



Training Document

HOWO ZZ4257S3241V

- The two most likely problems are heavy steering and direction off tracking. Mainly check the tie rod and draglinks, steering knuckles and other transmission mechanism connections for over-tightness; check the tire for excessive low pressure; check the steering transmission for over-tightness; especially check steering knuckle king pin and the bush for wearing, pull and burning loss; check steering knuckle king pin and the bush for lubrication; check the king pin thrust bearing for lubrication or damage. However, if the steering mechanism has been checked with no problem found, apply the same checking procedure as mentioned in the last section to check the boost system for oil lack and air inside; continue to check the steering booster pump and steering gear. Only in this way can you accurately and quickly find out the cause for heavy steering.
- If the steering boost system lacks oil and has air trapped inside, then in addition to heavy steering, abnormal creaking noise may be heard when steering





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- In case the heavy steering is found from the booster pump, you should first check the relief valve and flow control valve on the booster pump. With poor sealing or weakened spring force, either of the two valves will cause overflow low pressure and the boost system oil pressure not up to the requirements. In case the two valves are found free from fault, overhaul inspection will be required. In overhaul inspection if fault is found in pump vanes or rotor internal pull, replace the steering oil pump. The problem is caused mainly by dirty oil.
- While testing the steering gear, if it is found with internal leakage and the boost oil pressure cannot be built up, proceed with overhaul inspection and replace sealing parts in the rack and piston components. In case of severe surface pull damage of piston or the piston in the cylinder body or the oil cylinder, replace the steering gear assembly. Major cause of "scuffing of cylinder bore" is still dirty oil. So in daily operation you should keep an eye on the cleanness and sealing of the boost system.





- **(1) Heavy Steering:**

Problem	Solution
1. Oil tank lacks oil but has air inside	Refill oil to specified level and discharge the air
2. Oil leakage in the power steering system	Find out the leakage point, tighten the connection or replace failed parts
3. Distribution valve failure	Replace the failed parts
4. Distribution valve torsion bar failure	Replace it
5. Steering pump lack of oil supply or no supply	Check and adjust the oil pump, or replace failed parts.
6. Failure of transmission parts of the steering pump	Replace failed parts
7. Failures of steering gear, such as scuffing of cylinder bore	Check the steering gear and replace failed parts
8. Fit space of the steering mechanism too tight and connection joint lack of lubricant	Check the parts of the mechanism one by one, adjust the connection if too tight, and fill in lubricant.
9. Front wheel alignment error or part deformation	Check the alignment, adjust it or repair the deformed parts.
10. Steering knuckle bush or thrust block failure	Replace the knuckle bush or the thrust block
11. Tire pressure too low	Inflation to specified value
12. Steering knuckle lack of lubricant or burned	Lubricate the steering column or make overhaul





- **(2) Steering Swinging Or Off Tracking**

Problem	Solution
1. Weakened elasticity, damage or installation error of torsion bar of the distribution valve	Replace it
2. Improper adjustment or worn clearance too large of the steering transmission pair	Check, adjust the transmission pair, and replace the over-worn parts.
3. Loose wheel hub bearing and ball knuckle of steering transmission mechanism	Readjust and replace the over-worn parts
4. Front wheel alignment error	Check the front wheel alignment and adjust it if necessary.
5. Loose steering gear support and steering transmission mechanism fastening nuts	Tighten the bolts and nuts to specification.
6. Left tire and right tire inflation different	Inflate them to specified value.
7. Tire or rim not balanced	Rebalance them, replace if necessary.





- **(3) Difference in Heavy Steering between Left-turn and Right-turn**

Problem	Solution
1, Torsion bar of the distribution valve deviates from the center	Recheck and readjust it.
2, Rotating valve vane or valve body interior wearing ununiform	Replace it.
3, One side steering limit valve adjustment error.	Readjust the steering limit valve