

SO no: 12000111020237 dt. 25-02-2021

केवल नागपुर कोर्ट के अधिकार क्षेत्र में

Under Jurisdiction of Nagpur Court only



वेस्टर्न कोलफील्ड्स लिमिटेड  
Western Coalfields Limited  
(मिनिरात्ना कंपनी) (A Miniratna Company)  
(कोल इंडिया लि. की अनुबंधी कंपनी)  
(A Subsidiary of Coal India Limited)



सामग्री प्रबन्धन विभाग  
Department of Material Management

CIN - U10100MH1975GO1018626 FAX: 0712-2510284 www.westerncoal.nic.in

पंजी. का. : कोयला विहार, सिविल लाईंस, नागपुर (महाराष्ट्र) -440001/Coal Estate, Civil Lines, Nagpur(MS)-440001

SO. NO. 12000111020237

Dt: 25-02-2021

**SUPPLY ORDER**

To

M/s. BEML LIMITED

V<sup>th</sup> Floor, Unity Building,  
J C Road, Bangalore - 560002

Email id: [mtt@beml.co.in](mailto:mtt@beml.co.in)

GSTIN: 29AAACB8433D1ZU

Dear Sir,

Vendor Code: 416002

Vendor Category: Manufacturer  
Government PSU

Sub : **Formal Order for Supply of Diesel Engine powered, Tyre mounted TYRE HANDLERS**

Ref : 1. Our Open tender enquiry no. WCL-hq-pur-yvr-ra-058-20-21  
(Tender id no: Tender id : 2020\_WCL\_177894\_1) Technical bid opened on 24-08-2020 and Price bid opened on 23-01-2021

2, Your offer vide Bid id no : 547910 dt. 14-08-2020 and subsequent submission of shortfall / confirmatory documents

3. Your email dt. 13-01-2021 extending the validity of the offer

4. Your letter no BEML/MN/209/WCL/BL14th/136 dt 09.02.2021

5. E-office file reference no: E-269277

This has reference to above. We are pleased to place FORMAL ORDER on you for the supply of **Supply of Diesel Engine powered, Tyre mounted TYRE HANDLERS** as per the price, technical specifications and terms and conditions stipulated below and general terms and conditions enclosed

Description	Ordered Qty (nos)	Unit Basic Price Rs.	Extended value Rs.
TYRE HANDLER, Diesel Engine powered, Tyre mounted BEML MAKE, MODEL BL14TH complete in all respects with standard accessories, standard tools and along with Filters & O-rings for 1000 hrs of operation (Replacement / NCD requirement)	2	1,16,65,000.00	2,33,30,000.00
Freight and Insurance, installation and commissioning charges			Inclusive
Total Value			2,33,30,000.00
GST Extra @ 18%			41,99,400.00
TCS @ 0.1% on total value after GST			27,529.40
Total order value			2,75,56,929.40

Total Order Value: Rupees Two Crores Seventy Five Lakhs Fifty Six Thousand Nine hundred twenty nine and forty paise only

**Note: Filters / consumables for initial 1000 hrs. of operation to be supplied along with the equipment as per Annexure C**

The detailed technical specifications, scope of supply of technical requirement as per Annexure A, B, C, D, E, F and G enclosed.

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**OTHER TERMS & CONDITIONS:**

1. **Prices:** The above prices are FIRM and on F.O.R. destination basis inclusive of Packing, forwarding, freight and Insurance charges upto destination stores and inclusive of Installation and Commissioning Charges. . Safe arrival of the consignment at destination shall be your responsibility. Supply of Equipment will be made from BEML Ltd, KGF

2. **Goods and Service Tax (GST ):** GST shall be paid extra on the basic price, as applicable on the date of supply. The present rate of GST is @ 18%

Your shall submit the GST compliant Invoice as per the GST rules, indicating all the details as required as per the GST rules, including the HSN code, components of CGST / SGST / IGST( as applicable ) etc.

You shall 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 .

3. **Delivery:** The delivery shall be completed within 4 months, which shall be reckoned from the 7<sup>th</sup> day of order. Early supplies are acceptable. 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. The grace period will only apply to the original contract delivery period / refixed delivery period and will not be applicable once an extension of delivery has been granted.

4. **Option Clause :-** Not applicable

**5. Inspection:**

a. **Pre-despatch Inspection:** Pre dispatch inspection shall be carried out by the representative of GM(ExcV) I/C, WCL Hqrs or any other agency appointed by WCL and Final inspection of the consignment shall be carried out at the destination stores, which will be arranged by the consignee on receipt of stores. The equipment must be delivered at Consignee's project within 15 days or earlier from the date of inspection and clearance by CIL's / WCL's representative.

b. **Final Inspection:** Final inspection shall be carried out at the consignee stores

6. **Consignee : GSTIN : 27AAACW1578L1ZW ( Consignee in Maharashtra )**

Qty	Area	Project	POSTAL ADDRESS OF THE CONSIGNEE
1 no	Wani	Penganga OC- 1 no ( Replacement )	The Depot Officer, Regional Stores, Western Coalfields Limited, Wani Area, PO : Ghugus Colliery, Distt: Chandrapur (Maharashtra) Pin: - 442505
1 no	Nagpur	Kamptee Deep OC - 1, no ( Replacement ).	The Depot Officer, Regional Stores, Western Coalfields Limited, Nagpur area, PO : Silewara Colliery, Distt:-Nagpur (M.S) 441109

**7. Payment terms:**

i) 80% value of the equipment and 100% taxes and duties 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

ii) Balance 20% payment 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.

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8. **Paying Authority:** General Manager (Fin), Western Coalfields Limited, Hqrs, Nagpur 440001
9. **EFT Details of the supplier:** As per the Bank Mandate submitted by you with the 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

10. **SUBMISSION OF BILLS:**

a. **For claiming 80% payment for equipment**, following documents are to be submitted along with original bills as per terms of the supply order to the consignee.

- Pre-receipted and stamped GST compliant Invoice as per GST rules and Act indicating HSN code
- Packing list in original list giving details of bill of materials, if applicable. (Invoice should be strictly as per GST rule 2017), if applicable.
- Consignment note / RR/ LR in original.
- Warranty / Guarantee certificate, if applicable.
- Manufacturer's test certificate, if applicable.
- DGMS / BIS / Pre dispatch inspection certificates / any other document, if required as per the contract.
- Price Certificate and Price Fall Certificate
- Any other document indicated elsewhere in the order & specifications

b. **For Claiming 20% payment of Equipment** and the following documents are to be submitted

- Pre-receipted and stamped bill for 20% payment.
- Commissioning Certificate from the respective Area General Manager / Staff Officer (Excv) of area.
- Any other document indicated elsewhere in the order

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

12. **Security Deposit:** Exempted being a Govt PSU

13. **Guarantee/ Warranty:**

1. **Guarantee / Warranty / Special Guarantee: (Also refer cl no: 5 and 6 of Annexure "A")**

**A. Composite Warranty/ Guarantee:** You shall warrant that the equipment supplied under this contract is:

- In accordance with the contract specifications.
- The equipment shall have no defects arising out of design, material or workmanship & 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 lies only with you although components may be supplied by different suppliers to you.

c) The Equipment will be warranted against any manufacturing defects / workmanship for a period of 12 months from date of commissioning. Any defect observed on this account shall be attended to immediately.

**B. Special Guarantee:** The following guarantee will apply for the different components from the date of commissioning:

- 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 system will have to be replaced on pro-rata payment basis taking the life of the engine system as 7550 W/hrs.
- Transmission Assy. - 36 months or 6500 hrs** from the date of commissioning (whichever is earlier).
- Frame, Chassis, Differential & Final Drive- 48 months or 8000 hrs** from the date of commissioning (whichever is earlier )
- Hydraulic System - 36 months or 6500 hours** from the date of commissioning (whichever is earlier)

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v) **Auto Electricals - 12 months or 1000 hrs** from the date of commissioning (Whichever is earlier)  
In case of any guarantee failure intimated reasonably in time to you, the replacement or repair job (as per guarantee settlement) must be completed within 21 days at site by you at no cost to the purchaser.

**C. Guaranteed Availability:** In accordance with the provisions of clauses B.7.2.2 and B.7.3.2 of the Technical Specifications, you shall guarantee that the availability of the equipment shall be not less than 85% (Eighty five per cent) during entire 12 months from accepted date of commissioning.

**14. Performance Bank Guarantee:** You have to submit performance bank guarantee for 10% of the order value (landed cost) i.e. Rs.27,55,693.00 (Rupees Twenty Seven Lakhs Fifty five thousand six hundred and Ninety three only) valid for a period of 15 months of from the accepted date of commissioning of materials 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 format for PBG is enclosed as Annexure H. 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	ICIC0000059
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

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.

