



WESTERN COALFIELDS LIMITED
(A SUBSIDIARY OF Coal India Limited)
CIN U10100MH1975GOI018626

MATERIALS MANAGEMENT WING, COAL ESTATE, CIVIL LINES, NAGPUR - 440 001.
PHONE : PBX : 0712-2611381, 2510691 Extn : 5606, 5861, Fax : 0712-2510284

M/F

Handwritten signatures and initials, including "Beml" and "2/10".

Supply Order NO. 12000110920146

DT: 17.10.2020

SUPPLY ORDER

To
M/s. BEML Limited
Vth Floor, Unity Building,
J C Road, Bangalore - 560 002

Vendor Code: 416002
Vendor Category : Manufacturer
Fax : 0712-224 9997

Dear Sir,

Sub : Formal Order for Supply of 280 HP Motor graders.

- Ref : i. WCL's Tender enquiry no WCL-hq-pur-yvr-ra-e052-2020-21 opened on 17.08.2020 (Tender ID: 2020_WCL_177865_1); Price bid opening followed by Reverse Auction held on 01.09.2020
ii. Your offer / Bid id number 545576 and subsequent correspondence on portal and submission of shortfall / confirmatory documents.
Your letter no BEML/MN/209/BG825/537 dt 04.09.2020

This has reference to above. We are pleased to place FORMAL ORDER on you for the supply of 6 nos of 280HP Motor Graders on the rates, following salient terms and conditions given and general terms and conditions enclosed: -

Description	Ordered qty (nos)	Unit Basic Price Rs.	Extended value Rs.
BEML make, model BG825 Motor Grader 280 HP (minimum) including all necessary filters & O-rings, initial spares required for first 3000 working hours, powered by BEML make Engine model BS6D140-EG; (Replacement requirement -4 nos & Additional Requirement - 2 Nos); Detailed technical specifications as per Annexure "A"; Item Code: 12404000004	6	2,16,00,000.00	12,96,00,000.00
Freight & Insurance charges			Inclusive
GST @ 18% on FOR Destination price			2,33,28,000.00
Total value of order before availing ITC			15,29,28,000.00

Total Value: Rs.15,29,28,000.00 (Rupees fifteen crores twenty nine lakhs twenty eight thousand only).

Terms and conditions :

- Prices: The prices are FIRM on F.O.R. destination basis inclusive of Packing, forwarding, freight and insurance charges upto destination.
- GST: GST shall be paid at actual against documentary evidence as applicable at the time of Dispatch within the stipulated delivery period. The current rate of GST is 18%. Input Tax Credit benefit shall be availed by the consignee, for which you should submit GST Complaint Invoice. You have to comply with the terms and conditions of GST Act/ Rules such as issuance of Tax Invoices, ensure payment of GST and enabling mechanism to facilitate Input Tax credit by WCL. You should upload the Tax Invoices/ Debit Note/ Credit Note in GST Portal, make payment of GST and file returns in time, as prescribed under GST Act and Rule to facilitate WCL to avail Input Tax Credit (ITC) as per eligibility under GST. In case WCL is unable to avail ITC or any liability arises to WCL due to failure on the part of you to comply the above provisions, the entire amount including Interest (If any) borne by WCL shall be recovered from you.
- Security Deposit: Exempted being PSU
- Guarantee / Warranty: The equipment will be warranted against any manufacturing defects/ workmanship for a period of 12 months from the accepted date of commissioning. Any defect observed on this account shall be attended to immediately and in no case beyond a period of one month. For specific

Handwritten signature: W. Hamar

Handwritten signature and date: 17/10/2020

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warranty on assemblies and sub - assemblies, details given in technical specifications and Special Guarantee clause of order may be referred to.

4.a Special Guarantees: The following guarantee will apply for the different components -

i) Complete engine system - 36 months or 6500 hours from the date of commissioning (whichever is earlier) In case of failure of engine system within 6500 hrs., the failed components of the engine system will have to be replaced / repaired depending on the merit of the case, free of cost by supplier.

In case of failure of engine system beyond 6500 hrs the system will have to be replaced on prorata payment basis taking the life of the engine system as 7550 W/hrs.

ii) Transmission Assy. - 36 months or 6500 hrs from commissioning (Whichever is earlier).

iii) Frame, Chassis & Final Drive (including Differential): for 48 months or 8000 hrs from commissioning (Whichever is earlier).

In case of any guarantee failure intimated reasonably in time to the supplier, the replacement or repair job (as per guarantee settlement) must be completed within 21 days at site by the bidder at no cost to the purchaser.

5. Performance Bank Guarantee (PBG): You have to submit performance bank guarantee for 10% of the order value (landed cost) i.e. Rs 1,52,92,800.00 (rupees One crore fifty two lakhs ninety two thousand and eight hundred only) valid for a period of 15 months of from the accepted date of commissioning of material to cover the guarantee period and the same shall be released on receipt of satisfactory performance throughout the guarantee period (BG may be submitted for individual equipments). PBG may be submitted equipment-wise also.

The release of the Performance Bank guarantee(s) after above indicated period, shall be subject to satisfactory performance of the equipment/ items during the warranty period and fulfilment of contractual obligations failing which, action for further extension or encashment of PBG, as deemed suitable shall be taken. The Performance Bank Guarantee shall be released after expiry of validity period if no claim is pending. No payment shall be made without submission of Performance Bank Guarantee.

The bank guarantee issued by the banker of the firm shall be operational for all purposes at Nagpur branch (Maharashtra).

The Bank Guarantee issued by the issuing bank on behalf of the supplier in the favour of Western Coalfields Ltd shall be in paper form as well as issued under "Structured financial messaging system". The details of beneficiary for issue of BG under SFMS platform is furnished below:

Name of beneficiary and details

Name	Western Coalfields Ltd
Area	Head Quarter
Bank A/c No: / Cust ID of beneficiary	Current Account no: 005905018053; Customer Id: 556096497 ; ICICI Bank Ltd, Commercial Banking, 9C/A& 9C/B, Ground Floor, Shriram Towers, LIC Square, Nagpur - 440001, Maharashtra
IFSC code	ICICI0000059
Bank Manager Name & Ph no:	UJJWAL KITE: Ph n: 0712-6627389
BG ADVISING MESSAGE - 760COV/ 767COV via SFMS	
Field Number	Particulars
7035	ICICI0000059
7037	WCL556096497

The original bank guarantee issued by the issuing bank shall be sent by the issuing bank to the following address by Registered post / Speed Post to " General Manager (MM) I/c, Materials Management Wing, Western Coalfields Limited, HQ, Coal Estate, Civil Lines, Nagpur - 440001, Maharashtra" by Registered Post/AD.

