

**PROCUREMENT TECHNICAL  
SPECIFICATION (PTS)  
OF  
VEHICLE FITTING KIT  
FOR  
MINE PLOUGH SETS FOR TANK T-90  
S/SK**



**BEML LTD**

Ministry of Defence (Govt. of India Undertaking)  
R&D- Defence, KGF Complex, Kolar Gold Fields,  
Dist: Kolar, State: Karnataka, Pin -563115, India

## Document Control and Data Sheet

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11. Abstract:			
This document will give the brief technical details of Mine Plough for Tank T-90 S /SK including scope of work and scope of Supply of Electrical Harness.			
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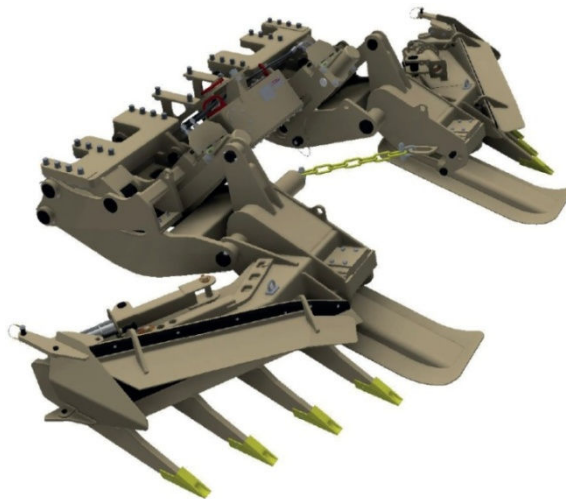
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**NOTE:** The information contained in this PTS (Procurement Technical Specification) document for Vehicle Fitting Kit (Electrical Wire Harness) of Mine Plough for Tank T-90 S /SK gives the broad details regarding the work scope to be supplied by the firm once the PO is placed.

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## 1. INTRODUCTION :

The MINE PLOUGH for T-90 is designed to remove mines from the track width of the host vehicle, thus protecting it from the threat of surface laid or buried anti-tank or anti-personnel mines. The Mine Plough gives the host vehicle the ability to rapidly force a passage through mined obstacles by creating a cleared path for its tracks to follow. This equipment is modular, compact, Electro-Hydraulically operated and controlled via a Control Unit (CU) which is mounted inside the driver compartment of the host vehicle. Electrical power to operate hydraulic and control systems of Mine Plough is provided by the vehicle electrical system via the Control Unit.



**Fig. A Track Width Mine Plough for T-90 tank**

## 2. BRIEF DESCRIPTION:

The Mine Plough T-90 is a self-contained unit, the only connections to the vehicle being its mounting arrangement and connection to the T-90 Main Battle Tank electrical power system.

The T-90 Mine Plough:

- (a) clears mines from the track width of the vehicle (tread way type)
- (b) is designed to operate in a wide range of soils including loose sand and loams
- (c) is designed to minimize the tractive effort required
- (d) is designed to minimize the effects of detonating mines
- (e) requires minimal maintenance

The Mine Plough T-90 is comprised of two 4-tine blades.

The Mine Plough T-90 is capable of being used at speeds of 1-15 km/hr dependent upon ground conditions and vehicle performance.

