CIRCUIT DIAGRAM JCB 806B and 807B (Machines with USA–Husco Excavator Valve)

Some JCB 806B and 807B machines are fitted with an excavator valve block manufactured by Husco in the USA in lieu of the British counterpart manufactured by Rubery-Owen. Machines with the USA–Husco valve are identifiable by the use of line-mounted slew relief and off-loading valves (**4** and **6**) whereas the standard production machines have these units incorporated in the Rubery-Owen valve block. A further difference is that due to the design of the parallel gallery **25**, machines with the USA Husco valve are not fitted with a high pressure carry-over line.

The operation of the circuit on USA Husco machines is identical to that of the standard machines (see page 18–5) with the following exception:–

Boom, Dipper and Bucket Services

When a spool is selected, the neutral circuit (line **12**) is blocked by the spool and flow is diverted from the neutral circuit into the parallel gallery **25** and on to the selected service.

Component Key

1 Tank
2 Triple Pump
3 Slew Spool
4 Slew M.R.V.
5 Excavator Valve Block
6 Off- loading Valve
7 Track Valve Block
8 Track Spool L.H.
9 Track Spool R.H.
10 Track M.R.V. L.H.
11 Track M.R.V. R.H.
12 See Text
13 Boom Spool
14 Dipper Spool
15 Bucket Spool
16 Oil Cooler
17 Filters
18 Rotary Coupling
19 Track Motor
20 Shuttle Valve
21 Track Brake
22 Slew Motor
23 Slew Brake
24 Slew Vent Valve
25 Parallel Gallery
28 Shuttle Valve
29 Boom Rams
30 Dipper Ram
31 Bucket Ram
32 Excavator A.R.V.s.
33 One-way Restrictor
34 Variable Restrictor
35 Non-return Valve
36 Motor Bleed Line

