



Andhra Pradesh State Road Transport Corporation

Mechanical Engineering Department

No : OP2/581(14)/2021-MED

Office of the VC & MD,
RTC House, Vijayawada.

FUEL CONSERVATION FORTNIGHT – 16th NOV' 2021 TO 30th NOV' 2021

CIRCULAR No: 11/2021-MED, Dt. 08.11.2021

Sub: **HSD KMPL** - Observance of '**Fuel Saving Campaign Fortnight**' from **16th Nov' 2021 to 30th Nov' 2021** - Certain instructions issued – Reg.

1.0 Introduction:

- 1.1 The expenditure on HSD Oil is the second highest operating cost after personnel cost. APSRTC incurred an expenditure of Rs.1561 Crore during the year 2019-20 towards purchase of HSD Oil.
- 1.2 During the past one year HSD prices are soaring high and there is an increase of Rs.24.34/- per liter till October'21 as compared to October'20.
- 1.3 The projected expenditure on HSD Oil for the year 2021-22 @ the current HSD Oil price of Rs.105.29 per litre would be Rs.1714 Cr.
- 1.4 Added to this, HSD KMPL of the corporation, of late, has been showing negative trend for various reasons. The HSD KMPL at Corporate level up to October, 2021 is 5.27 against 5.34 up to October, 2020. Thus the HSD KMPL dropped by 0.07. This has resulted in an additional expenditure of Rs. 22 Cr. at corporate level on Fuel.
- 1.5 Hence any little effort made in conserving the precious HSD oil reduces operating expenditure as well as saving in foreign exchange in a big way.
- 1.6 The following aspects play a vital role in improving the HSD KMPL.
 - i) Identification and attention of Buses with low and negative trend in HSD KMPL.
 - ii) Identification and counseling /training/admonishing of Drivers with low and negative trend in HSD KMPL.
 - iii) Motivational & awareness campaigns like awards presentation and incentives for achieving targets.

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1.7 During the inspection of the Depots it is observed that :

- i. Though adequate guidelines are available (Circular no. 19/2007-MED) on Technical, Operational, Managerial controls and Motivational measures for improving the HSD KMPL the unit officers are not bestowing personal attention.
- ii. The identification of low KMPL vehicles is left to the discretion of the KMPL Mechanic without involvement of DM and Garage In-charge.
- iii. At some places the work of the KMPL Mechanic is not reviewed by DM / Garage In-charge for effectiveness.
- iv. The HSD KMPL Mechanic is diverted to other jobs like attending to top overhauls, en-route breakdowns etc., even though he is allotted exclusively for the works related to improvement of HSD KMPL.
- v. Counseling of drivers by DM is carried out as a matter of routine instead of focused and result oriented counseling. Picking up wrong driver for counseling and follow up pays negative dividends.

2.0 Observance of - 'Fuel Saving Campaign Fortnight'

As there is vast scope for improvement of fuel performance of buses especially on BS III/ BS IV & other high end vehicles, it is proposed to organize a special campaign for a complete fortnight, commencing from 16th November 2021 to create awareness on getting the best fuel performance.

This fortnight is called as '**FUEL SAVING CAMPAIGN FORTNIGHT**'.

3.0 Objective:

The objective of this campaign is aimed at achieving the maximum fuel efficiency especially from BS III / BS IV and other High end vehicles by:

- a. Creating awareness among all the field Staff concerned
- b. Strengthening the maintenance by providing the required technical inputs and
- c. Providing material support from the stores and workshops.

4.0 Methodology for Implementation:

The observance of 'Fuel Saving Campaign Fortnight' shall be made on the following broad guidelines:

4.1 Education

Organize intense publicity campaign by distributing the pamphlets & exhibiting the flexi banners etc., informing about:

- a) the current Diesel prices and its increase during the past one year
- b) CPK on fuel of the Depot and its percentage on total expenditure of the depot.
- c) the impact of 0.10 improvement in HSD KMPL of Depot on the overall performance of the Depot and saving per annum in terms of amount.
- d) the scope for improvement in HSD KMPL at depot by displaying the highest KMPL achieved by the type wise vehicles in the Depot and also at Regional level.
- e) the Momentum mode driving methods and other technical details furnished at Annexure.

