3040 and 3140 Tractors

TECHNICAL MANUAL
3040 and 3140 Tractors
TM4379 MAY86 (ENGLISCH)

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John Deere Werke Mannheim
European Version
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3040 and 3140 Tractors
Technical Manual
TM-4379

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Group 00
Specifications and Special Tools

Specifications

Serial Numbers

The engine serial number is stamped into the plate located on the lower front right-hand side of the cylinder block.

NOTE: When ordering engine parts, quote all digits of serial number stamped on the plate.

The plate showing the tractor serial number is located on the right-hand side of the front axle carrier.

NOTE: When ordering tractor spare parts (excluding engine parts), quote all digits and letters of serial number stamped on the plate.

A plate showing the tractor type, transmission serial number, cone point measurement etched into pinion face of differential drive shaft as well as reduction of differential is located on the right-hand side of the transmission case.

Model Numbers

The fuel injection pump, fuel injection nozzles, alternator, starting motor, hydrostatic steering valve, compressor of air conditioning system (when equipped) and hydraulic pump have model numbers to facilitate identification of different makes of a given unit.

Engine

Number of cylinders 6

Cylinder liner bore . . . . . 106.5 mm (4.19 in.)

Stroke . . . . . 110 mm (4.33 in.)

Displacement . . . . . 5883 cm^3 (359 cu.in.)

Compression ratio

3040 up to engine no. 571 869 CD and 3140 up to engine no. 547 456 CD	16.8 : 1
3040 from engine no. 571 870 CD and 3140 from engine no. 547 457 CD	17.8 : 1

Maximum torque

3040 up to engine no. 529 025 CD at 1300 rpm	295 Nm	218 ft-lb
3040 from engine no. 529 026 CD at 1400 rpm	305 Nm	225 ft-lb
3140 up to engine no. 528 522 CD at 1400 rpm	320 Nm	236 ft-lb
3140 from engine no. 528 523 CD at 1400 rpm	330 Nm	243 ft-lb

Firing order . . . . . 1 - 5 - 3 - 6 - 2 - 4

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Hydrostatic Front Wheel Drive

Type . . . . . Hydraulic motor with planetary gear reduction in each wheel, constant torque and variable speed

Control . . . . . Electrical/electronic system

Hydrostatic Steering . . . . . Without mechanical linkage between steering valve and the front wheels

Foot Brakes . . . . . Self-adjusting, hydraulically operated "wet" disk brakes

Handbrake . . . . . Mechanically operated band-type locking brake acting on the differential

Hydraulic System

Type . . . . . Closed center, constant pressure system

Standby pressure	19000 kPa	190 bar	2760 psi
Operating pressure	17000 kPa	170 bar	2470 psi

Hydraulic pump . . . . . 8-piston pump with variable displacement

Capacities

Fuel tank (tractors without increased lifting capacity)		
Plastic tank	126 liters	33.3 U.S.gals.
Metal tank	106 liters	28.0 U.S.gals.
Fuel tank (tractors with increased lifting capacity)		
Main tank	134 liters	35.4 U.S.gal.
Auxiliary tank	52 liters	13.7 U.S.gal.
Cooling system		
Without operator's cab	17 liters	4.5 U.S.gals.
With operator's cab	19 liters	5.0 U.S.gals.
Engine crankcase		
Without filter change	11 liters	2.9 U.S.gals.
With filter change	11.5 liters	3.0 U.S.gals.
Transmission - Hydraulic system (including oil reservoir and oil cooler)		
Initial filling, tractors		
without increased lifting capacity	68 liters	18 U.S.gal.
with increased lifting capacity	55 liters	14.5 U.S.gal.
Oil change, tractors		
without increased lifting capacity	60 liters	15.9 U.S.gal.
with increased lifting capacity	47 liters	12.4 U.S.gal.

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SERVICE INTERVALS

- Checking crankcase oil level . . . . . every 10 hours
- Changing engine oil . . . . . every 200 hours
- Changing engine oil filter . . . . . every 200 hours
- Checking transmission/hydraulic system oil level . . . . . every 50 hours
- Changing transmission/hydraulic system oil filter . . . . . every 500 hours
- Changing transmission/hydraulic oil . . . . . every 1000 hours
- Changing hydrostatic steering filter . . . . . every 1000 hours
- Cleaning hydraulic pump strainer . . . . . every 1000 hours
- Checking MFWD oil level . . . . . every 100 hours
- MFWD oil change . . . . . every 1000 hours
- HFWD oil change . . . . . every 1000 hours
- Cleaning and packing front wheel bearings . . . . . every 1000 hours
- Lubricating grease fittings
  - Clutch throw-out bearing grease fitting (when equipped) . . . . . every 100 hours
  - Mechanical front wheel drive universal-jointed shaft . . . . . every 50 hours
    - in wet and muddy conditions . . . . . every 10 hours
  - Front axle and front axle bearing . . . . . every 50 hours
    - in wet and muddy conditions . . . . . every 10 hours
  - Rear axle bearings . . . . . every 500 hours
    - in wet and muddy conditions . . . . . every 10 hours
  - Three-point hitch . . . . . every 200 hours
  - Front hitch . . . . . every 200 hours
  - Front PTO drive shaft . . . . . every 200 hours

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Standard Torques

Recommended torques in Nm and ft-lb for UNC and UNF cap screws				
Head marking (Identifying strength)	  or 10.9*		  or 12.9**	
Thread-O.D. (in.)	Nm	ft-lb	Nm	ft-lb
1/4	15	10	20	15
5/16	30	20	40	30
3/8	50	35	70	50
7/16	80	55	110	80
1/2	120	85	170	120
9/16	180	130	240	175
5/8	230	170	320	240
3/4	400	300	580	425
7/8	600	445	930	685
1	910	670	1400	1030
1-1/8	1240	910	1980	1460
1-1/4	1700	1250	2800	2060

NOTE: A variation of ± 10 % is permissible for all torques indicated in this chart.

Torque figures indicated above and in the Specification sections of this manual are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual.

* Tempered steel high strength bolts and cap screws
** Tempered steel extra high strength bolts and cap screws

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Group 05
Predelivery, Delivery and After-Sales Inspections

The John Deere Delivery Receipt, when properly filled out and signed by the dealer and customer, verifies that the predelivery and delivery services were satisfactorily performed. When delivering this machine, give the customer his copy of the delivery receipt and the operator's manual. Explain their purpose to him.

To promote complete customer satisfaction, a predelivery inspection including mending of possible shipping damage and giving the finishing touches to the tractor, is of prime importance to the dealer.

After the first 100 operating hours an inspection should be performed by the dealer to make sure that the tractor is in proper operating condition.

The predelivery and after-sale inspection check lists in the operator's manual will be completed by the dealer when the inspections are being performed. He will then forward them to the sales branch service department.

Tractor Storage

When storing a new tractor, proceed as follows:

Short-Term (Under 30 Days)

1. Fill fuel tank. This prevents condensation of moisture in tank.
2. Check engine oil level, transmission-hydraulic oil level, and coolant level. Add oil or coolant if necessary. During cold weather, be sure coolant contains sufficient anti-freeze.
3. Check electrolyte level in batteries. If electrolyte does not cover plates, add distilled water. Make sure batteries are fully charged.
4. Store tractor in a dry, protected place. If necessary to store tractor outside, cover it with a protective material. Protect tires from heat, sunlight, and petroleum products.

Long Term (Over 30 Days)

To protect engine, fuel system, transmission and hydraulic system, use the AR 41785 rust inhibitor. The above part no. includes one can of rust inhibitor, masking tape and protective caps to cover all engine openings.

Protect as follows:

1. Add 355 c.c. (12 oz.) of rust inhibitor to the engine oil.
2. Add 195 cm^3 (6.5 oz.) of rust inhibitor to the oil in the transmission/hydraulic system on tractors with increased lifting capacity and 265 cm^3 (9 oz.) on tractors without increased lifting cpacity.
3. Drain fuel tank, pour 235 cm^3 (8 oz.) on tractors without auxiliary tank, 365 cm^3 (12.5 oz.) of rust inhibitor on tractors with auxiliary tank into the empty tank and add approx. 10 liters (2.6 U.S. gals.) of fuel. Start engine and operate it at fast idle for 15 to 20 minutes to distribute the mixture through the whole fuel system. While the engine is running, operate the complete hydraulic system several times. Shut off engine in time to leave some fuel in the tank. Then allow the engine to cool down for 15 to 20 minutes.

