

REGISTERED

Heavy Industries Taxila
 Marketing & Procurement
 Directorate (CP Branch)
 Taxila Cantt, Pakistan
 Telephone: 051-9315029
 Fax No: 051-9315029
 No: 5041/18-19/IT- 3032/CP/HRF (M)/Proc

13 March 2019

To: M/s _____

Subject: **Tender Inquiry – FOB Basis**

1. You are invited to tender for the supply of Test Bench as per mentioned in the enclosed schedule (FORM DP-2).

Instructions for Bidders**2. Preparation of Tender**

- a. The tender is liable to be ignored if complete information is NOT given therein or if the particulars and date (if any), asked for in schedule to the tender, are NOT fully filled in. Particular attention must be paid to delivery dates and also to the particulars referred to general conditions of the tender as supply has to comply with them.
- b. Individual signing tender and or other documents connected with contract must specify:-
 “Whether signing as sole proprietor of the Supplier or his attorney. Whether signing as “Registered Active Partner” of the Supplier or his attorney. Whether signing for the firm “Per Procreations”.

3. **Delivery of Tenders.** Tenders/bids will be prepared in two **PARTS i.e TECHNICAL QUOTATION (PART-I) and COMMERCIAL QUOTATION PART-II)**. Part-I (Technical Quotation) will indicate technical specification with relevant details. Part-II (Commercial quotation) will indicate commercial terms i.e. price/rates, terms of payment mode of supply (FOB Basis) and delivery schedule etc.

4. Part-I and Part-II quotations will be enclosed in separate sealed envelopes for each tender inquiry. For identification purpose, the words “**TECHNICAL QUOTATION PART-I WITHOUT PRICE**” and “**COMMERCIAL QUOTATION (PART-II) WITH PRICE**” shall be written in **BLOCK CAPITAL LETTERS** on the respective sealed envelopes which will be placed in a large envelope bearing complete details of the tender inquiry as under:-

	REGISTERED
BID TENDER ENQUIRY NO:	<u>5041/18-19/IT- 3032 /CP/HRF(M)/Proc dated 13 Mar 2019</u>
TO BE OPENED ON	<u>15 April 2019 at 1100 Hrs</u>
TO:	ASSISTANT DIRECTOR (PROCUREMENT) GATE NO.1, HRFT, HEAVY INDUSTRIES TAXILA TAXILA CANTT
FROM:	M/s _____

5. Postal Order for **Rs. 200/-** (Rupees Two Hundred Only) in favour of Managing Director Marketing and Procurement, HIT Taxila Cantt will invariably be enclosed with the **technical quotation** failing which the bid will be ignored.

6. Any indication whatsoever of the price in Part-I of the quotation shall render it invalid and will be rejected at the spot. Date and time is specified in the schedule to tender (Form PD-2) attached. Heavy Industries Taxila will NOT be responsible for delay occurring in post.
7. The purchaser has right to increase / decrease quantity of items at any stage of the contracting process.
8. Chairman Heavy Industries Taxila does NOT pledge himself to accept the lowest of any tender and reserves the right of accepting the whole or any part of any tender.
9. Inspection of offered stores will be carried out by 2x inspecting officer detailed by Heavy Industries Taxila HRF (M). Inspector's decision regarding conditioning of stores will be final.
10. All matters connected with this inquiry and any subsequent action arising thereof comes within the scope of the Official Secret Act 1923. Information regarding the stores concerned must NOT be disclosed by you or your principal or your employees to any un-authorized person.
11. **All Firms participating in the tender will deposit 2% bid security of total quoted value in the shape of CDR / bank guarantee issued by any scheduled bank of Pakistan, addressing to Director Marketing and Procurement, Heavy Industries Taxila. The bid security will be enclosed in the commercial envelope. Separate certificate that 2% Bid Money is enclosed in the commercial offer will be provided along with the technical bid. Bid security money of unsuccessful bidders will be returned within 14 days after issuance of the bid evaluation reports whereas bid security money of the successful bidder will be returned upon submission of 5% Performance Bank Guarantee.**
12. Integrity Pact will invariably be involved/ invoked when the total value of the contract value exceeds 10 Million as specified in PPRA Rule 2002-2004.
13. **BGs against Contract Performance / Warranty Period.** The supplier shall furnish a 5% bank guarantee within one month from the date of signing of the contract, from any schedule bank of Pakistan against the total CIF value of the contract excluding taxes/duties. This bank guarantee will remain valid as per warranty clause. The said bank guarantee will be released after completion of the warranty period of the stores supplied.
14. **Pre Shipment Inspection.** Pre-shipment Inspection will be carried out at Firm's Premises as per approved ATPs. Firm's Principal will provide return economy air ticket for two HIT-HRF (M) inspectors with boarding & lodging for 03 to 05 days (exclusive of travel time) for pre-shipment inspection.
15. **Post Shipment Inspection.** 100% post shipment inspection as per Acceptance Test Procedures (ATPs) of HRF (M) will be carried out at HIT in the presence of supplier's representative. 100% payment will be made on successful qualification of stores through post shipment inspection / CRC.
16. **Delivery Schedule.** 8 x months from date of signing of the contract. No extension will be given in the delivery period.
17. **Terms of Payment.** 70% payment on provision of shipping documents, inspection/acceptance certificate and remaining 30% FOB value of stores shall be paid to beneficiary on receipt of Consignee Receipt Certificate (CRC) from Consignee to be made after post shipment inspection.
18. **Acceptance Test Procedures (ATPs).** ATPs will be provided by the best evaluated firm as and when demanded by HRF (M).
19. Partial shipment and partial payment is allowed.