### 3. TECHNICAL DETAILS:

#### Vehicle Fitting Kit (Electrical Wire Harness):

Sl. No.	BEML Part/ Drawing No.	Nomenclature	Quantity per Vehicle in Numbers.
A	710 MP 01069	VEHICLE FITTING KIT	01
BEML Part/ Drawing No. 710 MP 01069 (VEHICLE FITTING KIT) consists of the following BEML Part / Drawing Nos.			
Sl. No.	BEML Part/ Drawing No.	Nomenclature	Quantity per Vehicle in Numbers.
1	710 MP 02349	CU/ PLOUGH HARNESS	01
1a	710 EG 02075	HARNESS – CONTROL UNIT/ POWER OUT	01
1b	710 EG 11211	BULKHEAD PLATE	01
1ba	710 EG 11285	BULKHEAD PLATE	01
1bb	710 EG 11293	BULKHEAD BAR	01
1c	710 EG 11228	RESIN POTTING	04
1d	710 EG 02083	BULKHEAD PLATE GASKET	01
1e	710 EG 02091	SCREW HEX M18 x 35	02
1f	710 EG 02107	WASHER M18	02
$1=1a+(1b=(1ba+1bb))+1c+1d+1e+1f$			
2	710 EG 02115	CONTROL BOX / VEHICLE +VE HARNESS	01
2a	710 EG 11236	HARNESS – VEHICLE POWER IN (+28V)	01
2b	710 EG 11244	SCREW HEX M6 x 12	01
2c	710 EG 11252	NUT NYLOC M6	01
2d	710 EG 11269	TERMINAL +VE	01
$2=2a+2b+2c+2d$			
3	710 EG 02123	CONTROL BOX/ VEHICLE –VE HARNESS	01
3a	710 EG 11277	HARNESS – VEHICLE POWER IN (0V)	01
3b	710 EG 11244	SCREW HEX M6 x 12	01
3c	710 EG 11252	NUT NYLOC M6	01
3d	710 EG 11309	TERMINAL –VE	01
$3=3a+3b+3c+3d$			
<b>Remarks:</b> i. Items/ material used for supply to be the latest current year of manufacture and batch.			

- ii. Vendor to supply with same Part No. as per the part list of the drawings. Since it has been accepted during the NCNC trials by Indian Ministry of Defence. Equivalent will be accepted only in case of obsolete brand or model / Non availability provided with proper relevant documents and justifications.
- iii. If in case Indian Ministry of Defence suggests/ insist any modification / change /testing in the supply item above , vendor to do the same at no extra cost.
- iv. Vendor to give in detail cost breakup for all the items mentioned above in Sl. No. 1, 2 & 3 in the price bid only for above mentioned BEML Part Nos./Drawing Nos..
- v. Staggered delivery, i.e, from year 2021 onwards. Details of the same will be intimated in the purchase order.

- All the wire Harness should be supplied as per the scope of supply.
- The electrical harness shall meet and confirm to JSS 55555-2012 (Rev 3) as per class L2J & class L3.
- All electrical components/wires used shall confirm to DEF/MIL standards.
- Wire harness used shall be compatible to MIL Std. 461E and MIL STD. 464C for EMI/EMC.
- All connectors, receptacles covers are provided with EMI/EMC gaskets.
- All Electrical/Electronic items/components used should be RoHS complied.
- All the Wire harness should be marked with Drawing number, Year of manufacture etc along the length of wire at suitable interval as per drawing.
- Material Certificate from NABL Accredited lab to be provided.



## 4. ACCEPTANCE CRITERIA

### Stage Inspections:

Stage inspection is suggested before complete assembly of items to ensure safe, reliable and foolproof operation for the requirements of the tank. During stage inspection, ensure all the components are conforming to the relevant drawings/specification and standards. Check material specification, dimensions, machining tolerances, protective finish, etc., the connector surface mounting area (external to the housing/assy) is to be masked while powder coating. Check whether the equipment is wired as per relevant wiring diagram and the gauges used are as specified. Ensure that each cable termination is provided with cable identification marker/sleeve as recommended in the wiring diagram.

Ensure that the wires and all components of the assembly are type/MIL approved components. During stage inspection ensure that all points mentioned in the topic visual inspection, of this specification are carefully examined.

Stage inspection shall be carried out by vendor and the record should be submitted to the inspecting authority at the time of final inspection. The inspecting authority may verify the stage inspection report by cross examining few components at random, by dismantling the assembly.

All the cable assembly / harnesses shall be inspected as per the following Acceptance procedure and results shall be recorded in check sheet.

