TOWMOTOR®

Service Manual

Chassis & Mast

MC

GP20S	CT54-10011-up	**DP20HS**	CT50-10011-up
GP25S	CT54-50011-up	**DP25HS**	CT50-50011-up
GP30S	CT55-10011-up	**DP30HS**	CT51-10011-up

For use with K25 and S4S Engine Service Manuals.

99729-90100

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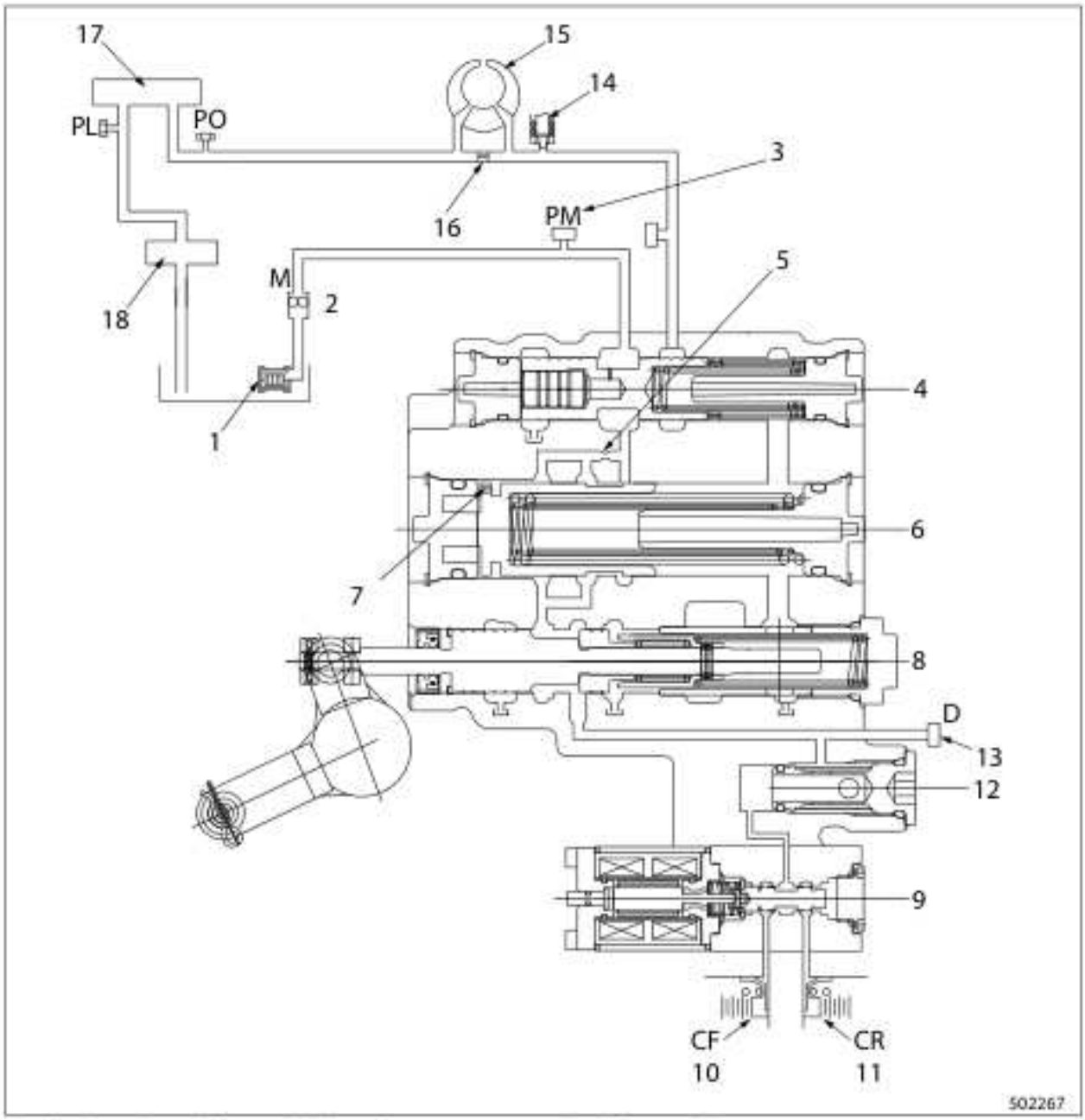
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1.6 Schematic Diagram of Powershift Transmission Hydraulic System



