CATERPILLAR®

Service Manual

Model
TH255

S/N TBS00100 & After

31200364

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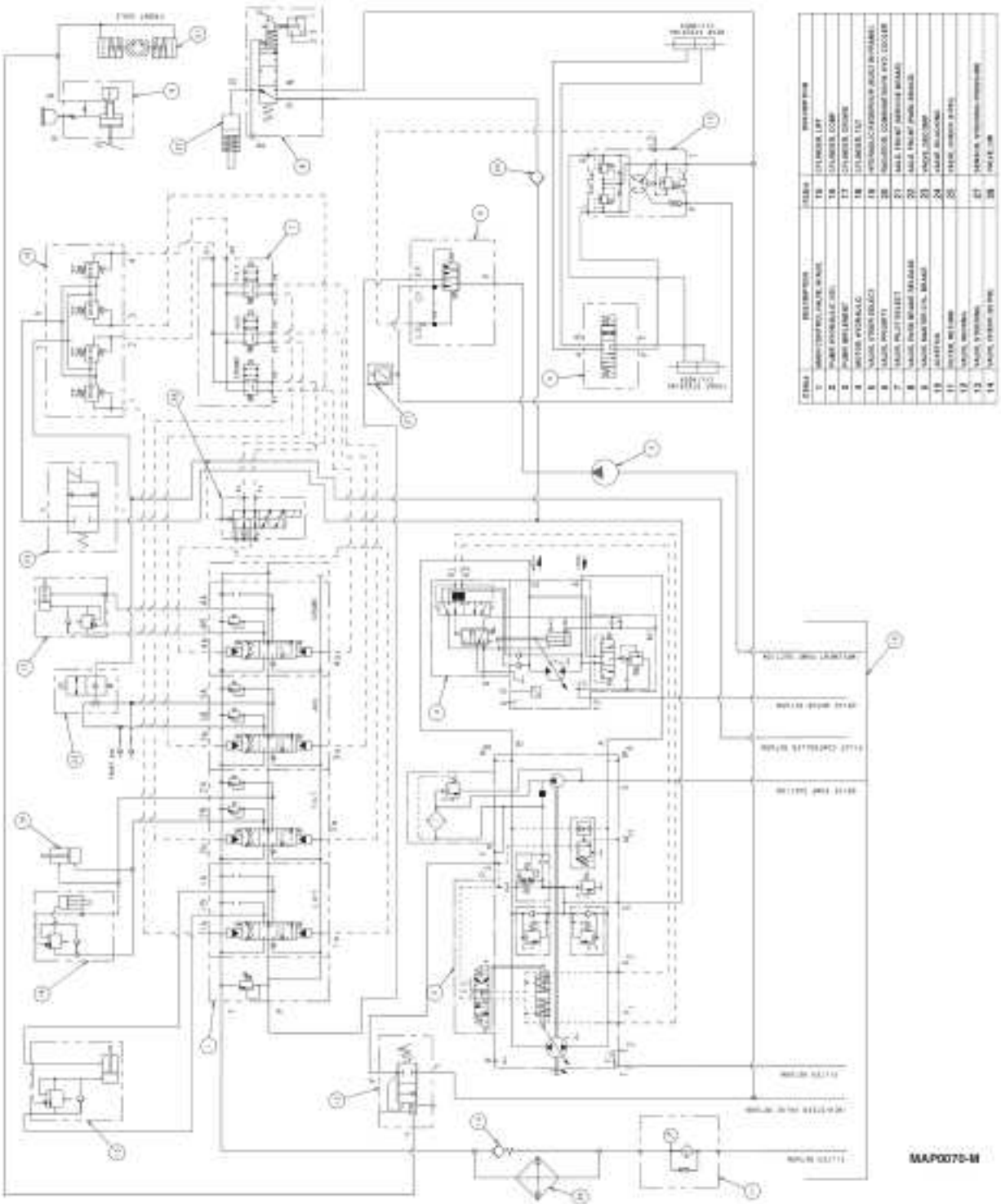
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8.7 HYDRAULIC SCHEMATIC

Refer to Hydraulic Schematic Package (P/N 31200458).