SL. No.	Checks, Measurements, Tests & Parameters	Observations		Remarks of QA Team
I.	Visual Inspection	Sl. No	Sl. No	
	1. Completeness of the harness assembly as per the main relevant assembly harness drawing and its wiring details.			
	2. The quality of workmanship and finish. The workmanship should be of high-order and the finishing should be good.			
	3. Mechanical damage to parts or assembly, if any, shall be corrected			
	4. The overall length of harness assembly as per relevant assembly harness drawing.			
	5. The wires and all components used are type / MIL approved and the gauges of wires are as specified in drawing.			
	6. Proper wire is terminated on the connector pins / sockets as per the wiring diagram.			
	7. Wire terminations are provided with correct cable markers / sleeves as per wiring diagram.			
	8. Proper soldering of wires with pins / sockets. Dry soldering is not permitted.			
	9. Check the part No., Number of connectors as demanded in the item list of the drawing. Ensure correct pin/socket configuration and orientation of connectors, if any, demanded in the drawing.			
	10. Check the part No's of heat shrinkable tubing's, boots, transitions Etc as demanded in the part list of the drawing.			
	11. Ensure harness identification label / sleeve and end termination identification sleeve are provided and inscribed with proper nomenclature as demanded in the drawing.			
	12. Ensure copper braided screening is properly soldered onto the end connectors. Continuity between one-connector shell and other connector shell, soldered with copper braided screening shall be ensured.			
	13. When individually screened primary wires are used, all the screening braids should be soldered together and earthed through a separate pin/socket of the connector as shown in the drawings.			
	14. Ensure that all the components socket, bush, O-ring, sleeve etc., of heavy-duty sockets are properly assembled as shown in the drawing. Also ensure that the boots are inserted over the connectors fully.			
	15. Check the dimensions of the heavy-duty socket, as per the component drawing. Especially the inner diameter and depth should be within the machining tolerances as per component drawing.			
	16. The Pin orientations shown in drawings are for reference purpose, as Indicated by MIL Standard and by Manufacturers. However, the normal convention being Clockwise orientation for Pin type (Male) and Anti-clockwise orientation for Socket type (Female), when viewed from mating side.			

Inspected by:

Approved by:

**Note:** Inspectors are advised to specify the following in the observation column

- Accepted / rejected for checks column
- The measured values against the column specified for each measurements and tests.

II	<b>INSULATION RESISTANCE (IR) TEST</b>			
	<p>Measure the insulation resistance using a 500V DC insulation tester. All cores of a complete harness assembly shall be subjected to this test as mentioned below:</p> <p>(a) Between any one pin/socket (non - earthed core) and all other pins/sockets (non – earthed cores) connected together. Repeat the test between each pin / socket and the remaining pins/sockets (non- earthed cores) Connected together.</p> <p>(b) Between all non-earthed cores connected together and all braiding screening, metallic conduits, plug and /or socket shells and all earthed cores also connected together.</p> <p>The insulation resistance measured shall not be less than 20 Mega ohms.</p> <p>2. Earthing Harnesses in which ATC Braid is used as core cable / conductor Should not be subjected to IR test.</p>			
SL. No.	Checks, Measurements, Tests & Parameters	Observations		Remarks of QA Team
		Sl. No	Sl. No	
III	<b>CONTINUITY TEST</b>			
	Check the continuity between connector pins as per wiring diagram using continuity tester.			
IV	<b>DIELECTRIC STRENGTH TEST</b>			
	<p>Apply 500V AC RMS, 50 Hz for duration of one minute. All cores of a complete harness assembly shall be subjected to this test as mentioned below:</p> <p>(a) Between any one pin / socket (non – earthed core) and all other pins / sockets (non–earthed cores) in the harness connected together. Repeat the test between each pin/socket and the remaining pins/socket (non – earthed cores) connected together.</p> <p>(b) Between all non-earthed cores connected together and all braiding, screening, metallic conduits, plug and /or socket shells and all earthed cores also connected together.</p> <p>These harnesses shall satisfactorily withstand the test without arcing or puncture. There should not be any breakdown of insulation or surface spark over. These indicate failure of insulation and warrant rejection after investigation for the cause of failure.</p> <p>2. Earthing Harnesses in which ATC Braid is used as core cable / conductor should not be subjected to Dielectric Strength test.</p>			
V	<b>CONDUCTOR RESISTANCE TEST</b>			
	The conductor resistance shall be measured by using milli ohmmeter / micro ohmmeter for each and every core. The measured values of single core shall not exceed the resistance as shown below:			