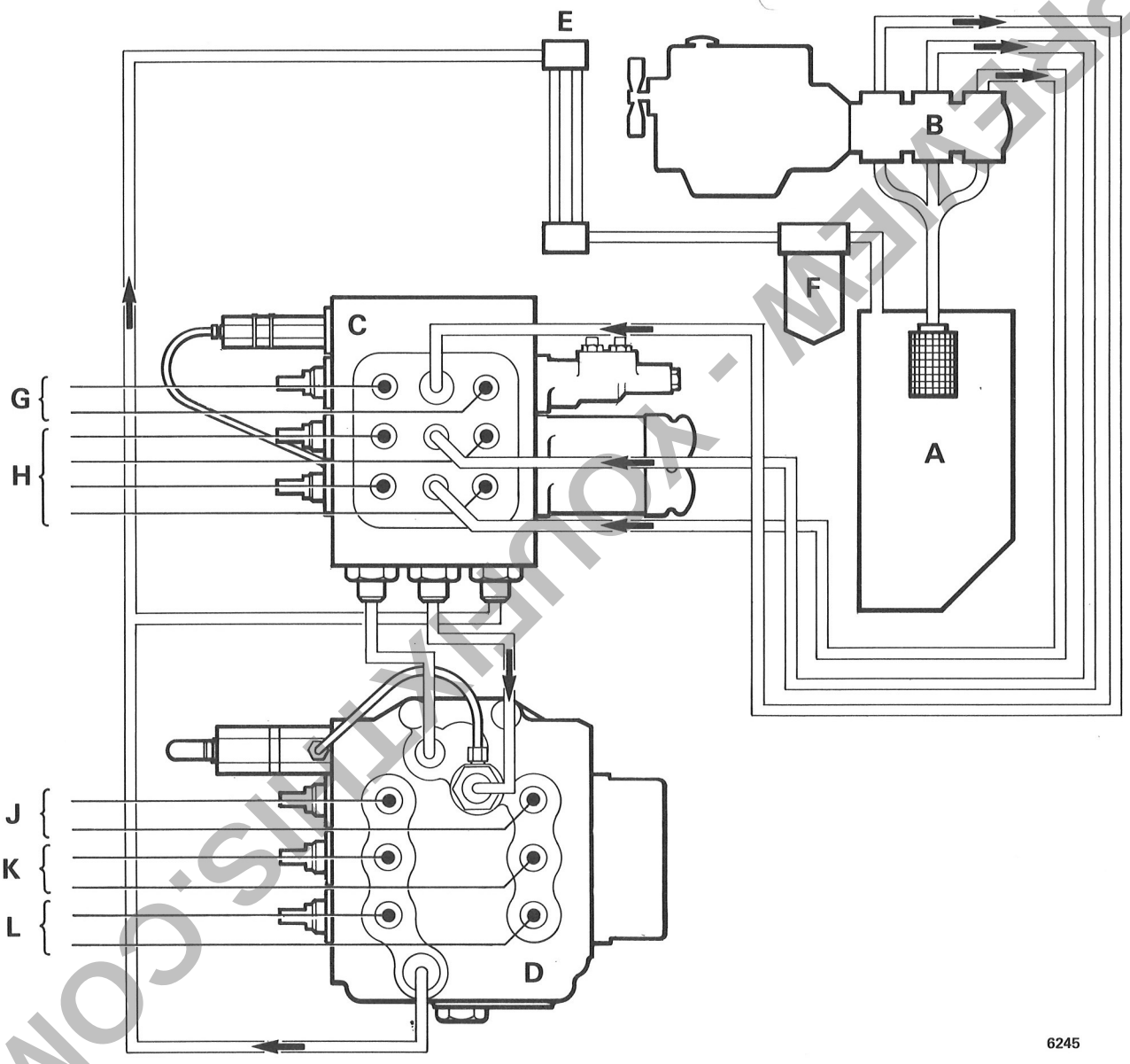
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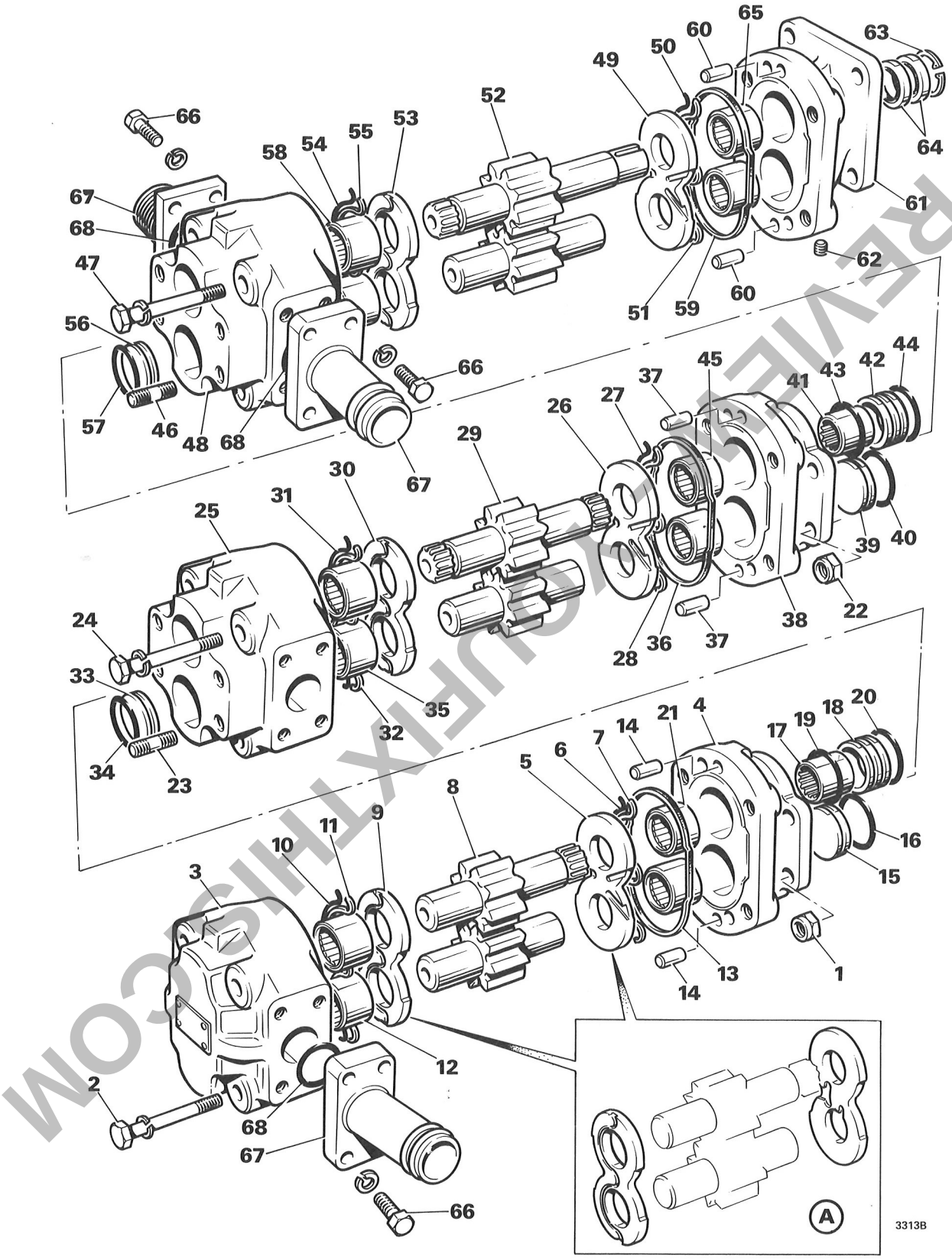
HYDRAULIC CIRCUIT – NEUTRAL

