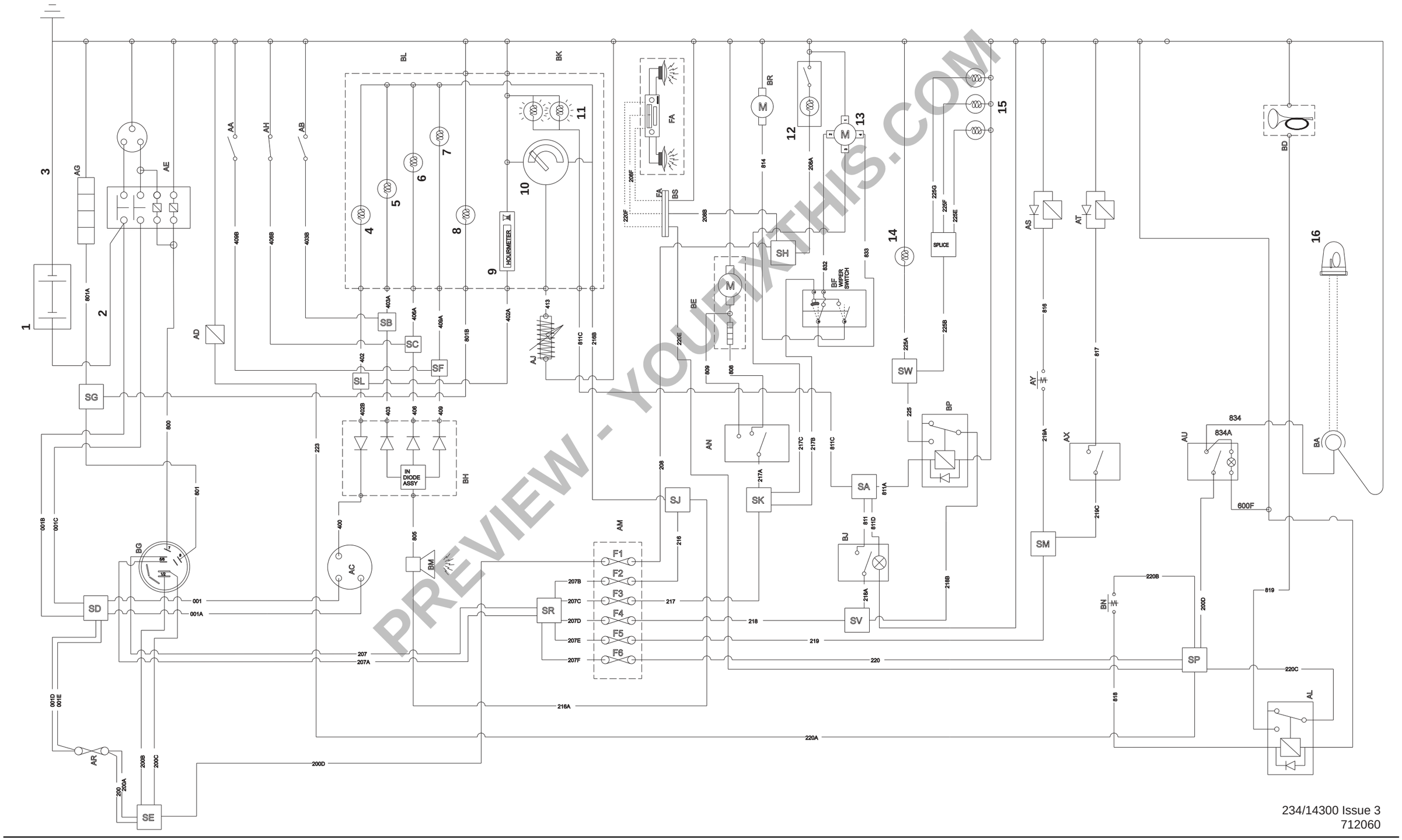
Electrical Schematic

8052 machines from 0802000 upto 0803370

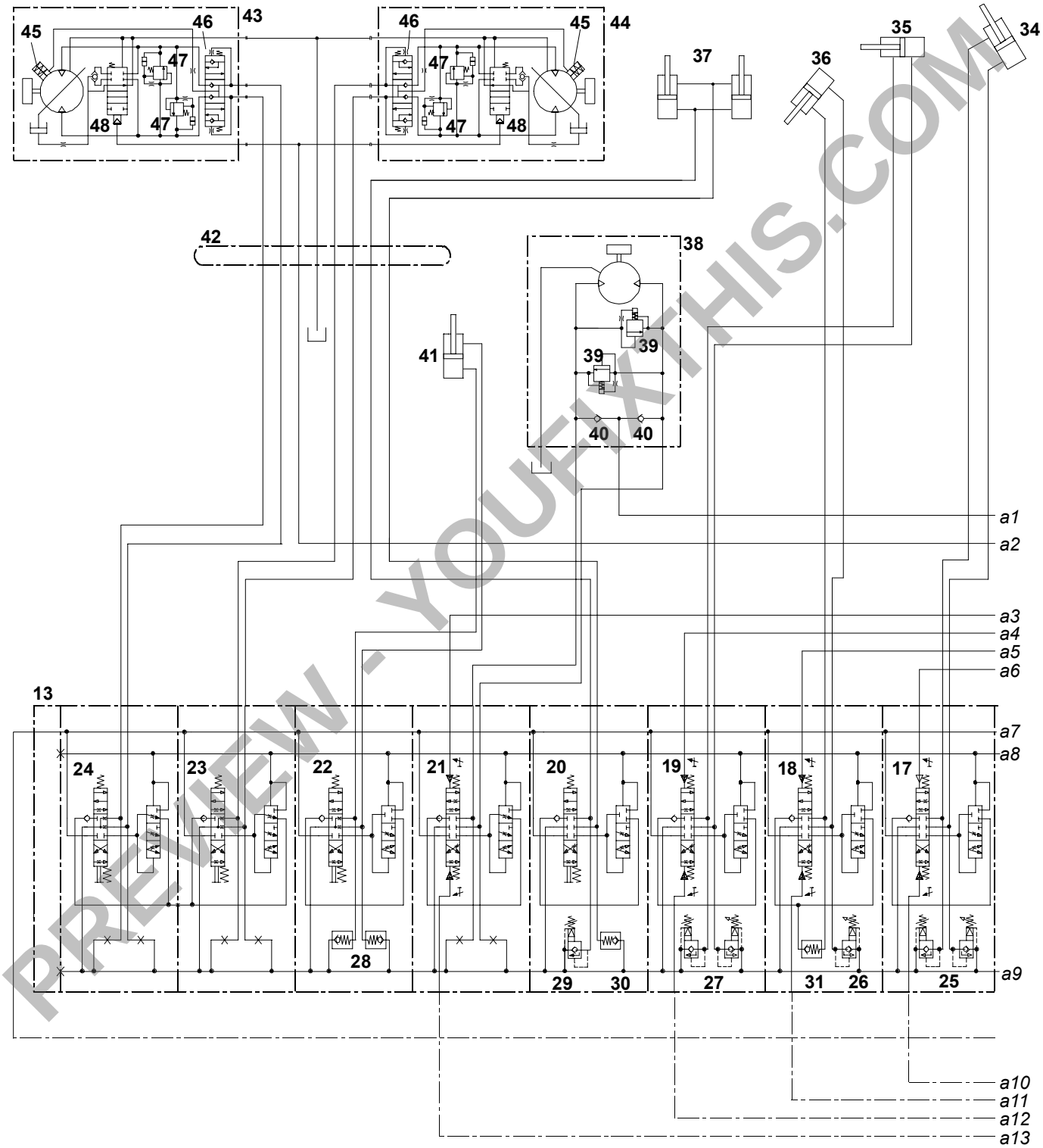


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