Any extension / amendments to the BG shall be done following the same procedure as above. For ready reference and updation of BG in WCL portal , it is necessary that BG issuing / amending bank send the BG advise in the form of message format 760COV /767COV via SFMS (Structured Financial Messaging System) as provided by RBI.

In the event of BG issuing / amending bank not sending the message 760COV /767COV or committing any error while capturing the details at least in the above mentioned field, BG confirmation through online portal would not be updated if issuing bank does not adhere to advisory, WCL will not be responsible

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The above particulars are to be incorporated by the issuing bank properly while issuing BG under SFMS mode to avoid any problem in future.

Original bank Guarantee issued by the Issuing Bank shall be sent by the Issuing Bank to concerned Department/Area by Registered/ Speed Post.

The beneficiary's bank/advising bank shall send a copy of advice received under SFMS mode to concerned Area/HQ through e-mail at their e-mail id and provide print out of the said message from advising bank with seal and signature, to the Finance Dept, of concerned Area/HQ. For this purpose, each Area/HQ shall provide their e-mail ID to the Advising/Beneficiary Bank.

Under SFMS, extension/subsequent amendments to the BG can be done following the same procedure as stated above.

For encashment, the BG shall be placed directly before the issuing bank at Nagpur Branch.

6. Inspection: Final Inspection shall be carried by Consignee at Site. However, WCL reserves its right to get the Equipment inspected before despatch by representatives of GM(Excv) HOD, WCL Hqrs or any other agency appointed by WCL. In case it is decided to carry out pre-despatch inspection by WCL's representative then equipment has to be delivered at Consignee project within 15 days or earlier from the date of inspection and clearance by WCL's representative. Further, firm will be required to give pre dispatch inspection call sufficiently in advance so as to ensure that all the equipments are delivered within the scheduled delivery period.

7. Payment Terms:

i) 80% value of the equipment and consumable spares and consumables for first 12 months of warranty period from the date of commissioning of the equipment and 100% taxes and duties and other charges excluding erection & commissioning charges shall be made within 21 days after receipt and acceptance of materials at site at the consignee's end and submission and Acceptance of Performance Bank Guarantee valid till 3 months after the completion of 12 months period from the date of commissioning of the equipment covered in the contract.

Balance 20% payment including erection & commissioning charges shall be made after successful completion of erection, testing, commissioning and final acceptance of the equipment (along with the accessories) upon presentation of successful commissioning certificate, signed by Staff Officer of the technical department of the area / Area General Manager of WCL, where the equipment has been deployed and confirmation of receipt of DRR in respect of spares and consumables for first 12 months of warranty period from the date of commissioning of the equipment by the paying authority.

8. Delivery: The delivery shall be completed within 5 months to be reckoned from the 7th day of order date. Early supplies will be accepted.

No material to be supplied without delivery extension. Request for extension of delivery period to be made within the schedule delivery period. Even if the materials are unloaded at the Stores, the same shall be at the risk and cost of the supplier and shall not be accepted unless the supplier has obtained the extension of delivery period.

Grace Period : A grace period of 25% of original delivery period or 21 days, whichever is earlier, unless specifically disallowed will be applicable.

Where supplies are made within the grace period, there is no necessity for any extension in delivery period and the paying authorities shall make payment without any amendment to the contract delivery period. No liquidated damages are leviable in respect of supplies made within the grace period. The extra expenditure, the purchaser may have to incur on account of increase/fresh imposition of GST/CST/VAT, Excise/Customs Duty etc. which takes place within the above grace period will also not be recoverable from the suppliers.

The grace period is allowed as a matter of grace and is not intended to operate as extension of the delivery period and the same will be available only for deliveries and not for offering stores for inspection (in cases of pre- dispatch inspections) which should be made within the original delivery period or the re-fixed date of delivery.

If the stores are tendered for pre-dispatch inspection within the original delivery period stipulated in the contract and the firm delivers the stores within the grace period, the purchaser is bound to accept the stores even though the inspection was completed after the delivery date.

The grace period will only apply to the original contract delivery period/re-fixed delivery period and will not be applicable once an extension of delivery has been granted.

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Transportation & e-way Bill: By road on freight paid basis. As the delivery of goods by you is on F.O.R. Destination basis, the movement of the goods is to be initiated by you and issue e-Way Bill.

9. Consignee & Allocation:- WCL's GSTIN no : 27AAACW1578L1ZW

Qty	Area	Project	POSTAL ADDRESS OF THE CONSIGNEE
1 no	Ballarpur	Pouni II & III expansion OC - 1 no	The Depot Officer, Regional Stores, Western Coalfields Limited, Ballarpur Area, PO : Sasti colliery Distt Chandrapur (M.S) 442 701
1 no	Majri	New Majri UG to OC - 1 no (additional)	The Depot Officer, Regional Stores, Western Coalfields Limited, Majri Area, PO : Shivaji Nagar, Distt:-Chandrapur (M.S) Pin: - 442 603
1 no	Umrer	Umrer OC - 1 no	The Depot Officer, Regional Stores, Western Coalfields Limited, Umrer area, PO : Silewara Colliery, Distt:-Nagpur (M.S) 441204
3 nos	Chandrapur	Padmapur - 1 no; Durgapur Exp deep - 2 nos (1 no additional);	The Depot Officer, Regional Stores, Western Coalfields Limited, Chandrapur Area, PO : Durgapur, Distt:-Chandrapur (M.S) Pin: - 442 403

10. Paying Authority: General Manager (Finance), Western Coalfields Limited, Coal Estate, Civil Lines, Nagpur - 440 001.

11. EFT Details (as confirmed in your offer):-

Name of the Bank	State Bank of India
Branch & Location	Kingsway, Nagpur
Account Number	11172255258
Nature of Account	Current Account
IFS CODE of the Branch	SBIN0000432

12. Mode of dispatch: All the stores surely packed are to be dispatched by road transport to the consignee on Freight paid basis.

13. Guaranteed Availability: M/s BEML shall guarantee that the availability of the equipment shall not be less than 86% (Eighty six Percent) for a period of 12 months from the date of commissioning.