This page ought to face 16-2 (PM). (see memo M. Burton 30 Nov. 81)



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TECHNICAL DATA (Continued)

Rams

Torque Settings for later type rams with Loctite or tab lock retained piston heads.

Ram Dia. mm.	Ram Dia. in.	Item	Torque Settings Nm	kgf m	lbf ft
114	4.5	Piston Head	408	41.6	300
		Cylinder End Bolts	680	69.4	500
		Wiper Seal Housing Bolts			
		– 3/8 in dia	42	4.3	31
		– 1/2 in dia	102	10.4	75
127	5.0	Piston Head	408	41.6	300
		Cylinder End Bolts	972	99.0	720
		Wiper Seal Housing Bolts			
		– 3/8 in dia	42	4.3	31
		– 1/2 in dia	102	10.4	75
152	6.0	Piston Head	408	41.6	31
		Cylinder End Bolts	972	99.0	720
		Wiper Seal Housing Bolts			
		– 3/8 in dia	42	4.3	31
		– 1/2 in dia	102	10.4	75

Filtration

Type	JCB Full Flow (Overload By-pass)
Relief Valve Setting	1.4 bar (20 lbf/in^2)
Element	Paper
Filtration Size	60%–15 micron; 15%–5 micron

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HYDRAULIC FILTER

(Early Type)

RENEW ELEMENT Every 400 Hours

1 Carefully remove hydraulic oil filler cap *A*

2 Remove plug *B* to prevent excess loss of fluid.

3 Remove U-bolt *C.*

4 Unscrew bolt *D* until body can be withdrawn.

Note: A considerable amount of fluid will flow from the filter at this stage.