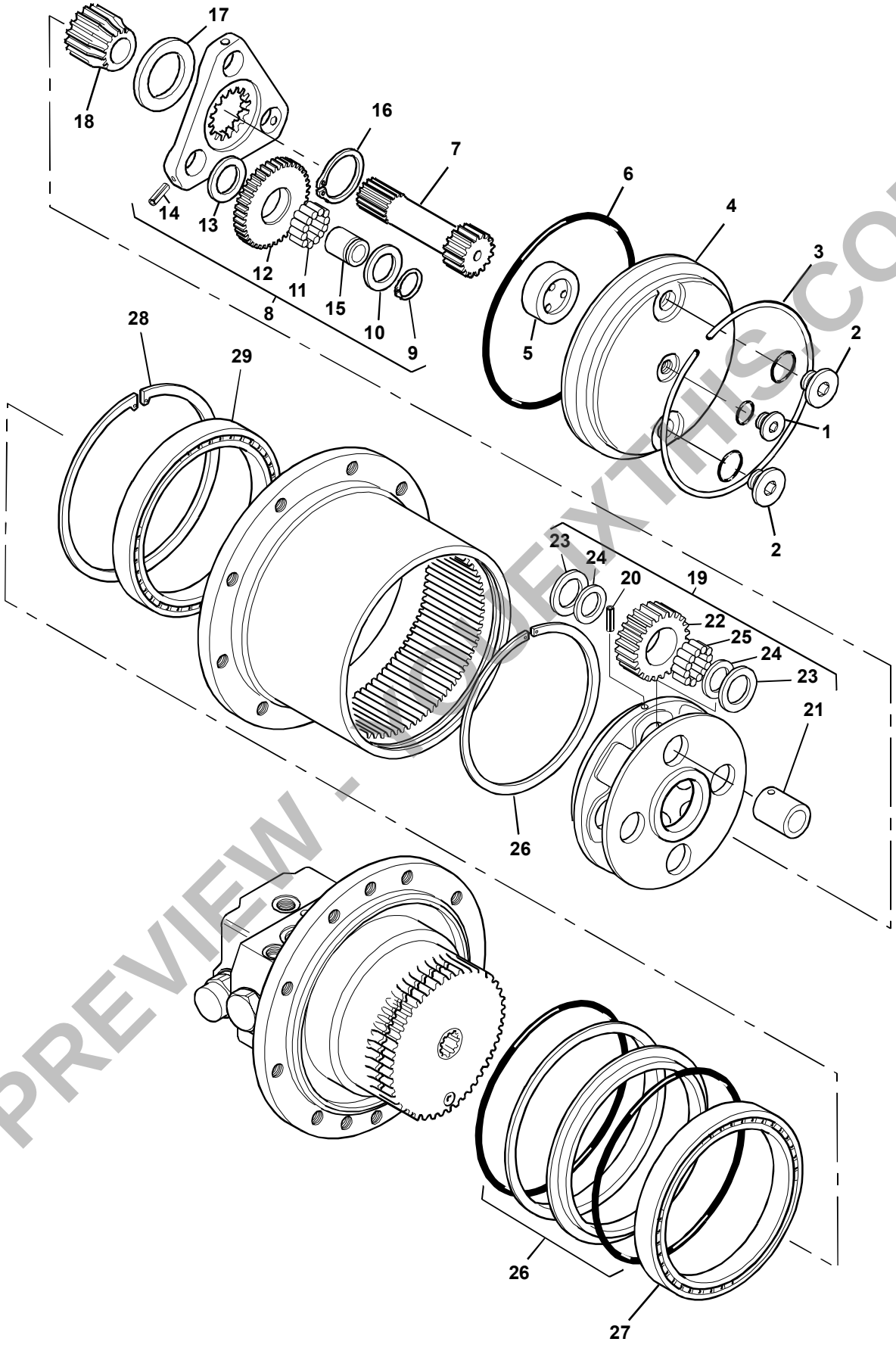
Schematic Hydraulic Circuit - 8052



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Torque Settings

Introduction - Zinc Plated Fasteners and Dacromet Fasteners

Micro and Micro Plus Excavators are assembled using an improved type of corrosion resistant finish. This type of finish is called Dacromet and replaces the original Zinc and Yellow plating used on earlier machines.

