Service Manual

8056

Section 1 - General Information

Section 2 - Care and Safety

Section 3 - Maintenance

Section A - Attachments

Section B - Body and Framework

Section C - Electrics

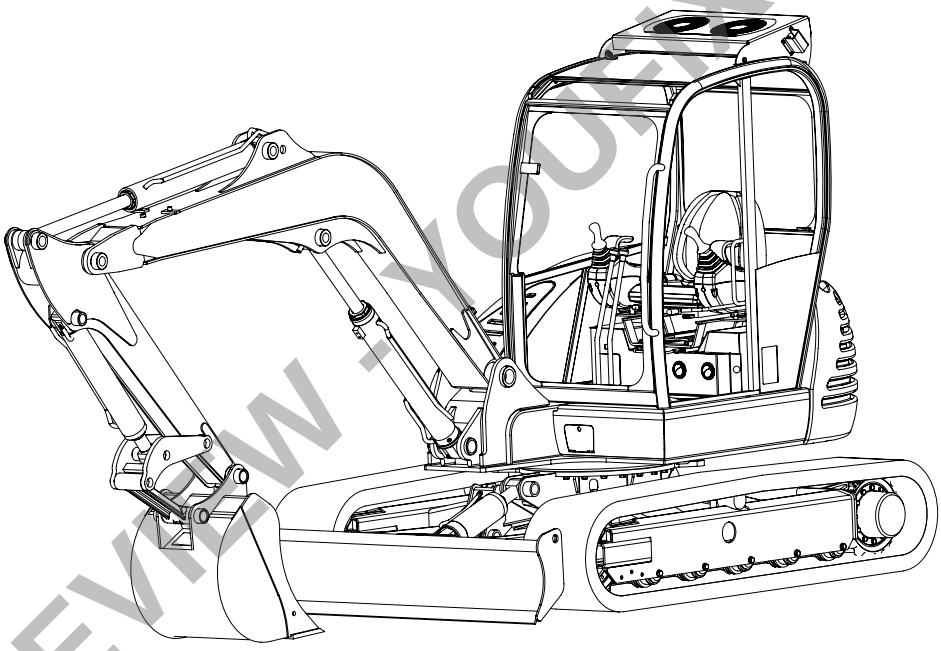
Section D - Controls

Section E - Hydraulics

Section F - Gearboxes

Section J - Track and Running Gear

Section K - Engine



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Table 2. Torque Settings - UNF Grade 'S' Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
in.	mm	in.	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
1/4	6.3	7/16	11.2	1.1	8.3	10.0	1.0	7.4
5/16	7.9	1/2	22.3	2.3	16.4	20.0	2.0	14.7
3/8	9.5	9/16	40.0	4.1	29.5	36.0	3.7	26.5
7/16	11.1	5/8	64.0	6.5	47.2	57.0	5.8	42.0
1/2	12.7	3/4	98.00	10.0	72.3	88.0	9.0	64.9
9/16	14.3	13/16	140.0	14.3	103.2	126.0	12.8	92.9
5/8	15.9	15/16	196.0	20.0	144.6	177.0	18.0	130.5
3/4	19.0	1 1/8	343.0	35.0	253.0	309.0	31.5	227.9
7/8	22.2	1 15/16	547.0	55.8	403.4	492.0	50.2	362.9
1	25.4	1 1/2	814.0	83.0	600.4	732.0	74.6	539.9
1 1/8	31.7	1 7/8	1181.0	120.4	871.1	1063.0	108.4	784.0
1 1/4	38.1	2 1/4	1646.0	167.8	1214.0	1481.0	151.0	1092.3

Table 3. Torque Settings - Metric Grade 8.8 Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
ISO Metric Thread	mm	mm	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
M5	5	8	5.8	0.6	4.3	5.2	0.5	3.8
M6	6	10	9.9	1.0	7.3	9.0	0.9	6.6
M8	8	13	24.0	2.4	17.7	22.0	2.2	16.2
M10	10	17	47.0	4.8	34.7	43.0	4.4	31.7
M12	12	19	83.0	8.5	61.2	74.0	7.5	54.6
M16	16	24	205.0	20.9	151.2	184.0	18.8	135.7
M20	20	30	400.0	40.8	295.0	360.0	36.7	265.5
M24	24	36	690.0	70.4	508.9	621.0	63.3	458.0
M30	30	46	1372.0	139.9	1011.9	1235.0	125.9	910.9
M36	36	55	2399.0	244.6	1769.4	2159.0	220.0	1592.4

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Dismantling and Assembly

Dismantling

⇒ Fig 3. (D-7).