14. Liquidated Damages Clause:

(A) In the event of failure to deliver or dispatch the equipment/stores within the stipulated date/period in accordance with the terms and conditions and the specifications mentioned in the supply order and in the event of breach of any of the terms and conditions mentioned in the supply order, the Purchaser shall have the right:

- To recover from the successful bidder as agreed liquidated damages, a sum not less than 0.5% (Half Percent) of the price of any equipment/ stores which the successful tenderer has not been able to supply as aforesaid for each week or part of a week during which the delivery of such stores may be in arrears limited to 10% (Ten Percent) of the total contract value, or
- To purchase elsewhere after due notice to the successful tenderer on the account and at the risk of the defaulting supplier, the equipment/stores not supplied or others of similar description without cancelling the supply order in respect of the consignment not yet due for supply, or
- To cancel the supply order or a portion thereof, and if so desired to purchase the equipment/ stores at the risk and cost of the defaulting supplier and also,
- To extend the period of delivery with or without penalty as may be considered fit and proper. The penalty, if imposed, shall not be more than the agreed liquidated damages referred to in clause (a) above.
- To forfeit the security deposit full or in part.
- Whenever under this contract any sum of money is recoverable from and payable by the supplier, the Purchaser shall be entitled to recover such sum by appropriating in part or in whole by deducting any sum or which at any time thereafter may become due to the successful tenderer in this or any other contract. Should this sum be not sufficient to recover the full amount recoverable, the successful tenderer shall pay the Purchaser on demand the remaining balance. The supplier shall not be entitled to any gain on any such purchase.

For the purpose of the calculation of the liquidated damages amount, the basic Free Delivery at Site(FOR Destination) price shall be considered. For direct imports, the CIP price at Final Place of destination will be considered. Taxes and duties shall not be taken into account for calculation of LD. However, when prices indicated in the order are inclusive of taxes and duties, such prices will be taken for calculation of LD.

Signature

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(B) Denial Clause:

In case of extension of delivery period, any increase in statutory duties and/or upward rise in prices due to price variation clause and/or exchange rate variation clause, is to be borne by the seller during the extended delivery period, while purchaser reserves its right to get any benefit of downward revisions in statutory duties, PVC and exchange rate variation clause.

14. Risk Purchase Clause:

In the event of failure of the supplier to deliver or dispatch the stores within the stipulated date/period of the supply order or in the event of breach of any of the terms and conditions mentioned in the supply order/contract, WCL shall have the right to purchase the stores from elsewhere after due notice to the defaulting supplier at the risk and cost of the defaulting supplier. The cost as per risk purchase exercise shall be recovered from the Earnest Money Deposit/ Security Deposit/ Performance Security of the supplier and/or bills submitted by the supplier against the same contract or any other contract pending in the same Subsidiary Co. and/or in any other Subsidiary Companies / CIL.

Risk Purchase Action shall be initiated as a last resort, if the supplier has failed to deliver despite having been given adequate and proper notice to discharge its obligations and under any of the following conditions:

- a) When the supplier fails to deliver the materials even after extending the delivery period.
- b) When the supplier fails to respond to purchaser's request for supply of the materials and fails to provide any genuine and bonafide reason for the delay in supply.
- c) When the supplier breaches any of the terms and conditions of the supply order/ contract and as a result fails to execute the order satisfactorily.

15. SUBMISSION OF BILLS:

- a. For claiming 80% payment, following documents are to be submitted along with original bills as per terms of the supply order to the consignee.
 - a. Four copies of the Supplier's invoice, Pre-Receipted and Stamped showing Contract Number, Goods description, quantity, unit price, total amount and GST No. of Ultimate Consignee.
 - b. Receipted Challan/ Consignment Note of all the consignments.
 - c. Manufacturer's Test & Inspection Certificate.
 - d. Manufacturer's Warranty /Guarantee Certificate.
 - e. Lowest Price Certificate.
 - f. Copy of Performance Bank Guarantee .
 - g. Documentary evidence for freight and transit insurance charges up to the destination.
 - h. Copy of Certificate of Insurance.
 - i. Any other document(s) required as per contract.
- b. For Claiming 20% payment, the following documents are to be submitted
 - (i) Pre-receipted and stamped bill for 20% payment.
 - (ii) Commissioning Certificate from the respective Area General Manager / Staff Officer (Excvt)

16. Force Majeure Clause: If at any time, during the continuance of this contract, the performance in whole or in part by either party of any obligation under this contract shall be prevented or delayed by reason of any wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes, lockouts, freight embargoes or act of God (hereinafter referred to "events") provided, notice of the happening of any such event is given by either party to the other within 21 days from the date of occurrence thereof neither party shall by reason of such event, be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance, and deliveries under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, provide further that if the performance in whole or part or any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 60 days, either party may at its option terminate the contract provided also that if the contract is terminated under this clause, the purchaser shall be at liberty to take over from the contractor at a price to be fixed by the CIL / Subsidiary Company, which shall be final, all unused, un damaged and acceptable materials, bought out components and stores in course of manufacture in the possession of the contractor at the time of such termination or such portion thereof as the purchaser may deem fit excepting such materials, bought out components and stores as the contractor may with the concurrence of the purchaser elect to retain."

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Supply Order no 12000110920146 dt 17.10:2020, M/s BEML Ltd

17. Manufacturing certificate: As the order is being placed on the basis of consideration that you are a manufacturer of the ordered material, you will have to provide a certificate to the following effect on the body of each bill.

"Certified that the items supplied and included in this bill/ invoice are our own make and have been actually manufactured in our works situated at _____ (address of the factory)

18. Integrity Pact: Integrity Pact as per format (Annexure 5 of the NIT) signed and furnished by you along with the offer shall remain valid and applicable for this contract. The name of the IEMs for this order are

Dr. (Ms) Nivedita Haran, 23, IFS Vilas, P-6, Builders Area, Greater Noida 201310
Shri A.K.Mohapatra, Qrs no B-5/9, Unit - 9, Bhoi Nagar, Bhubaneswar 751022

19. Arbitration Clause: "In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs)/Port Trusts inter se and also between CPSEs and Government Departments / Organizations (excluding disputes concerning Railways, Income Tax, Customs & Excise Departments), such dispute or difference shall be taken up by either party for resolution through AMRCD as mentioned in DPE OM No. 4(1)/2013-DPE(GM)/FTS-1835 dated 22.05.2018."

