

Andhra Pradesh State Road Transport Corporation Office of the Managing Director, Bus Bhavan, Hyderabad - 500 0624.

No: OP3/462(Eicher)/2011-MED

# CIRCULAR No. 14/2012-MED, Dt 05.06.2012.

- Sub : <u>MAINTENANCE</u> Introduction of **EICHER 20.15 model Buses** Salient features and maintenance aspects communicated Reg.
- 1.00 Corporation has recently introduced *EICHER 20.15*, *BS-III compliant buses* at some of the depots of Tirupati, Guntur, West Godavari, Kadapa, Kurnool and Anantapur regions.
- 2.00 The salient technical specifications, features & maintenance schedules, spare parts, tools etc pertaining to these buses are furnished hereunder.

### 3.00 Engine

- Bus Model: 20.15, BS-III
- Engine Model: E683, TCI BS-III compliant
- Type: 6 Cylinder OHV, water cooled, Direct Injection
- Max. Power: 147 HP (108 Kw) @2800 rpm
- Max. Torque: 460 Nm @1440 rpm
- Cylinder Bore x Stroke: 100x105 mm
- Capacity: 4948 cc
- Cylinder Liners: Dry type
- Compression Ratio: 17.5:1
- Compression Pressure: 26 kg/sq.cm
- Firing order: 1-5-3-6-2-4
- Valve clearance: 0.60 mm for both Inlet & Exhaust

### 4.00 Fuel System

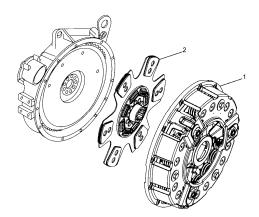
- Idling speed: 650 700 rpm
- FIP: Rotary mechanical
- Injection timing: 1.15 +/- 0.05 at TDC
- Governor type: HB/RSV
- Injection nozzle: 6 holes
- Nozzle opening pressure: 260 kg/sq.cm
- Fuel tank capacity: 220 lt

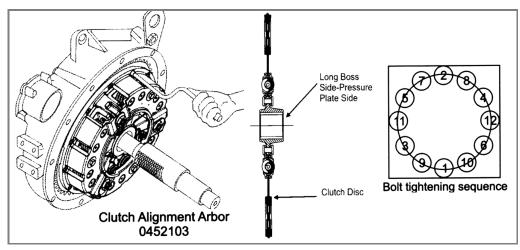
### 5.00 Air Intake System

- Air cleaner: Dry type two stage Air filters with Service Indicator
- Turbocharger: Radial flow with waste gate arrangement



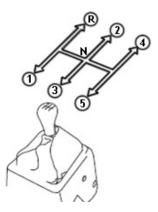
- 6.00 <u>Lubrication system</u>: Full flow pressure circulation
  - Main Oil filter capacity: 1.5 ltrs
  - Bypass filter: 0.5 ltrs
  - Lubricating oil total capacity: 14 ltrs
- 7.00 Cooling system
  - Water pump: Centrifugal
  - Radiator: Aluminum Corrugulated fin with reserve tank
  - Thermostat: Wax pellet type, starts opening at 82° & fully opens at 95° C
  - Coolant capacity: 17 litrs
  - Coolant mixing ratio: 1:1
  - Drive belt tension: 10-15 mm
- 8.00 <u>Clutch</u>
  - Hydraulic assisted Single plate dry type, Coil spring strap type Clutch housing
  - Clutch Disc OD: 330 mm
  - Clutch facing thickness: 11.5mm +/-0.28
  - Pedal full travel: 210mm
  - Pedal free play: 10-15 mm
  - Wear indication width: 1.5mm

