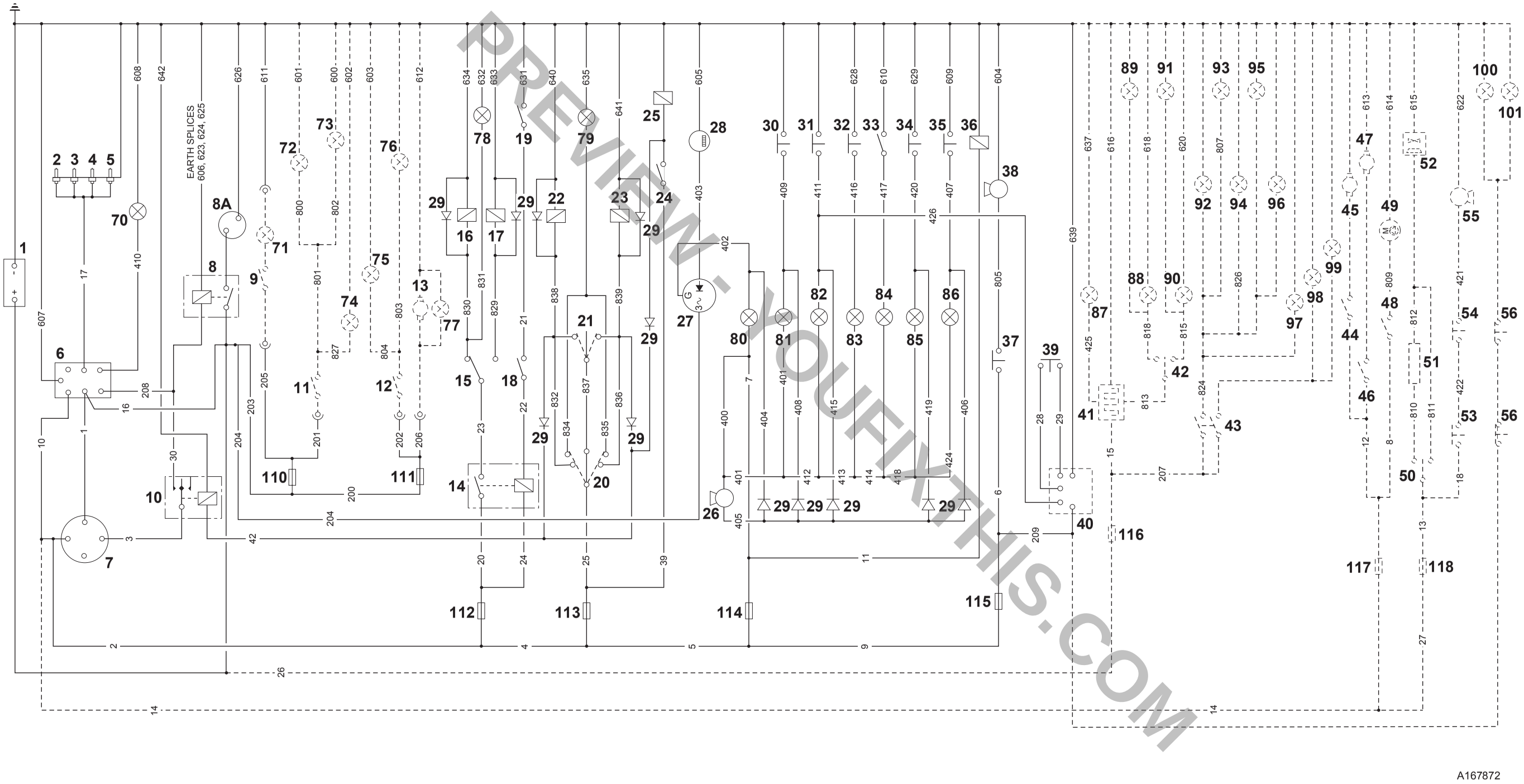
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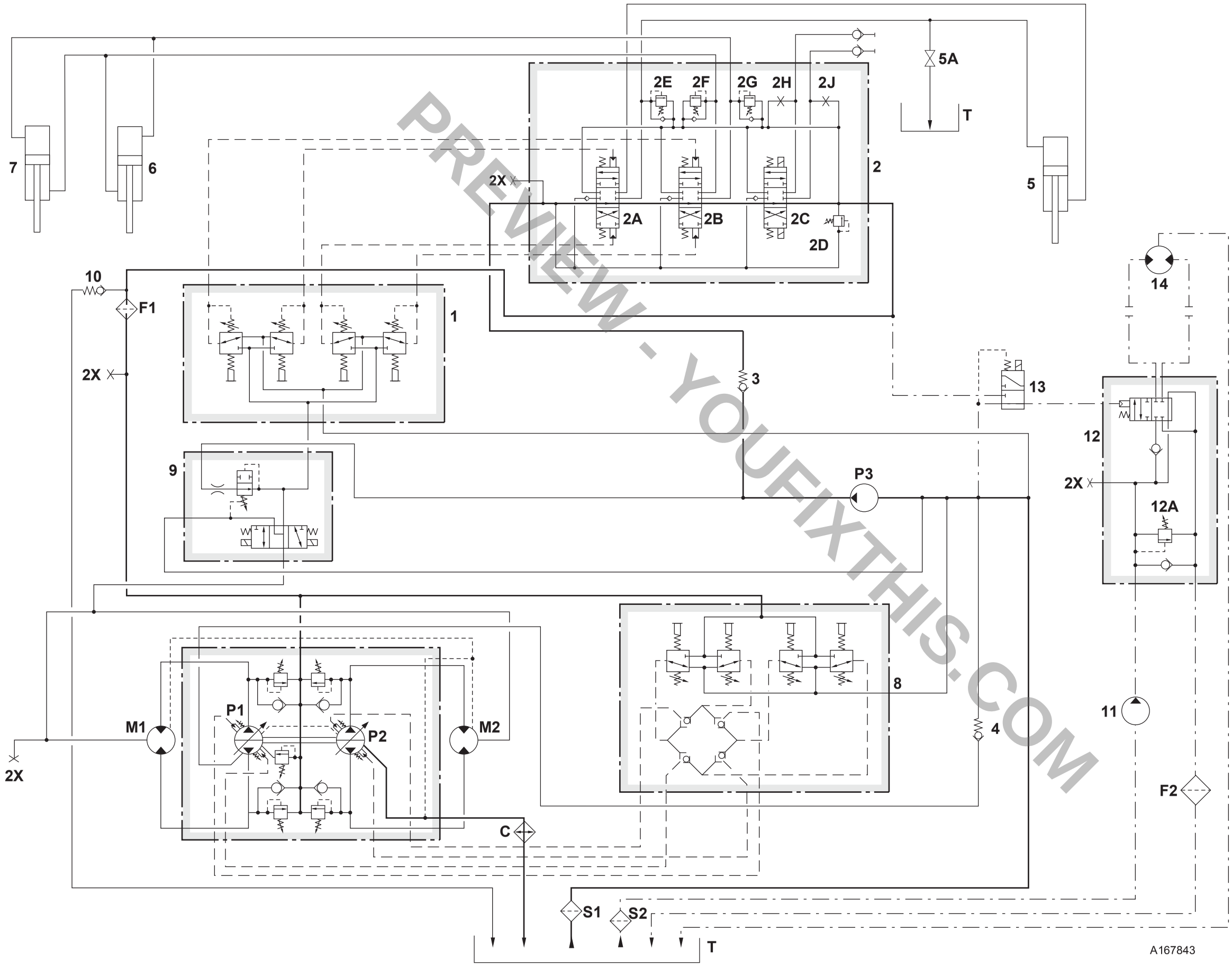
	Page No.
Identifying your Machine	1 - 1
Torque Settings	2 - 1
Service Tools	
- Numerical List	3 - 1
- Electrics	4 - 1
- Hydraulics	4 - 2
Sealing and Retaining Compounds	5 - 1

