Service Manual

802
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802 *Super*

Published by the
TECHNICAL PUBLICATIONS DEPARTMENT
of
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Leek Road, Cheadle
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Publication No. 9803/3140 Issue 4

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IDENTIFYING YOUR MACHINE

The machine has a Data Plate attached to the left hand front face of the machine.

The serial numbers of the machine, engine and gearboxes are stamped on this plate.

If the engine is replaced, stamp the new serial number in place of the old one.

Explanation of Vehicle Identification Number (VIN)

Code	A	B	C	D	E
Example	**SLP**	**0802**	**X**	**E**	**0732450**

A World Manufacturer Identification SLP = JCB
B Machine Model 0802 = 802

C Year of Manufacture

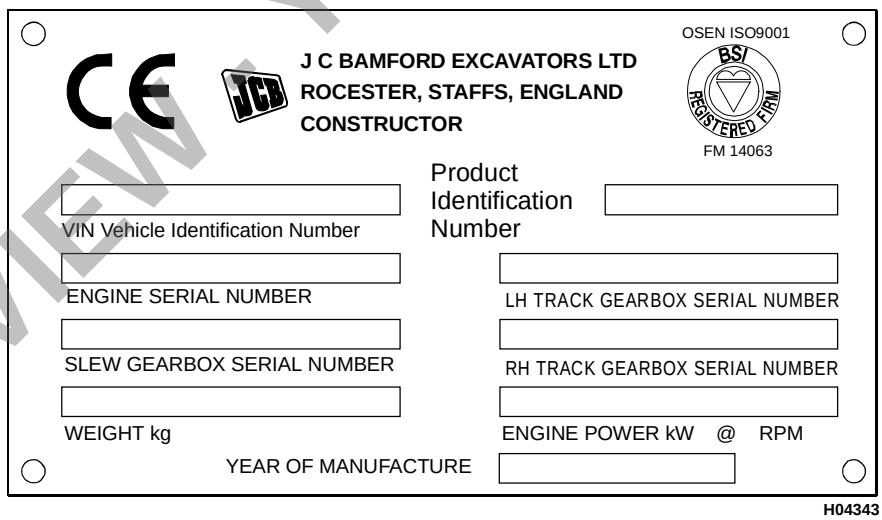
R = 1994	W = 1998	2 = 2002
S = 1995	X = 1999	3 = 2003
T = 1996	Y = 2000	4 = 2004
V = 1997	1 = 2001	5 = 2005

D Manufacturers Location E = England
E Machine Serial Number 0732450

Explanation of Engine Identification Number

Code	A	B	C	D	E
Example	**KE**	**50390**	**J**	**000001**	**y**

A Engine Type
B Engine Parts List
C Country of Manufacture
D Engine Serial Number
E Year of Manufacture



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All construction and agricultural equipment can be hazardous. When a JCB Mini Excavator is correctly operated and properly maintained it is a safe machine to work with. But when it is carelessly operated or poorly maintained it can become a danger to you (the operator) and others.

Do not work with the machine until you are sure that you can control it.

Do not start any job until you are sure that you and those around you will be safe.

If you are unsure of anything, about the machine or the job, as someone who knows. Do not assume anything.

Remember

BE CAREFUL
BE ALERT
BE SAFE

GEN-1-6

As well as the warnings in the following pages, specific warnings are given throughout the book. This section is designed to give a safety code for use of the machine generally and for operation and maintenance practices.

Note: *This section includes a certain amount of operating safety information. But remember that whenever you drive the machine or operate its controls you are, in effect, a machine operator. Therefore, you should read and understand the information given in the Operator Handbook before driving the machine or operating its controls.*

General Safety

WARNING

Lifting Equipment

You can be injured if you use faulty lifting equipment. Make sure that lifting equipment is in good condition. Make sure that lifting tackle complies with all local regulations and is suitable for the job. Make sure that lifting equipment is strong enough for the job.

INT-1-3-7

WARNING

Clothing

You can be injured if you do not wear the proper clothing. Loose clothing can get caught in the machinery. Wear protective clothing to suit the job. Examples of protective clothing are: a hard hat, safety shoes, safety glasses, a well fitting overall, ear-protectors and industrial gloves. Keep cuffs fastened. Do not wear a necktie or scarf. Keep long hair restrained.