The two types of fasteners can be readily identified by colour and part number suffix as follows:

Fastener Type	Colour	Part Number
Zinc and Yellow	Golden finish	'Z' (e.g. 1315/3712Z)
Dacromet	Mottled silver finish	'D' (e.g. 1315/3712D)

Note: As the Dacromet fasteners have a lower torque setting than the Zinc and Yellow fasteners, the torque figures used must be relevant to the type of fasteners.

Note: A Dacromet bolt should not be used in conjunction with a Zinc and Yellow plated nut, as this could change the torque characteristics of the torque settings further. For the same reason, a Dacromet nut should not be used in conjunction with a Zinc and Yellow plated bolt.

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

Only use the following when no setting is specified in the text of the manual.

Metric Grade 8.8 Bolts

Bolt size		**Zinc Plated Fasteners Torque Settings**			**Dacromet Fasteners Torque Settings**		
Diameter mm	**Hexagon (A/F)** mm	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
M6 x 1.0	10	12	1.2	9	9	0.9	7
M8 x 1.25	13	28	3.0	21	22.5	2.3	17
M10 x 1.5	17	56	5.7	42	47.5	4.8	35
M12 x 1.75	19	98	10	72	80	8.2	59
M14 x 2	22				133	13.6	98
M16 x 2	24	244	25	180	200	20.4	148
M18 x 2.5	27	350	36	258	278	28.4	205
M20 x 2.5	30	476	48	352	392	40	289
M24 x 3	36	822	84	607	675	69	498
M30 x 3.5	46	1633	166	1205	1348	138	994
M36 x 4	55	2854	291	2105			
Slew Ring to Undercarriage		125	12.5	91	102	10.2	75
Slew-Ring to Superstructure		89	8.9	65	73	7.3	53
Kingpost Pivot Pin Retaining Bolts		98	10	72	80	8.2	59

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*Hydraulic System - General Fault Diagnosis

WARNING: Prior to investigating a fault in the hydraulic system, assume pressure is present.Even in a system that has not run for several hours, pressure may be stored in rams, servo accumulators or generated by structures under load.

Be aware of hot hoses, pipes and hydraulic components.

Beware of high pressure leaks, pressurised oil can penetrate the skin. High pressure jets of aerated oil may ignite. Always wear necessary protective goggles, gloves etc.

Clean up oil spillage immediately.

Most hydraulic problems are caused by contamination, always work cleanly, cap and plug open ports to prevent contamination.

A contaminated hydraulic system may be evident by checking condition of ram cylinder to rod seals for leaks, sticking control valve spools and checking the bottom of the hydraulic tank for sediment.

Prior to attempting fault diagnosis work, try to establish from the machine operator the frequency of fault and whether it occurs with the machine hot or cold. Try to operate the machine to replicate the problem. Once the problem is correctly identified its cause may be much easier to find

Before carrying out the following checks, ensure that where applicable :-

1. The correct hydraulic fluid is used and the system filled to the correct level.
2. The hydraulic fluid, filter and suction strainer are clean.
3. There are no visible leaks in the system.
4. Engine condition and maximum speed is as specification.
5. Load Sense pressure relief is correctly calibrated.

If possible the machine should be operated to identify the fault and to bring the systems to their normal working temperature.

After completing these initial checks, proceed as follows :-

A. If all the hydraulic sevices are at fault start at check 1.
B. If servo controllers only are at fault start at check 19.
C. If tracking services only are at fault start at check 24.

