

ACCEPTANCE TEST PLAN
of
Armored Driver's Cabin
(Flat type-RHD) for BEML
High Mobility Vehicle 8x8
-MGS Project



BEML LTD

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Doc No. BEML/GAT/RD/MGS/A-CAB/ATP/003
Revision No. 1
Date: 25.04.2020

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1. INTRODUCTION

This document defines the various checkpoints / acceptance criteria of **Armored Driver's Cabin (Flat type-RHD) for BEML HMV 8x8** Project 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 Armored Driver's Cabin (Flat type-RHD) for BEML HMV 8x8 Doc no: BEML/GAT/R&D DEFENCE /MGS/A-CAB/003 -Rev 01 Dt: 25.04.2020**

The brief specifications are shown below for reference:

Main Dimensional Data & Weight Of Cabin	
Length	2410 mm
Width	2400 mm
Height	1800 mm
Weight of outfitted cabin	1650 kg \pm 5%



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3. DRAWINGS

The key dimensional details of cabin are provided in Technical specification of Driver's Cabin (RHD) document.(Ref Dwg No. 459 CA 02014)

4. ACCEPTANCE STAGES FOR CABIN (RHD):

Design & drawing should be vetted by BEML Team as per IS 9435:2004 before development of proto type. Design clearance will be carried out in the following stages.

- a) Design
 - i. Conceptual Layout design of shell structure of cabin
 - ii. Detailed design of shell structure of cabin
 - iii. Detailed specification of supplier of Bought out items
 - iv. Integration of Bought out items on Cabin Structure

Note: Supplier shall submit the technical specifications, 3D model & drawings in hard & soft format for all the above stages for approval by BEML.

- b) Manufacturing & Inspection in the following stages
 - i. Process Plan for stage wise cabin structure production
 - ii. Inspection report stage wise
 - iii. Cabin tubular structure fabrication
 - iv. B/O item integration and functionality check
 - v. Cabin will be integrated on 8x8 truck chassis at BEML premises.
 - vi. BEML team will participate and witness the Factory Acceptance Test (FAT) at Supplier premises, before dispatch.

4.1 VISUAL INSPECTION:

1. CABIN SL.NO. _____
2. CABIN TYPE & MODEL _____
3. AC UNIT SL. NO. _____



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Outfitted cabin is checked for:

- a. Functioning of doors, handles, locks, HVAC and all other electrical accessories.
- b. Completeness and proper fitment of all components in CAB
- c. Assembly.
- d. Tightening of fasteners.
- e. Defects in construction, sharp corners / edges if any.
- f. Moisture, dust & distortion.
- g. Corrosion of metal parts.
- h. Any form of deterioration of material and finishing's.
- i. Mechanical imperfection.
- j. Preservative coating & welding joints.
- k. Should be complete, no missing and loose items are allowed
- l. Inspection "OK" sticker on cabin.
- m. All dummy holes to be covered with proper plugs.
- n. Proper dummy plug for all hoses and pipe free ends.
- o. Lubrication for moving part like hinges, check arm etc.
- p. Operating Instruction sticker if required.
- q. 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
I. STATIC CHECKS:100 %			
1.	CABIN (Inside)		
a)	Ignition box/ Steering lock i) Ignition key operation in 03 positions ii) Ignition On/Off iii) Functioning of Steering Lock		
b)	Cabin Doors i) Functioning of Lock/ Unlock from outside ii) Functioning of Lock/ Unlock from inside iii) Fitment of door handles		
c)	Driver/Co-Driver Seat i) Forward/Backward adjustment ii) Raising/lowering iii) Back rest inclination adjustment iv) Safety belt for Driver & Co- driver		