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**15. Liquidated Damages:**

(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:

(a) 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

(b) 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

(c) 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,

(d) 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.

(e) To forfeit the security deposit full or in part.

(f) 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 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.

**(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.

**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."

**17. 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.





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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.

**18. Lowest Price Certificate :** You have undertaken that the prices quoted by you for the ordered 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

**19. Price Fall Clause:**

"You have undertaken that you have 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 your responsibility 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) You 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. "

**20. 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)

**21. Settlement of Disputes through Court of Law of Competent Jurisdiction:** *The Courts in whose territorial jurisdiction the place from where contract is being issued is located i.e. Nagpur shall be competent to deal with any matter arising out of this purchase Order/Contract . Therefore any disputes/claims arising out of the contract entered into with the suppliers will be subject to the jurisdiction of the Nagpur court of law*

**22. Arbitration :** 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."

**23. Pre-contract Integrity Pact:** Pre contract Integrity Pact duly signed by you and furnished by you alongwith the offer shall be valid and applicable for this contract.

The name of the IEM for this tender are:  
Dr.(Ms) Nivedita P Haran, IAS(Retd), 23 IFS Villas, P-6, Builders Area, Greater Noida - 201310  
Shri.A K Mohapatra, IFS(Retd), Flat no: 201, Manjusha Manor, Plot no: N3/382,IRC Village, Bhubaneswar- 751015.

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**24. General Conditions of Contract:** All other terms and conditions shall be as per the NIT. This order shall also be governed by the General Conditions of Contract attached as Annexure-I, unless and otherwise specified above.

This order is being placed on the basis of terms and conditions already accepted by you as per the NIT terms. You may acknowledge the receipt of this order within 15 days from the date of receipt of this order.

(A. S Nagarkar)

उप.प्रबंधक (सा.प्र)

Yours faithfully

( N V Raghu Babu)

मुख्य.प्रबंधक (सा.प्र)

**Enclosures: -**

- Annexure-A :** Scope of supply and Technical specifications  
**Annexure B:** List of Standard, Special Tools  
**Annexure-C:** List of Initial 1000 Hours Spares and consumables  
**Annexure-D:** Major Bought out items list  
**Annexure-E:** Oil and Lubricant chart  
**Annexure-E:** Erection chart  
**Annexure-G** Maintenance Schedule  
**Annexure-H:** Performance Bank Guarantee format  
**Annexure-I:** General Conditions of the Contract

**Copy to :**

1. GM(Excv) HOD, WCL(HQ), Nagpur
2. AGM / SO(Excv)/SO(MM)/AFM/Depot Officer, WCL, Wani / Nagpur
3. GM(CP)/ GM(Fin.) I/c -1 / GM(Fin) I/c-II/ GM(P&P) , WCL Hq., Nagpur
4. RD, CMPDIL, RI IV, Nagpur
5. GM(MM), CIL, SECL, MCL, CCL, BCCL, ECL, NCL
6. TS to DT(P&P), WCL, Nagpur
7. Chief Manager(MM/Admn.), WCL(HQ) – The Landed value of the order is Rs. Rs. 2,75,56,929.40
8. IEM, Dr. (Ms) Nivedita Haran, 23, IFS Vilas, P-6, Builders Area, Greater Noida 201310
9. IEM, Shri A.K.Mohapatra, Flat no: 201, Manjusha Manor, Plot no: N3/382,IRC Village, Bhubaneswar- 751015
11. GM(Excv), EED, Coal India Ltd., "Coal Bhawan", Premises no 04 MAR, Plot No AF III Action Area 1A, New Town, Rajarhat, Kolkatta 700156, West Bengal

Indent details: Indent No. 1486 dated 25.07.2020.

**Capital budget:** WCL/CAP/HEMM/2020-21/12/08/40 Dated, 24-02-2021 for Rs.2,75,56,930.00

(A. S Nagarkar)

उप.प्रबंधक (सा.प्र)

( N V Raghu Babu)

मुख्य.प्रबंधक (सा.प्र)

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**ANNEXURE "A"**

**TECHNICAL SPECIFICATION OF TYRE HANDLER**

**SCHEDULE OF REQUIREMENT:** TYRE HANDLER, Diesel Engine powered, Tyre mounted, as per the technical specifications indicated below, complete with standard accessories, standard Tools and Filters & O-rings for 1000 hrs of operation. :

**Quantity required:** 2 nos (Replacement requirement/NCD)

**Detailed technical Specification for Earth Mover Tyre handler.**

**1. Scope of Specification:**

This specification is intended to cover the technical requirement for the design, manufacture, testing, delivery, on site erection and commissioning of a diesel powered, self-propelled Earthmover Tyre-Handler.

**2. Design criteria:**

The Tyre Handler shall be capable of operating for protracted periods on a system of 3 shifts each of 8 hours duration per day throughout the year.

Tyre Handler shall be capable of changing the tyre assembly in workshop and holding & carrying the inflated tyre assembly to the coal mine area, which normally have rough terrain, for change of Tyres on the Equipment gone under breakdown during operation on account of OTR Tyres.

Tyre Handler shall be suitable for off Highway application.

The Tyre Handler shall have suitable attachment for handling Earthmover Tyres size ranging from 18.00x 25 to 36.00x 51 with rim including wide base tyres such as 21.00x 35, 24.00x 36, 29.50x 29 etc. The capacity of Equipment shall match with the requirement of Tyre handling i.e. lifting and carrying to the site with max weight of assembled tyre (about 3500 Kgs).

The Tyre Handler shall have the following minimum working ranges: -

i) Clamping span - 1450 mm to 3350 mm (Min.)

ii) Lift height - 3200 mm (Min.)

Any deviation of the offered parameters, with reference to the technical specification or nonacceptance of any of the terms & conditions may render offer to be rejected without any further reference. If any of the NIT points are not furnished / replied or replied partially by the tenderer, their offer is liable for outright rejection at first instance and no further correspondence in this regard shall be entertained.

**3. Technical Requirement:**

**3.1 Engine -**

The Tyre Handler shall be powered by a direct injection 4 stroke, Turbo Chaged diesel engine with a continuous output rating compatible with the Tyre Handling requirement. The Engine shall be provided with 24V electric starting, dry type 2-stage air cleaner and fuel filter with water separator.

The Engine shall have a water jacket cooling system, thermostatically controlled using an Engine driven water pump, with cooling water re-circulated through a heavy-duty Radiator. The system shall be capable of providing sufficient cooling to allow the Tyre Handler to operate continuously at the full rated output and at the maximum ambient temperature of 50° C (approx.).

The moving parts of the engine shall be lubricated by an Engine driven oil pump, with full flow oil filtration and cooling.

**3.2 Transmission:**

The Tyre Handler shall be provided with a full power shift hydraulic Transmission and suitable Torque converter. The Transmission shall be provided with a heavy-duty guard designed to protect Transmission and minimize the accumulation of dirt and debris on the bottom of Transmission assembly.

**3.3. Differential & Final Drives:**

Suitable all-wheel drive differential and final drive shall be provided to meet the requirement of operating parameters given in the design criteria.

**3.4 Steering:**

Articulated, Full power Hydraulic steering shall be proved. The minimum articulation angle should be about 25° each side and turning radius about 7.2 metres.

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**3.5 Hydraulic System:**

(a) For Steering, Lift & Dump - Suitable capacity Hydraulic pump / pumps for steering, lift & dump with control valve having positions for Lift system - Raise, Hold, Lower and Float and dump system - Roll Back, Hold & Dump, Lift & Dump action shall be through suitable capacity double acting hydraulic cylinders.

(b) For Tyre Handling Attachment - Suitable Hydraulic Pump for the Tyre handling attachment shall be provided. Clamping circuit should be independently controlled with provision of locking valve to ensure safe and positive clamping.

**3.6 Tyre handling attachment:**

The head assembly and clamping pads should be provided with spur driven, 360° continuous rotation for ease of maneuverability and tyre fitting. Lateral side shifting of 100mm minimum either side should be provided to allow precise alignment during Tyre mounting. The contact pads shall be designed to grip a wide range of Tyre tread profiles. The clamping force of Tyre handler shall be independent of clamping span and suitable to match with the requirement. However, it shall not be less than 19500 Kgs.

**3.7 Brakes:**

Suitable reliable fail-safe service and parking brakes shall be provided. The brakes should be air / air over hydraulic actuated type with provision to prevent entry of dust and water and designed for low maintenance. Service Brake should be wet multiple disc brake for both Front and Rear.