Check		Action	
1	Is the fault in all services or one only?	ALL :	Check 2.
		ONE :	Check 7.
2	Are the hydraulics inoperative or lacking in power?	INOPERATIVE :	Check 4.
		POOR PERFORMANCE :	Check 3.
3	Is the servo pressure to specification?	YES :	Check 4.
		NO :	Adjust.
4	Is the pump operating correctly?	YES :	Check Load Sensed pressure setting.
		NO :	Check 5.

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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	CAPACITY Litres (UK/US Gal)	FLUID/LUBRICANT	INTERNATIONAL SPECIFICATION
*	**100 Series KR Builds** 8052 Engine Oil First 100 hours only	8.0 (1.76) [2.0]	**JCB 10W/30 Multigrade** above - 15°C (5°F) **JCB 5W/20 Multigrade** -15°C to - 25°C (5 °F to - 13°F)	MIL-L-46152, API CC/SF API CC/SE (recommended)
*	8060 Engine Oil	9.6 (2.10) [2.52]	**JCB Extreme Performance Engine Oil 15W/40** -10°C to +50°C (14°F to 122°F)	CH4/SJ (ACEA E5-B3-A3)
*	**400 Series HP Builds** 8052 Engine Oil	8.0 (1.76) [2.0]	**JCB Extreme Performance Engine Oil 15W/40** -10°C to +50°C (14°F to 122°F)	CH4/SJ (ACEA E5-B3-A3)
	Engine (Coolant) (full system)	13.5 (3.0) [3.6]	**JCB Universal Antifreeze/water** (See Coolant Mixtures)	ASTM D3306-74
	Track Gearbox (each) 8052 8060	 0.8 (0.18) [0.21] 1.3 (0.28) [0.33]	 **JCB SAE 30 Engine Oil** (NOT Multigrade)	 API CD/SF, MIL-L-46152B MIL-L-2104B
*	**Slew Gearbox** 8052 8060	 1.5 (0.34) [0.40]	 Lubricated from hydraulic system **JCB HD90 Gear Oil**	 ISO VG46
	Track Idler Wheels	Sealed Unit	**JCB HD90 Gear Oil**	API-GL-5, MIL-L-2105D
	Track Rollers (bottom) (top)	 Sealed Unit Sealed Unit	 **JCB HD90 Gear Oil** **JCB HD90 Gear Oil**	 API-GL-5, MIL-L-2105D API-GL-5, MIL-L-2105D
*	**Hydraulic Oil** Tank only Full system 8052 Full system 8060	 70 (15.50) [18.50] 103 (22.70) [27.25] 106 (23.32) [27.98]	 **JCB Hydraulic fluid 46** -10°C to +40°C (14°F to 104°F) **JCB Hydraulic fluid 68** Above +40°C (Above 104°F)	 ISO VG46
	Fuel Tank	70 (15.5) [18.5]	Diesel Oil (See Types of Fuel)	ASTM D975-66T Nos. 1D, 2D
	#Slew Ring Bearings Gear Teeth		 **JCB MPL Grease** **JCB Slew Pinion Grease ##**	 Lithium based, No. 2 consistency.
	All Other Grease Points		**JCB MPL Grease**	Lithium based, No. 2 consistency.

WARNING

JCB Slew Pinion Grease is harmful. It contains bitumen compounds 2811 with possible risks of irreversible effects. Excessive contact may lead to dermatitis or skin cancer. Always use a barrier cream or wear gloves.

Wash contaminated skin thoroughly with soap and water. In the event of contact with the eye, immediately wash with plenty of water and seek medical advice.

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Service Schedules

Every 10 Operating hours (or daily)

whichever occurs first

Clean

1 Machine generally

Check and Adjust where necessary (engine stopped)

2 Generally for damage
3 Hydraulic oil level
4 Engine oil level
5 Engine coolant
6 Fuel system for leaks
7 Engine air filter pre-cleaner
8 Track adjustment

Check and Adjust where necessary (engine running)

9 Operation of horn
10 Operation of all other electrical equipment
11 Exhaust (excessive smoke)
12 Dozer operation
13 Excavator operation
14 Track and running gear operation
15 Hourmeter operation
***16** Operation of control pattern selection lamp, replacing lamp as required.