20. Lowest Price Certificate: As undertaken by you in your offer, you have undertaken that the prices quoted by them for the offered items are the lowest prices as applicable to any other Organization / Ministry / Department of the Govt, of India or Coal India Ltd. and /or its Subsidiaries or other PSU or any other private organization and also to submit the certificate as under:

This is to certify that the prices quoted by us for the offered items are the lowest prices as applicable to any other Organization / Ministry / Department of the Govt, of India or Coal India Ltd. and /or its Subsidiaries or other PSU or any other private organization.

21. Price Fall Clause:

"The Bidder undertakes that it has not offered to supply / supplied / is not supplying same or similar product / systems or sub systems at a price lower than that offered in the present bid in respect of any Organization / Ministry / Department of the Govt, of India or Coal India Ltd. and /or its Subsidiaries or other P S U or any other private organization during the currency of the contract and if it is found at any stage that same or similar product / systems or sub systems was supplied by the bidder to any Organization / Ministry / Department of the Govt. of India or Coal India Ltd. and /or its Subsidiaries or other PSU or any other private organization at a lower price during the currency of the contract, then that very price will be applicable to the present case and the difference in the cost would be refunded by the bidder to buyer, if the contract has already been concluded .

(i) The currency of contract will mean the period till completion of supply.

(ii) It shall be responsibility of the supplier to inform the purchaser of offer to supply / supply of the similar /ordered item (s) at a lower rate to any Organization / Ministry / Department of the Govt, of India or Coal India Ltd. and /or its Subsidiaries or other PSU or any other private organization during the currency of the contract.

(iii) The supplier shall submit a certificate along with the bill(s) that it has not offered to supply / supplied the similar /ordered item (s) at a lower rate to any Organization / Ministry / Department of the Govt, of India or Coal India Ltd. and /or its Subsidiaries or other PSU or any other private organization. "

You will furnish the following certificate to the Consignee / Paying authority along with the bills :

"I/We certify that I/We have not supplied / are not supplying similar product / systems or sub systems at a price lower than that ordered price in respect of any other Ministry / Department of the Government of India or PSU"

Failure in submission of aforesaid certificate by the contract holder, may result in with holding of the payment of their bills against supply.

22. Settlement of Disputes through Court of Law of Competent Jurisdiction:

The Courts in whose territorial jurisdiction the place from where Tenders / contract is being issued is located i.e. Nagpur shall be competent to deal with any matter arising out of this NIT / resultant purchase Order/Contract. Therefore any disputes/claims arising out of the NIT with bidders or arising out of the contract entered into with the suppliers will be subject to the jurisdiction of the Nagpur court of law

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Unless otherwise specified above, the purchase order shall also be governed by the terms and conditions given in the General conditions of the Contract enclosed and terms of Notice Inviting Tender.

This order is issued with this acceptance. Kindly acknowledge the receipt of this order.



17/10/2020

(Dr. Y. Venkata Ramana)
Chief Manager (MM)

Yours faithfully


17/10/2020
(K.S.R. Divakar)
Chief Manager (MM)

Enclosures: -

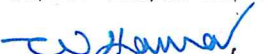
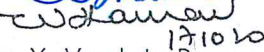
- Annexure-A : Detailed technical Specification for Motor Graders 280 HP
Annexure-B : List of Standard Tools
Annexure-C : Filters and consumables for 3000 Hours of operation
Annexure-D : Erection Chart of BG 825 Motor Grader
Annexure-E : Major bought out items of BG 825 Motor Grader
Annexure-F : Maintenance Schedule
Annexure-G : Oil & Lubricant chart
Annexure-H : Security Deposit Bank Guarantee format
Annexure-I : Performance Bank Guarantee format
Annexure-J : General Conditions of the Contract (GCC)

Copy to :

1. GM(Excv) HOD / GM(Fin.) I/c / GM(P&P),, WCL(HQ), Nagpur
2. AGM / SO(Excv)/ SO(MM)/ AFM/ Depot Officer, WCL, Ballarpur / Chandrapur / Majri / Umrer Areas
3. TS to DT(P&P), WCL, Nagpur
4. RD, CMPDIL, RI IV, Nagpur
5. GM(MM), SECL, MCL, CCL, BCCL, ECL, NCL, CIL
6. Chief Manager (MM/Admn.), WCL(HQ) - The Landed value of the order is Rs. 15,29,28,000.00
7. Dr. (Ms) Nivedita Haran, 23, IFS Vilas, P-6, Builders Area, Greater Noida 201310
8. Shri A.K.Mohapatra, Qrs no B-5/9, Unit - 9, Bhoi Nagar, Bhubaneswar 751022
9. M/s BEML Ltd., 33, Cement Road, Shivaji Nagar, Nagpur 440 010
10. Chief Manager (Excv) EED, CIL, Regional Sales Officer, Geeta Mansion, 4th floor, KG Road, Bangalore

Indent details: Indent No. 1484 dt 28.07.2019 against approved Shopping List of HEMM for the FY 20-21
BC Reference: WCL/CAP/HEMM/2020-21/12/01/37 Dated, 14.10.2020 for Rs. 1529.28 Lacs

This is issued with the concurrence of Dir(Fin) on 25.09.20 and approval of Board of Directors in their 325th meeting held on 30.09.2020, which was communicated by Company Secretary vide reference no WCL/Office of CS/BM-325/20-21/465 dt 08.10.2020



17/10/2020
(Dr. Y. Venkata Ramana)
Chief Manager (MM)



17/10/2020
(K.S.R. Divakar)
Chief Manager(MM)

7/83

Detailed Technical Specification for MOTOR GRADERS - 280 HP (minimum).

1. Item description: MOTOR GRADER - 280 HP (minimum):

2. Technical specification:

Introduction: These Technical Specifications identify the technical requirements of the Goods and Services. The Technical specifications are presented as follows.

- A. Scope of Supply.
- B. General Requirements
- C. Equipment Specifications

3. Conformity with specification:

The equipment to be provided shall conform with the requirements defined in these parts. Where stated requirements conflict, the order in which the specifications shall prevail is as follows.

- Part A - followed by
- Part B - followed by
- Part C

PART-A

A. Scope of Supply.

A.1 Equipment Package.

You are required to supply as per the equipment package detailed in the order.

A.2 Supplementary Items

- I. The equipment shall be provided with a comprehensive tool kit, which shall include any special tools required for erection, commissioning and for the maintenance and repair of all the equipment.
- II. First fill of all oils, grease and lubricants needed for test and commissioning of each equipment.
- III. All filters & O-rings required for first 3000 working hours.