**3.8 Hoses:**

All hoses and piping should be as per relevant SAE / DIN specification and protected for damage.

**3.9 Tyre:**

Suitable size OTR Tyres shall be provided to meet the requirement of operating parameters given in the design criteria. Technical details of tyres to be fitted on the tyre handler shall be furnished.

**3.10 Fuel Tank:**

The fuel tank shall be of sufficient capacity and be provided with a level indicator and a lockable hinged filler cap. The construction of the tank should be such that it provides for easy accumulation and drainage of water with minimum loss of fuel and arrangement of man hole for cleaning the tank from inside.

**3.11 Operator's overhead canopy & seat:**

An easily accessible operator's overhead canopy with fully adjustable seat shall be provided. All operating controls, monitoring and working signals should be conveniently located within easy reach of the operator.

**3.12 Warning Systems & Gauges:**

Suitable Audio / or Visual warning system shall be provided in the operator's cabin/ canopy for safety for both machine & operator.

**3.13 Audio Visual Alarm in Reverse With Flasher,** Approved type confirming to Specifications as per DGMS(Approval)/AVA/01 dated 25-05-2010 of DGMS, which shall operate during reversing.

Gauges for Engine oil pressure, coolant temperature, transmission oil temperature, Air pressure, Ammeter, techo-hour meter shall be provided in the operator's cabin / canopy.

**3.14 Electrical Equipment:**

The tyre handler shall be provided with the following -

- i) 24 Volts DC electrical system with suitably rated alternator of reputed make.
- ii) Electric Starter of reputed make.
- iii) Voltage regulator of reputed make.
- iv) Batteries of 12 volts - 2 nos of suitable AH Rating and of reputed make.
- v) Battery isolation switch.

All electrical circuits shall be protected by rated fuses/ MCBs which shall be easily accessible for maintenance. Atleast two spares fuses of each size shall be provided in each fuse box (if applicable).

**3.15 Lights:**

The following lights shall be provided:

- Front and rear light.
- Stop & tail lights.
- Instrument panel.
- Work light.
- Socket with switch for pendent light with minimum 5 Metre cable.

**3.16 Guards and Shields:**

Adequate guards and shields shall be provided throughout the tyre handler.

**3.17 Fire Extinguisher:**

A fire extinguisher shall be provided on the tyre handler, suitably mounted in a heavy-duty bracket for ease of removal. The extinguisher shall be dry powder (cartridge type) with a minimum capacity of 5Kg and shall comply with Indian Standard IS:2171.

**3.18 Gradability - 25 %**

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**3.19 FIRE DETECTION & SUPPRESSION SYSTEM:** Suitable Multi point AUTOMATIC FIRE DETECTION & SUPPRESSION SYSTEM (DGMS APPROVED TYPE) of reputed & proven make / model of sufficient capacity will be installed on the machine, with the following minimum features.

- a. Automatic Detection of Fire.
- b. Initiation of Audiovisual Alarm.
- c. Actuation of Extinguisher system.

The system should be capable of Detection of Fire and to Extinguish the Machine from all the types of fires and ensure the protection from Fire Hazards in all Ambient conditions / seasons in the Mines. The system shall comply with relevant Indian Standards.

**4. Auxiliary equipment and other requirement:**

The following shall also be provided on/ alongwith each tyre handler.

- i. Towing hook.
- ii. Horn.
- iii. General Tool kit for repair and maintenance with list and quantity.
- iv. Tyre inflation kit.
- v. Rear View Mirror
- vi. First fill of all oils and lubricant.
- vii. Three sets of Operation & Maintenance Manuals and Parts Catalogues.
- viii. Supply of all maintenance filters & O-Rings for 1000 Hrs. operation. The list of necessary filters & O-Rings with quantity, to be furnished in the offer.
- ix. Any other item specifically not mentioned above, if considered necessary & essential for satisfactory working of tyre handler, should be included in the offer.

**5. GUARANTEE / WARRANTY:** The complete Equipment shall be Guaranteed for satisfactory performance for a period of minimum 12 months from the date of commissioning of the Equipment at site.

**6. Special Guarantee - Warranty Clause**

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 system will have to be replaced on pro-rata payment basis taking the life of the engine system as 7550 W/hrs.
- ii) Transmission Assy. - 36 months or 6500 hrs from the date of commissioning (whichever is earlier).
- iii) Frame, Chassis, Differential & Final Drive- 48 months or 8000 hrs from the date of commissioning (whichever is earlier)
- iv) Hydraulic System - 36 months or 6500 hours from the date of commissioning (whichever is earlier)
- v) Auto Electricals - 12 months or 1000 hrs from the date of commissioning (Whichever is earlier)

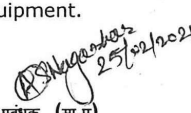
In case of any guarantee failure intimated reasonably in time to the bidder, the replacement or repair job (as per guarantee settlement) must be completed within 21 days at site by the bidder at no cost to the purchaser.


**7. Performance Guarantee:**

The supplier shall guarantee that the availability of the equipment shall not be less than 85% (**Eighty- Five Percent**) for a period of 12 months from the date of commissioning.

**8. After Sales Service & Spare Parts Support -**

Suitable after Sales Service & Spare Parts Support should be available, preferable nearer to the coal mining region of Chandrapur / Nagpur and the same should be maintained throughout the working life of the Equipment.

  
उप.प्रबंधक (सा.प्र)

  
मुख.प्रबंधक (सा.प्र)

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Annexure 'A' contd...



TECHNICAL SPECIFICATION OF TYRE HANDLER

Details	
<b>3.1 Engine :</b>	BEML model BL14TH Tyre Handler powered by BEML BS6D105-1 water cooled, 4 cycle, over head valve, direct injection type, turbo charged diesel engine developing 110 kw (148 hp) @ 2000 rpm.
i) Make	BEML LTD.
ii) Model	BS6D105-1
iii) Bore x Stroke	Ø105 mm x 125 mm
iv) Displacement	6.51 Liters
v) HP	148 hp
vi) RPM	2000 RPM
vii) No. of cylinders and their arrangements	6 cylinders -Inline
viii) Type of fuel pump	Fuel system: Bosh type fuel injection system. Type of governor: Mechanical all speed type.
ix) Maximum Engine Torque	565 N-m @ 1400 RPM
x) Starting system and Charging system	Electric start, Battery through alternator charging system
<b>3.2 Transmission:</b>	Power shift type, electronically controlled transmission
i) Make	ZF Transmission, Germany
ii) Model	4WG190 ERGO POWER
iii) Type	Hydrodynamic
iv) No. of forward gear, speed and their reduction ratio	4 forward gear
	Speed(Km/h)
	1 <sup>st</sup> 6.28
	2 <sup>nd</sup> 11.66
	3 <sup>rd</sup> 21.43
v) No. of reverse gear, speed and their reduction ratio	3 Reverse gear
	Speed(km/h)
	1 <sup>st</sup> 6.61
	2 <sup>nd</sup> 12.24
	3 <sup>rd</sup> 22.34
<b>3.3 Drive:</b>	Four wheel drive full floating with planetary reduction in each wheel.
<b>Final drive:</b>	Front axle is fixed, and Rear axle oscillates up or down by 10 Degree (total 20°)
<b>3.4 Steering:</b>	Articulated, full power steering 25° on either side.

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**NARESH KUMAR**  
 Assistant General Manager (Mktg)  
 BEML Limited  
 5th Floor, Unity Building, J.C. Road,  
 Bangalore - 560002



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<b>3.5 Hydraulic system:</b>	The following details of hydraulic system is provided.
i) No of pumps and their purpose.	One number pump for steering and work attachment operations
ii) Type of pumps	Vane pump
iii) Flow rate	272 lpm & 50 lpm
iv) Working pressures	140 kg/ cm <sup>2</sup> (hydraulic system) + 175 kg/ cm <sup>2</sup> (steering system)
v) Tank capacity	185 litres
vi) Circuit capacity	195 litres
vii) No of hydraulic cylinders and their application	Two lift cylinders and one dump cylinder for work attachment operation Two steering cylinders for steering operation Two clamp cylinders for clamping action Two slide cylinders for side shifting operation
viii) Details of hydraulic cylinders: bore x stroke and make	Lift cylinder: Bore X stroke=ø150 X 860 mm Tilt cylinder: Bore X stroke= ø160 X 410 mm Steering cylinder: Bore X stroke=ø90X 535 mm Clamp cylinder: Bore X Stroke= ø101.6X1056mm Slide cylinder: Bore X stroke= ø80x240 mm Make: BEML/Canara hydraulic
<b>3.6 Tyre handling mechanism :</b> Following features of tyre handling mechanism may be specified by the tenderer	
a) Maximum weight of tyre that can be handled	3500 kg.
b) Minimum and maximum tyre sizes handling capacity	Minimum tyre size -18.00 x 25 Maximum tyre size – 36.00 x 51
c) Clamping span	1420 mm to 3380mm
d) Hand Axial rotation	360 degree continuous
e) Lateral rotation	350 degree
f) Clamping pads diameter	610 mm round cups with grip lugs.
g) Lateral rotation speeds	20 ~ 30 seconds (2 rpm)
h) Axial rotation speed	10 seconds (6 rpm)

