Service Manual

ROBOT 150, 165

PUBLISHED BY THE
TECHNICAL PUBLICATIONS DEPARTMENT
OF JCB SERVICE; ©
WATERLOO PARK, UTTOXETER,
STAFFORDSHIRE, ST14 5PA, ENGLAND
Tel. ROCESTER (01889) 590312
PRINTED IN ENGLAND

Publication No. 9803/8500

General Information 1
Care & Safety 2
Routine Maintenance 3
Attachments A
Body & Framework B
Electrics C
Controls D
Hydraulics E
Transmission F
Brakes G
Engine K

MidWestTech | JCB Robot 150, 165 Skid Steer Loader Service Manual | Publication 9803-8... Order the manual at mid-west-tech.com >

Contents

	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

MidWestTech | JCB Robot 150, 165 Skid Steer Loader Service Manual | Publication 9... Order the manual at mid-west-tech.com >

Contents	Page No.
Safety Notices	1 - 1
General Safety	2 - 1
Operating Safety	3 - 1
Maintenance Safety	4 - 1
Safety Decals	5 - 1

MidWestTech | JCB Robot 150, 165 Skid Steer Loader Service Manual | Publication 9... Order the manual at mid-west-tech.com >

Contents

	Page No.
Fluids, Capacities and Lubricants	1 - 1
Lubricants	
Health and Safety	1 - 2
Fuel System	2 - 1
Service Schedules	3 - 1
Loader Arm Safety Strut	4 - 1
Greasing	5 - 1
* Body and Framework	
Oiling	6 - 1
Cleaning Cab Interior	6 - 4
Checking Seat Belt Condition and Security	6 - 4
Electrical System	
Battery Safety	7 - 1
Checking the Electrolyte Level	7 - 2
Changing the Light Bulbs	7 - 3
Hydraulic System	
Checking the Fluid Level	8 - 1
Changing the Filter	8 - 1
* Transmission	
Drive Chain Lubrication up to machine number 677999	9 - 1
- Checking the Oil Levels	9 - 1
- Changing the Oil	9 - 1
Drive Chain Lubrication from machine number 678000	9 - 2
- Checking the Oil Levels	9 - 2
- Changing the Oil	9 - 2
Adjusting the Drive Chain Tension	9 - 3
Tyres and Wheels	9 - 4
- Inflating the Tyres	9 - 4
- Replacing Segments of Optional Non-Inflatable Tyres	9 - 4
- Checking the Wheelnut Torques	9 - 4
- Tyre Table	9 - 4

MidWestTech | JCB Robot 150, 165 Skid Steer Loader Service Manual | Publication 9... Order the manual at mid-west-tech.com >

Testing - Specific Gravity

The specific gravity of the electrolyte gives an idea of the state of charge of the battery. Readings should be taken using a hydrometer, when the electrolyte temperature is 15 °C (60 °F). If the battery has recently been on charge, wait approximately one hour (or slightly discharge the battery) to dissipate the surface charge before testing.

Readings should be as tabulated and should not vary between cells by more than 0.04. A greater variation indicates an internal fault on that particular cell.

If the electrolyte temperature is other than 15 °C (60 °F) a 'correction factor' must be applied to the reading obtained. Add 0.07 per 10 °C (18 °F) if the temperature is higher than 15 °C (60 °F) and subtract the same if the temperature is lower.

Specific Gravity at 15 °C (60 °F)

	Fully Charged	Half Discharged	Fully Discharged
Ambient temperature up to 27 °C (80 °F)	1.270 - 1.290	1.190 - 1.210	1.110 - 1.130
Ambient temperature above 27 °C (80 °F)	1.240 - 1.260	1.170 - 1.190	1.090 - 1.110

Battery Testing

This test is to determine the electrical condition of the battery and to give an indication of the remaining useful 'life'.

Before testing ensure that the battery is at least 75% charged (SG of 1.23 to 1.25 for ambient temperature up to 27°C).

Ensure that the battery is completely disconnected from the vehicle.