Note: *All parts are precision made and require the utmost care when being handled.*

Note: *During dismantling, do not use excessive force to separate components which could cause scratches or burrs on bearing surfaces. Failure to observe this instruction will cause oil leaks leading to poor performance.*

Note: *Label all parts during dismantling to ensure correct assembly.*

Note: *Storing the valve when dismantled could cause rusting of parts. Ensure they are suitably protected by anti-rust treatment.*

1 Push down upper section of gaiter **5** and remove roll pin **6**.

2 Remove control handle **5A** from mounting knuckle **7**.

Note: *Take care when removing handle to avoid damage to wiring loom and switches. These should be removed by separating the line connectors in the control handle and below the valve body.*

3 Remove gaiter **5** from valve housing.

4 Slacken locknut **8** and remove mounting knuckle **7**.

5 Slacken and remove joint nut **10** and rocker plate **11**.

⚠ WARNING

Always wear safety glasses when dismantling assemblies containing components under pressure from springs. This will protect against eye injury from components accidentally flying out.

GEN-6-2

Important: *When unscrewing the knuckle joint **9**, ensure retaining plate **12** is held firmly against the force of springs **13** to make sure parts do not fly out and cause injury.*

6 Unscrew knuckle joint **9**, releasing retaining plate **12**.

7 Clean the valve exterior using approved solvent and using soft metal pads for protection, clamp the valve body into a vice.

8 If the return springs **13** are weak, the sliding resistance of the seal **14** will cause the guides **15** to stick in the casing. Using a screw driver, carefully ease out the guides **15** and plungers **16**.

Note: *Care must be taken to prevent damage to the guides when removing. Ensure the guides do not fly out due to the force of the return springs.*

9 Remove spring seats **17**, return springs **13**, pressure control springs **18** and spools **26**.

Note: *Identify each set of parts and their locations for assembly.*

10 Slacken and remove body assembly screws **19**. Remove and discard 'O'rings **20**.

11 Separate upper and lower body sections **21** and **22**. Remove dowel pins **23** and bush **24**.

12 Remove and discard 'O'ring **25**.

13 Hold spool **26** firmly, depress spring seat **17** and flex spring **18** to allow the spring seat to slide sideways and be removed from the spool via the larger aperture.

Note: *Avoid scratching the surface of the spools. Do not depress the spring seats more than 6 mm (0.24 in).*

14 Separate spools **26**, spring seats **17**, springs **18** and washers **27**.

15 Remove plungers **16** from guides **15**.

16 Remove seals **28** and **14** from guides **15** and discard.

Note: *Leave all parts to soak in suitable solvent until dirt is loosened. Using clean solvent, wash all parts and allow to air dry. Apply rust inhibitor to all parts.*

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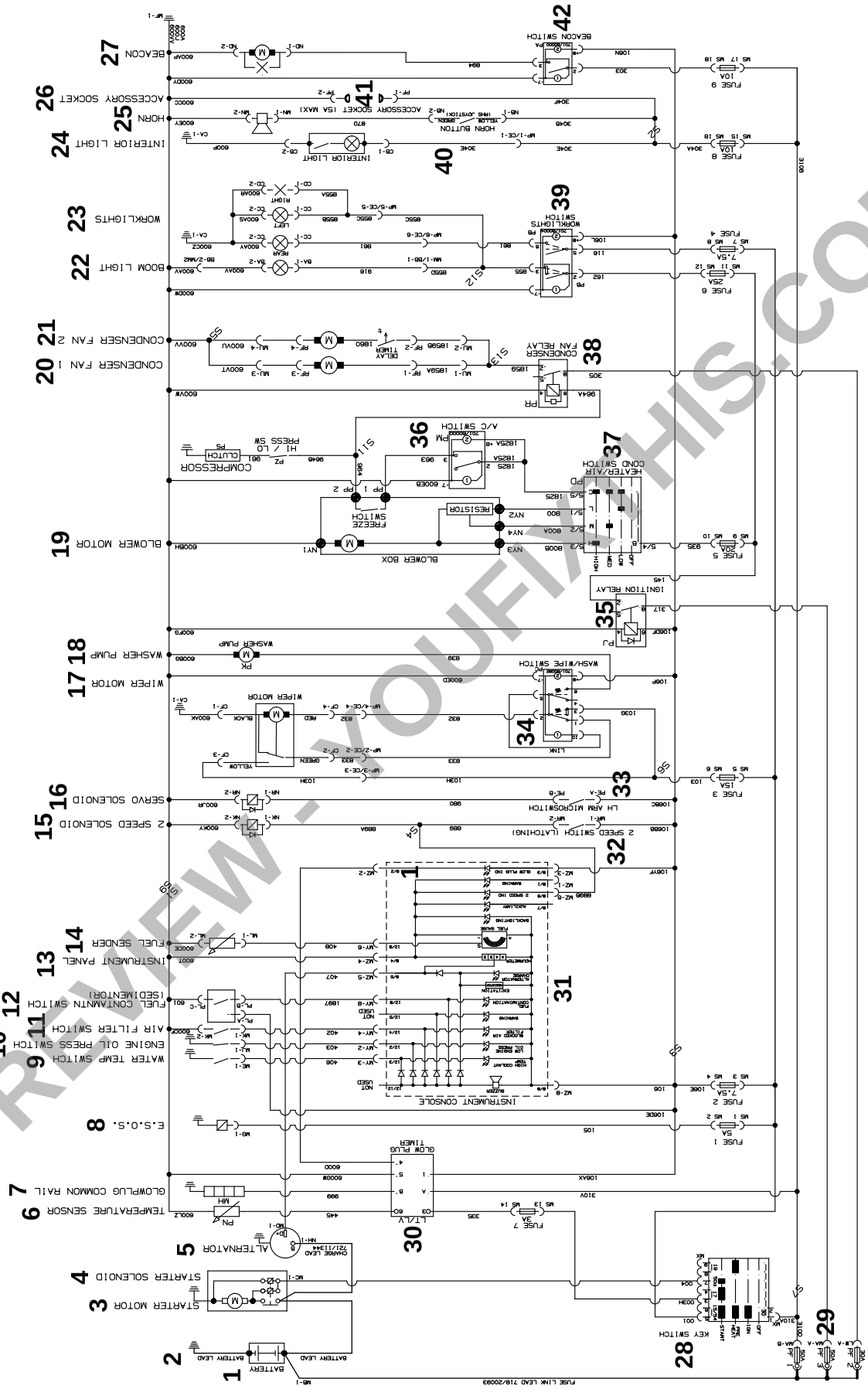


