

INTEGRATED HEADQUARTERS OF MINISTRY OF DEFENCE (NAVY)
DIRECTORATE OF ARMAMENT PRODUCTION AND INDIGENISATION

INVITATION FOR EXPRESSION OF INTEREST (EOI)

INDIGENOUS DEVELOPMENT OF 'LIMPET MINES
MK-414 (7KG) AND MK-430 (15 KG)'

Reference : Defence Acquisition Procedure 2020 (DAP 2020)

Appendices:

Appendix 'A'	:	Indigenous Content aspect.
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Introduction

1. Indian Navy has been focusing on developing indigenous platforms, equipment and systems/sub-systems/components towards achieving enhanced self-reliance. This Expression of Interest (EOI) invites responses from eligible Indian Companies for indigenous development of Limpet Mines Mk-414 (7 kg) and Mk-430 (15 kg) (here and after referred as Limpet Mine (07 Kg and 15 Kg)) for Indian Navy. The present proposal for development of Limpet Mine (07 Kg and 15 Kg) under Make-II category is termed as 'Project Limpet Mine (07 Kg and 15 Kg)'. **Project Limpet Mine (07 Kg and 15 Kg) is designed to provide certain operational capabilities to the Navy.** The Ministry of Defence (MoD), Govt of India, shall own Project Limpet Mine (07 Kg and 15 Kg). The information regarding the project will be shared strictly on 'Need to Know' basis. This prototype (Qty **Two sets each of 07 Kg and 15 Kg**) development of Limpet Mine (07 Kg and 15 Kg) has been approved as a 'Make-II' category project. Subsequent procurement will be under the '**Buy (Indian-IDDm)**' category. The project is reserved for MSMEs as stipulated in Para 12 of Chapter III of DAP 2020.

Objective

2. The objective of this EoI is to seek responses from eligible Indian industries and to shortlist potential companies. Responses to EoI will be evaluated as per the assessment criteria given in the EoI. Project shall be progressed ahead even if only one EoI respondent is found meeting the eligibility criteria.

Layout

3. The EoI has been covered under the following parts:-

- (a) Part I : General Information
- (b) Part II : Technical Requirements
- (c) Part III : Critical Technology Areas
- (d) Part IV : Eligibility Criteria
- (e) Part V : Assessment Parameters
- (f) Part VI : Evaluation Criteria of Assessment Parameters
- (g) Part VII : Documents to be submitted by EOI Respondents
- (j) Part VIII : Queries and Clarifications
- (k) Part IX : Miscellaneous

PART I: GENERAL INFORMATION

4. The project, i.e. indigenous development of '**Limpet Mines Mk-414 (7 kg) and Mk-430 (15 kg)**' has been approved under the 'Make-II' category for prototype development (Qty two sets of each type – 07 Kg and 15 Kg) and for subsequent procurement of **50 mines of 07 Kg type and 100 mines of 15 Kg type along with accessories** under the 'Buy (Indian-IDDm)' category as per DAP 2020. Details of the stages involved in the development process are enumerated in Chapter III of DAP 2020. The progress of the project will be monitored by the Project Facilitation Team (PFT) of Indian Navy/MoD constituted for this purpose. PFT will act as interface between India Navy and Industry during the design and development stage of the project. **No reimbursement of development cost is permissible under Make-II scheme.**

5. The quantities are appended as under:-

(a) Quantity for **Prototype Development Phase** is as under:-

SNo	Item	07 Kg Variant	15 Kg Variant
(i)	Limpet Mine	2	2
Accessories			
(ii)	Magnet	01	01
(iii)	Nail Shooter	01	01
(iv)	Backpack (one mine)	01	01
(v)	Backpack (two mines)	01	01

(b) Quantity in **Procurement Phase** under Buy(Indian-IDDM) is as under:-

SNo	Item	07 Kg Variant	15 Kg Variant
(i)	Limpet Mine	50 nos.	100 nos.
Accessories (Qty in numbers)			
(ii)	Test Set	03	
(iii)	Magnet	35	70
(iv)	Nail Shooter	15	30
(v)	Backpack (one mine)	10	20
(vi)	Backpack (two mines)	20	40

6. **Eligibility to Respond.** The EoI can be responded to by an Indian Vendor, as described in **Appendix 'C'** and Part IV of this EoI.

7. **Indigenous Content.** Vendors offering indigenously designed, developed and manufactured product having minimum of 50% Indigenous Content (IC) on cost basis of the base contract price are eligible. Apart from overall IC as detailed above, the same percentage of IC will also be required in (a) Basic Cost of Equipment; (b) Cost of Manufacturers' Recommended List of Spares(MRLS); and (c) Cost of Special Maintenance Tools (SMT) and Special Test Equipment(STE), taken together at all stages, including FET stage. For IC on cost basis, vendor should ensure compliance as detailed in **Appendix 'A'** and furnish a certificate as per **Annexure 1 to Appendix 'A'**. For Indigenous Design, the vendor is required to furnish 'Undertaking to Comply with Indigenous Design', placed at **Annexure 2 to Appendix 'A'**. Compliance to percentage IC and Indigenous Design will be ensured by the PFT during User Trial Readiness Review (UTRR).

8. **Embedded Software.** Wherever software is used, details of the software including Source Code and Firmware Support Manual for embedded software shall be provided. All supplied software should be verified & validated by OEM for use of the designated Production Agency/DA. Further, the software must meet the requirements of IEEE 12207 as specified in Para 27(s).

9. **Intellectual Property Rights (IPRs).** Intellectual Property Rights of Government in "Make" projects are placed at **Appendix 'B'**. Development Agency/Agencies (DA/DAs) shall retain title or ownership and all other rights in intellectual property generated during the development of project. However, the Government shall have March-in rights under which the Government can require the contractor to grant, or may itself grant license for, inter alia, the following reasons:-

- (a) Where health and safety requirements so require the Government to act in public interest;
- (b) For National Security Reasons;
- (c) To meet requirements for public use not reasonably satisfied by the contractor;
- (d) For failure of the contractor to substantially manufacture the products embodying the subject invention in India; or
- (e) For failure of the contractor to comply with any of the requirements laid down under these guidelines.

10. **Foreign Collaboration.** If the DA(s) collaborate(s) with a foreign firm as a technology provider in a certain technology area for the project, the nature of such collaboration and the technology areas being transferred must be clearly stated in the response. *The contribution of the Indian industry in acquiring, developing and indigenising, including designing critical technologies (safety mechanism, etc) shall be one of the key criteria in assessment of various proposals.*

11. No component or any sub system of Limpet Mine (07 kg and 15 Kg) shall be subjected to any type of inspection or audit by any Foreign Govt or Agency without prior approval of MoD, Govt of India.

12. A trusted supply chain that will include the engineering support requirements would be established for all components of Limpet Mine (07 kg and 15 Kg). All documents related to the Limpet Mine project are liable to be audited by Indian Govt or its nominated agency.

13. Detailed information about blacklisting of the company/consortium partners and foreign technology partner by any Govt Agency in India/ any other country would be provided as part of the response. Companies currently blacklisted by any Indian Govt Agency are ineligible for participation. Any such information not disclosed but revealed at a later stage would render the Company/Consortium ineligible for further participation.

14. **Time frames and critical activities.** The important time frames and critical activities for the Project Limpet Mine (07 Kg and 15 Kg) are as follows:-

<u>SNo</u>	<u>Activity</u>	<u>Time in weeks for each activity</u>
(a)	Eol Response Submission	T_0
(b)	Eol Response Evaluation	$T_1 = T_0 + 04$
(c)	Issue of Project Sanction Order	$T_2 = T_1 + 02$
(d)	Design & Development of prototype including User Trial readiness Review (UTRR) by PFT	$T_3 = T_2 + 72$
(e)	Conversion of Preliminary Staff Qualitative Requirements (PSQRs) to SQRs	$T_4 = T_3 + 04$

<u>SNo</u>	<u>Activity</u>	<u>Time in weeks for each activity</u>
(f)	Solicitation of Commercial Offer	$T_5 = T_4 + 04$
(g)	User Trials	$T_6 = T_5 + (16 \text{ to } 24)$
(h)	Completion of Staff Evaluation	$T_7 = T_6 + 04$
(j)	Acceptance of Trials/ Staff Evaluation Report	$T_8 = T_7 + 02$
(k)	Finalisation of CNC Report	$T_9 = T_8 + 06$
(l)	Signing of Contract	$T_{10} = T_9 + 02$

15. **Milestones of the Project.**

(a) **Evaluation of Eol Responses.** Eol responses will be evaluated in accordance with assessment parameters and evaluation criteria given in Part V & VI of the Eol. All the shortlisted companies will be called Development Agencies (DAs). The project is presently reserved for MSMEs, however if at least two MSMEs do not respond, the Project shall be opened up for all, under the condition that interested MSME(s), if any at that stage and meeting the eligibility criteria, will get preference over Non-MSMEs in selection of Das. Project shall be progressed ahead even if only one Eol respondent is found meeting the eligibility criteria.

(b) **Project Sanction Order.** PFT will issue Project Sanction Order for the development of prototype with **Nil** financial implication for Indian Navy/MoD. In case of only single vendor having offered the developed prototype ready for user trials within timelines stipulated in the Project Sanction Order, not more than two time extensions will be accorded and thereafter the case is to be progressed as resultant Single Vendor Case (SVC).

(c) **Design and Development of Prototype.** PFT will act as the primary interface between the Indian Navy and the industry during the design and development stage under Make-II subcategory projects and facilitate the following:-

- (i) Finalisation of trial methodology.
- (ii) Provision of requisite professional inputs/documentation (if feasible/available with **IN**) to industry.
- (iii) Providing clarifications related to functional or operational aspects of the store under development, as may be sought by the DAs from time to time, during the design and development of prototype.
- (iv) Additionally, following indicative milestones are envisaged for the design and development activities:-

<u>SNo</u>	<u>Activity</u>	<u>Timeline for each activity after issue of Project Sanction Order (PSO) – T₀</u>
(aa)	Submission of Design Document (DD), Activity Flowchart and QAP to PFT	$T_1 = T_0 + 24$
(ab)	Preliminary Design Review	$T_2 = T_1 + 08$

(ac)	Critical Design Review & submission	$T_3 = T_2+08$
(ad)	Prototype Assembly	$T_4 = T_3+08$
(ae)	Lab Tests and QTs, ESS, En Test, EMI/ EMC	$T_5 = T_4+16$
(af)	Submission of Documents (Technical Description, Maintenance & Operation Manual, etc)	$T_6 = T_5+06$
(ag)	UTRR	$T_7 = T_6 + 02$
(ah)	Prototypes (02 sets each of 07 Kg and 15 Kg Mine) Ready and UTRR completed	(aa) to (aj) = 72 weeks
(aj)	Field Evaluation Trials (FETs)	
(ak)	Staff Evaluation	

Note:-

- These timelines may be altered as per convenience of DA, subject to overall timeline Prototype Development of 72 weeks being met.
- The Development Agency (DA) will be required to render a Quarterly return to the PFT on the progress of the project. The report would contain details of activities undertaken in the given quarter and activities envisaged in the upcoming quarter with Estimated Date of Completion (EDC).