4.2 DRIVERS TRAINING & PRACTICAL DEMONSTRATIONS

A. Training on Protech Machine:

Protech Machine shall be put to Effective utilization for training of drivers on fuel conservation by showing them practically the quantity of fuel delivered **in a fixed time** through the injector in Protech Machine in three different operating conditions like:

- i. pressing the pedal in full throttle and holding it there firmly
- ii. pressing the pedal with small increments up to medium position and holding it in power point and
- iii. pumping the accelerator pedal regularly.

The difference of the quantities of HSD Oil delivered in all the above three cases may visibly be shown to the drivers to understand the savings that can be made, through operation of accelerator pedal smoothly and holding in power point position.

B. Online practical Training:

- i. Chalk out a precise schedule for training all the Drivers prioritizing the drivers duly starting with those having highest variation in HSD KMPL as compared to their route wise targeted KMPL.
- ii. The Training is for a half day duration and consists of two parts. A minimum of 10 low KMPL drivers shall be drafted among the drivers availing weekly off.
- iii. During the first session of one hour duration the Depot Manager shall address the drivers about the fuel conservation techniques especially on BS III/BS IV vehicles duly displaying the 'Indhanam' video [The video is available in RTC WAN in CMEM folder] and also motivate them.
- iv. Second session will be a practical session and on road training shall be conducted by SDI/RSDI or drafting one of the best HSD KMPL driver identified at depot level in case SDI/RSDI is not available. The driver so identified as trainer must be capable of communicating well with the targeted group while training them. DM/Garage In-charge shall invariably associate with the online practical training.
- v. The Dy.CME of the region shall address the Drivers at least one session at each depot during the fortnight.

4.3. VEHICLE MAINTENANCE

Special attention shall be paid to rectification of defects in the following systems during this fortnight with due focus on improvement of HSD KMPL:

- a) Identify the vehicles which are consistently giving low HSD KMPL irrespective of the Driver and route operated. Test drive the vehicle by the identified high KMPL driver along with the KMPL Mechanic & Maintenance Supervisor, find out the reasons for low KMPL and rectify them.

b) Carry out 100% inspection of the following items (Circular no. 19/2007-MED) on vehicles and rectify them immediately after inspection:

- **Engine:** Engine tuning - Idling r.p.m, Valve clearance (Tappet adjustment), Injector pressure, FIP timing: spill cut off/plunger lifting, Injector back leak test for BS-IV Engines, Cylinder Head nuts tightness (wherever applicable), engine compression etc.,
- **Air intake system:** Air Filters condition, working condition of Red band Indicator, Turbocharger condition, condition of hose pipes, Exhaust back pressure, etc
- **Fuel System:** Fuel leakages, condition of strainers/Baby filters/Fuel water separators & Fuel filters.
- **Cooling System:** Viscous Fan working condition, Availability of Radiator Pressure Cap of recommended Pressure, Thermostat availability and working condition and Radiator flushing, condition of radiator hoses etc.,.
- **Clutch System:** Condition of Clutch plate, pressure plate, flywheel, release bearing, Clutch pedal free play and condition of linkages master cylinder, slave cylinder , clutch booster etc.
- **Gear Box:** Condition of Gear Box, Gear shifting mechanism and linkages
- **Brakes:** condition of Air compressor, Air building time, Air leakages, Brake binding/Jam, Brake rolling, hand brake working condition, Retarder working condition where ever applicable., Air pipe connection from & to DB Valve.
- **Tyres:** condition and Inflation pressures
- **Hubs and Wheels:** Ensure dry hub setting using dial gauge with magnetic base, for all vehicles and Free rolling of H u b s a n d wheels. Wheel alignment and wheel balancing in case of vehicles with air suspension