.

Grease

***17** All pivot points

Every 50 operating hours (or weekly)

whichever occurs first

Do the daily jobs plus:

Clean

1 Drain and clean fuel filter.
2 Drain fuel sediment bowl.
3 Radiator/Hydraulic cooler matrix.

Check and Adjust where necessary (engine stopped)

4 Fan belt adjustment.

First 100 hours only

Do the jobs listed in 100 hours (below) plus:

Change

1 Engine oil and engine oil filter (8052 only)
2 Check and adjust fan belt.

Every 100 operating hours (or 2 weeks)

whichever occurs first

Do the daily jobs through to 50 hours plus:

Clean

1 Battery terminals.

Check and adjust where necessary (engine stopped)

2 Hose and pipework for security and damage.
3 Condition of ram piston rods.
4 All grease seals
5 Track plate condition/rubber condition
6 Engine mounting bolts
7 Air cleaner hose security
8 Wiring for damage
9 Track tension

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Introduction

This chapter is arranged to guide you step-by-step through the task of learning how to use the machine. Read it through from beginning to end.

Pay particular attention to all safety messages. They are there to warn you of possible hazards. Do not just read them- think about what they mean. Understand the hazards and how to avoid them.

If there is anything you do not understand, ask your JCB dealer, he will be pleased to advise you.

When you have learned where the driving controls are and what they do, practise using them. Practise driving the machine in a safe, open space clear of other people.

Get to know the "feel" of the machine and its driving controls.

Move on to the attachment controls only when you can drive the machine confidently and safely.

Take great care when practising with the attachment controls. Practise in an open space, keep people clear. Do not jerk the controls: operate them slowly until you understand the effect they have on the machine.

Finally, do not rush the job of learning. Take your time and take it safely.

Remember **BE CAREFUL**
BE ALERT
BE SAFE

INT-1-2-1/1

Before entering the cab

The following checks should be made each time you return to the machine after leaving it for any period of time. We advise you also to stop the machine occasionally during long work sessions and do the checks again.

All these checks concern the serviceability of the machine. Some concern your safety. Get your service engineer to check and correct any defects.

⚠ WARNING

Walking or working under raised attachments can be hazardous. You could be crushed by the attachments or get caught in the linkages.

Lower the attachments to the ground before doing these checks. If you are new to his machine, get an experienced operator to lower them for you.

If there is nobody to help you, study this handbook until you have learned how to lower the attachments. Also make sure that the slew lock is fitted before doing these checks.