20. The firm may supply new or unused stores with clear mentioning of the condition of the quoted items, whether they are brand new or unused.

Eligibility Criteria

21. **Country of Origin.** USA / Europe / Equivalent except India, Israel and Taiwan.

22. **Port of Shipment.** USA / Europe / Equivalent except India, Israel and Taiwan.

23. Firm should not be black-listed with any government organization within or outside Pakistan. In this regard firms shall provide “**No Blacklisting Certificate**” on judicial stamp paper.

24. Export permission must be indicated in the documents and firm will be responsible for provisioning of the export permission license.

25. Technical & Commercial Quotations must be provided on CDs in **MS EXCEL/ MS WORD** format along with hard copies. **Quotations without CDs will not be entertained.**

26. In case of local firms, only registered suppliers / persons who are on Active Taxpayers List (ATL) of FBR are eligible to supply goods / services to Government departments. Local suppliers will submit certificate to this effect along with the technical bid.

27. **Shelf Life.** The firm must identify and state shelf life of all the shelf life items.

28. **Warranty Period.** The warranty will remain valid for 24 months after the contracted stores are put in operation. Confirmation to this aspect must be provided in the technical bid.

29. **Validity of Offer.** The offer must remain valid for 240 days from the date of opening of Tender. Price must be quoted in US\$, however LC can be opened in any other currency such as GBP, Euro, Yen and Yuan etc.

30. **Principal's Performa Invoice.** Principal's Performa Invoice (in original) duly signed must accompany the offer.

31. **Certificate of Conformance.** Firm will provide a certificate that the quoted items meet HRF (M) specifications.

32. **Agency Agreement.** Firm must provide Agency Agreement with its foreign principal along with the technical offer.

33. **Qualification Criteria.** Participating firms should meet the following criteria with:-

- a. 40% score in every individual category/sub category (except para 33 a 4(b) (iii) whereby even zero score will not affect the qualification).
- b. 60% aggregate score of all categories.
- c. The scoring would be done as under:-

Ser	Description	Maximum Points
(1)	Financial Soundness	30
(2)	Past Experience / Record	25
(3)	Past Performance	10
(4)	Project's Technical Evaluation Criteria	35
Total		100

d. Further details of criteria for each of the above categories are as follows:-

(1) **Financial soundness.** Credit marks for financial soundness of the firm shall be on the basis of following qualifications:-