- **Electrical System:** Self and Alternator working condition, condition of Battery & battery box, Head Lights, signal lights & Wind screen wiper working condition
 - Visibility of Windscreen glass, vision mirror
 - Condition of Driver Seat & seat adjustment mechanism
 - Working condition of RPM meter
 - Condition of Accelerator pedal and its linkages and Provision of proper foot rest near the pedals in Driver's cabin
 - Chassis lubrication
 - Attention of air suspension below static height as specified through templates
 - Any other relevant items connected to improvement of HSD KMPL.
- c) Check the working condition of Injector Pressure Tester, Torque wrench, Magnetic based Dial Gauge, Tyre pressure gauges and get them calibrated if required, working condition of Tyre Inflation bays.
- d) Check availability of feeler gauges with all mechanics, replace if worn out.
- e) Draw the required spares & units for KMPL improvement from the Zonal Stores/ Zonal Workshops by planning in advance
- f) Monitor the performance of vehicles, Obtain the feedback from the drivers and review the performance of the vehicle after attention on daily basis during the fortnight

4.4. TRAINING AT ZONAL WORKSHOP

Works Managers shall organize training programs at Zonal Workshop duly involving one KMPL Mechanic and one Engine Mechanic from each depot. During the training program they shall be educated, through demonstration and hands on training, on the maintenance practices especially on Engine tuning and Fuel Injection Equipment maintenance, spill cut off, plunger lift adjustment and back leak test etc., and also DOs and DON'Ts.

4.5 COUNSELLING OF DRIVERS

- a) The Depot Manager shall counsel all the Drivers whose performance is less than the route/type-wise target. The counseling shall be interactive and proactive.
- b) Monitor the performance of the counseled Drivers on daily basis during the fortnight.
- c) The Dy.CME shall also counsel at least 10 lowest KMPL drivers of each Depot during the fortnight.

4.6 CONDUCTING DRIVER HAPPINESS WEEK

- a) During the first two days (on 16th and 17th November, 2021) of the campaign, DM along with the Garage In-charge must be available at HSD Oil bunk at the time of incoming of services and talk to all the incoming drivers and invite their feed back / complaints on the vehicle and record them in a register.
- b) All the RGs/Complaints so recorded must be attended within next one week and the same shall be informed to the concerned drivers through notice board.

5.0 DyCMEs shall visit each depot in his jurisdiction at least once during this special drive and verify the steps taken for improvement of KMPL and submit the feedback on the following items:

- a) Oil and Filter changes due
- b) DOC/POC cleaning activity on BS-IV buses
- c) Moving of buses in 1st gear without giving acceleration
- d) Checking of BS IV buses with Bluetooth device to remove error codes during Schedule III/IV
- e) Availability of special tools like 4 mkg torque wrench, clutch setting jig, back leak tester, injector puller, injector tester, thermostat checking equipment, air suspension bellow height measuring template etc
- f) Air leak census and attention
- g) HSD and Lub oil leakage attention
- h) Hand brake working condition

- 6.0. The Regional Managers are advised to bestow their personal attention in making the 'Fuel Saving campaign Fortnight' a success in their regions and visit the depots for ensuring the implementation of the instructions with true spirit.
- 7.0. The Regional Managers are also advised to conduct an exclusive meeting with the Dy.CMEs, Depot Managers, Maintenance in-charges, SDIs/RSDIs during the Fortnight to review activities taken up at the depots.
- 8.0. CME(M) shall depute MED Teams from Head Office, consisting of Officers and Supervisors, to cross check the effectiveness in the implementation of the " Fuel Saving Campaign Fortnight" at Depots in various Regions and submit report.
- 9.0. The Executive Directors of the Zones are requested to ensure effective implementation of the Fortnight and issue necessary instructions to the Zonal Stores and Workshops to plan for adequate supply of spares, tools, Units and other materials to meet the demand from the Depots.
- 10.0. The Regional Managers are advised to send the detailed compliance report by 5th December, 2021 on the observance of "Fuel Saving campaign Fortnight" conducted in their Regions.


08/11/21
EXECUTIVE DIRECTOR (E)

To

All Regional Managers

Copy to: ED(O), ED (A) & FA & CAO for information

Copy to: All EDs of Zones for necessary action.

Copy to: All Dy.CMEs & DVMs, WMs, COSs, DyCAO(Zones) for necessary action

Copy to: All Depot Managers and Garage In-charges for necessary action.

Copy to: OSD to VC & MD for information.