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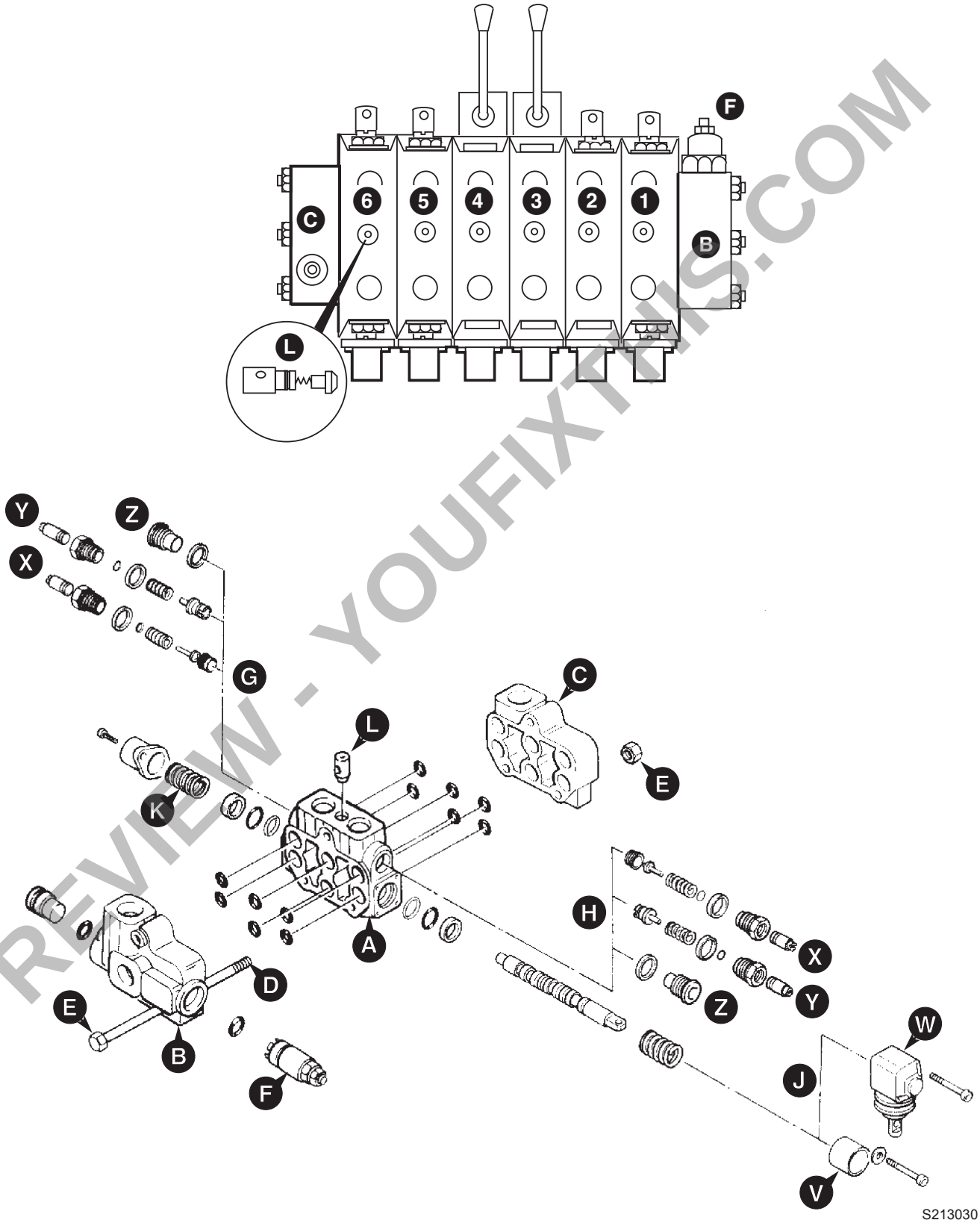