(d) **Finalisation of Staff Qualitative Requirements (SQRs).** PFT will facilitate the finalisation of preliminary SQRs to final SQRs prior to commencement of user trials. The specification of the store would therefore be a part of the trial directives, and only the essential parameters as detailed in the specification will be tested.

(e) **Solicitation of Commercial offers.** A commercial Request for Proposal (RFP) for 'Buy (Indian-IDDMM)' phase will be issued to all DAs for submission of their commercial offer prior to commencement of User trials. A **User Trial Readiness Review (UTRR)** will be conducted at all the firms premises which are ready with the prototype, by the Project Facilitation Team in order to establish completion of development of prototypes along with test certificates in lines of mandated specifications. This would include all destructive/ non- destructive checks by the NABL/QA agencies on the prototype.

(f) **User Trials.** User trials would be carried out by Indian Navy/PFT to validate the performance of the store against the parameters/ packing specifications approved after the development of prototype. Indian Navy will formulate the trial directives and constitute the Trial Team. The trial directive will specify the fundamental points that need to be addressed for validating the 'essential' parameters. The validation of the support system and maintainability trials, integral to and complementing the trial programme of the defence equipment/upgrades/product/system should be held simultaneously, wherever feasible. **Two sets of prototypes of each type** of Limpet mine (07 Kg and 15

Kg) are envisaged for prototype development (refer Para 5(a) above) including user trials. Documents regarding no. of prototypes used for certain development may be produced to the UTRR team. The user trial location will be informed prior trials. Safe to use certificate should be forwarded by the development agencies. Trial Methodology is placed at **Appendix 'J'**.

(g) **Staff Evaluation.** Based on the User trials, the Indian Navy would carry out a Staff Evaluation, which gives the compliance of the demonstrated performance of the store vis-à-vis the specification. On the acceptance of Staff Evaluation report, the specification shall form the basis for the 'Buy (Indian-IDDM)' category of acquisition. If the prototypes of only a single firm/individual clears the trials, the project will be progressed as resultant single vendor.

(h) **Award of Contract.** Commercial offers of only those DAs/vendors will be opened whose store has been short-listed consequent to Staff Evaluation and the L1 bidder would be determined based on the provisions of the Commercial RFP and awarded the contract for manufacture.

16. Once the prototypes are successfully validated, Fifty (50) Limpet mines of 07 Kg type and One Hundred (100) Limpet mines of 15 Kg type along with accessories [as per Para 5(b)] shall be procured by MoD, Govt of India under **Buy (Indian-IDDM)** category. Delivery of the Limpet Mines (07 Kg and 15 Kg) shall be in a phased manner.

17. **Multiple Technological/ Source Solutions** are not applicable. Other successful vendor(s) will be issued a certificate by the DDP indicating that the product has been successfully trial evaluated, to facilitate vendors to explore other markets. This is in accordance with Para 21 of Ch III of DAP 2020.

PART II: TECHNICAL REQUIREMENTS/ PSQRs

18. **Scope of the Project.** The scope of Project Limpet Mine (07 Kg and 15 Kg) includes carrying out Indigenous design and development (with min. 50% IC on cost basis of the base contract price) of effective and reliable Limpet Mines (07 Kg and 15 Kg).

Essential Parameters – A

19. **Operational Requirements**

(a) A Limpet mine is an underwater charge incorporating a time delay exploder intended to be fixed to a hull of ship/ submarine magnetically or with the help of nylon belt. The mine is meant for offensive use by diver in underwater sabotage operation. It is also easilt carried on a chariot.

(b) The mine is placed at specific points of ships underwater hull for maximum destructive effect with the help of powerful magnets. After arming, the mine detonates at a set time and explosive charge damages the hull affecting the watertight integrity of the vessel thereby crippling the ship and rendering it non-operational or even sinking the ship. The mine should be deployable upto a minimum depth of 30 metres.

(c) **Proposed Service Employment.** Limpet mines (07 Kg and 15 Kg) are explosive charges designed to attack submarines, warships and merchant ships riding at anchor or moored along the pier, as well as port installations, pipelines or off-shore drilling platforms.

Technical Parameters

20. **Design.** The limpet mines MK 414 (7 Kg) and Mk-430 (15 Kg) should be designed for their intended operational exploitation. The salient features are as follows:-

(a) The shell body should be light, waterproof, non-hygroscopic, non-magnetic and compatible with the explosive filling. The shape should be hemispherical/conical and be designed for low hydro-dynamic resistance for ease of movement of diver.

(b) The diver should be able to carry at least two mines with minimum resistance. Suitable backpack and/or non-magnetic carabineer should be provided for carrying of mines by diver.

(c) The mine should be negatively buoyant in sea water and sink in the event of release of mine by diver in water.

(d) The arming delay can be manually set by the diver through a mechanical and electronic timer and can be changed any time (in air and in water) until the arming sequence has started, which would entail removal of safeties and starting of timer.

(e) The mines are to be provided with attachment mechanisms (magnets, suction plugs, nylon strap, silent nail shooters) to allow easy attachment to steel, GRP and wooden targets. In addition, an inflatable rubber tube should be provided to give the mine the positive buoyancy sufficient for hard sticking, in case of non-adherence of the magnets.

(f) The mine should have powerful magnet/s to facilitate attaching the mine to the steel hull of target ship. The mine should remain attached to the bottom of an operational ship with marine growth in tropical waters, barnacles etc. and sustain a speed of upto 6 knots. These magnets should have the capability to lift loads in excess of 30 Kgs when lifted vertically and should be capable of re-magnetisation.

(g) The mines should have inbuilt anti-tampering devices including mechanical anti-removal device, making it resistant to countermeasures.

21. The shape and size of the mine should be in accordance to the sketch at **Appendix 'G'**. Each mine is to be packed in a fibreglass box of suitable dimensions and in accordance to sketch at **Appendix 'H'**.

22. **Essential Parameters.** The essential requirements of Limpet Mine Mk 414 (7Kg) and Mk-430 (15 Kg) are as follows:-

SNo	Parameter	Specification	
		07 Kg Mine	15 Kg Mine
(a)	Shape	Hemispherical	
(b)	Diameter at Base	Not more than 350mm	Not more than 420 mm
(c)	Overall height	Not more than 200mm	Not more than 230 mm
(d)	Weight in air	Not more than 12 Kg	Not more than 20.5 Kg
(e)	Weight in water	Not more than 0.5 Kg (negatively buoyant)	
(f)	Weight of explosive filling	7 Kgs equivalent of TNT	15 Kgs equivalent of TNT
(g)	Type of Explosive	Insensitive Munition and compliant with STANAG 4439	
(h)	Operating Depth	Up to 30 m	
(j)	Transportable Depth	Up to 60 m	
(k)	Water Tight Integrity	Up to Transportable depth	
(l)	Arming Delay setting	Mechanical-30 min Electronic-Up to 10 days	
(m)	Life	10 yrs (Maintenance Free)	
(n)	Operating Temperature	-15°C to +50°C.	
(p)	Relative Humidity	90%	

23. **Safety Mechanism.** The mine should have suitable mechanical and electronic safety mechanisms to ensure safety during storage, transportation and operation. The safety requirements are:-

- (a) **Start Safety.** A safety lock/ arming pin should be provided to keep the mine in unarmed condition and prevent inadvertent activation.
- (b) **Out of line Explosive Chain Safety.** The detonator is to be isolated from the booster/intermediary explosive by a mechanical interlock.
- (c) **Arming Delay.** The explosive chain is to be aligned only after a preset delay of minimum 30 minutes to provide adequate time for the diver to move away from the target.
- (d) **Detonator Short Circuit Safety.** To prevent accidental initiation, the detonator assembly is to be kept short circuit and removed only on arming.
- (e) **Electronic Safety.** The electronic circuit should be designed to ensure that firing circuit is energised only when all firing conditions are met.
- (f) **Sterilization Safety.** In case of misfire, the sterilization process should move the fuze back into safety condition.

24. **Anti - Tampering Feature.** The mine should have an anti-removal/ anti-tampering device which should actuate when an attempt is made to dislodge it from

the target surface. In case the anti-tampering device is not activated, the mine can still be removed by the user, if its within the time set.

Maintenance and Ergonomic Parameters

25. **Maintenance.** The mines should be maintenance free during the service life of 10 years. The maintenance methodologies/ schedules should be provided in the form of manuals.

26. **Built-in-Test Equipment.** The mine should have an inbuilt test to verify/ test its correct functioning. The test should be capable of being undertaken at any time (in air and in water) without any additional test equipment.

27. **Specifications.** The mine should conform to the following specifications or their latest version/ equivalents as updated from time to time:-

<u>Ser</u>	<u>Standard/ Specification</u>	<u>Details</u>
(a)	MIL-Q-9858A	Quality Assurance Program Requirements.
(b)	MIL-STD-202	Test Methods for electronics and electrical component Parts.
(c)	MIL-STD-242	Electronic Equipment Parts.
(d)	MIL-STD-454Cs(Ch2)	Standard General Requirements for Electronic Equipment.
(e)	MIL-STD-461G	Electromagnetic Interference Characteristics requirements for Equipment.
(f)	MIL-STD-462	Electromagnetic Interference Characteristics Measurements.
(g)	MIL-STD-470	Maintainability Program Requirements (for systems and equipment).
(h)	STANAG 4497	Hand Emplaced Munitions-Principles of Safe Design
(j)	STANAG 4439	Policy for Introduction and Assessment of Insensitive Munitions
(k)	MIL STD 2105C	Hazard assessment tests for non nuclear Insensitive Munitions.
(l)	MIL DTL 23659	Initiators, electric, general design specifications.
(m)	NSS 1/Shock Grade `A`	Shock Standards
(n)	MIL STD 810 G	Environmental Tests for High Temperature, Low Temperature, Humidity, Salt, Mould Growth, Shock Standards, Vibration, Immersion and Sealing.
(p)	MIL STD 2164	Environmental Stress Screening.
(q)	MIL STD 1686C	Electrostatic Discharge Control Program.
(r)	MIL-STD-756A	Reliability Prediction.