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LACK OF ENGINE POWER

Air cleaner restricted or dirty

Excessive resistance in air intake system

Fuel filter restricted

Defective fuel transfer pump

Defective fuel injection pump

Defective fuel injection nozzles

Improper crankcase oil

Engine overheated

Engine clutch slipping

Defective cylinder head gasket

Lobes of camshaft worn

Improper valve clearance

Improper valve timing*

Burnt, damaged or stuck valves*

Weak valve springs*

Fuel injection pump incorrectly timed

Piston rings and cylinder liners excessively worn*

Engine compression too low*

Improper coolant temperature

ENGINE OVERHEATS

Lack of coolant in cooling system

Radiator core and/or side screens dirty

Loose or defective fan belt

Defective thermostat(s)

Cooling system limed up

Engine overloaded

Fuel injection pump delivers too much fuel

Damaged cylinder head gasket

Fuel injection pump incorrectly timed

Defective water pump

Too low crankcase oil level

Defective radiator cap

HIGH OIL CONSUMPTION

Oil control rings worn or broken

Scored cylinder liners or pistons

Excessive resistance in air intake system

Oil flow through oil passages restricted

Worn valve guides or stems

Too low viscosity crankcase oil

Excessive oil pressure

Piston ring grooves excessively worn

Piston rings sticking in ring grooves

Insufficient piston ring tension

Piston ring gaps not staggered

Excessive main or connecting rod bearing clearance

Crankcase oil level too high

External oil leaks

Front and/or rear crankshaft oil seal faulty

Glazed cylinder liners (insufficient load during engine break-in)

* *Measure blow-by at crankcase vent tube or carry out cylinder compression test. See section 10, group 15.*

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Group 30

Engine Lubrication System

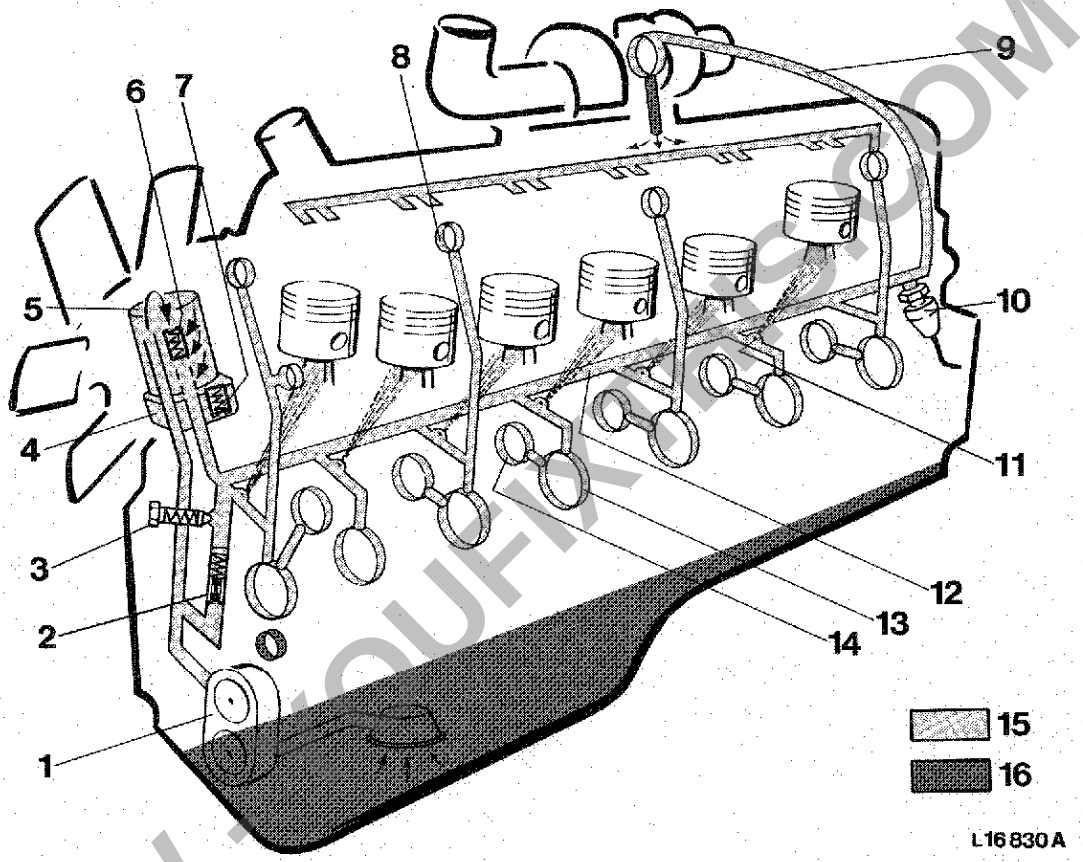


Fig. 1 – Engine Lubrication System (Tractor 3140 with Turbocharger Shown)

1 Oil pump
2 Oil by-pass valve
3 Oil pressure regulating valve
4 Oil cooler
5 Oil filter
6 Oil filter relief valve
7 Oil cooler by-pass valve
8 Camshaft bearings
9 Lubricating line to turbocharger
10 Oil pressure warning switch
11 Spray jet (6 used)
12 Main oil gallery
13 Main bearings
14 Connecting rod bearings
15 Engine lubricating oil
16 Pressure-free oil

General Information

LUBRICATION SYSTEM

The engine has a pressure lubrication system. In the main it consists of the gear pump 1 (fig. 1), filter strainer in the suction pipe, full flow oil filter 5, oil cooler 4, adjustable oil pressure regulating valve 3, oil by-pass valve 2* and an electrical pressure warning switch 10 in the flywheel housing.

The pump draws lubricating oil from the crankcase through a strainer and suction line and pumps it through an oil line via oil cooler 4 to the oil filter 5 and to the main oil gallery 12 of the cylinder block.

From here oil is forwarded under pressure to the main bearings 13 and spray jets 11 to cool the pistons. Drilled cross passages in the crankshaft distribute oil from the main bearings to connecting rod bearings 14.

In the oil grooves of main bearings 1, 3, 5 and 7 are also bores to lubricate the four camshaft bearings 8.

An oil passage in cylinder block supplies oil to lubricate the upper idler gear, the lower idler gear being lubricated by splash oil.

A drilled passage from the rear camshaft bearing through the cylinder block and cylinder head supplies lubricating oil to the rocker arm shaft.

* From engine serial no. 465 213 CD

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Cables and Wires No.	mm²	Color	from Component	No.	Terminal No.	to Component	No.	Terminal No.
74	1	black/green	Hazard warning light switch	26	R	Switch for turn-signal lights and horn	19	R
75	1	black/white/ green	Hazard warning light switch	26	49a	Switch for turn-signal lights and horn	19	+
76	1	black/green	Switch for turn-signal lights and horn	19	R	7-terminal socket	45	R
77	1	black/white	Toggle switch for full-beam and dimmed head-lights	30	2	Main switch	24	56
78*	1	brown	Socket for handlamp	29		Relay for handbrake control light	28	85
79	1	black/white	Switch for turn-signal lights and horn	19	L	7-terminal socket	45	L
80	1	black/white	Switch for turn-signal lights and horn	19	L	Hazard warning light switch	26	L
81*	1	red	Acoustical handbrake warning signal	32	2	Relay for handbrake control light	28	87a
82*	1	black	Acoustical handbrake warning signal	32	3+	Fuse box (fuse 6)	18	15
83*	1	red	Relay for handbrake control light	28	87a	Plug (handbrake control light)	27	6
84*	1	black/red	Relay for handbrake control light	28	30/51	Plug (handbrake control light)	27	2
85*	1	black/yellow/ red	Relay for handbrake control light	28	30/51	Sending unit for hand-brake control light	37	
86	1	green/white	Time delay switch for transmission oil pressure	33	L	Plug (transmission oil pressure warning switch)	27	12
87	1	grey/black	Plug (PTO control light)	27	10	Sending unit for PTO control light (1000 rpm)	36	
88	1	grey/green	Plug (PTO control light)	27	11	Sending unit for PTO control light (540 rpm)	35	
89	1	black/red	Stop light switch	39		7-terminal socket	45	54
90	2.5	green/white	Time delay switch for transmission oil pres-sure	33	S	Transmission oil pres-sure warning switch	42	
91**	1	black	Starting motor	11	50	Solenoid for pump shut-off	Ground	
92	1	brown	Sending unit for PTO control lights	36, 35				
93	1	grey	Connector	34	8	Turn-signal and clearance lights l.h.	38	
94	1	black/red	Connector	34	9	Stop light, l.h.	43	

* When equipped
** On tractors with HFWD only

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Group 15
Controls and Instruments

Dash Panel

The majority of controls and instruments are arranged in the dash panel (see figs. 1, 2, 3, 4 and 5).

