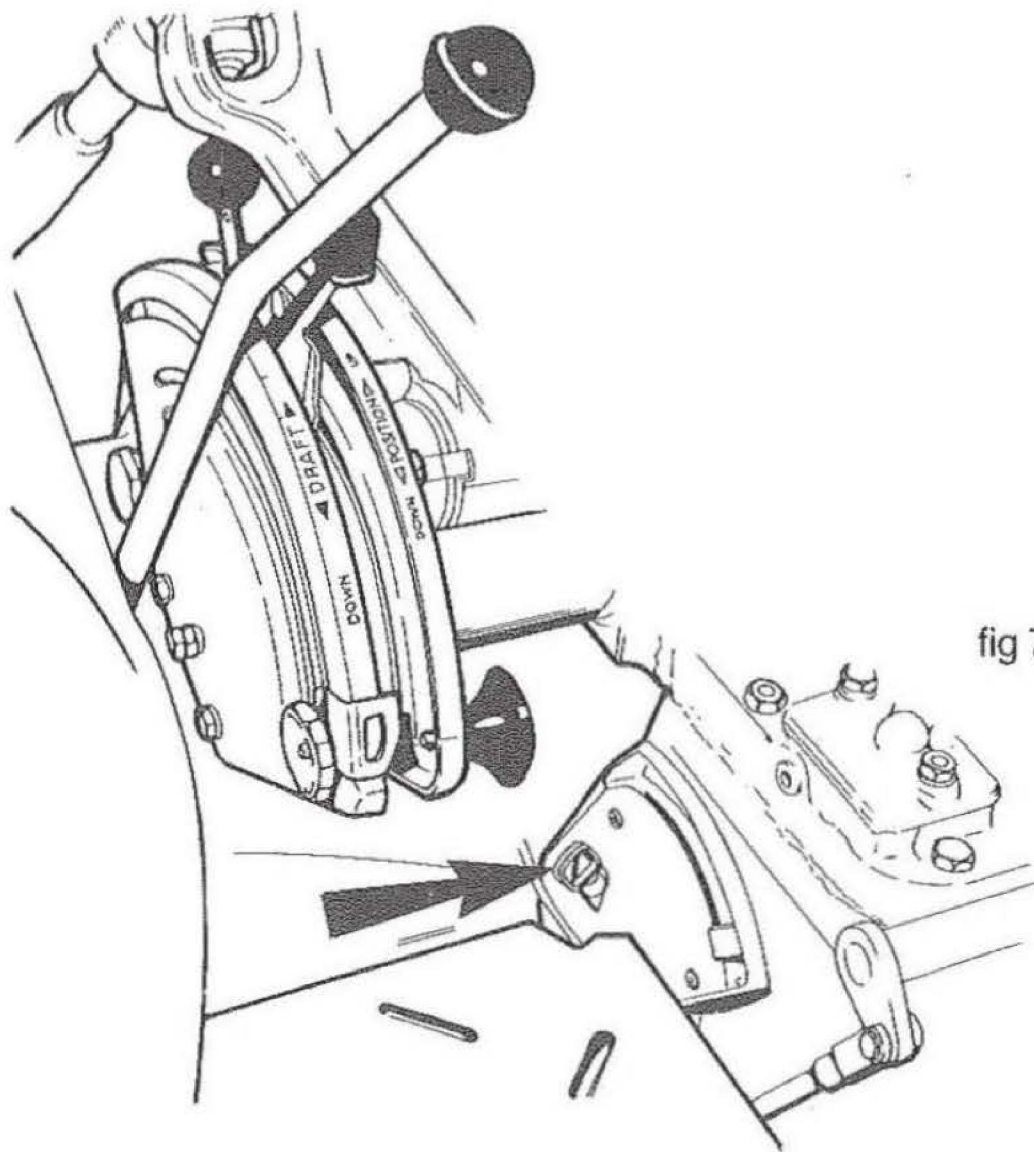


fig 76

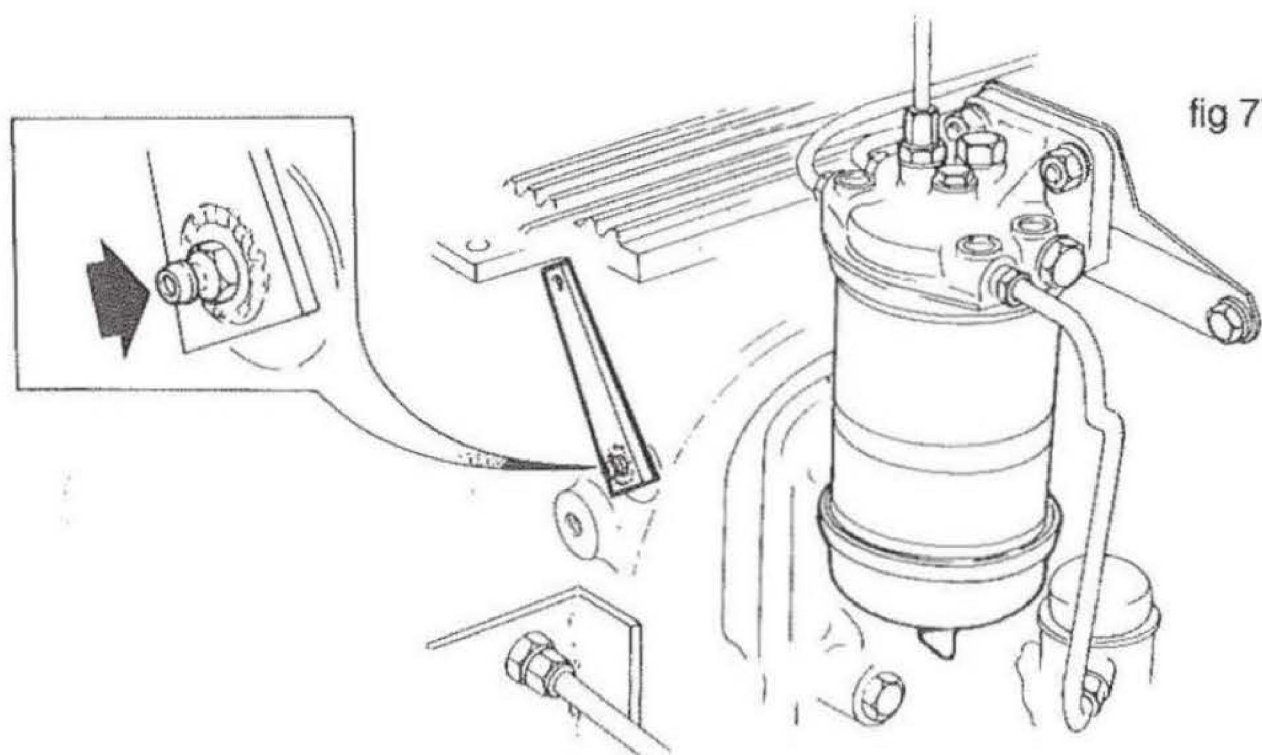


fig 77

Transmission and Hydraulics

Instant Reverse transmission

Service period: **250 hours**

Change torque converter oil filter (figure 79)

1. Clean the outside of filter assembly before removing filter bowl retaining bolt (1).
2. Remove bowl (2), dispose of filter element (3) and wash out any sediment collected in the bowl.
3. Install new filter element, fill bowl with transmission oil and refit, ensuring bowl fits properly against a new rubber ring (4).
4. Tighten retaining bolt to 80 Nm (60 lbf ft).
5. Check/top-up oil level as required.

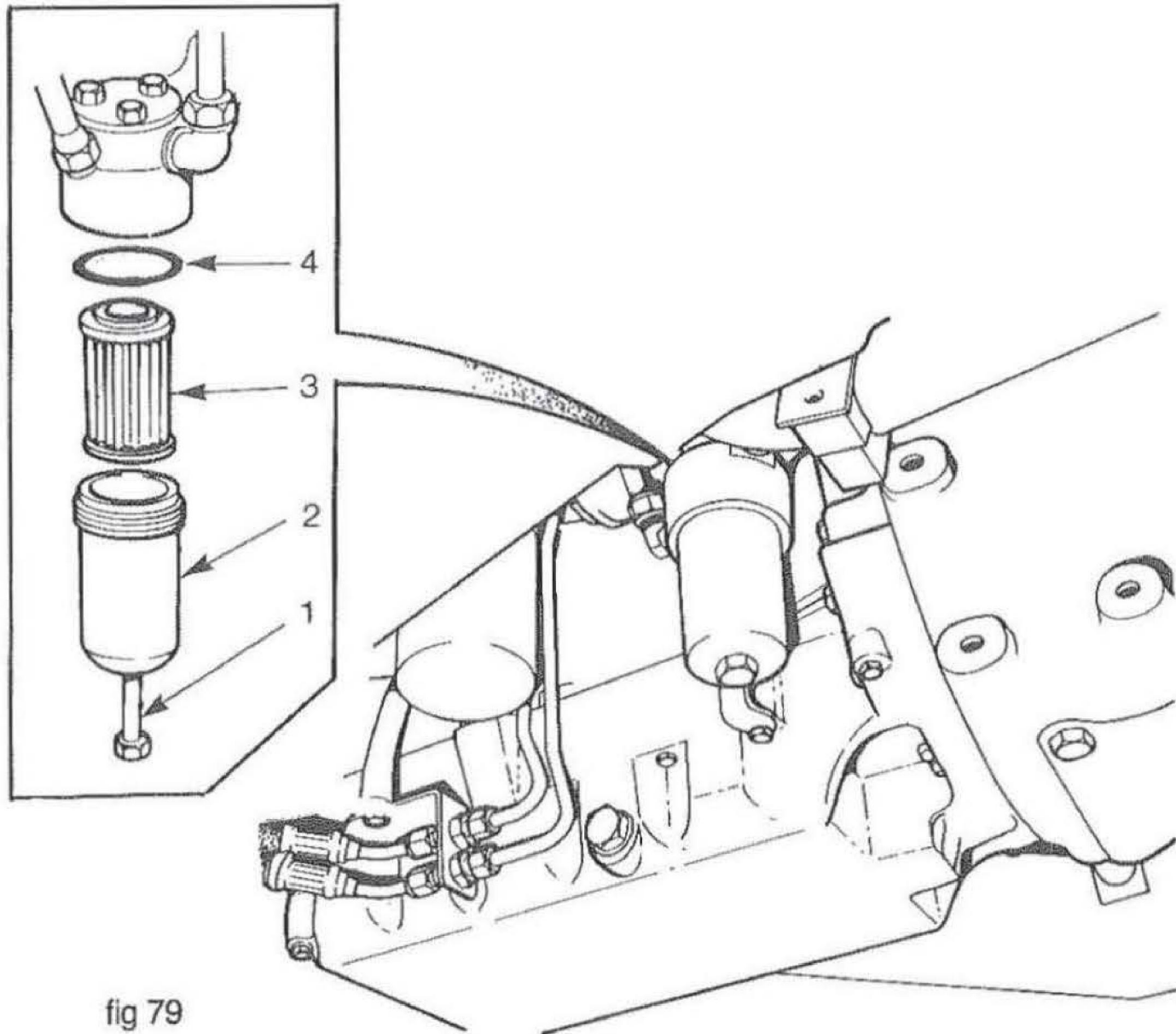


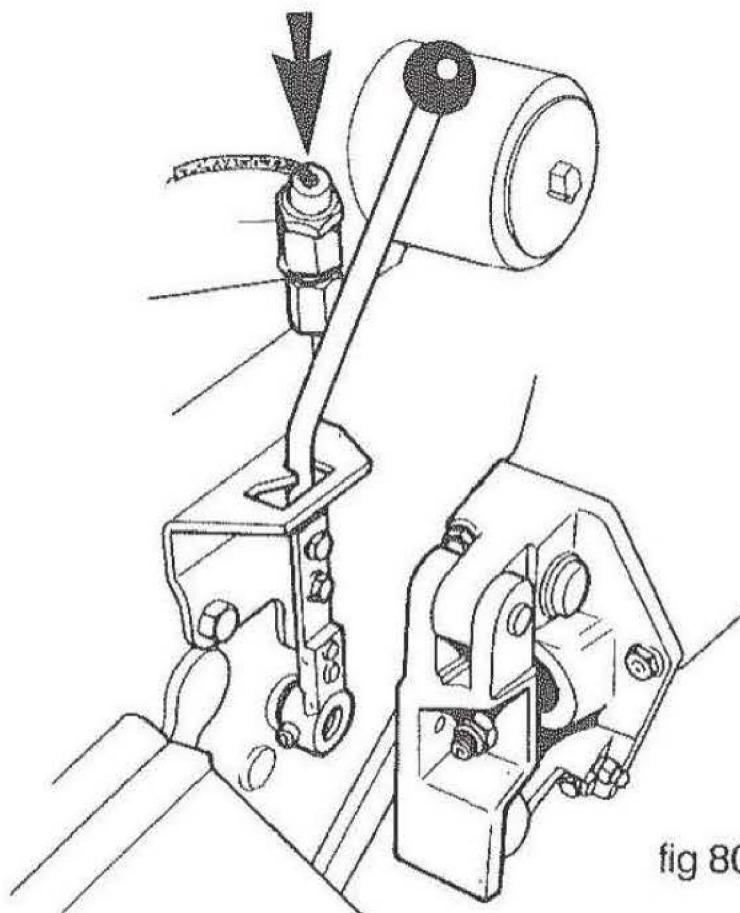
fig 79

Transmission and Hydraulics

Filter blockage warning light – manual shuttle transmission only

A warning light, on tractor dash panel, will illuminate if the transmission hydraulic filter becomes blocked with contaminants between oil changes **except on Instant Reverse transmissions which have only a strainer fitted to the optional, linkage hydraulic pump.**

1. The warning light serves both the air filter and transmission filter, and to determine if the transmission filter is blocked when the warning light comes on, pull the blue cable connector from the vacuum switch located on the left hand side of top cover beneath the driver's seat (figure 80).
2. If with the engine running at maximum speed, the light does not illuminate, then transmission filter is blocked. Reconnect blue cable and clean filter as detailed below.
3. If the warning light stays on when running the above test, stop the engine and thoroughly clean air filter. Re-test, when light should not illuminate, if it does, change both inner and outer air filter elements.
4. Reconnect blue cable and re-test, warning light should not illuminate, if it does, then clean the transmission filter also.



Transmission and Hydraulics

Service period: 1000 hours

Change the transmission oil

Draining the transmission oil

Remove rear drain plug (fig 81)

Remove front drain plug, manual shuttle transmission (fig 82) or Instant Reverse transmission (fig 83)

Remove final drive drain plugs (fig 84)

All the oil from gearbox, torque converter linkage hydraulics, differential brakes and final drives will have been drained.