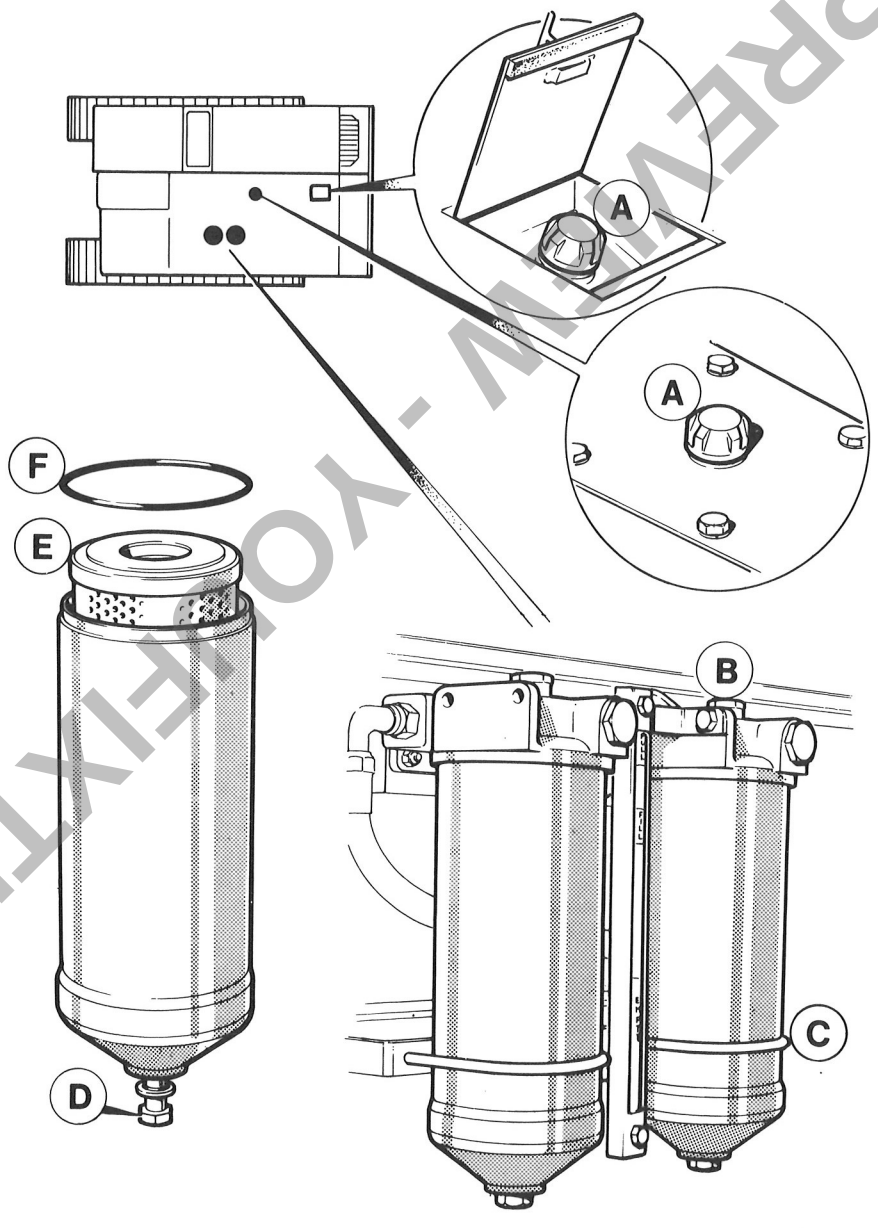
5 Remove bolt *D*, body, and element *E.*

6 Wash all metal parts in JCB 'Special' Hydraulic Fluid.

7 Re-assemble using new element and seal *F.*

8 Repeat for second filter.

9 Top up at filler cap.



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FAULT FINDING

Before carrying out the checks listed, first ensure that:

1. The hydraulic system is filled with the correct fluid and is free from obvious leaks.
2. The filters and strainers are clean.

If possible, operate the machine to determine the fault area and to bring the system to working temperature.