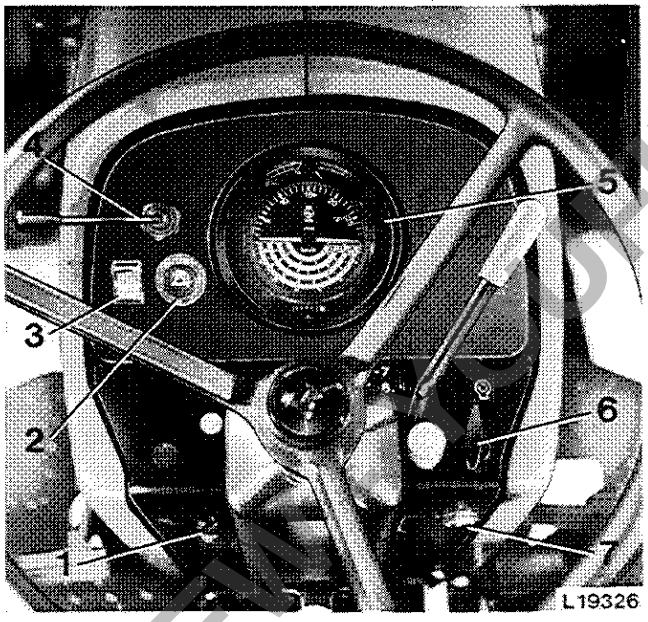


Fig. 1 – Dash Panel, Controls and Instruments ("Bilux" System, Tractors without Cab)

1 Socket for handlamp
2 Hazard warning light switch
3 Toggle switch for full beam and dimmed headlights
4 Switch for turn-signal indicator lights and horn
5 Instrument cluster
6 Start switch
7 Main switch

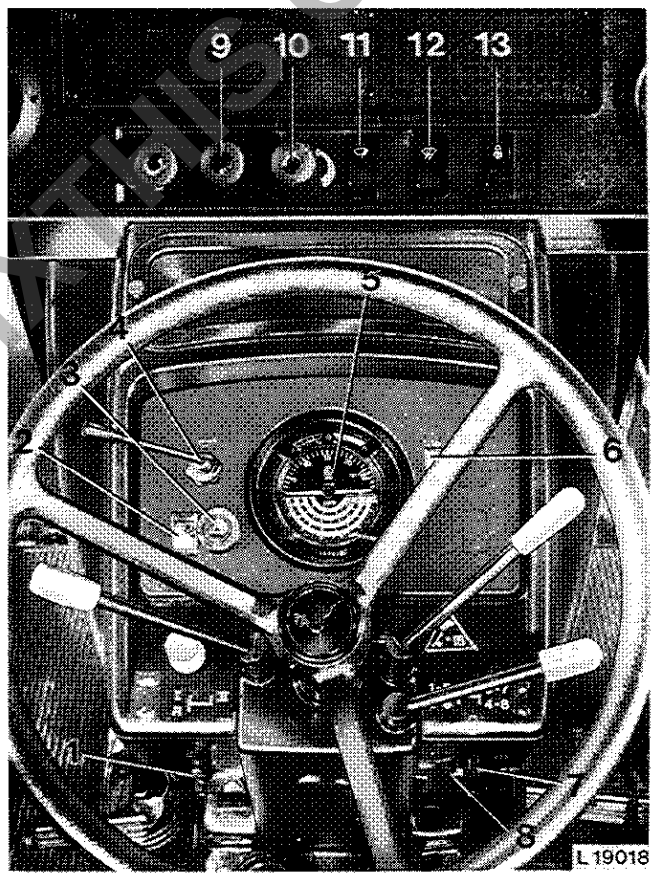


Fig. 2 – Dash Panel, Controls and Instruments ("Bilux" System with OPU)

1 Socket for handlamp
2 Toggle switch for full beam and dimmed headlights
3 Hazard warning light switch
4 Switch for turn-signal lights and horn
5 Instrument cluster
6 Toggle switch for front wheel drive (when equipped)
7 Start switch
8 Main switch
9 Switch for cab blower and heater fan
10 Air conditioning switch
11 Switch for windshield wiper
12 Switch for windshield washer
13 Switch for worklight

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Description

Engine power is transmitted to the rear wheels (front and rear wheels on tractors equipped with front wheel drive). Individual components of power train carry out the following functions:

Engine — Producing engine power

Engine Clutch — Connecting and disconnecting power flow

Hi-Lo Shift Unit — Reduction unit under load

Creeper Transmission — Synchronized reduction unit

Transmission — Selecting speed ratios and changing direction

Front Wheel Drive — Additional front wheel drive

PTO — Mechanical power to attached implements

Differential — To equalize power when turning

Final Drive Assemblies — Final reduction in speed

Operation

Engine and Engine Clutch

Power produced by the engine in form of rotary movement of crankshaft 4 (fig. 2) is transferred to the clutch by means of flywheel 3.

The engine clutch connects and disconnects power flow between engine and transmission. By this means it is possible to shift individual gears or to operate the tractor stationary. In principle the engine clutch consists of two disks, each connected to a shaft. The first disk, flywheel 3, is bolted to crankshaft 4. The flyheel's weight smoothing out crankshaft speed and forwarding engine power to the second disk, as soon as both disks are pressed together by means of spring pressure. The second and driven disk, clutch disk 2, is splined to drive shaft 5. When engaged, full engine power is forwarded to the transmission. The connecting and disconnecting of both disks being effected by operating the clutch pedal. The necessary pressure between flywheel and clutch disk being made by pressure springs or a diaphragm spring, which with help of pressure plate 1 reinstalls power flow.

