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Torque Settings

Note 1: The figures quoted are for non-plated fasteners and are to be used only when there is no torque setting specified in the relevant procedure in this service manual.

Note 2: The 4T grade settings DO NOT APPLY to fasteners used on the engine. If any 4T specification fasteners are found on the engine, these must be tightened to the figure quoted in the relevant engine manual.

*

Bolt Size	Strength Grade of Bolt or Stud											
	4T			8.8			10.9			12.9		
	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
M3	0.39	0.04	0.28	-	-	-	-	-	-	-	-	-
M4	0.78	0.08	0.57	-	-	-	-	-	-	-	-	-
M5	1.67	0.17	1.2	-	-	-	-	-	-	-	-	-
M6	2.84	0.29	2.1	8.04	0.82	5.9	11.3	1.15	8.3	-	-	-
M8	7.06	0.72	5.2	19.6	2.00	14.5	27.7	2.82	20.4	48.0	4.9	35
M10	14.0	1.43	10.3	39.1	3.99	28.8	55.0	5.61	40.6	94.0	9.6	69
M12	24.6	2.51	18.1	68.5	6.98	50.5	96.2	9.81	71	166	16.9	122
M16	61.9	6.31	45.7	173	17.6	127.6	242	24.7	178.5	400	40.8	295
M20	122	12.4	90	337	34.4	249	475	48.4	350	-	-	-
M22	167	17.0	123	464	47.3	342	652	66.5	481	-	-	-
M24	210	21.4	155	584	59.5	431	821	83.7	606	-	-	-
M27	311	31.7	229	864	88.1	637	1220	124	900	-	-	-
M30	420	42.8	310	1170	119	863	1650	168	1217	-	-	-
M33	576	58.7	425	1600	163	1180	2260	230	1667	-	-	-
M36	736	75.1	543	2050	209	1512	2880	294	2124	-	-	-
M39	961	98.0	709	2680	273	1977	3760	383	2773	-	-	-
M42	1190	121	878	3300	336	2434	4640	473	3422	-	-	-
M45	1490	152	1099	4140	422	3054	5820	593	4293	-	-	-
M48	1780	182	1312	4960	506	3659	6970	711	5141	-	-	-

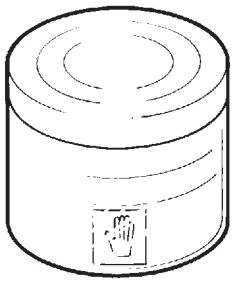
* **Note:** All bolts are high tensile and must not be replaced by bolts of a lesser tensile specification.

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Service Tools

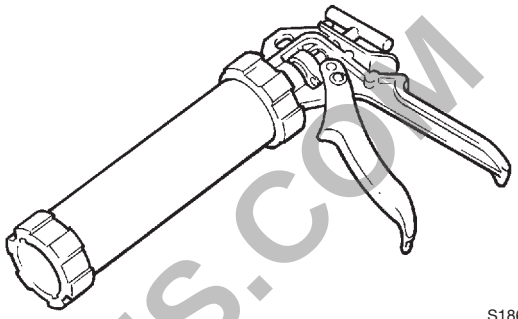
Body and Framework (Section B)



S186240

Hand Cleaner - special blend for the removal of polyurethane adhesives.

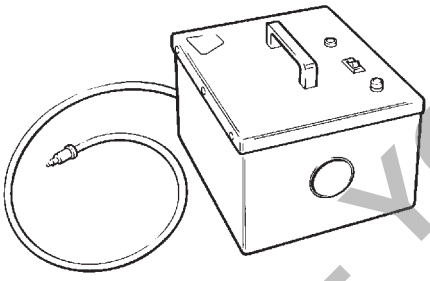
4104/1310 (454g; 1lb tub)



S186270

Cartridge Gun - hand operated - essential for the application of sealants, polyurethane materials etc.

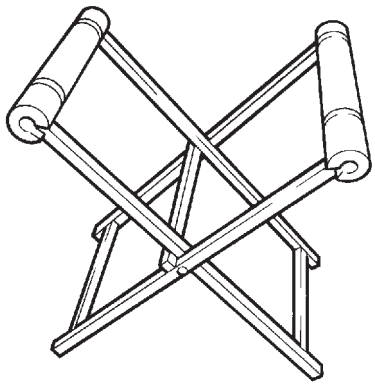
892/00845



S186250

12V Mobile Oven - 1 cartridge capacity - required to pre-heat adhesive prior to use. It is fitted with a male plug (703/23201) which fits into a female socket (715/04300).

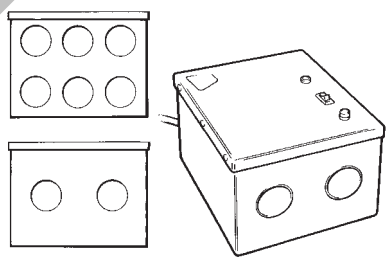
992/12300



S186280

Folding Stand for Holding Glass - essential for preparing new glass prior to installation.

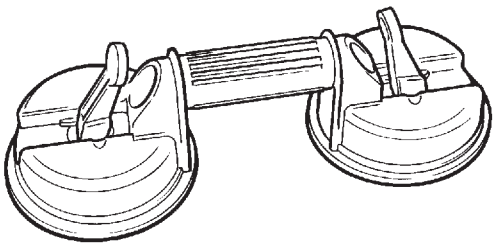
892/00843



S186260

240V Static Oven - available with 2 or 6 cartridge capacity - required to pre-heat adhesive prior to use. No plug supplied. Note: 110V models available upon request - contact JCB Technical Service

992/12400 - 2 cartridge x 240V
992/12600 - 6 cartridge x 240V



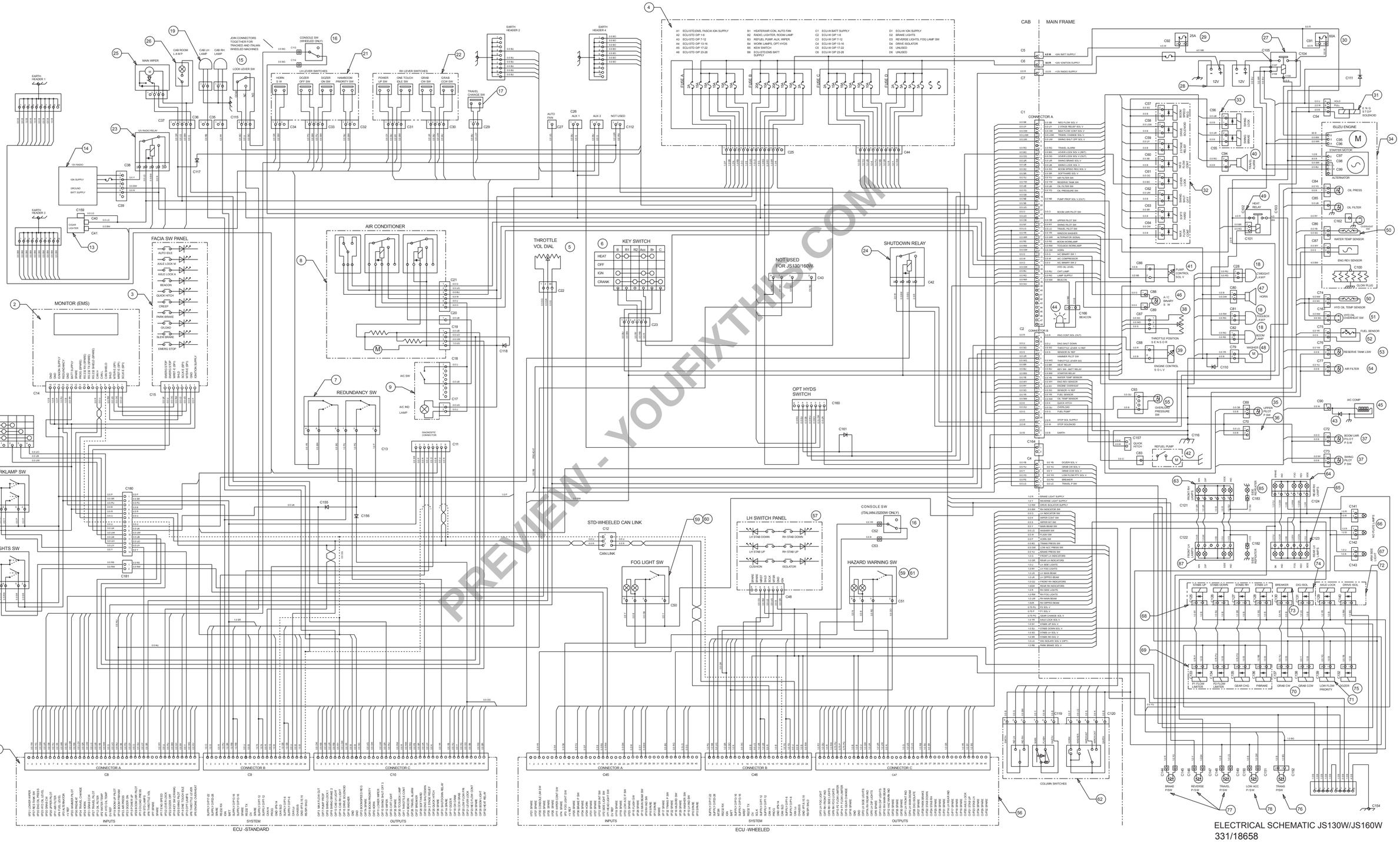
S186300

Glass Lifter - minimum 2 off - essential for glass installation, 2 required to handle large panes of glass. Ensure suction cups are protected from damage during storage.