**PAMPHLETES TO BE PRINTED & FLEXI BANNERS TO BE EXHIBITED
WITH BRIEF DETAILS ON**

- A. Momentum mode driving methods - i.e. the engine power has to be utilized to attain optimum speed and there after the vehicle has to run in cruising speed by utilizing vehicle momentum by keeping accelerator pedal in Power point position (i.. at no.3 position shown in Fig. A).
- B. Moving the vehicle only in 1st gear without giving acceleration and later change to top gear gradually and as quickly as possible, since BS III & BS IV vehicles are equipped with high torque engines and there is no need to give acceleration even in 2nd gear during this process.
- C. It takes only 60 seconds to change from 1st gear to Top gear, where as 120 seconds time is required to shift to Top gear if vehicle is moved from 3rd gear.
- D. Avoid shifting to the lower gears unnecessarily without judging the vehicle momentum since BS III/BS IV vehicles have high-torque engines.
- E. Acceleration by soft touch – with following Illustration.

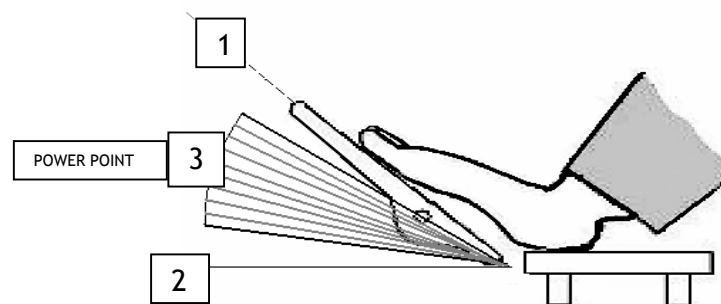
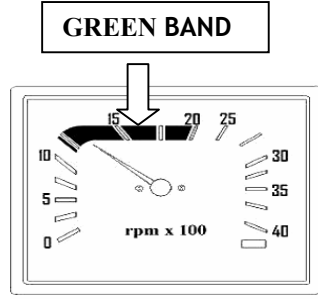


Fig: A

Pressing the pedal unnecessarily to Flat position (Flat- position 2 in Fig. A) is mere waste of fuel.

- F. Acceleration shall always be given in smallest possible increments in a gradual manner for getting maximum economy of fuel.
- G. The vehicle cannot jump from 40 kmph speed to 60 kmph all of a sudden even if the accelerator pedal pressed to flat.

H. Use of RPM meter while driving (wherever available) and maintaining the engine RPM within the Green band in all gears as shown below:



- I. Judicious application of brakes. Slowing down the vehicle without applying the brakes by anticipating the stop
- J. Avoid long idling at bus stations and bus stops.
- K. Technical aspects that influence the fuel performance.
- L. Exhibition of "**Pancha Sutraas**" at 2 or 3 Conspicuous places in the Depot (Garage and Traffic section) and ensure recital by drivers while going for duty and also at the time of incoming.

పంచసూత్రాలు

1. ఏక్స్లరేటర్ ఇచ్చునపుడు, ఏక్స్లరేటర్ ను తన్నినట్లు కాకుండా, తాకినట్లుగా ఇవ్వవలెను.
2. బస్సును తప్పనిసరిగా **1** వ గేర్ లోనే మూప్ చేసి, **2** మరియు **3**వ గేర్ లు త్వరితంగా మార్చుకుంటూ, బస్సు టాప్ గేర్ లో నిర్దిష్ట వేగము చేరిన తరువాత ఏక్స్లరేటర్ పెడల్ ను కొద్దిగా వెనుకకు తీసి పవర్ పాయింట్ పొజిషన్ లో పట్టుకొనవలెను.
3. ఏటవాలుగా ఉన్న రోడ్లపైన ఏక్స్లరేటర్ పెడల్ పై నుండి కాలు పూర్తిగా తీసివేయవలెను.
4. ప్రతి స్టేజీకి ఒక ఫర్లాంగు ముందుగానే ఏక్స్లరేటర్ పై నుండి కాలు తీయవలెను.
5. కంటి చూపునే బ్రేక్ గా వాడవలెను. తరచూ బ్రేక్ వాడకుండా, అత్యవసరమైనపుడే బ్రేక్ వాడాలి.