

***ACCEPTANCE TEST PLAN***  
***of***  
***Cabin for BEML***  
***High Mobility Vehicle 8x8***



**BEML LTD**

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***ACCEPTANCE TEST PLAN***  
***of***  
***Cabin for BEML***  
***High Mobility Vehicle 8x8***

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## 1. INTRODUCTION

### SCOPE:

This document defines the various checkpoints / acceptance criteria of Cabin (RHD) development for BEML High Mobility Vehicle 8x8 and after integration of CABIN on BEML HMV 8x8. Based on the performance, the quality plan may be modified and updated from time to time, improvement in the quality of the final product offered to the customer.

## 2. TECHNICAL SPECIFICATIONS OF CABIN (RHD):

The technical specifications & scope of supply for the CABIN are brought out in **Procurement Technical specification of Cabin (RHD) for BEML High Mobility Vehicle 8x8 - Doc no: BEML/GA/R&D DEFENCE/ToT-CAB/003, Dt: 28.05.2020**

The brief specifications are shown below for reference:

Main Dimensional Data & Weight Of Cabin	
Length	2107 mm
Width	2500 mm
Height	1850 mm
Weight of outfitted cabin	770 kg $\pm 5\%$
Overall Dimensions With Cabin Mounted On Chassis	
Overall width	2500 mm
Overall height (over cabin hatch)	3000 mm

## 3. DRAWINGS

The key dimensional details of cabin are provided in Technical specification of Cabin (RHD) document. (Ref dwg: 160 9 9985 9 874)

#### **4. ACCEPTANCE STAGES FOR CABIN (RHD):**

1. Design clearance will be carried out in the following stages
  - a) Manufacturing & Inspection in the following stages
    - i. Cabin structure fabrication
    - ii. Bought out item integration and functionality check
    - iii. Cabin will be integrated on 8x8 truck chassis at BEML premises.
    - iv. BEML team & Inspection agency will participate and witness the Factory Acceptance Test (FAT) at Supplier premises, before dispatch.
    - v. The cabin integrated on the vehicle will be evaluated through Crash test at VRDE as per AIS-029 standard for compliance to CMVR norms & performance trials at VRDE.
    - vi. The inspection checks & performance evaluation by road trials will be carried out along with the Inspection agency.

##### **4.1 VISUAL INSPECTION:**

1 CABIN SL.NO. \_\_\_\_\_

2 CABIN TYPE & MODEL \_\_\_\_\_

3 Outfitted cabin is checked for:

- a. Functioning of doors, handles, locks, and glass raising & lowering, (window glass sliding mechanism with locks)  
Mechanism of the windows and all other electrical accessories.
- b. Completeness and proper fitment of all components in CAB Assembly.
- c. Tightening of fasteners.
- d. Defects in construction, sharp corners / edges if any.
- e. Moisture, dust & distortion.
- f. Corrosion of metal parts.
- g. Any form of deterioration of material and finish.
- h. Mechanical imperfection.
- i. Preservative coating & welding joints.
- j. Inspection "OK" sticker on cabin.
- k. All dummy holes to be covered with proper plugs.
- l. Proper dummy plug for all hoses and pipe free ends.
- m. Lubrication for moving part like hinges, check arm etc.
- n. Operating Instruction sticker if required.
- o. Check list for items to be supplied in loose as per scope of supply.

## 4.2 STATIC CHECK: 100%

SL. NO.	DESCRIPTION OF CHECKS	OBSERVATIONS	REMARKS
<b>I. STATIC CHECKS:100 %</b>			
<b>1.</b>	<b>CABIN (Inside)</b>		
a)	<b>Ignition box/ Steering lock</b> i) Ignition key operation in 03 positions ii) Ignition On/Off iii) Functioning of Steering Lock		
b)	<b>Cabin Doors</b> i) Functioning of Lock/ Unlock from outside ii) Functioning of Lock/ Unlock from inside iii) Fitment of door handles iv) Window glass Mechanism		
c)	<b>Driver/Co-Driver Seat</b> i) Forward/Backward adjustment ii) Raising/lowering iii) Back rest inclination adjustment iv) Safety belt for Driver & Co- driver		
d)	<b>Bonnet</b> i) Functioning of Lock/ Unlock		
e)	<b>Horn</b> i) Functioning		
f)	<b>Sun visors (02 Nos.)</b> i) Fitment ii) Free movement of sun visors		
g)	<b>Steering Wheel</b> i) Position (8-20) ii) Steering wheel play (10-40 mm.) Max.18 Deg. With engine operating iii) No. of Steering wheel turns – $5\frac{2}{3}$	- mm - Deg. - Turns.	
h)	<b>Wind Shield Wiper</b> i) Functioning ii) Position of wiper blade ii) Sprinkler function / jet spray adjustment		
i)	<b>Manhole</b> i) Cover fitment ii) Functioning of Lock/ Unlock		
j)	<b>Fitment/ Functioning of Instrument Panel Board Meters</b> i) Tachometer / Eng. Hrs. meter ii) Double Air Pressure Gauge of Brake iii) Oil pressure gauge iv) Fuel gauge with reserve indicator v) Tyre pressure gauge		