892/00842

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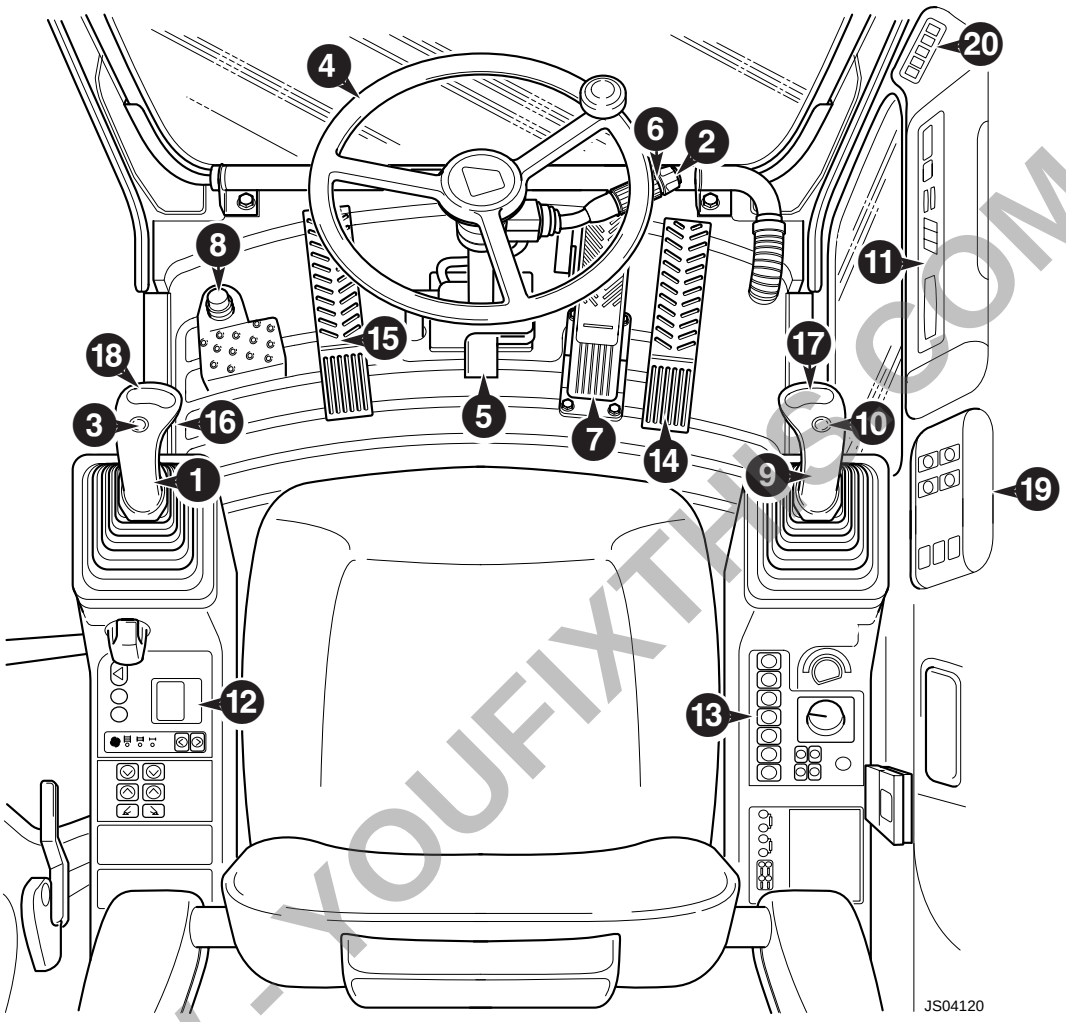
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* Operator's Cab (CAPS II)



1 Left Excavator Joystick Control

2 Horn Button

3 Alternative Horn Button (Not Germany)

4 Steering Wheel

5 Steering Column Lock Latch

6 Multipurpose Steering Column Switch

7 Foot Brake Pedal

8 Gearbox Ratio Change Switch

9 Right Excavator Joystick Control

10 One Touch Idle Switch

11 Display Monitor

12 Left Console

13 Right Console

14 Travel Pedal

15 TAB Position Ram Pedal (if fitted)

16 Rockbreaker ON/OFF switch (if fitted)

17 Auxiliary Circuit Switch

18 Dozer Blade Switch

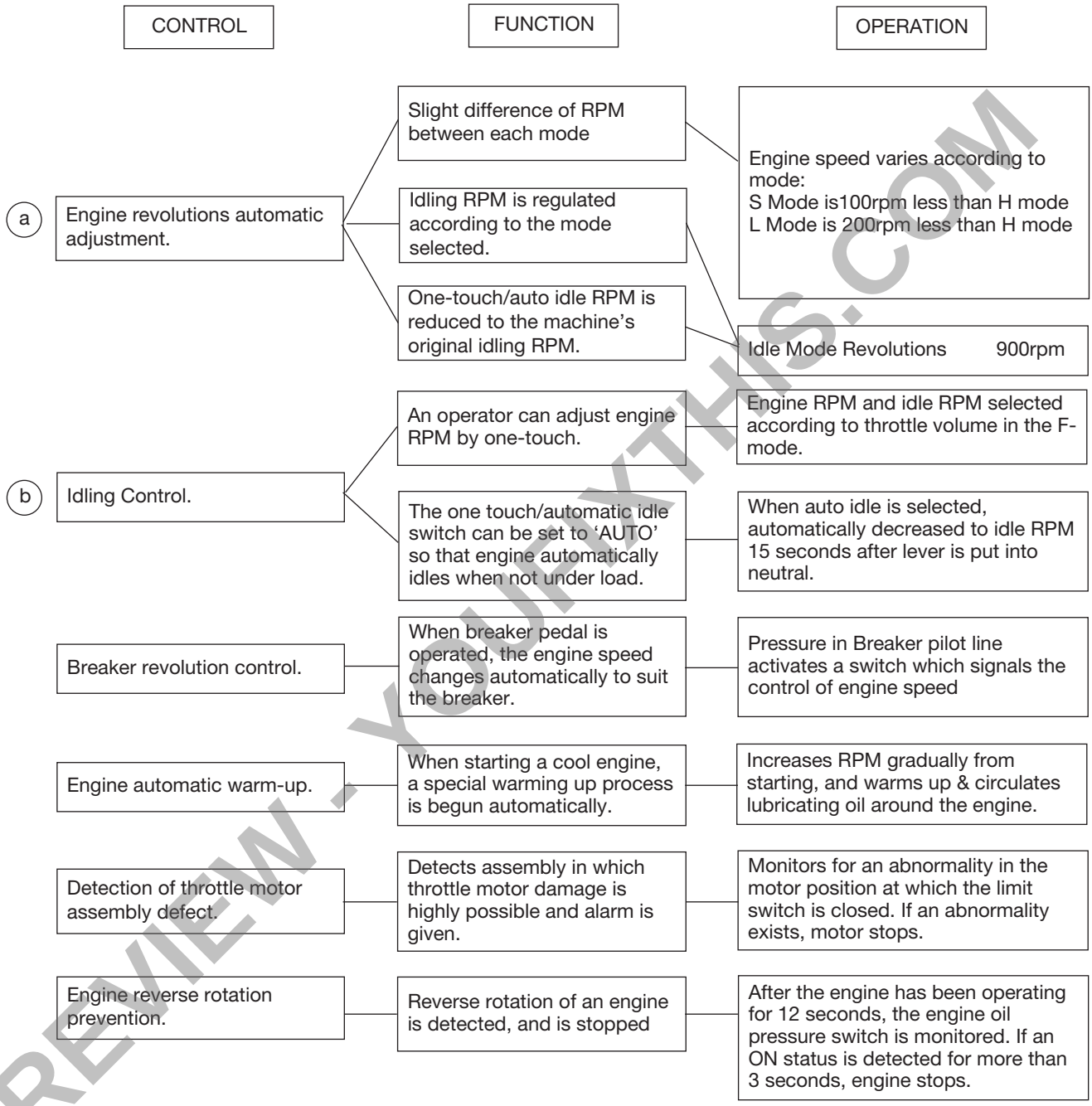
19 Right Switch Panel

20 Warning Light Panel

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* Control, Function, Operation (CAPS II)