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 सहायक प्रबंधक (सिस्टम) Asst. General Manager (Mktg.)  
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i) Clamping force	19,504 kg
j) Lateral permissible movement in mm on each side from centre	100 mm
k) Lifting height in mm	3200 mm
<b>3.7 Brake:</b>	
i) Service brake	Wet type multiple disc. Air over hydraulic actuated type is provided.
ii) Parking brake	Disc type, spring applied and hydraulic released.
iii) Emergency brake	In case of emergency, when air pressure drops below rated value, indicator lamp flashes and operator has to apply parking brake.
<b>3.8 Hoses:</b>	Shall be provided as per SAE / DIN standard protecting from damage.
<b>3.9 Tyres:</b>	Tyre size 23.5 x 25-20-PR tube less (Filled with liquid ballast) type, with cut resistant, & abrasion resistant, Rim size – 19.50 x 25
<b>3.10 Fuel Tank:</b>	Meets the requirement.
<b>3.11 Operator's overhead canopy &amp; seat:</b>	Provided
<b>3.12 Warning Systems &amp; Gauges:</b> Suitable Audio / or Visual warning system shall be provided in the operator's cabin/ canopy for safety for both machine & operator.	
i) Engine oil pressure gauge	Provided
ii) Engine water temp. gauge	Provided
iii) Transmission oil temperature gauge	Provided
iv) Fuel gauge	High and low Fuel level indicator is provided at fuel tank.
v) Ammeter	Provided
vi) Air pressure gauge	Provided
vii) Instruments panel lights	Provided
viii) Hour meter	Engine hour meter is provided
ix) Fire extinguisher	Provided
x) Audio visual alarm during reverse operation	Provided

PKW

नाम नाresh KUMAR  
 Asst. General Manager (M&E)  
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<b>3.13 Audio Visual Alarm in Reverse</b>	Shall be provided as per DGMS norms.
<b>3.14 Electrical Equipment:</b> The tyre handler shall be provided with the following:- i) 24 Volts DC electrical system with suitably rated alternator of reputed make. ii) Electric Starter of reputed make. iii) Voltage regulator of reputed make. iv) Batteries of 12 volts - 2 nos of suitable AH Rating and of reputed make. v) Battery isolation switch.	i) Make- Lucas TVS ; Model-2SA23-24V-45Amps ; Rating-45Amps ii) Make : Lucas TVS ; Model-7M14 ; Rating-4.5 KW iii) Shall be provided iv) 02 No. (12V x 2), 150Ah v) Shall be provided
All electrical circuits shall be protected by rated fuses/ MCBs which shall be easily accessible for maintenance. Atleast two spares fuses of each size shall be provided in each fuse box (if applicable).	Provided
<b>3.15 Lighting system:</b> The following lights shall be provided. 1) Front and Rear 2) Stop and tail lights 3) Instrument panel 4) Work light 5) Socket with switch for pendent light with minimum 5 Metre cable.	1) 2x55 W and 2 x 70W 2) 2 x 21W 3) 2X6 W 4) 2 x 55 W 5) Rating : 24 V / 21 Watts. Pendent light provided. Cable length : 5 metre
<b>3.16 Guards and Shields:</b> Adequate guards and shields shall be provided throughout the tyre handler.	Provided
<b>3.17 Fire Extinguisher:</b> A fire extinguisher shall be provided on the tyre handler, 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.	Provided.
<b>3.18 Gradeability:</b>	25%
<b>3.19 FIRE DETECTION &amp; SUPPRESSION SYSTEM:</b> Suitable Multi point AUTOMATIC FIRE DETECTION & SUPPRESSION SYSTEM (DGMS APPROVED TYPE) of reputed & proven make / model of sufficient capacity will be installed on the machine, with the following minimum features. a. Automatic Detection of Fire. b. Initiation of Audiovisual Alarm. c. Actuation of Extinguisher system.  The system should be capable of Detection of Fire and to Extinguish the Machine from all the types of fires and ensure the protection from Fire Hazards in all Ambient conditions / seasons in the Mines. The system shall comply with relevant Indian Standards.	AFDSS of 5 Kg capacity as per DGMS approved type shall be provided.  Make : Southern Electronics

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श्री श्री NARESH KUMAR  
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4 Auxiliary equipment and other requirement :	
<p>The following shall also be provided on/ along with each tyre handler-</p> <ol style="list-style-type: none"><li>1. Towing hook.</li><li>2. Horn.</li><li>3. General Tool kit for repair and maintenance with list and quantity.</li><li>4. Tyre inflation kit.</li><li>5. Rear View Mirror</li><li>6. First fill of all oils and lubricant.</li><li>7. Three sets of Operation &amp; Maintenance Manuals and Parts Catalogues.</li><li>8. Supply of all maintenance filters &amp; O-Rings for 1000 Hrs. operation.</li></ol> <p>The list of necessary filters &amp; O-Rings with quantity, to be furnished in the offer.</p> <p>9. Any other item specifically not mentioned above, if considered necessary, essential for satisfactory working of tyre handler shall be included in the offer.</p>	<ol style="list-style-type: none"><li>1. Provided</li><li>2. Provided</li><li>3. Provided</li> <li>4. Provided</li><li>5. Provided</li><li>6. Provided</li><li>7. Will be supplied along with the equipment.</li><li>8. Will be supplied along with the equipment. List enclosed.</li> <li>9. Not applicable</li></ol>
<b>Others:</b>	
a) Operating mass	20,500 kg
b) Dimensions of the equipment	Length – 8360mm Width -2781 mm Height – 3330 mm

  
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No. 1200011020237 Dt. 25/01/2021

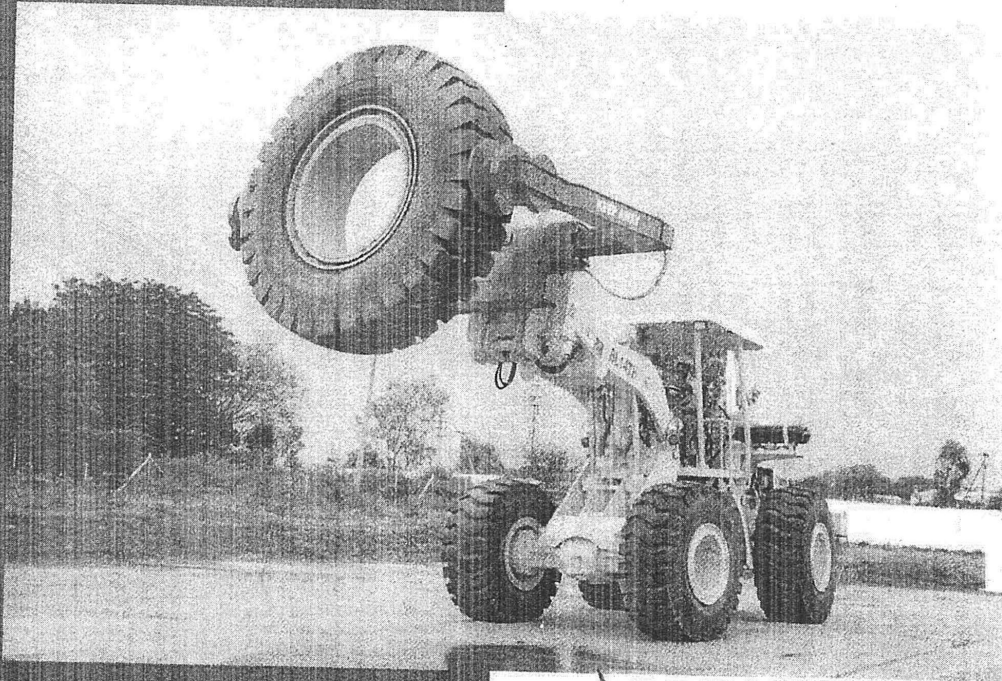
# BL14TH

TYRE HANDLER



### Salient Features :

- Turbo charged BS6D105-1 BEML engine
- Electronic Transmission
- Articulated power steering
- Limited slip differential
- Center point articulation
- To carry a tyre size from 18x25 to 36x51



Tyre Lifting Capacity : 3500 kg  
Operating Mass : 20,500 kg  
Flywheel power : 94 kW(126 hp)@ 2000 rpm

श्री श्री नरेश कुमार  
आस. जनरल मैनेजर (मि.टी.)  
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# BL14TH TYRE HANDLER

## Salient Features :

Sturdy direct injection type, turbo charged BEML diesel engine for sustained power and fuel economy.