Fig 1. 853/20040 issue 1 (Sheet 1 of 1)

⇒ Component Key (C-23).

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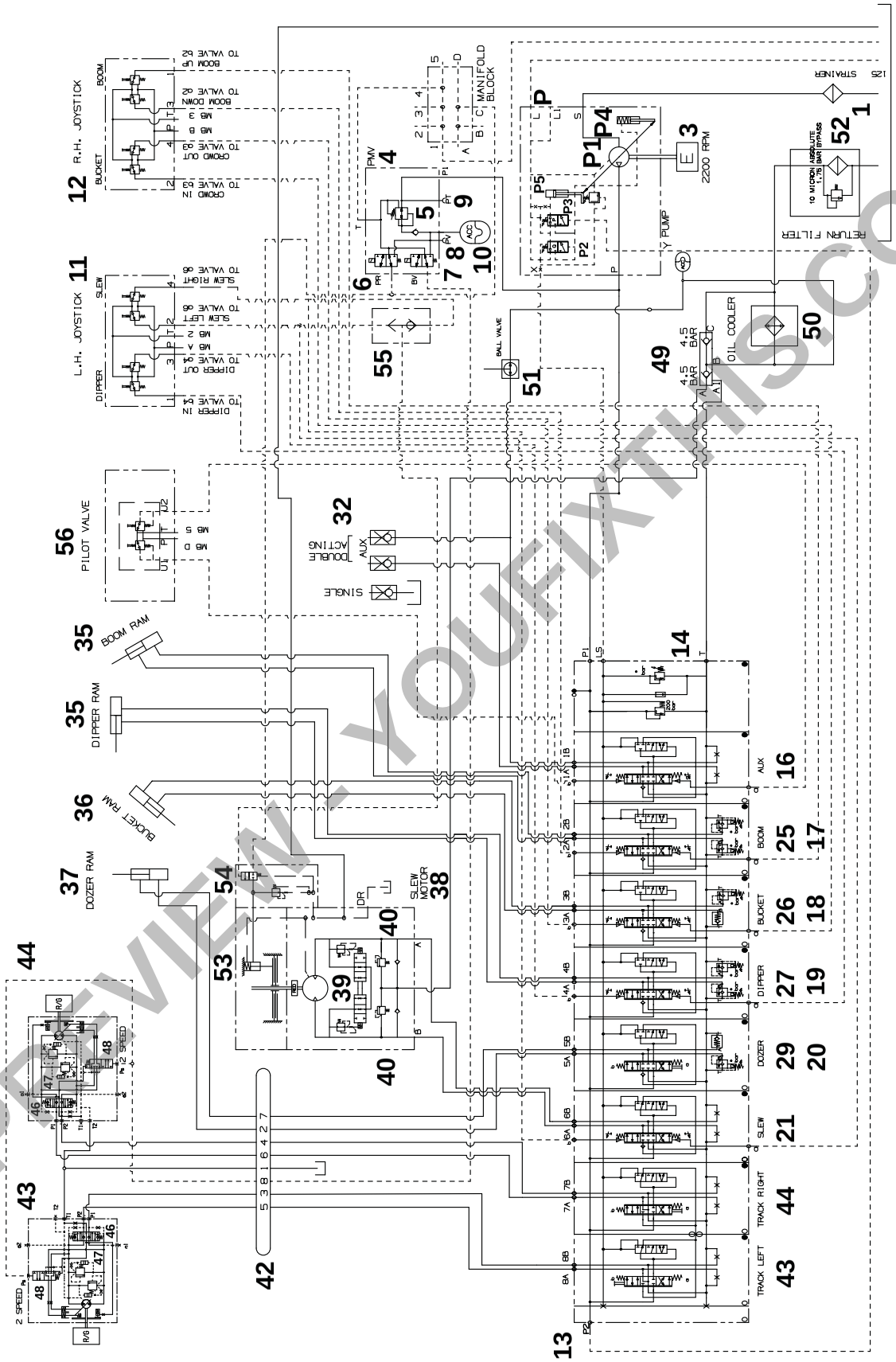