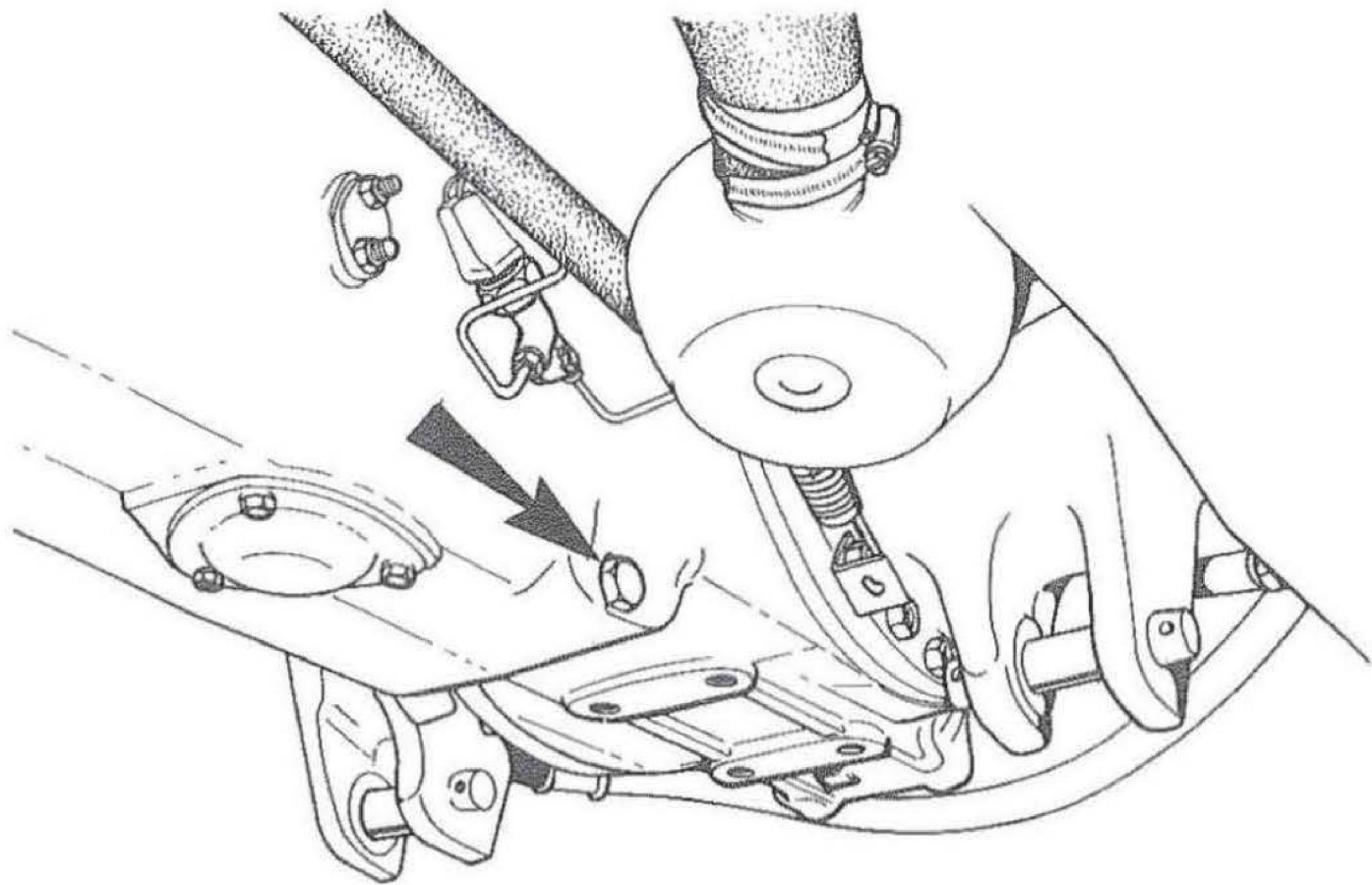


fig 81

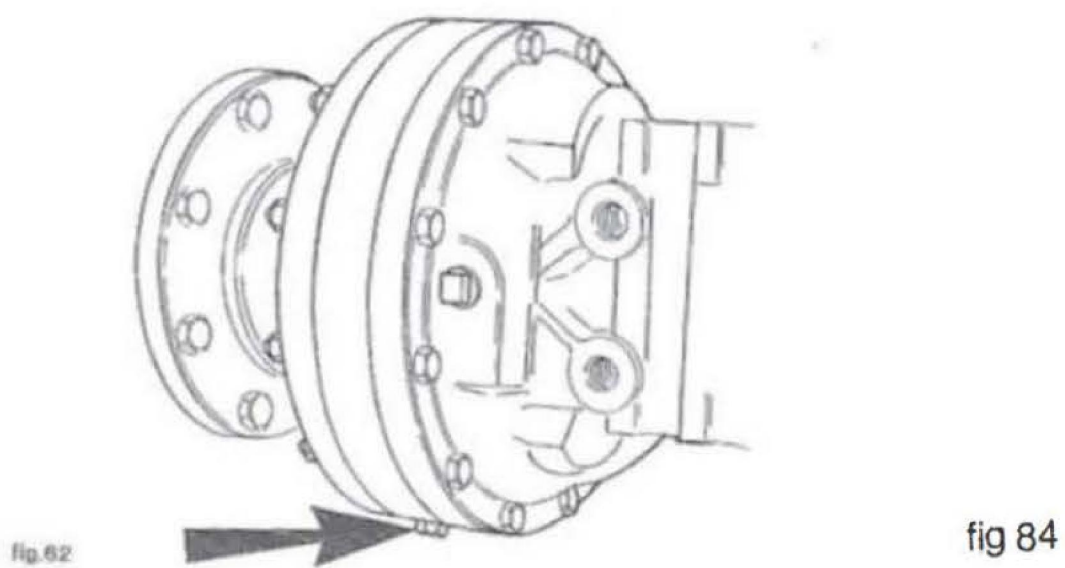
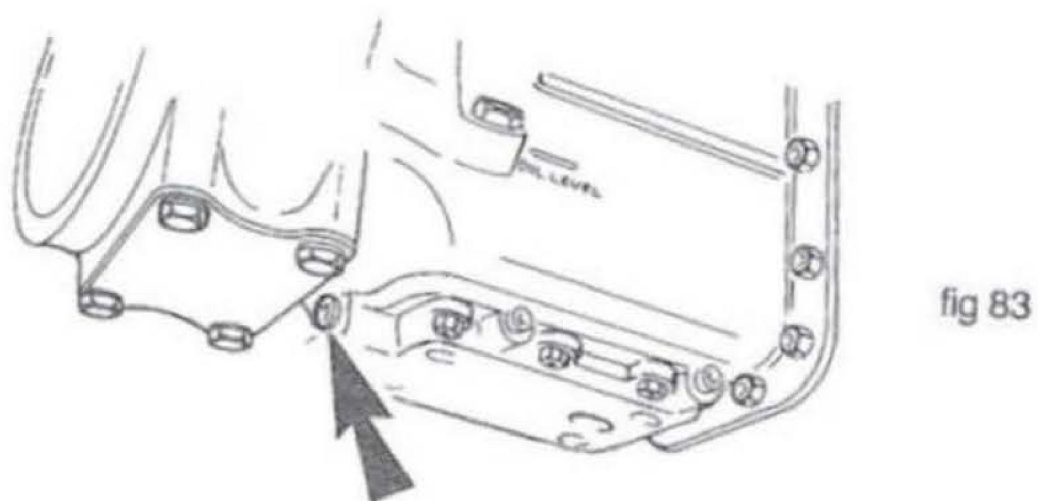
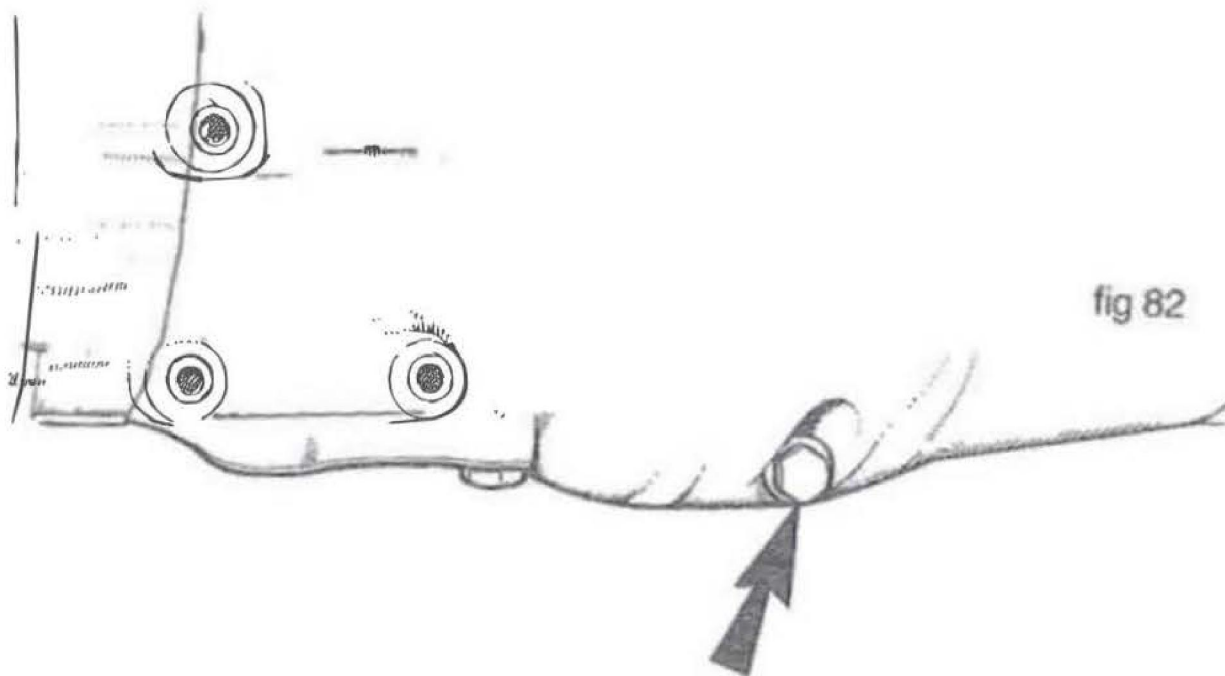


fig. 82

Transmission and Hydraulics

Removing and cleaning oil filter (figure 85)

All models except those fitted with Instant Reverse transmissions:

1. Remove two bolts and washers from vacuum tube connector (1).
2. Remove the connector plate (2).
3. Ease the connector (3) away from the filter cover (4) about 6mm ($\frac{1}{4}$ in) to assist removal of the cover.
4. Remove three bolts and washers (5) securing the filter cover to the centre housing and remove with the shield (6) still attached.
5. Dispose of gasket (11).
6. Remove the filter element (7).
7. To clean the filter element, first seal the open ends with two suitable plugs, then swill the element in clean petrol/gasoline or other non oily solvent. Clean the mesh with a stiff bristle brush. Finally remove the plugs, and blow compressed air inside the element to remove any remaining dirt particles.
8. Remove the 'O' ring (8), plate (9) and spring (10) from the filter cover and clean the inside of the cover.
9. Refit the spring plate, 'O' ring, and filter element into the cover.

NOTE: The filter is slightly tapered and must be fitted with the wider end at the top.

10. Using a new gasket (11) refit the filter and cover assembly to the centre housing by inserting the top of the filter element through the access hole until it passes over the suction tube (13) and seats on the 'O' ring (14) within the centre housing. Whilst the unit is held in this position, fit one bolt and washer and tighten, then refit the remaining two bolts and washers and tighten all three bolts fully.

NOTE: Do not attempt to pull the filter cover up to the centre housing using the securing bolts (5).

11. Refit the connector (3) to the filter cover, ensuring that the 'O' ring (12) is in position within the connector body. Refit the connector plate and secure.

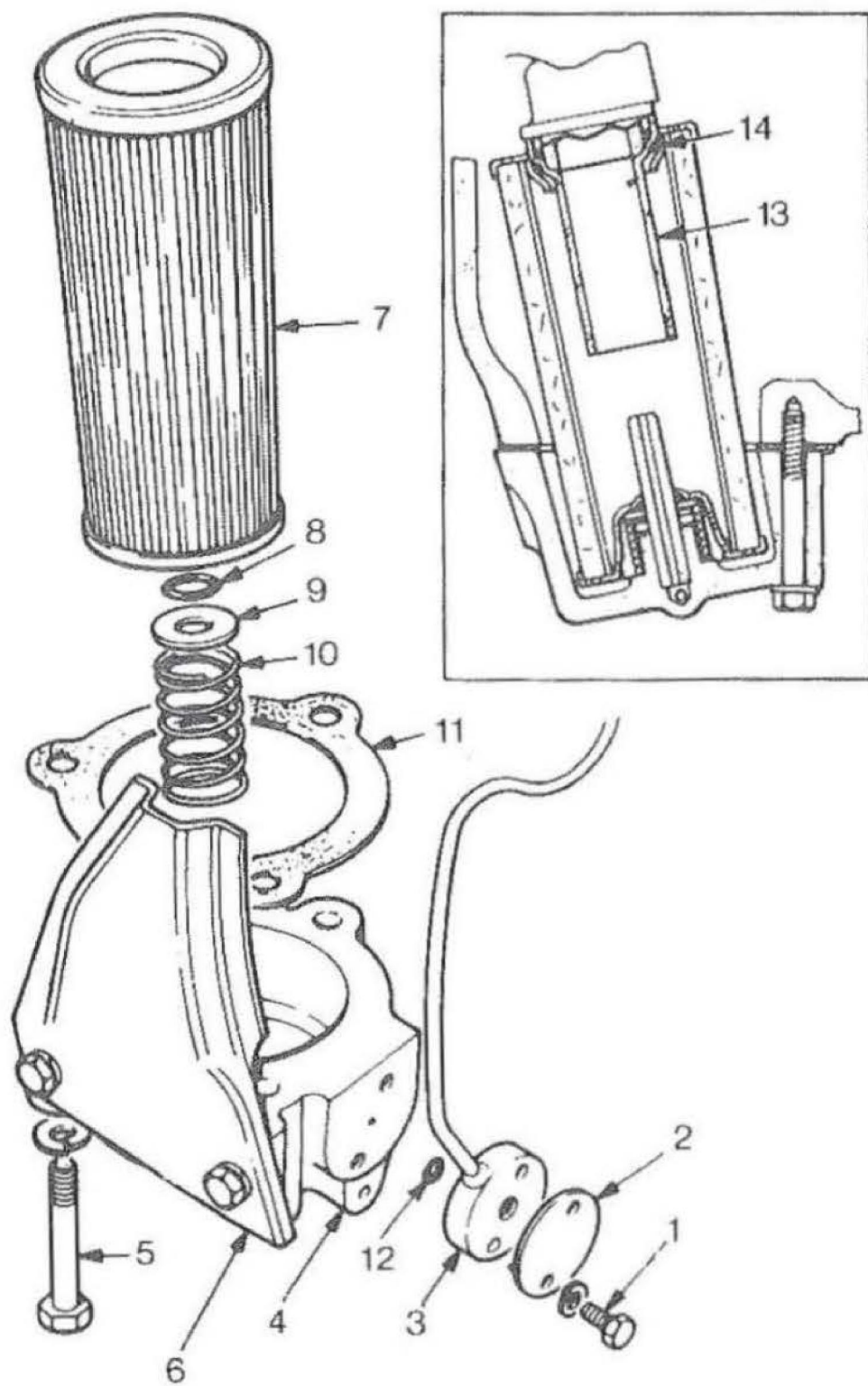


fig 85

Transmission and Hydraulics

Removing and cleaning oil strainer (figure 86)

Optional fitment to some models equipped with Instant Reverse transmissions only:

1. Follow number sequence to remove strainer.
2. Wash strainer and cover assembly in petrol/gasoline or other non-oily solvent, and clean gasket sealing faces of cap and transmission housing.
3. Use a new gasket and 'O' ring before reassembling strainer following the reverse number sequence.

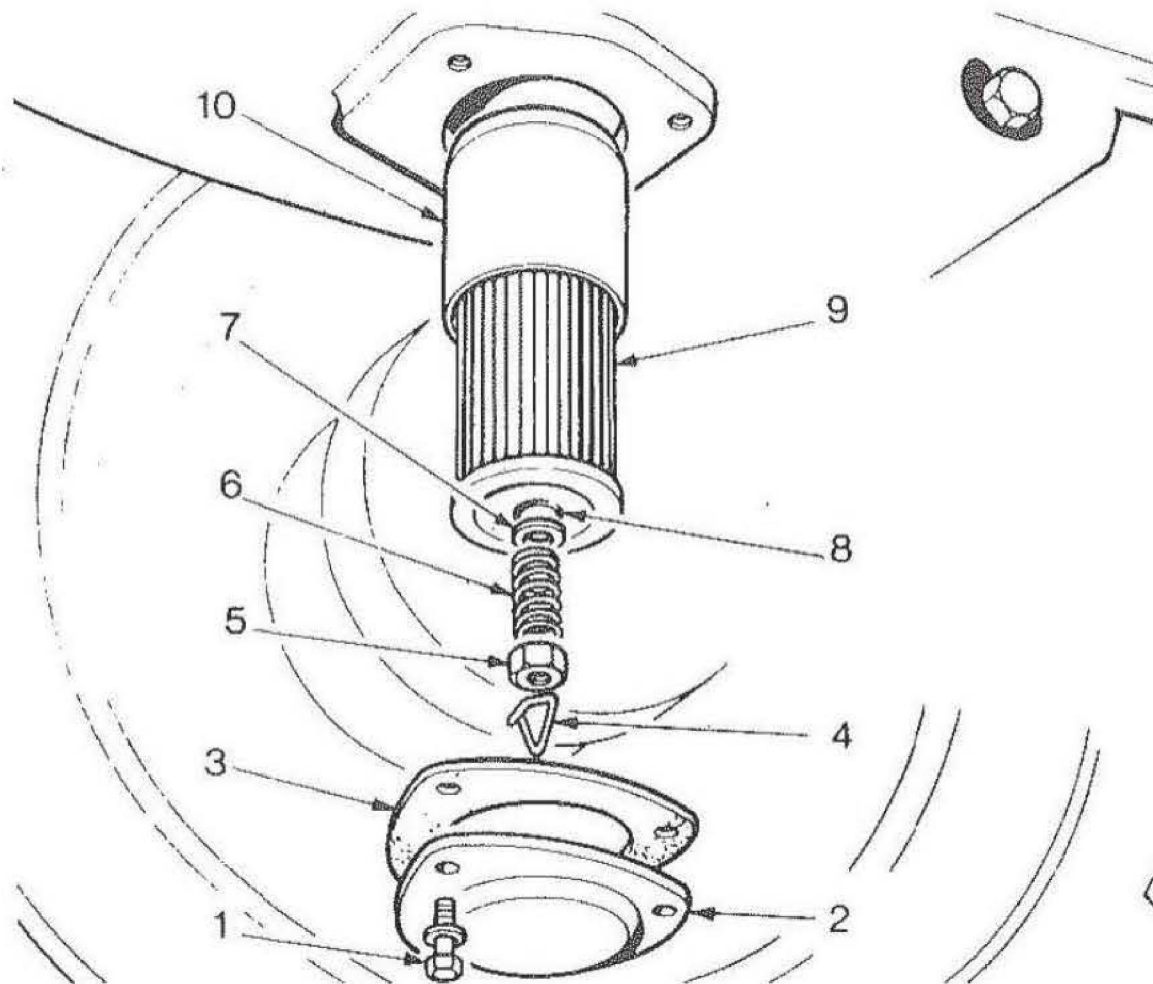


fig 86

Transmission and Hydraulics

Refilling transmission with oil (figs 87 and 88)

Refit all drain plugs securely.

Remove filler plugs on both final drive housings (fig 87) and add 1.7 litres (3.6 US pints) to each one.

Using correct grade and quality of oil, refill transmission through filler plug on gearbox (fig 88). Allow time for the oil to settle before checking the level.

Tractors equipped with Instant Reverse transmission should be started and run for one or two minutes, then stopped and the oil level checked again.

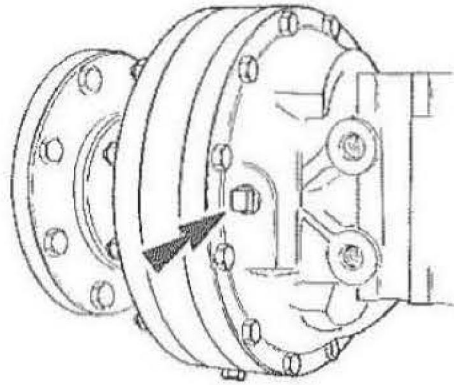


fig 87

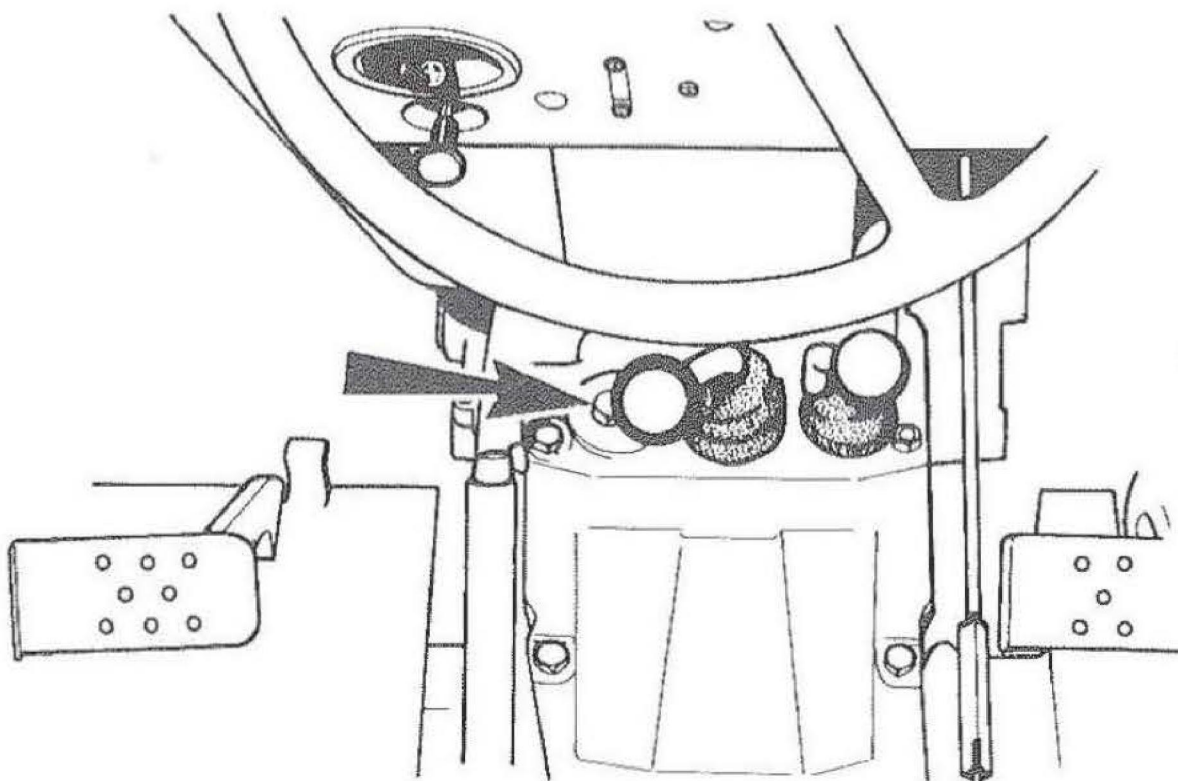


fig 88

Loader

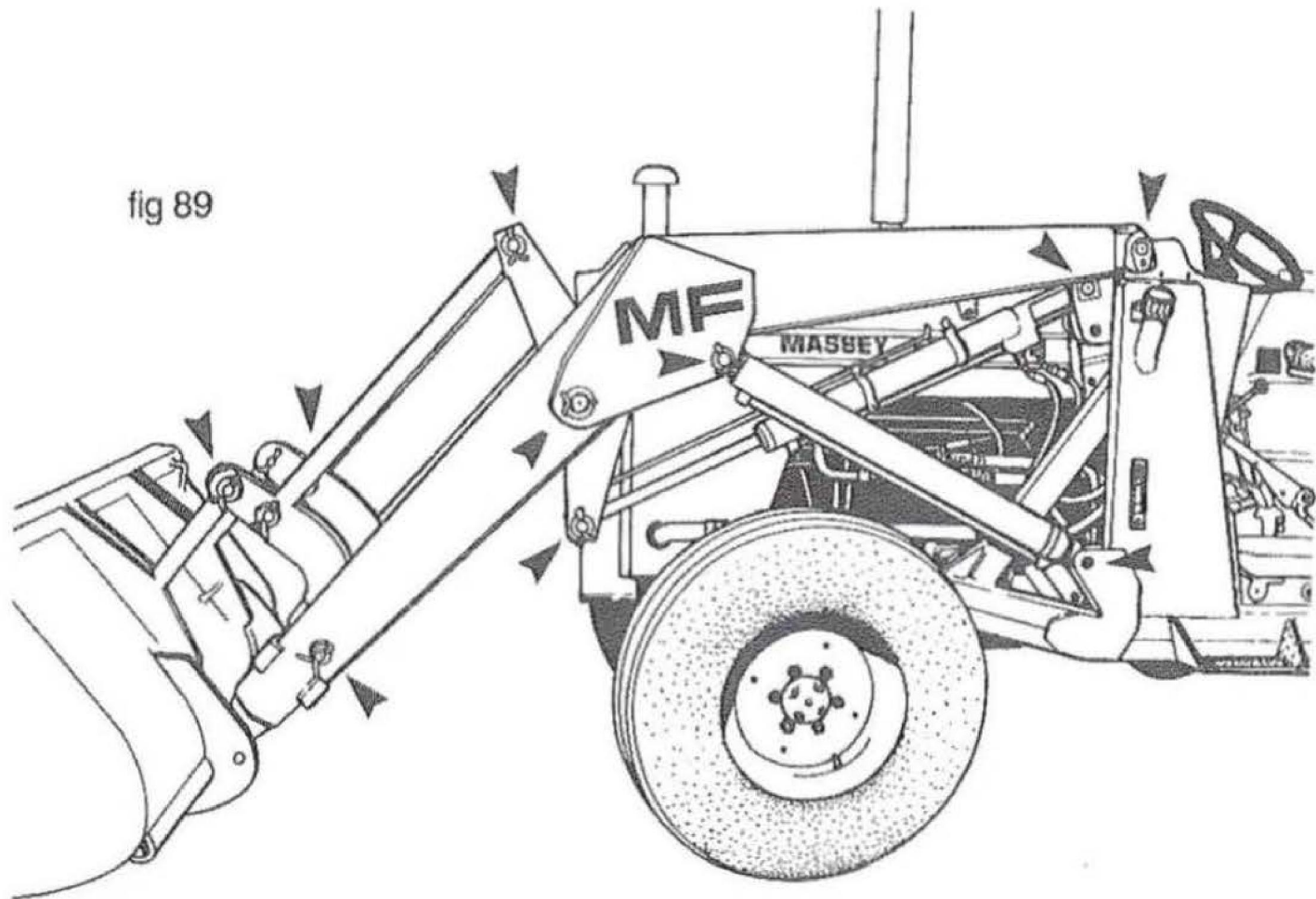
MF 250 Loader

Service period: **10hours**

Grease loader pivots (figure 89)

24 grease points

Occasionally check the loader side frame bolts for tightness, 325 Nm (240 lbf ft) (figure 90).