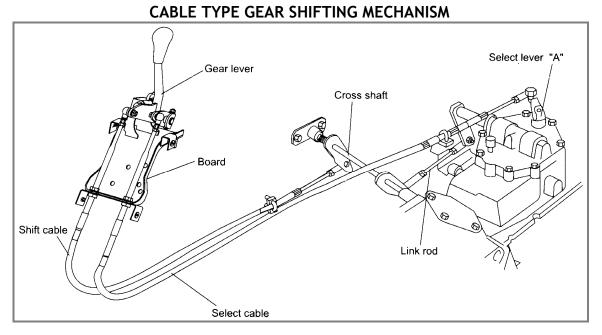




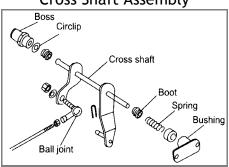
### 9.00 Transmission

- Type: ET 60 S5, Synchromesh
- No. of speeds: 5 forward and 1 reverse
- Gear change system: Cable operated shifting arrangement
- Gear Ratio:  $1^{st}$  7.736,  $2^{nd}$  4.714,  $3^{rd}$  2.600,  $4^{th}$  1.585,  $5^{th}$  1Reverse 7.575
- Gear oil capacity: 6.25 liters

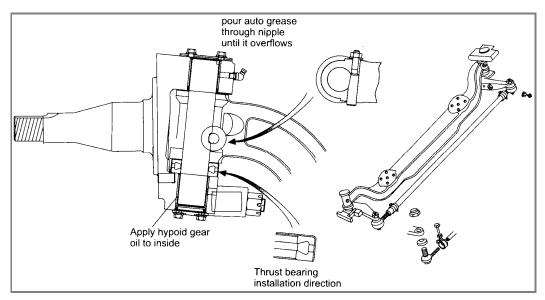


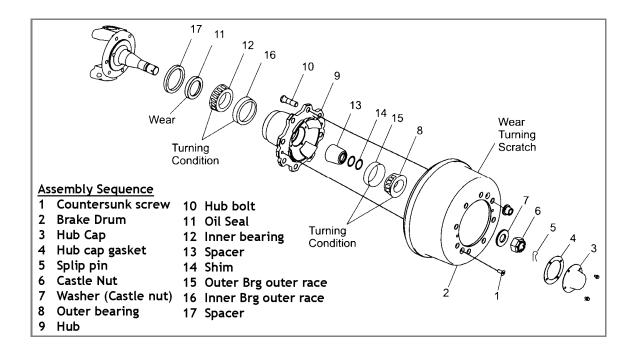


Cross Shaft Assembly



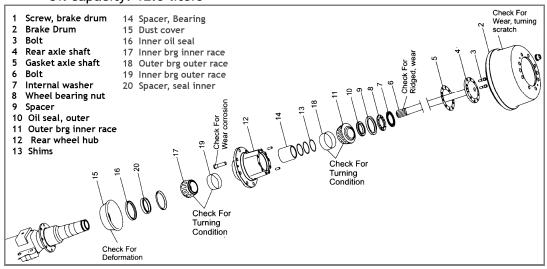
- 10.00 Front Axle
  - Type: Heavy duty forged I Beam, Reverse Elliot type
  - Hub Bearing Play 0.04 to 0.10 mm





#### 11.00 Rear Axle

- Type: Heavy duty pressed beam banjo type, fully floating
- Hub Bearing Play 0.02 0.10 mm
- Gear Ratio: 6.166
- Oil capacity: 12.5 liters



#### 12.00 Steering

- Type: Rane Power Steering
- Oil Capacity: 3.5 lit

#### 13.00 Suspension

- Front & Rear Shackle type Leaf Spring suspension Semi elliptical
- Helper springs in rear
- Telescopic type shock absorbers in front & rear