Fig 1. 331/63227 issue 1

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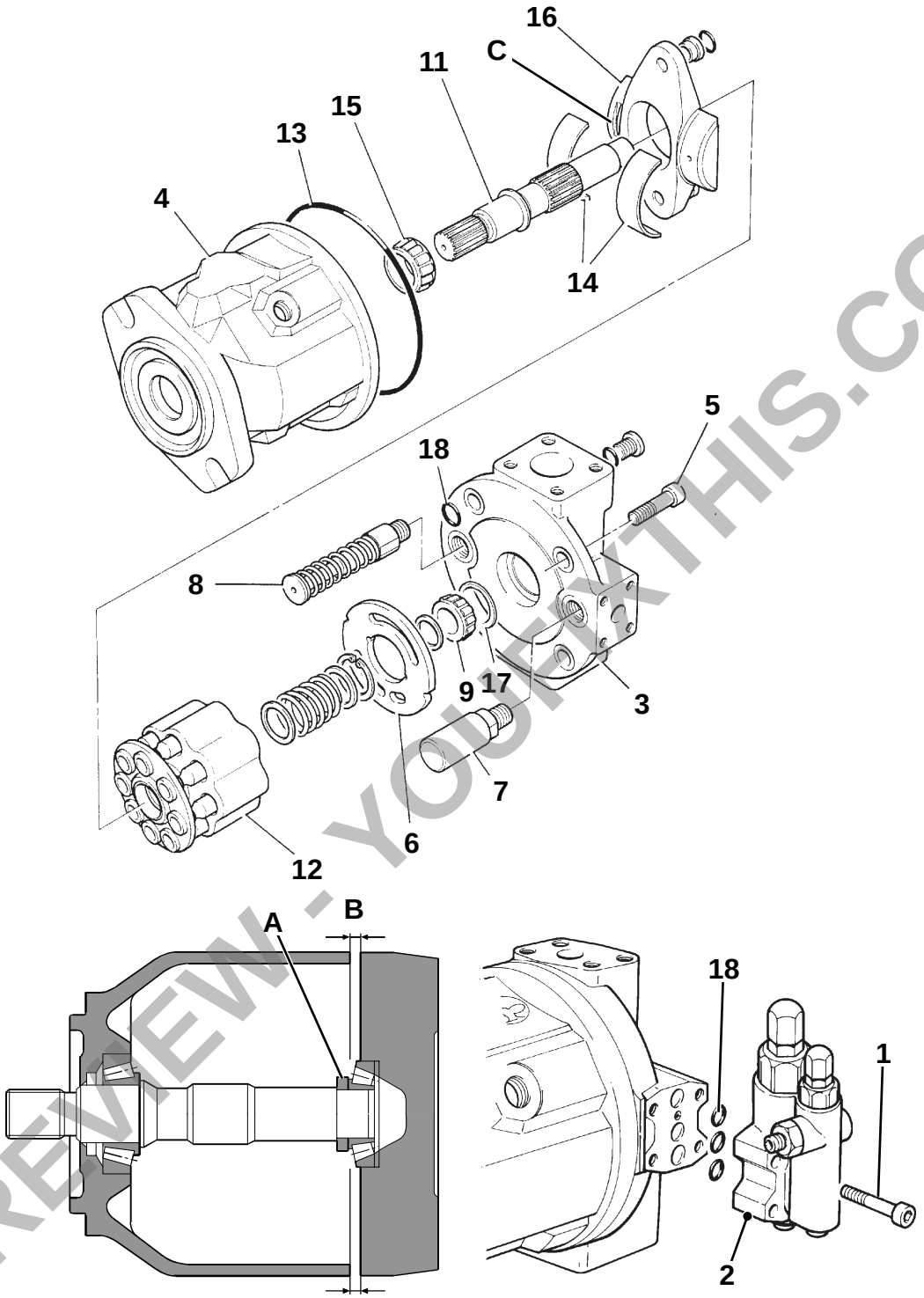


Fig 11.