Connect up the battery tester (part no. 993/85700) as follows:

1 Set the CHECK/LOAD switch **A** to OFF.

2 Set rocker switch **B** to the battery voltage (12V).

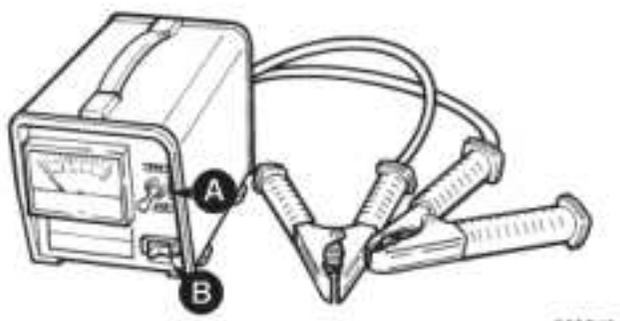
3 Connect the red flying lead to the battery positive (+) terminal and the black flying lead to the battery negative (-) terminal.

4 Set the CHECK/LOAD switch **A** to CHECK to read the battery no-load voltage which should be at least 12.4 volts.

5 Set the CHECK/LOAD switch **A** to LOAD and hold down for 5 - 10 seconds until the meter reading stabilises. The reading should be at least 9 volts.

Note: Do not hold the switch in the LOAD position for more than 10 seconds.

6 If the foregoing tests are unsatisfactory, consult Fault Diagnosis below.



239510

Fault Diagnosis Battery Tester Readings	Remedy
1 CHECK: 0 - 12.6 Volts LOAD: less than 6 Volts	Renew battery
2 CHECK: 6 - 12.4 Volts LOAD: less than 9 Volts and falls steadily but remains in yellow zone.	Recharge and re-test. If tests still unsatisfactory renew battery.
3 CHECK: less than 10 Volts LOAD: less than 3 Volts	Indicates battery has been over-discharged and unlikely to recover. Renew battery.
4 CHECK: more than 11 Volts	Charge battery which will probably recover.

MidWestTech | JCB Robot 150, 165 Skid Steer Loader Service Manual | Publication 9... Order the manual at mid-west-tech.com >