#### 14.00 Brakes

- Type: Wabco S'cam dual Air brake system with DDU
- Slack adjuster: Automatic

- 15.00 Wheels & Tyres
  - Size: 9-20, 14PR
  - Wheel rim: B7.0x20

#### 16.00 Electrical system

- Battery: 2 x 12v 150 AH
- Alternator: 24v 45A (Brushless)
- Starter: 24

### 17.00 Performance

- Max Speed: 85 kmph
- Grade ability: 25%

#### 18.00 RECOMMENDED LUBRICANTS, COOLANT & CLUTCH FLUID

Aggregate	Specification/ Performance Levels	Recommended brand	Capacity
Engine Oil	API CH4/ CI-4, SAE15W40	Eicher Premium Diesel Engine Oil	12.5 Ltrs + 1.5 ltr
Gear Box oil	API GL5, SAE 80W90 with 7% Anglamol 2026 additive	Eicher Premium Transmission oil	6.25 Ltrs
Differential Oil	API GL5, SAE 85W140 With 7% Anglamol 6043 additive	Eicher Premium Differential Axle oil	12.5 ltr
Power Steering oil	ATF type-A	Eicher Power Steering oil	3.5 ltr
Clutch Fluid	SAE J 1703, DOT3	Servo Brake Fluid HD (IOCL)	250 ml
Wheel BRG Grease	Lithium Complex NLGI Grade 3		Front 0.8 kg/hub, Rear 1.35 kg/hub
Coolant	JIS-K-2234-94 Antifreeze coolant additive	Eicher Genuine Radiator coolant	17 Ltr (Mixture 1:1)

#### 19.00 MAINTENANCE SCHEDULES

The specific maintenance activities applicable for Eicher buses (other than those stipulated in the regular Sch-I/II, III/IV and FC) are furnished hereunder. The Oils, Greases, Coolant, Clutch Fluid and filter change periodicities and the activities to be carried out during preventive maintenance schedules are furnished hereunder

	LUBRICANTS, COOLANT & FILTERS CHANGE PERIODICITIES				
1	Change <b>Engine Oil</b> (15w40 CH4 grade), E.Oil main and Bypass Filters	18,000 kms at first and <b>36,000</b> kms thereafter			
2	Primary Fuel Filter element replacement	18,000 kms			
3	Secondary Fuel Filter element replacement	36,000 kms			
4	Fuel Water Separator replacement	18,000 kms			
5	Replace Gear Box oil	18,000 kms at first and <b>72,000</b> kms thereafter			
6	Replace Differential Gear oil	18,000 kms at first and <b>72,000</b> kms thereafter			
7	Replace Power Steering Oil & filter	72,000 kms			
8	Replace Wheel Bearing Grease	36,000 kms			
9	Clean Air Cleaner Primary element	When <b>Red band appears</b> on Service Indicator			
10	Replace Air Cleaner Primary element	After two cleanings			
11	Air Cleaner <b>Secondary Element</b> replacement	<b>2 years</b> or at the time of <b>3</b> <sup>rd</sup> <b>replacement of Primary element</b> whichever is earlier			
12	Antifreeze Coolant replacement	72,000 kms			
13	Change Clutch fluid	36,000 kms			

# 20.00 PREVENTIVE MAINTENANCE SCHEDULES

		Sch-II	Sch-III	Sch-IV
Description of Activity	Daily Weekly		18,000 kms	54,000 kms
ENGINE				
Check Engine oil level & arrest leakage if necessary	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Check for Coolant, Air & Fuel leakages & arrest	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Check for cracks/ damage on V belt	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Check for Engine starting and abnormal noise	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Check for Idling speed and acceleration			$\checkmark$	$\checkmark$
Tighten Cyl.Head bolts				$\checkmark$
Check & tighten exhaust manifold bolts & Engine support bolts			$\checkmark$	✓
Check & adjust Valve clearance			$\checkmark$	$\checkmark$
Check Nozzle injection pressure and spraying condition			36,000 kms	✓
Check & adjust Injection timing			36,000 kms	$\checkmark$
Drain water from Fuel-water separator	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Check function of radiator cap			$\checkmark$	$\checkmark$
Check tightness of all rubber hoses (air intake, turbocharger, intercooler etc)	✓	✓	$\checkmark$	✓
Check axial play of turbine shaft and smooth rotation of turbine wheel				✓
Check function of air Compressor			$\checkmark$	$\checkmark$
Check Fan belts for damage/looseness		$\checkmark$	$\checkmark$	$\checkmark$