Articulated power steering for higher maneuverability and faster cycles.

Limited slip differential front and rear axles for positive traction while loading.

Rear axle oscillation offers stability to the machine on rough and uneven terrains.

Center point articulation for safer steering operation.

Neutral starter switch in the circuit to prevent engine starting when transmission is in gear.

Continuous rotation of the gripping pads.

Smooth rotation of the Head assembly.

Upto 1.91.334 N of gripping force on the tyre.

Lateral carriage movement of 200 mm for precision side shift alignment.

Optimum operator control and visibility.

A complete range of large off-the-road tyre handling capabilities.

All wheel drive and the articulating features of the carrier vehicle.



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BEML Limited  
5th Floor, Unity Building, J.C. Road,  
BANGALURU - 560 002.



## ENGINE

Make	BEML LTD.
Model	BS6D105-1
Type	Water cooled, 4 cycle, over head valve, direct injection type, turbo charged diesel engine.
No. of Cylinder	6
Bore & Stroke	Ø105 x 125 mm
Displacement	6.51 l (6,499 cc)
<b>HORSE POWER</b>	
Rated BHP	110 kW (148 hp) @ 2000 rpm
Flywheel power	94 kW (126 hp) @ 2000 rpm (As per ISO-9249)
Maximum torque	565 Nm (58 kgm) @ 1400 rpm
<b>FUEL SYSTEM</b>	
Type	BOSCH inline FIP system
Governor	Mechanical, all speed control
<b>LUBRICATION SYSTEM</b>	
Method	Gear pump, forced lubrication
Cooler	Water cooled
<b>ELECTRICALS</b>	
Starting method	Electric
Starting motor	24V, 4.5 kW
Alternator	24V, 45A
Battery	24V (2 x 12V), 150Ah

## COOLING SYSTEM

Radiator	Continuous finned flat tube de-aeration type tank
Pump	Centrifugal pump
Fan	Blower type
Air cleaner type	Dry, 2-stage, horizontal
Air compressor capacity	160 cc

## TRANSMISSION

<b>Torque Converter</b>	
Model	W340
Type	Hydrodynamic
Stall ratio	3.095 : 1
<b>Transmission</b>	
Model	4WG190 ERGO POWER
Type	Rear mounted multi speed power shift electronic control transmission with four forward & three reverse speeds
Controls	Manual Range Selector

## BRAKES

Service brakes	Wet multiple disc type, Air over Hydraulic actuated.
Parking brake	Disc type, spring applied and hydraulic released operating pressure @ 126 kg/cm <sup>2</sup> .

## STANDARD EQUIPMENT

Ammeter, Air pressure gauge, Engine oil pressure gauge, Transmission oil temperature gauge, Engine Hour meter, Tacho meter, Engine water temperature gauge, Head lights and rear lights, Horn, Starter key switch, Alternator, Regulator, Batteries, Foot throttle, Fenders, Canopy, Tool box, Fire extinguisher 2kg, Reverse light and alarm, Side indicator lamp, Battery Charging indicator, High beam indicator, Parking brake applied indicator, Low air pressure warning, Steel canopy

## OPTIONAL

Tyre inflation kit, 5 kg fire extinguisher, Auto lub. system, Auto fire suppression system

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### HYDRAULICS SYSTEM

Pump Type	Vane Pump
Capacity	272 l/min @ 2000 rpm
Relief Pressure	13.73 Mpa (140 kg/cm <sup>2</sup> )
Control Valve Type	Double spool type
<b>Positions</b>	
Lift System	Raise, Hold and Lower
Dump System	Roll back, Hold and Dump
<b>Lift Cylinders</b>	
Type	Double acting
No. of Cylinders	2
Bore x Stroke	Ø150 x 860 mm
<b>Dump Cylinder</b>	
Type	Double acting
No. of Cylinders	1
Bore x Stroke	Ø160 x 410 mm

### AXLES & FINAL DRIVE

<b>Axles</b>	
Type	Front Axle is fixed, and Rear Axle oscillates up or down by 10°, (total 20°)
<b>Final Drive</b>	
Type	Four wheel drive full floating with planetary reduction in each wheel
<b>Travel Speeds</b>	
Forward km/h (m/s)	Reverse km/h (m/s)
1st 6.28 (1.74)	1st 6.61 (1.84)
2nd 11.66 (3.24)	2nd 12.24 (3.4)
3rd 21.43 (5.95)	3rd 22.34 (6.2)
4th 31.4 (8.72)	—

### TYRES

<b>Tyres</b>	
Standard	23.5 x 25 - 20 PR Tube less (Filled with liquid ballast)
<b>Rims</b>	
Type	Flange type
Size	19.50 x 25
Max. gradeability	25% (~14°)

### STEERING SYSTEM

Type	Articulated, full power steering 25° on either side
<b>Steering Pump</b>	
Type	Vane Pump
Flow	272 l/min @ 2000 rpm
Relief pressure	12.25 Mpa (125 kg/cm <sup>2</sup> )
<b>Steering cylinder</b>	
Type	Double acting
No. of cylinders	2
Bore x Stroke	Ø90 x 535 mm
Turning radius	7200 mm

### DIMENSIONS

Overall length	8360 mm
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### SERVICE CAPACITIES

System	(litres)
Cooling system	45
Fuel Tank	185
Engine	25
Transmission (inclusive of drop box)	27
Front Axle	35
Rear Axle	35
Brake oil tank	2.4
Hydraulic tank	195

### FILTRATION

Engine	Replaceable micro paper element filter for lubrication as well as for fuel line is provided.
Transmission	Replaceable element type of filter is provided.
Hydraulic system	Magnetic plug and replaceable element type filter is provided.

### TECHNICAL DATA

Capacity	To carry a tyre mounted on rim weighing upto 3500 kg. Tyre sizes from 18.00 x 25 to 36.00 x 51
Clamping span	1420 mm to 3380 mm
Hand Axial Rotation	360° continuous
Lateral Rotation	350°
Clamping pads	610 mm round cups with grip lugs
Lateral rotation speeds	20 - 30 seconds
Axial rotation speed	10 seconds
Clamping action	Independently controlled.
<b>Clamping Safety</b>	
Lock	Safety check valves on clamping side of cylinder
Clamping force	19504 kg
Side shift action	200 mm total, 100 mm each side of centre line
Lift Height	3200 mm

### TYRE HANDLER HYDRAULIC SYSTEM

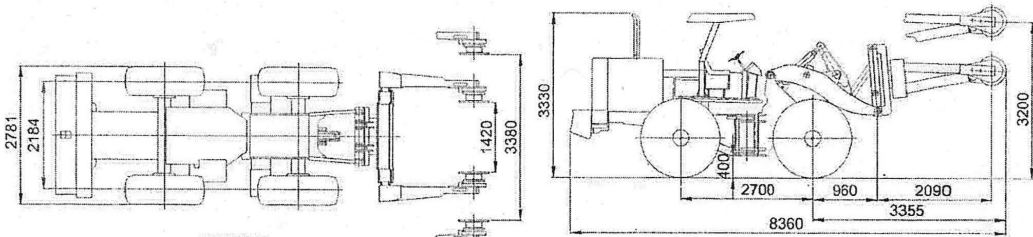
Pump type	Vane type
Capacity	50 litres / min
Relief Pressure	175 kg/cm <sup>2</sup>
Hydraulic control	Five spool control valve having a flow rate of 50 litres/min with a relief setting of 175 kg/cm <sup>2</sup> . The oil to the control valve is supplied by carrier vehicle hydraulic system / auxiliary hydraulic system.

### COUNTER WEIGHT

Counter Weight	Rear mounted counter weight weighing 3000 kgs and tyres filled with 75% Cacl, and water.
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### OPERATING MASS

Operating mass	20,500 kg approx.
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Material and specifications are subject to change without notice, illustrations may include optional equipment and accessories

## BL14TH TYRE HANDLER TECHNICAL SPECIFICATIONS

BL14TH (TH) Asst. General Manager (Mtg.)  
 BEM Limited  
 5th Floor, Unity Building, J.C. Road,  
 BANGALORE-560 002.