8.7.1 Before S/N TBS00627

a. CE & AUS



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9. Remove the Do Not Operate Tags from both the ignition key and the steering wheel.

d. Steering Test

1. Start the machine and select either the 4-wheel steer or the crab steer mode.
2. Turn the steering wheel until the left rear wheel is aligned with the side of the frame.
3. Select the 2-wheel steer mode and turn the steering wheel until the left front wheel is aligned with the frame.
4. With the wheel now aligned, select the desired steer mode.
5. If further troubleshooting is required, refer to Section 8.6.5, "Steering Pressure Checking," Section 8.7, "Hydraulic Schematic," or Section 9.4, "Electrical System Schematics."

8.11.10 Joystick Enable Valve

The joystick enable valve is located on top of the frame at the left rear corner of the hydraulic reservoir.

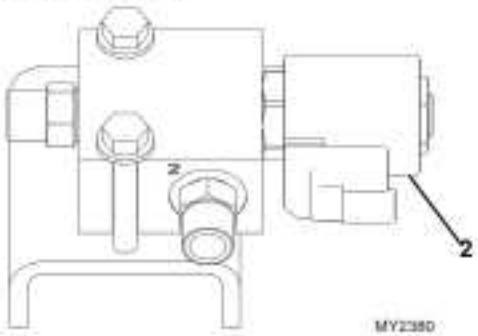
Verify the correct operation of the joystick enable valve solenoid before considering replacement of the valve. The housing of the joystick enable valve is not serviceable and must be replaced if defective.

a. Joystick Enable Valve Removal

1. Park the machine on a firm, level surface, fully retract the boom, lower the boom, place the transmission control lever in (N) NEUTRAL, engage the park brake and shut the engine OFF.
2. Place a Do Not Operate Tag on both the ignition key switch and the steering wheel, stating that the machine should not be operated.
3. Open the battery and engine covers. Allow the system fluids to cool.
4. Properly disconnect the battery.
5. Label or otherwise mark the hydraulic hoses in relation to the joystick enable valve. Disconnect and cap all hoses, fittings, solenoid wire terminal leads, etc.
6. Remove the capscrews that attach the valve to the frame.
7. Remove the joystick enable valve from the machine. Wipe up any hydraulic fluid spillage in, on, near and around the machine.

b. Joystick Enable Valve Disassembly, Cleaning, Inspection and Assembly

1. Place the joystick enable valve assembly on a suitable work surface.



2. Remove the solenoid valve and cartridge (**2**) from the joystick enable valve housing.
3. Clean all components with a suitable cleaner before inspection.
4. Inspect the solenoid cartridge for proper operation. Check by shifting the spool to ensure that it is functioning properly. Check that the spring is intact. Inspect the cartridge interior for contamination.
5. Inspect internal passageways of the joystick enable valve for wear, damage, etc. If inner surfaces of the manifold **DO NOT** display an ultra-smooth, polished finish, or components are damaged in any way, replace the manifold or appropriate part. Often, dirty hydraulic fluid causes failure of internal seals and damage to the polished surfaces within the unit.

Note: *ALWAYS replace seals, o-rings, gaskets, etc., with new parts to help ensure proper sealing and operation. Lubricate seals and o-rings with clean hydraulic oil.*

6. Install the solenoid valve and cartridge in the joystick enable valve housing.

c. Joystick Enable Valve Installation

1. Attach the joystick enable valve to the mounting plate on the frame using the socket head capscrews.
2. Connect the hydraulic hoses, fittings, solenoid wire terminal leads, etc., to the joystick enable.
3. Check the routing of all hoses, wiring and tubing for sharp bends or interference with any rotating members, and install tie wraps and/or protective conduit as required. Tighten all tube and hose clamps.
4. Properly connect the battery.