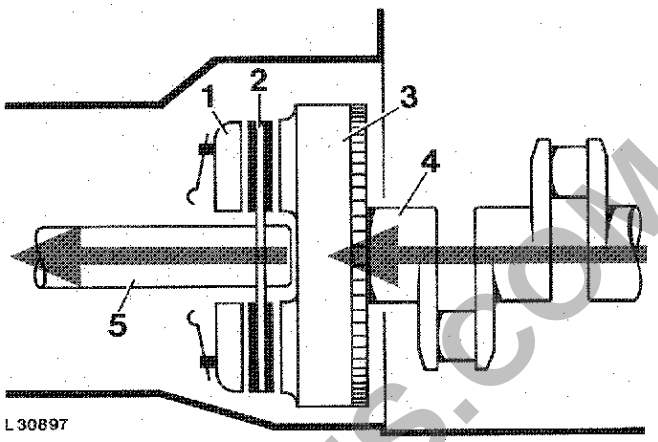


Fig. 2 — Engine Clutch

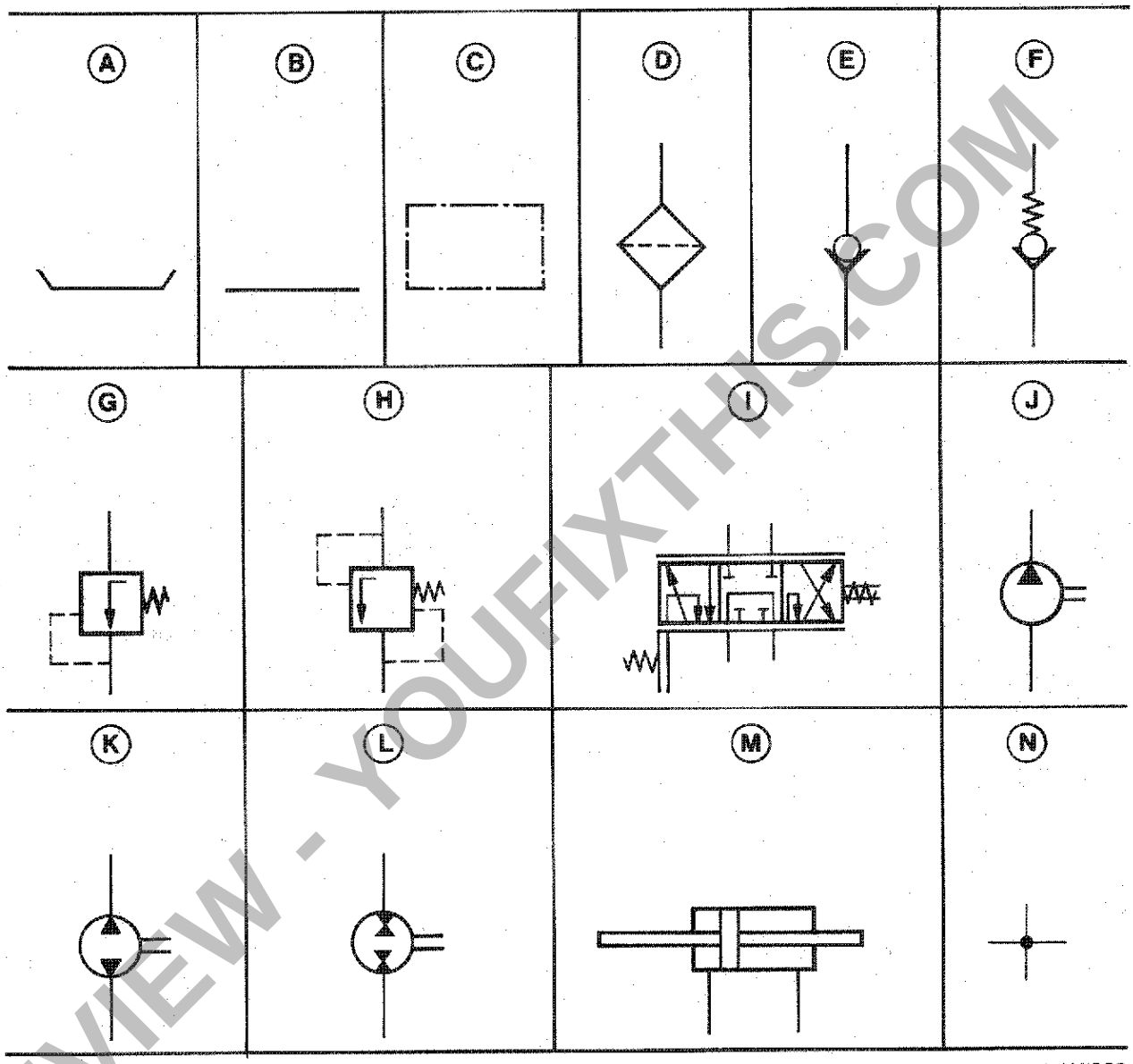
1 Pressure plate
2 Clutch disk
3 Flywheel
4 Crankshaft
5 Drive shaft

Drive shaft 5, splined to the clutch disk, forwards full engine speed to the Hi-Lo shift unit or creeper transmission (when equipped) or direct to the transmission.

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GRAPHIC SYMBOLS FOR HYDRAULICS (ISO 1219)



L 111 266

A–Reservoir
B–Working (main) line
C–Component enclosure
D–Filter, strainer
E–Check valve without spring
F–Check valve with spring
G–Pressure reduction valve
H–Pressure relief valve
I–Spool type s.c.v. with six ports and three positions
J–Hydraulic pump, unidirectional
K–Hydraulic pump, bidirectional
L–Hydraulic pump or motor, bidirectional
M–Hydraulic cylinder
N–Line connection

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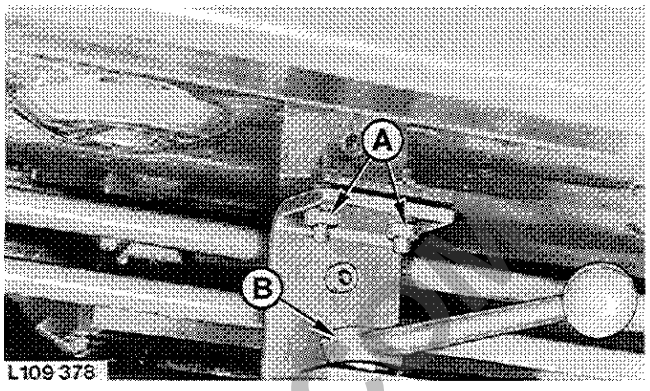
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DISCONNECTING RETAINING BRACKET FROM BATTERY BOX (When Equipped)

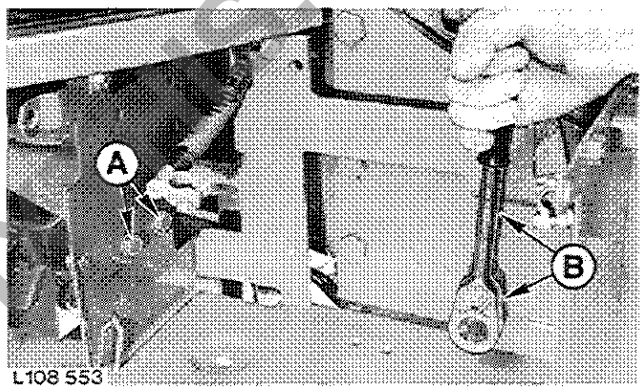
Remove attaching nuts (A) from retaining bracket of shut-off cock (B).



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REMOVING RIGHT-HAND BATTERY BOX

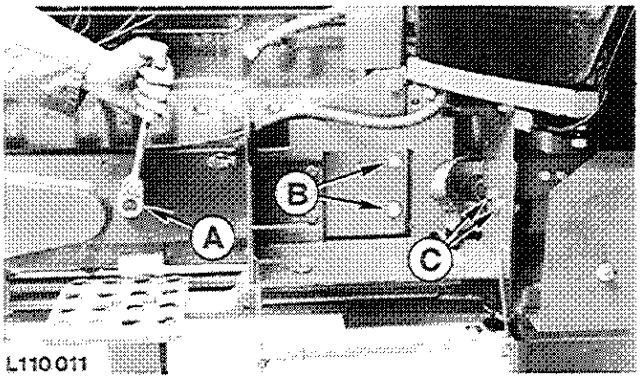
Remove cap screws (A) and (B).



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REMOVING LEFT-HAND BATTERY BOX

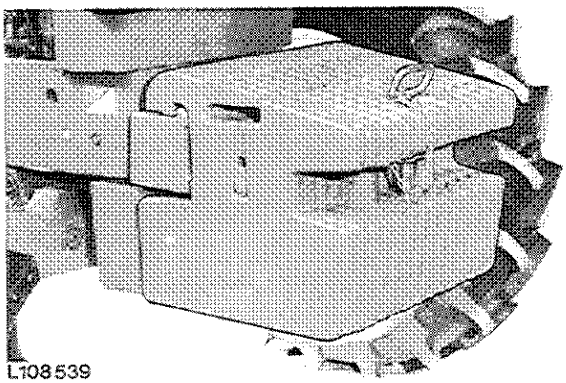
Remove cap screw (A) at step.
Remove cap screws (B) and (C).



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REMOVING FRONT WEIGHTS (When Equipped)

CAUTION: Remove front weights to prevent front end of tractor from tilting forwards.