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Valve Block

Dismantling and Assembly



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Use only where no torque setting is specified in the text. Values are for dry threads and may be within three per cent of the figures stated. For lubricated threads the values should be REDUCED by one third.

UNF Grade 'S' Bolts

	Bolt Size in	(mm)	Hexagon (A/F) in	Torque Settings Nm	kgf m	lbf ft
	1/4	(6.3)	7/16	14	1.4	10
*	5/16	(7.9)	1/2	28	2.8	20
	3/8	(9.5)	9/16	49	5.0	36
	7/16	(11.1)	5/8	78	8.0	58
	1/2	(12.7)	3/4	117	12.0	87
	9/16	(14.3)	13/16	170	17.3	125
	5/8	(15.9)	15/16	238	24.3	175
	3/4	(19.0)	1 1/8	407	41.5	300
	7/8	(22.2)	1 5/16	650	66.3	480
	1	(25.4)	1 1/2	970	99.0	715
	1 1/4	(31.7)	1 7/8	1940	198.0	1430
	1 1/2	(38.1)	2 1/4	3390	345.0	2500

Metric Grade 8.8 Bolts

Bolt Size in	(mm)	Hexagon (A/F) in	Torque Settings Nm	kgf m	lbf ft
M5	(5)	8	7	0.7	5
M6	(6)	10	12	1.2	9
M8	(8)	13	28	3.0	21
M10	(10)	17	56	5.7	42
M12	(12)	19	98	10	72
M16	(16)	24	244	25	180
M20	(20)	30	476	48	352
M24	(24)	36	822	84	607
M30	(30)	46	1633	166	1205
M36	(36)	55	2854	291	2105

Note: All bolts used on JCB machines are high tensile and must not be replaced by bolts of a lesser tensile specification.

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Hydrostatic Transmission

Before carrying out any problem solving or any tests on the machine, make sure that the hydraulic system is filled to the correct level with the correct grade of hydraulic oil (see Section 3) and that the system is at the correct working temperature.

PROBLEM	CAUSE (servo machines)	CAUSE (manual machines)
No drive in any direction	1, 2, 4, 5, 11, 17, 24, 25	1, 2, 4, 5, 17, 24, 25
No drive in either forward or reverse	6, 10, 12, 19	6, 10, 19
No spin turn either left or right	3, 4, 5, 12, 17, 19, 22, 23	3, 4, 5, 17, 19, 22, 23
No drive on one side	5, 6, 10, 12, 19, 23, 24	5, 6, 8, 10, 19, 23, 24
Machine will not travel in straight line	3, 7, 10, 12, 17, 19, 20, 21, 22	3, 8, 9, 17, 19, 21, 25
No brakes	14, 15, 16, 18	14, 15, 16, 18
Brakes on all the time	13, 14, 15, 16, 18	13, 14, 15, 16, 18
No tractive effort	4, 5, 6	4, 5, 6
Machine creeps in neutral	7	8

KEY TO CAUSE		REMEDY	PAGE REF.
1	No oil in hydrostatic system	Check supply of oil to pump.	
2	Door/restraint not in correct position	Ensure door closed and restraint in operating position, check electrical wiring and switches as required.	Sect. C
3	Tyres worn or pressure incorrect	Check tyre pressures and condition.	3/9-4
4	Charge pressure incorrect	Adjust charge pressure.	E10-3, E10-11
5	No or low pump output	Check pump - carry out wheel speed check. If one pump suspect, swop motor feed hoses and notice if problem changes sides - if 'yes', pump related fault; if 'no', motor related fault.	E14-4 E14-3
6	A high pressure 'loop' relief valve/tow valve open/set incorrectly	Replace relief valve and re-check.	
7	Pump neutral position set incorrectly	Adjust servo neutral position.	E10-11, E14-5, E14-6
8	Manual controls incorrectly set	Adjust manual controls	E10-7
9	Lever stops incorrectly set	Adjust lever stops.	E14-7
10	Feed hose failure	Check motor feed hoses.	
11	No hydraulic feed to joystick	Check for feed to joystick.	E14-11
12	No hydraulic feed from joystick to pump	Check for feed from joystick to pump.	E14-11
13	Brake hose failure	Inspect brake hoses.	
14	Brake release pressure incorrect	Check charge/brake pressure.	E14-10
15	Electrical failure (brake valve circuit)	Check brake valve electrical circuit.	Sect. C
16	Brake valve inoperative	Check valve (sticking spool, etc.)	E18-3
17	Brakes not released	Inspect motor brakes for seal damage. Repair as required.	E13-3, E13-5