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General Fault Indications

There are several indications that may help to determine the fault area on a system not working efficiently:

Table 1.

Poor performance	Low system pressure	Evacuate and recharge system
	Condenser coil air flow restricted	Remove debris from around coil using compressed air or low pressure water
	Air filters blocked	Clean with detergent and water
	Compressor drive belt too slack	Adjust to correct tension.
Warm or slightly cool air emitted from unit	Expansion valve stuck open or closed - Renew expansion valve.	
Blower does not operate	Fuse blown	Replace fuse (20A) and retest.
	Circuit faultFault	Fault find and repair.
Compressor clutch continually cuts out	Condenser coil blockage	Remove debris from around coil/renew condenser.
	Overcharging of refrigerant system	Evacuate and recharge system.
	Blocked expansion valve/condenser	Clear blocked component

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Technical Data

8056

Pump	
Model	**REXROTH A10VO**
Type	Single variable displacement, flow on demand piston pump, fully load sensed.
Max flow	140l/min, 30.7 UK gal/min, 36.5 gal/min
Weight	33kg
Flow Rates	Variable displacement, return to idle pump. All measured flows corrected to engine speed of 2500 rev/min. with hydraulic oil at approx. 50°C. Flow and pressure measured at auxiliary circuit.

Pressure	**Flow**
100 bar (1450 lbf/in²)	140 l/min. 30.8 UK gal/min.
125 bar (1813 lbf/in²)	138 l/min. 30.4 UK gal/min.
150 bar (2176 lbf/in²)	115 l/min. 25.3 UK gal/min.
175 bar (2538 lbf/in²)	94 l/min. 20.7 UK gal/min.
200 bar (2901 lbf/in²)	78 l/min 17.1 UK gal/min

Relief Valve Operating Pressures	**bar**	**lbf/in²**
Load Sense Relief Valve	213	3089
Servo Pressure Maintenance Valve	30	435
Auxiliary Relief Valves (A.R.V)		
Boom rod and head side	280	4061
Dipper rod and head side	280	4061
Bucket rod and head side	280	4061
Swing rod and head side	Anti-cavitation valve	
Dozer head side	280	4061
Dozer head side	Anti-cavitation valve	

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Pre Start Cold Checks, Service Points and Fluid Levels

	Operation	10	50	100	500	1000	1500	2000
ENGINE								
Oil level	- Check	☐	☐	☐	☐	☐	☐	☐
Oil and Filter	- Change				☐	☐	☐	☐
Air Cleaner Element (Dusty Conditions only)	- Change				☐	☐	☐	☐
Air Cleaner Outer Element	- Change				☐	☐	☐	☐
Air Cleaner Inner Element	- Change					☐		☐
Air Cleaner Hose Security	- Check and Adjust		☐	☐	☐	☐	☐	☐
Air Filter Dust Valve	- Check and Clean				☐	☐	☐	☐
Fuel Injectors(1)	- Clean and Test							☐
Coolant Quality/Level	- Check	☐	☐	☐	☐	☐	☐	☐
Coolant	- Change							☐
5 Micron Primary Fuel Sedimenter	- Drain and Clean			☐	☐	☐	☐	☐
5 Micron Primary Fuel Filter/ Sedimenter Element	- Change				☐	☐	☐	☐
30 Micron Secondary Fuel Sedimenter	- Drain and Clean		☐	☐	☐	☐	☐	☐
30 Micron Secondary Fuel Filter/ Sedimenter Element	- Change				☐	☐	☐	☐
Fan Belt Tension/Condition	- Check and Adjust		☐	☐	☐	☐	☐	☐
Compressor Belt Tension/Condition	- Check and Adjust		☐	☐	☐	☐	☐	☐
Compressor Oil(1)	- Change						☐	☐
Receiver Drier(1)	- Change						☐	☐
Valve Clearances(1)	- Check and Adjust				☐	☐	☐	☐
Engine Mounting Bolts for Tightness	- Check				☐	☐	☐	☐
Exhaust System Security	- Check				☐	☐	☐	☐
Radiator	- Clean and Check	☐	☐	☐	☐	☐	☐	☐
TRANSMISSION								
Security of Mounting Bolts and Nuts	- Check					☐		☐
Track Gearbox Oil	- Change				☐	☐	☐	☐
Slew Gearbox Oil(2)	- Change				☐	☐	☐	☐
HYDRAULICS								
Oil Level	- Check	☐	☐	☐	☐	☐	☐	☐
Oil	Change							☐
Rams - Chrome Condition	- Check		☐	☐	☐	☐	☐	☐
Hoses and Pipework - Damage/Leaks	- Check				☐	☐	☐	☐
Return Filter Element	- Change				☐	☐	☐	☐
Suction Strainer	- Change							☐