	Sch-I	Sch-II	Sch-III	Sch-IV
Description of Activity	Daily	Weekly	18,000 kms	54,000 kms
Check for oil leak through lubricating pipes			$\checkmark$	$\checkmark$
Check for compressor inlet hose deterioration		$\checkmark$	$\checkmark$	$\checkmark$
Check & clean carbon deposit in inlet & delivery pipes				90,000 kms
Check engine performance by palmtop			$\checkmark$	$\checkmark$
CLUTCH				
Check Clutch pedal play			36,000 kms	$\checkmark$
Check Clutch power cylinder stroke			$\checkmark$	$\checkmark$
Check Clutch booster exhaust cover			$\checkmark$	$\checkmark$
TRANSMISSION				
Check Gear box oil level	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Check proper routing of GSL cables with clamps and heat shield at specified locations		$\checkmark$	$\checkmark$	$\checkmark$
Check for free rotation of select inverter assy		$\checkmark$	$\checkmark$	$\checkmark$
Check for any damage on bellow/ cover at both ends - Cabin & TM end both cables		$\checkmark$	$\checkmark$	$\checkmark$
Check for Gear shift dis-comfort		$\checkmark$	$\checkmark$	$\checkmark$
PROPELLER SHAFT				
Check Propeller shaft nuts tightness	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Check Universal joint and splines for wear		$\checkmark$	$\checkmark$	$\checkmark$
Universal joint and splines Greasing		$\checkmark$	$\checkmark$	$\checkmark$
Check for PP shaft dust cap/ veltch plug condition		✓	$\checkmark$	✓
SUSPENSION				
Check front & rear Suspension wear plate & bush condition		✓	✓	✓
Front & Rear suspension 'U'bolt retightening		$\checkmark$	$\checkmark$	$\checkmark$
REAR AXLE				
Check Differential gear oil level		✓	✓	✓
Check & adjust pinion height				$\checkmark$
Check & adjust backlash of CW & Pinion				✓
Rear wheel Nut re-tightening	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Rear wheel bearing play and damage			36,000 kms	
Rear wheel alignment			$\checkmark$	$\checkmark$
FRONT AXLE				
Front wheel Nut re-tightening	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Front wheel bearing play and damage			36,000 kms	
Front Wheel alignment			$\checkmark$	$\checkmark$
Lubricate King Pins		$\checkmark$	$\checkmark$	$\checkmark$
Wheel Disc for damage	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$

Description of Activity	Sch-I	Sch-II	Sch-III	Sch-IV
	Daily	Weekly	18,000 kms	54,000 kms
STEERING				
Check Power steering system for leakage		$\checkmark$	$\checkmark$	$\checkmark$
SERVICE BRAKE				
Check Brake drum lining clearance			36,000 kms	
Check Function of dual brake valve			36,000 kms	✓
Check Service Brake operation			36,000 kms	
Check Parking brake operation			36,000 kms	
Air Resservoir				
Drain condensate	✓	$\checkmark$	✓	✓
Check drain plug & replace if required		$\checkmark$	$\checkmark$	$\checkmark$
Check leakage through safety valve				$\checkmark$
Check for oil contamination of air from air tank				$\checkmark$
Dual Brake Valve				
Lubricate mounting plate & plunger with oil			$\checkmark$	$\checkmark$
Check boot for deterioration				$\checkmark$
Check ON/OFF leakage				$\checkmark$
DDU				
Check for internal leakage				$\checkmark$
Hand Control Valve				
Check Rubber condition				$\checkmark$
Check for proper packing				$\checkmark$
Check for leakage				$\checkmark$
Brake actuators & Brake chambers				
Air leak from joints	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Brake Chamber pushrod operation	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
ELECTRICAL EQUIPMENT				
Check Battery Specific gravity		$\checkmark$	$\checkmark$	$\checkmark$
Check Function of starter motor			$\checkmark$	$\checkmark$
Starter motor brushes for wear				$\checkmark$
Check Function of Alternator			$\checkmark$	$\checkmark$
Check Terminal of wiring harness for damage and looseness			$\checkmark$	$\checkmark$
CHASSIS LUBRICATION				
Lubricate all Grease points WHEELS & TYRES		✓	√	√
Check Tyre inflation pressures	$\checkmark$	$\checkmark$	$\checkmark$	✓
Check wheels & tyres	✓	· · · · · · · · · · · · · · · · · · ·	<ul> <li>✓</li> </ul>	✓
Tyre rotation and Wheel nuts		5,000 kms		