Inspected by:

Approved by:

**Note:** Inspectors are advised to specify the following in the observation column

- iii) Accepted / rejected for checks column
- iv) The measured values against the column specified for each measurements and tests.

## **Classification of Test**

The various tests to be carried out are classified as Class-A as detailed below:

### **CLASS-A TESTS**

These tests are to be conducted on all the units, i.e., 100%. The following are Class 'A' tests.

- a) Visual Inspection.
- b) Insulation resistance test
- c) Continuity test.
- d) Dielectric Strength test.
- e) Performance test.
- f) Interchangeability test

## **Test Procedure**

### **VISUAL INSPECTION**

All assemblies, items and components tendered for inspection shall undergo Check for:

- a) Completeness of the assembly as per the main assembly drawing and its details.
- b) The quality of workmanship and finish. The workmanship should be of high order and the finishing should be smooth and without any sagging and drips.
- c) Correct and rigid assembly of cylinder, shell, spring, screws, washers, nut, clamp, gasket etc.
- d) The uniform and reliable tightening of all fasteners.
- e) Reliable and rigid fitment of cylinder, shell, spring, indicator light, connector etc., is marked with proper identification marking as per assembly drawing.
- f) Any mechanical damage to parts or assembly is not permitted.
- g) Presence of any loose part/foreign matter in the assembly is not permitted.
- h) Presence of any sharp corner in the assembly is not permitted. They should be blunted/rounded off.
- i) Cleanliness of contact points, connector and other electrical components.
- j) The overall dimensions of the assembly, mounting dimensions and alignment of the mounting holes.
- k) Punching and other marking mentioned as per assembly drawing to ensure the components are safe and free from tampering.

- l) Correct connection of wires to the terminals as per relevant wiring diagram and its security. Sagging of wire is not permitted. Wires can be bunched/clamped together using cable ties.
- m) The wires used are type approved and the gauge of wires are as specified.
- n) Cable terminations are provided with correct cable marker/sleeves as per wiring diagram.
- o) Correct soldering of wires with terminals. Dry soldering is not permitted.
- p) The connector receptacle is to be provided with EMI gasket.
- q) Wherever EMI gaskets are provided the surface of the box should be free from paint.
- r) Proper mating of connectors with the receptacles.
- s) The protective coating and surface finish of hardware's and assembly as per relevant component/assembly drawings.
- t) Correct sealing of assemblies to prevent ingress of dust, dirt, moisture, oil, water etc.

#### INSULATION RESISTANCE TEST

Measure the insulation resistance between body and each pin of connector and between any two pins not connected electrically using a 500V DC insulation tester. (Care should be taken to disconnect the negative lead, if it is earthed). The insulation resistance measured shall not be less than 20 Mega ohms in any case.

#### CONTINUITY TEST

Check the continuity between connector pins as per wiring diagram using continuity tester.

#### PERFORMANCE TEST

Apply +24VDC from a regulated power supply to the input connector and Check the functionality aspect as per the circuit diagram. The indicator light should emit light as applicable.

#### DIELECTRIC STRENGTH TEST:

Apply 500V AC RMS, 50 Hz between body and each pin of connector for duration of one minute. (Care should be taken to disconnect the negative lead if it is earthed to the body. This test should be applied only to the equipments, which can withstand the HV test. Any electronics circuit, printed circuit board, etc., which cannot withstand this HV test should be disconnected from the circuit). There should not be any breakdown of insulation or

surface spark over. This indicates failure of insulation and warranty rejection after investigation for the cause of failure.