Ser	Description	Max Points	Explanation for Marks Obtained
(a)	Annual turnover of last 3 x Financial Years (Third Party generated verifiable audit reports for last three financial years to be provided).	10	Marks will be calculated as per the formula:- Formula $\text{Score} = \frac{(Y1+Y2+Y3)}{X} \times 10$ *(Y1,Y2,Y3 respective annual turnovers of last three years) X= Last purchased rate / estimated value of the quoted items available with HIT. Note: All calculation will be done in US\$ other currency (if any) will be converted into US\$ with applicable conversion rate.
(b)	Working Capital of last three years (Third Party generated verifiable audit report to be provided).	10	Marks will be calculated as per the formula Formula: $\text{Score} = \frac{(Y1+Y2+Y3)}{X} \times 10$ Y1, Y2 and Y3 being respective working capitals of last three years. X= Last purchased rate / estimated value of the quoted items available with HIT. Note: All calculation will be done in US\$ other currency (if any) will be converted into US\$ with applicable conversion rate.
(c)	Bank Credit Line (verifiable certificate from Bank with clearly mentioning bank credit line to be provided) (Specimen as per Anx 'C').	5	Full marks will be given to the bidders whose Bank credit lines will be equal to or higher than X. Marks of remaining bidder will be calculated as per given formula:- $\text{Score} = \frac{X1}{X} \times 05$ X1= Bank Credit Line X = Last purchased rate / estimated value available with HIT. Note: All calculation will be done in US\$ other currency (if any) will be converted into US\$ with applicable conversion rate.
(d)	Litigation History where decision went against the firm (affidavit on	5	5 Marks for firms with no litigation history. One mark will be deducted for each litigation where decision went against the firm.

Ser	Description	Max Points	Explanation for Marks Obtained
	judicial stamp paper as per Annexure 'D' to be provided).		
Total		30	

(2) **Past Experience/ Previous Record**. Credit marks for experience shall be awarded on the basis of following qualifications:-

Ser	Description	Max Points	Explanation for Marks Obtained
(a)	Projects of similar nature and complexity i.e. Power pack test supply of spares for test benches completed in last 10 years. (Attested and verifiable copies of related contracts be attached).	10	0.5 marks will be awarded on the number of contracts per year of having value 2 Million or more. Maximum 1 mark per year will be granted.
(b)	Projects of ongoing similar nature and complexity in hand i.e Power pack test supply of spares for test benches (Attested and verifiable copies contracts be attached).	10.	Marks will be calculated as per the formula:- Formula Score= $\frac{C}{X} \times 10$ C= Total amount of contracts in hand. X= Last purchased rate / estimated value available with HIT. Note: All calculation will be done in US\$ other currency (if any) will be converted into US\$ with applicable conversion rate.
(c)	Status of enlistment with Government Organizations (Attested copies of Registration certificates to be enclosed).	5	Full marks will be given on provision of at least 1x certificate.
Total		25	

(3) **Past Performance**. Credit Marks for past performance shall be awarded on the basis of following criteria:-

Ser	Description	Max Points	Maximum Points
(a)	Past performance to be evaluated on under mentioned parameters:		

Ser	Description	Max Points	Maximum Points
	i. Contracted store supplied beyond DP in last ten years (data will be attached duly verified from the concerned procurement agency).	2.5	Marks of bidders will be calculated as per given formula:- X1 = Total value of last ten year,s contracts. X2 = Total value of last ten year's contracts completed within DP. Formula: $\text{Score} = \frac{X2}{X1} \times 2.5$
	ii. Quantum of rejections of items in the last ten years contracts (data will be attached duly verified from the concerned procurement agency).	2.5	X1 = Total value of last ten years contracts. X2 = Total value of the passed items in first go in the last ten years' contracts. Formula: $\text{Score} = \frac{X2}{X1} \times 2.5$
	iii. Timely provision of docus/ bank guaranties / bid security money (data will be attached duly verified from the concerned procurement agency).	2.5	X1 = Total no of contracts concluded in last ten years'. X2 = Total number of timely provided bank guarantees/ bid securities against the total no of contracts in last ten years. Formula: $\text{Score} = \frac{X2}{X1} \times 2.5$
	iv. No of contracts / items still pending beyond DP (data will be attached duly verified from the concerned procurement agency).	2.5	0.25 marks would be deducted for each contract in hand, which is pending beyond DP.
Total		10	