SI No	Part No	Part Description	Stock Recommendation for 100 veh's	Aggregate
1	MF140223	BOLT FLANGE (M8X1.25X16) 7T	12	Brake
2	MF434105	NUT FL. M10x1.25	4	Engine
3	MF130623	BOLT M14x2x35	2	Engine
4	ID209070	BKT. RR. ENG. MTG. RH	1	Engine
5	IC308576	Bracket assy Fuel Tank	2	Engine
6	ID209069	BKT. RR. ENG. MTG. LH	1	Engine
7	ID202769	RESTRICTION INDICATOR (E683) HCV	2	Engine
8	MF140005	BOLT FLANGE (6X1X16) 4T	6	Electrical
9	ID208511	HOSE DEARATION TANK (MAV COWL)	1	Engine
10	MF140462	BOLT FLANGE (10X1.25X30) 8	16	Suspension
11	MF445085	NUT SELF LOCKING 10	6	Brake
12	ID202113	CUSHION RADIATOR UPPER (HCV)	2	Engine
13	ID206571	HOSE RADIATOR LOWER (30.25/33.25)	1	Engine
14	ID206572	HOSE RADIATOR UPPER (30.25/33.25)	1	Engine
15	IA217483	UJ KIT-20.16(SPICER)	1	PP Shaft
16	IA217491	GREASE NIPPLE -20.16(SPICER)	3	PP Shaft
17	MF445086	NUT SELF LOCKING 12	10	Transmission
18	IA215475	ASSY. CENTER BEARING	1	PP Shaft
19	ID207530	HOSE CLUTCH MC 340	2	Clutch
20	IA207284	HOSE FLUID CLUTCH (HCV)	2	Clutch
21	MS660167	CLIP HOSE D=13.8	6	Clutch
22	IA204881	PIN REAR AXLE SHAFT (HCV)	4	Axle
23	IA203465	NUT SELF LOCKING	1	Axle
24	IA202585	LOCK NUT	1	Axle
25	IA203458	OIL SEAL-HCV	2	Axle
26	IF000430	BOLT LOCK PLATE	2	Axle
27	IA202434	COTTER PIN FR. AXLE - HCV	4	Axle
28	IA209589	SHIM FRONT HUB BEARING T-0.15 (HCV)	4	Axle
29	IA209592	SHIM FRONT HUB BEARING T-0.5 (HCV)	6	Axle
30	IA206416	BEARING	2	Axle
31	IA202954	BEARING	4	Axle
32	IA208608	BEARING TAPER ROLLER INNER (HCV)	1	Axle
33	IA203416	OIL SEAL FR. WHEEL HUB-HCV	0	Axle
34	IA203286	DUST SEAL	2	Axle
35	IA209588	SHIM FRONT HUB BEARING T-0.1 (HCV)	4	Axle
36	IA209591	SHIM FRONT HUB BEARING T-0.3 (HCV)	5	Axle
37	IA209590	SHIM FRONT HUB BEARING T-0.2 (HCV)	5	Axle
38	IA206575	GASKET HUB WHEEL CAP (MCV)	6	Axle
39	IA209986	SHIM	3	Axle
40	IB003224	NIPPLE GREASE	4	Axle

