Appendix 'A'
(Refer Para 3 of Mod (AC), DGMF letter No A/35854/PPP/Make/GS/ Mod (AC)/2016 dt 10 May 2016)

INPUTS FOR FEASIBILITY STUDY FOR MAKE PROJECTS : AUXILIARY POWER UNIT (APU) FOR TANK T-90 S/SK

1. **Government of India (GoI), Ministry of Defence (MoD), is considering** procurement of quantity 1657 (approximately) Auxiliary Power Unit (APU) for tank T-90 S/SK under Make-II category of DPP-2016. Original Equipment Manufacturers interested in supplying the equipment may furnish information given in succeeding paragraphs.

2. **Brief Description of Equipment**. The proposed Auxiliary Power Unit (APU) is an alternate source of power for the Fire Control System of the tank to cater for power requirements during a lull in battle, while training and while deployed in surveillance mode with a view to conserve the engine life of the tank T-90 S/SK.

3. You are requested to provide specific replies to the queries at **Annexure-I** attached.

4. Please confirm that your firm has the technology & capability to manufacture Auxiliary Power Unit for Armoured Fighting Vehicles and that you are willing to supply it to the Government of India (GoI), Ministry of Defence (MoD), India as per provisions given in chapter-III of Defence Procurement Procedure (DPP-2016) issued by the MoD, Govt of India.

5. The delivery of the equipment and training should be completed within 24 months from the effective date (D) of the contract, as per the following schedule:-

(a) D+6 - Delivery of 414 sets.

(b) D+12 - Delivery of 414 sets.

(c) D+18 - Delivery of 414 sets.

(d) D+24 - Delivery of 415 sets.

6. Please forward details of your company and products which are suitable for our requirement to include following:-

(a) Name, address, telephone numbers, fax numbers, website and e-mail address.

(c) Areas of core competence of your company.

(d) Details of products manufactured by your firm which are likely to meet the requirement of MoD, India.

(e) Specifications with regard to characteristics as asked for in the questionnaire at Appendix.

(f) Details of your past customers with special reference to the equipment required by MoD, India.

(g) Tentative cost (cost intimated here is indicative and is not binding while making a commercial bid subsequently) to include factors such as AMC, product support package, training etc.

(h) Manufacturing capacity in Numbers every month / delivery schedule.

7. The required information/details may please be forwarded at the following address by **15 Jun 2016**. For queries if any contact **011-233-35094**.

Directorate General of
Mechanised Forces (Mod/AC)
General Staff Branch
Room No 501, A Wing, Sena Bhawan
Integrated HQ of MoD (Army)
DHQ PO, New Delhi – 110 011
Telefax No : 0091-11-23335094

Annexure-I
(Refer to Para 3 of
Appendix 'A')

QUESTIONNAIRE: AUXILIARY POWER UNIT FOR TANK T-90 S/SK

Q.1. Is the APU an integrated and compact system, what is it's weight and dimensions?

Q.2. What is the power output rating of the APU?

Q.3. Does the system change the silhouette of the tank in vertical and horizontal plane or foul with existing features on the tank?

Q.4. Is the system protected from small arms fire and splinters?

Q.5. Is the system rugged enough to withstand the normal hazards of cross country move in plains, semi desert and desert terrain?

Q.6. What is the min operating life and shelf life of the system?

Q.7. Does the system comprise sealed units and is water resistant when tank is carrying out fording operations?

Q.8. What EMI/EMC standards does your system comply with?

Q.9. Is the APU capable of operating continuously for minimum 08 hrs without affecting its efficiency?

Q.10. Is the APU easy to retrofit onto a T-90S/SK tank at field workshop level?

Q.11. Are the assemblies / components of the system hermetically sealed?

Q.12. Is the system modular in design?

Q.13. Does the fitment and integration of the APU with tank T-90 S/SK involve any cutting of armour and drilling. If resorted to, should not be in the frontal 60^0 arc of the tank?

Q.14. Does the fitment/integration of the Auxiliary Power Unit (APU) with tank T-90 compromise the overpressure system and NBC protection system of the tank?

Q.15. Does the power unit (APU) conform to the following specifications:-

(a) Capable of operating the following system of the tank in silent mode:-

(i) Operation of night vision Devices and TI ESSA?

(ii) Operation of Day Gunner Sight 1G 46 and LRF?

(iii) Ballistic computer unit?

(iv) Operation of Gun Control Equipment including power traverse?

(v) Operation of Radio Sets including tank intercom?

(vi) Battery charging?

(vii) Operation of navigation aid equipment?

(b) Rating capable of catering to the power requirement of air conditioner designed to maintain a temperature differential of 25º± 5ºC over the ambient temp range.

(c) How long can the APU run above systems in silent mode without refueling?

Q.16. Is the APU air cooled / water cooled and diesel driven or does it have a multi fuel option?

Q.17. What is the fuel consumption in ltrs/hour?

Q.18. Does the APU have an inbuilt overload protection system?

Q.19. Does the APU provide at least two spare output jacks to facilitate connection of additional equipment that may be installed on the tank after the APU has been installed?

Q.20. Does the APU system have adequate test/inspection points/lights and built in gauges for checking performance fault findings?

Q.21. Does the APU have a standby starting system apart from the main starting system?

Q.22. Do the generator, accessories and cables cause EMI to other electrical equipment fitted in the tank?

Q.23. Is adequate literature and informative material for reference by user and EME for preparation for Engineering Support Documents available? Will the following be provided:-

(a) User’s manual?

(b) Technical manual?

(c) Field Repair manual?

(d) Base repair manual?

(e) ISPL?

(f) MRLS and expected wastage data assembly /PCBs, spare for two years?

(g) Fault diagnosis manual?

(h) Two sets of drawing/circuit diagnosis drawings?

(j) Soft ware documents?

(k) CBT on CDROM for assembly/sub assembly and fault finding procedure for training of EME tradesmen?

Maintenance

Q.24. What is the reliability of the system in terms of MTTR and MTBF?

Q.25. Is the system capable of functioning for minimum mean time between overhaul (MTBO) of 1000 hours?

Q.26. What are the numbers of SMTs/STE/Gauges required for maintenance at unit and field workshop level?

Q.27. Is the comprehensive software for fault diagnosis upto component level in sub systems and PCBs described?

Q.28. Will the training of maintenance personnel for repair and maintenance of equipment be provided?