<u>Ser</u>	<u>Standard/ Specification</u>	<u>Details</u>
(s)	IEEE 12207	Software Standard, Configuration Management
(t)	MIL STD 331B	Environmental and Performance Tests for Fuze and Fuze components.
(u)	MIL STD 1377	Measurement of Effectiveness of Cable Connector, weapon enclosure shielding and filters in precluding Hazards of EM radiation to ordnance.
(v)	MIL STD 882C Para 4	Standard Practice for system Safety.
(w)	MIL STD 1316	Fuze design safety criteria.

28. **Life Extension.** The mine (life limited by assemblies) should be fully amenable to life extension after 10 years, to resume an extended shelf life of atleast 05 years.

Essential Parameters – B

29. The Essential Parameters - B are as follows:-

- (a) The explosive used in mine should employ 'shape charge' techniques to increase penetration.
- (b) The mine should have the capability of remote detonation for its use as a demolition charge.
- (c) The batteries used for powering up the mine should be commercially available.
- (d) The mine should have multiple layered fabricated casing with a light but stronger material.

30. **Variants.** Apart from the combat mines, following variants should be available in addition:-

- (a) **Practice.** The practice variant is similar to the combat version with the explosive charge replaced by an inert charge. It is meant for use by divers for familiarisation with handling and operation. The colour of the mine may be kept different for easy identification. Further, necessary indicators are to be provided in the mine to indicate arming, operation etc.
- (b) **Drill.** It is a dummy equivalent to combat mine in weight and is meant purely for carrying/ training of personnel during peace time exercises.
- (c) Cut-out models should be provided for instruction purpose.
- (d) Complete circuit diagram of the mine should be provided for instruction purpose.

PART III: CRITICAL TECHNOLOGY AREAS

32. The capability assessment of the DAs will largely depend on their ability to design and develop critical sub-components like Electronic circuits, Electronic and Mechanical timing device, detonator, booster, Anti-tampering device and other design features as per Para 20 and Safety mechanisms as per Para 23. It is imperative that the project attains complete independence in providing Indian Navy with Limpet Mines (07 Kg and 15 kg) with high reliability, safety and assured shelf life of 10 years. **The contribution of the Indian industry in acquiring and developing technologies in critical areas (safety mechanism, etc), shall be a key criterion in assessment of the proposal.**

33. The assessment of critical technologies for the Project Limpet Mine (07 Kg and 15 Kg) offered by the DA(s) must be supported with all Rights and Licenses (IPR) as mentioned at **Appendix 'B'**.

Miscellaneous Provisions

34. Any violation of any of the guidelines by any company shall render it liable to initiation of proceedings for suspension and/or banning of business dealings as per the Guidelines for Putting on Hold, Suspension, Debarment and any other penal action on the Entities dealing with the Ministry of Defence, as promulgated by Government from time to time, will be applicable on procurement process and bidders.

PART IV: ELIGIBILITY CRITERIA

35. **Reservation for MSMEs.** The Project Limpet Mine is earmarked for MSMEs. However, if at least two MSMEs do not express interest for the Make programme earmarked for them, the same shall be opened up for all, under the condition that interested MSMEs, if any at that stage and meeting the eligibility criteria, will get preference over Non-MSMEs in selection of DAs in accordance with Para 12 of Chapter III of DAP-2020.

36. 'Indian Vendor' as defined at **Appendix 'C'** shall be considered eligible for issue of EoI by the PFT.

37. Start-ups recognised by the DPIIT are eligible for the project. Start-ups registered under the following categories and industry domains are eligible:-

- (a) Categories.
 - (i) Engineering
 - (ii) Manufacturing
 - (iii) Research
 - (iv) Government

- (b) Industry Domains.
 - (i) Aeronautics/Aerospace & Defence
 - (ii) Technology Hardware

38. This EoI is being published on MoD/DDP website inviting Companies to participate in the 'Make-II' project and also issued to the potential vendors who have indicated willingness during the Feasibility Study to participate in the development of Limpet Mines.

39. **Vendors are required to be compliant to Chapter III of DAP 2020 published on www.mod.gov.in**

PART V: ASSESSMENT PARAMETERS

40. The assessment of the EoI responses would be based on the Evaluation Criteria, which are elaborated in the succeeding paragraphs:-

41. **Technical Capability Criteria.** The Project Limpet Mine (07 Kg and 15 Kg) is a store which will require sound knowledge of hardware technology, explosive characteristics and qualification methodologies. The DA(s) should have a good understanding of Project Management, required for the development of Limpet Mines (07 Kg and 15 Kg). The contribution of the DA in acquiring and developing technologies in critical areas (safety mechanism, etc) shall be an important criterion in assessment of the proposal. The respondents to this EoI (including start-ups) are required to furnish information about their technical capabilities as per **Appendix 'D'**.

PART VI: EVALUATION CRITERIA OF ASSESSMENT PARAMETERS

42. **Evaluation Criteria for All Entities.** The responses to this EoI will be evaluated based on the assessment parameters given at **Appendix 'D'** and information as per **Appendix 'E'** to identify Companies with proven R&D, Indigenisation and Technical strengths and capabilities. The weightage for each of the criteria and sub-criteria at **Appendix 'D'** would be finalised by the Project Facilitation Team.

43. **MoD, Govt of India reserves the right to modify these criteria at any time before the responses are opened for evaluation.** MoD, Govt of India also reserves the right to disqualify a respondent if they fail to comply with specific criteria at any stage of the evaluation process by the PFT. **No amendment/ change in response to EoI will be accepted under any circumstances once the EoI response is submitted.**

Note 1. Details regarding proposed expenditure/establishment of facilities/lab etc. are liable to be included in the contract in case the Company gets shortlisted for development of Limpet Mine (07 Kg and 15 Kg).

Note 2. Company giving False/Misleading information will be barred from participation in Project Limpet Mine (07 Kg and 15 Kg).

PART VII: DOCUMENTS TO BE SUBMITTED BY EoI RESPONDENTS

44. Following documents are required to be submitted by EoI respondents:-
- (a) Annexure I and II of Appendix 'A'.
 - (b) Appendix 'D' (Technical Capability Criteria).
 - (c) Appendix 'E' (Information Performa)
 - (d) Certificate as per Appendix 'F'.
 - (e) Documents in proof of Evaluation Criteria (i.e. Technical capability)
 - (j) MSME certificate, if claiming to be MSME. Start-ups are to submit their certificate in specified domain registered with DPITT.

45. The EoI respondents shall submit three (03) copies of response to EoI, clearly marking one copy as 'Original Copy' and the remaining two as 'Copy No 2 & 3'. The respondents are also required to submit a soft copy of the response to EoI in a CD/ DVD. In the event of any discrepancy between the content in copies of documents submitted, the contents in the 'Original Copy' shall govern/prevail. Each page of the response will bear the signatures of the authorised signatory of the Company.

46. **Guidelines for Submitting EoI Responses.**

(a) The responses should be submitted strictly as per the formats given in respective appendices along with Certificate at **Appendix 'F'**. Should a Vendor need to mention any other information, a separate column may be added as the last column only.

(b) All response appendices should be submitted in a single file/folder. Supporting documents/additional reference should be submitted in a separate folder with proper reference mentioned against each parameters/sub parameters/sub sub parameters in respective appendices.

(c) Any supporting document/evidence without any reference to specific parameter of criteria will not form part of the assessment.

47. The envelopes shall be addressed as under:-

Chairman, PFT
Project Limpet Mines (07 Kg and 15 Kg)
Directorate of Armament Production & Indigenisation
IHQ MoD (Navy)
West Block-V (FF), Wing-5
RK Puram, New Delhi 110 066
Email: dapi.ihq@navy.gov.in Ph: 011-26194691

48. The response to this EoI must be submitted by **1530 hrs** on **25 Oct 21** at the address mentioned above.

49. MoD, Govt of India at its discretion can extend this deadline for the submission of responses to Eol and the same shall be notified in writing.

PART VIII : QUERIES AND CLARIFICATIONS

50. Following aspects will govern the procedure for queries and clarifications:-

(a) **Companies may submit written queries/clarification/ amplifications on specific issues by 06 Oct 21.** Consolidation and examination of the queries received will be carried out by the PFT and clarification will be given to all the industries during the pre-response meeting.

(b) **Pre-Response Meeting.** A pre-response meeting is scheduled on **11 Oct 21 at 1500 hrs** at Directorate of Armament Production & Indigenisation, West Block-V (FF), Wing-5, RK Puram, New Delhi 110 066 to clarify the issues/ queries raised to facilitate submission of response.

(c) If deemed necessary, a written reply may be given to all respondents after the meeting.

PART IX: MISCELLANEOUS

51. This Eol is being invited with **no financial commitment** on part of the Govt. of India/ MoD. Govt of India reserves the right to withdraw or change or vary any part thereof at any stage. MoD, Govt of India also reserves the right to disqualify any company should it be so necessary at any stage on grounds of national security.

52. Respondent would be disqualified if they make false, incorrect, or misleading claims in their response to this Eol. A certificate as per the format at **Appendix 'F'** would be furnished as part of the response, including respective partners, where applicable.

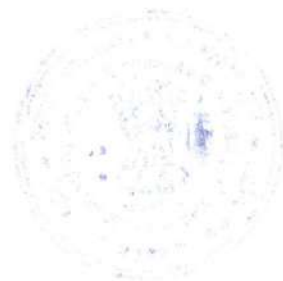
Note. The above guidelines are to be read in conjunction with the guidelines under Chapter III of DAP 2020.



(Abhinav Badhwar)
Lieutenant Commander
Secretary, PFT
Project Limpet Mines (07 Kg and 15 Kg)
for Chairman PFT

Enclosure: - Appendices 'A' to 'J'

Distribution: - Shortlisted vendors & hosted on MoD/DDP website



INDIGENOUS CONTENT ASPECTS

Definitions.

1. 'Indigenous Content'(IC) for an equipment or an item shall be arrived at by excluding from the total cost of that equipment/item the following elements at all stages (tiers) of manufacturing/production/assembly:

(a) Direct costs (including freight/transportation and insurance) of all materials, components, sub-assemblies, assemblies and products imported into India.

(b) Direct and Indirect costs of all services obtained from non-Indian entities/citizens.

(c) All license fees, royalties, technical fees and other fees/payments of this nature paid out of India, by whatever term/phrase referred to in contracts/agreements made by vendors/sub-vendors.

(d) Taxes, duties, cess, octroi and any other statutory levies in India of this nature.

2. Further, "on cost" basis for 'Buy (Indian IDDM)' shall imply that IC is required as specified under Para 8 of Chapter I of DAP 2020, read with additional specific requirements in this regard, if any, mentioned in the EoI/RFP.

Reporting Requirements.

3. IC as defined in Para 1 and 2 above shall be mandatorily reported by all stages(tiers) of manufacturing/production/assembly to their higher stages(tiers). All stages(tiers) are required to aggregate IC based on certifications and inputs from lower tiers, as well as on the basis of their own procurement actions and manufacturing activities undertaken. The final aggregation of IC shall be undertaken by the prime(main) contractor with whom an acquisition contract is signed by the Ministry/SHQ.