INT-1-3-6

WARNING

Care and Alertness

All the time you are working with or on the machine, take care and stay alert. Always be careful. Always be alert for hazards.

INT-1-3-5

WARNING

Raised Equipment

Raised equipment can fall and injure you. Do not walk or work under raised equipment unless safely supported.

13-1-1-6

DANGER

Before removing the boom from the machine, ensure that the counterweight is adequately supported as in certain ground conditions the machine could tip backwards. Never travel or transport the machine with the boom removed.

BF 6-3

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1 - 1 **Lubricants and Capacities** 1 - 1

*New engines **DO NOT** require a running-in period. The engine/machine should be used in a normal work cycle immediately as 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). Engines of new machines are filled at the factory with JCB 10W/30 Multigrade oil. This oil should be drained after the first 100 hours of operation and the engine filled with the appropriate recommended grade as shown in the lubrication chart. JCB 10W/30 Multigrade should also be used for the first 100 hours operation whenever a new or reconditioned engine is fitted to the machine. After the first 100 hours operation, it is essential that the 10W/30 oil is replaced by the lubricant recommended below.

ITEM	CAPACITY Litres (Gal)	FLUID / LUBRICANT	INTERNATIONAL SPECIFICATION
Fuel Tank	42.0 (9.3)	Diesel Oil (See **Types of Fuel**)	ASTM D975-66T Nos. 1D, 2D
* From M733848	48 (10.5)		
Engine (Oil)			
First 100 hours only	4.5 (1.0)	**JCB 10W/30 Multigrade** above - 15°C (5°F) **5W/20** - 15°C to - 25°C (5 °F to - 13°F)	MIL-L-46152, API CC/SF API CC/SE (recommended)
After first 100 hours		**JCB 15W/40 Multigrade** above - 10°C (14°F) **5W/20** - 10°C to - 25°C (14°F to -13°F)	SAE15W/40, MIL-L-46152B, AP1 CD/SE MIL-L-2104D API CC/SE or API CD/SE
Engine (Coolant)			
Canopy	6.5 (1.4)	**JCB Universal Antifreeze/water**	ASTM D3306-74
Cab	7.0 (1.5)	(See **Coolant Mixtures**)	
Track Gearbox (each)	1.2 (0.26)	**JCB SAE 30 Engine Oil** (NOT Multigrade)	API CD/SF, MIL-46152B MIL-L-2104B
Slew Gearbox to M732356			
Lubrication	0.45 (0.10)	**JCB HD90 Gear Oil** below 0°C (32°F) **JCB HD 140 Gear Oil** -10°C to 40°C (14°F to 104°F)	API-GL-5, MIL-L-2105D API-GL-5, MIL-L-2105D
Slew Gearbox from M732257		-lubricated from hydraulic system	
Track Idler Wheels	0.075 (0.016)	**JCB HD90 Gear Oil**	API-GL-5, MIL-L-2105D
Track Rollers		**JCB HD90 Gear Oil**	API-GL-5, MIL-L-2105D
Hydraulic System	45 (10)	**JCB Hydraulic fluid 32** below - 10°C (14°F) **JCB Hydraulic fluid 46** - 10°C to 40°C (14°F to 104°F) **JCB Hydraulic fluid 68** over 40°C (104°F)	
Slew Ring			
Bearings		**JCB MPL Grease**	Lithium based, No. 2 consistency.
Gear Teeth		**JCB Slew Pinion Grease ##**	
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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Introduction - Zinc Plated Fasteners and Dacromet Fasteners

Mini 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			

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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 Operation of horn & all other electrical equipment
8 Track adjustment

Check and Adjust where necessary (engine running)

9 Exhaust (excessive smoke)
10 Dozer operation
11 Excavator operation
12 Track and running gear operation
13 Hourmeter operation

Grease

14 All pivot pins

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 matrix

Check and Adjust where necessary (engine stopped)

4 Fan belt adjustment

Note: *Failure to maintain correct fan belt adjustment may result in damage to the timing case cover.*

First 100 Hours Only

Do the jobs listed in 50 hours (above) plus:

Change

1 Engine oil and filter cannister
2 Slew gearbox oil

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

First 250 Operating Hours Only

Do the daily jobs through to 100 hours plus:

Change

1 Track gearbox oil

Check

2 Kingpost pivot pins retaining bolt torque

Every 250 Operating Hours (Or Monthly) whichever occurs first

Do the daily jobs through to 100 hours plus:

Change

1 Engine oil
2 Engine oil filter canister

Grease

3 Slew ring grease nipples

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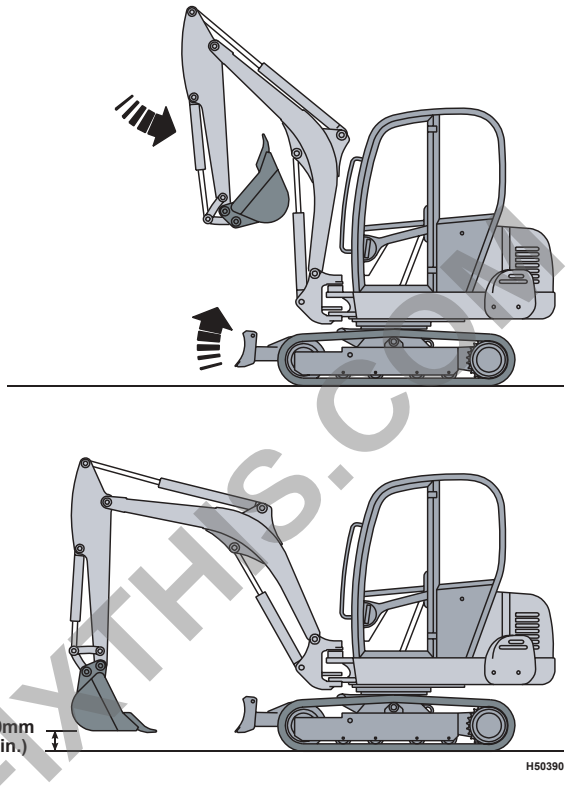
PREPARING FOR SITE TRAVEL

CAUTION

Always travel the machine with the excavator positioned at the same end as the dozer, especially on hard and rocky ground.

TRACKING POSITION (UNEVEN SITE CONDITIONS)
(Activate warning beacon if fitted)

Lower the boom so that the bucket or attachment is approximately 150mm (6in) from the ground.



TRAVELLING POSITION (LEVEL SITE CONDITIONS)
(Activate warning beacon if fitted)

Cab facing forward over dozer, excavator as shown, dozer blade fully up.

Position boom fully up, operate dipper fully in and bucket fully crowded, i.e. bucket rotated fully towards cab.

GETTING THE MACHINE MOVING

After you have warmed up the engine, move off as described below. Read Operating Hints and Warnings first.

OPERATING HINTS
The machine does not have gears. Do not overwork the engine unnecessarily. Operate at an engine speed suitable for the duty being carried out.

Note: *Too low an engine speed may result in lack of dipper control.*

When moving the machine, keep it under control at all times. Stay alert for obstructions and possible hazards.

Approach deep mud slowly.

WARNING

You and others could be killed or injured if you reverse direction on the move, because the change in direction will be sudden and without warning to others.

Always stop the machine and drop engine speed to idle before changing from forward to reverse or vice versa.

HOP51

1 Check your seat.
Make sure that the seat is secure and correctly adjusted.
Fasten the seat belt if fitted.

2 Cab Slew Lock
Make sure that the cab slew lock is disengaged and the slew switch is pressed.

3 Start the Engine
See starting the engine in Operation section

4 Move the machine
a) Check that the attachments are in the travel position. Make sure that it is safe to move off.
b) Take hold of both track control levers in one hand
c) Move the levers forward or backward as required and pull the throttle lever slowly backward until the desired speed is attained.
To increase tracking speed operate the two speed tracking switch. See 'Engine and Track Controls' page.

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Installing a Bucket on a Quickhitch

(See Bucket Selection)

1 Position the Bucket

Set the bucket on firm level ground. Use safe and correct lifting equipment to move the bucket .