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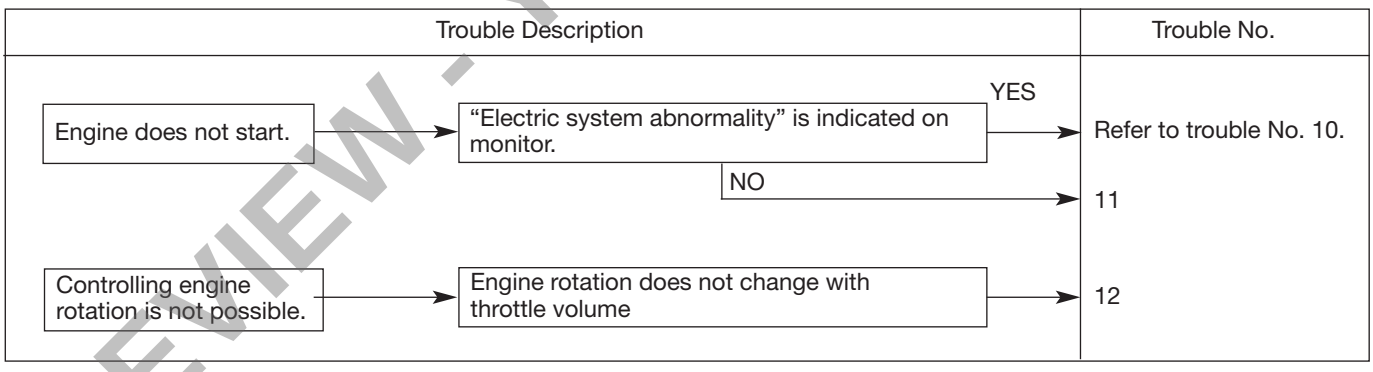
Fault Diagnosis (continued)

This explains how to trouble shoot in the event that the message does not go out even though suitable measures are taken to check and clear the problem.

!Mark	Message Display	Trouble Description	Problem No.
!	Engine emergency stop	Even though the emergency stop button is pressed, the message does not go out.	1
!	Refuel	Even though fuel is supplied, the message does not go out.	2
!	Refill coolant	Even though cooling water is supplied, the message does not go out.	3
!	Replenish battery fluid	Battery fluid sensor not fitted, fault should not be displayed.	4
!	Air cleaner clogged	Even though filter is cleaned, the message does not go out.	5
!	Engine oil pressure Drop	Even though engine oil is correct, the message does not go out.	6
!	Engine filter clogged	Even though the engine oil filter is replaced and the engine oil is correct, the message does not go out.,	7
!	Over heat	Even though hydraulic oil temperature is less than 84°C and the engine cooling water temperature is less than 92°C, the message does not go out.	8
!	Battery Charging Deficient	The message does not go out.	9
!	Electric system abnormality	The message does not go out.	10

This explains how to trouble shoot when an operation is not indicated on a message, but it does not operate normally.

1 Engine control area



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Fault Diagnosis (continued)

Emergency Engine Stop, Problem No.1

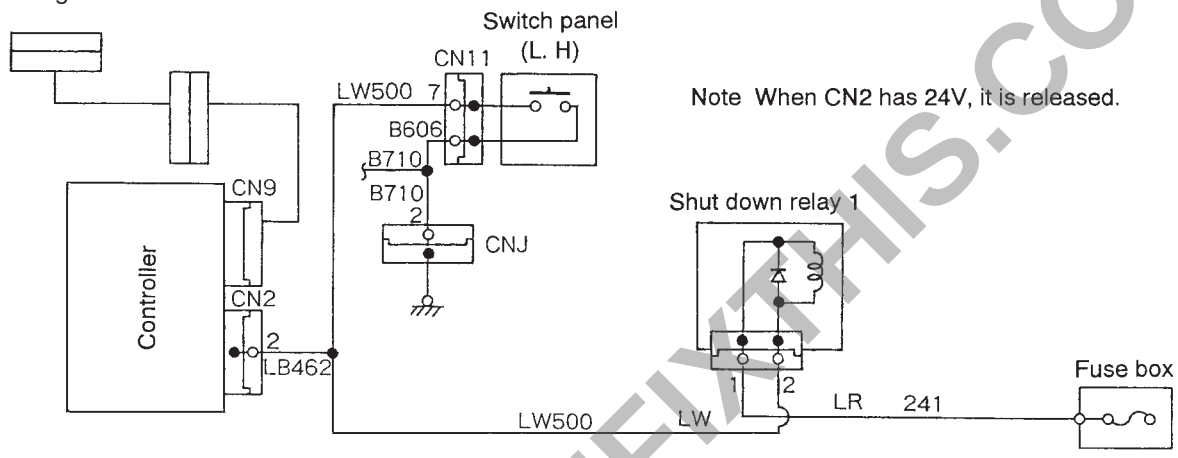
Note: Even if the emergency stop button is pressed the message does not go out.

Prior Confirmation Items

1 The **"MODE"** of the mode display is not flashing.

2 Confirm that the fuses in the fuse box are normal.

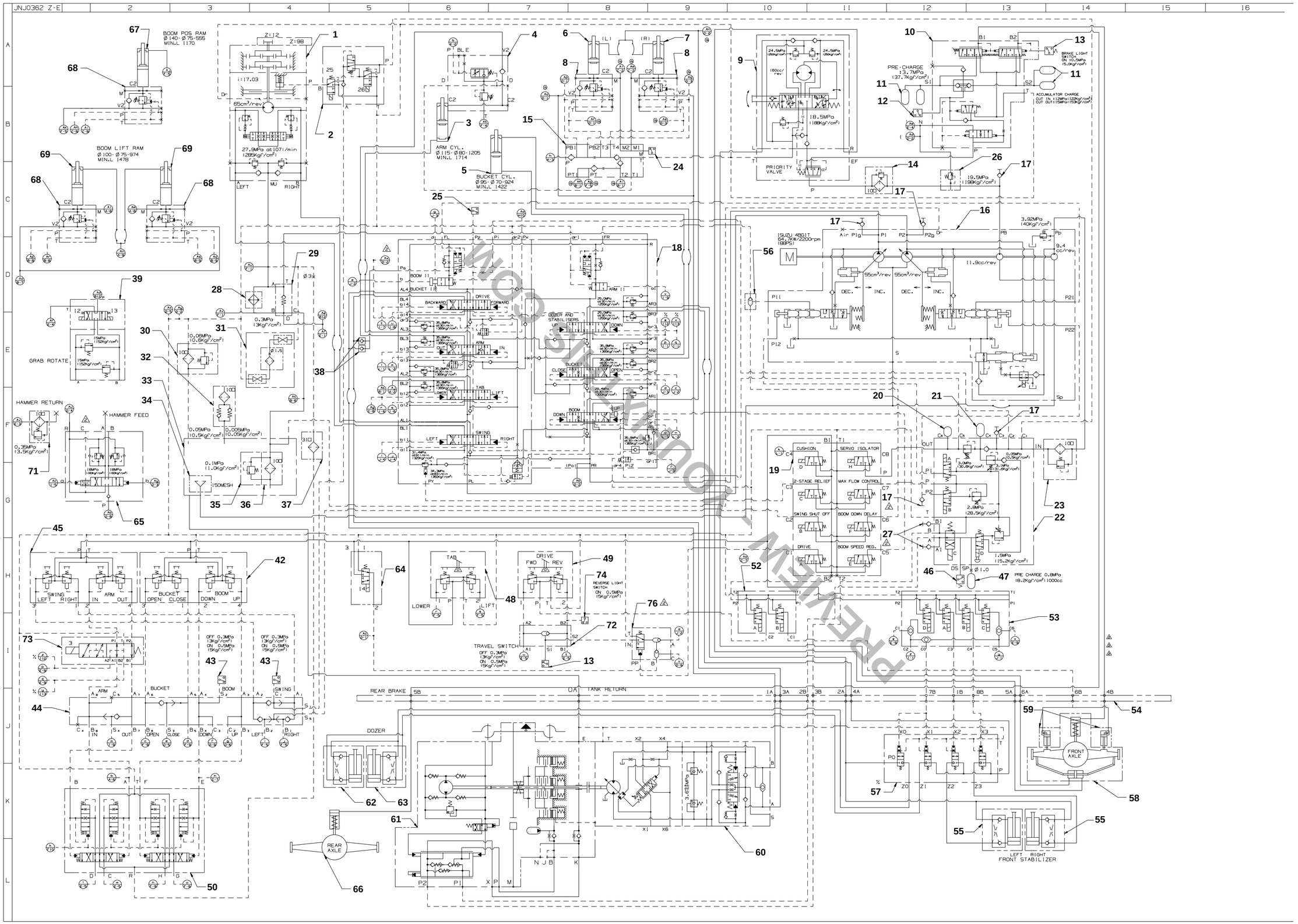
3 The engine does not run.