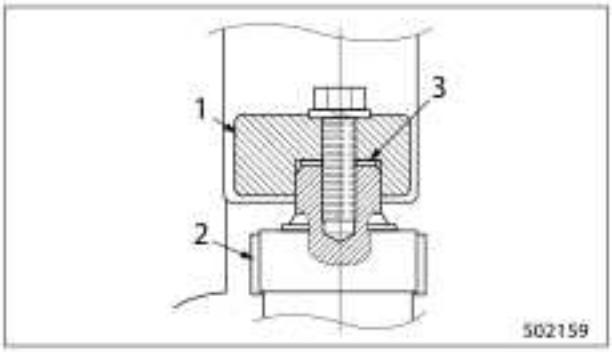
1. Suction strainer with magnet (100 mesh)
2. Gear pump
   (Theoretical discharge: 18.6 cc (1.135 cu. in.)/rev)
3. Valve (On top, there is a "M" mark)
4. Main regulator valve
   (1.00 to 1.30 MPa (10 to 13 kgf/cm^2) [145 to 188 psi])
5. Main orifice (Low capacity T/C: Ø1.6 mm (0.063 in.), High capacity T/C: Ø1.8 mm (0.071 in.))
6. Accumulator valve
   (Mounting pressure: 0.06 MPa (0.61 kgf/cm^2) [8.70 psi], Complete filling pressure: 0.57 MPa (5.81 kgf/cm^2) [82.67 psi])
7. Orifice bypass (Ø1.7 mm (0.0669 in.))
8. Inching valve
   (0 to 0.44 MPa (0 to 4.49 kgf/cm^2) [0 to 63.8 psi])
9. Selector valve
10. Forward clutch
11. Reverse clutch
12. Strainer
13. Valve (On top, there is a "D" mark)
14. T/C inlet oil pressure relief valve
    (0.10 to 0.50 MPa (1 to 5 kgf/cm^2) [14 to 72 psi])
15. Torque converter
16. Torque converter bypass (Ø6.0 mm (0.236 in.))
17. Oil cooler
18. Lubrication line

Note: Engine speed: 1600 min^{-1} (rpm)

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(3) Extend the piston rod, and tighten the lift cylinder set bolt. Remove the wood blocks under the inner mast.

(4) Check that the piston rods move smoothly throughout the stroke by slowly lowering the inner mast to the bottom. Also check that the left and right lift cylinders come to the end of stroke simultaneously at the maximum lift position of the inner mast.



1. Inner mast
2. Cylinder bracket
3. Shim (I)

3.28 Troubleshooting

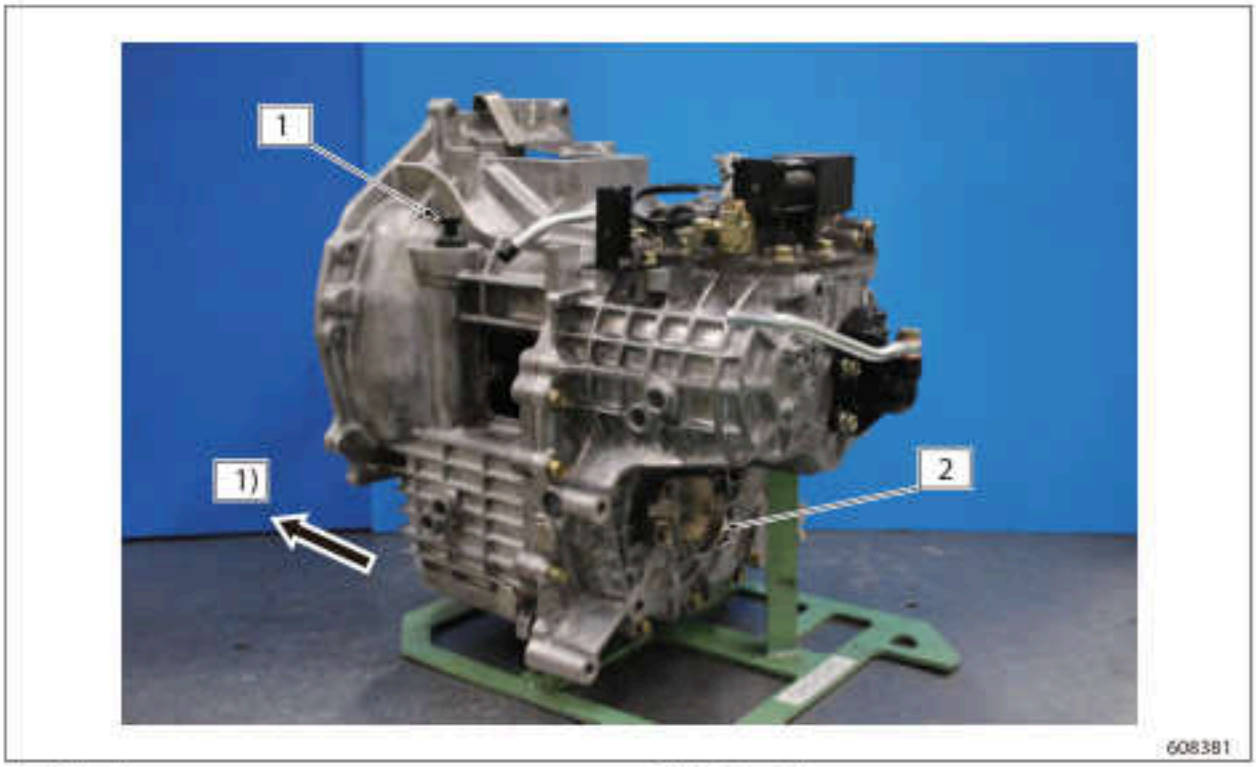
Condition	Possible cause	Action
Lift bracket and inner mast do not move smoothly	Clearance between lift rollers and side rollers is incorrect	Adjust forward/backward and right/left clearances
	Defective roller rotation	Lubricate side rollers and replace other rollers
	Incorrect clearance on mast strip	Adjust shim thickness
Lift bracket or inner mast is tilted	Excessive clearance on side roller	Increase shim stack thickness
	Uneven tension between chains on right and left side	Adjust chain tension
	Shim adjustments are unequal between left and right lift cylinders (at the maximum height)	Adjust shim stack thickness
Mast makes noise	Defective roller rotation	Adjust or replace rollers after inspection
Drift (natural descent) of lift cylinders	Lift cylinder packing is damaged	Replace
	Sliding (inside) surface of lift cylinder tube is damaged	Replace
Whole mast shakes	Mast-support bushing or metal worn	Tighten or replace bushing metal
Mast is distorted	Off-center load or overload	Replace mast assembly
Fork tips are different in height	Distortion of finger bar	Repair or replace
	Distortion of forks	
	Uneven loading	

