



Andhra Pradesh State Road Transport Corporation
Mechanical Engineering Department
Office of the VC & MD, Bus Bhavan, Hyderabad - 624.

No: OP3/462(1)/2008-MED

Circular No : 24 / 2008-MED, dated 28.11.2008

Sub: **Maintenance** - Tightening of Cylinder head bolts during Schedule III / IV maintenance - Reiteration of instructions - Reg.,

Ref: 1. Cir.no 54/92 - MED dt. 05.11.1992
2. Cir.no 24/2000 - MED dt.24.06.2000
3. Cir.no 19/2007 - MED dt. 17.09.2007

The primary objective of the periodical maintenance schedules in our corporation is to obtain maximum life out of our vehicles and major aggregates like Engine, Gearbox, Rear axle, front axle etc and to keep the vehicle available for operation for maximum time without any breakdown.

Instructions were issued through Circulars at ref. regarding tightening of Cylinder head bolts and tappet setting during Schedule III maintenance for improving the Engine efficiency & HSD KMPL, except in TATA CMVR & BS II engines, where non retorquable head gaskets were introduced which do not require tightening in Schedule III / IV maintenance.

But, the recent inspections at some of the depots reveal that the aspect of Cylinder head bolts tightening and tappets adjustment has been neglected during Schedule III / IV maintenance as a result the Engine failures are increasing alarmingly which is directly effecting the cost parameters besides keeping vehicles off road for want of Engines.

Recently in one of the depots a new vehicle has failed due to water boiling complaint. On analysing the failure it was observed that the improper tightness of Cylinder head bolts lead to head gasket warpage, thereby the coolant spilled into the cylinders. As a result of this, the Engine failed due to inefficient cooling system.

Hence the following instructions are reiterated for strict implementation at depots in all the vehicles except the vehicles with non - retorquable head gasket. (CMVR & BS II Engines of TATA)

1. Cylinder head bolts have to be checked invariably during every Schedule III / IV maintenance and tighten if necessary.
2. All the low HSD KMPL vehicles identified for monthly attention must be checked for Cylinder head bolts tightness.

3. Care shall be taken for proper tightening of cylinder head bolts whenever the head gasket is replaced.
4. To ensure tightness of Cylinder head bolts during first Schedule III after receipt of new vehicles and after 8,000 kms of operation for C.O / T.O Engines.
5. To ensure the availability of torque wrench and its accuracy, duly calibrating if necessary.
6. To ensure that the cylinder head bolts must be tightened to the specified torque i.e., **12 - 13 mkg for Leyland** and **11 mkg for TATA 697 Engines** and **12 mkg plus 90° for Cummins Engines**.
7. To ensure the availability of special socket for cylinder head bolt for tightening the head bolts at each and every depot (**Part no. 0102010 (SMT 3812)**) for Ashok Leyland and Crow foot spanner (**Part no. 000 589 06 03**) for TATA, which is convenient for tightening of all bolts without removing rocker shaft.

All the Depot Managers are advised to create awareness among the Supervisors and Maintenance staff on the above aspects and educate them to inculcate correct maintenance procedures as explained above

All the Dy.CMEs are advised to cross check vehicles for proper tightness of Cylinder head bolts during their periodical inspections of depots.

EXECUTIVE DIRECTOR (E&IT)

To
All Depot Managers for necessary action.

Copy to: EDs(Zones) for information
Copy to: All RMs for information
Copy to: All Dy.CMEs for necessary action.
Copy to: All Principals, ZSTCs and TA/HPT for information.
Copy to: All Maintenance Incharges for necessary action.
Copy to: Manuals section / Head office for filing.