Troubleshoot	Cause	Remedy
Key switch **ON** When CN11 connector is removed, does message go out? YES	Defective LW wiring from switch panel or switch panel defective.	Repair wiring or replace switch panel.
NO Remove CN2 connector and measure voltage of female side of LB. Is it within the range of 20~30V? YES	Bad connection of CN2 connector or controller defect.	Clean CN2 connector terminal or replace controller.
NO Measure voltage of LW with shut down relay 1 connector connected. Is it within the range of 20~30V. YES	Breakage of LW wiring between shut off relay 1 and controller.	Repair LW wiring.
NO Remove shut off relay 1 connector and measure resistance of 1 and 2 of relay side. Connect 1 to +, 2 to -. Is it 250Ω. NO (∞)	Defective shut off relay 1.	Replace shut off relay 1.
YES	Breakage of LR wiring between shut off relay 1 and fuse.	Repair LR wiring.

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Introduction

The pump/regulator consists of two variable displacement type axial piston pumps (P1 and P2) supplying pressurised oil to operate machine functions, plus two gear type pilot pumps, one (Pp) to provide pilot circuit pressure for operator control of machine functions. The other (Pb) to provide pressure for brake and steering functions.

Pumps P1 and P2 each incorporate a regulator which adjusts the output flow rate according to system demand.

Specifications

Axial Piston Pumps		**JS130W**	**JS 145W/JS160W**
Maximum displacement	cc (in^3)/rev	55 (3.36) x 2	60 (3.66) x 2
Working pressure (travel)	set	319 bar (4551 lbf/in^2, 320 kgf/cm^2)	319 bar (4551 lbf/in^2, 320 kgf/cm^2)
	maximum	343 bar (4978 lbf/in^2, 350 kgf/cm^2)	343 bar (4978 lbf/in^2, 350 kgf/cm^2)
Speed	rpm	2230	2330
Maximum flow	l (gal)/min	122.7 (32.4)	139.8 (36.9)
Maximum input torque	Nm (lbf ft)	278.5 (205.4)	278.5 (205.4)
Weight	kg (lb)	83 (183)	83 (183)

Gear pump		**JS130W**	**JS160W**
Displacement cc (in^3)/ rev	Front	11.9 (0.73)	11.9 (0.73)
	Rear	9.08 (0.55)	9.08 (0.55)
Working pressure		42 bar (612 lbf/in^2, 43 kgf/cm^2)	42 bar (612 lbf/in^2, 43 kgf/cm^2)
Maximum flow l (gal)/min	Front	26.53 (5.84)	27.3 (6.10)
	Rear	20.2 (5.34)	21.2 (5.60)

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Dismantling

Refer to the illustrations on pages 17 - 3 to 17 - 9 and the component list on page 17 - 10. In the following procedures, the part numbers in bold type (e.g. **71**) correspond with the numbers on the illustrations.

Before attempting to dismantle the hydraulic pump, drain all oil, blank all inlet and outlet ports and wash the outer surfaces with a suitable solvent to remove all dirt and dust. Dry using compressed air.

Make different alignment marks across each sub-assembly joint face as an aid to assembly.

The cylinder block assemblies, servo pump, relief valve and proportional pressure reduction valve must be replaced as complete assemblies.
The following procedures show a complete strip down, but, unless absolutely necessary, avoid disturbing or dismantling the control elements of the pump, i.e. those retained by covers **30**, **52** and **53** and by plugs **31** and **35**. Any interference with setting screws will affect pump output control, necessitating precision re-setting on the bench.

The pump/regulator unit contains two pressure pumps, P1 and P2. Take care not to get the parts from one mixed in with parts from the other.

During dismantling, record the number and dimensions of shims. Take care to reassemble in the same manner.

Note: Protect the clamping faces when supporting the pump housing in the vice.

1 Support pump housing **1** in a vice, clamped across the inlet and outlet port flanges. Unscrew the four socket head bolts **71** and remove mounting flange **61**.

2 Remove hose **59**.

3 Unscrew the two bolts **77** and remove gear pumps **57**.

4 Unscrew the four socket head bolts **74**. Remove sub-block assembly **50** and put to one side.

5 Unscrew the six socket head bolts **73** and remove rear cover **3**. Then remove bearings **14** from the swash plate.

Note: It may be necessary to lightly tap the rear cover with a plastic hammer to assist removal.

6 Remove bearing **13** on the rear side, using the bearing removal tool and the rear shaft protection tool (see **Service Tools**, Section 1).

7 Remove rear swash plate **8** and the assembly comprising cylinder block **4**, piston assembly **6**, retainer plate **11**, retainer holder **12**, spring **19**, spring seat **20** and valve plate **10**.

8 Unscrew the four socket head bolts **75** and take out oil seal case **16**.

Note: Take care not to damage the oil seal lip with the shaft spline.

9 Unscrew the six socket head bolts **73** and remove flange **2**. Then remove the bearings **14** from the swash plate.

Note: It may be necessary to lightly tap the flange with a plastic hammer to assist removal.

10 Remove bearing **13** on the front side, using the bearing removal tool and the front shaft protection tool (see **Service Tools**, Section 1).

11 Remove front swash plate **7** and the assembly comprising cylinder block **4**, piston assembly **6**, retainer plate **11**, retainer holder **12**, spring **19**, spring seat **20** and valve plate **9**.

Note: Take care not to mix these parts with those removed from the rear end at step 7.

12 Unscrew the three socket head bolts **72** on the rear side and remove cover 'LR' **53**.

At this point, sleeve **37** may come out with the cover. Take care not to allow the pistons **38** and **54** to fall out.

13 If necessary, remove sleeve **37** complete with pistons **38** and **54**. Remove the three pistons **38** and piston **54** from the sleeve.

14 Remove spool **40**, spring seats **41** and **42** and springs **43** and **44** in the same direction as sleeve **37**.

15 Unscrew the three socket head bolts **73** on the rear side and remove cover 'R' **30**.

16 Unscrew the three socket head bolts **72** on the front side and remove cover 'LF' **52**.

Remove sleeve **37** and spool **40** assembly.

Note: Take care not to mix these parts with those removed at step 12.

17 Remove the stoppers **24** and **25** on the rear side using an M6 bolt screwed into the threaded hole in the end of each one.

Take out regulator piston **23** and bridging piece **29**.

Repeat for front side, removing stoppers **24** and **25**, regulator piston **23** and bridging piece **29**.

Note: Take care not to mix rear and front side components.

18 Remove plug **31** complete with piston **32**.

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Maintenance Specifications - JS130W/JS145W

1 Clean each part in a suitable solvent and dry using compressed air.

2 Inspect all parts and act in accordance with the following table.

3 Discard all used seals and 'O' rings and fit new ones during assembly.

⚠ CAUTION

If the machine is operated at full load, before its initial run-in procedure is complete, it may cause scuffing and seizing which can adversely effect the service life of the machine.

8-3-1-5

Item	Inspection and Maintenance Standards
Balance Plate **21**	The crescent-shaped ports in the balance plate, which are in sliding contact with the end face of the cylinder assembly shaft, act to switch between high and low oil pressure. Any damage to the sliding contact face will increase leakage, causing a decrease in volumetric efficiency and an increase in slip. Any seizure of the sliding contact face causes a reduction in mechanical efficiency and can lead to further damage. If the grooves or marks depths are less than 0.03 mm (.001 in), the plate can be corrected using fine emery cloth. If the wear is greater than 0.03 mm (.001 in), the plate should be renewed. The plate should be renewed if it shows any sign of seizure.
Piston assembly **8** slipper feet	Correct any damage to the sliding contact face of the slipper feet by using fine emery cloth. Renew the motor if the depth of any slipper foot oil groove is less than 0.45 mm (.018 in) or if the slipper foot surfaces are seriously damaged.
Piston assembly **8** pistons	The external surfaces of the piston assemblies should be practically unworn. The motor should be renewed if a piston assembly shows any sign of seizure.
Cylinder assembly **24** piston bores	The piston bores should be practically unworn. The motor should be renewed if the bores show any sign of seizure or are badly damaged.
Taper roller bearing **3** Needle bearing **22**	The bearings should be renewed if any slight damage is noticed on the contact surfaces of the rollers or needles. It is recommended that all bearings be renewed on reassembly of the motor because bearings can be damaged when the motor is dismantled.
Oil seal **2**	Renew any oil seal if damage to the lip is apparent. New seals must be used when reassembling the motor.
O-rings **11**, **13**, **33**, **36**, **41**, **45**, **52**	Renew any 'O'-ring that appears to be damaged. New 'O'-rings must be used when reassembling the motor.
Back-up ring **32**, **35**, **46**	The back-up rings must be renewed when reassembling the motor.