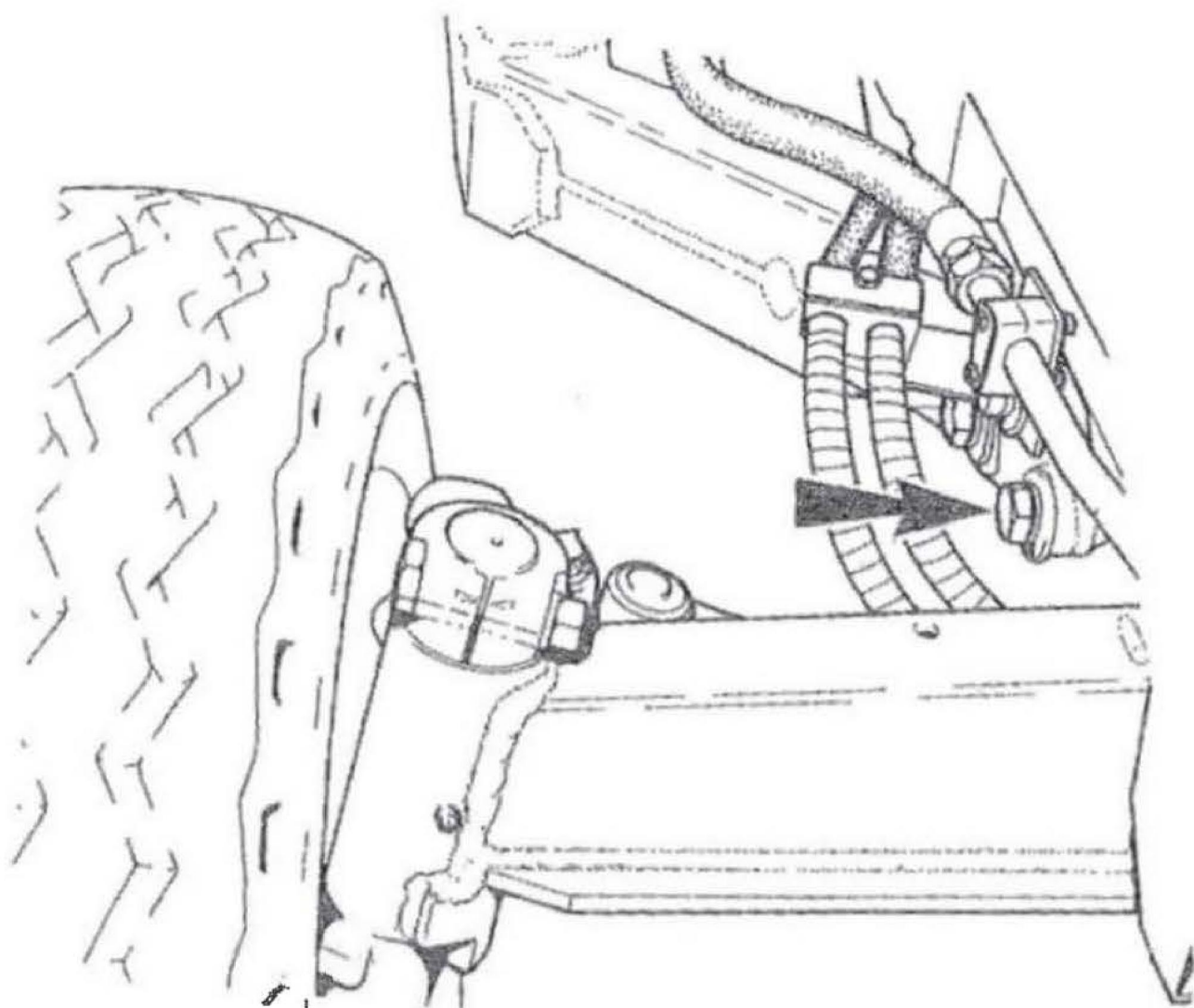


fig 90

Loader

Service period: **10 hours**

Usually check pressure filter indicator (figure 91)

This filter is a cold climate option for MF 250 loaders.

The hydraulic pressure line filter is located inside the right hand side frame. The filter blockage button is coloured red and shows when the filter element requires changing.

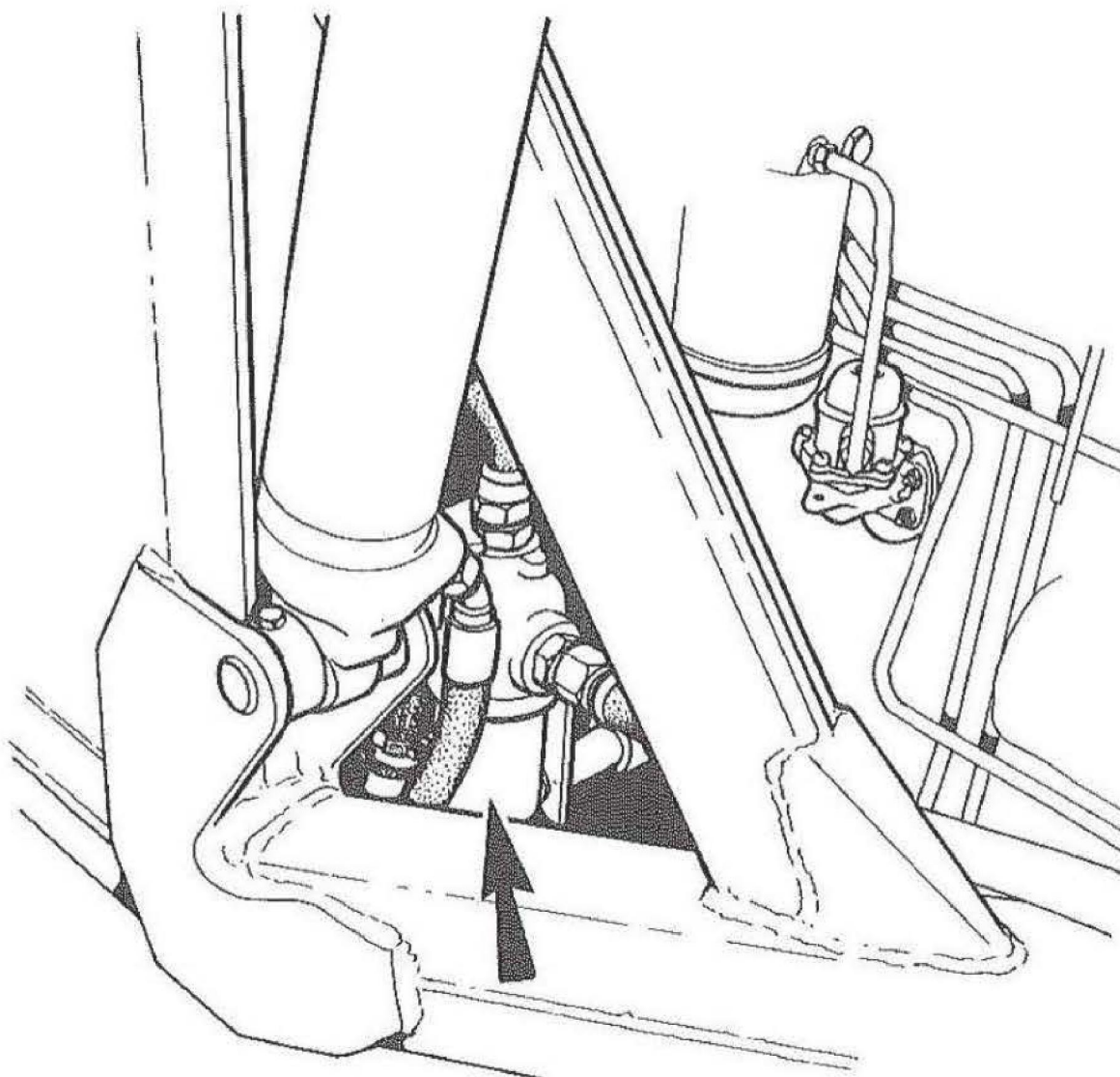


fig 91

Loader

MF 250 Loader

Service period: **50 hours or weekly**

Check/top-up hydraulic oil level (figure 92)

1. Park the machine on flat level ground with the loader bucket flat on the ground and digger in transport position.
2. Stop the engine.
3. Check level tube on left hand side frame. Oil should be between marks.
4. If oil is required, clean the filler cap and tube before removing cap.

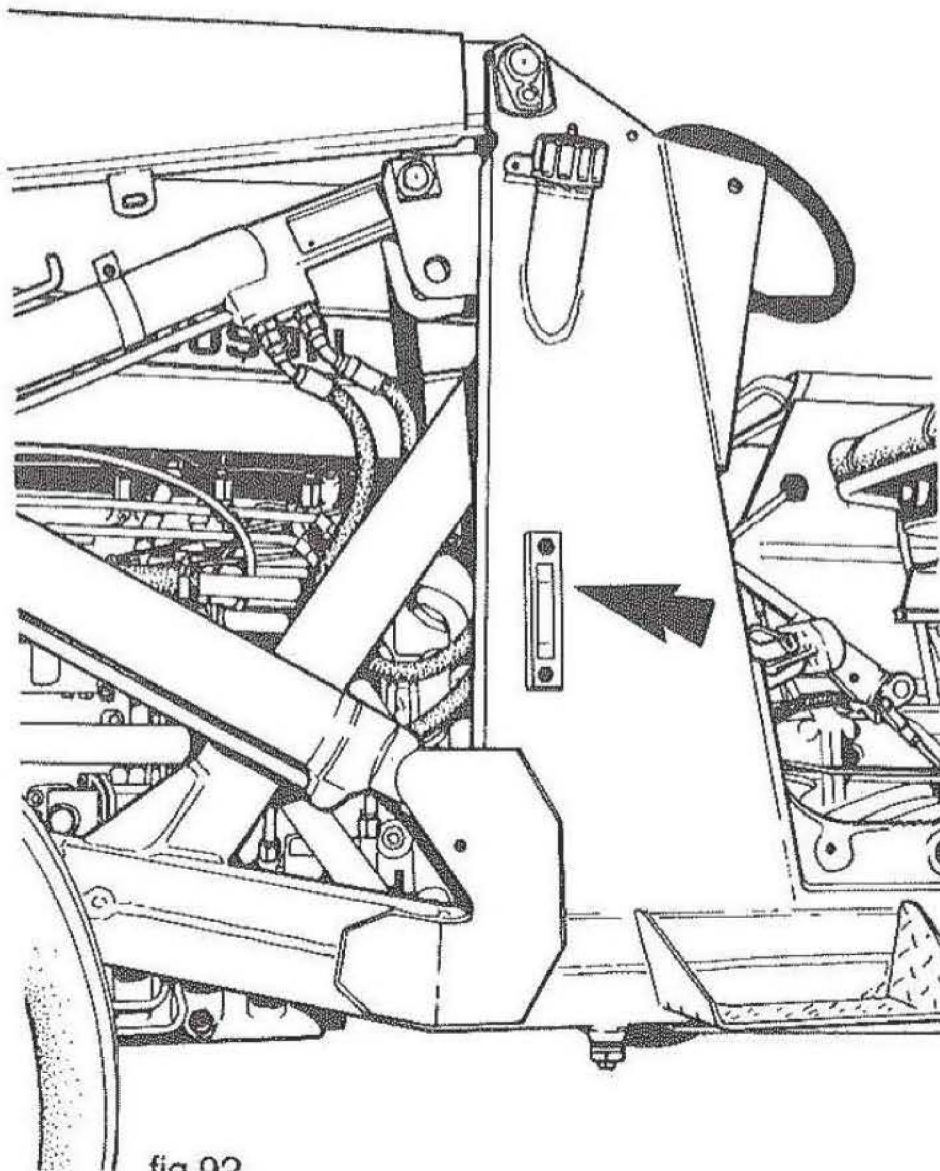


fig 92

Loader

MF 250 Loader

Service period: **250 hours**

Change hydraulic suction line filter (figures 93 and 94)

1. Park machine, raise loader arms and fit safety frame. When a digger is fitted this should be in the transport position but with the stabiliser feet resting on the ground.
Stop the engine.
2. Remove small drain plug (1) which will allow oil level to drop below the top of the filter bowl (2). Use a clean container to hold approximately 3.8 litres (1.0 US gals) of oil that will drain out.
3. Remove filter cap (3) by unscrewing bolt (4) and remove filter element (5).
4. Fit new element, replace cap ensuring gasket (6) is in good condition. Refill reservoir and check for leaks before starting the engine.

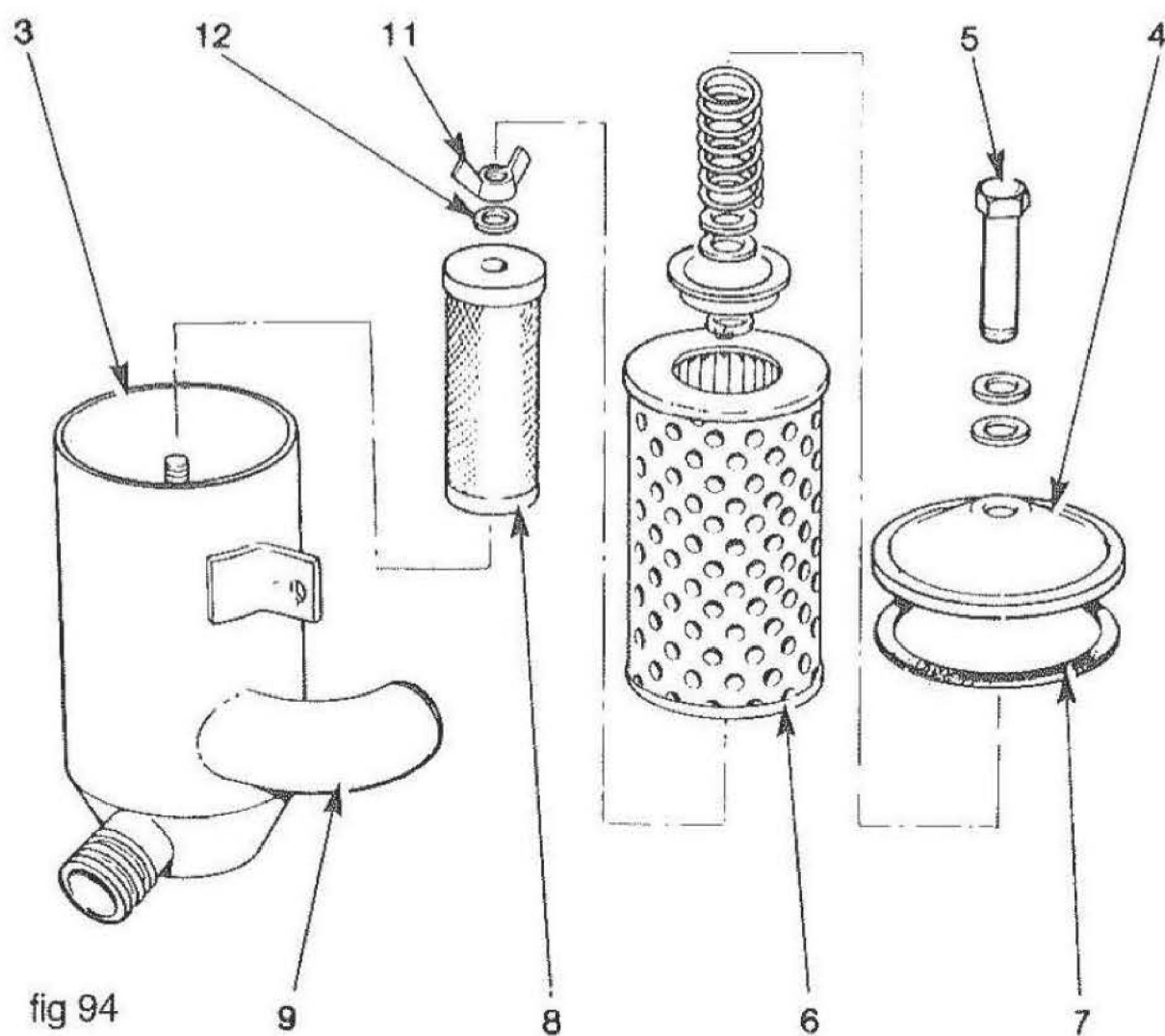
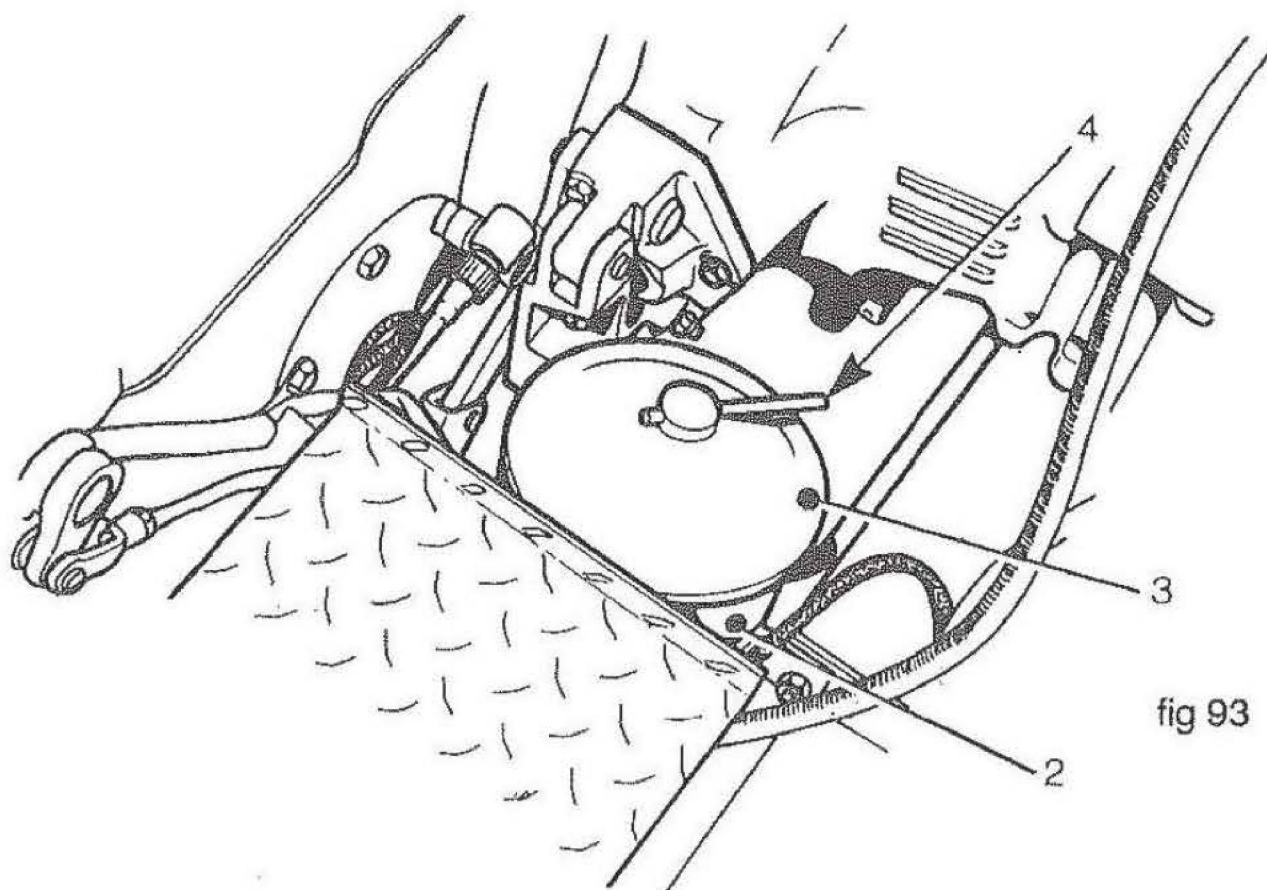
Cleaning suction screen and filter bowl

If whilst changing the filter element, the filter bowl and suction screen (8) need cleaning, the reservoir will require draining until oil level falls below the level of the filter intake tube (9).

1. Remove main drain plug (10) and drain oil into a clean container.
2. Extract as much sediment as possible before removing wing nut (11), washer (12) and suction screen.
3. Wipe out filter bowl with clean, lint-free cloth and wash suction screen thoroughly with petrol/gasoline or other non-oily solvent.
4. Replace screen, washer and wing nut and insert new filter element (5).
5. Replace both drain plugs and refill the reservoir until oil level is approximately 25mm (1 inch) from the top of the filter bowl.
6. Refit cap (3) and continue to fill reservoir.
7. If there are no leaks, start engine and remove safety frame from loader and lower to ground level. Raise digger stabilisers and re-check oil level.

CAUTION:

Never start engine if the reservoir is empty or inadequately filled. But do not overfill.



Loader

MF 250 Loader

Service period: **500 hours**

Clean hydraulic reservoir breather filter (figure 95)

The breather filter is permanently attached inside the filler cap (2). Agitate cap vigorously in petrol/gasolene to clean the filter.

Service period: **1000 hours**

Change hydraulic oil (figure 95)

1. Park machine on level ground and raise the loader and digger (when fitted) to full height.
2. **Stop the engine**
3. Remove the main drain plug (1) and filler cap (2).
4. Carefully lower the loader and digger to the ground, the maximum amount of oil will now be drained from the system.
5. Refit the drain plug securely.
6. Change the hydraulic filter.
7. Refill hydraulic system with approved oil, up to the high mark (3).
8. Start the engine and allow it to idle for 20 seconds before operating all services to purge air from the system. When all services operate immediately and smoothly recheck the oil level.