#### CHECK FOR INTERCHANGEABILITY:

Dismantle two units. Then reassemble the units by interchanging minimum 30% of parts/components of the assemblies. The assembly thus reassembled should conform to this specification. During this test parts and assemblies shall be checked for conformity with relevant drawings.

- Note:** i. Vendor to intimate BEML well in advance (Minimum 04 Weeks) with required details before carrying out / Calling for inspection, testing, trials etc.  
ii. BEML / BEML authorized reps and/ or Indian MoD reps will be deputed for inspection, testing, trials etc.  
iii. All quality and internal test/trial documents to be submitted to BEML.  
iv. All the tests to be carried out and test certificates from NABL accredited labs only will be accepted else supply will be rejected.

#### **GENERAL**

- a. In case of contradiction between drawing and specification, drawing is the prime-governing document for overall and mounting dimensions.
- b. The specification is the governing document for carrying out various tests / checks to assess the withstanding ability of the equipment in tracked vehicle applications.

#### **DIMENSIONS**

Overall dimensions and mounting dimensions shall be as per drawing.

#### **IDENTIFICATION**

The unit should have a nameplate. The following particulars shall be marked on it.

- a) Nomenclature of assembly
- b) Part No. /Dwg No.
- c) Batch / Serial No. and Year of manufacture
- d) Manufacturer's Name and Address : BEML Ltd., Defence Business, KGF – 563115

#### **PACKING AND MARKING**

One copy of the packing list to be inserted in each cargo package and mark each package with P.O No. , tem list with quantity, weight, etc.

Proper packing and marking to be made to ensure that there is no damage/loss during the transit.

## 5. SCOPE OF SUPPLY

The scope of supply of Vehicle Fitting Kit (electrical wire harness) to BEML /Drawing Part No. 710 MP 01069 for Mine Plough Sets for Tank T-90 S/SK as per below table

1.	All items of Electrical system of Wire harness as per the PTS and drawings.
2.	2D drawings (Auto cad format in BEML template) of all the Electrical components, wire harness, systems and sub-systems belonging to Electrical Harness
3.	3D models of all the Electrical components, wire harness, systems and sub-systems belonging to Electrical Harness. (step file, igs, CATIA, Pro-e model)
4.	2D drawings & 3D models of lugs & brackets, clamps, wire harness routing ducts and fasteners etc, required to install items belonging to the Electrical Harness if any.
5.	Special Tools and Testing Equipment required for maintenance, repair, overhauling and upkeep of vehicle for Electrical wire Harness/ systems / subsystems.
6.	Test certificates/ reports including internal test trials. Test instrument calibration report to be submitted.
7.	NABL test certificates will only be accepted.

## LIST OF DOCUMENTS

The following documents to be submitted as part of supply of Vehicle Fitting Kit (electrical wire harness)

3 sets of soft copy ( Electronic format) and 3 sets of hard copies for each supply
(a) Technical Literature in English.
(i) User Handbook/Operators Manual
(ii) Design Specifications
(iii) Technical Manuals
Part I. Tech. Description, specifications, functioning of various systems.
Part II. Inspection/Maintenance tasks repair procedures, materials used, fault diagnosis and use of special Maintenance Tools (SMTs)/ Special Test Equipment(STEs)
Part III. Procedure for assembly / disassembly, repair up to component level and safety precautions.
Part IV. Part list with drawing reference and list of SMTs/STEs Test bench
(iv) Manufacturers Recommended List of Spares (MRLS)
(v) Illustrated Spare Parts List (ISPL).
(vi) Technical manual on STE with drawing reference.
(vii) Complete Equipment Schedule.
(viii) Table of Tools & Equipment (TOTE) & carried spares.
(b) One set of Gauges
(c) One set of Special Maintenance Tools (SMTs).
(d) One set of Special Test Equipment (STEs)
(e) Servicing Schedule.
(f) Condemnation limits.
(g) Permissive repair schedule.
(h) Packing specifications / instructions
(i) Design Specifications
(j) Any additional information suggested by the OEM.