A.3 Information & Drawings

You shall provide the following documents before the scheduled installation date :-

- (a) Three suitably illustrated copy of operating, repair, and Maintenance instructions for each equipment, written in the English language, substantially bound in book form.
- (b) Three suitably illustrated copy of detailed Spares Parts Manuals covering all plant, equipment and accessories substantially, for each Equipment bound in book form.

You shall also submit the data identified in the specifications for each item of Equipment proposed. In addition to the Equipment drawings requested, where appropriate you shall supply detailed drawings illustrating erection/assembly site(s), foundation and accommodation requirements for such items as drive motors, switch installations, etc.

A.4 Erection/Assembly, commissioning and Performance Testing: You shall provide the service of Specialist Technicians to supervise the installation/erection/assembly, commissioning and any performance testing of the plant, equipment and accessories supplied.

The Technicians shall remain at site following commissioning until all necessary personnel are fully conversant with the maintenance and operation of the equipment.

A-5 Training: You shall also be responsible for the provision and delivery content of any suitable training programmes necessary for operation and maintenance of the equipment.





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PART-B

B. GENERAL REQUIREMENTS:

B.1 Geography and Climatic Conditions.

Elevation : The natural surface varies from 100m to 1000m above mean sea level.

Climate: The climate is sub-tropical to tropical dusty with a hot and humid atmosphere. Monsoon rains occur in the period from June to October -

Ambient Conditions	Relative humidity	-	Maximum 98%
	Temperature	-	Minimum 0° C
		-	Maximum 50° C

Rainfall : The mean annual rainfall is 1000 mm. 90 to 95% of which may fall in rainy season from June to October.

Wind	April to September	-	South to South Westernly
	October to March	-	North Westernly
	Speed	-	8 Km per hr average 100 Km per hour max.
Under foot	Slushy and highly abrasive	-	

B.2 Goods (Equipment & Machinery)

Detailed specifications of the equipments are given in part - 'C' of this section.

In general all items shall be -

- New, unused and of the current design (incorporating latest proven features) and not likely to be discontinued or become obsolete in near future.
- Designed and constructed to handle without overload and for the working hours stated, the maximum volumes/rates specified.
- Designed to facilitate ready access, cleaning, inspection, maintenance and repair of component parts.
- Designed to facilitate rapid changeover of consumable items.
- The component parts of all items shall, wherever possible, be selected from the standard ranges of reputable manufacturers.

The equipments and accessories shall be physically robust and where necessary capable of dismantling for transportation and ready re-assembly using simple tools. All equipments items provided shall be designed to be compatible within the proposed overall Scope of Supply.

Electrical equipments shall provide all protection devices, controls and interfaces for the equipment to operate safely and efficiently.

All workmanship and materials shall be of first class quality in every respect.

All parts and surfaces which are exposed to corrosive environments shall be suitably protected to prevent any effects of corrosion or erosion.

B.3 Standard: (a) Beside conforming to the standards specified in the equipment specifications, the equipment shall also has to meet approval of the Statutory Government Authorities including Director General of Mines Safety (DGMS) having jurisdiction over the Equipment and its use. (The system of units for all measurements shall be the System International d'Units(S.I.))

B.4 Suppliers Responsibility: The Purchase requires that you shall accept responsibility for the provision of complete operable and compatible Equipment and systems within the Scope of Supply. These documents identifies only the major items required for the installation and you shall ensure that the total supply includes all necessary equipments for it to function effectively and safely. Any additional items you considers necessary to ensure compliance with such a requirements shall be identified and included.

You shall be responsible for the testing and commissioning of the equipments and ensure that it meets the requirements as specified. The commissioning and setting to work of the whole equipments supply package shall be carried out under your supervision in conjunction with the Purchaser's nominated personnel.

B.5 Spare Parts Provisions

B.5.1 Availability of Spare Parts

All items and Equipments proposed shall be of current design and manufacture. You shall warrant that sufficient spares and servicing facilities will be available to maintain the equipments in use through out its life.

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B.5.2. Provisions of Spare Parts.

Within the Contract Price, the Purchaser will agree to purchase all filters and O rings required for first 3000 hours of operation of each equipment.

You shall stock sufficient fast moving and maintenance and other spares in their Local Depots to ensure maximum availability of their equipment .

B.5.3 Emergency Spare Parts

You shall ensure that spare parts required urgently by the Purchaser for repair of breakdown equipments are supplied at over riding priority.

B.5.4 Lifetime Spare Parts.

You undertake and guarantee to produce and maintain stocks, to be available for purchase by the Purchaser under separate agreements of all Spare Parts and Consumables as may be required for maintenance and repair of the Plant throughout its working life. In the event you wish to terminate production of such Spare Parts, you shall:

(a) give not less than six months notice in writing of it's intention to terminate production in order to permit the Purchaser reasonable time in which to procure needed requirements and

(b) immediately following termination, provide to the Purchaser at no cost, manufacturing drawing material specifications and all necessary permissions to facilitate manufacture of the spare parts elsewhere. In any event, you shall not seek to terminate manufacture of spare parts for a period of not less than ten (10) years from taking-over.

B.5.5. Oil, Lubricants and Fluids

You shall provide to the purchaser a detailed schedule of all necessary oils, lubricants, fluids for the operation and maintenance of equipment and specify the appropriate Grades, Indian and International standard references (whichever is applicable), suitable for different assemblies.

B. 5.6 General

Nothing in this clause B.5 shall relieve you of any guarantee, Availability, performance or other obligations or liabilities under the contract.

B.6 Composite Warranty/Guarantee

You shall warrant that the equipment supplied under this contract is :

a. In accordance with the contract specifications.

b. The equipment shall have no defects arising out of design, material or workmanship and the complete equipment shall be warranted for 12 months from the accepted date of commissioning.

The warranty shall cover for total equipment so that ultimate responsibility has only with you although components may be supplied by different suppliers to the Supplier.

B.7 Performance Guarantee :

B:7.1 Introduction.

B.7.1.1 You shall guarantee that the equipment supplied pursuant to this contract shall be available for use by the Purchaser and shall meet the performance criteria specifications at the level and in accordance with the terms and conditions of the Availability Guarantee herein contained.

B.7.1.2 Where equipment supplied under the Contract fails to meet the criteria of the Availability Guarantee, you shall, at your own cost, provide suitably qualified and experienced personnel at site to demonstrate to the purchaser's satisfaction that the required level of availability can be achieved and maintained.

B.7.1.3 You shall provide the services of such personnel at site within seven (7) days of notification by the Purchaser that the availability criteria has not been met in any one (1) month.