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Controls

Controls Identification

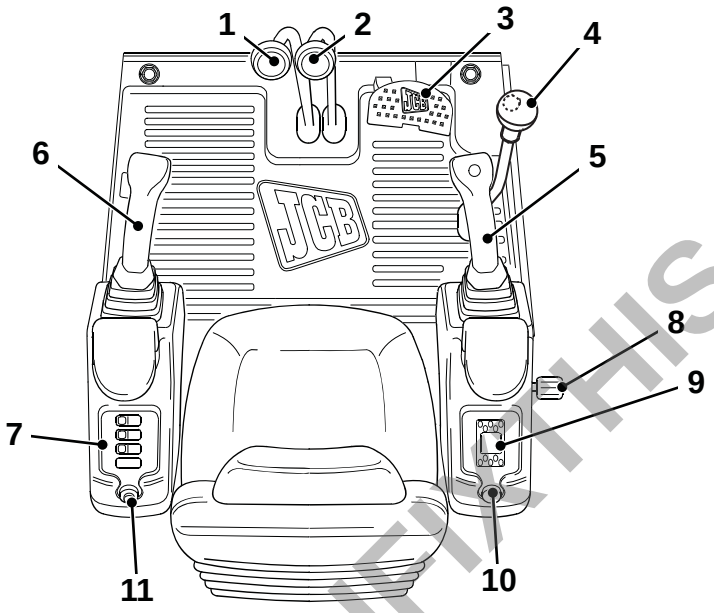


Fig 1.

1 Left Track Control Lever

2 Right Track Control Lever

3 Auxiliary Pedal (if fitted)

4 Dozer Lever

5 Right Hand Controller

6 Left Hand Controller

7 Switch Pack Cluster

8 Hand Throttle Lever

9 Warning Lights

10 Starter Switch

11 Auxiliary Power Socket

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Safety Check List

Safety - Yours and Others

INT-1-3-1_3

All machinary can be hazardous. When a machine 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.

In this manual and on the machine you will find warning messages. Read and understand them. They tell you of potential hazards and how to avoid them. If you do not fully understand the warning messages, ask your employer or JCB distributor to explain them.

But safety is not just a matter of responding to the warnings. All the time you are working on or with the machine you must be thinking what hazards there might be and how to avoid them.

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, ask someone who knows. Do not assume anything.

Remember

BE CAREFUL
BE ALERT
BE SAFE

General Safety

T1-007

⚠ WARNING

Operator Manual

You and others can be injured if you operate or maintain the machine without first studying the Operator Manual. Read the safety instructions before operating the machine. If you do not understand anything, ask your employer or JCB dealer to explain it. Keep the Operator Manual clean and in good condition. Do not operate the machine without an Operator Manual in the cab, or if there is anything on the machine you do not understand.

INT-1-3-2_2

⚠ 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

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

Alcohol and Drugs

It is extremely dangerous to operate machinery when under the influence of alcohol or drugs. Do not consume alcoholic drinks or take drugs before or while operating the machine or attachments. Be aware of medicines which can cause drowsiness.

INT-1-3-9_2

⚠ WARNING

Feeling Unwell

Do not attempt to operate the machine if you are feeling unwell. By doing so you could be a danger to yourself and those you work with.

8-1-2-4

⚠ WARNING

Mobile Phones

Switch off your mobile phone before entering an area with a potentially explosive atmosphere. Sparks in such an area could cause an explosion or fire resulting in death or serious injury.

Switch off and do not use your mobile phone when refuelling the machine.

INT-3-3-9

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Service Schedules

Introduction

A poorly maintained machine is a hazard. Doing the regular maintenance and lubrication jobs listed in these schedules will help keep the machine in safe running order.

⚠ WARNING

Maintenance must be done only by suitably qualified and competent persons.

Before doing any maintenance make sure the machine is safe, it should be correctly parked on level ground.

To prevent anyone starting the engine, remove the starter key. Disconnect the battery when you are not using electrical power. If you do not take these precautions you could be killed or injured.