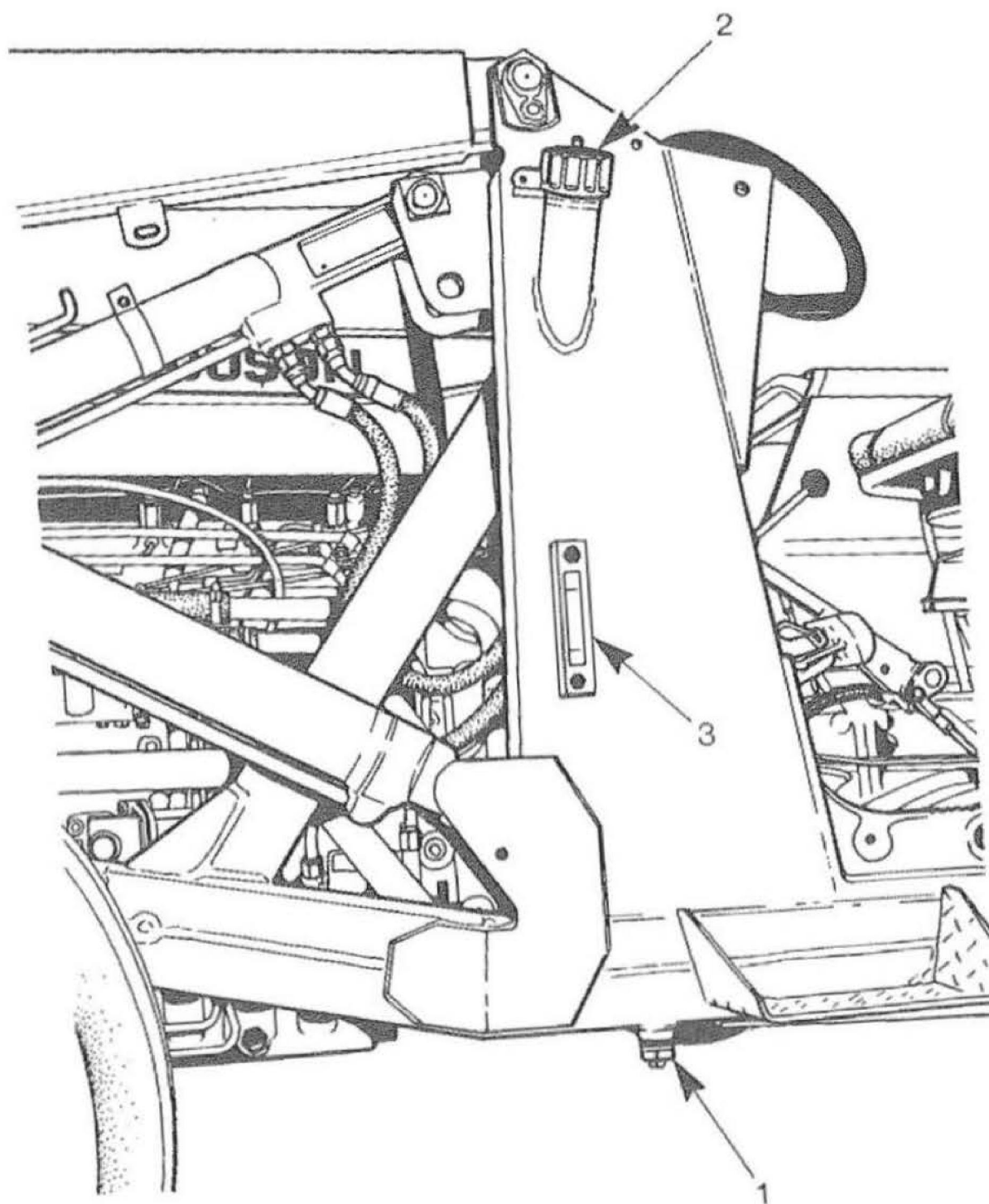


fig 95

Loader

MF 250 Loader

Service period: **As Required**

Change hydraulic pressure line filter (figure 96)

1. When the filter blockage indicator shows, park machine, stop the engine and depressurise system by moving all hydraulic controls through all functions several times.
2. Wipe any dirt off the outside of the filter assembly.
3. Remove filter bowl (1) using a wrench on the hexagon formed on the base.
4. Remove and dispose of filter element (2).
5. Thoroughly clean inside of filter bowl and the sealing surfaces.
6. Ensure bowl seal (3) and back-up ring (4) are in good condition.
7. Push the open end of filter onto seat in filter head (5).
8. Half fill the bowl with clean hydraulic oil and lubricate threads and sealing surface.

Refit bowl to filter head and tighten to 20 Nm (15 lbf ft) maximum.

NOTE:

- The filter element cannot be cleaned – it must be replaced.
- Only genuine MF filter elements Part No. 1469597 M1 must be used.
- A seal kit is available Part No. 1810706 M91.

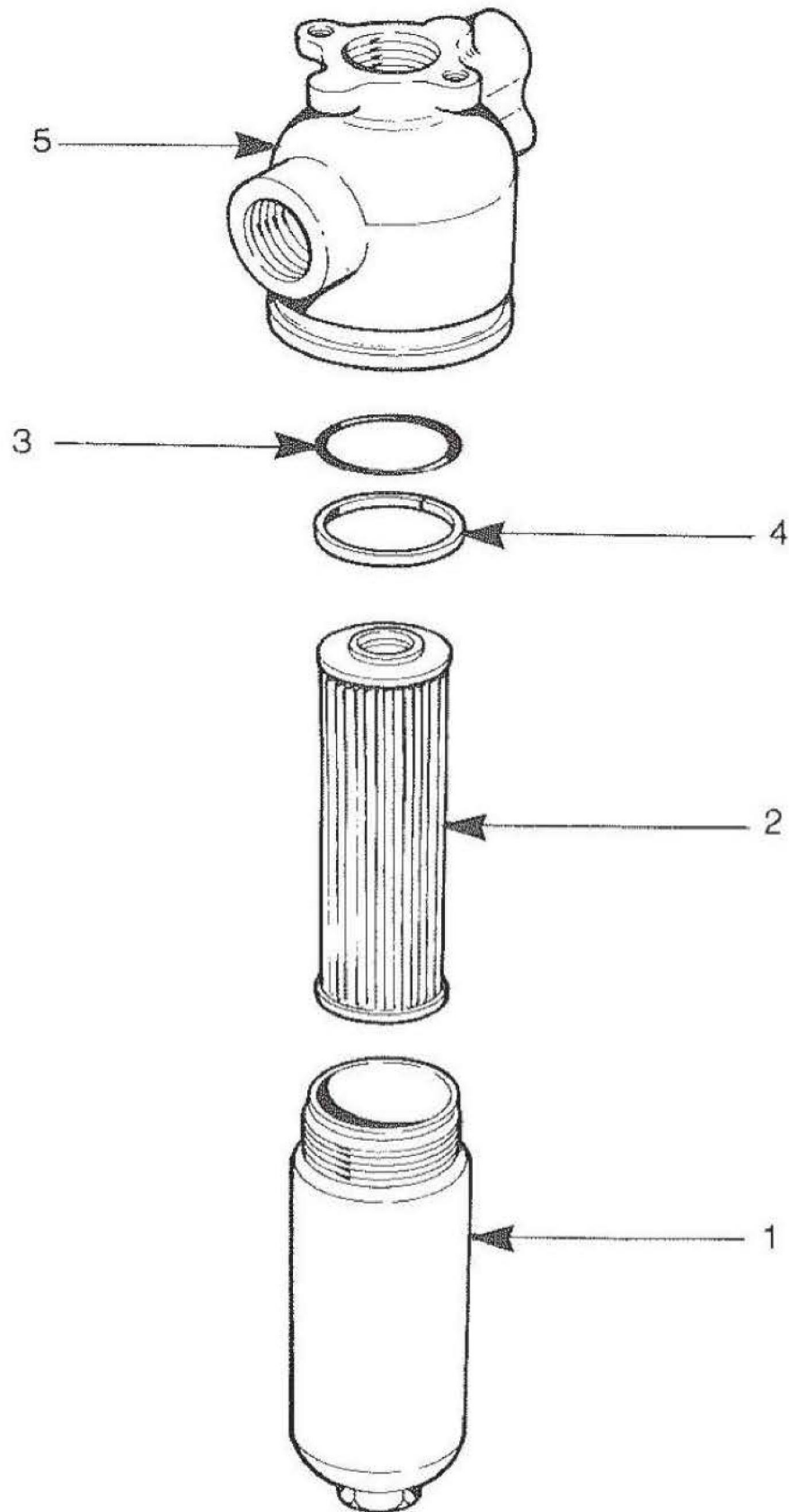


fig 96

Loader

MF 250 Loader

Safety frame (figures 97 and 98)

A safety frame is fitted to the left hand loader arm and must be used whenever the loader is raised to facilitate servicing, or repair.

To fit the safety frame (figure 97) pull spring clip (1) and remove the 'U' bar whilst holding the frame, then lower the frame onto the ram rod and reinstall the 'U' bar and spring clip to secure the frame on the ram (figure 98).

Lower the loader slowly until all weight is taken by the safety frame.

WARNING!

Do not walk under the loader or service the machine whilst the loader is raised unless the safety frame is fitted.

fig 97

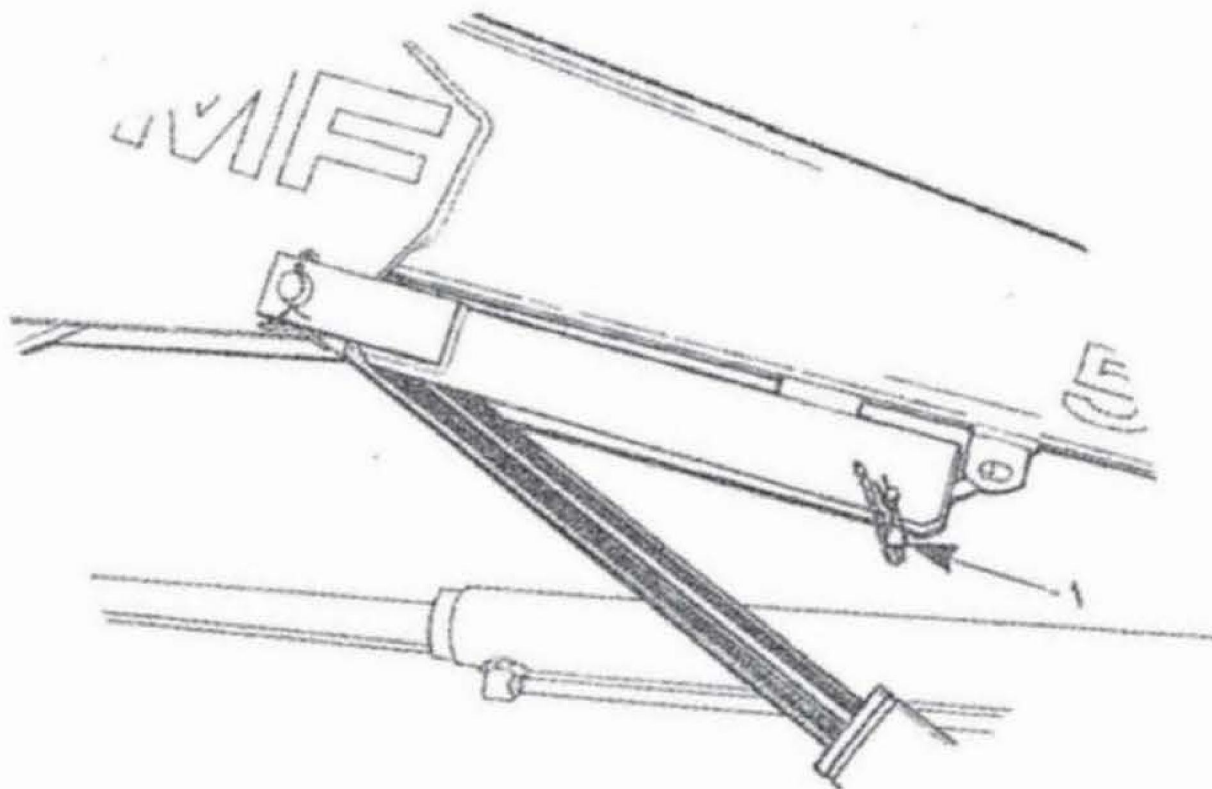
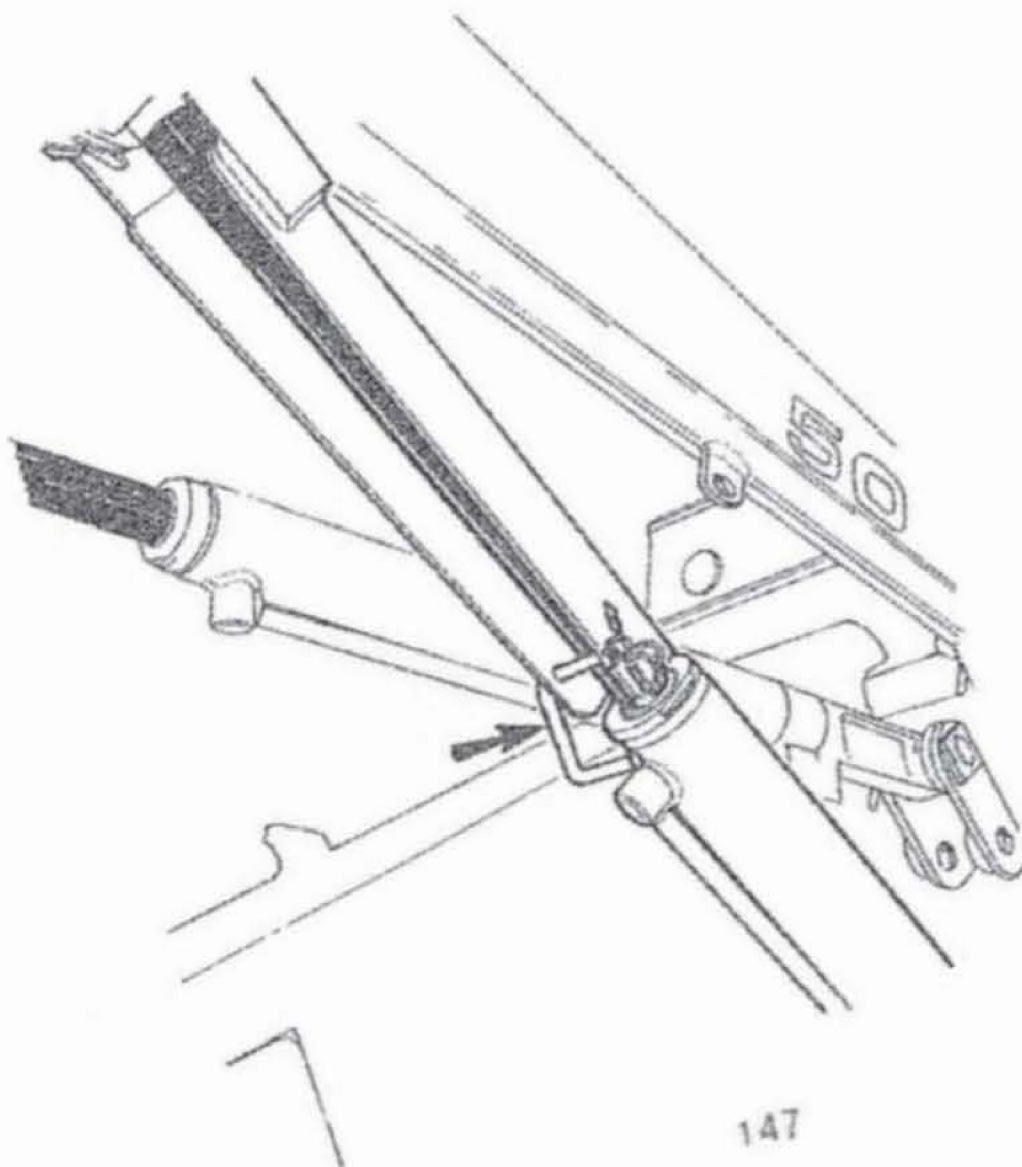


fig 98



Loader

MF 34 Loader

Service period: **10 hours**

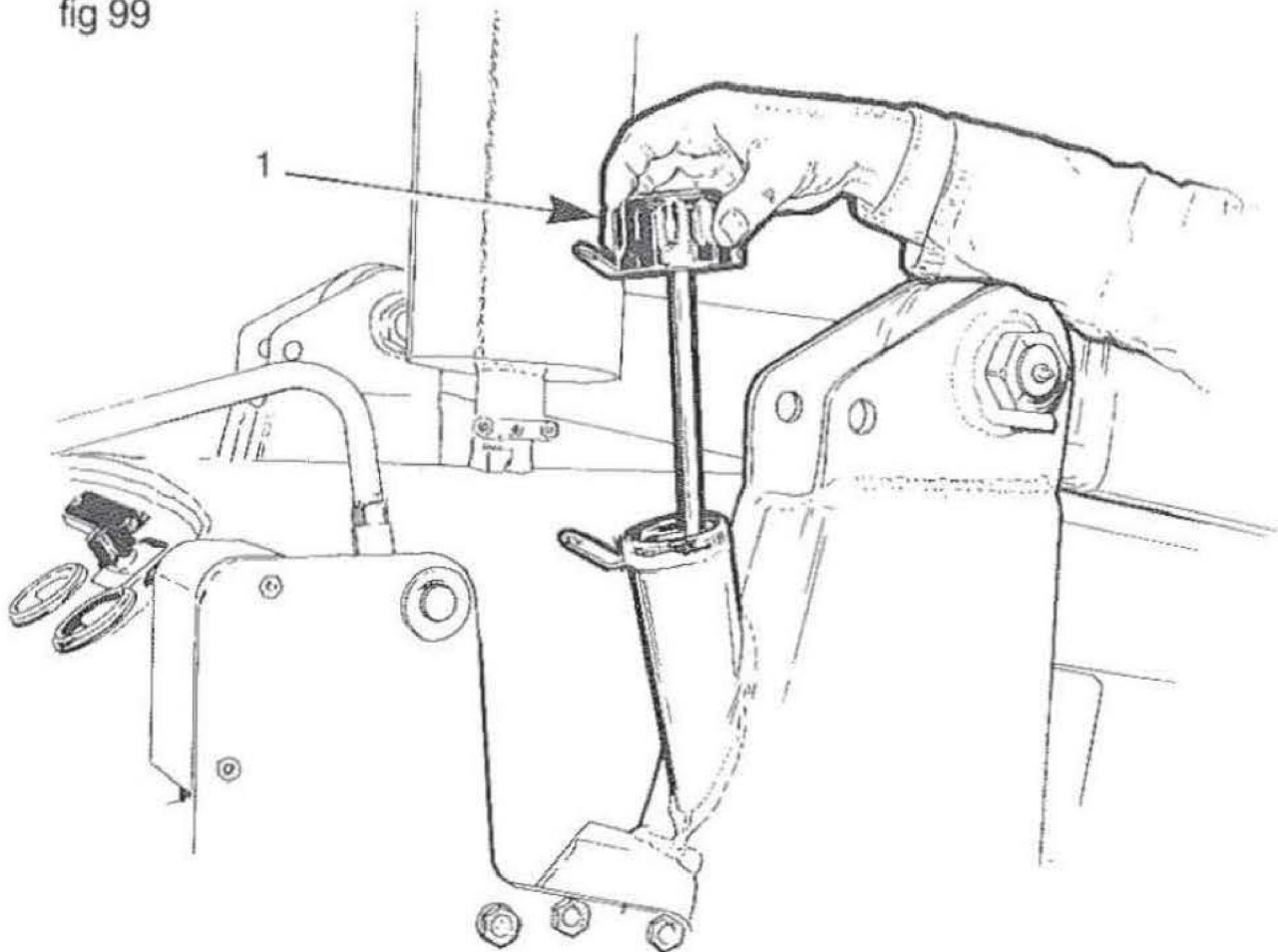
Check hydraulic oil level (fig 99)

Fully roll-back the bucket at approximately 305mm (12 inches) above ground level, stop engine and remove dipstick (1). Oil level should be maintained at full mark on the dipstick.