(4) **Project's Technical Evaluation criteria.** Credit Marks on technical specification parameters will be granted as per following:-

Ser	Description	Max Points	Explanation for marks obtained
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Ser	Description	Max Points	Explanation for marks obtained
(i)	Technical qualification / know how of tech staff of the firm. Att qualification documents of designated staff.	10	03 x marks will be awarded to the firm for each Engineer employed. 01x marks will be awarded to the firm for each Sub Engineer employed.
ii	Participation of CEO / MD of the firm in regular weekly, monthly progress meeting being held in factory	05	Full marks will be awarded for 100% participation since last two years. 0.5 x marks will deducted for each absentee in each month.
iii	Confirmation of all tech parameters specified in It of confirmation as per sample tech specs related to each item must be given in Tech quote. Marks will be awarded on basis of %age of parts for which this requirement has been met.	10	Full marks will be awarded for 100% confirmation to IT specifications. 09 marks will be awarded for 90% confirmation to IT specifications. 08 marks will be awarded for 80% confirmation to IT specifications and so on.
iv	Capabilities / response of the firms to meet emergency requirement / chock point of the factory to complete the project.	10	Full marks will be awarded for 100% response over the last 03 years. 01 mark will be deducted against every non-compliance to factory emergency requirement / chock points.
Sub Total		35	

34. Only affidavits and authorized third parties (having no conflict of interest with either HIT or the bidder) generated / verified documents will be treated as credible evidences for scoring.

35. Contracts will be awarded to **best evaluated bidder** using least cost method.

Note: Technical/Commercial quotation must conform to IT parameters specified in this tender. The offer will be rejected there in if the said parameters are not complied with.

Lieutenant Colonel
Assistant Director Procurement
(Riaz Fida)

1. **SCHEDULE TO TENDER INQUIRY NO. 5041/18-19/IT- 3032 /CP/HRF (M)/Proc dated 13 Mar 2019.** Time and date for opening of tender at **1100 hours** on **15 April 2019**. The tender shall remain open for acceptance till **1030 hours** on **15 April 2019**.

Serial	Part Number & Nomenclature / Quantity
a.	Dynamometer Power Pack Test Bench. Detail as per Annexure 'A' & 'B'

2. All the clauses / terms mentioned in the IT schedule will be considered acceptable to the firm in case no reference to them is given in the offer.

3. Extension in delivery period will not be allowed in normal circumstances, however in exceptional cases it can be extended with LD charges max upto 10% of the CIF value on the discretion of HIT Bd. If the firm still fails to deliver the store, then the contract will be short closed on Risk & Expense of the firm.

4. **Commercial Offers.** Unit Price of the item should be specified without GST. 17% GST as imposed by Government of Pakistan must also be mentioned separately with the offered prices. The offer without 17% GST will not be considered.

5. Tenders will be delivered by the firm's at Gate -T - 1 of Heavy Rebuild Factory (T-Series), HIT before due date and time.

6. **Quantities Offered by Firms.** Firms should state specifically the quantities, which they can deliver at the price quoted. Silence on the point will entail responsibility for supply of full quantities at quoted prices.

7. Please do not send telex and fax quotation. Such quotations/offers shall be rejected.

8. Chairman HITB reserves every right to reject all the offers with reason but under no obligation to justify the reason.

9. **PRICE MUST BE QUOTED IN US\$,** however LC can be opened in Euro, Pound Sterling, Chinese Yuan and Yen etc as feasible to the purchaser.

10. Partial shipment and partial payment is allowed.

11. Payment out of letter of credit shall be made as under:-

(a) 70% payment of the invoice FOB value on presentation of following shipping documents will be made against each cache of Delivery schedule (Anx- A & B).

(1)	Original Air Way Bill or Original Bill of Lading (signed copy)	-	Three copies
(2)	Non-negotiable Bill of Lading	-	Three copies
(3)	Commercial Invoice	-	Three copies
(4)	Packing List	-	Three copies
(5)	Inspection Note by PSI team	-	Three copies

(b) The remaining 30% FOB value of stores shall be paid to beneficiary on receipt of Consignee Receipt Certificate (CRC) from Consignee.