A. If there is an excavator fault, start at check 1.

B. If there is a slew fault, start at check 21.

C. If there is a track fault, start at check 30.

CHECK	ACTION
1. Is the fault in all services or one only?	ALL: Check 2 ONE: Check 3
2. Are the services inoperative or lacking in performance?	INOPERATIVE: Check 11 POOR PERFORMANCE: Check 13
3. Are the rams seals defective?	YES: Replace NO: Check 4
4. Is the valve spool sticking?	YES: Overhaul valve block NO: Check 5
5. Is the A.R.V. operating correctly?	YES: Check 6 NO: Overhaul and set
6. Is the load-hold non-return valve sticking open?	YES: Clean or renew NO: Check 7
7. Is the restrictor blocked?	YES: Clear blockage NO: Check 8
8. Is the control linkage correctly adjusted?	YES: Check 9 NO: Adjust
9. Is the valve block cracked?	YES: Renew valve block NO: Check 10
10. Are the valve spools leaking externally?	YES: Renew seals NO: Check valve block for cracks

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LUBRICANTS AND CAPACITIES

ITEM	LUBRICANT	CAPACITY	Litres	(UK gal)
*Engine (Also Fuel Injection Pump on 2700 Series)		Perkins 4.248 : Perkins 6.354 : Perkins 6.3544	16 25	(3.5) (5.5)
		–805B :	13.5	(3.0)
–18 to –1 deg C	Mobil Delvac 1310	–806B,807B :	14.0	(3.1)
–1 to 27 deg C	JCB Super X Universal (20W20) or Mobil Delvac 1320	Perkins T6.354 : Perkins T6.3544 :	27.3 14.5	(6.0) (3.2)
Above 27 deg C	Mobil Delvac 1330	2712E 4 Cyl. : 2715E 6 Cyl.	12.5	(2.75)
		–To m/c 77891 :	20.0	(4.4)
		–From 77892 :	25.5	(5.5)
* Track Gearbox	JCB 'Special' Gear Oil (4000/0501)		6.8	(1.5)
*Slew Gearbox	JCB Slew Oil (4000/0701)		15.4	(3.4)
Hydraulic Tank	JCB 'Special' Hydraulic Fluid	805 : 805B : 806B,807B,808 :	254 409 339	(56) (90) (74.5)
Track Idler Wheels	Mobil Delvac 1330			
Track Rollers (Top & Bottom)	Mobil Delvac 1330			
Slew Ring–Bearings –Gear Teeth	~~Mobilplex 47~~ JCB Special MPL Mobiltac E (See WARNING below)			
All Other Grease Points	~~Mobilplex 47~~, JCB 'Special' MPL Grease or Mobilgrease Super			
Sliding Beam	JCB 'Special' Slide Lubricant			

WARNING: Mobiltac E has a lead content of 1.53%
Contaminated materials, e.g. rags, containers etc., must only be disposed of in accordance with regulations governing the disposal of toxic waste.

		Litres	(UK gal)
Fuel Tank Capacity	–805	291	64
	–805B	323	71
	–806B,807B,808	482	106
*Coolant Capacity	–Perkins 4.248	26	5.75
	–Perkins 6.354	28	6.25
	–Perkins 6.3544 (805B)	26	5.75
	–Perkins 6.3544 (806B,807B)	26.8	5.9
	–Perkins T6.354 (to m/c 76160)	32	7
	–Perkins T6.354 (from m/c 76161)	28	6.25
	–Perkins T6.3544	27.5	6.1