B 7.2 Guarantee

B7.2.1 You shall guarantee that the equipment supplied pursuant to the Contract shall be available to the Purchaser at the level hereinafter defined to perform to criteria of not less than that defined in the Technical Specifications incorporated in the Contract.

B 7.2.2 You shall guarantee that the equipment shall be available to perform its duty to minimum criteria and to the minimum availability percentage level as defined in the individual equipment specifications included as the Attachment to the Technical specifications.


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PART-C

EQUIPMENT SPECIFICATIONS OF MOTOR GRADER 280 HP (Minimum)

1. Scope of Specification

This specification is intended to cover the technical requirements for the design, manufacture, testing, supply/ delivery, on-site erection and commissioning of a self-propelled, wheeled (Tyre Mounted) Motor Grader of 280 HP (minimum).

2. References

The following International Standards are referred to in, and form part of, the Specification:

- ISO 2867 Earth-moving machinery - Access systems
 - ISO-3449 Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements
 - ISO 3450 Earth-moving machinery - Wheeled machines - Performance requirements and test procedures for braking systems
 - ISO 3457 Earth-moving machinery - Guards and shields - Definitions and specifications
 - ISO-3471 Earth-moving machinery - Roll-over protective structures - Laboratory tests and performance requirements
 - ISO 5010 Earth-moving machinery - Rubber-tyred machines - Steering requirements
 - ISO 6014 Earth-moving machinery - Determination of ground speed
 - ISO 6405-1 Earth-moving machinery - Symbols for operator controls and other displays - Part 1 : Common symbols
 - ISO 6405-2 Earth-moving machinery - Symbols for operator controls and other displays - Part 2 : Specific symbols for machines, equipment and accessories
 - ISO 6750 Earth-moving machinery - Operation and maintenance - Format and content of manuals
 - ISO 7129 Earth-moving machinery - Tractors with dozer, graders, tractor scrapers - Cutting edges - Principal shapes and basic dimensions
 - ISO 7457 Earth-moving machinery - Measurement of turning dimensions of wheeled machines
 - ISO 7464 Earth-moving machinery - Method of test for the measurement of drawbar pull
 - ISO 9249 Earth-moving machinery - Engine test code - Net power
 - ISO 10570 Earth-moving machinery - Articulated frame lock - Performance requirements
- In case the offered model meets equivalent other International Standards, bidder must indicate the same.

3. Design Criteria : The grader shall be capable of continuous operation for protracted periods on a system of 3 shifts (each of 8 hours duration) i.e. 24 hours per day, throughout the year. The grader will be used for haul road maintenance, handling soils, rock and coal in open cast mines.

The grader shall meet the following minimum requirements:

- a) Blade dimensions : 4850 x 680 x 25 mm
- b) Blade lift : 400 mm

4. Technical Requirements

4.1 Engine: The grader shall be powered by a direct injection 4-stroke turbo-charged diesel engine, with Electronic Control Module system, developing minimum 280 HP, Net Power, measured between 1700 and 2200 r/min according to ISO 9249.

The engine shall be provided with 24V electric starting, dry type 2-stage air cleaner with suitable dust level indicator & evacuator system and 2-stage fuel filter with water separator.

The engine shall have a water jacket cooling system, thermostatically controlled, using an engine driven water pump, with the cooling water re-circulated through a heavy-duty radiator. The system shall be capable of providing sufficient cooling to allow the grader to continuously operate at the full rated output at the maximum ambient temperature.

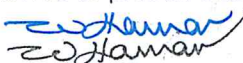
The moving parts of the engine shall be lubricated by an engine driven oil pump, with full flow oil filtration and cooling. The engine shall be equipped with an over-speed governor.

4.2 Transmission: The grader shall be provided with a suitable efficient transmission having minimum 8 forward and 6 reverse speeds. The transmission shall be provided with a heavy duty removable belly guard designed to minimize the accumulation of dirt and debris.

Suitable gear shifting locking device to prevent accidental machine start should be provided.

4.3 Final Drives:

Suitable Final Drive of proven design should be provided. Final Drive such provided must be clearly illustrated





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4.4 Axles: The axles shall be heavy duty with traction sensing or other suitable type differential.

4.5 Steering: Full hydraulic power steering, which complies with ISO 5010, shall be provided. Three modes of steering shall be provided for improved maneuverability i.e. straight frame, articulated and offset steering.

4.6 Hydraulic System

4.6.1 Hydraulic System : All machine controls shall be hydraulically operated. The Motor Grader hydraulic system should be of proven design for efficient operation. The hydraulic pumps, motors and cylinders should be field proven large heavy duty type and have suitable in-built protection from surge, cavitations, loss of oil due to hose leakage or burst, etc. As far as practicable reputable single make pumps, motors, cylinders and valves, etc. shall be used in the machine. Adequate filtration of hydraulic oil shall be provided.

4.6.2 Hoses: All hoses shall be grouped as far as possible and suitably clipped to reduce damage from scuffing. Fire resistant hydraulic hoses in place of ordinary hoses to decrease the chance fire. All hoses and piping shall be protected from damage.

4.7 Brakes: Suitable reliable fail-safe, service, secondary and parking brakes, which comply with ISO 3450, shall be provided.

4.8 Tyres: Tubeless, Rock duty, Cut-resistant Tyres of, size 18.00 x 25 / 20.5 x 25 / 23.00 x 25 (12PR) (preferably L-3 / G-3 Type) or equivalent suitable size shall be provided.

4.9 Frames: An articulated frame with a locking device, which complies with ISO 10570, shall be provided.

4.10 Blade Circle: The blade circle shall be an internal gear type of adequate diameter with uniform heat-treated teeth. Top and bottom raised wear surfaces shall be provided to prevent the circle teeth from contacting the support shoes.

The blade circle shall be hydraulically controlled to provide full 360° rotation in either direction and fitted with a mechanical lock.

4.11 Mouldboard: The mouldboard shall be a heavy-duty reinforced construction with wear resistant steel and replaceable and reversible Cutting edges, suitable end bits and side edges. Heavy duty hardened steel wear resistant cutting edges, which comply with ISO 7129, shall be provided.

Blade side shift and tip control should be by means of hydraulic cylinders.

4.12 Fuel Tank : The fuel tank should be of sufficient capacity for 20 hours operation without re-fuelling and be provided with a level indicator. The filler opening in the fuel tank shall be in a protected location and provided with a lockable-hinged cap.

Construction of the tank should be such that it provides for easy accumulation and drainage of water with minimum loss of fuel.