12. 17% GST as imposed by Government of Pakistan may also be mentioned separately with offered prices. The offer without 17% GST will not be considered.

(FORM (DP-3))

Tender No: _____

Contractor's Telegraphic Address _____

Telephone No: _____

Code Used: _____

From: M/s _____

Dear Sir,

1. I/We hereby offer to supply to the Chairman Heavy Industries Taxila, the stores detailed in the schedule here to or such portion thereof as you may specify in the contract at the prices given in the said schedule and agree to hold this offer till _____. I/We shall be bound by a communication of acceptance dispatched within the prescribed time.

2. I/We have thoroughly examined the specification/drawing and or pattern quoted in the schedule hereto and am/are aware of the nature of stores which is strictly in accordance with the requirements.

Yours Faithfully,

Signatures of Tendered _____

Address _____

Dated: _____

Signature of Witness _____

Address _____

Annexure 'A'

To Tender Inquiry No. 5041/18-19/IT- 3032
/CP/HRF(M)/Proc dated 13 March 2019

SPECIFICATION OF SP GUN POWERPACK TEST BENCH

Ser	Details		
1.	The proposed system should meet & execute requirement for measurement of power, speed, torque, fuel consumption quality assurance, endurance and certification testing of SP Gun M109 A2/A5 & M110 power packs. The proposed test bench should be capable of testing power packs of aforementioned Sp guns. Detail specifications of engine and cross drive are attached as Annex B(as shown on page no 4-9 of TM 9-2815-202-34&P and page no 196 of TM 9-2520-234-35).		
2.	<u>Engines</u>	SP Gun 405 / 425HP	-
	<u>Sub System</u>	System Parameters	Measurement Range
3.	<u>Engine Parameters</u> (Showing minimum and maximum range of sensors which will be adjusted as per user requirement.)	a. RPM b. Torque (HP) c. Load (HP) d. Coolant inlet Temp in F e. Coolant outlet Temp in F f. Exhaust back pressure g. Crank case pressure h. Fuel pressure i. Engine oil pressure j. Engine oil temperature	0~5000 RPM 0~7200 ft.lbs 0~800 HP 0~400 ° F 0~400 ° F 0~10 inch.Hg 0~10 inch.water 0~100 PSI 0~250 PSI 0~400 ° F
4.	<u>Cross Drive Model XTG 411 - 2A</u>	Max Input Speed Max Input torque Max oil pressures Max OIL Temperature	2300 rpm 880 lb. ft 0~400 PSI 0~ 400 F°
5.	<u>System Type</u>	Heavy-Duty Eddy Current with fully digital automatic controller (Air Cooled). Power absorption unit / dynamometer having continuous braking capacity of 1000 HP and maximum braking capacity of 1500 HP with integrated load cell for real time measurements, along with hydraulic or mechanical disc brake for stall test with max braking torque. The system should be capable to perform stall test via software controls.	

6.	<p><u>Miscellaneous Aspects</u></p> <p>a. Input Voltage 220~240 V AC single phase / 360~440 V AC Phase 50 Hz.</p>
	<p>b. Fixed / wheel mounted metallic frame with height adjustable support pillars, necessary locking and vibrational control mechanism for static operation of various engines sizes / types with and without transmission.</p>
	<p>c. Dynamometer should supply fly wheel safety guard with the system.</p>
	<p>d. Dynamometer should be supplied with exhaust system including catalytic converter and silencer with adaptors for the system.</p>
	<p>e. Appropriate integral cooling system for engine coolant with integral cooling tower should be supplied with the system.</p>
	<p>f. System should be equipped with ignition key facility</p>
	<p>g. Plumbing and civil work for water tank / cooling tower / electric connection with in the test bench room will be provided by the supplier with the system. However, purchaser will be responsible to only provide electrical power for the system.</p>
7.	<p><u>Accessories</u>. Proposed system should meet & exceed requirements of standard test interface / adaptors / kits sensors / cables / connectors / engine alignment / engine fixing plates / platform adjustment required to perform calibration on above mentioned power packs for specific functions / tests.</p>
8.	<p><u>Management & Control Instrumentation</u>. The proposed system should have fol:-</p> <p>a. Latest PC Desktop Dell OptiPlex Intel core i9, RAM DDR4 (64 GB), 10TB M2 SSD with Windows 10 Pro. 64 Bit and data acquisition system with Dell LED 24 inch UHD and Dell wireless keyboard & mouse.</p> <p>b. Selectable control modes (Speed, Torque, Power, Manual).</p> <p>c. Ability to create channels with user defined calculations.</p> <p>d. Automated test builder (Profile editor).</p> <p>e. Alarms for system monitoring and shutdown.</p> <p>f. Access security features for predefined users.</p> <p>g. Calibration utility to verify and ensure system accuracy.</p> <p>h. Metric, English, or custom engineering units.</p> <p>i. To include technologically current PC, Printer HP Laser Jet Pro. Color latest / UPS (APC 1KVA) for computer and peripherals</p> <p>j. Includes all cables and connections.</p> <p>k. All on Board Electronics, sensors, Gauges, Displays, Connectors, Cables etc should be</p>