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Inspection and Repair

CYLINDER HEAD

Checking for Warpage

1. Thoroughly clean cylinder head externally and internally.
2. Check cylinder head for cracks.
3. Check machined surface of cylinder head for damage.
4. Clean all carbon deposits from cylinder head by scraping or brushing with a wire brush.
5. Remove carbon deposits from bores for fuel injection nozzles. Use nozzle bore cleaning tool JDE-39.

IMPORTANT! Always turn the tool clockwise through the bore even when pulling back, otherwise tool will get dull.

6. Check cooling passages for lime deposits. If necessary, clean using a suitable cooling system cleaner.

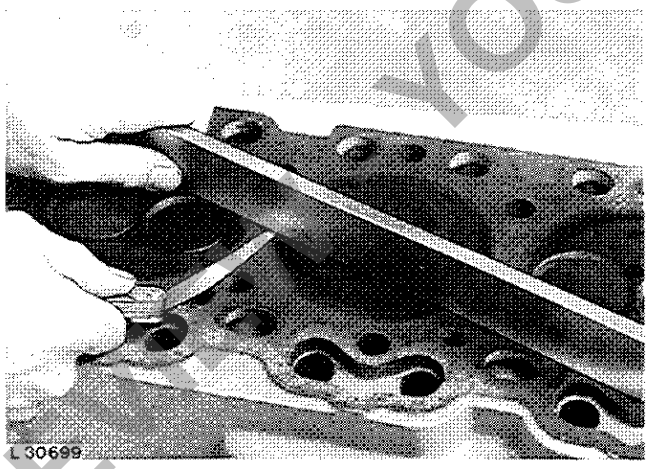


Fig. 5 — Checking Cylinder Head for Warpage

7. Using a heavy, accurate straight-edge and feeler gauge (see fig. 5), check machined surface of cylinder head for warpage. Check at several places.
8. Maximum permissible warpage is 0.025 mm (0.001 in.) for each 127 mm (5 in.) length of cylinder head.
9. Machined surface of cylinder head must be re-faced if warpage is more than specified maximum.

NOTE: Maximum permissible amount to be machined from cylinder head is 0.76 mm (0.03 in.).

Checking Valve Guides

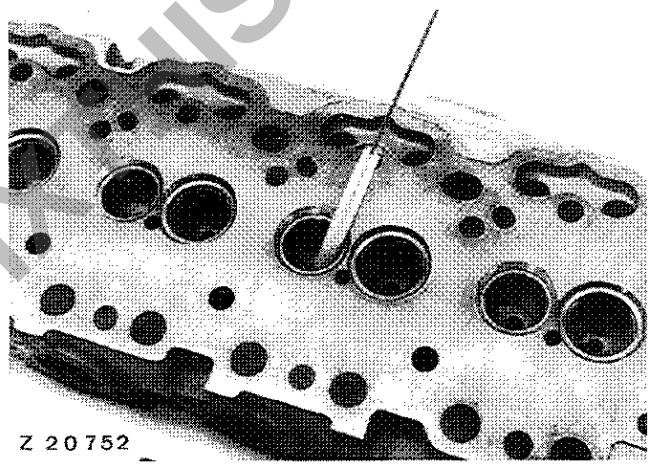


Fig. 6 — Cleaning Valve Guides

1. Use a valve guide cleaning brush to clean valve guides before inspection or repair.

NOTE: A few drops of light oil or kerosene will help to fully clean the guide.

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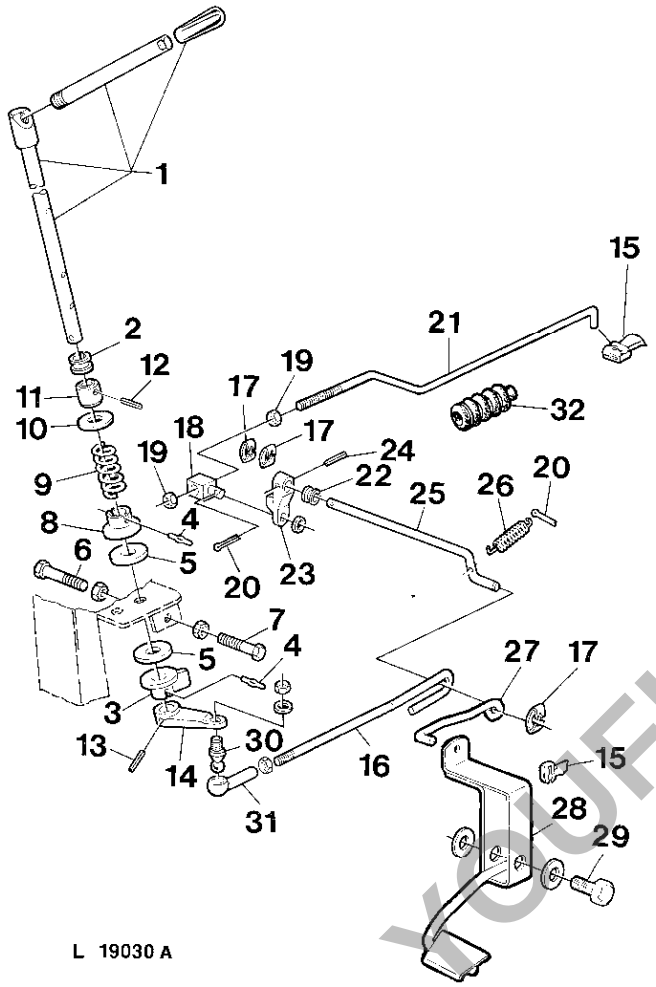


Fig. 3 — Throttle Assembly and Speed Control Linkage, Exploded View (Tractor with OPU)

1 Hand throttle lever
2 Bushing
3 Stop disk
4 Grooved pins
5 Friction disks
6 Slow idle stop screw
7 Fast idle stop screw
8 Thrust washer
9 Spring
10 Washer
11 Sleeve
12 Spring pin
13 Spring pin
14 Speed control arm
15 Clip
16 Connecting rod
17 Clip
18 Swivel piece
19 Hex. nuts
20 Cotter pins
21 Speed control rod
22 Bushing (2 used)
23 Speed control lever
24 Spring pin
25 Shaft
26 Spring
27 Rod
28 Foot throttle
29 Cap screw
30 Ball joint
31 Ball socket
32 Rubber boot

10. Drive spring pin 12 out of sleeve 11 and hand throttle lever 1. Slide sleeve 11, washer 10 and spring 9 downward.

11 Remove grooved pins 4 from thrust washer 8 and stop disk 3. Lift hand throttle lever 1 upward out of support and remove all parts located on lever.

12. Unhook spring 26. Disconnect linkage and remove speed control lever 23 from shaft 25. Pull shaft 25 from right-hand side of tractor out of both bushings.

On Tractors with SG2 Cab

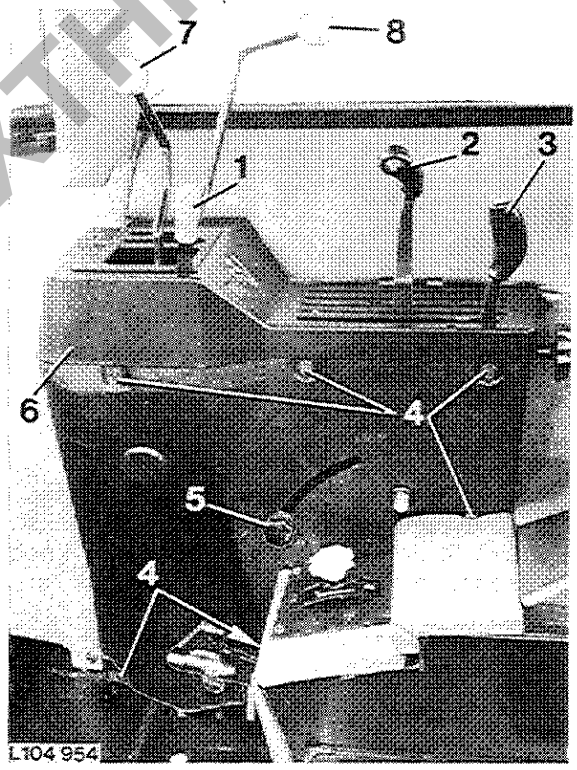


Fig. 4 — Shift Console, Installed

1 Hand throttle lever knob
2 Selective control valve lever knob
3. Rockshaft control lever knob
4 Cap screws
5 Adjusting nut of rockshaft selector lever
6 Shift console
7 Gear shift lever knob
8 Range shift lever knob