Grease loader pivot pins (fig 100)

10 fittings.

fig 99



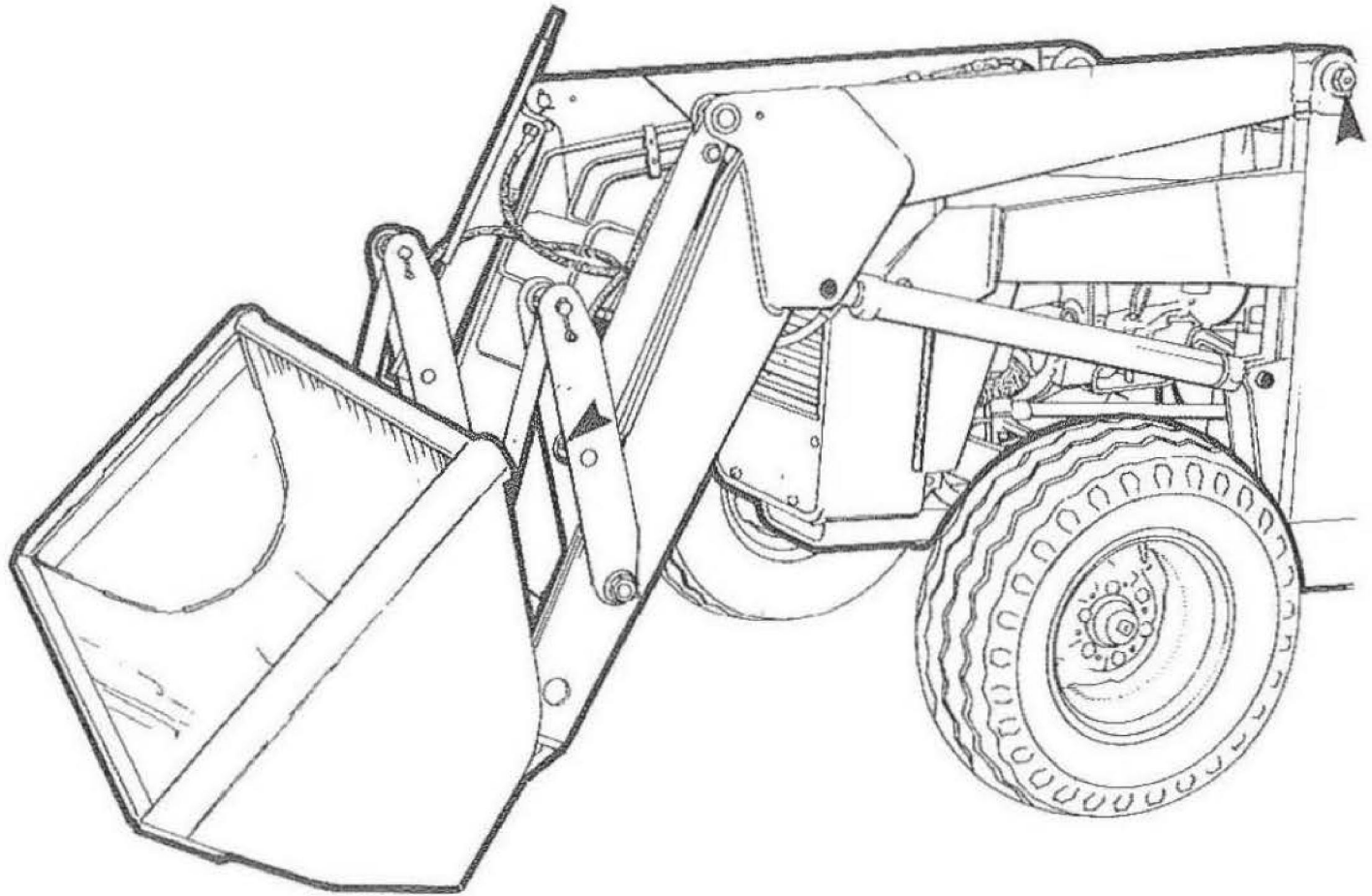
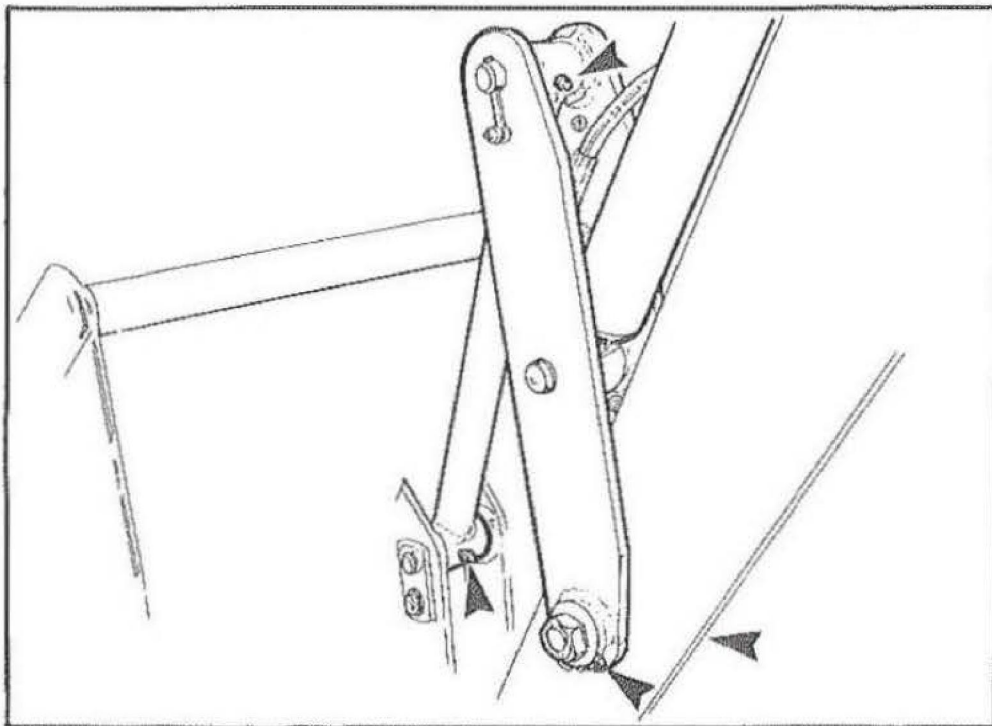


fig 100



Loader

MF 34 Loader

Service period: **500 hours**

Change hydraulic oil and filters (figs 101 and 102)

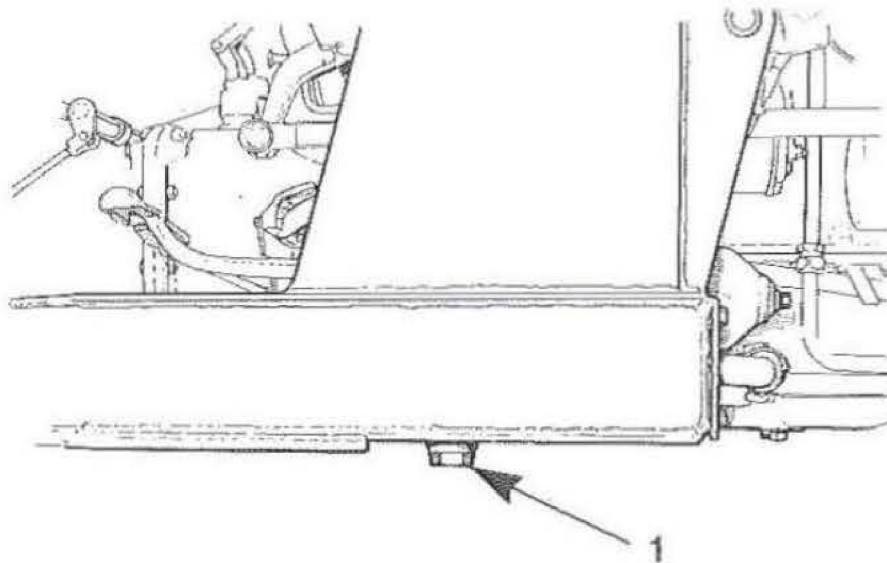
Drain oil (fig 101)

Raise loader to full height and stop engine. Remove drain plug (1) and allow oil to drain, then lower loader to the ground to expel the maximum amount of oil from the system. Refit drain plug.

Change return-line filter (figure 102)

Position a drain tray beneath return-line filter, remove retaining bolt (2) and bowl (3). Clean bowl thoroughly, install new seals and filter element, refit components carefully and tighten retaining bolt to 27 Nm (20 lbf ft).

fig 101



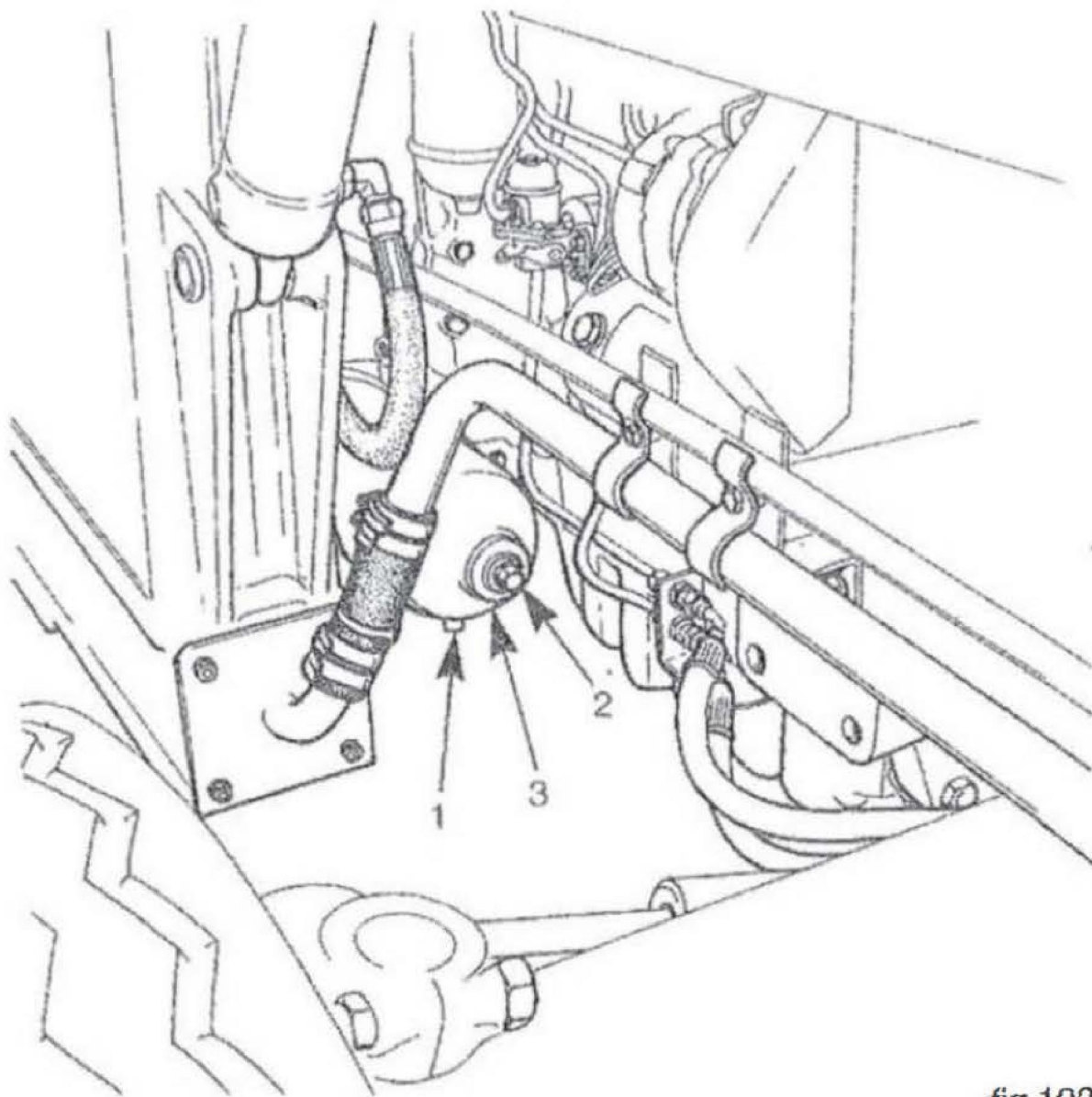


fig 102

Loader

MF 34 Loader

Service period: **500 hours**

Change intake filter (figure 103)

The pump intake filter is mounted in the front of the side frame.

1. Release all four worm drive clips (1) and slide rubber sleeve off intake pipe (2).
2. Remove bolts (3) and withdraw cover plate complete with filter.
3. Unscrew by-pass assembly (4) and remove filter element (5).
4. Reassemble using new filter element and a new gasket between frame and cover plate.
5. Slide rubber hose back onto intake pipe and refit clips, ensuring the tensioning screws are diametrically opposed.
6. Refill reservoir with new oil of the appropriate grade, start engine and check for leaks, **do not operate any controls for 20 seconds.**

Cycle loader up and down a few times to purge air out of the system, then re-check oil level.

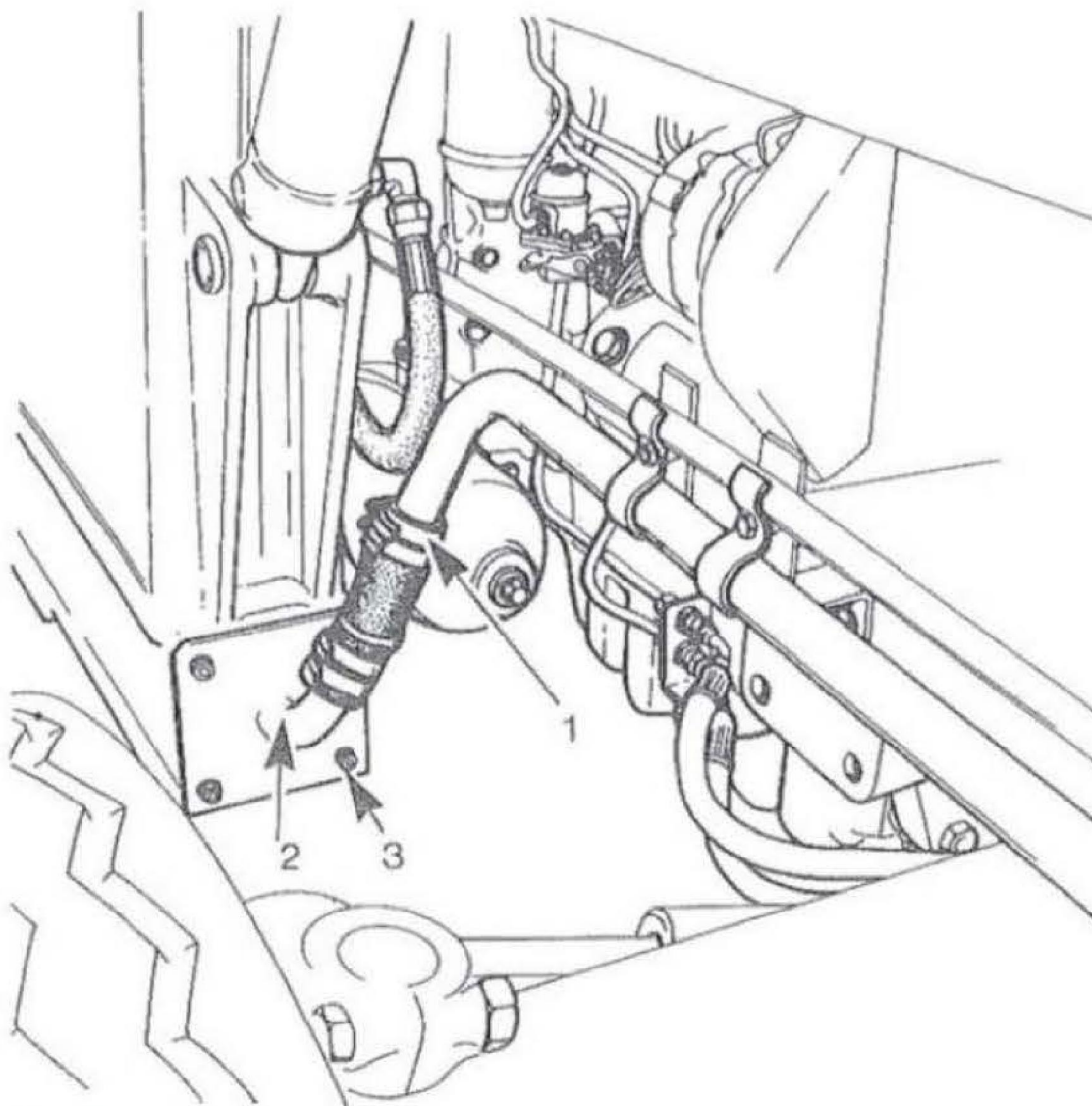
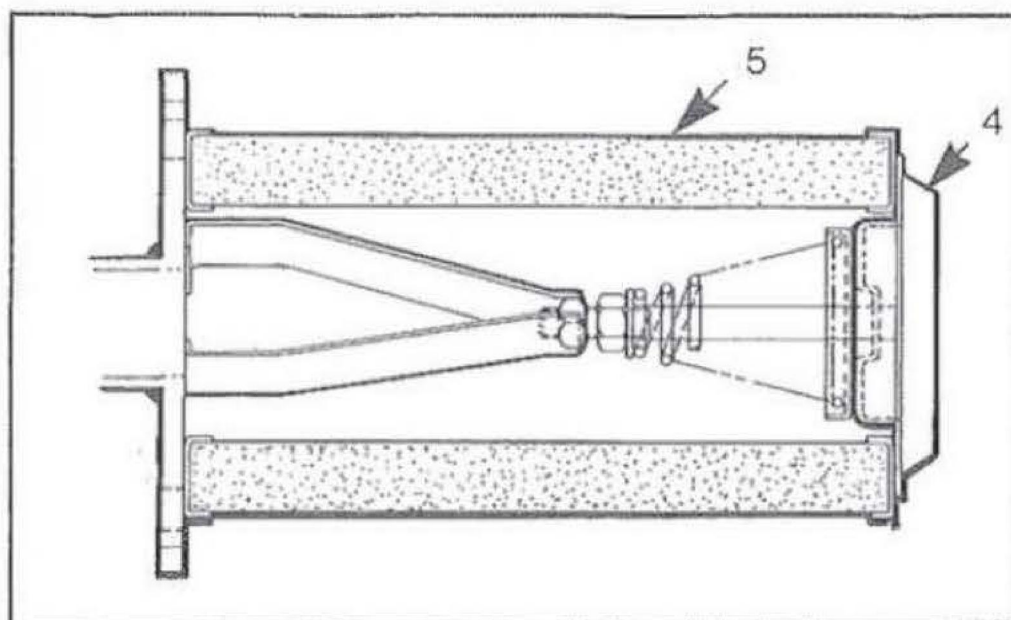


fig 103



Digger

MF 252 side-shift digger

Service period: **10 hours**

Grease digger pivots (figure 104)

14 grease fittings.

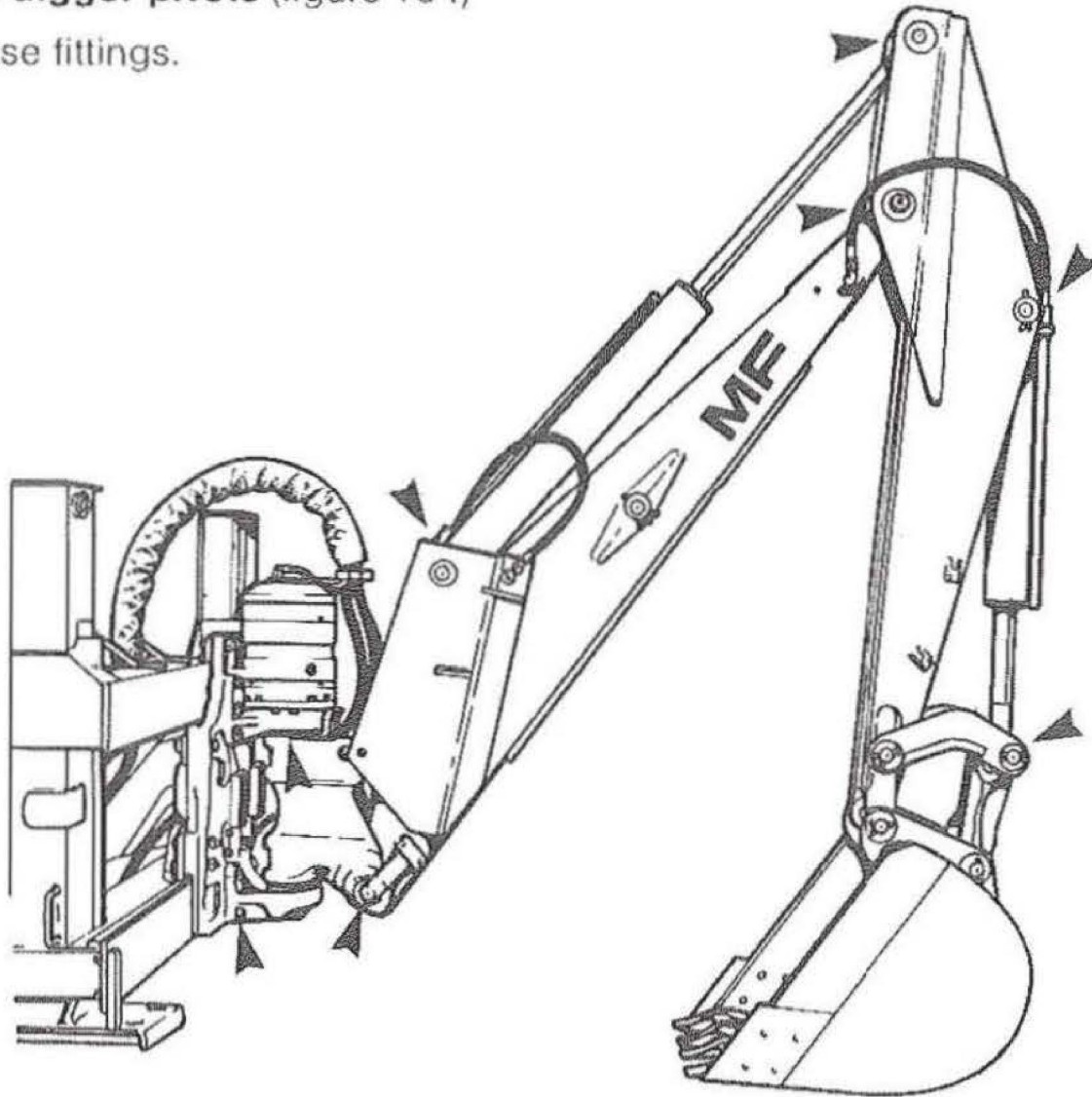
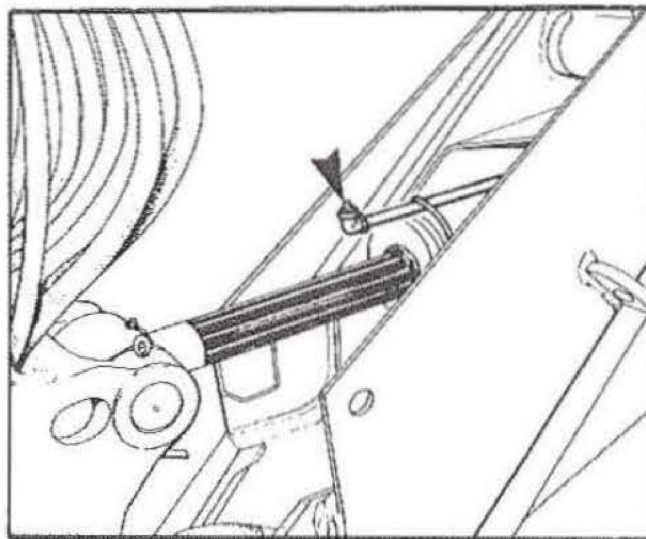


fig 104



Digger

MF 54S Centre-mount digger

Service period: **10 hours**

Grease back-frame pivots (figs 105 and 106)

16 fittings.

