



BEML LTD, KGF

(ISO 9001:2015 Certified Company)

Quality Assurance Certificate



BMP - TRANSMISSION ASSEMBLY

Transmission SI No. _____

Mfg Month / Year _____

Special Notes



BEML LTD, KGF
Quality Assurance
Certificate

BMP TRANSMISSION ASSEMBLY

Nomenclature. : Gear Box Mechanical Steering Control
(Applicable to ICV BMP I & II)

Drawing No : 765-SB117

**Contract No. : 40011/OS-5(Proc)/CV/PSU/TE-02/
2020-21/KVD/SO- 09 Dt: 13.11.2020**

Transmission SI No. _____

Mfg Month / Year. _____

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Special Notes

XI. CONTACT DETAILS

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I. GENERAL

1) This certificate is an important document for the Transmission assembly. It is filled in and issued for every manufactured or repaired Transmission Assembly by the manufacturer or repair agency.

If the Transmission assembly is installed in an article, the certificate shall be kept together with the article service log. When the Transmission assembly is forwarded for repair, the certificate shall be forwarded along with the Transmission assembly as well.

DETAILS OF CERTIFICATE & FILLING INSTRUCTION

- 1) The Transmission assembly model and serial number are indicated by the manufacturer or repair agency on the title page.
- 2) Sections "Quality Assurance Certificate" "Basic Data and Specifications" and "Details of Sub-Assy" are filled by the manufacturer or repair agency.
- 3) Entries on corrosion-preventive treatment during manufacture of Transmission assembly are made by the manufacturer and during storage of it at base depot or in the user organisation, entries on corrosion preventive treatment are made by the base depot or user organisation, respectively.
- 4) Section "Operation of Transmission assembly" is filled in when the Transmission assembly is installed or replaced in the article i.e., "Article Type" "Article Number" and Date of manufacture of Transmission Assembly. It is filled by the Article manufacturer or repair agency (Repair Shop).
Column "Transmission operation" is filled in by the manufacturer of the article and by the end user/organisation.
- 5) Entries on in-service remedy or defects or replacement of the Transmission assembly units and parts as well as other special notes are made by the Article manufacturer or repair agency in section "Special Notes".
- 6) All entries in the Certificate should be made in ink only legibly and neatly. Erasures and uncertified correction are not allowed.

II. TECHNICAL REQUIREMENTS

- 1) Lubrication Oil Pressure of Transmission assembly shall be 1.8 to 3.0 kg/cm².
- 2) Pressure at steering gear of Transmission assembly shall be 7.8 - 9.5 kg/cm².
- 3) Pressure in booster of engine clutch of Transmission assembly should be 7.8 - 9.5 kg/cm².
- 4) Pressure in boosters of stopping brakes of Transmission assembly should be 7.8 - 9.5 kg/cm².
- 5) No Leakage of Oil from the sealed places allowed.
- 6) Proper working of valve should ensure at Oil temperature of $80 \pm 15^{\circ} \text{C}$
- 7) The gear should function smoothly with a uniform noise. There should not be intermittent noise, kicks and knocks.

X. DO'S & DONT'S

I DO's:

- 1) Flush out the preservative oil before skewing the gear box to the Engine.
- 2) Check oil level in the gear box with the dip stick provided on the gear box (To the mark).
- 3) Ensure brake bank clearance (0.3 mm to 3 mm)
- 4) Use only specified lubricating oil in gear box.
- 5) Servo booster piston pointer to be coincided with neutral mark on the gear box (2-3), (4-5) mark.
- 6) Always operate the gear box with lubrication pressure, oil pressure (1.5 Kg – 3 Kg/cm²)
- 7) Always shift the gears from low to high and vice versa.
- 8) Always shift the gears only when clutch pedal is depressed.
- 9) Check the drain plug of gear box for any leakages.
- 10) Always align the gear box with the engine using appropriate fixture / stand.
- 11) When gear box is stopped in gear, use clutch duplicating system to change gear the gear to neutral position.

II DONT's:

- 1) Do not Operate the gear box without adjusting the clutch finger gaps (6.7 / 7.0)
- 2) Do not operate the gear box if any leakage is observed from PSM joint / other leakages.
- 3) Never start the engine when the gear box is gear engaged.