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S/o No. 1200011020237 Dt. 25/02/2021

**बी ई एम एल लिमिटेड**  
**BEML LIMITED**  
 A Govt. of India Miniratna Company Under Ministry of Defence

Business Network	Corporate Office	International Business Division	Marketing Division	Global Service HQ
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<b>Ranchi</b> 20/0/D-1, Bhagrathi, (Behind NCC Campus), Ramachandram Colony, Baraku Road, Ranchi, Jharkhand - 834009	T + 91 651 2540710 / 2540791 F + 91 651 2540824 E-mail: ranchi@rm.beml.co.in
<b>Sambalpur</b> BEML Complex, NH-6, Baraipali, Sambalpur - 768 150 Orissa.	T + 91 663 2521604 / 2520393 F + 91 663 2521803 E-mail: sambalpur@rm.beml.co.in
<b>Singrauli</b> PB No. 5, Jhingurtha Colliery, Sidhi, Singrauli - 466 989 Madhya Pradesh.	T + 91 7805 268280 / 2666669 F + 91 7805 267282 / 316 E-mail: singrauli@rm.beml.co.in

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<b>Bacheli</b> Behind Central Stores of NMDC Ltd., Depot 5, Bacheli - 494 553, Chhattisgarh	T + 91 7857 200519 F + 91 7857 231805 E-mail: bacheli@rm.beml.co.in
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<b>Udaipur</b> 20-B, Uchhab Bhawan, Bedia Road, New Fatehpura, Udaipur - 313 001, Rajasthan	T + 91 294 2452053, 2452055 F + 91 294 2452054 E-mail: udaipur@rm.beml.co.in
<b>Vijayawada</b> District Manager : Mr Rambabu	Mob +91 8330930991
<b>Visakhapatnam</b> No. 8-15-11, 4th Lane, China Wallair Colony, Visakhapatnam - 530 003	T + 91 8991 2754583 E-mail: vizag@rm.beml.co.in

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Represented by

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**MR. NARESH KUMAR**  
 Assistant General Manager (Mktg)  
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**बी ई एम एल लिमिटेड**  
**BEML LIMITED**

A Govt. of India Miniratna Company Under Ministry of Defence

S/No. 1200011020237 Dt. 25/02/2021



**SECTION -VI**

**TECHNICAL SPECIFICATION OF TYRE HANDLER**

CLAUSE 9: General Technical parameters / Information / Documents :

v The Equipment shall meet all operational safety norms by DGMS or any other statutory requirement & norms laid down by the Govt Agencies.

- Tyre Handler is a supporting equipment. Hence the following DGMS approved safety features are provided to meet the criteria.

- Auto Fire Detection and Suppression System
- Operator's fatigue
- Rear View Camera

\*\*\*\*\*



*(Signature)*  
Sd/- **DR. NARDESH KUMAR**  
भारतक मन्त्रालय (भारत) Gen. Secy. Manager (M&P)  
वीरभद्रमण्डल लिमिटेड BEML Limited  
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S/O No. 12000111020237 Dt. 25/01/2021



**MAINTENANCE SCHEDULE**

**Model: BL14TH TYRE HANDLER**


**PERIODIC MAINTENANCE SCHEDULE**

GROUP	TYPE OF P.M.	DETAILS OF P.M.	HRS. REQD.	MAN POWER REQD.
1	Daily Checks	Walk around check for oil leaks and loose fasteners. <b>CHECK :</b> Oil, Coolant level & Grease level, Tyre inflation pressure, Grease at all points, Battery condition & function of Auto eletrics and belt tension & adjust. <b>DRAIN :</b> Sediments form Air, Fuel tank & Water separator.	0.5 hrs per shift	2
2	Initial 250 Hrs.	<b>Change:</b> Transmission Filter element. <b>Check:</b> Engine valve clearance & adjust.	5	2
3	Every 250 Hrs.	<b>Change:</b> Engine Oil and filters, fuel filters. <b>Check:</b> pH value of coolant, Check Air cleaner elements, Fan / Compressor Belt Tension. <b>Clean:</b> Fuel Strainer.	3	2
4	Every 500 Hrs.	<b>Change:</b> Transmission Filter element & Air cleaner elements.	2	1
5	Every 1000 Hrs.	<b>Change:</b> Hydraulic and steering filter element. <b>Change:</b> Transmission oil. <b>Clean:</b> Transmission case breather element.	3	2
6	Every 2000 Hrs.	<b>Change:</b> Hydraulic oil and Hyd. Tank Breather element, Hyd. Suction Filter, Front & Rear Axle oil. <b>Clean:</b> Engine Breather element. <b>Check:</b> Engine valve clearance & adjust, CBM of engine along with oil sample.	6	4

**PREVENTIVE MAINTENANCE SCHEDULE:**

GROUP	TYPE OF P.M.	DETAILS
A	Every 2000 Hrs	Check for leakages and pressure checking of all systems. This will be carried out along with 2000 hrs periodical maintenance.
B	Every 4000 Hrs.	Check Water Pump, After Cooler, Fan & Tension pulley and Air Compressor.

The above preventive maintenance will be concurrently carried out during scheduled periodical maintenance.

  
श्री श्री नरेश कुमार  
सहायक प्रशासक (निर्माण) Asst. General Manager (Mtg.)  
बीएमएल लिमिटेड BEML Limited  
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21/41



S/o No. 1200011020237 Dt. 25/02/2021



BEML LTD, INDIA Engine Division, Mysore	Engine Model : BS6D105-1	Ref.Curve No. : 105 STD-018
Engine Performance Curve for BS6D105-1	Equipment Model : BL14TH/BD14W	Date : Jan - 2015
Displacement : 6.54 Litre	Aspiration : Turbocharged	No.of.Cylinders : Six, In-Line
Bore : 105 mm	Stroke : 125 mm	Fuel System : Bosch Ltd India

**Gross Power - kW**

**Gross Torque - Nm**

**Gross SFC - g/kWh**

Speed (rpm)	1000	1200	1400	1600	1800	2000
Gross Power (kW)	65	80	94	102	105	110
Gross Torque (Nm)	619	635	644	609	555	525
Gross BSFC (g/kWh)	206	197	191	192	194	198

NOTES: Production tolerance: Within +/- 5 %      Engine Performance as per ISO 9249

श्री नरेश कुमार NARESH KUMAR  
 महावक प्रशासक (विपणन) Asst. General Manager (Mktg.)  
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22/41



S/o No. 12000/11020237 Dt. 25/01/2021



**BL14TH/BD14W, BS6D105-1 Rated 148 hp @ 2000 rpm, 105-STD-018**

Engine Speed, rpm	Gross Torque, Nm	Gross Power, kW	Gross Power, hp	Torque Rise, %	Accs. Power, Fan - kW	Accs. Power, Muffler - kW	Accs. Power, Air Comp - kW	Total Accs. Power, kW	Net Torque, Nm	Net Power, kW	Net Power, hp	Gross BSFC, g/kWh	Net BSFC, g/kWh
2000	525	110	148	26	4.8	4.5	5.8	16.0	448.8	94	128	198	231
1800	555	105	142		3.5	4.0	6.4	14.7	476.9	90	122	194	228
1600	609	102	139		2.5	3.6	6.8	13.6	528.2	89	120	192	226
1400	644	94	128		1.6	3.1	6.1	11.6	564.8	83	112	191	225
1200	635	80	108		1.0	2.7	7.4	11.6	542.7	68	93	197	231
1000	619	65	88		0.6	2.2	7.6	10.7	516.6	54	73	206	240

NOTE:

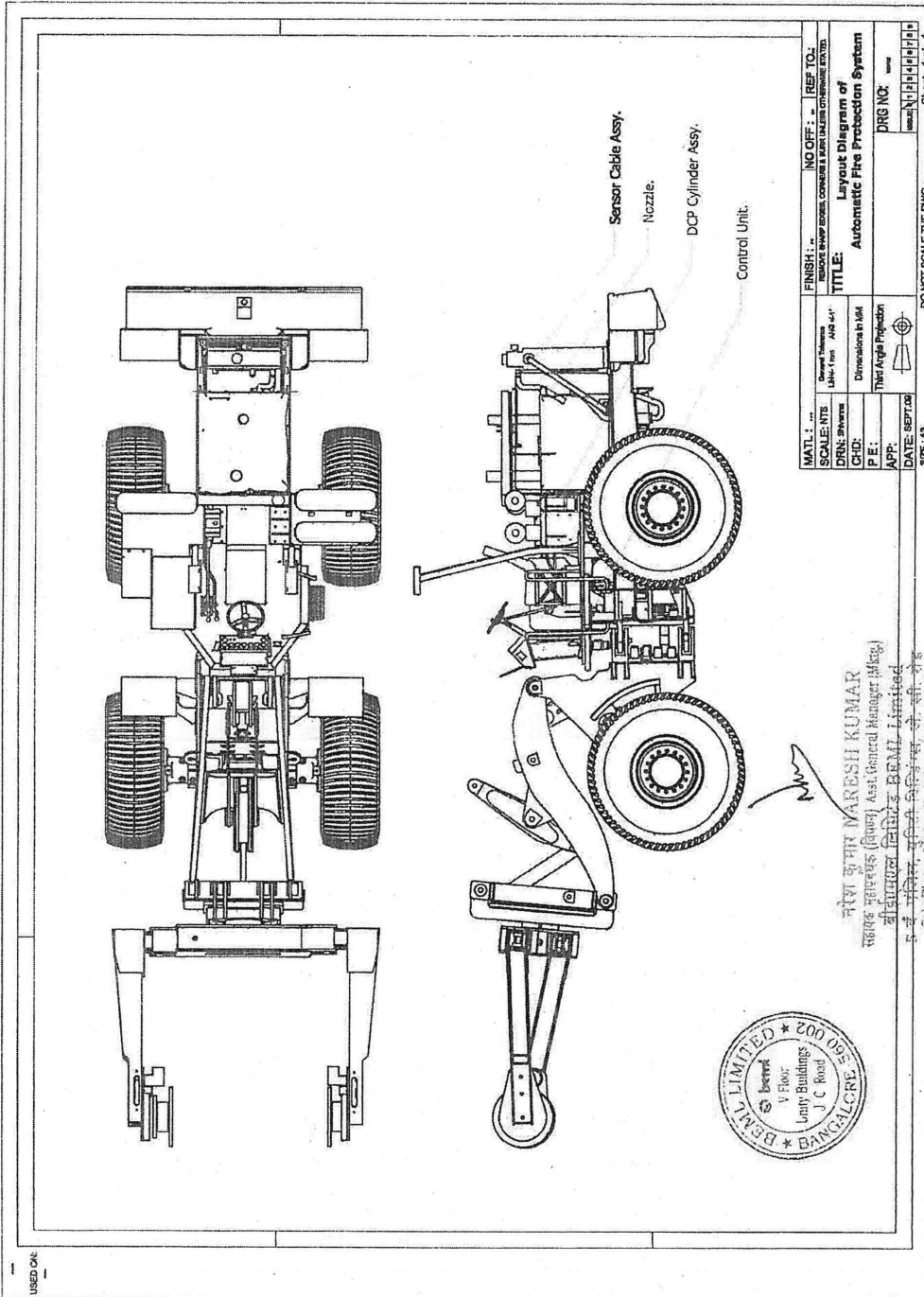
1. Derate engine fuelling rate for High Altitude by 4% for every 300 mts (Approx. 1000 ft) above 3000 mts (Approx. 10000 ft).
2. Derate engine fuelling rate for Hot Weather by 2% for every 1.1 °C above 38 °C, ambient.
3. Derate engine fuelling rate for rise in Relative Humidity by 2% for every 20% rise in R.H above 60%.



श्री श्री श्री नरेश कुमार  
 निदेशक (आयु) / निदेशक (आयु) / निदेशक (आयु)  
 अधिकारी (आयु) / अधिकारी (आयु) / अधिकारी (आयु)  
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23/41

S/o NO. 12000111020237 Dt. 25/01/2021



MATL.:	FINISH:	NO. OFF.:	REF. TO:
SCALE: NTS	FINISH: SHARP EDGES, CORNERS & PARTS UNLESS OTHERWISE STATED.		
DRN: Shwara			
CHD:			
P.E.:			
DATE: 06/11/20			
SIZE: 1:10			

**TITLE:** Layout Diagram of Automatic Fire Protection System

**DRG NO.:** 111020237

DO NOT SCALE THE DRG.

Plot: 3mmx5mmx50mm DRG (A4) cut/binding given for 1x1 (RT/PLA)



**MANAGER:** HARSH KUMAR  
**ASSISTANT MANAGER (Mfg):**  
 S. S. Srinivasan, J.C. Road, 4th Flr.  
 4th Floor, Vidyasagar, J.C. Road,  
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USED ON

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S/No. 1200011020237 Dt. 25/02/2021

MACHINING DEVIATIONS FOR LINEAR DIMENSIONS		THE REST	
NO. OF DIMENSIONS	VALUE	NO. OF DIMENSIONS	VALUE
6	±0.1	4000	±0.3
30	±0.2	2000	±0.2
120	±0.3	1000	±0.2
315	±0.5	500	±0.2
1000	±0.8		
2000	±1.2		

Z1102 / 758 EFB 00112  
DRG. NO.

**FOLLOWING ARE THE DETAILS OF AUTO FIRE DETECTION AND SUPPRESSION SYSTEM:**

- 1) NO. OF NOZZLES : 6 NOS.
- i) 4 NOS ON ENGINE COMPARTMENT
- FRONT:
  - LH-1 No.
  - RH-1 No.
- REAR:
  - LH-1 No.
  - RH-1 No.
- ii) 2 NOS ON TRANSMISSION MOUNTING AREA:
  - LH-1 No.
  - RH-1 No.

2) TYPE OF FIRE EXTINGUISHER AGENT : DRY CHEMICAL POWDER


3) CAPACITY OF CYLINDER : 15 LITERS

4) REQUIRED LENGTH OF SENSOR CABLE: 25 m.


**OPTIONAL**


**NOTE:-**

1. A SUITABLE AUTOMATIC FIRE DETECTION AND SUPPRESSION SYSTEM OF REPUTED MANUFACTURERS (INDIGENOUS OR IMPORTED) DULLY APPROVED BY DGMS. THE SYSTEM SHALL HAVE PROVISION OF ACTUATING IT MANUALLY. THE SYSTEM SHALL PROVIDE CHECKUP/TESTING/INSPECTION OF SYSTEM WITHOUT OPERATING SYSTEM.
2. THE MATERIAL AND CHEMICALS TO BE USED IN AUTOMATIC FIRE DETECTION AND SUPPRESSION SYSTEM MUST BE TYPE AND MAKE APPROVAL IN WRITING FROM DGMS
3. DETAILS & LAYOUT OF AUTOMATIC FIRE DETECTION AND SUPPRESSION SYSTEM SHOWING NUMBER OF FIRE HAZARDS POINTS COVERED, MAKE, TYPE OF FIRE EXTINGUISHER AGENT TYPE OF NOZZLE AND COVERAGE AREA AND COPY OF APPROVAL OF DGMS BE PROVIDED.

  
**MR. K. K. K. K.**  
 Project Engineer (Asst. General Manager (Asst.))  
 Fire & Safety Section, BEML Limited  
 5th Floor, Unity Building, J.C. Road,  
 Bengaluru - 560 002.

NEXT ASST.	PRODUCT TYPE HANDLER	DESCR. REF.			
	USED ON (OT) MATL. ---				
	BL/DR 1	H.T. ---			
		S.T. ---			
		DATE			
		SIGNATURE			
		NO.			
		NAME			
		APPROVED			
		REVIEWED			
		CHECKED			
		DRAWN			
		STD.S.			

  
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### DESCRIPTION OF AFPS FOR BL14TH TYRE HANDLER

Heavy Duty vehicles used on off-road application requires Fire Protection System to save,

- Costly Vehicle Replacement
- Costly Down Time
- Safety of Operator

The system is pre-engineered system and consist of a pressurised container to store the dry chemical extinguishing agent, an actuation device to expel the dry chemical and a delivery system consisting of flexible hoses and fixed nozzles to transport the dry chemical to the fire hazard area.

Fire suppression system is equipped with Automatic fire Detection & System Actuation. System includes monitoring control panel which indicate suppression system status and audible alarm. System includes test feature with back-up battery. Actuation , may be manual or automatic, at the user's option.

A thermistor strip fire sensing wire is routed all around all around the equipment to detect fire. In case of fire, both audio alarm and indicator will be activated and control unit actuates the squib/solenoid valve after 30 seconds time delay and pressurized nitrogen gas gets released an flows into DCP cylinder. Then the extinguisher powder flows out through high pressure hoses gets distributed to various locations through nozzles flooding the fire prone areas. The extinguishing agent is a Dry Chemical Powder suitable for extinguishing 'A', 'B' & 'C' class fires. The power is not conductive physiologically inert and non-abrasive.

Layout diagram is enclosed.

