

**ANDHRA PRADESH STATE ROAD TRANSPORT CORPORATION**

**No. OP2/462(12)/2002-MED**

**Office of the VC & MD  
Mushirabad, Hyderabad-20.**

**CIRCULAR No. 15/2002-MED, DT. 18-10-2002**

**SUB. :- VEHICLES - Introduction of Improved 14" Clutch by M/s. Ashok Leyland Limited- Reg.**

**M/s. Ashok Leyland have brought about modifications in the existing 14" clutch pressure plate assembly in Hino Vehicles as follows.**

- 1) Clamp load has been increased to reduce clutch slip and increased clutch plate life.**
- 2) Back plate/Pressure plate improved to take up higher heat and reduced warpage.**
- 3) Fly wheel face plate introduced.**
- 4) Release load reduced for lower pedal effort while releasing.**
- 5) No. of levers increased to 4 as against 3.**
- 6) Clutch pedal effort reduced for Driver comfort.**

**The above Redesigned Clutch Assembly (RDC) has been introduced from Chassis No. MSE 478885.**

**The existing size of Clutch disc is suitable for both the old & RDC systems. The RDC will have 4 clutch levers instead of 3 in the existing version which reduces the pedal effort. This improved version has the arrangement of a face plate fitted onto the flywheel whereas this was not available in the present system on the Hino engine flywheels. In the case of any wear out or defects on the flywheel facing area, entire flywheel had to be replaced with a flywheel supplied by ZWS in the present version which was difficult to be carried out at Depot. But with the face plate arrangement in this new version, the same can be removed and refitted at depot level itself which will be convenient and improves overall life of clutch assembly, clutch disc and flywheel.**

**The details of modifications are listed below.**

**FITMENT ASPECTS :**

**The following are the changes in the redesigned with face plate arrangement. Face plate to Part No. F72 023 22 will have to used with this new flywheel. The part No. of this new flywheel is X 1603522 (Sub Assembly No. is B 8250601).**

**Face Plate (F 72 023 22) fitted in fly wheel is 12.84 mm thick.**

**CLUTCH SETTING - "Z" GAUGE DIMENSIONS :**

**The Clutch setting dimension specified from the fly wheel housing face to Sub Assembly of withdrawal plate is given below :**

**Mechanical actuation : 27/32 MM as against 7/8"/1" in the present clutch system.**

## **MECHANICAL CLUTCH WITHDRAWAL GEAR (CWG)/CLUTCH ACTUATION-COMPONENT CHANGES:**

- The Sub Assy. of Clutch withdrawal Gear has been made sleek as compared to current 14" Sub Assembly CWG.
- The clutch release bearing (F 02 538 10) is of deep groove ball bearing type similar to existing bearing (F 02 310 10). The only change is that this bearing has a built in oil seal. The Ball Bearing is a prepacked bearing in this version. Hence there is no provision for external lubrication. The withdrawal plate is a bonded lining type instead of riveted lining type. The Part No. of new withdrawal plate is B 1301503.

### **CLUTCH ACTUATION :**

- The Sub Assembly clutch operating lever (COP) for 14" RDC has been modified B1516401.

The COP lever bracket (F 04 006 42- Aluminum bracket) fitted on the gear box is of reduced thickness (6mm as compared to 11mm thick used in Std. 14" clutch).

The clutch rod (F 32 939 15) has LH thread length increased by 30 mm as compared to Std. 14" clutch rod to cater to. clutch play adjustment in field.

- The sleeve fitted at gear box end will be 45 deg. offset (F 34 396 15).