4.13 Operator's Cab : A fully insulated, sound suppressed, lockable, **Air conditioned operator's cab** with tinted safety glass, windshield wipers and washer should be provided. All doors, windows and vents shall have dust and weather proof seals. The operator's seat shall be a fully adjustable bucket type with foam rubber cushion and best quality upholstery. Internal and left and right external rear view mirrors, heavy duty rubber floor mats and a cooling fan shall also be provided. ROPS which comply with ISO 3471 shall be provided.

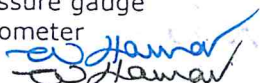
Periodical maintenance of Air Condition system including gas refilling to be done by the supplier during the entire contract period .

All operating controls, monitoring and working signals should be conveniently located in consoles within easy reach of the operator and shall comply with ISO 6405-1 and ISO 6405-2.

Ladders and handrails, which comply with ISO 2867, shall be provided for access to the operator's cab.

4.14 Gauges and Indicators : The following shall be provided as a minimum:

- a) Water temperature gauge
- b) Engine oil pressure gauge/indicator
- c) Converter / Transmission oil temperature gauge/indicator
- d) Fuel level gauge
- e) Service meter
- f) Air pressure gauge
- g) Speedometer





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4.15 Warning Alarms/Lights : The following audio/visual warning alarms shall be provided:

- a) Front warning horn
- b) Audio Visual Reversing Alarm
- c) Coolant level and temperature
- d) Engine oil pressure and temperature

4.16 Electrical Equipment: The grader shall be provided with the following:

- a) 24V DC electrical system with suitably rated alternator of reputable make
- b) Electric start system.
- c) Reputable make high capacity batteries
- d) Battery isolation switch

All electrical circuits shall be protected by adequately rated fuses/ Resettable circuit breaker, which shall be easily accessible for maintenance. If applicable, at least two spare fuses of each size shall be provided in each fuse box.

4.17 Lighting: Adequate lighting shall be provided for safe nightshift operation.

The lighting system should include the following:

- a) 4 (Nos) Headlights
- b) 2 (Nos) Rear working lights
- c) 4 (Nos) ROPS mounted working lights (2-front and 2-rear)
- d) Cabin dome light
- e) Blade flood lights

Head lights and Rear working lights shall be identical in ratings and fitted in protective area.

4.18 Guards and Shields: Adequate guards and shields, which comply with ISO 3457, shall be provided throughout the grader.

4.19 Fire Extinguisher: Adequate number of fire extinguisher shall be provided on the grader, suitably mounted in a heavy-duty bracket for ease of removal. The extinguisher shall be dry powder (cartridge type) with a minimum capacity of 5 kg and shall comply with Indian Standard IS: 2171.

Bidder shall submit a Certificate as an undertaking that, a valid Test Certificate (valid as on the date of commissioning of the equipment at site) shall be submitted at the time of supply of equipment along with other documents, for Fire Extinguisher including Materials and Chemicals to be used in fire extinguisher from any Government or Government approved Laboratory in compliance with relevant Indian Standards as per DGMS Circular No. DGMS (Approval) CircularNo.02 dtd. 08thJuly2013.

4.20 Automatic Fire Detection and Suppression System :

DGMS approved / Compliant Automatic Fire Detection and Suppression System shall be provided and suitably mounted in the Equipment. Bidder to confirm the type and make of the AFDSS system along with materials and chemicals to be used in the fire fighting system in the equipment are in compliance of relevant Indian standards and DGMS Circular No. DGMS(Approval) Circular No.02 dtd. 08thJuly2013.

Bidder shall submit a valid Test Certificate as an undertaking that, a (valid as on the date of commissioning of the equipment at site) at the time of supply of equipment along with other documents.

4.21 Warning system for Operator's fatigue: A suitable "Driver's behavior monitoring system" with warning devices and sensors to be installed in the cabin. The device should be small in size which should not block the vision of the driver. The system shall be fully water proof, dust proof, shock and vibration resistant and should be suitable for operation in extreme climatic condition in Indian Open Cast mines.

5. Ancillary Equipment And Other Requirements

The following shall be provided on the grader:

- a) Front mounted push plate
- b) Rear mounted rigid drawbar

6. Tools and Tackles: A set of standard and special tools and tackles required for erection, maintenance and repair of equipment should be supplied along with each machine.

7. Manuals: 2 (Two) sets of Operation & Maintenance Manuals and Spare Parts catalogues shall be supplied for each machine, and one set is to be supplied to the Excavation Department, WCL-HQ, Nagpur.

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8. Initial Spares: Initial spares / filters recommended for initial 3000 hours trouble-free operation must be provided along with each machine. Machine will be accepted only along with these initial spares. . List of such spares (unit-wise) justifying the total requirement as per maintenance schedule should be submitted.

9. Additional Spares : Cutting Edge and End Bits along with Fastener - 30 sets, to cover minimum 3000 hours operation of the machine, shall be supplied along with each machine. In case of any additional requirement during 3000 hrs, the same shall be supplied free of cost.

10. After-sales-service: Availability of sufficient skilled service personnel and spare parts depot / warehouse at vicinity of WCL mines area will be considered while finalizing the tender.

11. Special Guarantees: The following guarantee will apply for the different components -

i) **Complete engine system** - 36 months or 6500 hours from the date of commissioning (whichever is earlier) In case of failure of engine system within 6500 hrs., the failed components of the engine system will have to be replaced / repaired depending on the merit of the case, free of cost by supplier.

In case of failure of engine system beyond 6500 hrs the system will have to be replaced on prorata payment basis taking the life of the engine system as 7550 W/hrs.

ii) **Transmission Assy.** - 36 months or 6500 hrs from commissioning (Whichever is earlier).

iii) **Frame, Chassis & Final Drive (including Differential):** for 48 months or 8000 hrs from commissioning (Whichever is earlier).

In case of any guarantee failure intimated reasonably in time to the supplier, the replacement or repair job (as per guarantee settlement) must be completed within 21 days at site by the bidder at no cost to the purchaser.

12. Performance Guarantee : The Supplier shall guarantee that the availability of the equipment shall be not less than 86% (eighty-six per cent) for a period of 12 months from the accepted date of commissioning.

13. Composite Warranty / Guarantee : The complete equipment shall be warranted for 12 months from the accepted date of commissioning.

14. Supervision of Erection and Commissioning: You shall be responsible for erection and commissioning of the material at site. The purchaser will assist in providing necessary erection tools and tackles etc and unskilled man power.