# 21.00 ESSENTIAL SPARES TO BE STOCKED AT DEPOTS

Sl No	Part No	Part Description	Stock Recommendation for 100 veh's	Aggregate
41	IA207983	SHIM (HCV)	3	Axle
42	MF430125	NUT (16) 6T	12	Axle
43	IA206521	END ASSY. TIE ROD RH	1	Axle
44	IA203029	LOCK NUT WHEEL BEARING - HCV	1	Axle
45	IA203026	SPACER	1	Axle
46	IF000187	BEARING	1	Axle
47	IA215578	OIL SEAL REAR HUB OUTER (HCV)	4	Axle
48	IA203017	SPACER SEAL OUTER - HCV	2	Axle
49	IA203030	LOCK WASHER	2	Axle
50	IA203024	SHIM	3	Axle
51	MF106051	BOLT	5	Axle
52	IA301659	HUB BOLT REAR WHEEL HUB	4	Axle
53	IF000400	STUD	4	Steering
54	IA204891	BKT. FRONT FRONT SUSPENSION	1	Suspension
55	IA201308	BKT RR FR SUSPENSION M/C	1	Suspension
56	IA207012	BRACKET MAIN	2	Suspension
57	IA050018	WASHER	1	Brake
58	IA221891	BRAKE ACTUATOR TY 24/24	1	Brake
59	IA050005	LOW PRESSURE INDICATOR SWITCH (MCV)	2	Brake
60	IA215399	THIRD LEAF	1	Suspension
61	IA207096	SECOND LEAF	1	Suspension
62	IA206547	MAIN LEAF	2	Suspension
63	IA201299	NUT CENTER BOLT	1	Suspension
64	IA201291	BUSH	6	Suspension
65	IA207018	BUMP STOPPER FRONT AXLE (HCV)	1	Suspension
66	MS450047	WASHER(18)	12	Suspension
67	IA207134	PIN	2	Suspension
68	IA201567	NUT	6	Suspension
69	MF524002	GREASE NIPPLE (10)	12	Suspension
70	IA207499	PIN-FRONT	1	Suspension
71	IA203882	SHACKLE ASSY. FRONT SPRING (HCV/MAV)	1	Suspension
72	IA208815	SHOCK ABSORBER	1	Suspension
73	IA203883	SHACKLE ASSY. REAR-HCV	1	Suspension
74	IA201292	BUSH	5	Suspension
75	IA208720	SHOCK ABSORBER	1	Suspension
76	IA207135	PIN - SUSPENSION REAR-HCV	1	Suspension
77	IF000165	BRG. CLUTCH RELEASE FORK SHAFT	2	Transmission
78	IF000151	OIL SEAL-HCV	3	Transmission
79	ID200744	BUSHING	2	Engine
80	IA050019	HOSE CLIP (DIA.21) (MCV)	4	Brake