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Note: New engines DO NOT require a running-in period. The engine should be used in a normal work cycle immediately; glazing of the piston cylinder bores, resulting in excessive oil consumption, could occur if the engine is gently run-in. Under no circumstances should the engine be allowed to idle for extended periods (e.g. warming-up without load).

Item	Fluid/Lubricant	International Specification	Capacity	
			JS130W	JS145W/JS160W
ENGINE	See separate chart		12.1 litres (2.7 UK gal)	12.1 litres (2.7 UK gal)
SLEW GEARBOX	JCB Gear Oil HD90 JCB HP Grease	API-GL-5: MIL-L-2105C Lithium based, No. 2 consistency	5 litres (1.09 UK gal) 1 litre (0.22 UK gal)	5 litres (1.09 UK gal) 1 litre (0.22 UK gal)
HYDRAULIC SYSTEM	JCB Special Hydraulic Fluid HP46	Vickers 35VQ25/V104C: Sundstrand, Denison and FZG Approval Tests	124 litres (27.3 UK gal)	124 litres (27.3 UK gal)
SLEW RING - BEARINGS - GEAR TEETH	 JCB HP Grease JCB HP Grease	 Lithium based, No. 2 consistency	 - 17 kg (37.48 lb)	 - 17 kg (37.48 lb)
PROPSHAFTS	JCB HP Grease	Lithium based, No. 2 consistency		
ALL OTHER GREASE POINTS	JCB HP Grease	Lithium based, No. 2 consistency		
COOLING SYSTEM	See **Coolant Mixtures**	ASTM D3306-74	16.4 litres (3.6 UK gal)	17.2 litres (3.78 UK gal)
FUEL TANK	See **Fuel System**, **Types of Fuel** in Operator Handbook	ASTM D975-66T Nos 1D, 2D	240 litres (52.8 UK gal)	240 litres (52.8 UK gal)
FRONT AXLE - DIFFERENTIAL - HUB (x 2)	 JCB Special Gear Oil Plus JCB Special Gear Oil Plus	 API GL4: M2C-41B/134D, JD20C MGF M1135/M1141/M1143	 18 litres (3.9 UK gal) 1.5 litres (0.33 UK gal)	 18 litres (3.9 UK gal) 1.5 litres (0.33 UK gal)
REAR AXLE - DIFFERENTIAL AND HUBS (x 2)	 JCB Special Gear Oil Plus	 API GL4: M2C-41B/134D, JD20C MGF M1135/M1141/M1143	 17.7 litres (3.9 UK gal)	 17.7 litres (3.9 UK gal)
DRIVE GEARBOX	JCB Super 15W/40 Multigrade Engine Oil	API CF4/SG: MIL-L-2104F	3.8 litres (0.83 Uk gal)	3.8 litres (0.83 UK gal)

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Every 10 Operating Hours or Daily

Whichever occurs first

1 Clean

a Machine generally.
* (When steam cleaning do not direct jet at grease nipples.)

2 Grease
(If operating in very wet or severe conditions).

a Bucket/dipper pivot points.

3 Check (Engine Stopped)

a Generally for damage.

b For oil and coolant leakage.

c Security of bolts and nuts †.

d For disconnected or shorted wiring, loose terminals.

e Hydraulic fluid level.

f Engine oil level.

g Engine coolant level.

h Windscreen washer fluid level.

j Fuel system for leaks.

k Fuel level.

l Tyre pressures and condition.

m Seat belt condition and security.

n Tightness of wheel nuts (with wheel brace).

p The auxiliary circuit hydraulic oil filter visual indicator (if using a rockbreaker or crusher).

† Tapping with a hammer will identify any loose nuts and bolts which should then be tightened to the specified torque.

4 Check (Engine Running)

a Operation of warning lights and audible alarm.

b Operation of brake lights and reversing lights.

c Operation of other electrical equipment.

d Exhaust for excessive smoke.

e Excavator operation.

f Dozer, stabiliser and attachment operation.

g Transmission operation.

h Footbrake operation.

j Steering operation.

k Parking brake operation.

l Operation of slew brake.

m Operation of hour meter.

Every 50 Operating Hours or Weekly

Whichever occurs first

1 Do the daily jobs plus:

2 Clean

a Drain water and sediment from fuel tank.

b Drain fuel water separator.

3 Grease

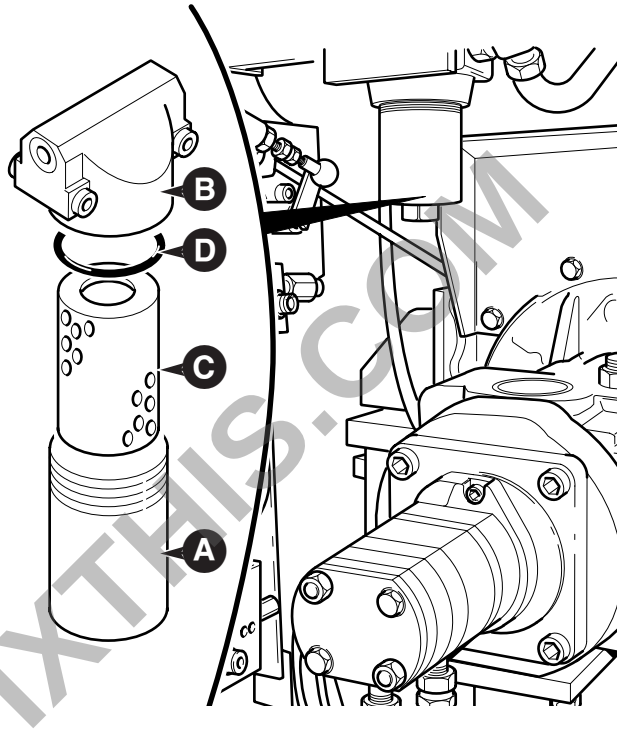
a All pivot pins.

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Changing the Servo Oil Filter

*



1 Prepare the Machine

Position the machine on level ground. Stop the engine by pressing the **Emergency Engine Stop Switch** (see **Left Console** in OPERATION section of Operator Handbook). Operate all the hydraulic servo controls to release system pressure. Press the **Emergency Engine Stop Switch** again to deselect the function. Turn the starter key to OFF and then remove it.

2 Release Tank Pressure

See **Releasing Tank Pressure**. Remove the filler plug.

3 Locate the Servo Oil Filter

Refer to **Component Location Diagrams** at the end of this section.

4 Dismantle the Filter

a Using a wrench on the case, unscrew filter case **A** from filter head **B**. Take care not to spill the oil it contains.

b Remove and discard element **C** and 'O' ring **D**.

5 Clean the Filter Base and Case

Discard any fluid in the filter case. Clean out the case and the underside of the head.

6 Fit New Filter Components

a Coat the new 'O' ring **D** with hydraulic fluid and locate in filter head **B**.

b Coat the seal area of the new element **C** and install it in the filter case.