8-3-1-1

A Service History Record Book is supplied with every machine to enable you to plan your service requirements and keep a service history record. This record book should be dated, signed and stamped by your Distributor at machine installation and each time your machine is serviced.

2-3-1-9

Apart from the daily jobs, the schedules are based on machine running hours. Keep a regular check on the hour meter reading. Do not use a machine which is due for a regular service. Rectify any defects found during regular maintenance before clearing the machine for use.

Calendar equivalents:

Every 10 Hours	=	Daily
Every 50 Hours	=	Weekly
Every 500 Hours	=	Six Months
Every 1000 Hours	=	1 Year
Every 2000 Hours	=	2 Year

All jobs should be marked and logged ⇒ *Table 1. (🗋 3-7)*

Table 1.

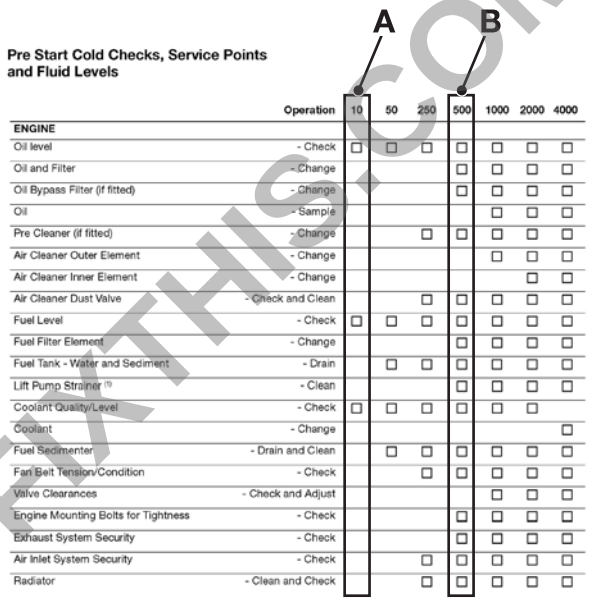
Description	Symbol
No fault found job complete	✓
Fault found and corrected (Detail on report)	☐
Follow up required (Detail on report)	✘

Note: *Original copy to customer, Photocopy to distributor.*

How to Use the Service Schedules

T3-012_2

In the example shown, **A** shows all service requirements to be carried out every 10 hours and **B** shows the requirements to be carried out every 500 hours.



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Fault Finding

Procedures that require charging or discharging the system are not given in this manual as they require special equipment that is usually held only by trained refrigeration engineers. Fault indications are given ⇨ *General Fault Indications (B-11)*

The system will not function in very low ambient temperatures, therefore tests should be carried out in a warm environment.

It is recommended that, to locate faults on the system accurately and quickly, an electronic leak detector and a refrigerant pressure gauge should be used. However, leaks can be detected on the system by using soapy water applied to the suspected leak area and system pressure can be assessed by the state of refrigerant passing through the receiver drier sight glass. The following pages of the manual deal with the major components of the air conditioning system and give further fault finding and maintenance information.

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Harness Data

Wire and Harness Number Identification

TC-003

Introduction

This section details the allocation of wire numbers and the identification of wires in the wiring harness.

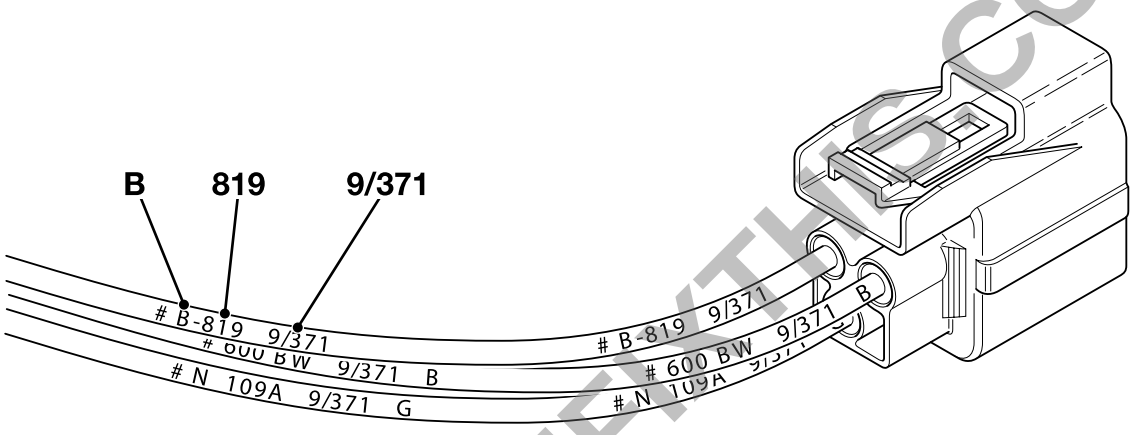


Fig 1. Typical Wire and Harness Number

⇒ *Fig 1. (C-25)* shows a typical connector and wires. Each wire has an individual identification number permanently marked on it, at regular intervals along it's length.