	oil, water, Humidity and heat proof.
9.	<p><u>Environmental Condition</u>. (suitable for proposed system)</p> <p>a. Operating 0° C to +50 °C</p> <p>b. Storage 0° C to +50 °C</p> <p>c. Relative humidity 96 % at +40 °C</p>
10.	Installation, commissioning and trial running (successful testing of five power packs on the system at purchaser premises) will be the responsibility of the supplier. All expenditure on account of boarding / lodging of OEM experts will be borne by supplier.
11.	<p>The supplier will impart operation and maintenance training to purchaser personal at purchaser premises as per following:-</p> <p>a. No of personnel - 2 each for maintenance and operational training</p> <p>b. Duration - two weeks</p>
12.	<p>Following documentation will be provided with system</p> <p>a. Repair manual including detailed trouble shooting.</p> <p>b. Operation and maintenance manual</p> <p>c. Illustrated circuit diagrams</p> <p>d. Detailed part catalog for subsequent procurement of spares.</p>
13.	Supplier to provide 5 years fast moving spares along with the system and will confirm regarding 100 % spare back up supply for the system for ten years.
14.	Firm to confirm that the software being provided with the system requires no update i.e its license should not have an expiry date or require any updates at a later stage. In case of any up gradation req in software no additional cost will be demanded from the purchaser at any later stage. Moreover backup of installation and drivers for all modules software on a separate CD will be provided with the system. The software management system being provided should also have unlimited telephone and E mail support.
15.	All allied accessories/ systems like fuel supply system, cooling system, exhaust system, couplings , adopters, drive shafts, interconnection hoses, electrical cables etc required to make the test bench fully functional will be provided by the supplier.
16.	Detail specification of all auxiliary materials to be used with the system will be provided by the supplier

17.	Detail calibration procedure and period of all types of sensors / gauges and sub systems if required will be provided by the supplier.
18.	Detail of space requirement / size of room for installation of power pack along with foundation drawing if required will be provided by the supplier after one month from the date of conclusion of contract. Room for installation of Test Bench will be provided by purchaser.
19.	Trolley for mounting of power pack will be manufactured by HRF (M). However drawing / specification for manufacturing of trolley will be provided by supplier.
<u>Special Note.</u> Maximum assistance in term of skilled manpower and welding / fabricating facilities will be provided by HRF(M) free of cost to supplier to facilitate in installation / commissioning of test Bench in order to minimize the cost (Exact details, be worked out in writing with HRF(M) before submitting technical / commercial Quotes.)	

Annexure 'B'

To Tender Inquiry No. 5041/18-19/IT-3032 /CP/HRF(M)/Proc

Dated 13 March 2019

**DETAILS SPECIFICATION OF POWERPACK (ENGINE + CROSS DRIVE MODEL XTG 411 -2A) OF
SP GUN M109 A2
TO BE TESTED ON TEST BENCH**