2 Position the Machine

a Position the machine so that the Quickhitch and bucket are correctly aligned for connection as shown.

b Use the excavator controls to engage jaw **A** of the quickhitch with the pivot pin **B** of the bucket .

c Use the excavator controls to roll the Quickhitch in the direction of arrow **C** until the latch hook **D** has fully engaged the pivot pin **E** on the bucket . Due to the light weight of some bucket it may be necessary to apply a load on the bucket teeth to achieve Quickhitch connection.

Alternatively, use the tommy bar to lever the latch off, allowing the attachment pivot pin **E**, to locate in jaw **D** of the Quickhitch.

CAUTION

Make sure that the latch hook has fully engaged.

2-4-4-3

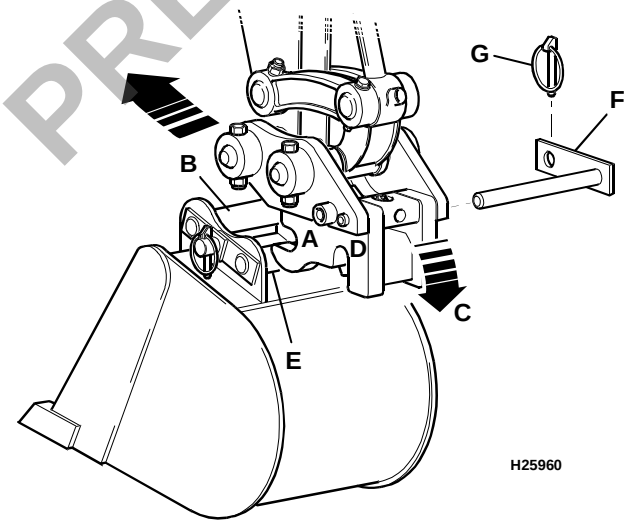
d Fit the latch hook locking pin **F** and secure with lynch pin **G**.

WARNING

Always fit the Quickhitch latch hook locking pin. Failure to fit the pin will result in possible failure of the latching mechanism. Such a failure would result in the sudden release of an attachment from the machine, you or others could be killed or seriously injured.

CAUTION

When the Quickhitch is installed and its attachment fitted, there is a danger of the attachment hitting the underside of the boom. Operate the boom and dipper carefully when the
Quickhitch and its attachment are fitted. 2-4-4-2



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Removing a Bucket From a Quickhitch

Note: *Deposit Quickhitch attachments on firm level ground whenever possible. This will make later refitting easy and safe.*

1 Park the machine on firm level ground.

2 Position the bucket so that it is approximately 150mm (6 in) above the ground.

WARNING

The attachment will roll forward when released. Stand clear and to one side when releasing the attachment.

2-4-4-1

3 Remove lynch pin **H**, and locking pin **F**.

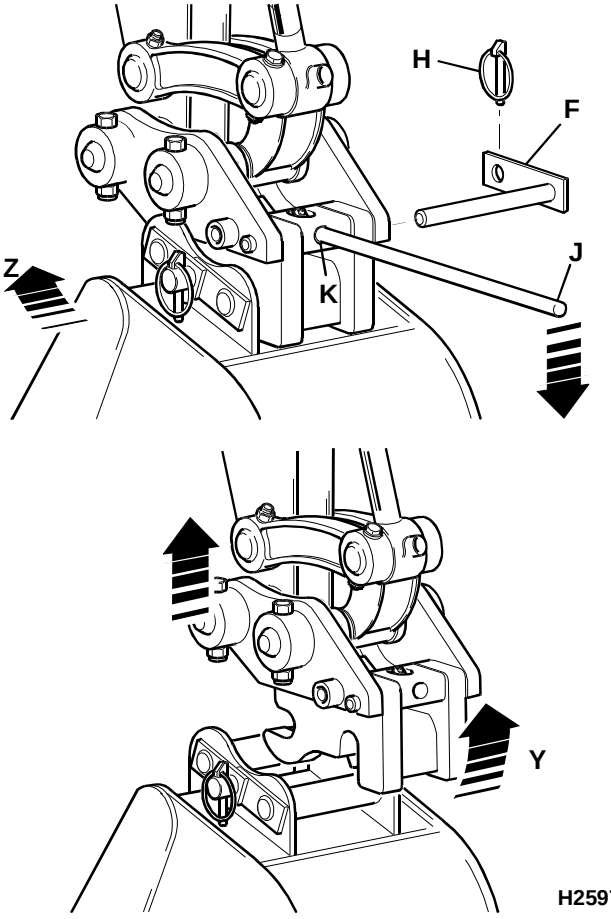
4 Insert the tommy bar **J** into the hole **K** of the latch hook.