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Up to machine no. 677000

Note: *System Cleanliness is to be to ISO 16/13 - See page E/2 - 0 for guidance.*

Auxiliary Pump - Standard

* Type	Gear type
Displacement	48 l/min (10.5 UK gal, 12.7 US gal/min) at 3000 rev/min
Maximum Working Pressure	185 - 192 bar (2683 - 2785 lbf/in^2, 188 - 196 kgf/cm^2)
Maximum Speed	3200 rev/min
Maximum Input Torque	121 Nm (89 lbf ft, 12 kgf m)

Auxiliary Pump - High-Flow

* Type	Dual gear type
Displacement - Front Section	57 l/min (12.5 UK gal, 15 US gal/min) at 3600 rev/min
Displacement - Rear Section	90 l/min (19.8 UK gal, 23.8 US gal/min) at 3600 rev/min
Maximum Working Pressure	185 - 192 bar (2683 - 2785 lbf/in^2, 188 - 196 kgf/cm^2)
Maximum Speed	3600 rev/min
Maximum Input Torque	121 Nm (89 lbf ft, 12 kgf m)

Main Pump (2-off) up to machine no. 676354

* Type	Tandem axial piston Series 40 M35
Displacement	35 cc/rev (2.13 in^3/rev)
Control	Servo non-feedback proportional, 18 bar (261 lbf/in^2) to give max pump displacement.
Maximum Working Pressure	280 bar (4060 lbf/in^2)
Maximum Speed	3600 rev/min
Maximum Input Torque	121 Nm (89 lbf ft, 12 kgf m)
Charge Pressure (oil temperature at 50° C)	6 bar (87 lbf/in^2) at engine idle; 18 bar (261 lbf/in^2) at 3000 rev/min

Main Pump (2-off) from machine no. 676355

* Type	Tandem axial piston Series 42 M28
Displacement	28 cc/rev (1.71 in^3/rev)
Control	Servo non-feedback proportional, 15 bar (218 lbf/in^2) to give max pump displacement.
Maximum Working Pressure	350 bar (5076 lbf/in^2)
Maximum Speed	3900 rev/min
Charge Pressure (oil temperature at 50° C)	7.5 bar (109 lbf/in^2) at engine idle; 19.5 bar (283 lbf/in^2) at 3000 rev/min

*** Loader & Transmission Joysticks**

Output Characteristics - all 4 positions	3.3 to 3.7 bar (48 to 53 lbf/in^2) at 15% stroke. 14.5 to 16.5 bar (210 to 234 lbf/in^2) at 95% stroke.

Hydraulic Motors up to machine no. 676354

* Type	OMT 400 FX axial piston
Displacement	410.9 cc/rev (25 in^3/rev)
Maximum Working Pressure	280 bar (4061 lbf/in^2) continuous
Maximum Speed	306 rev/min continuous
Maximum Flow	125 l/min (27.5 gal/min, 33 US gal/min) continuous

Hydraulic Motors from machine no. 676355

* Type	MCR03 axial piston
Displacement	328 cc/rev (20 in^3/rev)
Maximum Working Pressure	414 bar (6000 lbf/in^2) continuous
Maximum Speed	237 rev/min continuous
Maximum Flow	84 l/min (18.5 gal/min, 24 US gal/min) continuous