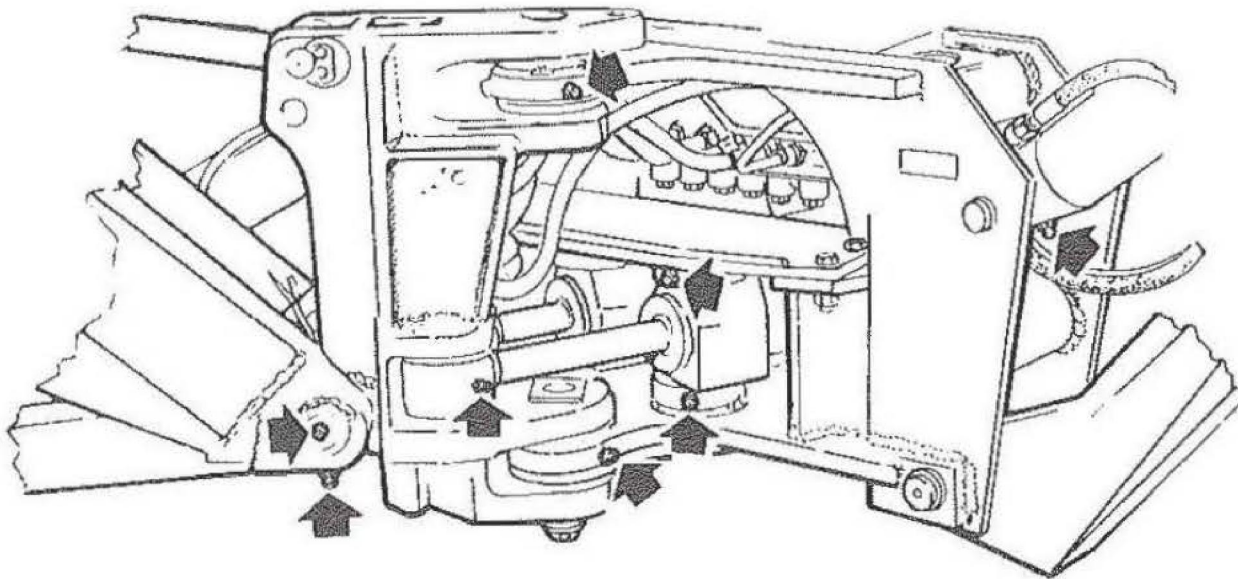


fig 105

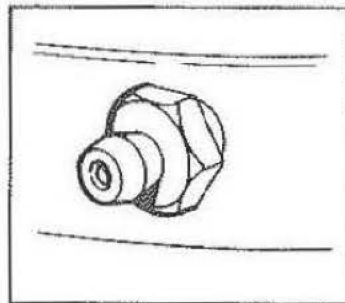
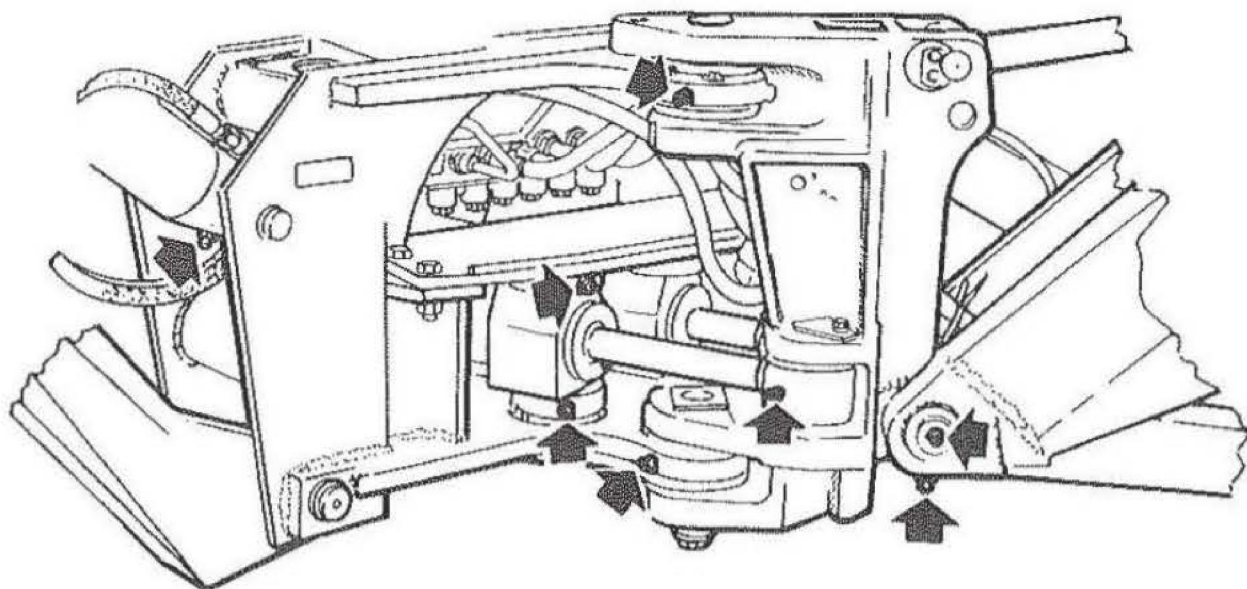


fig 106



Digger

MF 54S Centre-mount digger

Service period: **10 hours**

Grease digging arm pivots (fig 107)

9 fittings.

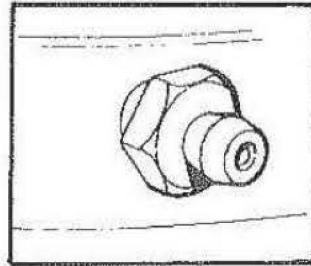
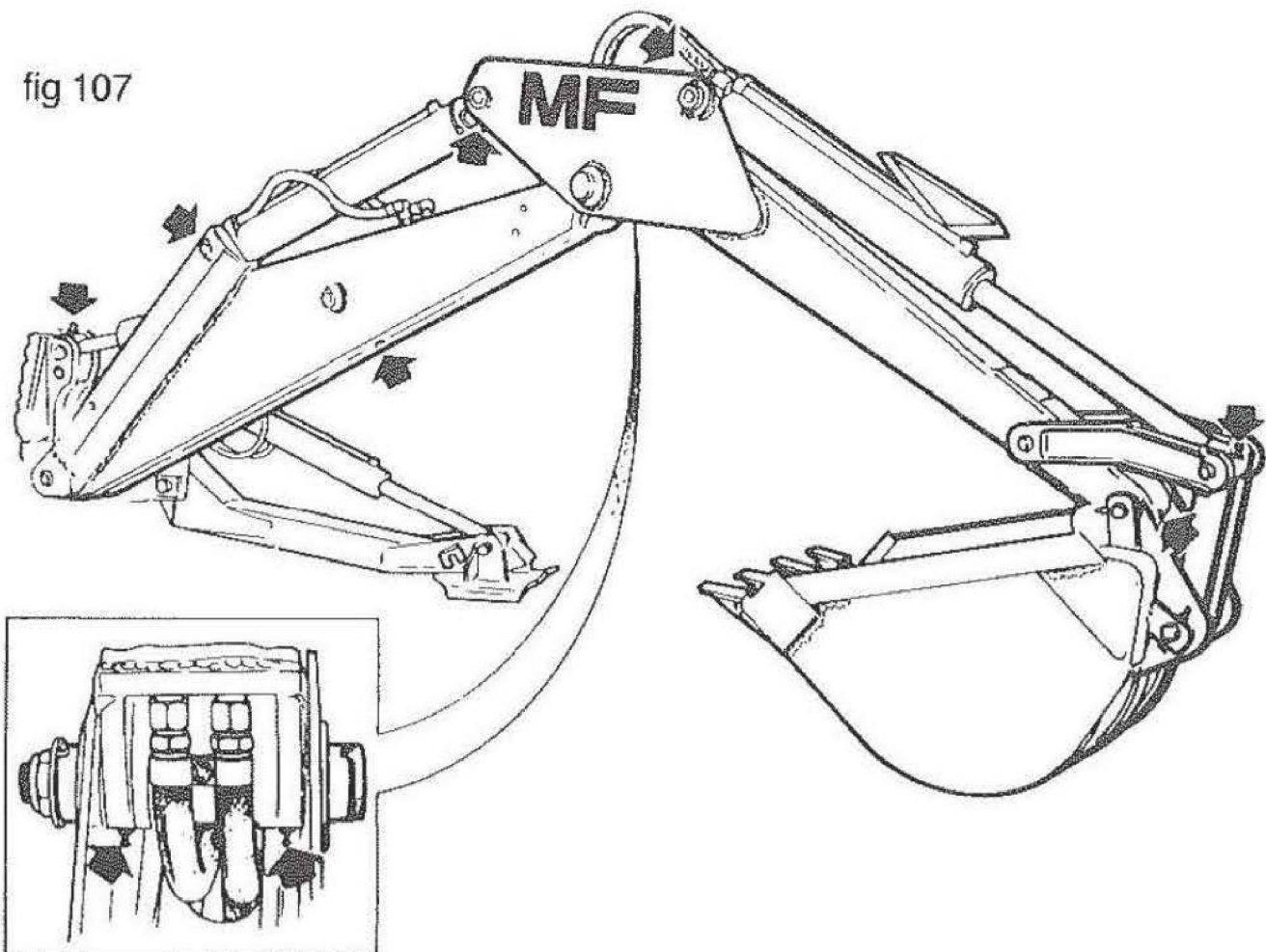


fig 107



Wheels and Tyres

tyre size	ply rating	bar (lbf/in ²)
Front tyres		
9.00 – 16	10	3.86 (56)
11L – 16	8	2.95 (43)
12.5L – 16	6	2.35 (34)
Rear tyres		
16.9 – 28	10	2.0 (29)
16.9 – 24	6	1.3 (19)
16.9 – 28	8	1.65 (24)
17.5L – 24	6	1.25 (18)
19.5L – 24	8	1.38 (20)

Service period: **250 hours**

Check wheel nut tightness

rear wheels	300 Nm (30.6 Kgm 220 lbf ft)
front wheels, 2 wheel drive	275 Nm (28.0 Kgm 200 lbf ft)

If a wheel is removed and replaced for puncture repair or any other reason the wheel nuts must be tightened to the torques given above and checked daily until stabilised.

Warning!

Always use the special washers under the rear wheel nuts. If either the nuts or washers are lost they must only be replaced with genuine Massey Ferguson parts.

Electrical System

Fuses

Fuses are fitted to protect both components and wiring from electrical overload with its attendant fire risk and therefore it is essential to **only use correctly rated fuses** when replacement is necessary.

Repeated failure of fuses indicates an electrical fault which must be traced and corrected before continuing operation.

All fuse values given below are the 'continuous rating', which is half the 'blow rating'.

Fuses – North American machines only

Fuses are located under the dashpanel.

Line fuses

Fuse 1	5 amp	instrument panel lights
Fuse 2	5 amp	warning lights, fuel gauge engine temperature gauge
Fuse 3	17 amp	All road lights, cigar lighter, horn

Fuses – Europe/Export machines only (figure 108)

The fuse box is located on the lower dash panel and the line fuses are accessible under the dash panel.

Line fuses

Fuse 6	5 amp	horn
Fuse 7	12.5 amp	worklight, cigar lighter

Fuse Box

Fuse 1	10 amp	dip beam, headlights
Fuse 2	10 amp	main beam headlights
Fuse 3	5 amp	left hand side/rail lights, instrument illumination
Fuse 4	5 amp	right hand side/tail lights, number plate light
Fuse 5	10 amp	stop lights, turn indicators, instruments.

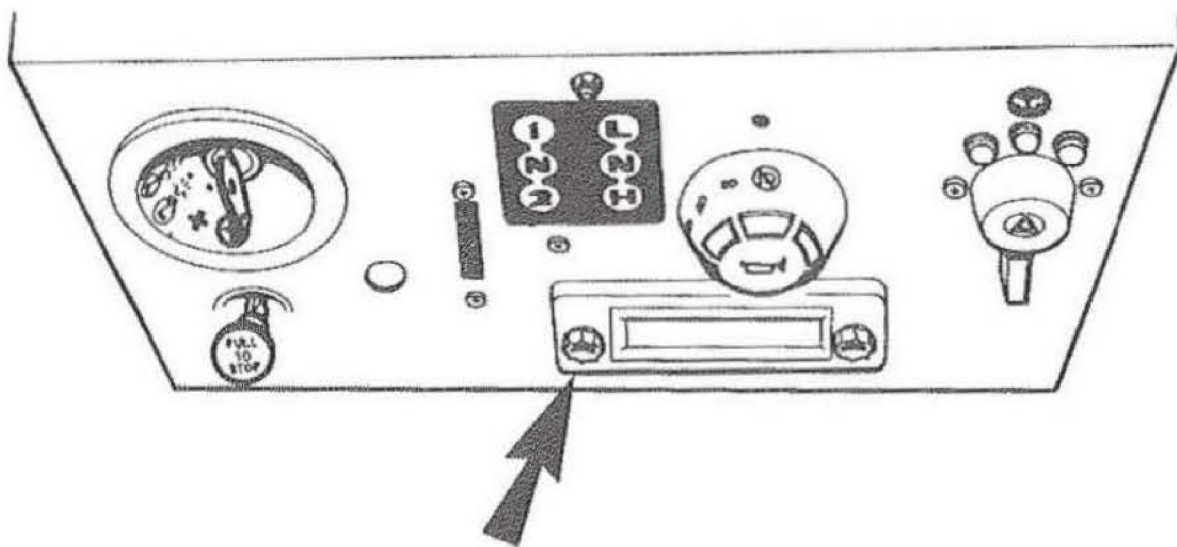


fig 108

Electrical System

Alternator

Alternators require little attention except that the fan belt tension should be correct (see COOLING SYSTEM), and the alternator brushes should be checked annually by your MF dealer.

Alternator protection

The solid state rectifier circuit within the alternator has a number of in-built safety features but the following precautions should be taken to avoid rectifier damage.

Polarity. This tractor has negative (-) earth electrical system. Do not reverse the battery polarity by connecting wrongly.

The polarity of slave batteries must also be correct when "boost" starting the tractor.

Battery connections must never be removed while the engine is running.

Welding. Remove multi-pin connector from rear of alternator if any electric arc welding is to be done on the machine or mounted attachments.

Boost starting

When connecting a slave battery to boost a discharged battery on the tractor ensure that:

- the slave battery is of the same nominal voltage as the tractors' battery.
- the interconnecting cables are of sufficient capacity to carry starting current.
- the cables are connected one at a time and to the slave battery first.
- the cables are connected between the battery terminals in the following order, first (+) positive to (+) positive then (-) negative to negative (-).
- the engine speed is reduced to minimum before disconnecting boost cables.

Electrical System

Battery access (figure 109)

Unlatch radiator grille and lift off to give full access to battery.

Battery – Europe/Export

Service period: **50 hours**

Check/top-up battery electrolyte level

Remove battery caps and check electrolyte level, which should just cover the battery plates. If the level is low add distilled/de-ionised water to the correct level.

Always refit battery caps securely.

NOTE

- In freezing conditions run the engine, or externally charge the battery, immediately after adding distilled water, to mix the electrolyte and prevent ice forming.
- When checking the battery electrolyte level do not use a naked flame.
- Keep the battery top clean and coat terminals with petroleum jelly or other non-acid grease.