	vi) Voltmeter		
k)	<b>Fitment/ Functioning of Instrument Panel Switches</b> i) Winch lamp switch ii) Engine stop button iii) Convoy light switch iv) Winch Control Knob vi Head lamp change over switch vi) Hazard lamp switch vii) Tortoise/ Rabbit mode switch viii) Exhaust brake switch ix) Fan switch x) Electric fuel delivery pump switch xi) Fog lamp switch xii) Dome light switch xiii) Rotary illumination switch (03 steps)		
l)	<b>Functioning of Instrument Panel Signal Lamps</b> i) Engine Overheating (red) ii) Electronic Cooling malfunctioning (red) iii) Engine preheating (yellow) iv) 65 % system air pressure (red) v) 90 % system air pressure (red) vi) Fog lamp (green) vii) Winch signal lamp (yellow) viii) Turn signal (green) ix) Trailer turn signal (green)		
	x) Charging indicator (red) xi) High beam (blue) xii) IAD lock (green) xiii) AD lock (green) xiv) Cabin lock (red) xv) Beacon lamp (yellow) xvi) Electric delivery pump (white) xvii) Hazard lamp (red) xviii) PTO engagement indicator (if applicable)		
m)	<b>Ventilators/Cabin Heaters</b> i) Functioning of 03 speeds fan ii) Functioning of Dependent heater (oil) iii) Functioning of Independent heater LCD		
n)	<b>Map reading lamp</b>		
o)	<b>Accelerator Pedal</b> i) Free play ii) Free movement of pedal		
p)	<b>Gear Shift Lever</b> i) Fitment ii) Fouling iii) Condition and locking of rubber boot		

q)	<b>Clutch Pedal</b> i) Free play (4-11mm) ii) Free movement of pedal	- mm	
r)	<b>Brake Pedal</b> i) Free play (4-11mm) ii) Free movement of pedal	- mm	
s)	<b>Exhaust Brake</b> i) Functioning ii) Releasing (800-900 RPM)		
t)	<b>Parking Brake</b> i) Functioning in 03 positions		
u)	<b>Fitment/ functioning of Misc. accessories</b> i) NBC filter (01 No.) (Optional) ii) Gun mounting clips iii) Instruction stickers (Tyre inf./def, AD/IAD etc.) iv) Electric Wiring diagram v) Fire extinguisher mounting bracket vi) Sprinkler tank vii) Radio socket viii) Blind Spot Mirrors ix) Brackets for mounting Convoy Flag Posts		
v)	<b>Other snags</b> - Visual and general defects which is not specified in the check list		
<b>2.</b>	<b>CABIN (Outside)</b>		
a)	<b>Electrical lamps</b> i) Front double parking lamp ii) Upper head lamp (dim/ dip/ straight beam/ passer) iii) Lower head lamp (dim/ dip/ straight beam/ passer) iv) Fog lamps v) Contour lamps vi) LH/ RH side indicator lamps vii) Hazard indicator lamps viii) Beacon lamps ix) Search lamp x) Rear double parking lamp xi) Tail lamps xii) Brake lamps xiii) Reverse lamp xiv) Winch lamp		
b)	<b>Bonnet</b> i) Locking/ seating		



c)	<b>Fuses</b>		
d)	<b>Air Intake Hood</b> i) Fitment and seating		
e)	Other snags - Visual and general defects which is not specified in the check list		
3.	<b>Details of Measuring Instruments Used:</b>		
	<b>Description of Instruments</b>	<b>Sl. No. of Instrument</b>	<b>Calibrated upto</b>
a)			
	<b>Commencement time :- Hrs</b> <b>Concluding time :- Hrs.</b> <b>Total Time Taken :- Hrs</b> <b>Date:</b>		
	<div style="text-align: right;"> <b>(Signature)</b>  <b>Name:</b>  <b>Vendor rep.</b>  <b>BEML rep.</b>  <b>CQA (BEML) rep.</b> </div>		