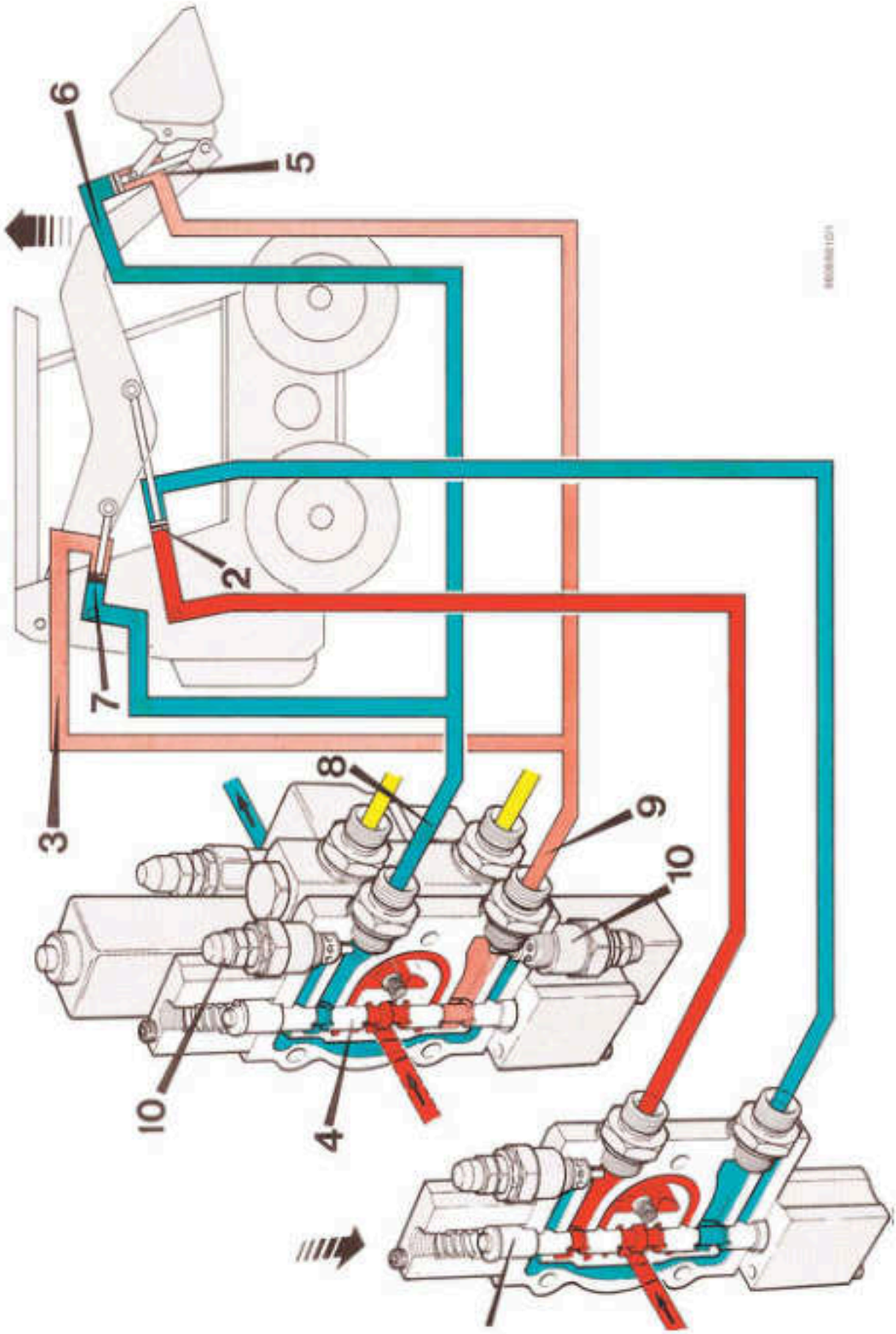
Contents

	Page No.
Schematic Hydraulic Circuit	
Servo machines up to serial number 675573	30 - 1
Servo machines from serial number 675574 to 677000	30 - 3
Servo machines from serial number 677001 to 677999	
- Single Drive Lever Control	30 - 5
- Dual Drive Lever Control	30 - 7
Manual machines from serial number 677001 to 677999	30 - 9
Servo machines from serial number 678000	
- Standard Circuit	30 - 11
- High-flow Circuit	30 - 12
Manual machines from serial number 678000	
- Standard Circuit	30 - 13
- High-flow Circuit	30 - 14

MidWestTech | JCB Robot 150, 165 Skid Steer Loader Service Manual | Publication 9... Order the manual at mid-west-tech.com >

KEY TO CAUSE		REMEDY	PAGE REF.
18	Mechanical brake failure	Check brake components (worn plates, spring damage, etc.).	E13-3, E13-5
19	Motor seal leakage	Check motor case drain for confirmation of seal leakage (compare one motor with the other). Check for shaft seal leakage by checking chain case oil level.	E14-8
20	Joystick inoperative	Check joystick (plunger movement, leaking seals, etc.)	E20-3
21	Chain tension	Check chain tension.	3/9-3, F1-6
22	Motor failure	Inspect motor for damage. Repair as required.	E13-3, E13-5
23	'Spider' type drive mis-aligned (early machines)	Check alignment - ensure contact faces on spider are clean and sitting squarely	E13-1
24	Chain/sprocket damage	Inspect chain and sprocket. Repair as required.	Sect. F
25	Pump/engine drive coupling failure	Check coupling.	E9-2

MidWestTech | JCB Robot 150, 165 Skid Steer Loader Service Manual | Publication 9... Order the manual at mid-west-tech.com >