5 Apply a downward pressure on the bar to release the buckets' rear pivot pin from the latch hook, as shown at **Z**. Remove the tommy bar from the Quickhitch.

6 Rest the bucket on the ground.

7 Slowly roll the Quickhitch back and simultaneously raise the dipper arm to release the buckets' front pivot pin, as shown at **Y**.

Note: Quickhitch procedure applies to most attachments. See your attachments instructions for specific procedures.

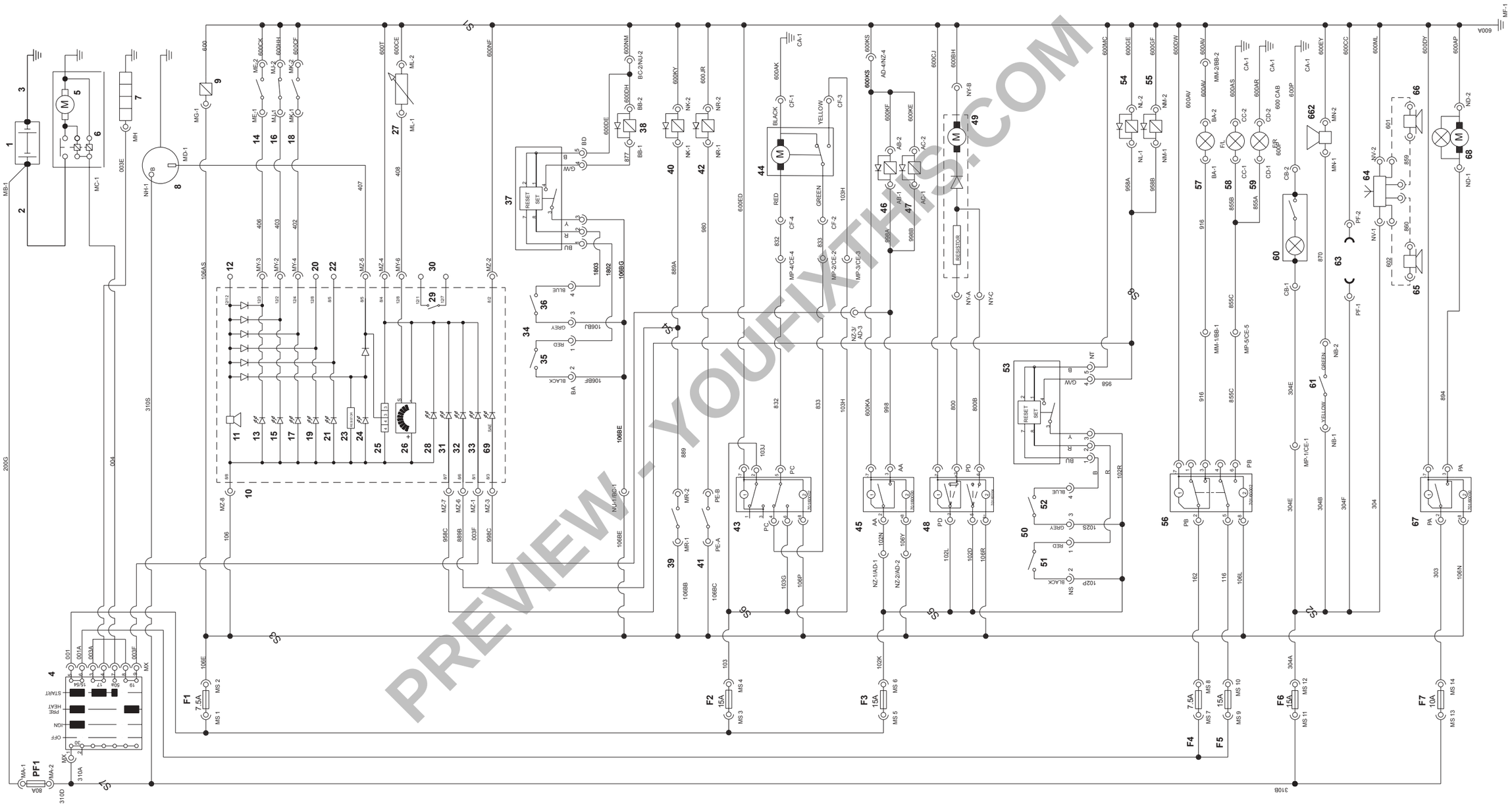


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802 Super machines from 733848