4. All contracts, sub-contracts, agreements and MoUs made by prime(main) contractors (and their lower tier suppliers/vendors) with their business partners/suppliers, insofar as these contracts, agreements or MoUs relate to the main acquisition contract, shall mandatorily incorporate the definition and reporting requirements for IC in terms of Para 3. Similarly, these business partners/suppliers shall sequentially incorporate these definitions and reporting requirements with their next levels of business partners/suppliers and so on, till the lowest tier in the manufacturing/production/assembly chain.

Audit.

5. The Ministry of Defence can exercise its right to conduct an audit of all certifications and costs relevant to IC at all or any stages (tiers) of manufacturing/production/assembly, starting from the prime(main) contractor downwards. The audit(s) could be conducted by the Ministry itself and/or by an agency/institution/officer(s) nominated by the Ministry, as may be decided by the Ministry.

6. All contracts, sub-contracts, agreements and MoUs made by prime(main) contractors (and their lower tier suppliers/vendors) with their business partners/suppliers, insofar as these contracts, agreements or MoUs relate to the main acquisition contract, shall mandatorily incorporate the right of Ministry of Defence to conduct an audit in terms of Para 5. Similarly, these business partners/suppliers shall sequentially incorporate these definitions and reporting requirements with their next levels of business partners/suppliers and so on, till the lowest tier in the manufacturing/production/assembly chain.

Certification.

7. All relevant deliveries made under contract shall be accompanied by a certificate of IC issued by the Chief Financial Officer (CFO). All final deliveries under contract shall be accompanied, in addition to the certificate issued by the CFO of the prime(main) contractor as aforesaid, by its Company Auditor's certificate. An Indigenisation Plan for Buy (Indian-IDDMM) will be required to be submitted by the vendor to meet the requirement of IC as specified in Para 8 Chapter I of DAP 2020. Further, the equipment offered for trial shall be accompanied with a certificate of IC issued by the CFO of the prime(main) bidder. The format for certification of IC by the CFO/ Company Auditor shall be as per **Annexure 1 to this Appendix**. Undertaking to ensure compliance to Indigenous design is also to be furnished in format placed at **Annexure 2 to this Appendix**.

8. In case mandatory IC and design is not achieved by a vendor and/or if a false certificate is furnished by a vendor/sub-vendor, the Ministry can initiate proceedings for banning or suspension of business dealings with the erring Indian vendor/sub-vendor and its allied firms for all future contracts for a period up to 5 years. This right can be exercised by the Ministry at any point of time; and initiation of banning or suspension proceedings, if ordered, shall be in addition to any other action that may be taken/ordered by the Ministry against the erring vendor/sub-vendor under any law(s) in force.

Miscellaneous.

9. In the event of non-incorporation of the definitions and/or audit requirements laid down under Para 1 to 6 in contracts or agreements vendors with next tier at any stage (tier) of manufacturing/production/assembly, it shall be presumed that items/services provided by that stage/tier to the next(tier) have no IC for the purposes of the DAP. Similarly, in the event of non-certification of IC at any stage (tier) as required herein, it shall be presumed that items/services provided by that stage/tier to the next stage(tier) have no IC for the purposes of the DAP. In such cases, the Ministry of Defence can take any of the steps under Para 8 above against erring vendors/sub-vendors.

Annexure 1 to Appendix A

(Refers to Para 7)

FORMAT FOR CERTIFICATION OF INDIGENOUS CONTENT

This is to certify that we, _____ (Name of Prime/Main Vendor) have achieved/are offering the following IC in the accompanying delivery under contract/equipment being offered for trials/prototype, as defined under the Defence Acquisition Procedure 2020 and as required under the EoI/ Contract (tick whichever is applicable) No. _____ dated _____.

Description of Supplies and Indigenous Content Therein:

Sl. No.	Description of Supplies	IC achieved/ being offered	IC required to be achieved/ offered as per RFP/Contract
1			
2			

Signed by:

1. CFO

----- (Name of Prime/Main Vendor)

2. Statutory Auditor (if required under Appendix A)

----- (Name of Prime/Main Vendor)



UNDERTAKING TO COMPLY WITH INDIGENOUS DESIGN

We, _____ ("Name of Vendor"), do hereby certify, undertake and confirm that:

1. The Design of _____ ("Named Product"), as claimed by us in response to the RFP No _____ dated _____ is owned partly or wholly by us/by an Indian entity.

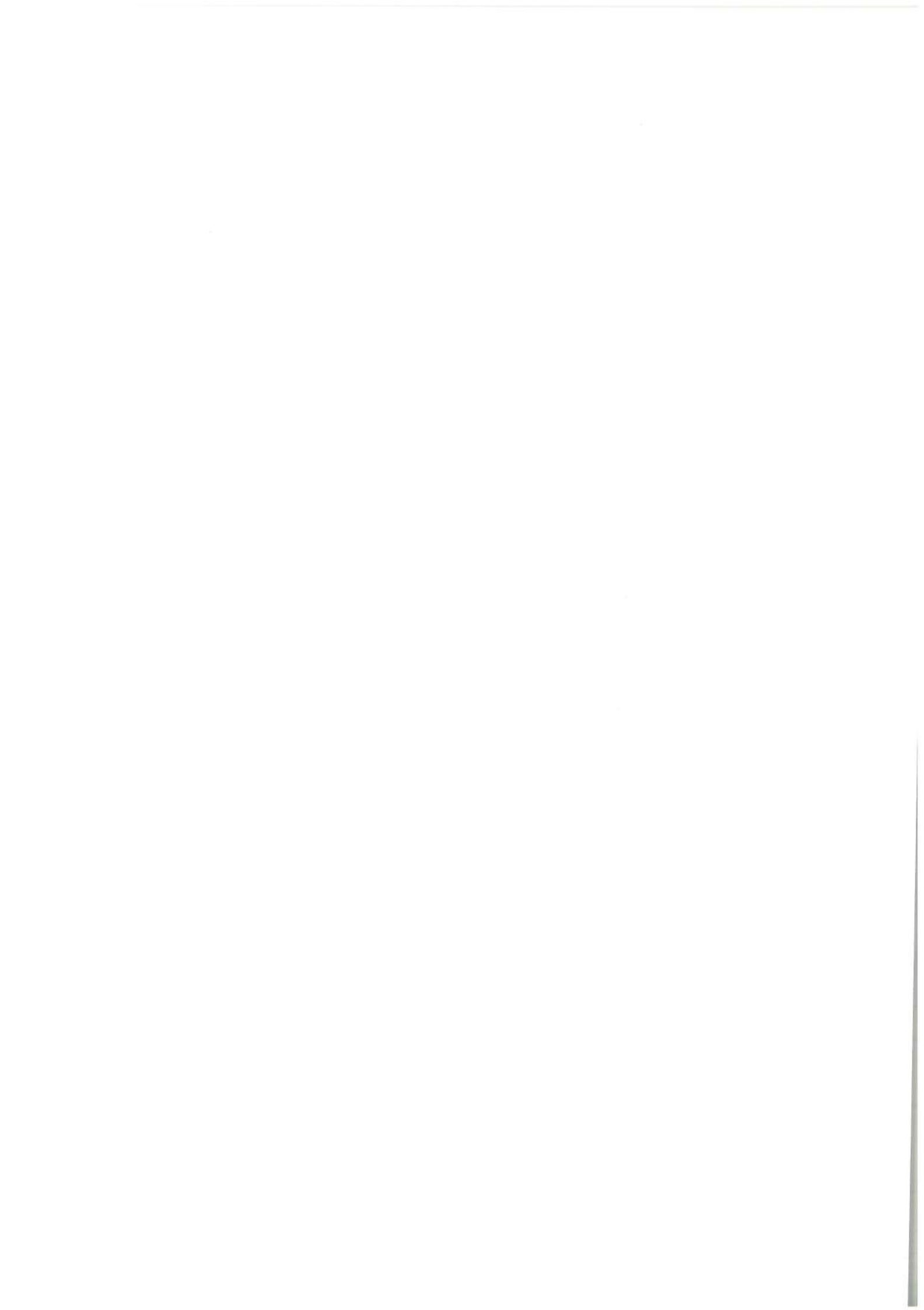
2. Further, we confirm that the Design of the Named Product, as claimed by us, has not been licensed from a foreign third party except for standard software licences such as, but not limited to OS / Database / _____ (Strikeout / Specify as applicable).

3. The ownership of the Design, as claimed by us, enables us to manufacture, realise, sell, provide Through Life Support, modify and upgrade the Named Product without any encumbrances, except as specified below: (If any form of encumbrances exist on the product or any of its subsystems these should be elaborated here)

4. We further claim that we own the following Intellectual Property (IP) Rights in relation to the design of the Named Product: (Specify any Patents, Registration of Designs, if any, held by the Vendor)

5. We also undertake to permit MoD/MoD appointed Specialists Committee, to inspect/ carry out technical verification at our premises of the applicable documents, such as Design Reports, Drawings, Specifications, Software Documents & Codes, Gerber files, etc, as may be reasonably necessary and required to prove the above claim of ownership of the Design of the Named Product. (Examination on site at company's premises only. Documents, in any form, are not be sought nor required to be submitted for examination outside the Company's premises)

6. Failure on our part to prove the ownership of the Design of the Named Product by us/by an Indian entity or submission of any false undertaking or claim as indicated in the response at any post contract stage of the intended procurement may make us liable to forfeiture of the PWBG to the extent of any direct losses or damages suffered by the MoD as a consequence of such false undertaking or failure to prove the ownership of the Design.



INTELLECTUAL PROPERTY RIGHTS OF GOVERNMENT
IN 'MAKE' PROJECTS

Guiding Principles.

1. The Government shall retain only a license in the Intellectual Property being generated under contract; and the contractor retains title or ownership and all other rights in intellectual property that are not granted to the Government, subject to conditions prescribed herein.
2. During the development of prototype, if any technology/product is developed, which the Government considers to be sensitive or classified and needs to be restricted for use in other purposes or for export, the Government through PFT or any other expert or body may identify such technology/product and shall retain the full ownership of IPRs in respect of such technology/product.
3. All technology licensing is divided up between two mutually exclusive categories of deliverables: (a) Technical Data (TD)¹ and (b) Computer Software (CS)². The Government shall also have certain rights to subject inventions and patents generated under the 'Make' contract.
4. The EoI shall contain details of (a) the delivery requirements, storage formats and storage medium; and (b) the associated data rights, in all technologies required to be developed or delivered under the 'Make' contract. Officials connected with award of 'Make' projects shall ensure that all such delivery requirements are clearly stated in the EoI and the 'Make' contract signed, if any, including delivery and form in which source code is required as a contract deliverable.
5. The Government's standard license rights in (a) subject inventions and associated data; and (b) all other data generated under the 'Make' contract, including technical data and computer software whether associated with such subject inventions

¹'Technical data' means recorded information, regardless of the form or method of the recording, of a scientific or technical nature (including computer software documentation). The term does not include computer software or data incidental to contract administration, such as financial and/or management information.