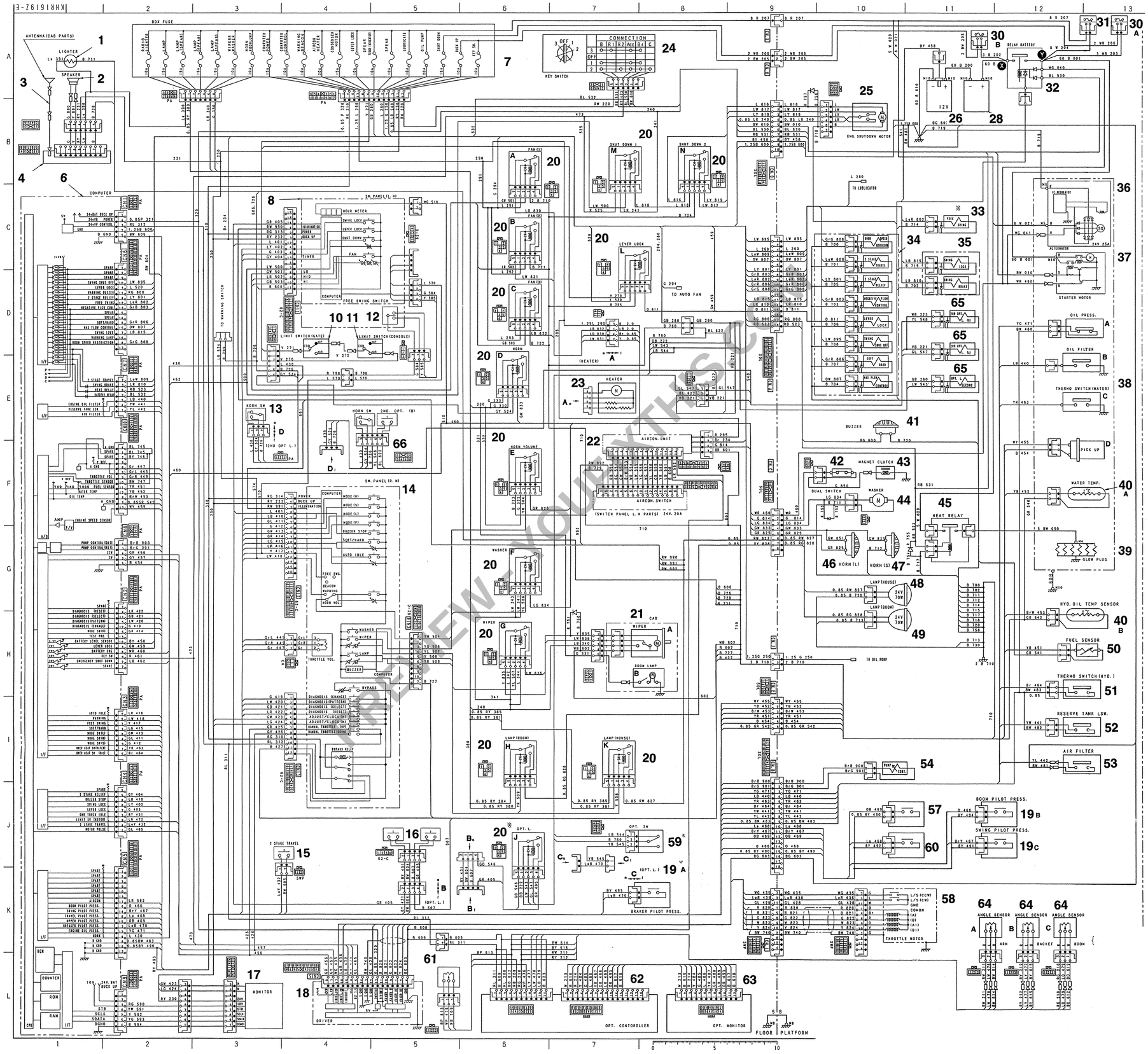
c Screw filter case **A** to filter head **B** and tighten with the wrench.

7 Check the Hydraulic Oil Level

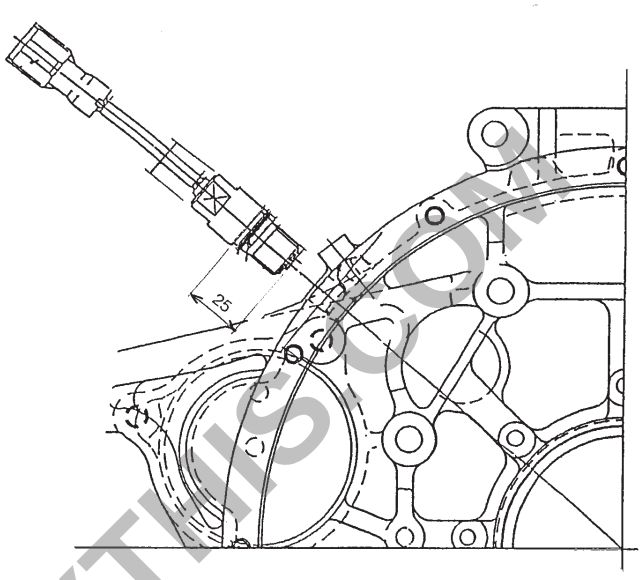
Check (see **Checking the Fluid Level**) and, if necessary, top-up the hydraulic oil tank (see **Topping-up Fluid Level**). Refit the filler plug.

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ANTENNA (CAB PARTS)
LIGHTER
SPEAKER
BOX FUSE
KEY SWITCH
CONNECTION
COMPUTER
SW. PANEL (L. H.)
HOUR METER
FREE SWING SWITCH
LIMIT SWITCH (GATE)
LIMIT SWITCH (CONSOLE)
HORN
HORN SW.
HORN SW. 2ND. OPT. (B)
SW. PANEL (R. H.)
THROTTLE VOL.
BYPASS RELAY
BEACON WARNING
HORN VOL.
FAN (1)
FAN (2)
FAN (3)
SHUT DOWN 1
SHUT DOWN 2
LEVER LOCK
TO AUTO FAN
HEATER
AIRCON. UNIT
AIRCON. SWITCH
(SWITCH PANEL L. H PARTS) 24V. 20A
WASHER
WIPER
LAMP
BUZZER
ROOM LAMP
LAMP (BOOM)
LAMP (HOUSE)
TO LUBRICATOR
ENG. SHUTDOWN MOTOR
RELAY BATTERY
12V
TO OIL PUMP
BUZZER
MAGNET CLUTCH
DUAL SWITCH
WASHER
HEAT RELAY
HORN (L)
HORN (S)
ALTERNATOR
STARTER MOTOR
OIL PRESS.
OIL FILTER
THERMO SWITCH (WATER)
PICK UP
WATER TEMP.
GLOW PLUG
HYD. OIL TEMP SENSOR
FUEL SENSOR
THERMO SWITCH (HYD.)
RESERVE TANK LSW.
AIR FILTER
BOOM PILOT PRESS.
SWING PILOT PRESS.
BRAKER PILOT PRESS.
THROTTLE MOTOR
ANGLE SENSOR
ARM
BACKET
BOOM
MONITOR
DRIVER
OPT. CONTOROLLER
OPT. MONITOR
FLOOR PLATFORM
2 STAGE TRAVEL
SWP
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Revolution Sensor Removal and Installation



1 Prepare the Machine
Position the machine on level ground.
Stop the engine and remove the starter key.

2 Locate the Flywheel housing
a The flywheel housing is machined to accommodate the sensor.

b Remove the sensor by unscrewing it.

Note: Check the 'O'-ring for damage or wear, replace if necessary.

3 Installation is by screwing the sensor in the machined section at a torque of 44.13-53.0 Nm(33-40 lb ft).

Note: The clearance between the sensor and the flywheel is 3.1 +0.4 mm.

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Pressure settings

Service Max Engine Speed, `S´ Mode	JS130W	JS160W	Tolerance
	Bar (lbf/in²)	Bar (lbf/in²)	Bar (lbf/in²)
2 Stage Main Relief Boom Raise Arm in/out Bucket open/close Standard	312 (4524)	315 (4568)	±5 (72)
Boost/ F mode	340 (4930)	340 (4930)	±5 (72)
Boom Service Relief - Boom Lower Stall	295 (4227)	295 (4227)	±5 (72)
Swing Service Relief (x2) -Left/Right Stall	295 (4227)	285 (4132)	±5 (72)
Overload Relief - Boom/Arm/Bucket	365 (5292)	365 (5292)	±5 (72)
Hammer Service Relief (x2) - Hammer/Auxiliary Stall	180 (2610)	180 (2610)	±10 (145)
Boom Position Ram Service Relief - TAB Stall (if Fitted)	365 (5292)	365 (5292)	±5 (72)
Blade/Stabilizer Service Relief (x2) - Service Stall	250 (3625)	250 (3625)	±5 (72)
Steer/Brakes Service Relief - Steer Stall	175 (2538)	175 (2538)	±5 (72)
Hand Steer Valve Overload - Steer Stall - Orbital	195 (2828)	195 (2828)	±5 (72)
Grab Rotate Cross-line Relief (X2) - Rotate Stall	150 (2175)	150 (2175)	±10 (145)
Negative Control - `S´ Mode, Neutral, Maximum RPM	40 (580)	40 (580)	±2 (29)
Servo Pressure	40 (580)	40 (580)	±5 (72) 0 (0)
Clutch Pilot Pressure - Continuous	32 (464)	32 (464)	±2 (29)
Service Brake Pressure - On Latch	48 (696)	48 (696)	±2 (29)
Park Brake Pressure - Clutch Residual	15 (218)	15 (218)	±1 (14.5)
Service Brake Charge - Cut In on Falling Pressure	130 (1885)	130 (1885)	±5 (72)
Service Brake Charge - Cut Out on Rising Pressure	150 (2175)	150 (2175)	±5 (72)
Hose Burst Check Valve Relief - Boom Ram Head Side	365 (5292)	365 (5292)	±5 (72)
Hose Burst Check Valve Relief - Position Ram Head Side	365 (5292)	365 (5292)	±5 (72)
Hose Burst Check Valve Relief - Arm Ram Rod Side	365 (5292)	365 (5292)	±5 (72)
100% Swing Brake - Normal Residual Pressure	13 (188)	15 (218)	±1 (14.5)
Service Brake Accumulators (x4) - Nitrogen Pre-charge	37 (536)	37 (536)	±2 (29)
Park Brake Accumulator - Nitrogen Pre-charge	6 (87)	6 (87)	±1 (14.5)
Service Brake Warning Lamp - Pressure Switch Falling	105 (1522)	105 (1522)	±10 (145)
Rear Brake Lights - Pressure Switch Rising	5 (72)	5 (72)	±1 (14.5)
Reverse Lights - Pressure Switch Rising	5 (72)	5(72)	±1 (14.5)
Park Brake (Drive Inhibit and Alarm) -Pressure Switch Falling	26 (377)	26 (377)	±3 (43)
P22 Pump Signal - Drive at 90% Flow	312 (4524)	315 (4568)	±5 (72)
Pressure Sequence Valve - Clutch Priority	28 (406)	28 (406)	±2 (29)
Clutch Priority Accumulator - Nitrogen Pre-charge	8 (16)	8 (16)	±1 (14.5)

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Assembly (cont'd)

25 Fit 'O'-ring **80** into rear cover **3**. Install gear pumps **57** and secure with washer **109** and the two bolts **77** tightened to a torque of 45 Nm (33 lbf ft, 4.5 kgf m).