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Fuse for Emergency Lighting on Tractors with SG2 Cab from Serial No. 486 079 L

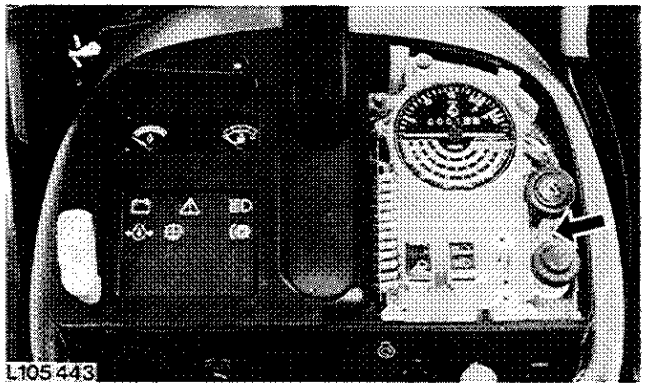


Fig. 21 — Fuse for Emergency Lighting

The 7.5 amp. fuse for the emergency lighting is located under the right-hand dash panel. Having removed the printed circuit board and light switch in "on" position it protects the following parts:

Cab interior light, shift console light, left-hand tail light and right-hand clearance light.

Main Switch

("Sealed-Beam" Lighting System)

When turned on by means of key there will be continuity between the following terminals:

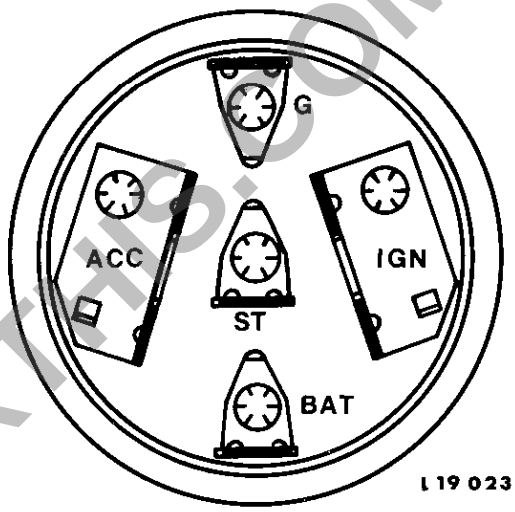


Fig. 22 — Main Switch Terminals

ACC — Terminals BAT and ACC
IGN — Terminals BAT, IGN and ACC
ST — Terminals BAT, IGN and ST terminal G to ground

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Removal

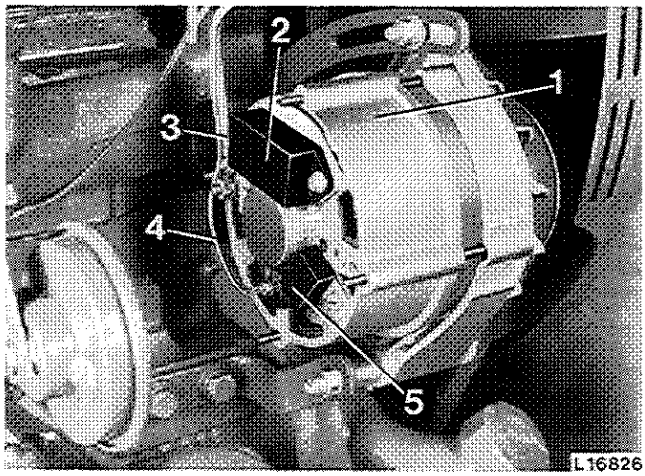


Fig. 3 – Alternator Installed (55 amp. Alternator Shown)

1 Alternator
2 Regulator
3 Cable
4 Cable
5 Capacitor

1. With the engine shut off, disconnect cable 3 (fig. 3) from alternator terminal "B+" and cable 4 from terminal "D+".

2. Remove V-belt guard and alternator mounting screws. Lift out alternator.

Disassembly

1. Remove capacitor 5 (fig. 3) from alternator.

2. Hold belt pulley in suitable clamping device and remove lock nut.

3. Take off belt pulley and fan.

4. Remove brush holder with integrated regulator from alternator.

5. Mark position of drive end frame, stator and end frame for subsequent reassembly (see fig. 5).

6. Remove mounting screws 5 from drive end frame 1. Carefully lift rotor with drive end frame out of stator and end frame (see fig. 5).

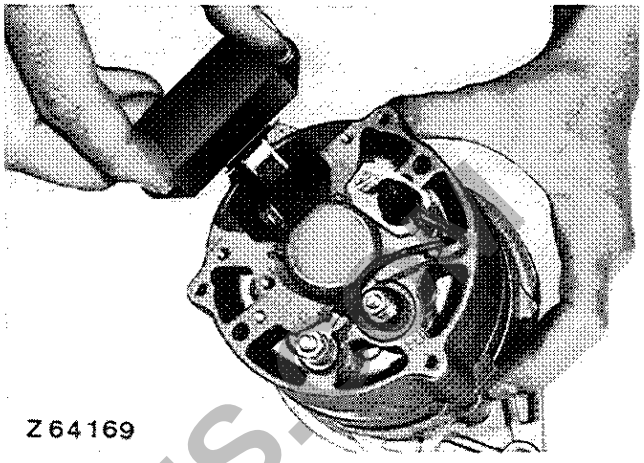


Fig. 4 – Removing Brush Holder with Integrated Regulator

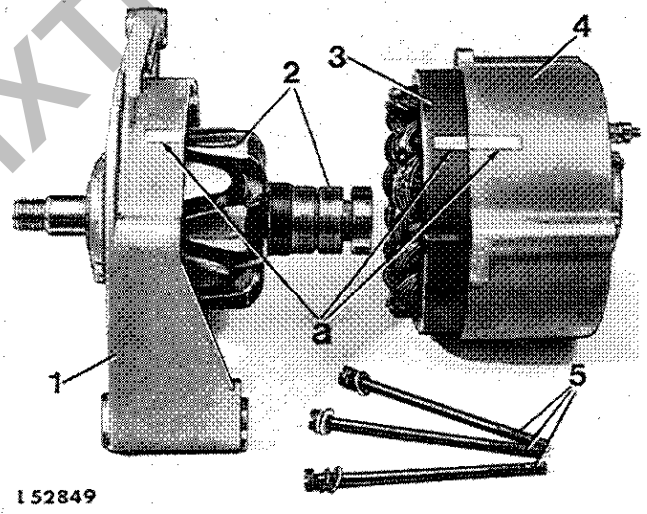


Fig. 5 – Alternator Disassembly

a Mark
1 Drive end frame
2 Rotor
3 Stator
4 End frame
5 Mounting screws

7. By means of a press, remove rotor from drive end frame.

8. Unsolder stator leads to separate plate assemblies from stator and remove stator.

9. Remove the three slotted diode plate fixation screws. Remove hex. nuts from terminals "D+" and "B+" and lift diode plate from end frame.