Sl No	Part No	Part Description	Stock Recommendation for 100 veh's	Aggregate
81	ID201245	PRESSURE TRANSDUCER	2	Brake
82	ID200715	GASKET PSP (HCV)	1	Steering
83	MS602061	HOSE FUEL (6X350)	1	Fuel Line
84	MS602013	HOSE FUEL 6X110	1	Fuel Line
85	ID204315	GASKET	3	Engine
86	MF520010	O-RING ID=15	6	Engine
87	MF140246	FLANGE BOLT (M8X100)	3	Brake
88	ID203937	"ASSY., LAMP,TURN SIGNAL, FRONT, LH- (24V)"	1	Electrical
89	ID204020	RELAY	1	Electrical
90	ID204018	POWER RELAY (24 VDC)	1	Electrical
91	IA206397	LID FUSE BOX (HCV)	1	Electrical
92	MB556165	FUSIBLE LINK (HALOGEN)	4	Electrical
93	IA203020	SHIM,REAR WHEEL t=0.15	4	Axle
94	IA203021	SHIM, REAR WHEEL t=0.2	3	Axle
95	IA207880	HOSE CLUTCH (HCV)	2	Clutch
96	MS602019-N	HOSE, FUEL RETURN 6x140 (E683TC/TCI)	1	Fuel Line
97	IA202651	OIL SEAL	4	Axle
98	IA236279	LEAF NO 1	1	Suspension
99	IA236308	CENTER BOLT	1	Suspension
100	IA236280	LEAF NO 2	1	Suspension
101	IA236281	LEAF NO 3	1	Suspension
102	ID307241	SHIFT CABLE BMTC	1	Transmission
103	ID307240	SELECT CABLE BMTC/LP/LPO	1	Transmission
104	IA232996	U BOLT	4	Suspension
105	IA232907	U BOLT REAR	4	Suspension
106	ID303746	CLUTCH DISC ASSY. DIA 330	1	Clutch
107	ME999555	KIT THERMOSTAT CONTENTS:	2	Engine
108	IA208541	SPIDER KIT UNIVERSAL JOINT	2	Propeller Shaft
109	IA207552	REPAIR KIT STEERING UJ CROSS	1	Steering
110	IA207589	KIT ASSY DRAG LINK	1	Steering
111	IA202606	CUSHION ENGINE MOUNTING FRONT (HCV)	2	Engine
112	ID209088	CUSHION RUBBER RR ENG. MTG. (HCV)	3	Engine
113	IF000367	NUT	12	Axle
114	ID205887	CUSHION ENG MTG. RR BOTTOM - HCV	2	Engine
115	ID202261	U-BOLT	4	Exhaust System
116	ID205613	CUSHION ASSY	4	Engine
117	ID205722	GASKET EXHAUST BEND	3	Engine
118	ID202373	ELEMENT AIRCLEANER(SAFETY)	2	Engine
119	ID202372	ELEMENT AIR CLEANER (PRIMERY)	2	Engine
120	ID206734	HOSE MANIFOLD INLET (HCV)	1	Engine

Sl No	Part No	Part Description	Stock Recommendation for 100 veh's	Aggregate
121	ID205625	HOSE INTERCOOLER OUT	2	Engine
122	ID205622	HOSE INTERCOOLER INLET (TIPPER/6X2)	2	Engine
123	ID302461	HOSE TC OUTLET (REDUSER)	1	Engine
124	IA203431	TIE ROD ASSY (HCV)	1	Axle
125	IA206531	END ASSY. TIE ROD LH	2	Steering
126	IA226337	KIT - LINING SET (STANDARD)	1	Brake
127	IA206646	FULCRUM PIN BUSH	8	Brakes
128	IA206648	SPRING PULL-OFF:CAM END	2	Brake
129	IA206659	`O RING	8	Brakes
130	IA206633	SHIM (0.5 MM)	1	Brake
131	IA206634	SHIM (1 MM)	4	Brake
132	IA204409	REPAIR KIT	2	Brake
133	IA208391	PAD	2	Clutch
134	ID303366	CLUTCH MASTER CYLINDER HCV	2	Clutch
135	ID202242	CLUTCH POWER CYLINDER ASSY.	3	Clutch
136	ID203064	KIT - repair power cylinder minor	3	Clutch
137	ID203028	KIT - repair power cylinder major	3	Clutch
138	ME013384	OIL SEAL FRONT	2	Engine
139	MH037759	DRAIN PLUG	2	Engine
140	ID200702	GASKET OIL STAINER	1	Engine
141	ME074696	SEAL	8	Engine
142	ME020244	САР	4	Engine
143	ID200637	GASKET ROCKER COVER	3	Engine
144	ID205660	САР	3	Engine
145	ID307220	BANDED BELT HCV	2	Engine
146	ID201024	BY PASS FILTER	8	Engine
147	IE300758	FUEL LEVEL SENSOR	2	Electricals
148	IB003448	SWITCH ACCELERATOR & CLUTCH	5	Electrical
149	IA238062	RUBBER GASKET	1	Axle
150	ID200408	SHIM SELECT UPPER	5	Transmission
151	ID201275	CABLE SPEEDOMETER A (HCV)	2	Transmission
152	ID304644	ASSY CLUTCH RELEASE BRG HCV	1	Clutch
153	IA206656	KIT-LINING SET (STANDARD)	2	Brake
154	IA206886	REPAIR KIT BRAKE CHAMBER	1	Brake
155	IC302760	Kit Nylon Tube Dia. 6Mm (With Adapter)	6	Brakes
156	IC302761	Kit Nylon Tube Dia. 8Mm (With Adapter)	6	Brakes
157	IC302762	Kit Nylon Tube Dia. 12Mm (With Adapter)	6	Brakes
158	ID203068	M/C REPAIR KIT (MAJOR)	2	Clutch
159	ID203029	M/C REPAIR KIT (MINOR)	3	Clutch
160	ID206984	Kit, Fuel filter element	8	Engine
161	ID203204	KIT ELEMENT OIL FILTER (HCV)	8	Engine