26 Assemble sub-block **50** as follows:

a Fit relief valve **56**.

b Fit adjustable elbow **60**, making sure the elbow faces away from the relief valve.

c Insert disc filter **51** followed by spring **104** and plug **107** complete with 'O'-ring **108**.

d Insert spool **103** into sleeve **102** with the drilled end of the spool corresponding to the stepped end of the sleeve. Insert the assembly, stepped end of sleeve first, into the block. Mount solenoid **58**.

e Into the mounting face of the block, insert 'O'-rings **89**, **91**, **93** (2 off), and **111**, the second disc filter **51** and orifice **110**.

Note: Check that the orifice and its mounting position are not clogged.

27 Fit sub-block **50** assembly onto the pump housing and secure with the four socket head bolts **74**, tightened to a torque of 33 Nm (24 lbf ft, 3.3 kgf m).

Tighten the following parts of the sub-block assembly to the specified torque:

Relief valve **56** - 83 Nm (61 lbf ft, 8.5 kgf m)
Plug **107** - 52 Nm (38 lbf ft, 5.2 kgf m)
Solenoid **58** retaining screws (x 4) - 4.2 Nm (3.1 lbf ft, 0.43 kgf m).

28 Connect hose **59** to the two adjustable elbows **60** and tighten to a torque of 52 Nm (38 lbf ft, 5.2 kgf m).

29 Tighten plugs **65** and **66** to a torque of 71 Nm (52 lbf ft, 7.2 kgf m) and plug **67** to 30 Nm (22 lbf ft, 3.0 kgf m). Fit mounting flange **61** to flange **2** and secure with the four socket head bolts **73** tightened to a torque of 275 Nm (203 lbf ft, 28 kgf m).

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Diverter Valve

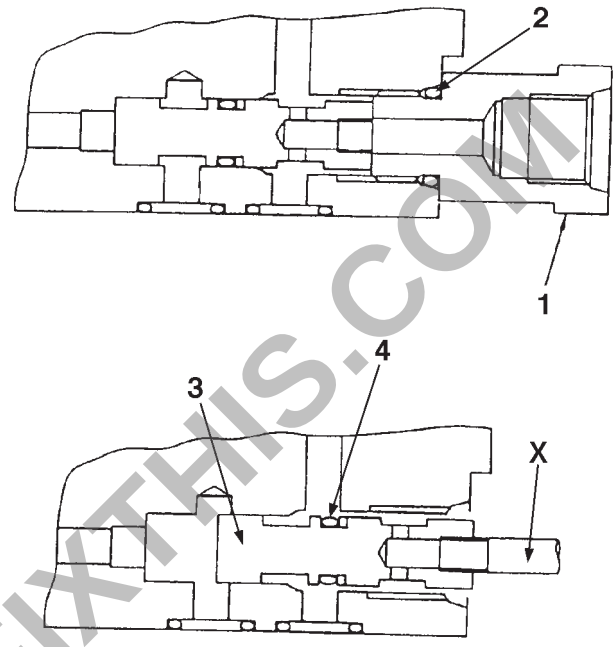
Dismantling

1 Remove cover plug **1**.

2 Remove 'O'-ring **2** and discard.

3 Using a steel rod **X** with one end threaded M5 x 0.8, screw into sleeve **3** and withdraw from control valve body.

4 Remove 'O'-ring **4** and discard.



JS01450

Cleaning, Inspection

1 Clean all parts with clean oil and dry with compressed air. Inspect all parts.

2 Ensure sleeve **3** moves smoothly.

3 Remove slight defects by lapping.

4 Renew damaged or badly worn parts.

Assembly

Assembly is the reverse of the dismantling procedure.

Torque Settings

1 29.8 Nm (22 lbf ft)

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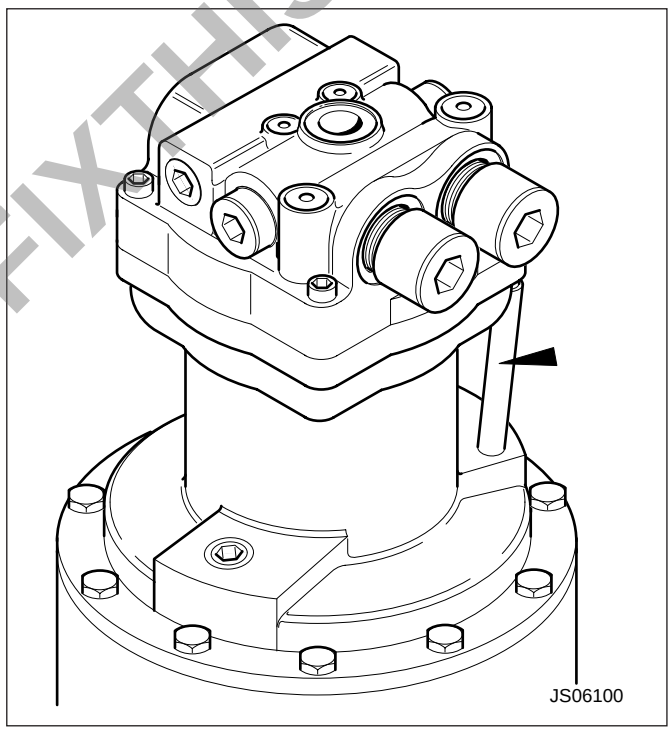
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Dismantling - JS130W/JS145W

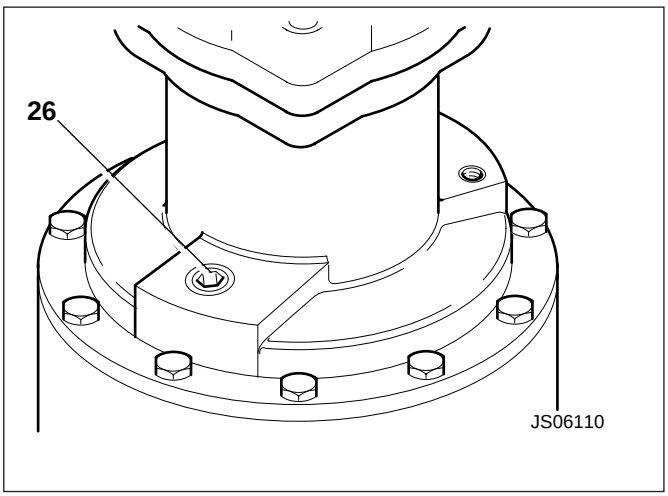
Refer to the sectional drawing on page E/35-1 of this section as a guide to dismantling and assembly.

Before attempting to dismantle the slew motor assembly, the inlet and outlet ports should be blanked and the outer surfaces washed down with a suitable solvent to remove all dirt and dust. Dry using compressed air.

1 Remove the level gauge with a pipe wrench.



2 Remove plug **26** with an 8 mm Allen key and drain the gear oil.



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Power Track Rod (cont'd)

Dismantling and Assembly (cont'd)

10 Connect the track rod ends to the hub carrier steering knuckles.

Coat the surface of pivot pin **B** with anti-seize paste (see **Sealing and Retaining Compounds**, Section 1) and insert the pin into the hub carrier and fit the setscrew **A**. Apply JCB Threadlocker and Sealer to the threads and torque tighten to 56 Nm (41 lbf ft).

11 Centralise the steering so that the distance **T** measured from the end of the piston guide to the steering ball joint face is 111 mm (4.37 in).

12 Attach a straight edge **X** to both hubs using a wheel mounting nut.

Make a mark at position **Y** which corresponds to the distance **Z**, wheel centre to rim flange on each straight edge.

13 Measure the distance **V** between the two straight edges. Rotate both hubs through 180° and measure the distance **W**. The two measurements should be the same. If not, carry out step **14**.

14 Loosen the locknut **E** on each track rod end. To adjust the tracking, use a spanner to rotate the inner ends of the track rods.

Repeat steps **13** and **14** until the two measurements are the same.

Check that a steering angle of 35° can be achieved in both directions. If the steering angle is not the same in both directions it is necessary to adjust both track rod ends to compensate while still meeting the requirements of step 13.