You shall depute qualified and competent engineer(s) to supervise the entire assembly, erection and commissioning of equipment free of cost for suitable man days including Sundays and holidays, if worked, per machine for erection, commissioning and test running, as well as training in operation and maintenance of the equipment at site. Commissioning shall include testing of equipment at maximum rating, under the mining operating conditions as specified to the satisfaction of the user. In order to give proper service to suitable free accommodation and transport shall be provided by our Project Officer to the serving staff of You for initial commissioning and servicing of the equipment. The Project will provide all facilities like tools and cranes, semi-skilled labour generally required for assembly of such machine at site free of cost, during the initial commissioning and service of the equipment.

15. Inspection clause: Final Inspection shall be carried by Consignee at Site. WCL reserves its right to get the Equipment inspected before despatch by CM(Excv) CIL, Bangalore or the representative of GM(Excv) HOD, WCL Hqrs or any other agency appointed by WCL In case it is decided to carry out pre-despatch inspection by CIL / WCL's representative then equipment has to be delivered at Consignee project within 15 days or earlier from the date of inspection and clearance by CIL / WCL's representative.

16. Training: You in consultation with the HOD (Excavation) of the respective project, shall arrange to conduct proper training to WCL's operators, technical staff and supervisory personnel for suitable period, within three months from the date of issue of certificate of acceptance & Commissioning of the equipment. Training should be conducted free of cost. You shall contact HOD (Excavation) WCL-HQ before and after conducting the training.

The training shall cover the following

- a) The machine system and safety
- b) Equipment operation and maintenance
- c) Trouble shooting, detection of fault and their remedies, covering:-

- (i) Electrical and electronics
- (ii) Mechanical

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- (iii) Hydraulic system
- (iv) Air system
- (v) Lubrication system

Comprehensive training manuals with clear illustration shall be provided to each participant. Training course shall be conducted in both English and Hindi languages as required.

17. Dimensions, weights and performance details:

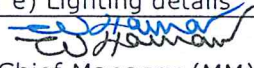
Specification Parameter *	Bidder's value *
17.1 TYRE MOUNTED MOTOR GRADER - Engine Net Power - 280 HP (Minimum) as per the Technical Specifications indicated in NIT / TPS; Replacement requirement / NCD: 4 nos	
17.1.1 Make and model of the equipment: BEML Make & Model: BG825	
17.2 TYRE MOUNTED MOTOR GRADER - Engine Net Power - 280 HP (Minimum) as per the Technical Specifications indicated in NIT / TPS; Additional Requirement / PCD : 2 nos	
17.2.1 Make and model of the equipment: BEML Make & Model: BG825	
17.3 TECHNICAL PARAMETERS - Dimensions, Weights and Performance Details	
17.3.1 Dimensions	
a) Overall length	10010mm
b) Overall width	4928mm
c) Ground Clearance	440mm
d) Draw Bar Height	1045mm
e) Height of top of ROPS structure	4000mm
f) Size of Blade	4876mmX692mmX25mm
17.3.2 Weights	
a) On Front Wheels	8400kg
b) On Rear Wheels	19600kg
c) Total Weight	28000kg
17.3.3 Engine	
a) Manufacturer NAME and model	BEML & BS6D140EG
b) Number of cylinders	6 Nos
c) Bore	Dia 140mm
d) Stroke	165mm
e) Displacement	15.24 Liters
f) Net Power and RPM	209KW (280hp) @ 2100rpm
g) Maximum torque	1236Nm @ 1400rpm
17.3.4 Transmission	
a) Manufacturer NAME and model	Make & Model: BEML
b) No of Forward and Reverse Gears	08 Forward & 08 Reverse Speed
c) Maximum Speed in Each Gear	Annexure 14.3.4.c enclosed
d) Final Drive Types	Annexure 14.3.4.d enclosed
e) Axle Types	Reverse elliot type front axle and full floating rear axle
17.3.5 Steering	
a) Types	Orbitrol type full hydraulic

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b) Emergency steer method	Electrically operated pump motor is provided for emergency steering
17.3.6 Maneuverability	
a) Frame articulation	25 degree Left & Right
b) Front wheel steering angle	50 degree Left & Right
c) Wheel lean	18 Degree each side
17.3.7 Brakes	
17.3.7.1 Service Brakes	
a) Type	Oil disc brakes
b) Actuating system	Annexure 14.3.7.1.b enclosed
17.3.7.2 Secondary Brakes	
a) Type	Dual line system protection type
b) Actuating system	Annexure 14.3.7.2.b enclosed
17.3.7.3 Parking brake	
a) Type	Mechanical, Dry Disc type on output shaft
b) Actuating system	Actuated by spring application and air released
17.3.8 Tyres	
a) Size and type	18.00X25, 12 PR Tubeless type L-3 Rock type
b) Tread	L-3 Type
c) Ply rating	12PR
d) Rim size	13.00 VA X 25TB
17.3.9 Hydraulic System	
a) Make, model, number, flow rates and operating pressures of pumps	Annexure 14.3.9.a enclosed
b) Make, model, number and ratings of motors	Annexure 14.3.9.b enclosed
c) Make, model, number, piston diameters and stroke lengths of cylinders	Annexure 14.3.9.c enclosed
d) Relief valve operating pressures	Annexure 14.3.9.d enclosed
17.3.10 Blade Equipment	
a) Circle diameter	1775mm
b) Mouldboard length, height and thickness	4876mmX692mmX25mm
c) Blade base	3100mm
d) Blade load	13720kg
e) Cutting edge length, height and thickness	2438mmX203mmX19mm
17.3.11 Blade Range	
a) Maximum lift above ground	490mm
b) Maximum drop below ground	680mm
c) Maximum shoulder reach, left and right	2400mm each side
d) Maximum bank cutting angle	90 degree
e) Hydraulic blade tip	49 degree at Forward, 5 degree at Backward
f) Cutting angle	25.5 degree ~ 84 Degree
17.3.12 Electrical System	
a) Starter make and model	Make: Remy (REIL Pondicherry); 24V, 7.5 KW
b) Starter control make and model	LUCAS TVS, Model: 4ST
c) Alternator make and model	Prestolite/Reputed 24V; 100A / 80A / 75A
d) Batteries, numbers and rating	2X12V, 200Ah, Batteries
e) Lighting details	Annexure 14.3.12.e Enclosed


Chief Manager (MM)

 17/10/2020
Chief Manager (MM)

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