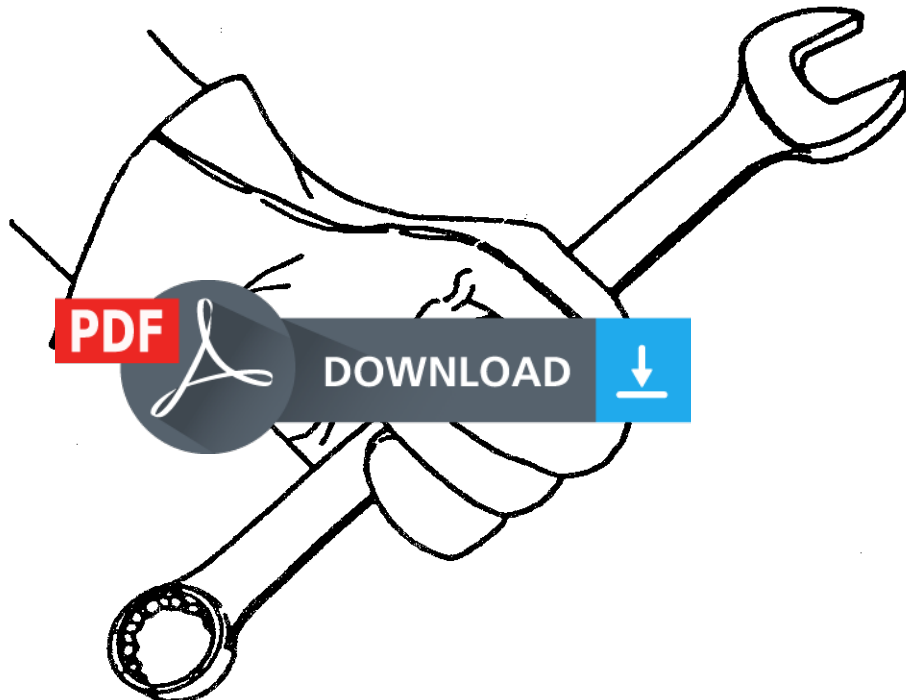




**COMPACT
EXCAVATOR**

120

SERVICE MANUAL



MELROE EUROPE

J. Huysmanslaan 59, B - 1651 LOT - BELGIUM
Tel. 02/371.68.11 - Fax. 02/371.69.00 - Telex 21.657

6570516 (3-87)

FOREWORD



WARNING

Instructions are necessary before operating or servicing machine. Read Operator's Manual, and safety signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Failure to follow instructions can cause injury or death.



WARNING

AVOID INJURY OR DEATH

Never service or adjust the machine when the engine is running unless instructed to do so in the manual.

Keep the engine cover closed when operating the machine.

TABLE OF CONTENTS

SECTION A : DIESEL ENGINE	7
01 – ENGINE IDENTIFICATION	9
02 – ENGINE DESCRIPTION	10
03 – MAIN TECHNICAL CHARACTERISTICS OF THE ENGINE	12
04 – POWER OUTPUT DIAGRAM	13
05 – MALFUNCTIONS – CAUSES AND REMEDIES	14
06 – ADJUSTMENTS	16
1. Adjustment of rocker arm clearance	16
2. Checking and adjustment of injection time	16
3. Adjustment of engine rotation speed	19
07 – CHECKING AND REPAIRING THE ENGINE	20
1. Valve seat	20
2. Valves	20
3. Valve spring	20
4. Cylinder head	20
4.1 Valve guide	20
4.2 Rocker arms and rocker shaft	23
4.3 Reassembly	23
4.3.1 Cylinder head	23
4.3.2 Rocker shafts	23
5. Cylinder block	24
5.1 Removal of piston and rods	24
5.2 Removal of rings and pistons	24
5.3 Reassembly of piston-rod assemblies	27
08 – ENGINE LUBRICATION CIRCUIT	28
1. Description	28
09 – FUEL CIRCUIT	31
1. Description	31
2. Checking diesel fuel pump rate	32
3. Checking an injection atomiser	32
3.1 Checking the pressure	32
3.2 Checking atomatisation	32
3.3 Checking sealing	32
3.4 Checking the adjustment of retaining check valves on the injection pump (for the 3 valves)	32
10 – COMPRESSION	35
1. Checking the compression for each cylinder	35
11 – COOLING CIRCUIT	35
1. Description	36
2. Checks	36
2.1 Water pump	36
2.2 Thermostat	36
2.3 Heat switch	36
2.4 Fan belt	36
SECTION B : ELECTRICAL EQUIPMENT	39
01 – ELECTRICAL CIRCUIT	41
1. Schematic diagram	41
02 – STARTER MOTOR	41
1. Definition	42
2. General checks	42

3. Operating tests (under no load)	42
4. Checking the brush contacts	42
5. Checking the armature	42
6. Checking the commutator	42
7. Checking the excitation coils	42
8. Check the excitation circuit (earthed)	42
9. Checking the drive pinion.	45
10. Checking clearance of starter	45
11. Checking the relay	45
03 – ALTERNATOR	46
1. Definition	46
2. Checking alternator operation	46
3. Checking the diodes (short circuit)	46
4. Checking the startor.	46
5. Checking the coil.	46
SECTION C : HYDRAULIC SYSTEM	49
01 – DESCRIPTION OF HYDRAULIC SYSTEM.	51
1. Hydraulic system.	51
02 – HYDRAULIC CIRCUIT	52
1. Simplified schematic diagram.	52
2. Detailed schematic diagram	55
3. Operating principle of 7 element control valve	56
4. Hydraulic pressures	56
5. Operating principle of the dozer blade control valve	59
03 – CHECKING AND ADJUSTMENT OF HYDRAULIC PRESSURES.	60
1. Adjustment of service pressures («Bucket» Circuit)	60
2. Adjustment of service pressure («Dozer Blade» Circuit)	60
3. Adjustment of secondary pressure on boom control cylinder.	63
4. Adjustment of secondary pressure on dipper arm control cylinder	63
04 – CHECKING THE FLOW RATE OF PUMPS (P1 P2 P3)	64
1. Checking the flow rate of dual pump (P1 P2).	64
2. Checking the flow rate of each pump (P1 and P2)	67
3. Checking the flow rate of pump P3.	68
4. Replacement of seals for pumps.	68
05 – CONTROL CYLINDER	71
1. Boom control cylinder	71
2. Dipper arm control cylinder	72
3. Bucket control cylinder	72
4. Boom side shift control cylinder.	75
5. «Dozer Blade» control cylinder	75
06 – MOVEMENT CIRCUIT	76
1. Operating principle	76
2. Replacement of seals	76
07 – SWINGING/SIDE SHIFT CIRCUIT	79
1. Operating principle	79
2. Replacement of seals	79
08 – RECOMMENDATIONS CONCERNING MAINTENANCE OF PUMPS AND HYDRAULIC MOTOR	80
1. General	80
2. Recommendations.	80

2.1	Quality of oil to be used	80
2.2	Viscosity properties	80
2.3	Maximum operating temperature	80
2.4	Cleanliness of oil	80
2.5	Ageing of oil.	81
2.6	Checking of oil level.	81
2.7	Protection of the system	81
2.8	Pump drive system.	81
SECTION D : TOOLS – TORQUE TABLE – CHECK LIST		83
01 – TOOLS		85
1. Engine tools		85
2. Hydraulic circuit tools		85
02 – TORQUE TABLE		86
03 – CHECK LIST		87



Thank you very much
for your reading.
Please click here
to get more information.