\*\*\*\*\*

*(Handwritten initials)*  
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LIST OF STANDARD TOOLS AND SPECIAL TOOLS -

ANNEXURE 'B'



LIST OF STANDARD TOOLS - BL14TH TYRE HANDLER (per equipment)

S/no	Part number	Description	Qty
1	030101053100	DEOJ SPANNER 41X46MM	1
2	030102019100	SOCKET 38mm	1
3	030102019100	SOCKET 41MM	1
4	520900000120	ALLEN KEY	1
5	520900000000	WRENCH	1
6	030104001000	FEELEER GALICE SET	1
7	520900000000	GREASE GUN	1
8	530900000020	HAMMER	1
9	530900000001	HYDROMETER	1
10	520900000000	PINCH BAR	1
11	520900000000	OILER	1
12	520900000000	COMBINATION PLIER	1
13	520900000001	SCREW DRIVER	1
14	520900000000	SCREW DRIVER LARGE 8X150MM	1
15	CTW0510810	DEOJ SPANNER 8X10 MM	1
16	CTW0511214	DEOJ SPANNER 12X14 MM	1
17	CTW0511317	DEOJ SPANNER 13X17MM	1
18	CTW0511621	DEOJ SPANNER 16X21MM	1
19	CTW0511622	DEOJ SPANNER 16X22MM	1
20	CTW0512427	DEOJ SPANNER 24X27MM	1
21	CTW0512032	DEOJ SPANNER 30X32MM	1
22	CTS0111016	SQ.DRIVE BI-HEX SOCKET	1
23	CTS0111318	12.5MM SQ.DRIVE BI-HEX SOCKET 13MM	1
24	CTS0111421	12.5MM SQ.DRIVE BI-HEX SOCKET 14MM	1
25	CTS0111724	12.5MM SQ.DRIVE BI-HEX SOCKET 17MM	1
26	CTS0111927	12.5MM SQ.DRIVE BI-HEX SOCKET 19MM	1
27	CTS0112231	12.5MM SQ.DRIVE BI-HEX SOCKET 22MM	1
28	CTS0112433	12.5MM SQ.DRIVE BI-HEX SOCKET 24MM	1
29	CTS0112737	12.5MM SQ.DRIVE BI-HEX SOCKET 27MM	1
30	CTS0113041	12.5MM SQ.DRIVE BI-HEX SOCKET 30MM	1
31	CTS0113243	12.5MM SQ.DRIVE BI-HEX SOCKET 32MM	1
32	520900000020	EXTENSION BAR 127 MM	1
33	520900000020	EXTENSION BAR 254MM	1
34	520900001000	UNIVERSAL JOINT 75MM	1
35	520900002000	REVERSIBLE RATCHET 254MM	1
36	520900004000	T-HANDLE 300MM	1
37	110 TL02037	TOOL BOX	1
38	905 TL02101	TYRE INFLATION KIT	1
39	0901908035	CARTRIDGE FILTER OPENING TOOL (WRENCH FILTER)	1

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 E-mail: hshk@bhel.com



LIST OF SPECIAL TOOLS - BL14TH TYRE HANDLER

1	007445774015	Hydraulic pressure checking gauge	1
---	--------------	-----------------------------------	---

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SO no: 12000111020237 dt. 25-02-2021

LIST OF FILTERS AND CONSUMABLES FOR INITIAL 1000 HRS OF OPERATION – ANNEXURE 'C'



Filters / Consumables for 1000 Hrs Operation

Model: BL14TH Tyre Handler.

(Per Equipment)

SLNO	PART NO	PART DESCRIPTION / SYSTEM	CHANGE INTERVAL (HRS)	QTY FOR 1000 Hrs	HSN Code	GST Rate %
1	30299001808	ENGINE MAINTENANCE KIT	E-250	4	84099990	28%
2	0020081097	PREMIUM ACF (110 Ltr)	As when used	1	34031000	18%
3	3021300436	A/C ELEMENT/ASSY	E-500	2	84099990	28%
4	125FL92676	FUEL STRAINER	E-500	2	84213890	18%
5	524300400001	ELEMENT (HYD & STEERING)	E-1000	4	84314200	18%
6	CH50103110	O-RING (HYD & STEERING)	E-1000	2	40269320	38%
7	395TMC1295	TRANSMISSIONS FILTER	E-250 & E-500	1	84314200	18%
8	1129900684	TAPET SETTING KIT	E-250 & E-2000	1	84099990	28%
9	1126170521	V-BELT (ALTERNATOR & MOUNTING)	E-1000	1	84099990	28%



DECLARATION  
I hereby declare that the above mentioned items are required for the initial 1000 hours of operation of the equipment.

*[Signature]*




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SO no: 12000111020237 dt. 25-02-2021

MAJOR BOUGHT OUT ITEMS

ANNEXURE 'D'




**LIST OF MAJOR BOUGHT OUT ITEMS**

Model: BL14TH

Sl. No.	Description	Source	Address
1	Transmission	M/s ZF Germany	ZF FRIEDRICHSHAFEN AG 94034 PASSAU, TITTLINGER STRASSE 28, Germany
2	Front Axle	M/s ZF Germany	ZF FRIEDRICHSHAFEN AG 94034 PASSAU, TITTLINGER STRASSE 28, Germany
3	Rear Axle	M/s ZF Germany	ZF FRIEDRICHSHAFEN AG 94034 PASSAU, TITTLINGER STRASSE 28, Germany
4	Tyres	MRF	#124, Creams Road, Chennai - 600 006
		JK	JK Tyre & Industries, KRS road, Vikrant Tyre plant - 1, Tyre plant, Mysore - 570 016
		BKT	Balkrishna Industries Ltd, Chopanki Indl. Area, Chopanki, Rajasthan - 301707
5	Pumps	Vejan Denison	Vejan Denison Limited, Patancheru, Medak, Telangana-502319
6	Auto Fire Detection and Suppression System	Southern Electronics	Area, Phase-I, 16-A, Peenya Industrial, Bengaluru - 560058

\*\*\*\*

  
A. S. SRINIVAS KUMAR  
General Manager, Mechanical  
M/s. S. S. Srinivas Kumar & Co.,  
10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

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OIL AND LUBRICANT CHART

ANNEXURE - E

**Oil & Lubricant Chart**

Model: BL 14TH Tyre Handler

Sr. No.	RESEVOR	GRADE OF OIL	CHANGE INTERVAL IN HRS	REFILL CAPACITY (LITERS)	ESTIMATED ANNUAL CONSUMPTION (LITERS)	MOCL	BPCL	HPCL	CASTROL	BRANER LAWRIE
1	ENGINE OIL	40E	200 HRS	25	100	SEMI SUEDE TRANSDURA	MARK 1500-80	MARK 1500-80	MARK 1500-80	MARK 1500-80
2	HYDRAULIC OIL	TEMLON 32	1000 HRS	37	37	SEMI SUEDE TRANSDURA	MARK 1500-80	MARK 1500-80	MARK 1500-80	MARK 1500-80
3	AXLE OIL	TEMLON 32	2000 HRS	35 (EACH)	35	SEMI SUEDE TRANSDURA	MARK 1500-80	MARK 1500-80	MARK 1500-80	MARK 1500-80
4	WHEEL OIL	SAE 100	5000 HRS	1.5	0	SEMI SUEDE TRANSDURA	MARK 1500-80	MARK 1500-80	MARK 1500-80	MARK 1500-80
5	HYDRAULIC OIL	SAE 100	2000 HRS	100	100	SEMI SUEDE TRANSDURA	MARK 1500-80	MARK 1500-80	MARK 1500-80	MARK 1500-80
6	GREASE	40E	AS REQUIRED	100	100	SEMI SUEDE TRANSDURA	MARK 1500-80	MARK 1500-80	MARK 1500-80	MARK 1500-80

  
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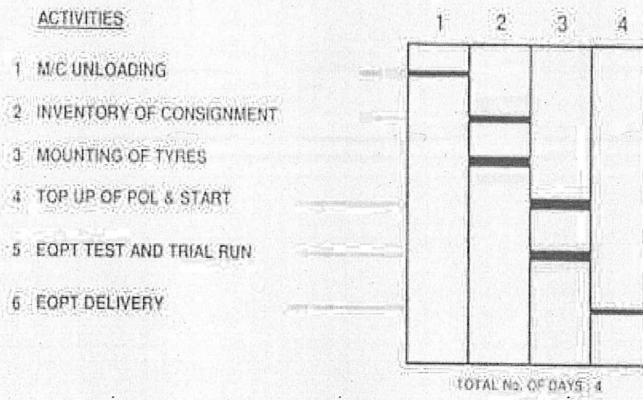
SO no: 12000111020237 dt. 25-02-2021

ERECTION CHART

ANNEXURE 'F'



ERECTION CHART FOR BL14TH TYRE HANDLER



*[Faint text and signature]*

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