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d)	Bonnet i) Functioning of Lock/ Unlock		
e)	Horn i) Functioning		
f)	Sun visors (02 Nos.) i) Fitment ii) Free movement of sun visors		
g)	Steering Wheel 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)	Wind Shield Wiper i) Functioning ii) Position of wiper blade ii) Sprinkler functioning/ jet spray adjustment		
i)	Manhole i) Cover fitment ii) Functioning of Lock/ Unlock		
j)	Fitment/ Functioning of Instrument Panel Board Meters 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)	Fitment/ Functioning of Instrument Panel Switches 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)	Functioning of Instrument Panel Signal Lamps i) Engine Overheating (red) ii) Electronic Cooling malfunctioning (red) iii) Engine preheating (yellow) iv) 65 % system air pressure (red)		



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	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)	Ventilators/Cabin Heaters i) Functioning of 03 speeds fan ii) Functioning of Dependent heater (oil) iii) Functioning of Independent heater (fuel) iv) Functioning of Independent heater LCD		
n)	Map reading lamp		
o)	Accelerator Pedal i) Free play ii) Free movement of pedal		
p)	Gear Shift Lever i) Fitment ii) Fouling iii) Condition and locking of rubber boot		
q)	Clutch Pedal i) Free play (4-11mm) ii) Free movement of pedal	- mm	
r)	Brake Pedal i) Free play (4-11mm) ii) Free movement of pedal	- mm	
s)	Exhaust Brake i) Functioning ii) Releasing (800-900 RPM)		
t)	Parking Brake i) Functioning		



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u)	<p>Fitment/ functioning of Misc. accessories</p> <ul style="list-style-type: none"> i) Gun mounting clips ii) Instruction stickers (Tyre inf./def, AD/IAD etc.) iii) Electric Wiring diagram iv) Fire extinguisher mounting bracket v) Sprinkler tank vi) Radio socket vii) Blind Spot Mirrors 		
v)	<p>Other snags - Visual and general defects which is not specified in the check list</p>		
2.	<p>CABIN (Outside)</p>		
a)	<p>Electrical lamps</p> <ul style="list-style-type: none"> 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)	<p>Bonnet</p> <ul style="list-style-type: none"> i) Locking/ seating 		
c)	<p>Fuses</p> <ul style="list-style-type: none"> i) Fitment/ rating of fuses under cover of instrument panel ii) Fitment/ rating of fuses under bonnet of cabin 		



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d)	Cabin Lifting/ Lowering i) Locking/ unlocking of securing hook ii) Cabin lifting/ lowering function iii) Oil leakage from lift pump iv) Oil Leakage from lift cylinder v) Fitment/ correction of instruction sticker		
e)	Other snags - Visual and general defects which is not specified in the check list		
3.	Miscellaneous Fitments		
a)			
4.	Details of Measuring Instruments Used:		
	Description of Instruments	Sl. No. of Instrument	Calibrated upto
a)			
	<p>Commencement time :- Hrs</p> <p>Concluding time :- Hrs.</p> <p>Total Time Taken :- Hrs</p> <p>Date:</p> <p align="right">(Signature)</p> <p align="right">Name:</p> <p align="right">Firm rep.</p> <p align="right">BEML rep.</p> <p align="right">CQA (BEML) rep.</p>		

4.3 DIMENSIONAL CHECKS

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



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Sl. No	Parameter	Specified (mm)	Observed
1	Over all length	2410	
2	Over all width	2400	
3	Height	1800	

4.4 WEIGHT MEASUREMENT

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

Sl. No	Parameter	Specified (IN Kg)	Observed
1			

4.5 QUALITY, COMPLETENESS AND RELIABILITY

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

4.5.1 Welds must satisfy the following requirements:

- a) The beads of the welds must be symmetrical and deposited in one direction.
- b) The weld must have full penetration to the basic material.
- c) There should be no patches, regions of over runs and unfilled craters with cracks.
- d) Finishing of the weld must be continuous.
- e) There should not be any cracks at the root of the welds.

4.5.2 Riveted parts

Riveted parts must not be either damaged or deformed during riveting. Riveted joints must be done as per CSN standards and as specified in the production drawings. Parts joined by riveting must not be movable. The finished head of rivet must not be split.



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1. Overall & critical dimensions report for cabin
2. Type approval certificate copies for components
3. Shower test report
4. Toque 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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