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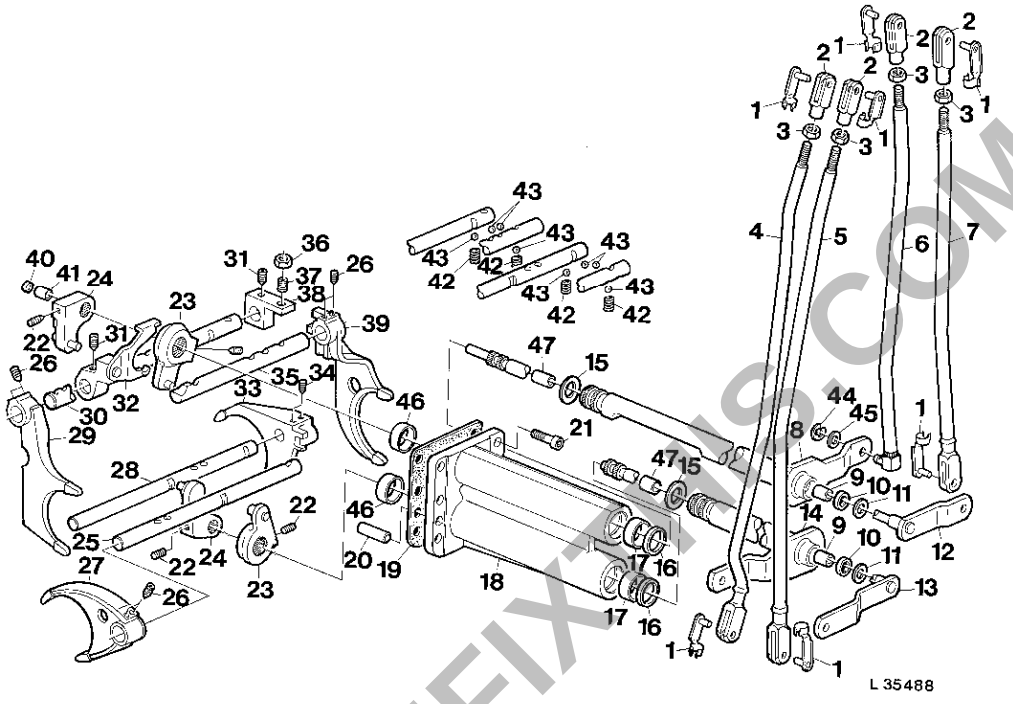


Fig. 3 – Transmission Shift Assembly, Exploded View (Console Shift)

1 Clip
2 Yoke
3 Lock nut
4 Connecting rod, 1st and 2nd gear
5 Connecting rod, 3rd and 4th gear
6 Connecting rod, range I and reverse range
7 Connecting rod, range II
8 Shifter shaft, range I and reverse range
9 Bushing
10 Seal ring
11 Plastic washer
12 Shifter shaft, range II
13 Shifter shaft, 3rd and 4th gear
14 Shifter shaft, 1st and 2nd gear
15 Plastic washer
16 Seal ring
17 Bushing
18 Shifter shaft housing
19 Gasket
20 Pin (2 used)
21 Hex. socket screw (6 used)
22 Grub screw
23 Shift lever
24 Shift lever
25 Shifter shaft, 1st and 2nd gear
26 Positioning screw
27 Shifter fork, 1st and 2nd gaer
28 Shifter shaft, 3rd and 4th geear
29 Shifter fork, range II
30 Shifter rod, range II
31 Grub screw
32 Shifter arm of start safety switch
33 Shifter fork, 3rd and 4th gear
34 Positioning screw
35 Shifter rod, range I and reverse range
36 Hex. nut
37 Positioning screw
38 Guide block
39 Shifter fork, range I and reverse range
40 Cap
41 Bushing
42 Spring
43 Detent balls
44 Snap ring
45 Washer
46 Bushing
47 Bushing

19. Move all shifter shafts to neutral position.

NOTE: Mark position of shift levers 23 and 24 (fig. 3) in relation to shifter shafts 8, 12, 13 and 14.

20. Slacken grub screws 22 (fig. 3) of upper shift levers 23 and 24. Pull shifter shafts 8 and 12 out of shifter shaft housing 18 and remove shift levers.

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AXLE BRIDGE HOUSING AND KNUCKLE HOUSING

1. Remove the four cap screws 1 (fig. 34) of king pin cap 2 (left-hand side), or the six cap screws 4 of steering arm.

2. Press off king pin cap 2 or steering arm 3.

3. Remove the four hex. socket screws 10 of bottom king pin cap 9 and press off cap.

4. Using slide hammer puller D-01210 AA with special screw and washer KML 10014, remove king pins 6 out of axle knuckle housings (see fig. 33). When using slide hammer, apply short blows.

NOTE: Always keep king pins and shims 5 together so that they can be reinstalled in original bore with same shim thickness.

5. Remove axle knuckle housing.

NOTE: Make sure that when removing axle knuckle housing the lower taper roller bearing is not damaged.

6. Pull taper roller bearing cones 17 with dust seals 18 from king pins 6. O-rings 19 can now be removed.

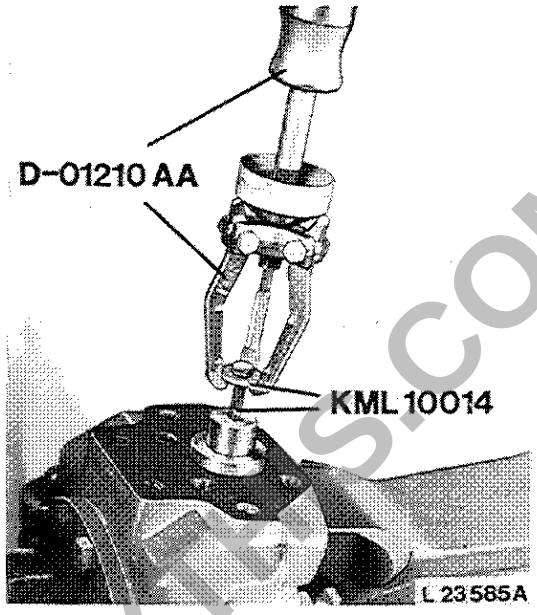


Fig. 33 – Removal of King Pin out of Axle Knuckle Housing

7. Drive taper roller bearing cups 16 with disks 15 out of axle fork.

NOTE: Procedure when disassembling axle knuckle housing and axle bridge housing is the same on each side.

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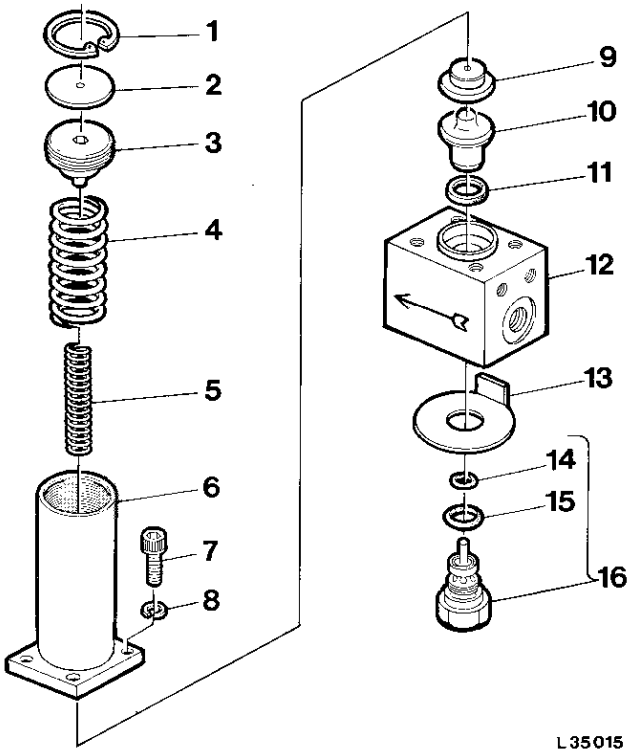


Fig. 96 – Pressure Reduction Valve, Exploded View (Tractors without Cab or with OPU)

1	Snap ring	9	Thrust ring
2	End cap	10	Thrust piece
3	Adjusting screw	11	Oil seal
4	Pressure spring	12	Valve housing
5	Pressure spring	13	Lock tab
6	Spring housing	14	O-ring
7	Hex. socket screw (4 used)	15	O-ring
8	Spring washer (4 used)	16	Valve assembly

6. Check all parts of pressure reduction valve (fig. 96) for wear or damage, and replace parts where necessary. Parts 1, 10 to 12 and 14 to 16 are available as spare parts. Should any other part be worn or damaged, then replace complete pressure reduction valve assembly.

7. Using fig. 96 as a guide, assemble pressure reduction valve.

Tractors with SG2 Cab

NOTE: The pressure reduction valve 2 (fig. 95) is available as an assembly only.

Installation

Install pressure reduction valve, reversing removal procedure.