## 6. SCOPE OF WORK:

The scope of work includes

**Development, Supply and testing** also modifications if required to the existing systems & Supply of all the Vehicle Fitting Kit to BEML / Drawing Part No. 710 MP 01069 as per scope of supply.

**Note: Supplier has to Develop, Supply and test all the Electrical components, wire harness, system & sub-systems pertaining to the Vehicle Fitting Kit (Electrical Wire Harness). In the event of insufficient details of drawings, technical specifications, standards etc., and any deviation in the selection of material, aggregates, components, systems and sub-system will be in consultation and clearance obtained from BEML before development of item.**

**Note: Supplier has to give complete price break up in the price bid only.**

**7. DELIVERY SCHEDULE:** Staggered delivery i.e., from year 2021 onwards. Details of the same will be intimated in the Purchase Order.



## **8. OTHER TERMS AND CONDITIONS:**

### **8.1 INTELLECTUAL PROPERTY RIGHTS (IPR):**

"The IPR of the entire system developed under this contract will be property of BEML". The Govt. of India will have the marching rights as regards designation of production agency under this contract will however be entitled to license fee/royalty from designated agency as per agreed terms and conditions.

The IPR in respect of overall concept, configuration and design of Mine Plough sets for T-90 S /SK and its variants, their manufacturing & production rights will be held by BEML. In addition to the above, following terms also to be complied.

a) The ownership of Background Information and Background Intellectual Property Rights, created by the Parties prior to the Contract, shall rest with the owning PARTY. However the Parties shall be deemed to have royalty free, all paid up and non-exclusive license to use each other's Background Information and Background Intellectual Property Rights for the purposes of the Development work performed under this Contract.

b) The ownership of Foreground Information and Foreground Intellectual Property Rights shall be owned by the BEML. However, PARTIES shall be deemed to have a royalty-free, all paid up license to use each other's Foreground Information and Foreground Intellectual Property Rights for the purposes of development work performed under this Contract.

c) All documentation considered, as Background Information as well as Background Intellectual Property Rights shall be marked accordingly. However, lack of marking as required above shall in no event derogate from the owner's right in the applicable Background Information as well as Background Intellectual Property Rights under the Contract.

d) All documentation considered, as Foreground Information as well as Foreground Intellectual Property Rights shall be marked accordingly. However lack of marking as required above shall in no event derogate form the owner's right in the applicable Foreground Information as well as Foreground Intellectual Property Rights under the Contract.

e) BEML shall have all rights including a non-exclusive, irrevocable, royalty-free and all paid-up license for development, product maintenance, continuing engineering support, product improvement, by itself in any and all Background Information and Background Intellectual Property Rights as well as Foreground Information and Foreground Intellectual Property Rights of the PARTIES, whether or not legally protected, for the purposes of Defense as well as other applications in all countries including India.

f) In the event of Contractor wishing to carry, use or deploy and Foreground Information and Foreground Intellectual Property Right, in any country including India, explicit approval of the BEML to this Contract would be taken in advance.

g) The prices stated in the present Contract shall be deemed to include all amounts payable to Contractor for the use of any and all of its Background Information and

Background Intellectual Property Rights, Foreground Information and Foreground Intellectual Property Rights, whether legally protected or not, including but not limited to patents, copyrights, registered and unregistered designs, trademarks etc. for the purposes of the work performed under this Contract.

h) Contractor warrants and assures the Government that to the best of its knowledge there is no infringement of any Intellectual Property Rights including but not limited to Patent, Copyright, Design, Trademark or any other legal rights occasioned by supply, transfer manufacturing, use of any Deliverables including Information, Technology Equipment, Documentation of Contractor.