²(a)'Computer software' means computer programs, source code, source code listings, object code listings, design details algorithms, processes, flow charts, formulae and related material that would enable the software to be reproduced, recreated or recompiled. Computer software does not include computer data bases or computer software documentation. (b) 'Computer program' means a set of instructions, rules, or routines recorded in a form that is capable of causing a computer to perform a specific operation or series of operations. (c) 'Computer software documentation' means owner's manuals, user's manuals, installation instructions, operating instructions, and other similar items, regardless of storage medium, that explain the capabilities of the computer software or provide instructions for using the software. (d) 'Computer data base' means a collection of data recorded in a form capable of being processed by a computer. The term does not include computer software.

or otherwise, shall be 'Government-Purpose Rights' (GPR). In respect of subject inventions, the Government shall hold a non-exclusive, non-transferable, irrevocable, paid up (royalty-free) license to practice, or have practiced for on its behalf, the subject invention throughout the world.

6. These guiding principles shall apply at both the prime and subcontract levels; i.e., the prime DA(s) shall incorporate the rights of the Government as prescribed in this Annexure in all their subsequent sub-contracts and agreements insofar as technology development under 'Make' projects is concerned.

Government Rights

7. The Government shall have 'Government-Purpose Rights' and 'Unlimited Rights' as explained below:-

8. For all subject inventions³ under the 'Make' contract, including technical data and computer software associated with such subject inventions, the Government shall hold GPRs, in that it shall hold a non-exclusive, non-transferable, irrevocable, paid up(royalty-free) license to practice, or have practiced for on its behalf, the subject invention throughout the world. These GPRs shall automatically convert to 'Unlimited Rights' as defined under this section upon the expiry of ten years.

9. For the purpose of all technical data and computer software, whether related to subject inventions or otherwise, GPRs shall imply the right to use such technical data and computer software within the Government without restriction and the right to authorise any other entity for any government purpose including re-procurement. More specifically, GPRs include the rights to:-

(a) Use, modify, reproduce, release, perform, display, or disclose technical data within the Government without restriction; and

(b) Release or disclose technical data outside the Government and authorise persons to whom release or disclosure has been made to use, modify, reproduce, release, perform, display, or disclose that data for Government purposes.

(c) Form, Fit and Function data: and Manuals or instructional and training materials for installation, operation, or routine maintenance and repair;

(d) Computer software documentation required to be delivered under the 'Make' contract;

³'Subject Invention' implies any invention of the contractor conceived or first actually reduced to practice in the performance of work under a Government Contract. 'Invention' implies any invention or discovery that is or may be patentable or otherwise protectable under the Patent Laws in force in India.

(e) Corrections or changes to computer software or computer software documentation furnished to the contractor by the Government;

(f) Computer software or computer software documentation that is otherwise publicly available or has been released or disclosed by the contractor or subcontractor without restrictions on further use, release or disclosure other than a release or disclosure resulting from the sale, transfer, or other assignment of interest in the software to another party or the sale or transfer of some or all of a business entity or its assets to another party;

10. For the purposes of these guidelines, 'Government Purpose' means an activity in which the Government of India is a party, including cooperative agreements with international or multinational Defence organisations, or sales or transfers by the Government of India to foreign Government or international organisations. Government purposes include competitive procurement, but do not include the rights to use, modify, reproduce, release, perform, display, or disclose technical data for commercial purposes or authorise others to do so.

11. In addition to standard GPRs, Government rights in computer software to be delivered under contract shall also include the right to:-

(a) Use of a computer program with Government computer(s);

(b) Transfer to another Government computer;

(c) Make copies of computer software for safekeeping; backup or modification purposes;

(d) Modify computer software;

(e) Disclose to service contractors;

(f) Permit service contractors to use computer software to diagnose/correct deficiencies, or to modify to respond to urgent or tactical situations; and

(g) Disclose to contractors or any other third-parties for purposes of emergency repair and overhaul.

March-In Rights.

12. The Government shall have 'March-In' rights for all items covered under its 'Government-Purpose Rights'. 'March-In' Rights shall include the right to work the patent, either by itself, or by another entity on behalf of the Government, in case the

contractor fails to work the patent on its own within a specified and reasonable period of time.

13. Under its march-in rights, the Government can require the contractor to grant, or may itself grant license for, inter alia, the following reasons:-

- (a) The contractor fails to work the patent towards practical application within a reasonable time; or
- (b) Where health and safety requirements so require the Government to act in public interest;
- (c) For National Security Reasons;
- (d) To meet requirements for public use not reasonably satisfied by the contractor;
- (e) For failure of the contractor to substantially manufacture the products embodying the subject invention in India; or
- (f) For failure of the contractor to comply with any of the requirements laid down under these guidelines.

Miscellaneous

14. The contractor is required to have a timely and efficient disclosure system in place for reporting of intellectual property generation under the 'Make' contract to the Ministry of Defence. Failure to disclose in timely manner, or failure on part of the contractor to invoke his/her default right of ownership, shall imply that all IPRs shall ab-initio vest in the Government of India. The contractor may elect to retain title of any invention made in the performance of work under a contract. If the contractor does not elect to retain title, the title shall ab-initio vest in the Government as stated above and the contractor shall only be entitled to a license on such terms and conditions that the Government may deem it fit. Such license to the contractor shall usually be (a) revocable, non-exclusive and royalty-free; (b) extend to its domestic subsidiaries and affiliates; and (c) include the right to sublicense; but (d) shall not be transferable without prior approval of the Government.

15. The contractor shall also be required to submit periodic reports about commercialization and manufacturing activities undertaken for products embodying the subject invention under 'Make' contracts.

16. The Government's IPRs shall flow down from the prime contractor to all sub-contractors at all tiers; that is, every sub-contractor will have the same obligations vis-à-vis the Government as applicable to the prime contractor under the main procurement

contract. To this end, the subcontractors shall have limited contractual privity with the Government solely for the purposes of their IPR obligations to the Government.

17. The ownership of any rights by the contractor does not include an absolute right to transfer of any software, product or documentation; and such transfer, including export thereof, shall continue to be governed by and be subject to the Export Policy, Export Guidelines and all applicable laws, rules, regulations, orders and instructions of the Government of India. All such transfers and exports shall require prior and explicit approval of the Ministry of Defence.

18. Where the DA is not a consortium, ownership rights in intellectual property (IP) being generated under the 'Make' contract shall vest with the Government upon dissolution of such DA. Where the DA is a consortium, the ownership rights in the IP generated under the 'Make' contract, upon dissolution of the consortium, shall vest amongst the partners as per their agreement on the subject contained in the joint partnership agreement of the consortium, without government rights as licensee being adversely affected in any manner.



Appendix 'C'

(Refers to Para 6 & 36)

DEFINITION OF INDIAN VENDOR

[as per Para 20 of Defence Acquisition Procedures (DAP) 2020]

1. An Indian Vendor by whatever nomenclature when referred to means - for defence products requiring industrial license, an Indian entity, which could include incorporation/ownership models as per Companies Act, Partnership Firm, Proprietorship and other types of ownership models including Societies as per relevant laws, complying with, besides other regulations in force, and the guidelines/licensing requirements stipulated by the Department for Promotion of Industry and Internal Trade (DPIIT) as applicable. For defence products not requiring industrial license, an Indian entity registered under the relevant Indian laws and complying with all regulations in force applicable to that industry will be classified as an Indian Vendor. The following two additional conditions will apply to the definition for **Buy(Indian-IDDM)**, **Make I**, **Make II**, Development cum Production Partner (DcPP) in D & D acquisitions through DRDO/DPSUs/OFB and SP Model categories:-

(a) **Ownership by Resident Indian Citizen(s)**. Further, a company is considered as 'Owned' by resident Indian citizens if more than fifty percent (50%) of the capital in it is directly or beneficially owned by resident Indian citizens and / or Indian companies, which are ultimately owned and controlled by resident Indian citizens. This implies that the maximum permitted Foreign Direct Investment (FDI) shall be forty nine percent (49%). No pyramiding of FDI in Indian holding companies or in Indian entities subscribing to shares or securities of the Applicant Company or the Strategic Partner shall be permitted. Indirect foreign investment shall be accounted for in counting the forty-nine percent (49%) FDI.

(b) **Control by Resident Indian Citizens(s) (As defined in Companies Act 2013)**. 'Control' shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements.



Appendix 'D'

(Refers to Para 41, 42 & 44(b))

TECHNICAL CAPABILITY ASSESSMENT CRITERIA

Name of the vendor:

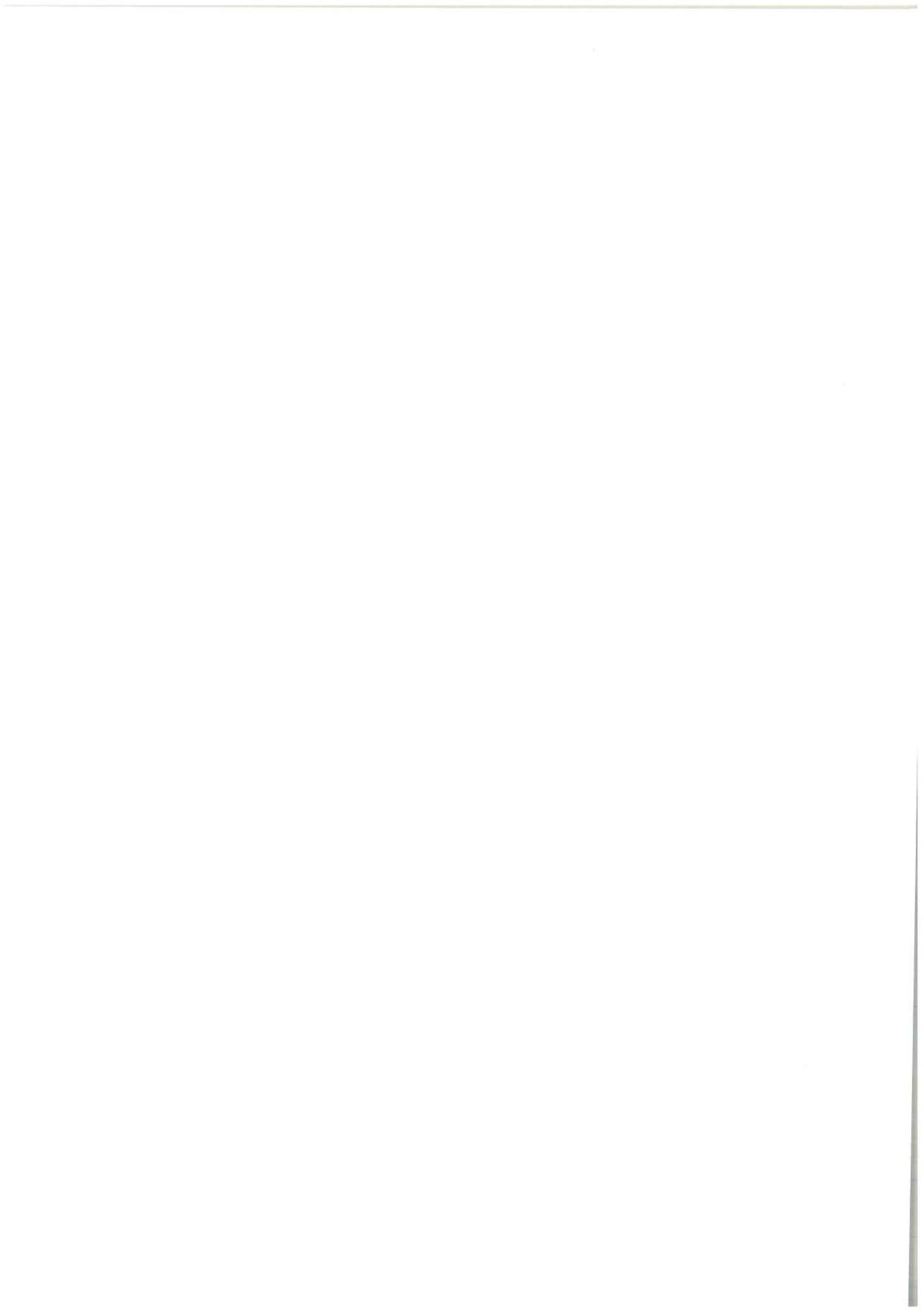
<u>Sl. No</u>	<u>Criteria and Sub- Criteria</u>	<u>Vendor Submissions</u>			<u>Remarks, if any</u>
		<u>Lead Bidder</u>	<u>Partner 1</u>	<u>Partner 2</u>	
(i)	Execution of similar projects for military users in India and abroad				
(ii)	Execution of similar projects for other users in India and abroad				
(iii)	Execution of projects pertaining to critical technology area				
(iv)	Adherence to timelines, minimization of slippages, cost overruns				
(v)	Approach to meet user functionalities. Specific areas where assistance of Academia/ other industries where the resident expertise is not available with the respondent is to be indicated. Nature of partnership/ assistance to be sought is to be indicated.				
(vi)	Proposed system configuration. Approach to meet the specifications stipulated giving details of methodology to be adopted				
(vii)	Availability of explosive license from the competent authority				
(viii)	Minimum Order Quantity for Bulk Production				

Station:

Date:

Signature

Company Seal



INFORMATION PERFORMA: FOR RESPONDENTS OTHER THAN START-UPS

1. Name of the Company
2. Name of CEO with Designation
3. Address of the Registered Office
4. Address of the Factory/Factories
5. Company Website(s)
6. Date of Incorporation
7. Brief History of the Company
8. Category of Industry (Large Scale/Medium Scale/Small Scale)
9. Nature of Company (Public Limited/Private Limited)
10. Nature of Business (Please give broad product range against each)
 - (a) Manufacturer
 - (b) Trader
 - (c) Sole Selling or Authorised Agent
 - (d) Dealer
 - (e) Assembler
 - (f) Processor
 - (g) Re-packer
 - (h) Service Provider
11. Details of Current Products
 - (a) Type/Description
 - (b) Licensed/Installed Capacity
 - (c) Annual Production for preceding 3 Years

12. Details of Bought Out Items
 - (a) Main Equipment
 - (b) Component/Assembly/Sub Assembly/Processes
 - (c) Name and Address of the Sub-Contractor

13. Sources of Raw Materials
 - (a) Imported/Indigenous
 - (b) Brief Description
 - (c) Estimated CIF Value
 - (d) Percentage FE Content in Final Product

14. Details of Foreign Collaborations
 - (a) Product
 - (b) Name and Address of Collaborator
 - (c) Year of Collaboration
 - (d) Current Status of the Collaboration (whether expired or current)

15. Technology Received from Abroad and Assimilated

16. Technology Transfer MoUs Signed/Under Negotiation

17. Products Already Supplied
 - (a) To Indian Army/Air Force/Navy
 - (b) PSUs
 - (c) DRDO and its Laboratories
 - (d) Ordnance Factories
 - (e) Any other Defence Organisation
 - (f) To other Principal Customers

18. Details of Registration Certification held (along with product details)
 - (a) DGQA
 - (b) DGAQA/DGNAI
 - (c) CEMILAC

- (d) DGS&D
- (e) Other Defence Departments
- (f) Other Government Department

19. Details of ISO Certification (Attach certificate, if any)

20. Details of Pollution Control Certificate (Attach certificate, if any)

21. Latest Certificate of Incorporation by the Registrar of Companies (RoC), if any

22. Details of Credit Rating Certificate (Attach certificate, if any)

23. Details of Patent/IPR certificates (Attach certificate, if any)

24. Details of Permanent Man Power (with the details of qualifications)

- (a) Technical
- (b) Administrative

25. Total Area of Factory

- (a) Covered (sq. mtrs)
- (b) Uncovered (sq. mtrs)
- (c) Bonded Space Available (sq. mtrs)

26. Electric Power

- (a) Sanctioned
- (b) Installed
- (c) Standby

27. Details of Important Facilities

- (a) Production (including Heat Treatment, Dies, Jigs and Fixtures)
- (b) CAD, CAM, ROBOTS and Other Advanced Technology Tools
- (c) Environmental Test Facilities.
- (d) Tool Room, Metrology and Test Equipment and Facilities
- (e) Type of Instrument
- (f) Make and Model

- (g) Date of Purchase
 - (h) Frequency of Calibration
28. Details of Developmental Facilities
- (a) R&D Facilities Available
 - (b) Number of Technical Manpower
 - (c) Inspection and Quality Control of Raw Material, Components and Finished Products.
 - (d) Assistance from Central Agency/Agencies for Testing/Calibration
 - (e) Laboratory and Drawing Office Facility
 - (f) Percentage of Total Turn-Over Spent on R&D during the Last Three Years
29. Area of Interest for Future Expansion/Diversification (please provide adequate details)
30. Future Plan (if any) in respect of Expansion Program, Installation of Additional Machines/Test Facilities
31. Turn-Over during the last three Financial Years (Attach relevant documents, if any).
32. Present Net Worth of the Company (Attach relevant documents, if any)
33. Any other Relevant Information
34. Contact Details of the Executive Nominated to co-ordinate with the Assessment Team (please provide telephone, mobile and e-mail address).

ADDITIONAL INFORMATION

- 35. Outline features of the proposal.
- 36. Recommended stages/phases of development with priorities and time schedules.
- 37. Milestones that can be clearly demonstrated to facilitate project monitoring.
- 38. Estimated capital expenditure for prototype development.
- 39. Roles Responsibilities and expertise details of consortium members, if any.

40. Role of foreign technology provider, if any, including the agreement intended to be entered into on being shortlisted.
41. Requirement of specialised testing assistance where facilities are available only with DRDO/DGQA/DGQAQ/DGNAI.
42. Indicate the minimum order quantity for execution after the successful completion of the project (prototype development).
43. Undertaking to furnish the cost of the final product during evaluation stage itself, once the final configuration of the end product under development is frozen.
44. Details of the proposed facilities being created for Limpet Mines (07 Kg and 15 Kg).
45. Any existing facility proposed to be used for production/ manufacture of Limpet Mine (07 Kg and 15 Kg) components.

INFORMATION PROFORMA: FOR START-UPS

1. Name of the Vendor/Company/Firm
2. Brief about the Company (Nature & category of company)
3. Contact Details
4. Local Branch/Liaison Office/Contact in Delhi
5. Details of Registration Certification held (along with product details). Attach certificate, if any
 - (a) DGQA
 - (b) DGAQA/DGNAI
 - (c) CEMILAC
 - (d) DGS&D
 - (e) Other Defence Departments
 - (f) Other Government Department
6. Membership of FICCI/ASSOCHAM/CII or other Industrial Associations. Give Name of Organisation and Membership number.
7. Credit rating of the company.

8. Details of Prototype/product to be developed
 - (a) Name of product
 - (b) Description (attach technical literature)
 - (c) Specification of Material
 - (d) Technical Specifications
 - (e) Dimensions/Weight of the product
 - (f) Type of tests planned to be carried out post manufacturing
 - (g) Proposed methodology for evaluation
 - (h) Conformance to MIL grade/international manufacturing standards
 - (j) Details of inspection agency/Accredited Lab planned to be involved
 - (k) Details of safeties to be incorporated
 - (l) Interface requirement
 - (m) Indigenous Content
 - (n) Product life
 - (p) Guarantee/Warranty
 - (q) Whether proposed product being offered is an invention/improvement/innovation? Please elaborate
 - (r) Tentative cost of the product
 - (s) Proposed timeline for development of prototype, and if successful, production and delivery timelines, along with the cost breakup
 - (t) If the price varies with the number of procurement, please indicate cost breakup vis-à-vis number
9. Details of products developed earlier
10. Products Already Supplied
 - (a) To Indian Army/Air Force/Navy
 - (b) PSUs
 - (c) DRDO and its Laboratories
 - (d) Ordnance Factories
 - (e) Any other Defence Organisation
 - (f) To other Principal Customers

11. Execution of similar projects for military users in Indian and abroad
12. Execution of similar projects for other users in Indian and abroad
13. Execution of projects pertaining to critical technology area
14. History of successful supply orders (Attach relevant documents, if any)
15. History of past non-performing contracts (Attach relevant documents, if any)
16. Pending litigation/Litigation history (Attach relevant documents, if any)
17. Capital Asset of the Company
18. Turn-over during last three Financial Years (Attach relevant documents, if any)
19. Present Net Worth of the Company (Attach relevant documents, if any)
20. Net profit in the last five years
21. Any other relevant information

Declaration. It is certified that the above information is true and any changes will be intimated at the earliest



Appendix 'F'
(Refers to Para 44(d)
46 (a) & 52)

CERTIFICATE

It is certified that information submitted in the documents as part of the response to Expression of Interest for Project Limpet Mines (07 Kg and 15 Kg) is correct and complete in all respects. It is acknowledged that the company and/or all consortium members will be disqualified from further participation if any information provided is found to be incorrect.