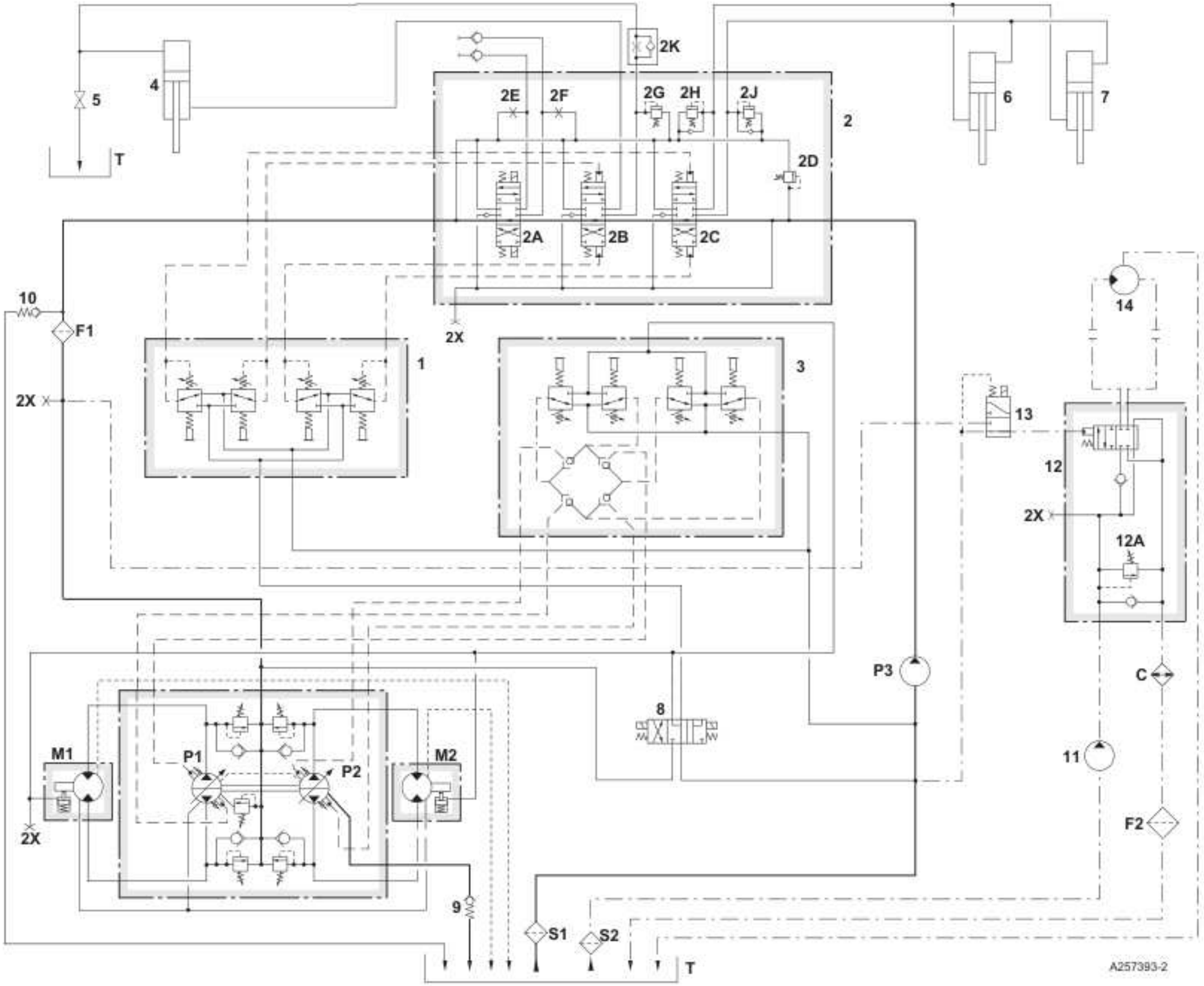
MidWestTech | JCB Robot 150, 165 Skid Steer Loader Service Manual | Publication 9... Order the manual at mid-west-tech.com >

Servo machines from serial no. 678000

Component Key - High-flow Circuit

C	Cooler
F1	Filter
F2	High-flow Filter
P1	Main Pump ┐ Run in Tandem
P2	Main Pump ┘
P3	Auxiliary Gear Pump
M1	Left Hand Drive Motor
M2	Right Hand Drive Motor
S1	Suction Strainer
S2	High-flow Pump Suction Strainer
T	Tank
1	Loader Joystick
2	Main Loader Valve Block
2A	Auxiliary Spool
2B	Lift Spool
2C	Crowd Spool
2D	Main Relief Valve (MRV)
2E	Attachment Auxiliary Relief Valve (if required)
2F	Attachment Auxiliary Relief Valve (if required)
2G	Auxiliary Relief Valve (ARV)
2H	Auxiliary Relief Valve (ARV)
2J	Auxiliary Relief Valve (ARV)
2K	One-way Restrictor
2X	Pressure Test Points
3	Drive Control Joystick
4	Lift Ram
5	Manually Operated Dump Valve
6	Compensating Ram
7	Crowd Ram
8	Brake Valve
9	Check Valve (2 bar)
10	Filter By-pass
11	High-flow Pump
12	High-flow Valve
12A	High-flow Circuit Relief Valve
13	High-flow Control Valve
14	Attachment Motor

Note 1: Neutral Circuit shown in bold line



MidWestTech | JCB Robot 150, 165 Skid Steer Loader Service Manual | Publication 9803-8500
Order the manual at mid-west-tech.com >