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SERVICE SCHEDULE

☐ 1st/2nd Free Service ■ Routine Service

Check		Every 10 Hours	Every 50 Hours	Every 100 Hours	Every 200 Hours	Every 400 Hours	Every 800 Hours	Every 1600 Hours
Hydraulic fluid level	1	■	■	☐ ■	■	☐ ■	■	
Hose and pipework for leaks	2			☐ ■	■	☐ ■	■	■
Tightness of ram end caps	3			☐ ■	■	☐ ■	■	■
Condition of ram piston rods	4			☐ ■	■	☐ ■	■	■
Pump drive	5			☐ ■	■	☐ ■	■	■
Operation of services	6	■	■	☐ ■	■	☐ ■	■	■
–Excavator	7	■	■	☐ ■	■	☐ ■	■	■
–Transmission	8	■	■	☐ ■	■	☐ ■	■	■
–Brakes (track & slew)	9	■	■	☐ ■	■	☐ ■	■	■
Main relief valve pressure(s)	10					☐ ■	■	■
Off loading valve pressure	11					☐ ■	■	■
Auxiliary relief valve pressures	12					☐ ■	■	■
All grease seals	13			☐ ■	■	☐ ■	■	■
Slewing ring bolts torque load	20			☐		■	■	■
Gearbox oil (track & slew) levels	21		■	☐ ■	■	☐ ■	■	
Track roller levels	22	■	■	☐ ■	■	☐ ■	■	■
Track plate condition	23	■	■	☐ ■	■	☐ ■	■	■
Track adjustment	24	■	■	☐ ■	■	☐ ■	■	■
Track and running gear condition	25		■	☐ ■	■	☐ ■	■	■
Engine oil level	30	■	■	■				
Fuel injection pump oil (2700 Series)	31		■	☐ ■	■	☐		
Engine coolant (anti-freeze)	32	■	■	☐ ■	■	☐ ■	■	■
Fuel system for leaks	33	■	■	☐ ■	■	☐ ■	■	■
Valve clearance and lubrication	34			☐		☐ ■	■	■
Engine mounting bolts	35			☐ ■	■	☐ ■	■	■
Exhaust (excessive smoke)	36	■	■	☐ ■	■	☐ ■	■	■
Max. governed engine speed	37			☐		☐ ■	■	■
Idling speed	38			☐		☐ ■	■	■
Turbocharger boost pressure	39					☐ ■	■	■
Air cleaner hose security	40			☐ ■	■	☐ ■	■	■
Exhaust system security	41			☐		☐ ■	■	■
Fan belt adjustment	42		■	☐ ■	■	☐ ■	■	■
Starter motor/alternator brush gear	50							■
Operation of electrical equipment	51	■	■	☐ ■	■	☐ ■	■	■
* Battery electrolyte level	52		■	☐ ■	■	☐ ■	■	■

(805B Fulmen Battery – At 1600 hours or Yearly)

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	805	To m/c no.	805B	To m/c no.	806B 807B	To m/c no.	808	To m/c no.
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Testing–Alternator	8/6–1		8/6–1		8/6–1		8/6–1	
–Charging Circuit	8/5–1		8/5–1		8/5–1		8/5–1	
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805,805B
806B,807B
808

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PRESSURE TESTING

Main Relief Valves—Track Block (JCB 805,806B,807B & 808)

Dependent upon which valve is being tested, install chock A part no. 892/00030 (see Service Tools catalogue) into the track sprocket on the appropriate side of the machine.

Connect pressure gauge 892/00001 to the respective pump outlet adapter (X—left-hand track, Y—right-hand track) using snap connector B, part no. 892/00099.

Run the engine at maximum speed, select the full speed forward position on the track control and check the gauge reading.

If necessary, adjust the relief valve as at C until the gauge reading is equal to the correct operating pressure of the valve (see Technical Data). Before setting the pressure, unscrew the adjusting screw two or three turns to release any trapped dirt.

Repeat the operation for the remaining track.

If the correct pressure setting cannot be reached, carry out the following check:—

Stop the engine, operate all controls to vent residual pressures and tilt the cab.