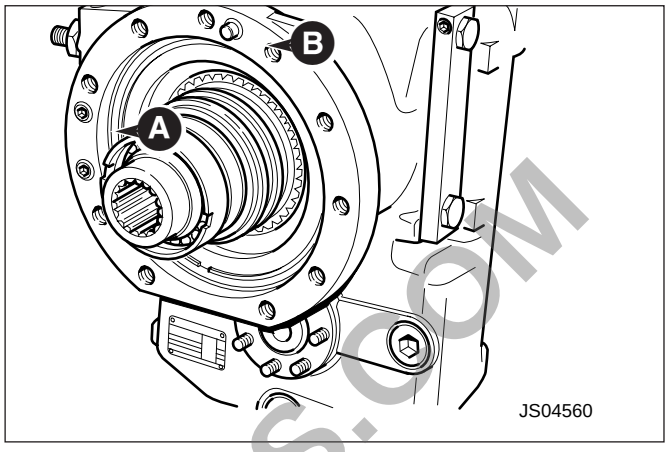
Finally torque tighten the locknut **E** on each track rod end to 240/260 Nm (177/192 lbf ft).

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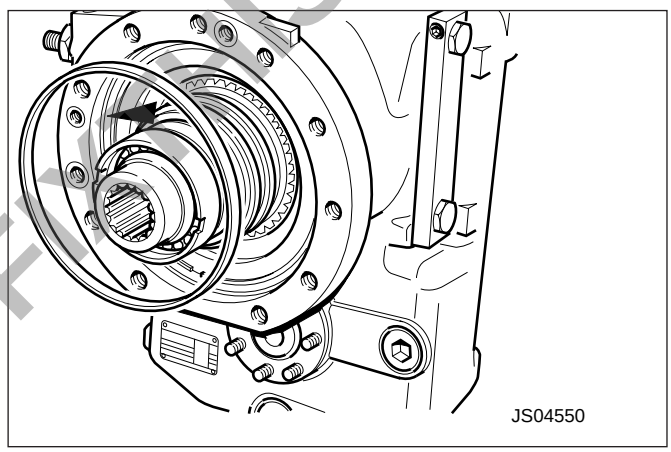
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Dismantling (cont'd)

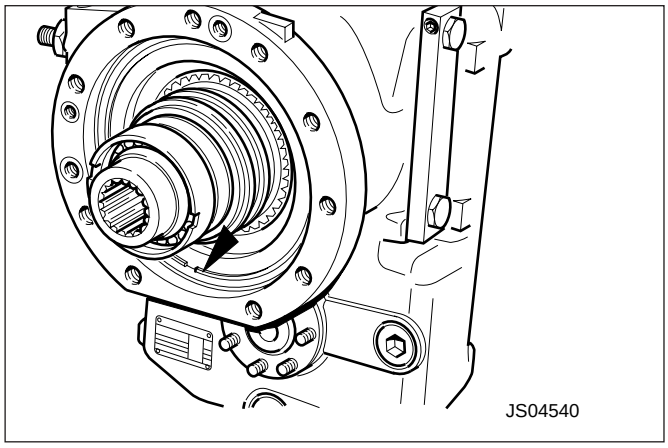
8 Remove screw plug **A** and breather **B**.



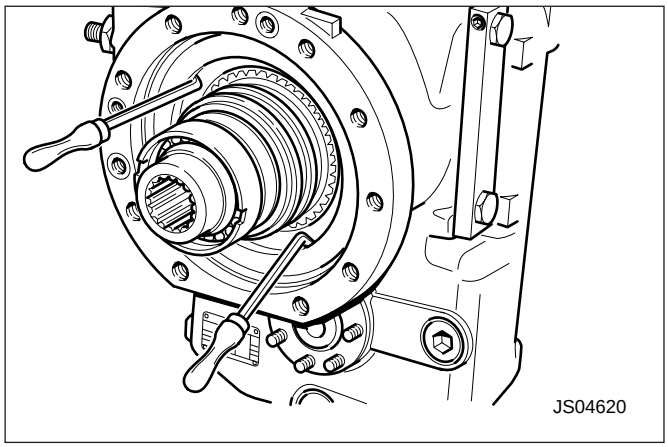
9 Remove the seal ring and back-up ring from the ring groove of the housing (arrowed).



10 Squeeze out the circlip.



11 Remove the gasket from inside the housing bore.

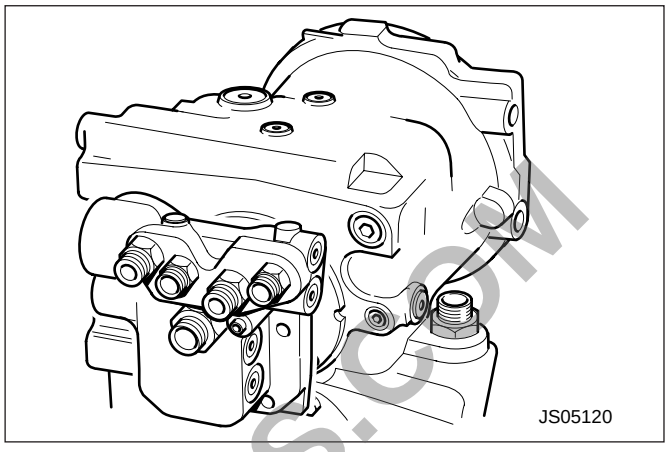


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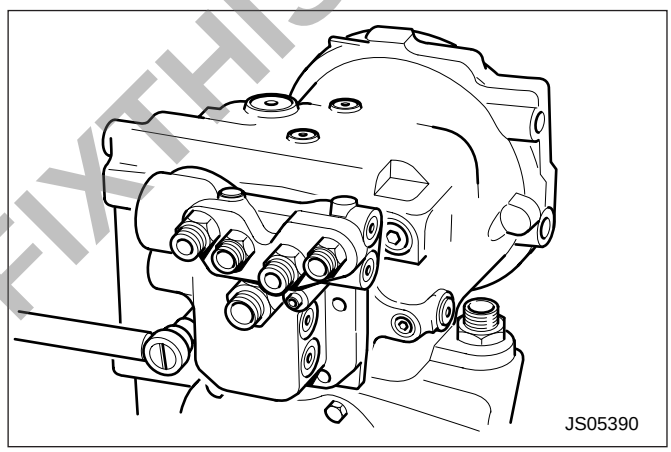
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Assembly (cont'd)

124 Fit the shift lock assembly to the gearbox housing, making sure the drive ball in the pump shaft locates with the groove in the inner rotor.

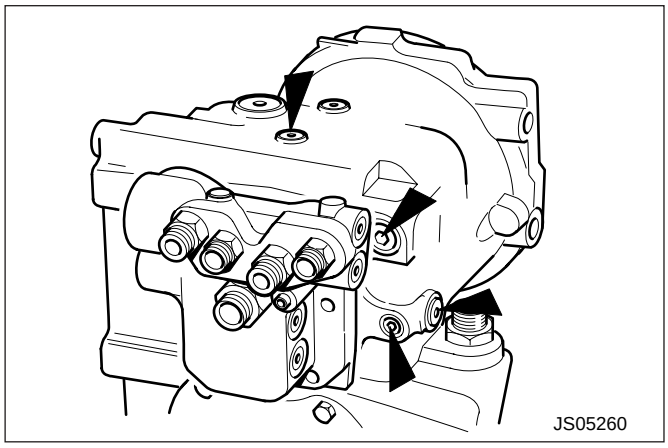


125 Secure the shift lock assembly to the gearbox by means of the four screws tightened to a torque of 23 Nm (16.9 lbf ft).

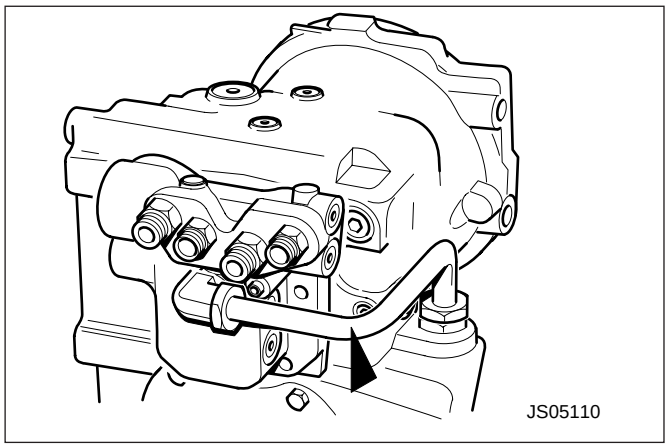


126 Install the screw plugs (arrowed) and tighten, according to size, to a torque of:

M10 - 25 Nm (18.5 lbf ft)
M14 - 35 Nm (26 lbf ft)
M18 - 50 Nm (37 lbf ft)



127 Install the suction pipe.



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