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Service Schedules

EVERY 10 OPERATING HOURS OR DAILY whichever occurs first, for the first 50 Operating Hours only

Check (engine stopped)

1 Tightness of wheel bolts

EVERY 10 OPERATING HOURS OR DAILY whichever occurs first

Clean

1 Machine generally, including cab interior

Check (engine stopped)

1 Generally for damage including ROPS/FOPS structure
2 Engine coolant level and condition
3 Fuel system for leaks and contamination
4 Hydraulic fluid level
5 Hydraulic system for leaks
6 Engine oil level and condition
7 Engine generally for leaks
8 Tyre pressures and condition
* **9** Windscreen washer level (if fitted)
10 Alternator belt tension (JCB Diesel engine only)
11 Fuel filter - drain if necessary (Peugeot engine only)
12 Seat belt condition and security

Check (Engine Running)

1 Warning lights extinguished
2 Operation of all electrical equipment
3 Exhaust for excessive smoke
4 Operation of all hydraulic services

Grease

1 Quickhitch pivot pins

AFTER THE FIRST 50 OPERATING HOURS ONLY

Change (Engine Stopped)

1 Engine oil and filter
* **2** Hydraulic fluid filter
3 Fuel filter - drain if necessary (JCB Diesel engine only)

Note: The engine is supplied with "Running in" oil. This must be changed together with engine oil filter after the first 50 operating hours. Failure to complete this could damage the engine.

EVERY 50 OPERATING HOURS OR WEEKLY whichever occurs first

Do the Daily jobs plus:

Check (Engine Stopped)

1 Oil cooler connections
2 Radiator hoses and condition
3 Alternator belt tension (Peugeot engine only)
4 Fuel filter - drain if necessary

Grease

1 Loader arm pivot points
2 Lift and compensating ram pivots

EVERY 100 OPERATING HOURS OR 2 WEEKLY whichever occurs first

Do the Daily and 50 hour jobs plus:

Clean

1 Battery terminals
2 Quickhitch square locking peg housings

Check (Engine Stopped)

1 Condition of ram piston rods
2 Hoses and pipework for chafing and damage
3 Air cleaner hose security
4 Wiring for chafing

Change

1 Air filter outer element when operating in dusty conditions

Oil

1 All linkage points
2 Hand throttle lever
3 Throttle pedal hinge bolt (if fitted)

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Safety Notices

In this publication and on the machine there are safety notices. Each notice starts with a signal word. The signal word meanings are given below.

DANGER

Denotes an extreme hazard exists. If proper precautions are not taken, it is highly probable that the operator (or others) could be killed or seriously injured.
INT-1-2-1