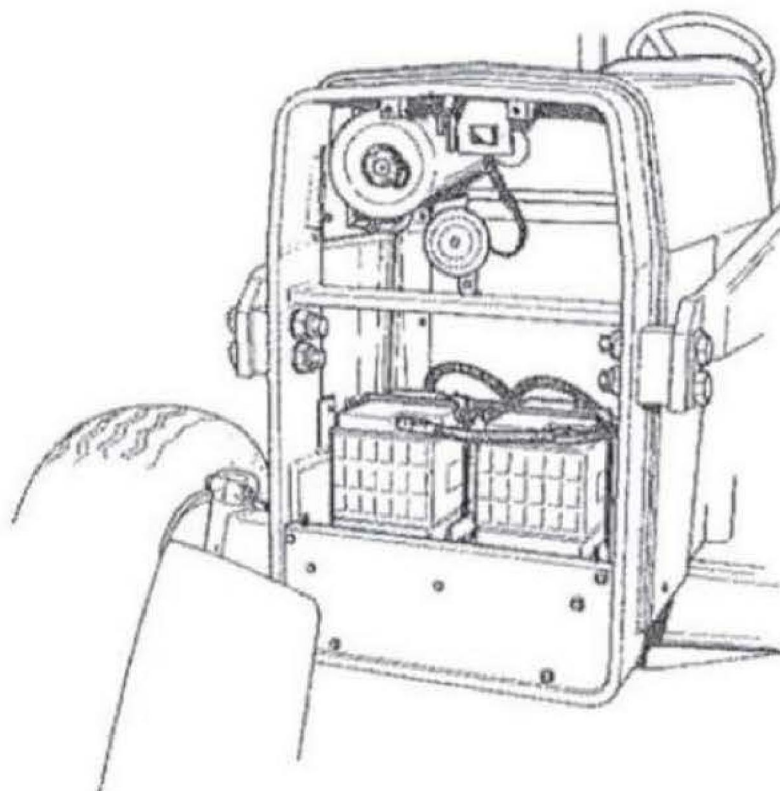


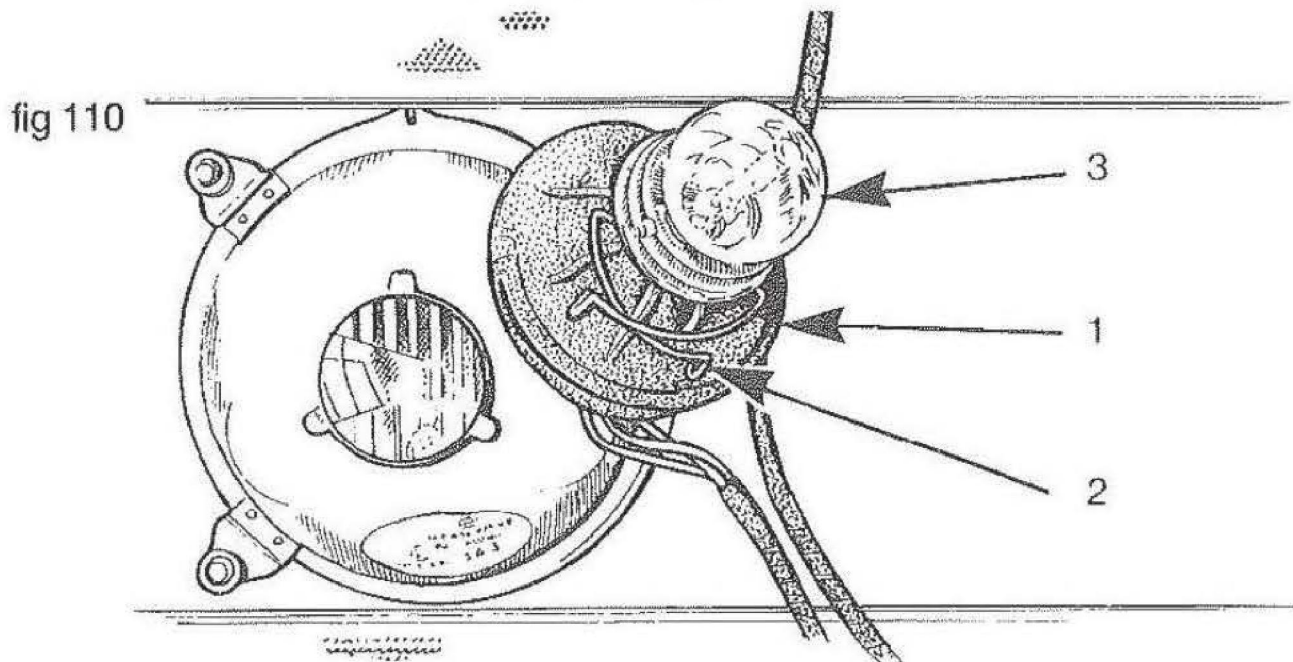
fig 109

Electrical System

Bulb replacement

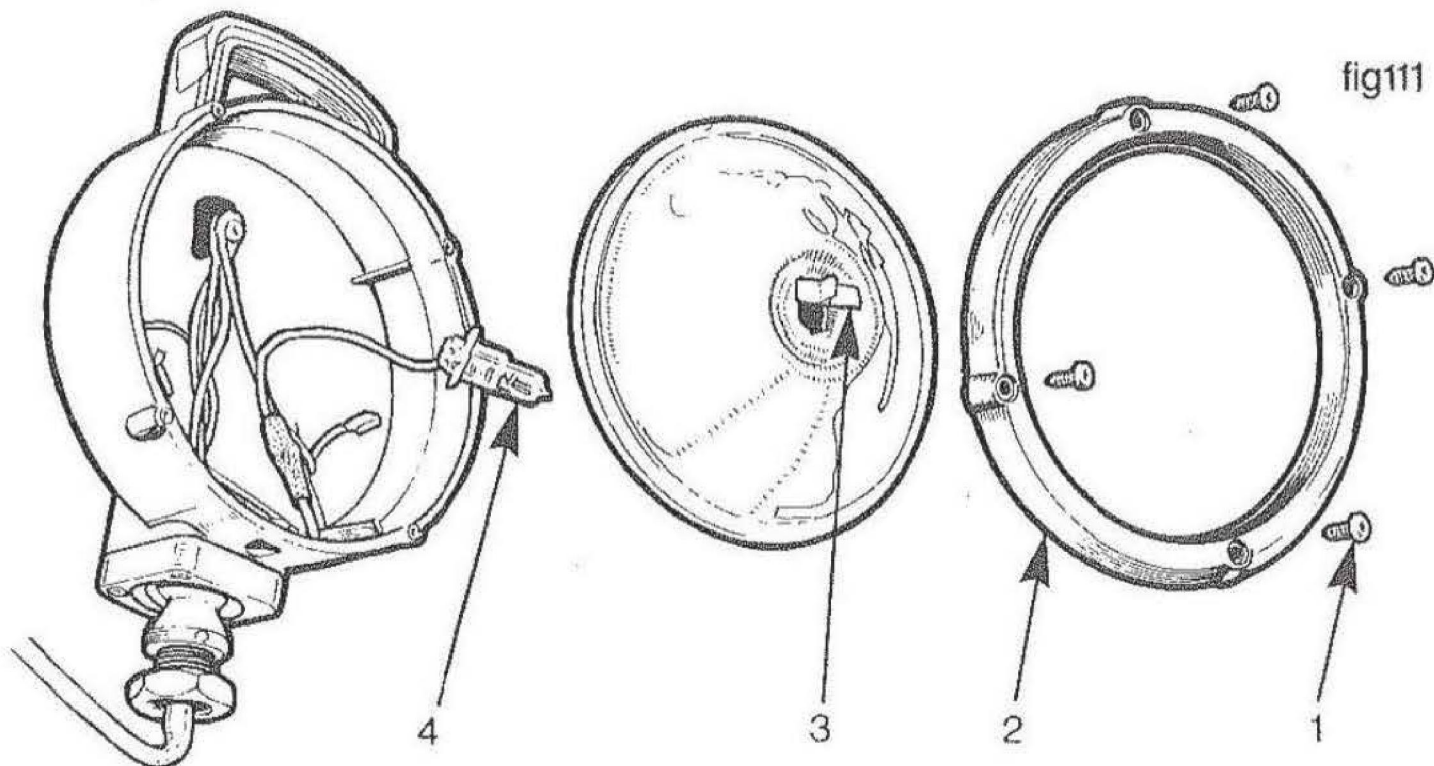
Follow number sequence in each picture.

Headlights (fig 110) Europe/Export only.



Worklights (fig 111)

Front and rear worklights are fitted with quartz halogen bulbs which must never be touched by hand. Always use a clean paper tissue or cloth when installing these bulbs. Fingerprints will blacken the bulb and reduce light output.



Electrical System

Hazard warning/tail lights (fig 112) North America only

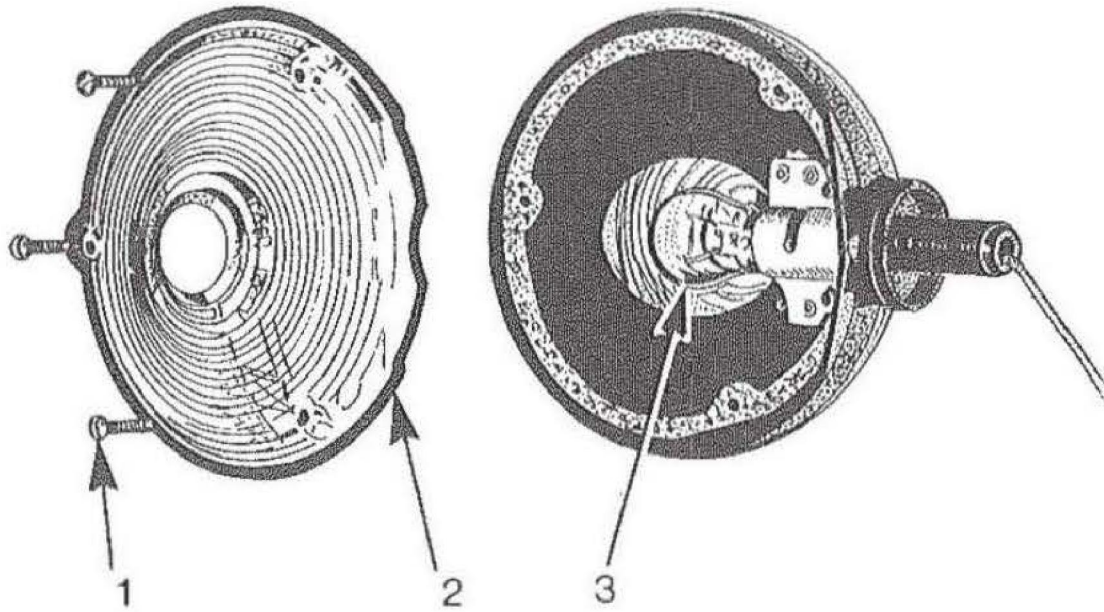


fig112

Hazard warning lights (fig 113)

Fitted only to North American machines equipped with flat topped fenders.

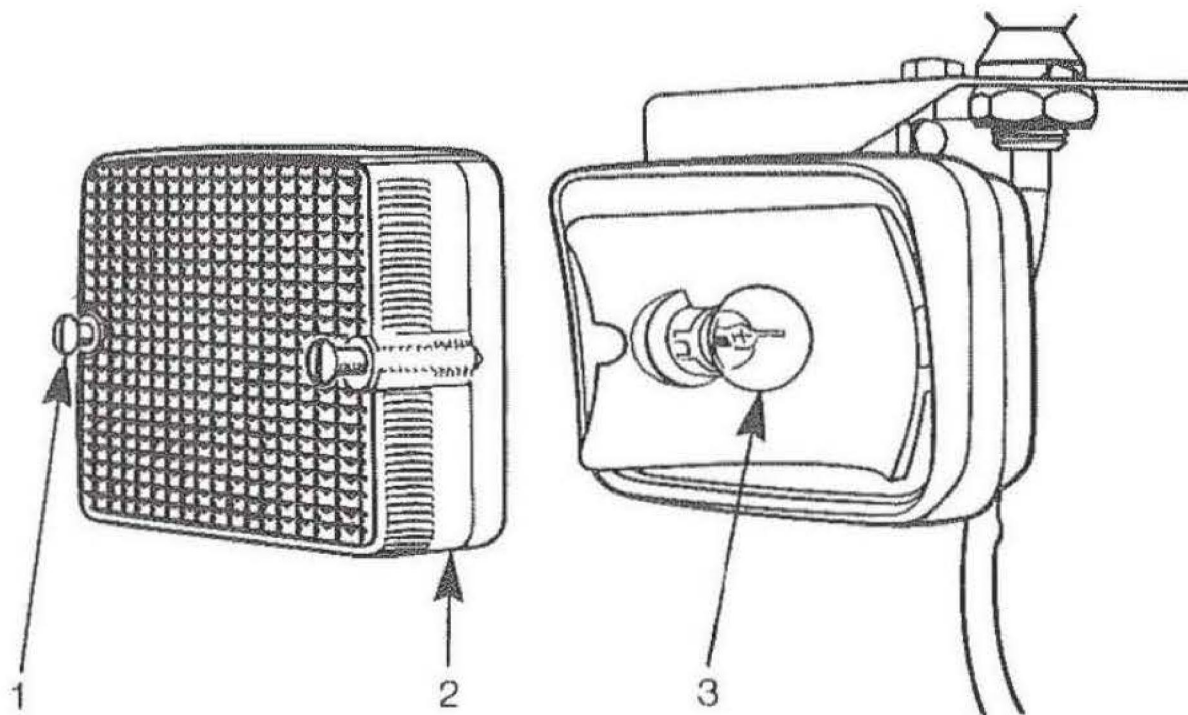


fig113

Electrical System

Side/tail, turn indicator and brake lights – Europe/Export only (fig 114)

When installing brake light bulbs, ensure offset pins of bulb are fitted correctly into socket.

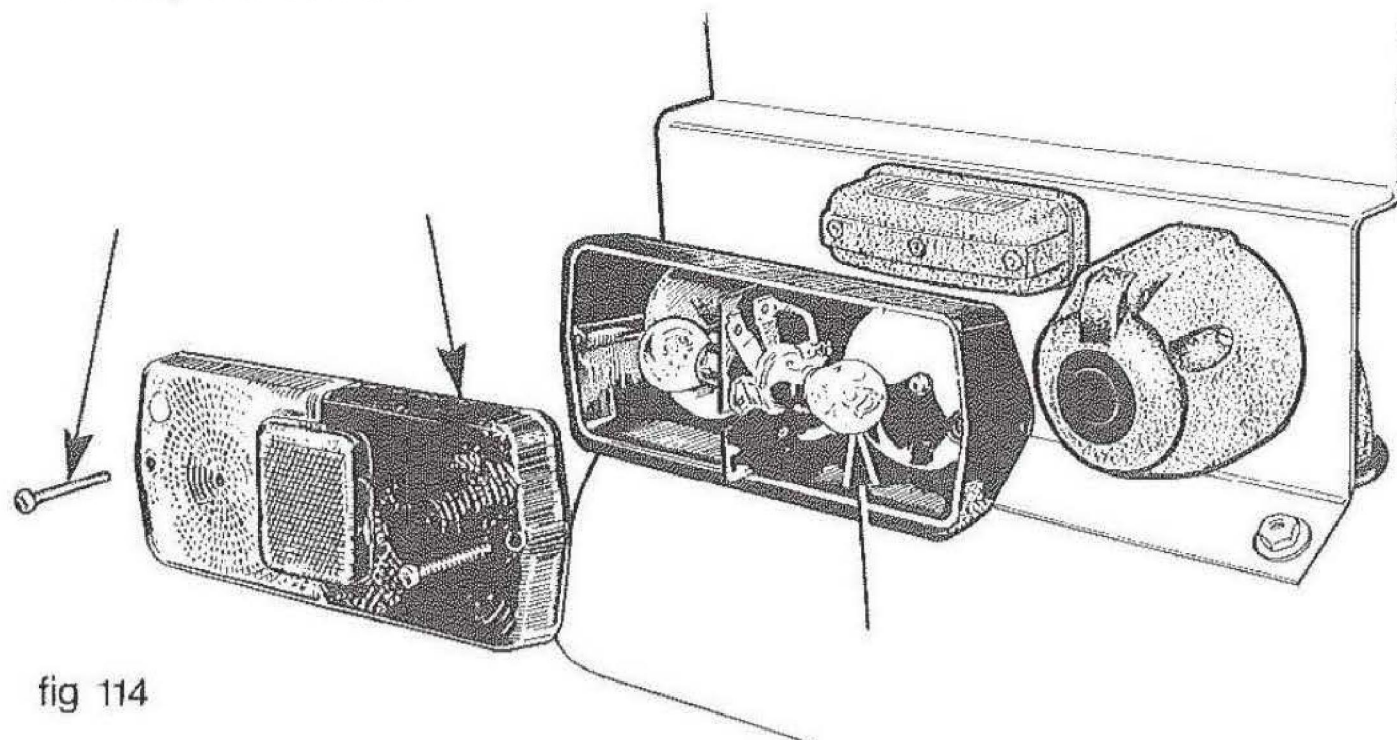


fig 114

Number plate light – Europe/Export only (fig 115)

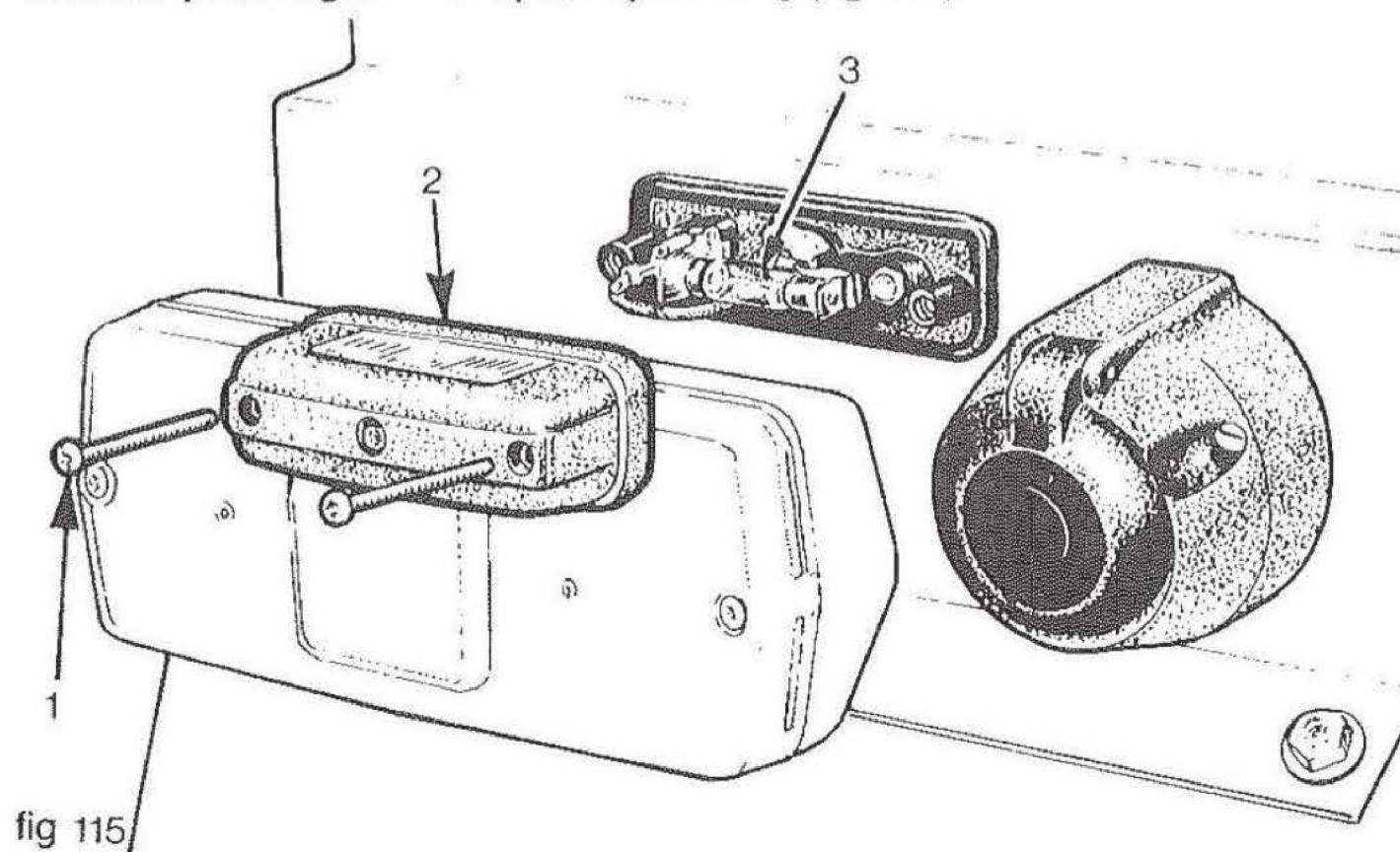


fig 115

Electrical System

Trailer Socket - Europe/Export only (fig 116)

This is a European standard socket which will provide for correct operation of turn indicators, dash panel repeater lights, side lights, brake lights and number plate lights. It is important to ensure the plug is correctly connected to the trailer wiring harness.

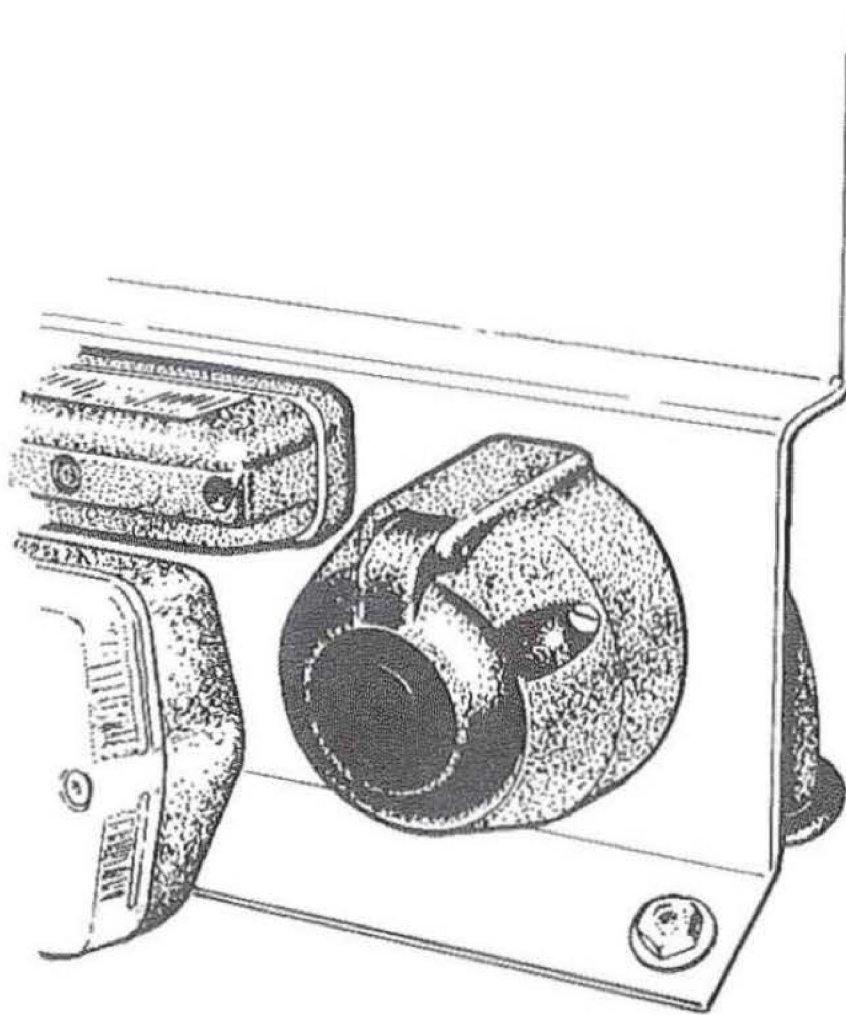


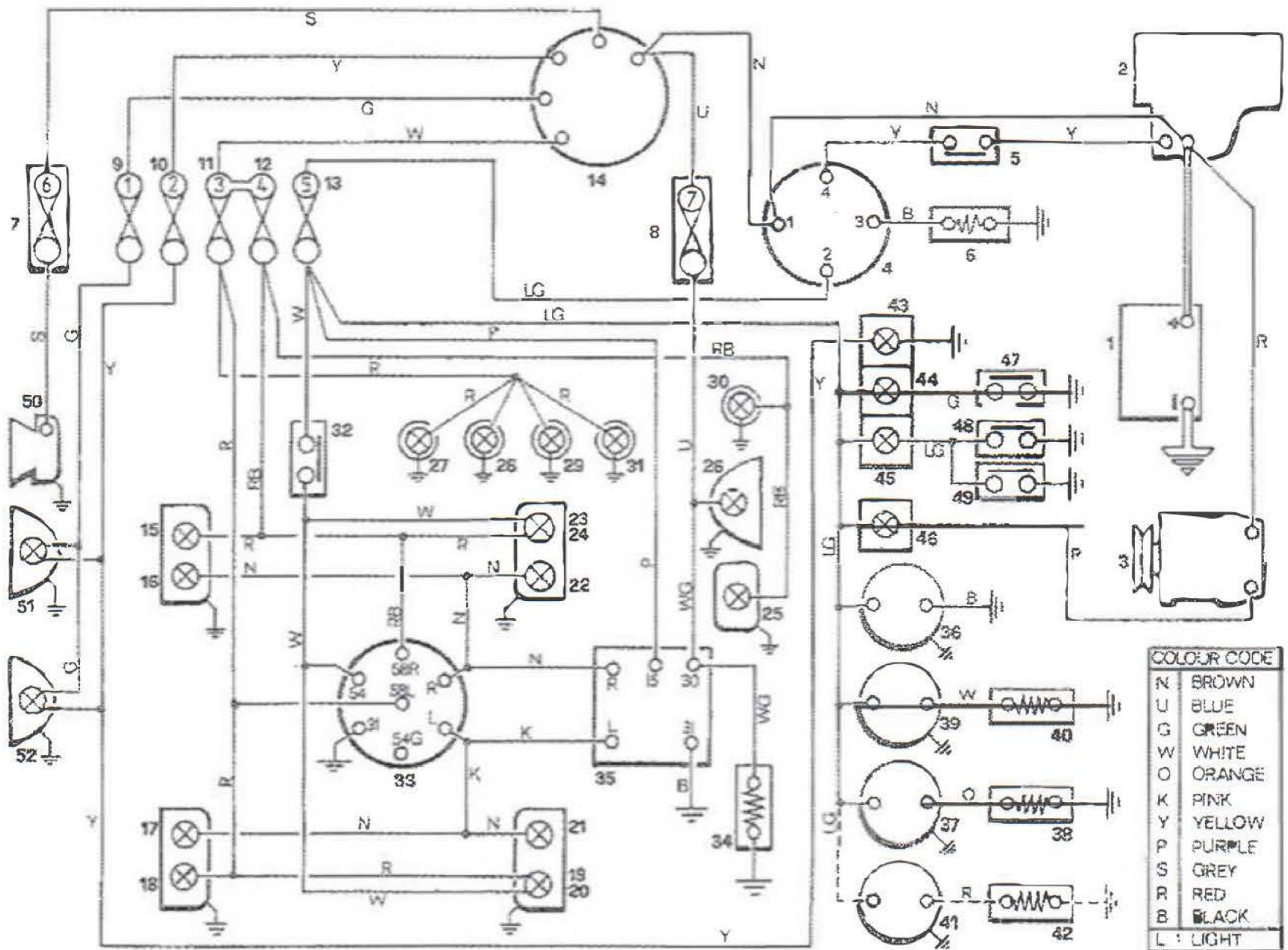
fig116

Electrical System

Key to wiring diagram Europe/Export only (fig 117)