#### 22.00 TOOLS REQUIRED FOR MAINTENANCE

S.NO	PART NAME	PART NO
1	Clutch Disc Aligner	0032101
2	Socket for Hex Nut	0052716
3	Pressure Plate Finger Lever aligner	0032107
4	Press in Tool for Inner Seal Rear Hub	0032719
5	Press in Tool for Outer Seal Rear Hub	0032719
6	Press in Tool for Front Hub Seal	0032605
7	Slinger Replacer / Puller Wheel hub	0230002
8	Steering Wheel puller	153093
9	Hub Nut Wrench Front	IC309428

- 23.00 The CMEs of GNT, CTR, WG, ATP, KDP & KRNL are advised to educate the staff on operation and maintenance of EICHER buses at the depots under their jurisdiction duly providing necessary tools required for day to day maintenance. They are also advised to monitor the performance of EICHER buses and furnish the feedback to Head Office at regular intervals.
- 24.00 The Controllers of Stores, TPT, VJA & KDP are advised to supply required spare parts to the Depots duly fixing the limits in consultation with respective Dy.CMEs.
- 25.00 The Depot Managers and Maintenance in charges are advised to ensure proper maintenance to the vehicles and see that the vehicles are utilized to the full extent without any breakdown.

Junto

EXECUTIVE DIRECTOR (E, IT & HRD)

То

The Depot Managers of GNT, CTR, WG, KDP, KNL & ATP Regions.

Copy to: VC & MD for information.

- Copy to: Dir (V&S), ED (O&AM), ED (A&P), FA, CAO, ED (HRD&Med) for infn.
- Copt to: ED (GHZ&HZ), ED (HYD), ED (KRMR), ED (VJA), ED (VZM), ED(NLR), ED(KDP) for information.
- Copy to: All RMs for information.
- Copy to: CME (O), CCOS, CA, CFM, CME(C&B), CE (IT), CPM, CM (HRD) for information & n/action.
- Copy to:DyCME (O), DyCME (P), DyCME(C&B), DyCME (IED), DyCAO (SP&A), CSTO, COS(C) I & II for information.

Copy to: DyCMEs, WM, COS & DyCAOs of GHZ for necessary action.

Copy to: All AOs & AMEs (T) of GHZ for information & n/action.

- Copy to: All Principals of ZSTCs, BTC, HPT & TA/HPT for information.
- Copy to: Resident Audit Officer, Bus Bhavan, Hyd for information.
- Copy to: In-charge, Manual Section for record.