i) Contractor undertakes to indemnify Government against all costs, expenses and claims for damages made by any third party at any time arising from infringement of any Intellectual Property Rights including but not limited to Patent, Copyright, Design, Trademark or any other legal rights occasioned by supply, transfer, manufacturing, use of any Deliverables including Information, Technology, Equipment, Documentation of the Contractor. In the event of any such claim or suit or any other proceedings by any third party, Contractor at its own cost agrees to:

i. Negotiate an agreement with such third party so that Deliverables including equipment, information, technology under the Contract no longer infringe upon any Intellectual Property Rights including but not limited to Patent, Copyright, Design, Trademark or any other legal rights of such Third Party.

ii. Modify at his own cost the Deliverables including equipment, documents, information, technology under the Contract suitably or to substitute suitably the same thereafter subject to the full satisfaction and requirement of Government.

iii. Defend any claim, suit or proceeding at their own cost and expenses and satisfy the decree/order in any such claim, suit or proceedings at their own expenses and cost.

iv. Provisions of the above shall survive the expiry or termination of the present Contract.

## 8.2 WARRANTY

Notwithstanding inspection & acceptance by BEML of the hardware under this contract or any clause concerning the conclusiveness thereof, OEM shall provide warranty for a period of 36 months from the date of delivery, that hardware is free from defects/failures due to workmanship, material or manufacturing non-conformance. The OEM shall be responsible for any defect or failure of equipments provided in the Items, special tools, test and diagnostic equipment, maintenance and unit exchange spares due to defective design, material or workmanship.

The repair and/or replacement of failed components and installation of repaired/replaced components shall be taken by the OEM on his own charge at the Site (BEML' works, India).

The OEM shall bear custom duty, freight charges and all other expenses involved in collection of defective components and equipment from the Site, and transportation to the manufacturer's works in India and its return to Site after repairs.

Further, OEM should do any design modification required to any components or equipment as a consequence of failure analysis and modification shall be carried out free of charge.

The OEM shall carry out all replacement and repairs under the warranty promptly and satisfactorily on notification of the defect by BEML immediately.

### **8.3 MATERIALS AND WORKMANSHIP**

The OEM shall be responsible for meeting the requirement of constructional details, materials & workmanship. All materials and workmanship shall be in every respect in accordance with the proven up-to- date best practice.

All the components used in the construction of this supply shall be from fresh and present stock and not from older stocks. OEM shall provide necessary material certificate to this effect.

100% visual inspection of all components shall be carried out and the components/assemblies shall be free from any defect. Stage inspection should be carried out. All threaded fasteners should turn freely without jamming and to be lubricated wherever called for.

### **8.4 TRAINING**

Guidelines on Packing/Unpacking of the system, installation, calibration, configuration system, operating procedure, System level testing Maintenance philosophy at field level/depot level should be available in the manual, The same must be given in hard and soft copy with necessary training at free of cost. The manual shall contain comprehensive instructions for the operation and maintenance requirements/ trouble shooting, Dos and Don'ts.

### **8.5 MAINTAINACE**

- The manufacturer shall provide BEML with any alignment or service procedures that need to be performed in order to guarantee the continued proper operation of the unit.
- Test points and indicators shall be provided for the operator to perform these routine checks and alignments.
- These test points and indicators shall be readily accessible and marked for ease of use.
- The supplier shall update the procedures as necessary and provide such updates.

### **8.6 PRODUCT SUPPORT:**

The OEM shall be required to confirm that he is in a position to provide product support in terms of maintenance, material, and spares for a period of minimum 30 years. The OEM must provide at least 2 Years notice to BEML before closing the production line so as to enable "LIFE TIME BUY" of all the material & spares before closure of the production line. All upgrades & modifications carried out on the equipment during the life cycle must be intimated to buyer.

**Note:** This Project, PTS document and drawings, vendor / supplier should not disclose and share with other parties without obtaining prior written permission from BEML Ltd.,.

ii. Vendor should comply all the points of this PTS document and must attest signature and seal on all the pages of this PTS document and Technical Evaluation matrix at Annexure I.

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