**IX. OPERATION OF TRANSMISSION ASSEMBLY
(CUSTOMER RECORD)**

Article Model				
Article No.				
Date of Transmission installation in Article				
Running Time of Transmission (in Hours)	During factory or test run of Transmission	hrs	hrs	hrs
		kms	kms	kms
	By the moment of Transmission removal from the article (sending repairs or rejection)	hrs	hrs	hrs
		kms	kms	kms
	Total	hrs	hrs	hrs
		kms	kms	kms

III. STANDARD EQUIPMENTS

SI No	Description	Identification Number		Upon replacement
		Mfg	SI. No	
1)	Case Upper	BEML		
2)	Case Lower	BEML		
3)	Oil Pump	BEML		
4)	Clutch Booster	BEML		
5)	Synchroniser II/III	BEML		
6)	Synchroniser IV/V	BEML		
7)	Spacer LH	BEML		
8)	Spacer RH	BEML		
9)	PSM LH	BEML		
10)	PSM RH	BEML		
11)	Brake Booster LH	BEML		
12)	Brake Booster RH	BEML		
13)	Smooth engagement valve	BEML		
14)	Valve Box	BEML		
15)	Slide Valve Box	BEML		
16)	Servo Booster II/III	BEML		
17)	Servo Booster IV/V	BEML		
18)	Cyclone Tube	BEML		

IV. BASIC DATA AND SPECIFICATION

SI No	Description	Specified value
1)	Gear Box Type	Mechanical, Constant mesh with synchronized
2)	No of Speeds	Five forward and One reverse.
3)	Gear Ratio 1 st Gear 2 nd Gear 3 rd Gear 4 th Gear 5 th Gear Reverse Gear	Range 5.250 2.842 1.912 1.284 0.858 5.250
4)	Mass of Gear Box including engine clutch, planetary steering gear, brakes and hydraulic drive	536.8 kg \pm 2% (526 to 547.3) (Weight without Oil)
5)	Engine Clutch No of Driving plates No of Driven Plates	Multiple plate, Dry, normally engaged 01 piece 02 piece
6)	Planetary Steering gears Steering Gear Control system	Double Reduction Planetary Steering gear with blocking clutch and stopping brake. Hydraulic
7)	Stopping brakes No of stopping brakes Parking brake	Band, floating double action, Hydraulic 02 pieces Mechanical linkage control handle

VIII. LIST OF LOOSE ITEMS (TRANSMISSION ASSEMBLY)

SI No	Drawing No.	Nomenclature	Quantity (in Nos)
1.	BTB 0012	Bolt	20

**V. RECORD OF PRESERVATION
(TRANSMISSION ASSEMBLY)**

Date	Preservation of the system	Preservative material	Preservation performed by	Effective period of preservation (Indoor)
	Transmission	Rust Preventive Oil	BEML	12 months From the date of preservation

FILTER CLEANING GENERAL INSTRUCTIONS:

The Hydro cyclonic filter and Gear box pump strainer / Filter should be cleaned in different stages to remove all the contamination accumulated after testing.

Stages of Filter cleaning:

The cleaning of the filters is done at following stages.

1. After the performance test of transmission on No-Load test rig at BEML H&P Division.
2. Before the mounting of transmission of the equipment at customer end.
3. After the running trail of the BMP equipment at customer end.

VI. QUALITY ASSURANCE CERTIFICATE

Transmission Assembly to SI No. _____ meets specified requirements as per 765-12-TT-13 and has been found fit for service.

Issue Date _____

Signature /Production

Signature / Quality Control

(Seal)

Signature/Customer

VII. SERVICE MATERIALS

SI No.	Materials	Specifications / Grade
1)	Lubrication Oil	SAE 30

IV. BASIC DATA AND SPECIFICATION

SI No	Description	Specified value
8)	Control Linkages Planetary Steering Gear Stopping Brake Clutch Parking brake Gear Shifting	Hydraulic with Servo on Engine clutch and planetary steering gear brake Hydraulic with servo action – Foot pedal Hydraulic linkages – foot pedal Mechanical – Hand Operated 1 st and Reverse - Mechanical 2 nd and 3 rd - Mechanical + hydraulic assist 4 th and 5 th - Mechanical + hydraulic assist
9)	Capacity of the oil sump	20 Litres