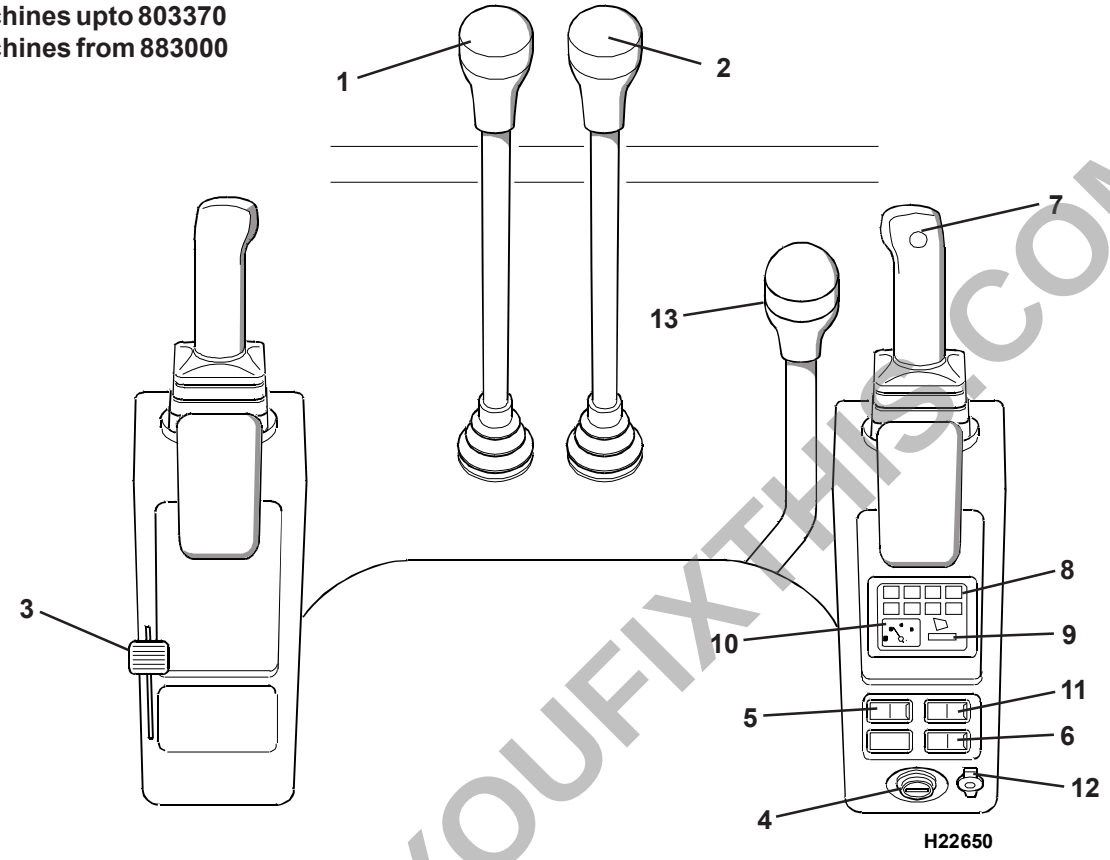
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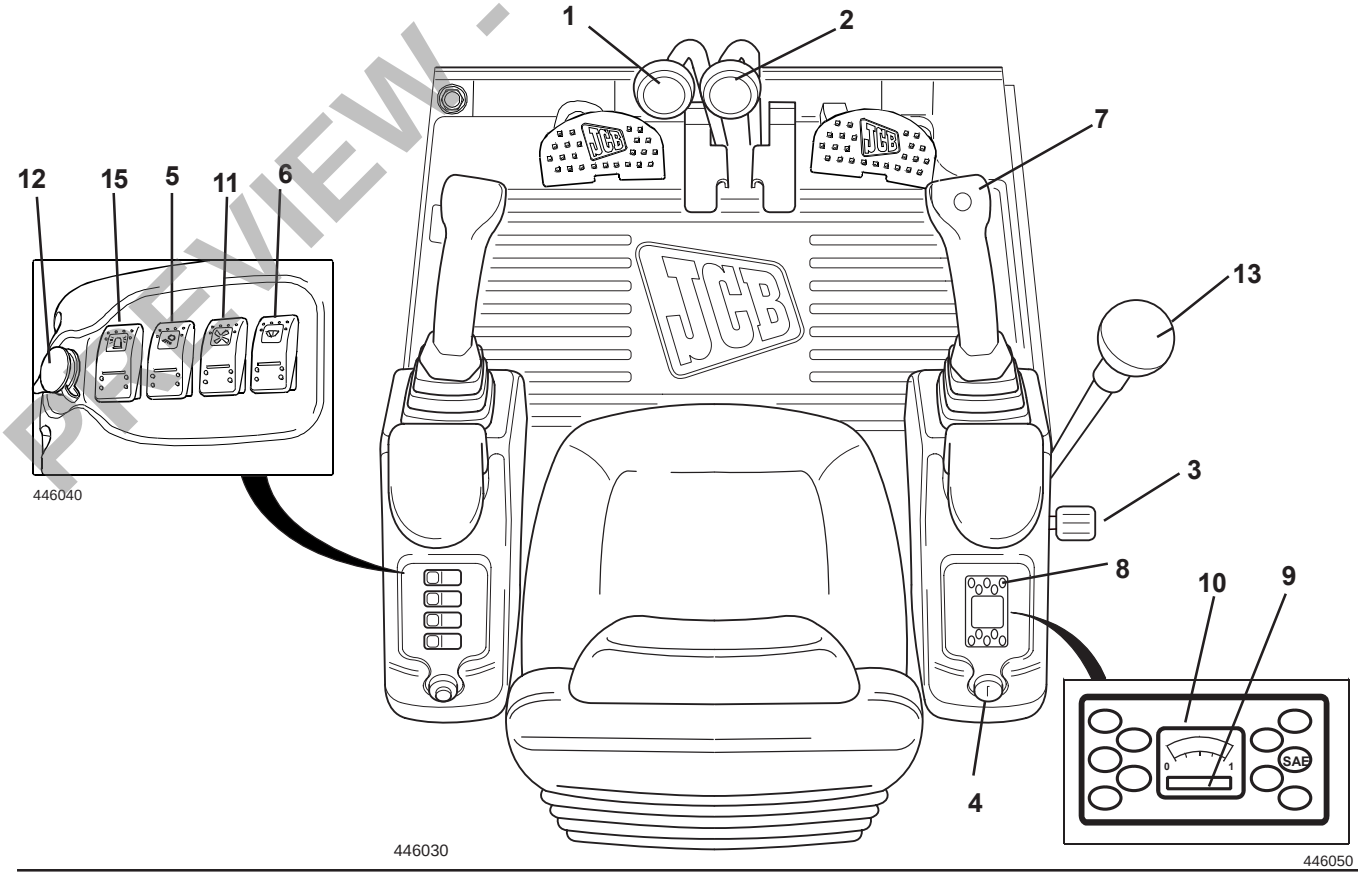
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Engine and Track Controls, Switches and Instruments