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Chapter 15 CIRCUIT DIAGRAM FOR DIESEL ENGINE MODELS

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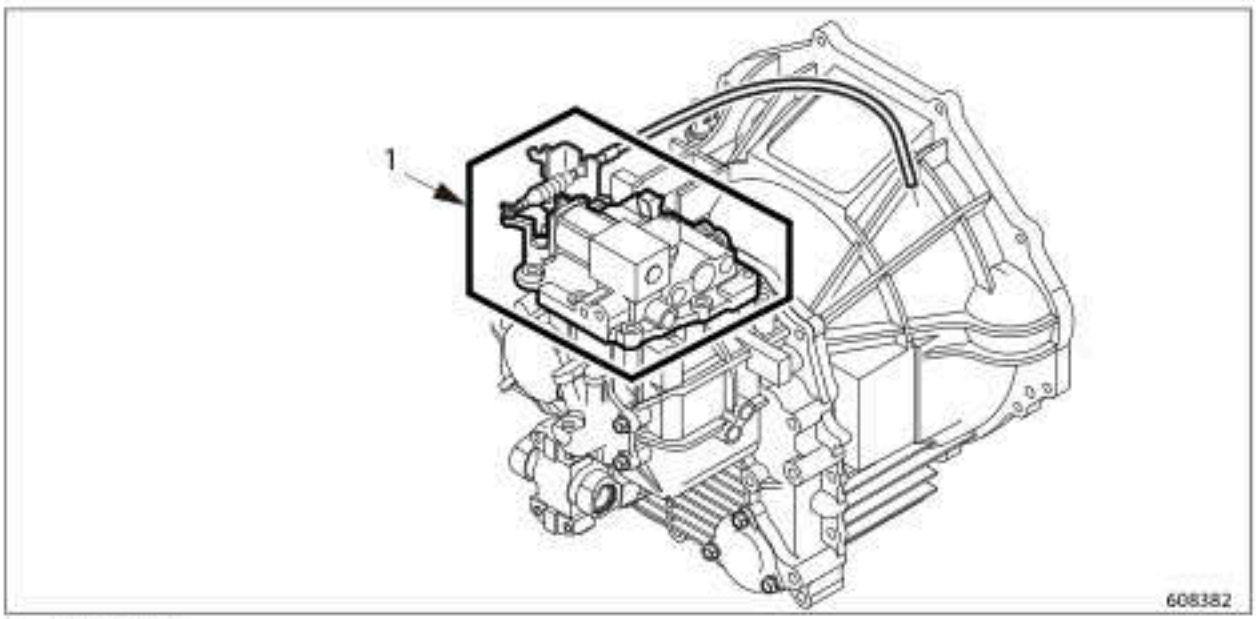
Right side view



1. Oil level gauge
2. Output flange

1) Engine side

1.2 External View of Control Valve



1. Control valve

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(6) Install clutch piston using a pipe or a wood block.

Note: When installing, tap boss of clutch piston.

(7) Install clutch spring and spring retainer.



1. Pipe or wood block

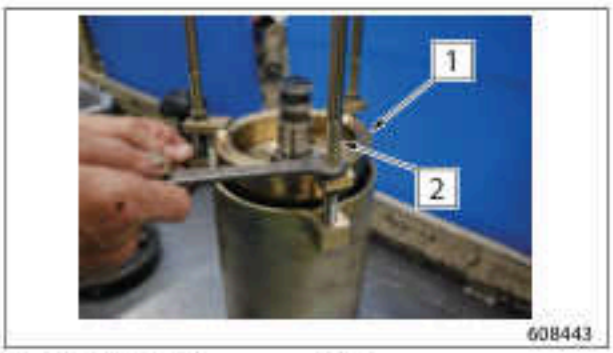
(8) Compress clutch spring together with spring retainer using stand (special tool, plates 1 and 2).



1. Clutch piston
2. Clutch spring
3. Spring retainer



1. Special tool (Plate 2)
2. Special tool (Stand)



1. Special tool (Plate 1)
2. Bolt

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