### **PROCEDURE FOR CLUTCH PEDAL FREE PLAY ADJUSTMENT FOR 14" RDC - MECHANICAL ACTUATION:**

- 1) The initial clutch pedal free play to be set at 2.5" with new disc.
- 2) When the pedal play reduces to 0.5", due to the wear of the clutch disc, loosen the lock nuts at clutch lever jaw end and gear box sleeve end, reduce the clutch rod length and reset the pedal play to 2.5".
- 3) Continue to run the vehicle and when the pedal play reduces to 0.5", again reset the pedal play to 2.5" by loosening the lock nuts at clutch lever jaw end and gear box sleeve end, and reduce the clutch rod length.
- 4) Now, reverse the pressure pads (4 Nos.) in the clutch cover assy. Also loosen the lock nuts and increase the clutch rod length so as to get back clutch pedal free play of 2.5".
- 5) Repeat steps 2 & 3.
- 6) When the clutch pedal free play becomes 0.5", replace the clutch disc.

The main point to note in the clutch pedal play adjustment is that there are two adjustments before pad reversal & two adjustments after pad reversal.

### **8) SERVICE LIMITS FOR OVERHAUL AT ZONAL WORKSHOPS :**

- Face plate thickness is 12.84 MM Skimming is allowed upto 0.38 MM (0.015").
- Back plate thickness is 57.63 - 57.76 MM Skimming is allowed upto 0.76 MM (0.030").
- Shims of thickness equal to the amount of skimming in the pressure plate and face plate are to be used in between flywheel and face plate. Use longer set screws suitably.
- Clutch spring free length is - 100+/-2.7 MM. Change the spring when it reduces to 95 MM.

**A statement showing the comparison of components of the existing 3 finger and the newly introduced 4 finger clutch assembly is furnished in the enclosed ANNEXURE.**

**The D.Ms of Leyland area are advised to educate the staff on the maintenance of vehicles fitted with redesigned clutch, particularly the adjustment of clutch pedal free play at regular intervals.**

**The DVMs of Leyland area are advised to review this aspect during their depot inspections and if necessary organise training programmes by the Service Engineers of M/s. Ashok Leyland in consultation with the Dy. CME of Zone.**

**The Dy. CMEs of the Zones are advised to monitor the performance of the Redesigned Clutch System in the Depots and inform any difficulties or drawbacks experienced and the performance of the RDC regularly.**

**The COS of Zones of Leyland area are advised to fix the limits for stocking the spares required for the vehicles duly consulting the concerned Dy. CMEs in the Limit Fixation Committee meeting and ensure to supply to the Depots.**

S.NO	PARAMETER	HINO – 14”	
1	Z GAUGE SETING	7/8” OR 1”	27/32 MM
2	PEDALFREE PLAY	3.75”	2.5”
3	LINKAGE ADJUSTMENT	NOT RECOMMENDED	TWICE BEFORE AND AFTER PAD REVERSAL
4	PEDAL REVERSAL WHEN PEADL PLAY	0.5”	0.5”
5	FLYWHEEL	B 7037701	X 1603522 B 8250601 ( SUB ASSY)
6	FACE PLATE	NOT APPLICABLE	F 7202322(12.84MM )
7	PRESSUREPLATE THICKNESS (BACK PLATE) WEIGHT	F 3030222 49.9/50.04MM 10KG	F 3032422 57.63/57.76 MM 16 KG
8	DRIVE PLATE ASSY.COVER ASSY	B 1300202	B 3001501
9	DRIVE PLATE	F 3031814	F 7976810
10	WITHDRAWL PALTE	B300103(RIVETTED LINING	B 1301503(BONDED LINING)
11	CLUTCH RELEASE BRG	F 0231010	B 0253810 PRE-LUBRICATED
12	CLUTCH OPERATING LEVEL	F 2431011	B 1516401
13	COP LEVER BRACKET	F 0430242(11MM THICK)	F 0400642(6MM THICK)
14	CLUTCH LINK ROD LENGTH	F 3231015 77.5 MM	F 3293915 107.5 MM
15	SPRING FREE LENGTH NO.OF COILS	F 3630110 118.8 MM 13.75 TURNS	F 3646910 100+/- 2.7 MM 9.25 TURNS
16	CLUTCH LEVER RATIO	3:1	4.129:1