The number stamped on the wire shown in ⇒ *Fig 1. (C-25)* identifies the following:

Table 1. Wire and Harness Number Identification

Ident. No.	Description
B	If applicable - The colour of the flying lead that the harness wire should mate with. For instance, if wire **819** from harness 719/37100 mated with a flying lead coloured black (colour code **B**) then the number printed on the wire would be **B**-819 9/371.
819	The wire's unique identification number. The wire functions and numbers allocated to them are consistent through out the JCB range of products.
9/371	The part number of the harness that the wire originates from. If the harness part number is 719/37100, the number printed on the harness wires will be **9/371** (71 and 00 are common numbers and therefore deleted).

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Hydraulic Valve Block Performance

1 Make a visible mark on each track.

2 Safely raise the tracks off the ground, with the engine at maximum speed, operate one track only.

3 Using a stopwatch, time how long it takes for the track to complete 10 revolutions. The time should be TBA seconds (high speed mode) or TBA seconds (low speed mode).

Minimum tolerance	TBA seconds.
Maximum tolerance	TBA seconds.

4 With both tracks operating in the air (in high speed mode) the time for 10 revolutions should be TBA seconds.

Minimum tolerance	TBA seconds.
Maximum tolerance	TBA seconds.

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Dismantling and Assembly

Dismantling

Note: *Refer to* ⇒ *Fig 2. (E-83) and* ⇒ *Fig 3. (E-84) as a guide to dismantling and assembling.*

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 relief assembly **23** using a 27 mm A/F hexagonal key and the by-pass valve assembly **31** with a 8 mm hex, socket.

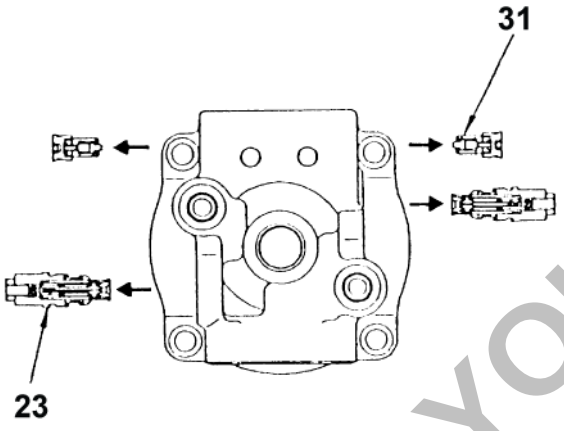


Fig 5.

2 Before removing the motor from the reduction gear, it is advisable to make an alignment mark on the mating faces to facilitate re assembly.

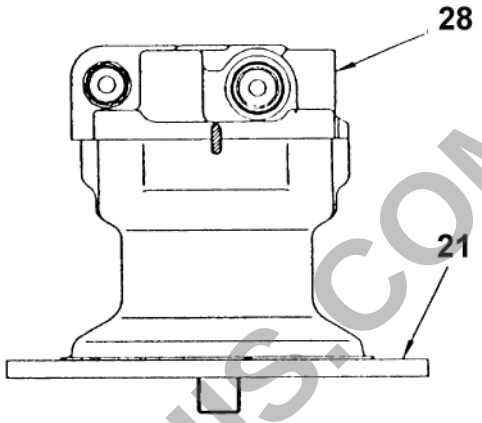


Fig 6.

3 Loosen the bolts **34** with a 10 mm socket wrench, place the motor with the output shaft downwards and remove the cover **28**.

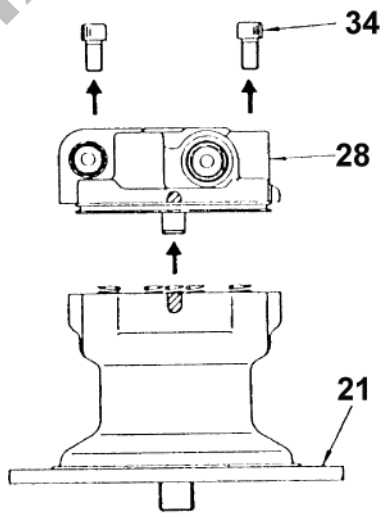


Fig 7.

4 Remove the snap ring **2** and remove the inner ring of the needle bearing **3** and balance plate **7**. The inner ring of the needle bearing **3** is pressed into the male axis of the cover **28** and must be removed with a gear puller.

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