Signature with Company Seal

Company No1

Company No 2

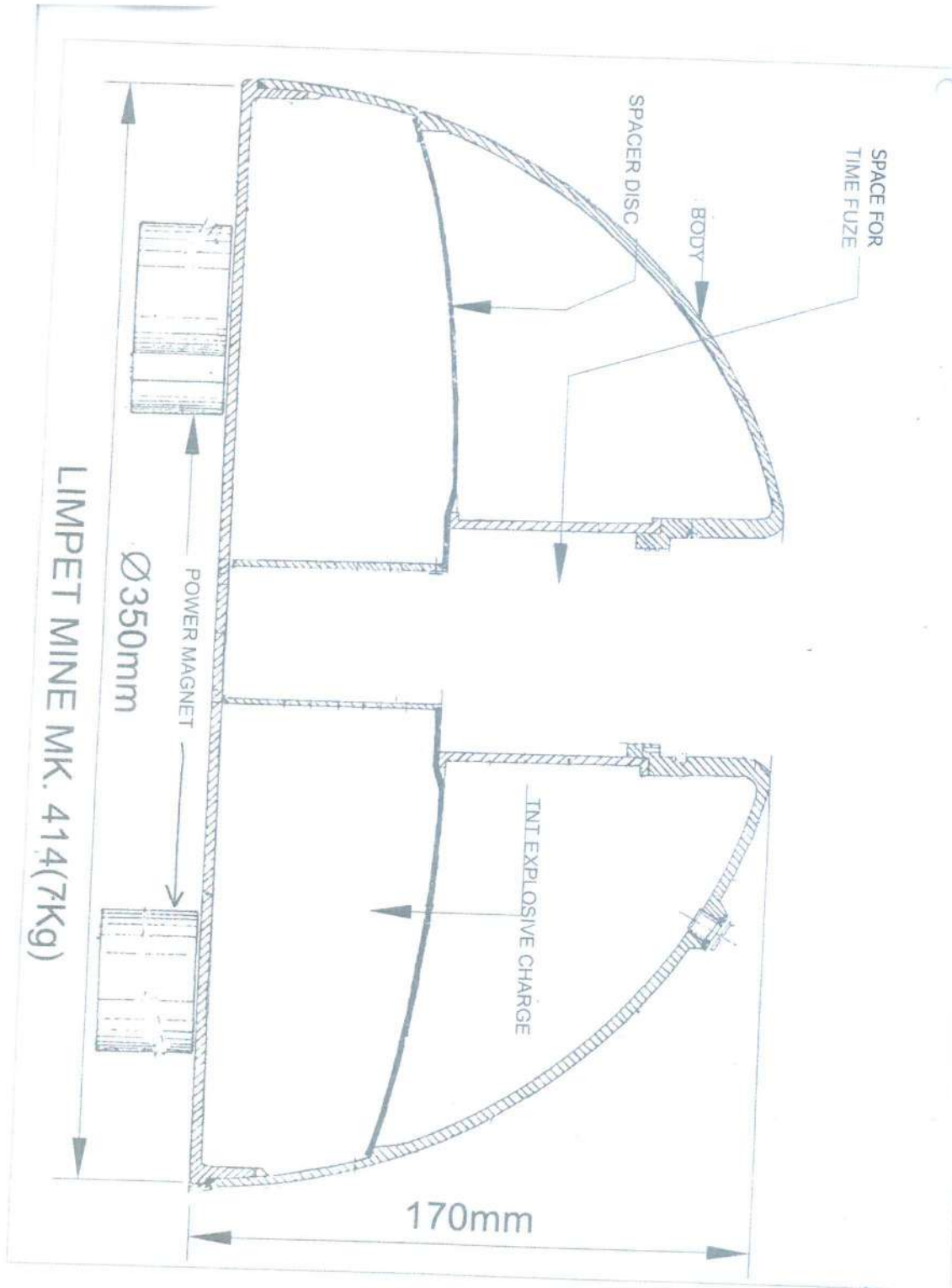
Company No3

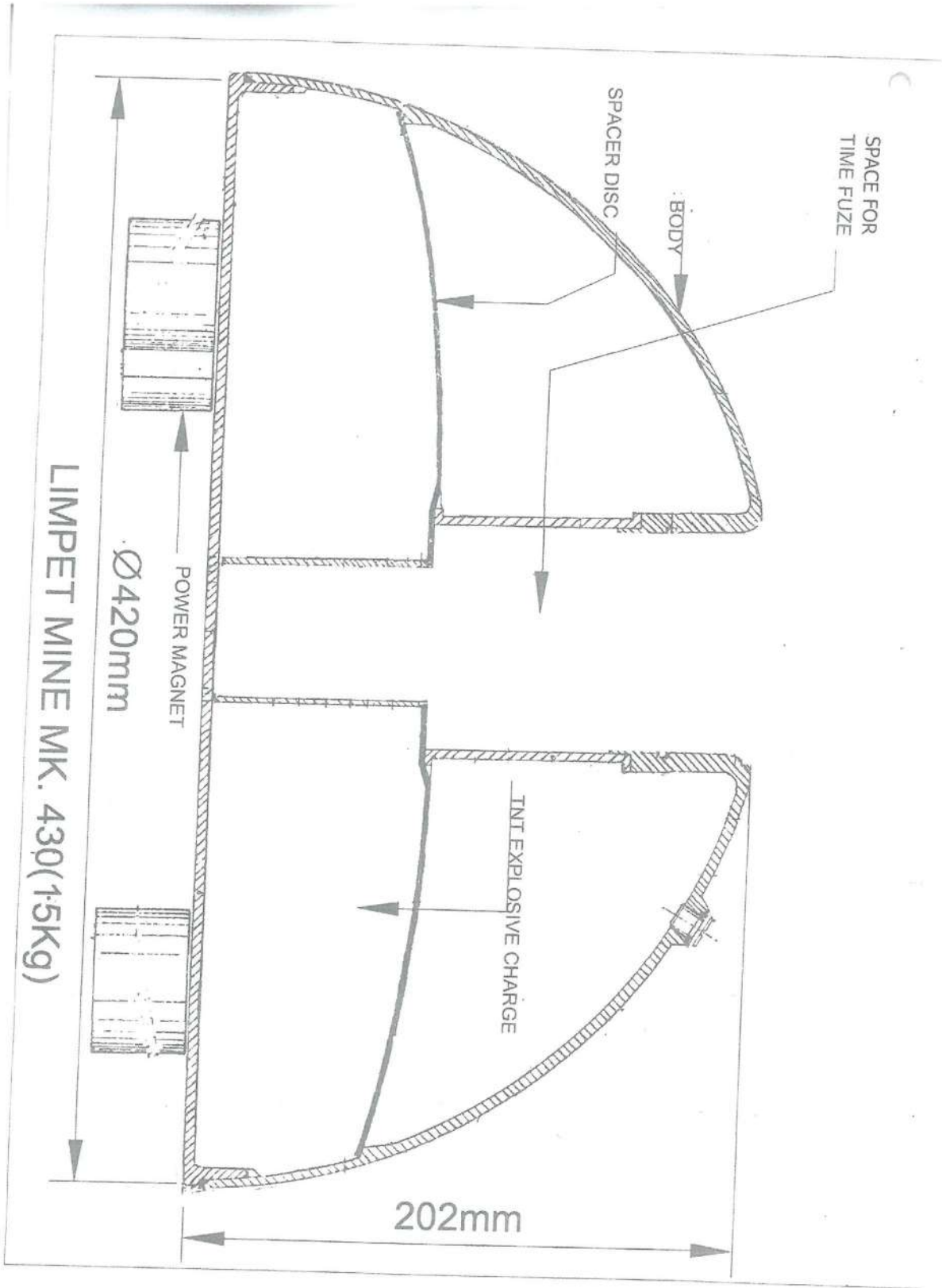
Company No4

Company No5



SKETCH OF LIMPET MINE MK-414 (07 Kg) and MK-430 (15 Kg)
(for reference)



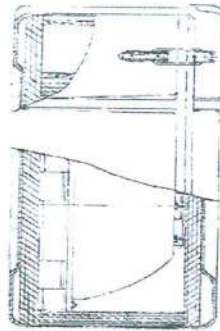
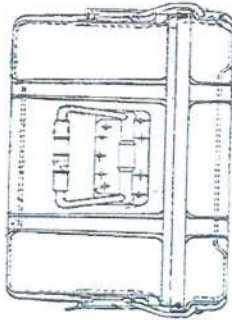
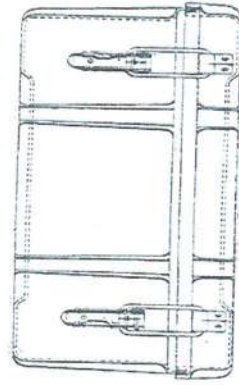


Appendix 'H'
 (Refers to Para 21)

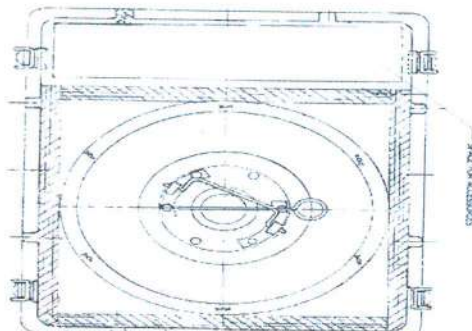
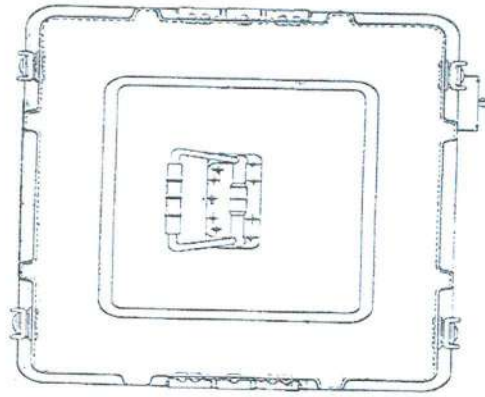
BOX FOR LIMPET MINE MK-414 (07 KG) AND MK-430 (15 KG)

MATERIAL - FIBRE GLASS

BOX FOR LIMPET MINE MK-414 (7 kg) / MK-430 (15 kg)



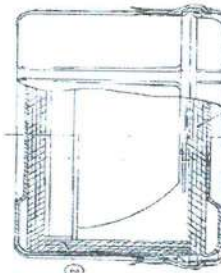
①
 - REMOVAL OF SEALING FOAM
 TO BE MADE TO SECTION