WARNING

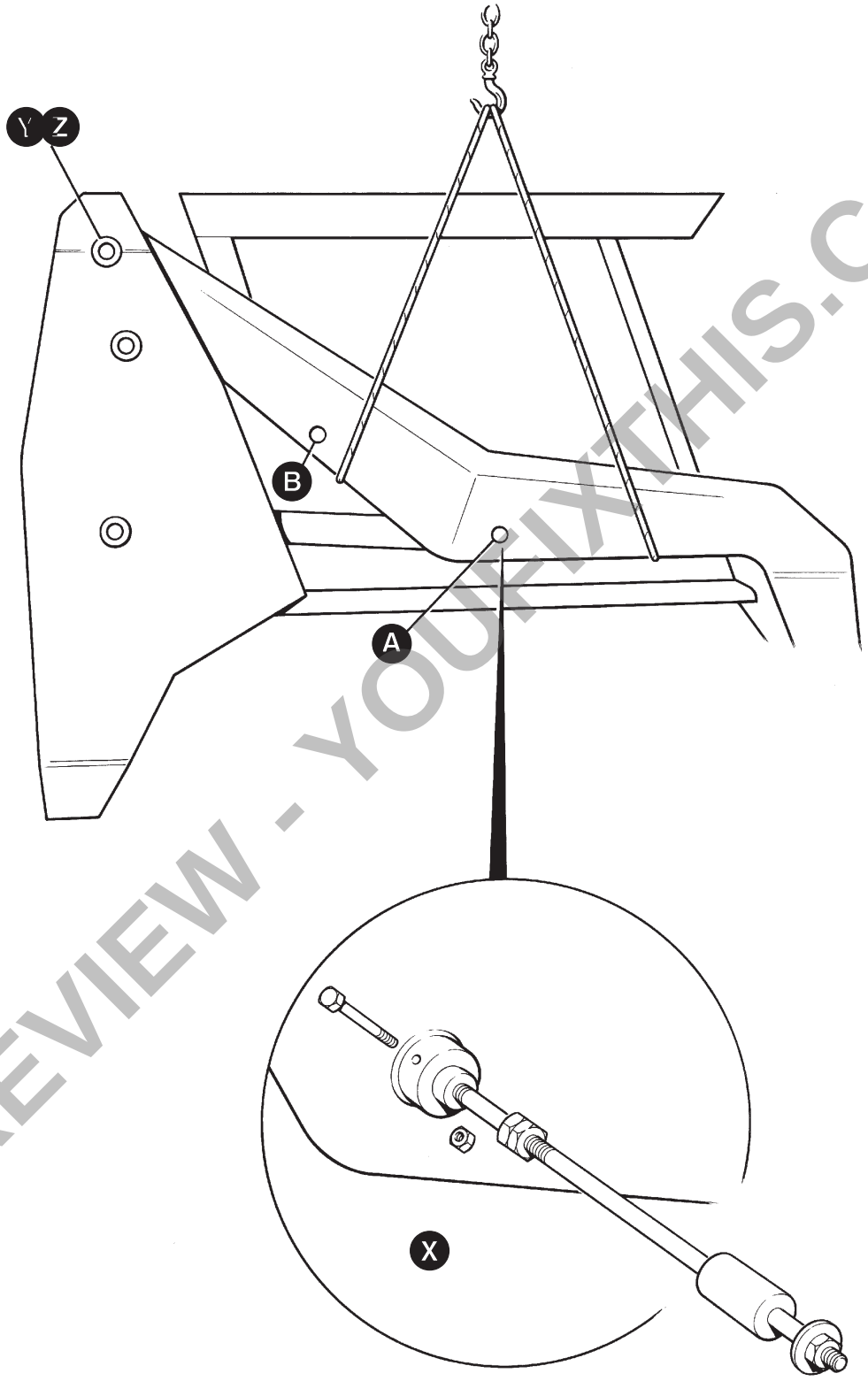
Denotes a hazard exists. If proper precautions are not taken, the operator (or others) could be killed or seriously injured.
INT-1-2-2

CAUTION

Denotes a reminder of safety practices. Failure to follow these safety practices could result in injury to the operator (or others) and possible damage to the machine.
INT-1-2-3

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167760

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* Hydrostatic Pump

* **Note:** The illustration shows the pump as fitted to servo machines. On manual machines, items **28** to **45** are not fitted and a manual lever is fitted in place of item **33**.

Dismantling and Assembly

The numerical sequence shown on the illustration is intended as a guide to dismantling. For assembly the sequence should be reversed.

Note: Only one pump is shown but the second pump is a mirror image of this.

Protect all exposed sealing surfaces and open cavities from damage and foreign material.

Mark the position of control linkage **33** before removing it from the swash plate **38**. Retain shims **36** as a set.

All gaskets and 'O' rings should be be renewed on reassembly. Lightly lubricate all 'O' rings with clean vaseline prior to assembly.

During assembly, shims **36** should be held in position with grease until plate **34** is in place.

Torque tighten bolts **30** (4 off) to 24 - 30 Nm (18 - 22 lbf ft, 2.5 - 3.0 kgf m).

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