Bharat Coking Coal Limited
(A Subsidiary of Coal India Limited)
(A GOVT. OF INDIA UNDERTAKING)
KoylaBhawan, Koyla Nagar, Post- B.C.C.L. Township,
DHANBAD-826005 (Jharkhand)
OFFICE OF THE GENERAL MANAGER (MM)
Phone No. 0326-2230181 Fax No. 0326-2230183
(UNDER JURISDICTION OF DHANBAD/JHARKHAND COURT ONLY)

Purchase Order
Ref: BCCL/ PUR/419075/60TRearDumper/19-20/46/138 Dated 07.02.2020

To,
M/s BEML Limited,
KANGLO, AMAGHATA,
PO-GOVINDPUR,
DHANBAD, JHARKHAND - 828109

Vendor Code-1/29/M/P/001
Vendor Type- OEM
Material Code-11698

Ph No-0326 2227038/85/89
FAX NO-0326-2227082
EMAIL: mfm@beml.co.in, mf@beml.co.in

Sub: Supply of 60 US ton (55 Metric Ton Approx) Rear Dumper with Spare Parts and Consumables for Warranty Period of 01 Year & thereafter Spare Parts & Consumables for 06 Years after warranty period
Ref: Your Online offer Ref: MT: TC-1461/BCCL (BH60M) dtd. 17.10.2019 and subsequent Reverse Auction dtd 20.01.2020 against this office Global Tender cum Reverse Auction No BCCL/ PUR/419075/60T Rear Dumper /19-20/46 dtd. 26.10.2019 for procurement of 34 nos 60 US ton (55 Metric Ton Approx) Rear Dumper with Spare Parts and Consumables for Warranty Period of 01 Year & thereafter Spare Parts & Consumables for 06 Years after warranty period Under Normal Custom Duty (NCD) as per details given in Annexure- A

Dear Sirs,
Your above referred offer for supply of 60 US ton (55 Metric Ton Approx) Rear Dumper with Spare Parts and Consumables for Warranty Period of 01 Year & thereafter Spare Parts & Consumables for 06 Years after warranty period has been accepted to the extent as indicated hereunder:-

1. **SCOPE OF SUPPLY**
   A. **Equipment:**

Description	**Qty-**	**Basic Ex Works Price / Unit(Rs)**	**Extended value (Rs)**
Equipment Package–BEML BH60M Rear Dump Truck powered by Cummins KTTA 19-C diesel engine developing 485kw(650HP) @2100rpm, self-propelled wheeled Rear dumper with 54.5 Ton capacity Rock body with Ancillary equipment and other requirements for each items as per scope of supply of order. **Supplementary Items** - First fill of all oils, grease and lubricants needed for test and commissioning of equipment, **Information and Drawings, Erection/Assembly, Commissioning and Performance Testing, Training**(detail scope & specifications as per **Annexure A)**	34Nos	1,83,78,592.00	62,48,72,128.00
GST@ **28% on equipment.**	34 Nos	51,46,005.76	17,49,64,195.84
Total –Landed value of Equipment	34 Nos	2,35,24,597.76	79,98,36,323.84
1st Year Spares and Consumables	Total Cost of Spares for 34 Equipment		NIL
GST @ 18% / 28%	GST at actual for 34 Equipment		NIL
2nd Year Spares and Consumables	Total Cost of Spares for 34 Equipment		1,52,15,000.00

GST @ 18% / 28%	GST at actual for 34 Equipment	33,45,518.40
3rd Year Spares and Consumables	Total Cost of Spares for 34 Equipment	3,18,85,089.16
GST @ 18% / 28%	GST at actual for 34 Equipment	81,39,062.46
4th Year Spares and Consumables	Total Cost of Spares for 34 Equipment	2,92,98,276.00
GST @ 18% / 28%	GST at actual for 34 Equipment	71,95,005.88
5th Year Spares and Consumables	Total Cost of Spares for 34 Equipment	9,11,91,842.00
GST @ 18% / 28%	GST at actual for 34 Equipment	2,46,68,830.56
6th Year Spares and Consumables	Total Cost of Spares for 34 Equipment	4,90,12,526.94
GST @ 18% / 28%	GST at actual for 34 Equipment	1,26,07,036.12
7th Year Spares and Consumables	Total Cost of Spares for 34 Equipment	1,73,98,310.00
GST @ 18% / 28%	GST at actual for 34 Equipment	39,17,942.40
TOTAL PURCHASE VALUE FOR EQPT WITH SPARES AND CONSUMABLES		1,09,37,10,763.76
Rs ONE HUNDRED AND NINE CRORE THIRTY SEVEN LAKHS TEN THOUSAND SEVEN HUNDRED AND SIXTY THREE & SEVENTY SIX PAISE ONLY		

* Year wise Spares List for each area is as per **Annexure-B**

Supply Point:

Equipment: Supply and billing will be from BEML Limited, Belvadi Post, Mysore, Karnataka 570018. **Vendor Code-1/29/M/P/001**

Spares: Supply and billing will be from BEML Limited, Dhanbad, Jharkhand: 828109. **Vendor Code-1/22/M/P/011**

2. **TOTAL PURCHASE VALUE** (Equipment & Spare Parts and Consumables for Warranty Period of 01 Year & thereafter Spare Parts & Consumables for 06 Years after warranty period): **Rs 1,09,37,10,763.76**
(Rs ONE HUNDRED AND NINE CRORE THIRTY SEVEN LAKHS TEN THOUSAND SEVEN HUNDRED AND SIXTY THREE & SEVENTY SIX PAISE ONLY.)