				1800 rpm	2000 rpm	2300 rpm
1	Engine	a. RPM	0~5000 RPM			
		b. Torque	1000 lb-ft			
		c. Load(HP)	Max 405 at 2300 RPM continuous 345 hp at 2300 rpm			
		d. Coolant inlet Temp in F ⁰ .		160 ~ 185 F ⁰	160 ~ 185 F ⁰	160 ~ 185 F ⁰
		e. Coolant outlet Temp in F ⁰ .		160 ~ 185 F ⁰	160 ~ 185 F ⁰	160 ~ 185 F ⁰
		f. Exhaust back Pressure in inches mercury max (Full Load)		1.5 inch Hg	1.9 inch Hg	2.5 inch Hg
		g. Exhaust back Pressure in inches mercury max (no Load)		1.1 inch Hg	1.4 inch Hg	1.8 inch Hg
		h. Crank Case Pressure in inches water Max		1.2 inch water	1.3 inch water	1.5 inch water
		i. Fuel Pressure		50 ~ 70 PSI	50 ~ 70 PSI	50 ~ 70 PSI
		j. Engine oil Pressure normal		40 ~ 60 PSI	40 ~ 60 PSI	40 ~ 60 PSI
		k. Engine oil Pressure Minimum for safe operation		30 PSI	30 PSI	30 PSI
l. Engine oil Temperature		250 F ⁰	250 F ⁰	250 F ⁰		

Cross Drive Model XTG 411 -2A	Maximum input Speed	2300 rpm
	Maximum input torque	880 lb-ft
	Drive ranges	Manually selected
	Gear ranges	Four Forward, two reverse range
	Gear ratio	
	First Gear	4.00:1
	Second Gear	4.00:1
	Third Gear	2.00:1
	Fourth Gear	1.00:1
	Reverse Gear 01	4.77:1
	Reverse Gear 02	4.77:1
	Control Pressures Main Pressure(in converter operation) at 1000 to 1500 rpm	
	Neutral	210 to 230 PSI
	First Gear	210 to 230 PSI

Cross Drive Model XTG 411 -2A	Second Gear	210 to 230 PSI
	Third Gear	210 to 230 PSI
	Fourth Gear	118 to 160 PSI
	Reverse Gear 01	300 to 320 PSI
	Reverse Gear 02	300 to 320 PSI
	Out Put Clutch Pressure at 1000 to 1500 rpm	
	Neutral	0 PSI
	First Gear	0 PSI
	Second Gear	210 PSI
	Third Gear	210 PSI
	Fourth Gear	118 to 160 PSI
	Reverse Gear 01	0 PSI
	Reverse Gear 02	210 PSI
	Governor Pressure at lock up engagement	
	Neutral	82 to 88 PSI

Cross Drive Model XTG 411 -2A	First Gear	82 to 88 PSI
	Second Gear	82 to 88 PSI
	Third Gear	82 to 88 PSI
	Fourth Gear	82 to 88 PSI
	Reverse Gear 01	82 to 88 PSI
	Reverse Gear 02	82 to 88 PSI
	Right Steer	82 to 88 PSI
	Left Steer	82 to 88 PSI
	Lubrication Pressure	18 to 45 PSI at 1835 to 1900 engine rpm in all gears
	Main Pressure in lock up at 1000 to 1500 rpm	
	Neutral	118 to 160 PSI
	First Gear	118 to 160 PSI
	Second Gear	118 to 160 PSI
	Third Gear	118 to 160 PSI

Cross Drive Model XTG 411 -2A	Fourth Gear	118 to 160 PSI
	Reverse Gear 01	160 to 190 PSI
	Reverse Gear 02	160 to 190 PSI
	Throttle Pressure with full Throttle	32 to 40 PSI in all Gear
	Throttle Valve Pressure with full Throttle	32 to 40 PSI in all Gear
	Brake apply Pressure at 1000 to 1500 rpm	
	Right Steer	74 to 127 PSI
	Left Steer	74 to 127 PSI
	Gear Steer Apply Pressure (with no Steer) at 1000 to 1500 rpm	
	Neutral	210 PSI
	First Gear	210 PSI
	Second Gear	0 PSI
	Third Gear	0PSI
	Fourth Gear	0 PSI

