

ANDHRA PRADESH STATE ROAD TRANSPORT CORPORATION

O/O The VC & MD,
MSRD – HYD.,

No. OP2/462(65)/2005-MED.

Circular No.:13/2005:MED, Dt.07.11.2005

Sub: **MAINTENANCE** – Tightening of Steering Knuckle arm Bolts –
Instructions issued – Reg.

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Instances have come to notice that the vehicles are failing enroute due to breakage of steering Knuckle arm bolts. This will result in loss of control over the steering and may lead to ghastly accidents. Hence, tightening of steering Knuckle arm bolts shall be ensured during every SCH-III/IV maintenance to avoid line failures and possible accidents.

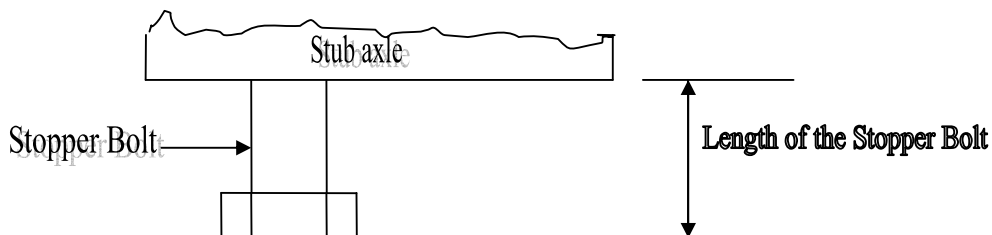
The turning angle is restricted when the stopper bolt touches the front axle I-beam in case of manual steering vehicles. But in case of power steering vehicle the restriction of turning angle is being done with the steering limiter screws provided in the steering box. Thus, there should be a gap of 3mm between the stopper bolt and I-beam. It is observed in some vehicles in the depots, that the stop bolts are touching the I-beam indicating the tampering of steering limiter screws adjustment. This may result in over load on the Knuckle arm resulting breakage of bolts. The procedure to adjust the poppet screw in case of power steering vehicles and the stopper bolt length to be maintained are reiterated hereunder.

STOPPER BOLT:

The stopper bolts provided on the back side of the stub axle is to control the turning angle of the road wheels. It shall be ensured that these stopper bolts should always be present as per the manufacturer's specifications. They should not be removed or tampered.

ON TATA VEHICLES:

For LP 52 vehicles the projection length of the stopper bolt shall be 48mm and for LPO 55 vehicles it should be 43mm. The said lengths are to be measured from stub axle surface to the bolt head surface as shown in the diagram.



LEYLAND VEHICLES:

There should be a gap of 1 inch between spring bracket and tyre in the rear portion of the tyre when the road wheel is fully turned in one direction. If not the stopper bolt should be adjusted to get this 1 inch gap.

In case of manual steering vehicles, when the road wheels takes full turn in one direction, the stopper bolts should touch the front axle I-beam if the specified lengths are maintained as above.

POWER STEERING VEHICLES:

The length of poppet screw from the surface of the power steering box to the end of the screw shall be 17mm. At this condition there should be a gap of 3mm between stopper bolt and front axle I-beam when the road wheels takes full turn in one direction.

FUNCTION OF POPPETS:

Poppets are pressure unloading valves set to trip just before full turn is reached in each direction. One valve or the other depending on the direction of turn will trip as the steered wheels approach the axle stop. When the procedure is completed correctly, system pressure will be reduced before the stop bolt comes into contact with the front axle I-beam (which must be set to manufacturers specifications).

POPPET SCREW ADJUSTMENT:

In normal cases poppet screw adjustment is not required. However, in the following conditions the poppet screw adjustment is required.

- Changing to a larger tyre.
- Reduction in the vehicles wheel cut
- Pitman arm was mistimed, and has been corrected.
- Steering gear is being installed on a different vehicle.
- Stop bolts were bent or broken or missing.
- Incorrect stopper bolt length.

The poppet screw has to be adjusted as follows when ever necessary.

- Keep the front wheels in the straight ahead position.
- Remove pull and push rod connection from the steering box drop arm.
- Bring the steering wheel to the center position.
- Check the correct alightment of sector shaft and drop arm markings. If not correct the alightment by refixing the drop arm.
- Ensure the pull and push rod end should fit into the drop arm easily without changing the above position.
- Adjust the poppet screws to the specified length of 17mm.
- The above procedure will automatically ensure a gap of 3 mm between the stopper bolt and I-beam. If not correct the length of the stopper bolt to the specified lengths.

The condition of the stopper bolts and poppet screws are tobe ensured during every SCH-III/IV including tightening of steering knuckle arm bolts.

All the Depot Managers are advised to ensure the implementation of the above procedure with respect to Stopper bolts, Poppet screw and steering knuckle arm bolts without any deviation.

All Dy.CME's / DVM's shall ensure the implementation of the above instructions during their depot inspections.

EXECUTIVE DIRECTOR(E)

To

All the Depot Managers.

Copy to : VC&MD for favour of infoamtion.

Copy to : Director (V&S), ED(A), ED(O), ED(IT&MS), FA & CAO for information.

Copy to : All EDs (Z)/H&K, V&V, K&N for information.

Copy to : All HODs for information.

Copy to : All RMs for information & necessary action.

Copy to : All DVMs for information & necessary action.

Copy to : All DY.CMEs, WMs, CsOS for information & necessary action.

Copy to : All Principals of ZSTCs & TA/HPT for information.

Copy to : All Maintenance incharge for similar action.