1. battery
2. starter motor
3. alternator
4. starter switch
5. safety switch
6. thermostart
7. line fuse 6 - 5 amp continuous
8. line fuse 7 - 12.5 amp continuous
9. fuse 1 - 10 amp continuous
10. fuse 2 - 10 amp continuous
11. fuse 3 - 5 amp continuous
12. fuse 4 - 5 amp continuous
13. fuse 5 - 10 amp continuous
14. combined light switch and horn button
15. RH front side light
16. RH front turn indicator light
17. LH front turn indicator light
18. LH front side light
19. LH rear red light
20. LH brake light
21. LH rear turn indicator
22. RH rear turn indicator
23. RH brake light
24. RH rear red light
25. number plate light
26. rear worklamp
27. light - engine temperature gauge
28. light - fuel gauge
29. light - tachometer gauge
30. light - transmission temperature gauge
on Instant Reverse models
31. light - speedometer
32. brake light switch
33. trailer socket
34. cigar lighter (optional)
35. turn indicator switch
36. N/A
37. fuel gauge
38. fuel level transmitter
39. engine temperature gauge
40. temperature transmitter

fig 17



Electrical System

- 41. transmission temperature gauge (Instant Reverse models only)
- 42. transmission temperature transmitter
- 43. high beam warning light
- 44. engine oil pressure warning light
- 45. air filter/transmission filter blockage warning light
- 46. alternator charge light
- 47. engine oil pressure switch
- 48. air filter blockage switch
- 49. transmission filter blockage switch
- 50. horn
- 51. RH headlight – combined high/low beam
- 52. LH headlight – combined high/low beam

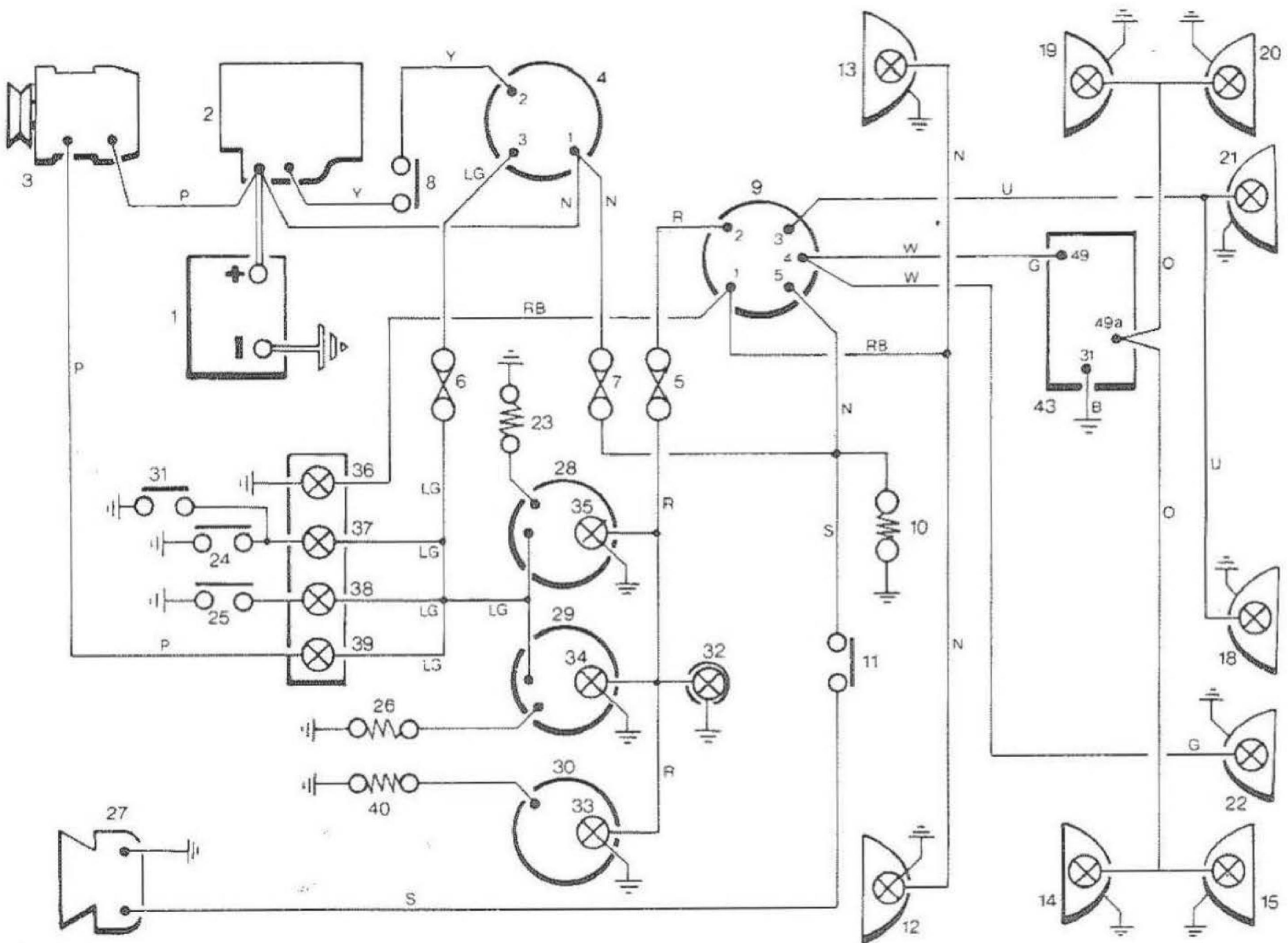
Electrical System

Key to wiring diagrams – North America only (figs 118 and 119)

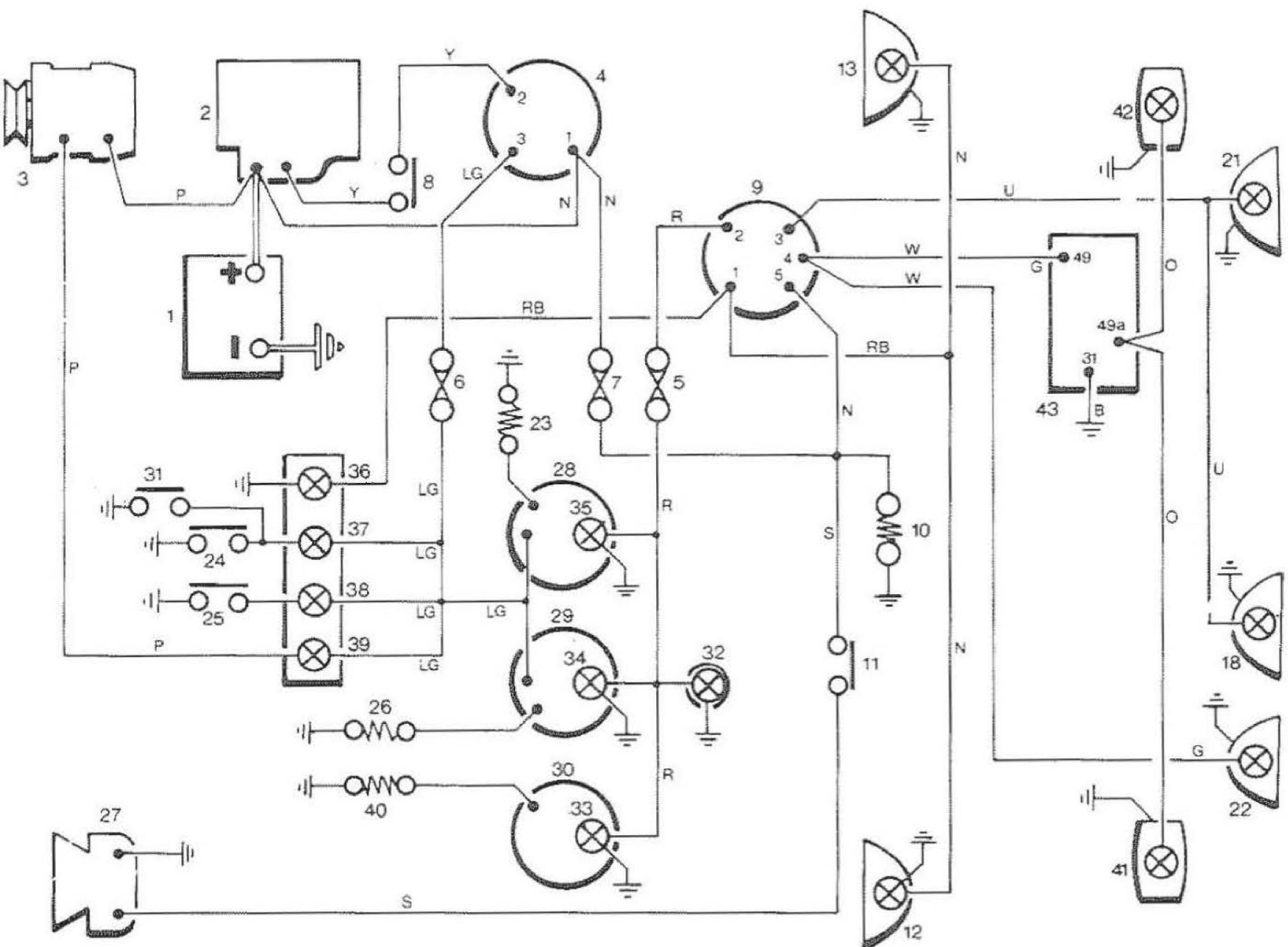
1. battery
2. starter motor
3. alternator
4. starter switch
5. line fuse 1
6. line fuse 2
7. line fuse 3
8. safety switch
9. light switch
10. cigar lighter (optional)
11. horn button
12. LH front floodlight
13. RH front floodlight
14. LH forward flashing light
15. LH rearward flashing light
18. LH rear floodlight
19. RH forward flashing light
20. RH rearward flashing light
21. RH rear floodlight (optional)
22. rear red light
23. transmitter – engine temperature
24. transmitter – air filter restriction
25. transmitter – engine oil pressure
26. transmitter – fuel level
27. horn
28. engine temperature gauge
29. fuel gauge
30. torque converter temperature gauge –
Instant Reverse transmission only
31. tachometer
32. light – tachometer
33. light – torque converter temperature gauge
34. light – fuel gauge
35. light – engine temperature gauge
36. warning light – front floodlights
37. warning light – air filter/transmission filter
38. warning light – engine oil pressure
39. warning light – alternator charge
40. transmitter – torque converter temperature
41. LH hazard warning light – flat top fenders only
42. RH hazard warning light – flat top fenders only

Colour Code	
N	Brown
U	Blue
G	Green
W	White
O	Orange
Y	Yellow
P	Purple
S	Grey
R	Red
B	Black
L	Light color

North America only – shell tenders (fig 118)



North America Only – flat tenders (fig. 119)



Maintenance Summary

Operation	page
	Service period: 10 hours
Check loader hydraulic oil - MF 34	148
Check/top-up engine oil	114
Check pressure line filter - MF 250	138
Fill fuel tank	106
Grease front axle king pins	117
Grease front axle pivot	117
Grease linkage levelling box and lift rod	125
Grease loader pivots - MF 250	136
MF 34	148
Grease digger pivots - MF 252	154
MF 54	155
	Service period: 50 hours
Check/top-up battery electrolyte level	96
Check/top-up engine coolant level	96
Check/top-up power steering oil level	118
Check/top-up transmission oil level	126
Check/top-up loader hydraulic oil - MF 250	139
Check clutch pedal free play	126
Check tyre pressures	157
Check wheel nut tightness	157
Grease front hub bearings	118
Grease Instant Reverse control shaft	126
	Service period: 250 hours
Check/adjust fan belt tension	97
Check/adjust brakes	122
Check all steering system fasteners for tightness and ball joints for wear	118

Recommended Lubricants

Recommended Lubricants

SYSTEM	CAPACITY	TEMP.	ESSO	B.P.	CASTROL	SHELL	TOTAL	MOBIL	DUCKAMS	GULF
ENGINE and filler Full dipstick mark low	9 litres (16 pints)	below 5°C	Essolube HDX 10W; Essolube XD3 10W;	Vanellus M 10W	Deusol CR1 10; Deusol CRB 10W	Rotella SX; Rotella TX 10W	Total HD1 B low	Delrac 1210	Fleetol HDX 10W	Gulf Motor Oil HDX 10W
	7 litres (12.5 pints)	-4° to 27°C	Esso Unifarm; Essolube HDX 20W; Essolube XD3 20W	BP Super TOU; Vanellus M 20W	Agricastrol MP; Deusol CR1 20; Deusol CRB 20W	Shell Imperial; Agroma; Rotella SX; Rotella TX 20W	Total Super TOU; Total HD1 B 20W	Mobiland Super Universal; Delvac 1220	Farm Master; Fleetol HDX 20W	Gulllube XHD 20W 20 Gulf M.P. Tractor Oil 20W 30
		above 18°C	Esso Unifarm; Essolube MDX 30W; Essolube XD3 30W	BP Super TOU Vanellus M 30W	Agricastrol MP; Deusol CRB 30W	Agroma; Rotella SX; Rotella TX 20W	Total Super TOU; Total HD1 B 30W	Mobiland Super Universal; Delvac 1230	Farm Master Fleetol Multi V	Gulf Motor Oil XHD 30 Gulf M.P. Tractor Oil 20W 30
MANUAL TRANSMISSION including: gearbox rear axle wetbrakes INSTANT REVERSE TRANSMISSION including: gearbox rear axle wet brakes	45.5 litres (80 pints)	below 5°C	Esso Torque Fluid 56; Esso Unifarm	BP Tractran 9	Agricastrol MP; Agricastrol MD	Agroma; Shell Donax TD	Tractor Equivis JD	Mobilfluid 423	Farm Master Hydrolube 303	Gulf Universal Tractor Fluid
		-4°C to 27°C	Esso Unifarm	BP TERRAC	Agricastrol MP	Agroma; Universal Farm Oil	Total Super TOU	Mobiland Super Universal	Farm Master	Gulf Multi Purpose Tractor Oil 20W 30
	47 litres (85 pints)	above 18°C	Esso Unifarm; Esso Torque Fluid 62	BP TERRAC BP Hydraulic TF 8	Agricastrol MP;	Agroma; Shell Donax TT	Total Super TOU; Total Equivis MF	Mobiland Super Universal	Farm Master	Gulf Multi Purpose Tractor Oil 20W 30 (20W 40)
POWER STEERING	1.1 litres (2 pints)	all temperatures	Esso A.T.F.; Esso Torque Fluid 47	BP Autran DX; BP Tractor Transmissior Fluid	Agricastrol ATF; Deusol TFA	Shell ATF; Shell Dexron 2; Shell Donax TM	Total A.T.F.	Mobil ATF 200; Mobil 220	Fleetmatic 35	Gulf A.T.F.
FRONT AXLE - 4 WD centre housing epicyclic hubs - each	9 litres (16 pints)	below 30°C	GX80W - 90	Hypogear 80W - 90	Hypoy B 90	Spirax Heavy Duty 80W - 90; Spirax Heavy Duty 90	Total EP 90	Mobilube 80W - 90	Hypoid 90 Fleet oil IS	Gulf Gear Lubricant 90
	1.2 litres (2 pints)	above 30°C	GX 85W - 140	Hypogear 85W - 140	Hypoy B 85W - 140	Spirax Heavy Duty 140	Total EP 90 - 140			Gulf Gear Lubricant 90 - 140
FRONT AXLE 4WD constant velocity steering joint	as required	all temperatures	Beacon O2	Engergrease L 21 M;	Castrol Spheerol LMM	Retinax AM;	Total grease Multis Total grease MS2 Total grease MS	Mobilgrease Super;	Admax LM2	Gulflex molybdenum
GREASE general use	as required	all temperatures	Esso Multipurpose Grease H; Beacon 2	Engergrease LZ; Engergrease Universal	Castrol LM;	Retinax A; Alvania Grease R2	Total grease Multis	Mobilux L2	Admax L2	Gulflex A Gulfcrown Grease 2
BRAKE FLUID	as required	all temperatures	Esso Brake Fluid SAE J1703	Universal Brake & Clutch fluid	Castrol Girling Crimson J 1703	Shell Universal Brake & Clutch Fluid	Total Brake Fluid	Hydraulic Brake Fluid 550	Universal Brake & Clutch Fluid	Super Heavy Duty Brake Fluid HBP
HYDRAULIC SYSTEM loader model Digger loader model	45 litres (80 pints)	below 18°C	Nuto H 32; Esso ATF	Energol HLO 32; Energol GM - MP	Hyspin AWS 32; Deusol TFA; Deusol TFA Dexron	Tellus T37 Tellus 37; Shell ATF Dexron	Azolla 20 Total fluid A Total Dexron	DTE 24; Mobil ATF 200; Mobil ATF 220	Zircon 4; Fleetmatic CD	Harmony 32 AW ATF TASA ATF Dexron
	67 litres (118 pints)	above 18°C	Nuto 68; Esso ATF	Energol HLP 68; Energol GM - MP	Hyspin AWS 68; Deusol TFA; Deusol TFA Dexron	Tellus 68; Shell ATF Dexron	Azolla 40	DTE 26; Mobil ATF 200; Mobil ATF 220	Zircon 6; Fleetmatic	Harmony 68 AW ATF TASA ATF Dexron

(1) Careful note should be taken of the correct grade of oil for the prevailing ambient temperature. If in doubt consult your Massey Ferguson Distributor.

(2) Provided the oil change periods recommended in the Maintenance Section have been followed, discolouration of the engine oil with use, is normal and of no significance.

(3) In addition to the oils listed here, details of alternative products of the above companies are available through your Massey Ferguson Distributor.

Maintenance Summary

Operation	page
Service period: 10 hours	
Check loader hydraulic oil - MF 34	148
Check/top-up engine oil	114
Check pressure line filter - MF 250	138
Fill fuel tank	106
Grease front axle king pins	117
Grease front axle pivot	117
Grease linkage levelling box and lift rod	125
Grease loader pivots - MF 250	136
MF 34	148
Grease digger pivots - MF 252	154
MF 54	155
Service period: 50 hours	
Check/top-up battery electrolyte level	96
Check/top-up engine coolant level	96
Check/top-up power steering oil level	118
Check/top-up transmission oil level	126
Check/top-up loader hydraulic oil - MF 250	139
Check clutch pedal free play	126
Check tyre pressures	157
Check wheel nut tightness	157
Grease front hub bearings	118
Grease Instant Reverse control shaft	126
Service period: 250 hours	
Check/adjust fan belt tension	97
Check/adjust brakes	122
Check all steering system fasteners for tightness and ball joints for wear	118

Maintenance Summary

Operation	page
Check power steering system pipes, hoses and unions for damage or leakage	118
Check front axle cradle bolts for tightness	120
Change engine oil and filter	114
Change Instant Reverse transmission filter	128
Change suction line filter – MF 250	140
Service period: 500 hours	
Change fuel filter	106
Check/adjust front wheel bearings	120
Clean hydraulic reservoir breather filter	142
Change hydraulic oil and filters – MF 34	150
Service period: 1000 hours	
Service fuel injectors	108
Reset valve tip clearances	114
Change transmission oil, clean filter	130
Change power steering oil and filter	120
Change brake fluid	123
Change hydraulic oil MF 250	142
Service period: As Required	
Check antifreeze solution	98
Check radiator matrix for external obstruction	98
Check intake hoses for security	105
Clean air filter	100
Drain water from fuel filter bowl	108
Drain and flush fuel tank	108
Clean spark arrest muffler	116
Change pressure line filter MF 250 loader	144

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