#### 4.3 DIMENSIONAL CHECKS

The key dimensions of the Cabin will be checked as per IS 9435:2004 & recorded as per format given below

Sl. No	Parameter	Specified (mm)	Observed
1	Over all length	2107	
2	Over all width	2500	
3	Height (over cabin hatch)	3000	
4	Height over beacons	3100	

#### 4.4 WEIGHT MEASUREMENT

The weight of the cabin will checked as per IS: 11825:1986

Sl.	Parameter	Specified (IN Kg)	Observed
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FOR  
Cabin (RHD) for BEML  
High Mobility Vehicle 8x8**

Doc No. BEML/GA/R&D DEFENCE/ToT-  
CAB/ATP/004  
Revision No. 0  
Date: 28.05.2020

No			
1			

**4.5 QA CHECK OF LOOSE ITEMS SUPPLIED WITH CABIN:**

**4.6 SHOWER TEST:**

Shower test for Cabin to be conducted as per IS: 11865-2006.

**4.7 VERIFICATION OF DOCUMENTS / CERTIFICATES:**

**4.8 VERIFICATION OF TECHNICAL LITERATURE SUPPLIED ALONG WITH  
CABIN (Hard copy & Soft copy in CDs form) (As per PO)**

- i) Operators/Drivers Manual
- ii) Workshop Manual
- iv) ISPL
- vi) MRLS
- vii) Service Booklet
- viii) SMT list

#### 4.5 QA CHECK FINAL

SL. NO.	DESCRIPTION OF CHECKS	OBSERVATIONS	REMARKS
<b>III. FINAL CHECKS:100 %</b>			
1.	Check that observations made during static checks have been attended.		
2.	Check that observations made during road trial checks have been attended.		
3.	The following to be checked at final stage:-		
a)	<b>Electrical lamps</b> i) Front double parking lamp ii) Upper head lamp (dim/ dip/ straight beam/ passer) iii) Lower head lamp (dim/ dip/ straight beam/ passer) iv) Fog lamps vi) Contour lamps vi) LH/ RH side indicator lamps vii) Hazard indicator lamps viii) Beacon lamps ix) Search lamp x) Rear double parking lamp xi) Tail lamps xii) Brake lamps xiii) Reverse lamp xiv) Winch lamp		
b)	<b>Final painting and workmanship</b> i) Check for general workmanship ii) Check for final painting iii) Check thickness of paint a) Cabin(inside) – 40 microns Min b) Cabin(outside) - 55 microns Min IV) Scratch test of paint	.       - Microns - Microns	
c)	<b>Instruction and caution stickers (C)</b> i) Cab lifting pump ii) Tyre inf./def, AD/IAD iii) Air cleaner	.	
d)	<b>Other snags :- Visual and general defects which is not specified in the check list</b>		

<b>4.</b>	<b>Details of Measuring Instruments Used:</b>		
	<b>Description of Instruments</b>	<b>Sl. No. of Instrument</b>	<b>Calibrated upto</b>
	<b>Commencement time :- Hrs</b> <b>Concluding time :- Hrs.</b> <b>Total time taken :- Hrs</b>		
	<b>Date:</b> _____ <b>(Signature)</b> _____ <b>Vendor rep.</b> _____ <b>BEML rep.</b> _____ <b>CQA (BEML) rep.</b> _____		

## 5 QUALITY, COMPLETENESS AND RELIABILITY

The workmanship of the cabin must be in accordance with the Production drawings, technological process and their technical Conditions.

## 6 WELDING REQUIREMENT

- There should be not patches, regions of over runs and unfilled craters with cracks.
- Finishing of the weld must be continuous.
- There should not be any cracks at the root of the welds.

## 7. LIST OF ACCESSORIES AND TOOLS

List of tools & accessories supplied along with cabin (RHD) shall be recorded as per the below table:

Sl No	PART NO.	DESCRIPTION	QTY/EQPT.
1			
2			

## **8. REPORTS TO BE SUBMITTED ALONG WITH CABIN**

- 1) Overall & critical dimensions report for cabin
- 2) Type approval certificate copies for components
- 3) Shower test report
- 4) Torque list for trims items fitment
- 5) Functional verification of various electrical systems with simulated test rigs
- 6) Assembly instruction for interface.

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