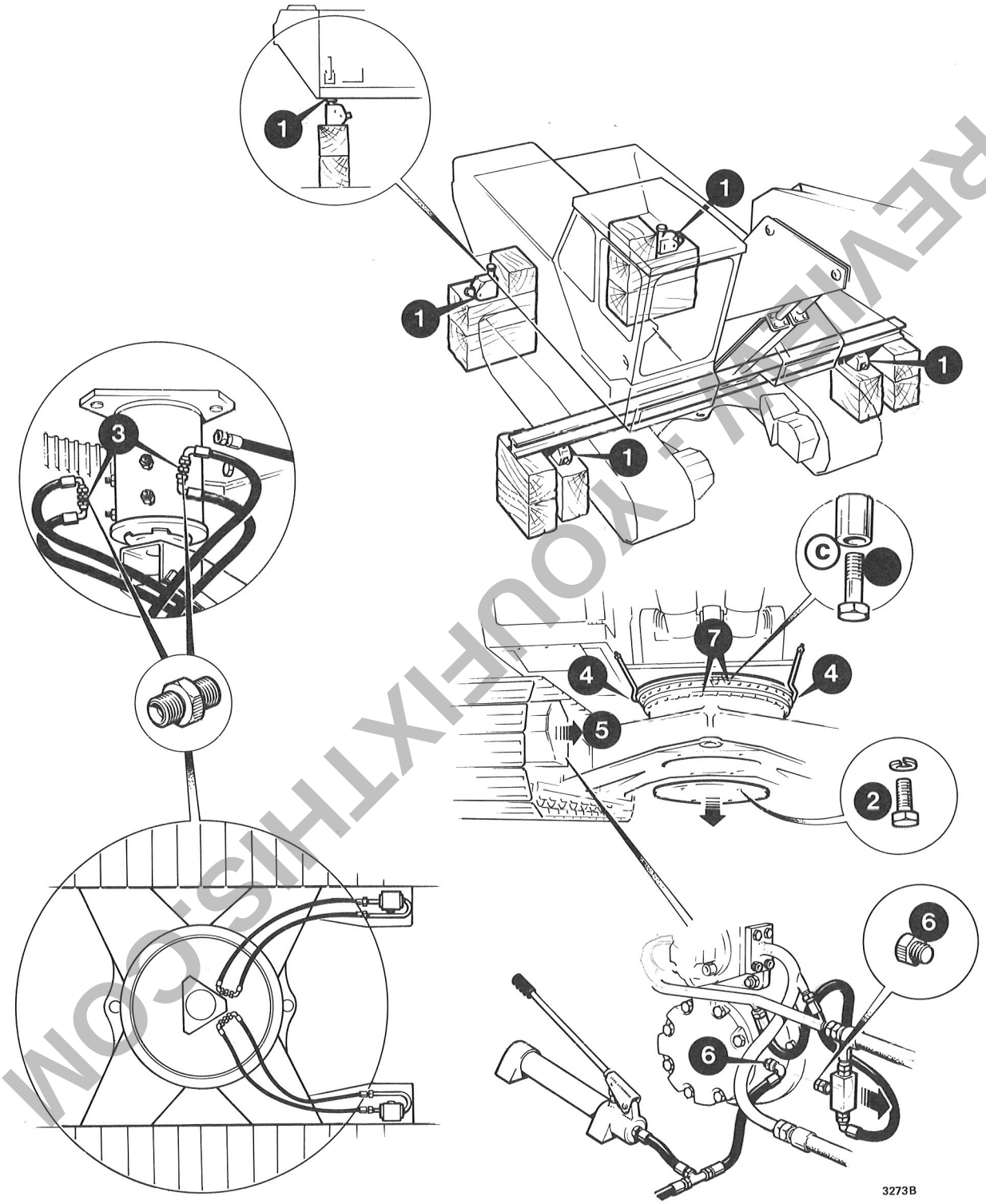
Connect the gauge into the excavator valve as at D, using a 3/8 BSP adapter.

Run the engine and operate the track control as before. After checking the operating pressure, allow the control to return to neutral and stop the engine, when the gauge reading should fall to approximately 35 Bar (500 lbf/in^2) and be maintained at this level for approximately 2 minutes before falling to zero.

If the pressure falls more rapidly, then a likely cause is a defective non-return valve in the track valve manifold. Alternatively there may be a fault in the excavator valve, e.g. leaking spool or cracked valve block.

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