8052 machines upto 803370
8060 machines from 883000



8052 machunes from 803371



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Transporting the machine

WARNING

The safe transit of the load is the responsibility of the transporter contractor and driver. Any machine, attachment or parts that may move during transit must be adequately secured. 5-2-5-3

Preparing for Road Travel

Before loading the machine, clean all debris from the tracks, undercarriage and excavator end. This will prevent it from being shaken off the machine whilst the transporter is moving, causing a hazard to other road users.

Note: Before transporting the machine make sure you will be obeying the local rules and laws regarding machine transportation of all the areas that the machine will be carried through.

Make sure that the transporting vehicle is suitable. See Maintenance section for the dimensions and weight of your machine. There is a travel height label fitted to the cab.

Try to make sure that the transporter driver knows the clearance height before he drives away.

Note: The transport position height does not include the transporter height. Add the two figures together for the clearance height.

CAUTION

Make sure that the two speed tracking selector is set to low speed before loading or unloading the machine.

Before using the transporting vehicle

WARNING

Before moving the machine onto the transporting vehicle, make sure that the transporter and ramps are free from oil, grease and ice. Remove oil, grease and ice from the machine tracks. Make sure the machine will not foul on the ramp angle.

1 Remove any dirt or debris from the transporting vehicle.

2 Check the transporter bodywork for signs of damage.

3 Check the tyre pressures are correct.

4 Check the lights are working.

Loading - Preparing the transporting vehicle

WARNING

Make sure that the ramp incline does not exceed the machines operational limits. See 'working on slopes' pages in this handbook for further details.

1 Position the transporting vehicle on firm level ground.

2 Apply the parking brake.

3 Lower any stability jacks fitted to the transporter and secure. Tighten all clamps securely.

4 Position the loading ramps on the transporter and secure.

Note: Ramps should be level with each other in the lowered position.

5 The transporter is now ready for loading the machine.

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Service Manual

8052
8060

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