Testing and Adjusting

Tractors without Cab or with OPU

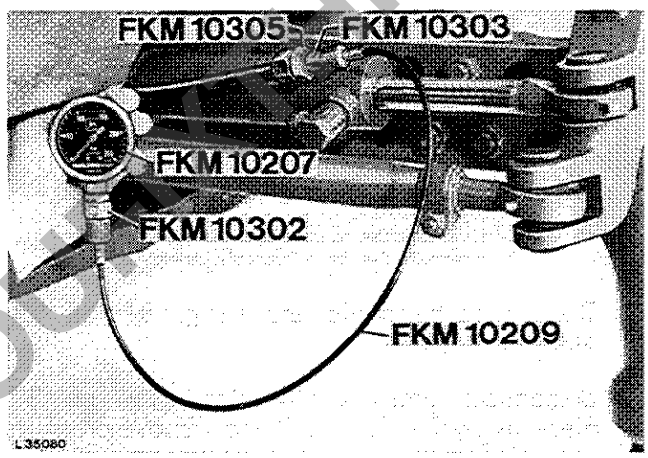


Fig. 97 – Testing Pressure Reduction Valve

1. Disconnect right-hand hydraulic line at steering cylinder.

2. Connect pressure gauge FKM 10207* with connections* as shown above in fig. 97.

3. Run engine and turn steering wheel slowly to the right, observing pressure gauge.

* Part of pressure testing kit FKM 10002

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Diagnosing Malfunctions

Hydraulic System

SLOW OPERATION

Hydraulic components respond slowly
Increase engine speed

Oil does not reach hydraulic pump
Transmission oil pump faulty
Transmission oil filter clogged

Improper transmission/hydraulic system oil
Drain oil and fill hydraulic system with oil of proper viscosity and quality

Stroke control valve of hydraulic pump improperly adjusted
Check valve seat for foreign particles or damage
Adjust stroke control valve

Internal leakage
Check hydraulic system

Hydraulic pump operation improper
Check hydraulic pump

NO OIL PRESSURE

No oil or improper oil in hydraulic system
Fill with oil of proper quality and viscosity

Transmission oil pump does not operate
Check pump

Oil lines leaking
Tighten lines or replace

Hydraulic pump worn or damaged
Check pump

OIL OVERHEATING

Oil of improper viscosity in system
Use proper oil (see operator's manual)

Oil cooler malfunctions
Clean and repair oil cooler

Pressure regulating valve of hydraulic pump sticking
Repair valve

Crankcase outlet valve of hydraulic pump sticking in open position
Check valve for foreign particles

OIL IN SYSTEM FOAMING

Too little oil in system
Add oil, check system for leakage

Water in oil
Drain oil and refill

Improper oil viscosity
Use oil of proper viscosity

Oil lines bent or dented
Replace lines

Air leak in hydraulic pump inlet line
Tighten line connections or replace lines

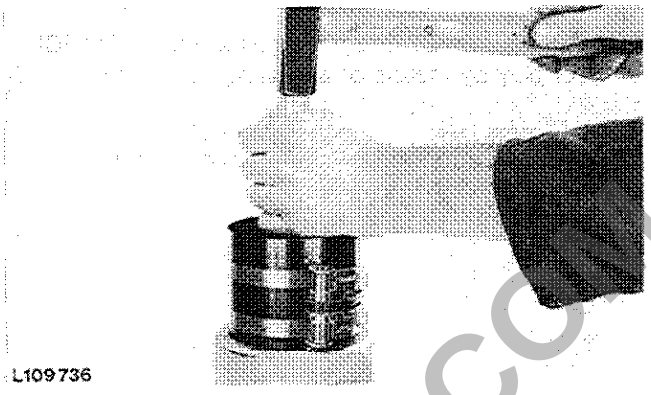
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INSTALLING ROCKSHAFT PISTON

Compress seal ring of rockshaft piston, using a piston ring compressor.

Install rockshaft piston in cylinder.



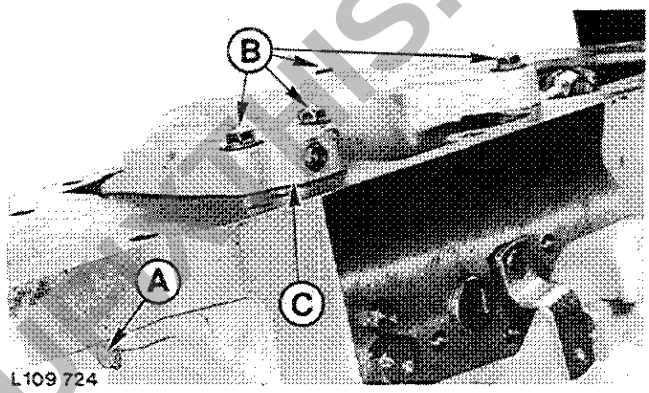
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INSTALLING ROCKSHAFT CYLINDER

Tighten cap screw (A), and then screws (B) with 70 Nm (50 ft-lb).

IMPORTANT: Insert ball of rate-of-drop screw and place two seal rings between rockshaft cylinder and rockshaft housing.



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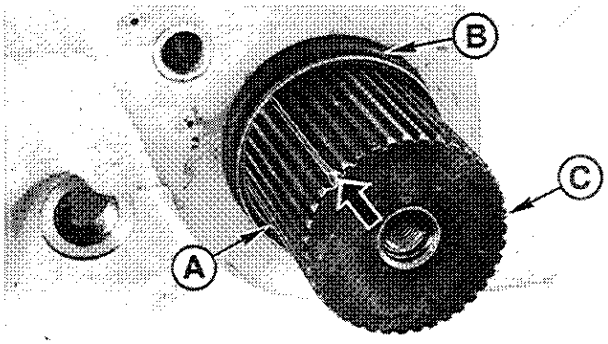
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INSTALLING LIFT ARMS

Press O-ring (B) between rockshaft (C) and housing.

Install back-up ring (A) with open side facing outwards.

NOTE: Arrow shows thick splined section of rockshaft.



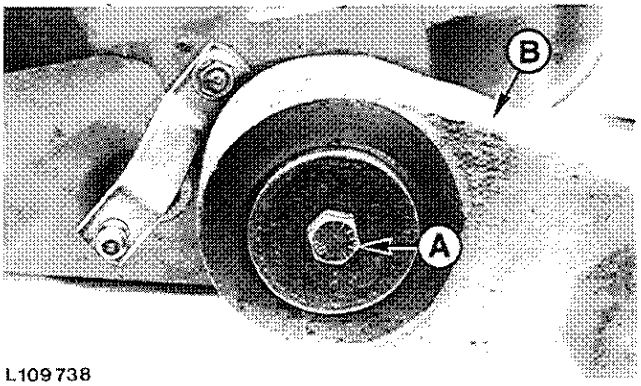
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Slide lift arms (B) onto rockshaft.

NOTE: Make sure when assembling that thick splined section is aligned with relevant groove in lift arms.

Tighten cap screws (A) with 160 Nm (120 ft-lb).



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OPU Cab

Distance from rear edge of flywheel housing to center of bore in rear support bracket (see "a", fig. 14) . . . . . 1077 mm
42.4 in.

Distance from center of bore in rear support bracket to center of bore in front support bracket (see "c", fig. 14) . . . . . 929 mm
36.5 in.

Distance from middle of tractor to center of bore in support bracket (see "b", fig. 14) . . . . . 481 mm
18.9 in.

Maximum difference in height between the four support brackets . . . . . 3 mm
0.12 in.

TORQUES FOR HARDWARE

Operator's cab to rubber block, slotted nuts*	10 to 20 Nm	7 to 14 ft-lb
Rubber block to support bracket, cap screws	50 Nm	35 ft-lb
Support bracket to final drive housing, cap screws	100 Nm	70 ft-lb
Support bracket to battery box, cap screws	50 Nm	35 ft-lb
Stabilizer chain mounting bracket to final drive housing, cap screws	200 Nm	145 ft-lb
Battery box to flywheel housing,		
upper cap screw	200 Nm	145 ft-lb
lower cap screws	100 Nm	70 ft-lb
Windshield wiper motor to cab roof, hex. nut	7 Nm	5 ft-lb

** NOTE: Insert cotter pin within specified torque*

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