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b. Field Calibration

To calibrate the LSI, certain conditions must be met:

- The sensor must be installed according to Section 9.13.1, "LSI Axle Sensor," and Section 9.13.2, "LSI Boom Sensors."
- The test weight matches the model being calibrated in the table shown on page 9-30.
- The calibration shall be conducted with standard carriage and forks attached to the machine.
- While utilizing the LSI override button, 10 times lift and lower the boom stopping suddenly to induce the rear axle to bounce.

Note: *If the test weight is not known, follow steps 1 & 2.*

Model	Market	Test Weight (W)	Xtip (1)	Xcal (2)
With Manual Quick Switch				
TH255	CE & AUS	2000 kg (4408 lb)	1225 mm (48.25 in)	978 mm (38.5 in)
With Hydraulic Quick Switch				
TH255	CE & AUS	2000 kg (4408 lb)	1200 mm (47.25 in)	952 mm (37.5 in)

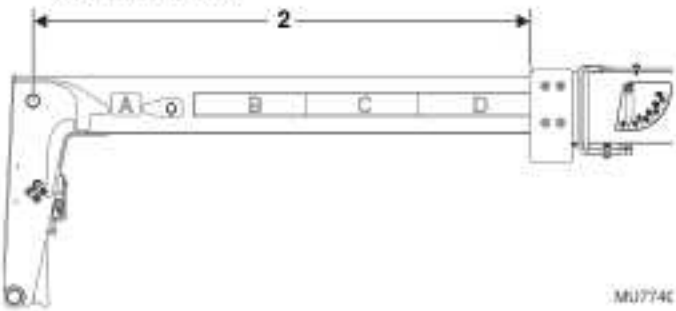


1. With the estimated test weight on the forks, start the machine and extend the boom horizontally until the machine starts to tip. This point should be at an extension of Xtip (**1**) of the second boom section. If the machine is not tipping at this extension, weight needs to be added or removed from the forks.
2. By confirming that the machine tips at this point, the correct amount of weight is now on the forks.
3. The machine control system must be powered on for at least 10 minutes before calibration.
4. The machine must be on a level surface with the wheels steered straight and park brake OFF. Drive the machine forward over a distance of at least 2 m (6.5 ft) before entering a calibration point.
5. Place test weight on ground, apply park brake and shut engine OFF. Do Not move machine.

Field Calibration Procedure:

Note: *The following procedure must be completed within 30 minutes of starting the procedure.*

1. With ignition key in OFF position, press and hold SYSTEM CHECK button on LSI display and turn ignition key to engine START position. Release the ignition key when engine start is achieved, but continue to hold SYSTEM CHECK button on LSI display until the orange LED on LSI display goes out and buzzer sounds (approximately 3 seconds). Release SYSTEM CHECK button.
2. The LEDs will perform a sequence. When only the third green LED illuminates, press the SYSTEM CHECK button.
3. The first green LED then illuminates. With no attachment and boom retracted, lift boom fully.
4. Press the SYSTEM CHECK button on the LSI display and release. The first 3 green LEDs will illuminate. The third then second green LEDs will go out as the calibration point is recorded.
5. The first green LED goes out and buzzer sounds then the red LED illuminates.
6. Lower boom and without moving the machine, pick up the proper test weight (**W**) listed in the table. Pressing the LSI Override button may be required to lower the boom.



7. With the boom horizontal, slowly extend the boom to the distance of Xcal (**2**). The proper calibration weight is now on the rear axle and the LSI can now be calibrated.
8. Press the SYSTEM CHECK button on the LSI display and release. As the calibration point is recorded, buzzer sounds and the LEDs will flash and perform a sequence until all are flashing.
9. Perform the LSI- CAN Check PT to finalize the calibration. Refer to Section 9.13.5, "LSI-CAN Check PT."

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