712770 (853/20000 Iss3)

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The illustrations and text are representative of a Single Acting Circuit (980/88806). They have been included in order to give an overall view and understanding of the circuit.

Special fitting instructions for every kit are supplied with the kit. These instructions are definative and must be followed.

⚠WARNING

Hydraulic Fluid
Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, get medical help immediately.
INT-3-1-10/1

⚠WARNING

Hydraulic Pressure
Hydraulic fluid at system pressure can injure you. Before disconnecting or connecting hydraulic hoses, stop the engine and operate the controls to release pressure trapped in the hoses. Make sure the engine cannot be started while the hoses are open.
INT-3-1-11/1

⚠WARNING

Electrical Circuits
When working on the machine electrical system always disconnect the battery. Understand the electrical circuit before connecting or disconnecting an electrical component. A wrong connection can cause injury and/or damage.

⚠WARNING

Welding
When welding on the machine always disconnect the battery and the alternator. Always connect the earth clamp to the component being welded to avoid damage to pivot pins and bushes.

⚠CAUTION

Cleanliness - Hydraulic Systems
Hydraulic components are susceptible to damage if the hydraulic system is not kept free from debris. Ensure that open hoses and ports are protected from the ingress of dirt, grit and other debris such as swarf.

Making the Machine Ready

Ensure that the machine is as safe as possible to work on. Carry out the the steps below. Refer to the machine Operator Handbook for full details about procedures for the applicable machine.

1 Park the machine on firm level ground.

2 Remove any attachment.

3 Apply the parking brake (if fitted) and, or chock the wheels.
If the machine is raised from the ground make sure it is securely chocked. **NEVER WORK UNDER A MACHINE RAISED ON STABILISERS OR JACKS**.

4 Make the loader arms, boom and dipper safe as applicable. Lower to the ground or, raise and fit the applicable safety strut.

5 Stop the engine and remove the starter key.

6 Operate the controls several times to release any trapped hydraulic pressure. Slowly release the hydraulic tank filler cap.

7 Disconnect the battery.

8 Allow the machine hydraulics and engine cooling system to cool before commencing work.

9 Disconnect the alternator and electronic control units (if fitted) if arc welding is to be carried out on the machine.

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Hydraulic System – General Fault Diagnosis

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

1. The correct hydraulic fluid is used and system filled to correct level.
2. The hydraulic fluid, filter and suction strainer are clean.
3. There are no visible leaks in the system.

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 services are at fault start at check 1.
B. If servo controller operated services only are at fault start at check 6.
C. If tracking services only are at fault start at check 12.

Check		Action	
1.	Is the fault in all services or one only?	ALL: ONE:	Check 2 Check 3
2.	Are the hydraulics inoperative or lacking in power?	INOPERATIVE: POOR PERFORMANCE:	Check 4 Check 3
3.	Is the pump operating correctly?	YES: NO:	Check M.R.V's. Check 4
4.	Is the pump drive broken?	YES: NO:	Renew Check 5
5.	Is the engine performance satisfactory?	YES: NO:	Check 2. Check engine
6.	Is the control valve spool sticking?	YES: NO:	Overhaul valve block section Check 11
7	Is the valve block section cracked?	YES:	Renew section and check valve block mounting
8.	Is the fault in all servo operated services or only one?	ALL: ONE:	Check servo isolator microswitch. Check 7 Check 9
9.	Is the servo system operating correctly?	YES: NO:	Check 10 Check Servo pressure maintenance valve
10.	Are the rams faulty?	YES: NO:	Overhaul or renew. Check 11
11	Is the A.R.V. operating correctly?	YES: NO:	Check 6 Reset or renew.
12.	Is the tracking fault on one or both tracks?	ONE: BOTH:	Check control linkage Check 3

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