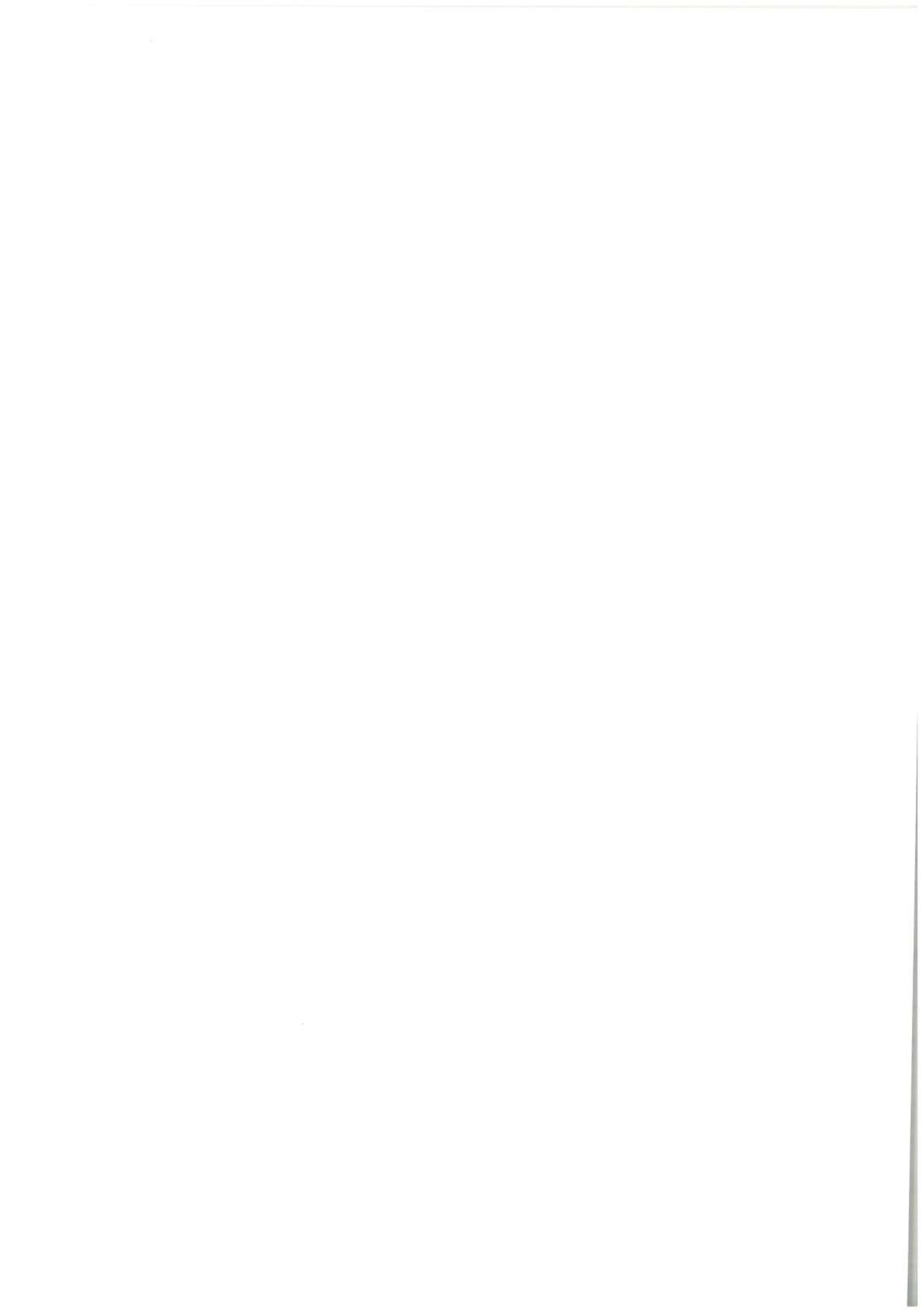
TOP LID AND TOP PACKING ARE REMOVED

①
 REMOVAL OF SEALING
 FOAM OF MINERAL WOOL
 TO BE MADE TO SECTION

②
 REMOVAL OF SEALING
 FOAM OF MINERAL WOOL
 TO BE MADE TO SECTION



①
 REMOVAL OF SEALING FOAM
 TO BE MADE TO SECTION



TRIAL METHODOLOGY - LIMPET MINE

1. **UTRR.** A User Trial Readiness Review (UTRR) will be conducted at all the firms' premises which are ready with the prototype, by the Project Facilitation Team (PFT) in order to establish completion of development of prototypes along with test certificates in lines of mandated specifications. This would include all destructive/ non-destructive checks as part of **Environmental Trials (ETs) on the empty hardware for Design Validation**, by NABL/QA agencies on the prototype. Following ETs are to be carried out on **one prototype mine** (Inert Filled and assembled with Timer, Battery and any other non-explosive components critical to the functioning of the mine) of each type (07 Kg and 15 Kg):-

SNo	ET	Parameter & Duration		No of Mines
(a)	High Temperature	(50 ± 2) °C for 16 Hrs		01 (Empty)
(b)	Low Temperature	(-15 ± 2) °C for 16 Hrs		01 (Empty)
(c)	Vibration Test	Acceleration Mode 15 to 350 Hz 20m/Sec ² constant acceleration	02 Hrs	01 (Empty)
(d)	Bump Test	No. of bumps : 1000 Bump Height : (25±5) mm Rate : 1 to 3 Bumps/ sec Peak Pulse acceleration 40g±3 directional		01 (Empty)
(e)	Temperature Cycling	(-15±2) °C for 30 mins Room Temp : 15 mins Ambient (21°C) : 7.5 hrs (50±2) °C : 30 mins No of Cycles : 05		01 (Empty)
(f)	Mould Growth Test	Temp at 28 to 30 °C : 14 days RH : 90±5 %		01 (Empty)
(g)	Salt Water Immersion Test	Salt water immersion : 07 days		01 (Empty)
(j)	Damp Heat	14 days 90±2 % RH at 40°C		01 (Empty)
Note:				
<ul style="list-style-type: none"> - Performance check of the store after each test is to be carried out using associated Test Set/ Equipment. - Functioning of Timer to be checked before and after each test. - There shall be no rust formation after salt immersion test 				

2. **User Trials.** The Trial Methodology for User Trials will include the following:-

(a) **T1 – Demonstration.** Evaluation through demonstration at vendor premises.

(b) **T2 – Documentation.** Evaluation through documentation provided by the vendor.

(c) **T3 – Certification.** Certification by an independent government approved or accredited certifying agency/ NABL.

(d) **T4 – Simulation.** Evaluation of aspects which cannot be demonstrated, through software/ computer simulation.

3. DA is to make available **One set of Limpet mine (explosive filled) along with accessories, of each type** (07 Kg and 15 Kg) as per Para 5(a) of Eol (post completion of UTRR), for conduct of tests as per the succeeding paragraph. All parameters are as per technical requirements/ PSQRs.

4. **Description of Tests.** Tests to be undertaken are tabulated as under:-

<u>Ser</u>	<u>Parameter</u>	<u>Description</u>	<u>Validation Criteria</u>	<u>Location</u>	<u>Remarks</u>
(a)	Requirement of Mine	Type of Explosive	T3	DA premises	Insensitive Munition and compliant, with STANAG 4439
		Water Tight Integrity	T3	DA premises	Up to Transportable depth
		Life	T2	DA premises	10 years maintenance free. Maintenance manual giving methodology/ schedules to be provided.
		Operating Temperature	T2 & T3	DA premises	-15°C to +50°C.
		Relative Humidity	T2 & T3	DA premises	90%
		Built-in-Test Equipment	T1, T2 & T3	DA premises	
		Operating depth	T1 & T2	At sea (T1) and DA premises (T2)	

<u>Ser</u>	<u>Parameter</u>	<u>Description</u>	<u>Validation Criteria</u>	<u>Location</u>	<u>Remarks</u>
		Remote Detonation and Penetration (employing Shape Charge)	T1 & T2	At sea (T1) and DA premises (T2)	The mine should have the capability of remote detonation. The mine would be tested for penetration through steel plates used for Ship's Hull. Target plate to be provided by the DA.
		Transportable depth	T1 & T2	At sea (T1), DA Premises (T2)	60 mtr depth
		Batteries	T2	DA premises	Must be commercially available.
		Variants	T1	DA premises	Practice, Drill and Cut-out models must be made available/ demonstrated to the PFT
(b)	Shell Body	Waterproof	T3	DA premises	
		Non-hygroscopic	T3	DA premises	
		Non-magnetic	T1 & T3	At sea and DA Premises	
		Shape Hemispherical / Conical	T1 & T2	DA premises	Designed for low hydro-dynamic resistance
		Compatible with the explosive filling	T1 & T2	DA premises	
(c)	Design of mine	Negatively Buoyant in sea water	T1 & T2	At sea	To sink in the event of release of mine by diver.
		Multiple layered	T2	DA premises	Light but strong material.

<u>Ser</u>	<u>Parameter</u>	<u>Description</u>	<u>Validation Criteria</u>	<u>Location</u>	<u>Remarks</u>
		fabricated casing			
		Capable of being attached to steel, GRP and wooden targets	T1 & T2	At sea and DA premises	To be attached with attachment mechanisms (magnets, nylon strap, nail shooters). In addition, an inflatable rubber tube should be provided to give the mine the positive buoyancy sufficient for hard sticking, in case of non-adherence of the magnets
		Should have powerful magnet	T1 & T3	At sea and DA premises	Remain attached to the bottom of an operational ship with normal marine growth, barnacles etc. and sustain a speed of upto 6 knots. These magnets should have the capability to lift loads in excess of 30 Kgs when lifted vertically and should be capable of re-magnetisation.
(d)	Safety Mechanism	Anti-tampering devices	T1 & T2	DA premises	Including mechanical anti-removal device, making it resistant to countermeasures.
		Start Safety	T1 & T2	DA premises	Safety lock/ arming pin should be provided to keep the mine in unarmed condition and prevent inadvertent activation.
		Out of line Explosive Chain Safety	T2 & T4	DA premises	Detonator to be isolated from the booster/intermediary explosive by a mechanical interlock.

<u>Ser</u>	<u>Parameter</u>	<u>Description</u>	<u>Validation Criteria</u>	<u>Location</u>	<u>Remarks</u>
		Arming Delay Explosive Chain Safety	T1, T2 & T4	At Sea (T1) DA premises (T2 & T4)	To be aligned only after a preset delay of minimum 30 minutes. The arming delay can be manually set by the diver through a mechanical and electronic timer and can be changed any time (in air and in water) until the arming sequence has started, which would entail removal of safeties and starting of timer
		Detonator Short Circuit Safety	T1 & T2	DA premises	Using suitable Test Equipment
		Electronic Safety	T1 & T2	DA premises	
		Sterilization Safety	T2 & T4	DA premises	

* **Note:-**

1. The specifications of mine should be as per standards enlisted in Para 27 of Eol.
2. Testing for Penetration to be done post completion of all other checks.