Cross Drive Model XTG 411 -2A	Reverse Gear 01	210 PSI
	Reverse Gear 02	0 PSI
	Gear Steer apply Pressure during Steer 1000 to 1500 rpm	
	Right Steer	74 to 127 PSI
	Left Steer	74 to 127 PSI
	Temperature (to cooler)	Normal 220 F ⁰ Maximum 305 F ⁰

Test Data Log

	RPM	Reading	Neutral	1 st Gear	2 nd Gear	3 rd Gear	4 th Gear	Reverse 1	Reverse 2	Right Steer	Left Steer
Main pressure in converter	1000 to 1500	Normal	210-230	210-230	210-230	210-230	118-160	300-320	300-320	Same as range reading	
		Actual									
Main pressure in lockup	1000 to 1500	Normal	118-160	118-160	118-160	118-160	118-160	160-190	160-190	Same as range reading	
		Actual									
Lockup and range clutch apply pressure	1000 to 1500	Normal	Same as main pressure for applicable range								
		Actual									
1 st , neutral and reverse 1 signal pressure	1000 to 1500	Normal	Same as main pressure for applicable range								
		Actual									
3 rd , 4 th and reverse 2 signal pressure	1000 to 1500	Normal	Same as main pressure for applicable range								
		Actual									
Geared steer apply pressure (no steer)	1000 to 1500	Normal	210	210	0	0	0	210	0	0	0
		Actual									
Geared steer apply pressure (during steer)	1000 to 1500	Normal	0	0	0	0	0	0	0	74-127	74-127
		Actual									
Brake apply pressure	1000 to 1500	Normal	0	0	0	0	0	0	0	74-127	74-127
		Actual									
Geared steer and brake coolant pressure	1000 to 1500	Normal	0	0	0	0	0	0	0	8-12	8-12
		Actual									
Output clutch pressure	1000 to 1500	Normal	0	0	210	210	118-160	0	210	0*	0*
		Actual									
Governor pressure (pitot) at lockup engagement	Full throttle	Normal	82-88	82-88	82-88	82-88	82-88	82-88	82-88	82-88	82-88
		Actual									
Lubrication pressure	1835 to 1900	Normal	18-45	18-45	18-45	18-45	18-45	18-45	18-45	18-45	18-45
		Actual									
Throttle (T) pressure	Full throttle	Normal	32-40	32-40	32-40	32-40	32-40	32-40	32-40	32-40	32-40
		Actual									
Throttle valve (TV) pressure	Full throttle	Normal	32-40	32-40	32-40	32-40	32-40	32-40	32-40	32-40	32-40
		Actual									

* On side toward which turn is made

Annexure 'C'

To Tender Inquiry No. 5041/18-19/IT- 3032

/CP/HRF (M)/Proc

Dated 13 March 2019

SPECIMEN OF BANK CREDIT LINE

It is certified that we _____ (Bank's name) commit to provide M/s _____ (Firm's name) a credit line amounting _____ (amount in figures as well as words) exclusively for the supply of items against IT 5041/18-19/IT- 3032 /CP/HRF (M)/Proc dated 13 March 2019 of HIT, Taxila (if required / demanded by M/s _____ (Firm's name), as per out terms and conditions.

The said credit line shall be available within fifteen (15) calendar days after receipt of demand notice from the supplier i.e M/s _____ (Name of supplier) and such credit line shall be maintained until the supply against the contract / project awarded is fully completed by the above said contractor / supplier.

This certification is being issued in favour of above said supplier i.e M/s _____ (Name of the supplier / contractor) in connection with the bidding requirement of HIT, Taxila against their IT number 5041/18-19/IT-3032 /CP/HRF (M)/Proc dated 13 March 2019. We are aware that any false statement issued by us shall make us liable for perjury.

Name and Signature of Authorized Officer : _____
Of the Bank

Official Designation : _____

Date /Seal of Bank : _____

Note:- The amount committed should be machine validated.

AFFIDAVIT**NO DEFAULTER CERTIFICATE**

It is certified that M/s _____ have never been defaulted or blacklisted with any Govt / Semi Govt / Defence Organization / PPRA / Khayber Pakhtoon khawa PPRA / Punjab PPRA / Sindh PPRA within or outside Pakistan.

(Designation, Signature & Stamp)

(Signature & Stamp of Notary Public)