The above prices are FIRM and on FOR Destination basis inclusive of packing & forwarding, Freight &insurance. Safe arrival of the complete equipment up to destination stores shall be your responsibility.

3. **GST:**

a) 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 **28%** on equipment. 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 BCCL. 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 BCCL to avail Input Tax Credit (ITC) as per eligibility under GST. In case BCCL is unable to avail ITC or any liability arises to BCCL due to failure on the part of you to comply the above provisions, the entire amount including Interest (if any) borne by BCCL shall be recovered from you. The present rate GST applicable on individual items of spares is as per Annex- B enclosed.

b) Invoice issued by you should contain following elements as per Section 31 of CGST Act, 2017 along with Rule 46 and 47 of CGST Rule, 2017:

- Your Name, address and GSTIN;
- A consecutive serial number (not exceeding sixteen characters) containing only alphabets and/or numerals, unique for a financial year; (should not be hand-written)
- Date of its issue;
- Name, address and GSTIN/ Unique ID Number, if registered, of the recipient;

- Name and address of the recipient and the address of delivery, along with the name of State and its code, if such recipient is unregistered and where the taxable value of supply is fifty thousand rupees or more;
- HSN code of goods or Accounting Code of services;
- Description of goods or services;
- Quantity in case of goods and unit or Unique Quantity Code thereof;
- Total value of goods or services;
- Taxable value of goods or services taking into account discount or abatement, if any;
- Rate of tax (CGST, SGST or IGST);
- Amount of tax charged in respect of taxable goods or services (CGST, SGST or IGST);
- Place of supply along with the name of State, in case of a supply in the course of inter-State trade or commerce;
- Place of delivery where the same is different from the place of supply;
- Whether the tax is payable on reverse charge;
- the word "Revised Invoice" or "Supplementary Invoice", as the case may be, indicated prominently, where applicable along with the date and invoice number of the original invoice; and
- Signature or digital signature of the supplier or his authorized representative
- GST Registration Number of BCCL in case of supply for Jharkhand is 20AAAC87934MFZB and in case of supply for WB is 19AAACB7934M2Z7. Your bills should bear this number to enable BCCL to claim INPUT TAX CREDIT.

c) You have to ensure proper uploading in your return so that BCCL may be able to avail Input Tax Credit.

d) You have to ensure that if BCCL does not be able to avail Input Credit due to your fault then the loss amount shall be recovered from your bill.

e) The benefit of any extra input tax credit earned by you, if any, in future shall be passed on to BCCL.

f) E-Way bill, if required, shall be arranged by you

HSN codes and GST rates of the items covered in the above supply order placed will be as under:

Sl no.	Item	HSN code	GST rate
1	60T Rear Dumper	87041010	28 % (IGST).

Your GST details are as under:

SN	Particulars	Firm's Details
1	Name	M/s BEML Ltd
2	Constitution of Business	Government of India Undertaking under Ministry of Defence
3	Trade Type (Manufacturer/Dealer/Service Provider)	Manufacturer
4	PAN	AAACB8433D
5	Contact number	8882875741
6	Whether migrated to GST (Yes/No)	Yes
7	Provisional/Permanent ID provided under GST	29AAACB8433D1ZU

4. **PACKING & FORWARDING CHARGES:** NIL.

5. **FREIGHT/TRANSPORTATION CHARGES:** INCLUDED

6. **TRANSIT INSURANCE:** INCLUDED

7. **TERMS OF PAYMENT: FOR EQUIPMENT AND CONSUMABLE SPARES FOR THE FIRST 12 MONTH OF THE WARRANTY PERIOD FROM DATE OF COMMISSIONING OF EQUIPMENT:**

(a) 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% GST along with 100% transportation & Insurance charges will be paid within 21 days after delivery and acceptance of materials at site at the consignee's end and submission & acceptance of Performance Bank Guarantee. The equipment should be accompanied with relevant dispatch documents like Challan, Maker's Test Cum Inspection Certificate Warranty Certificate, Pre dispatch inspection certificate wherever applicable etc.

(b) Balance 20% payment and 100% erection and commissioning charges shall be made within 21 days of successful completion of erection testing, commissioning and final acceptance of the equipment(along with accessories) at site

upon presentation of a certificate signed by the concerned officials of the Project and counter-signed by the Area General Manager and HOD of Excavation Deptt. of the BCCL HQ, where the equipment has been deployed and confirmation of receipt of spares and consumables for first 12 months of warranty period from the date of commissioning of the equipment by the paying authority.

FOR PAYMENT OF SPARES AND CONSUMABLES FOR 6 YEARS AFTER THE WARRANTY PERIOD OF 12 MONTHS FROM THE DATE OF COMMISSIONING OF THE EQUIPMENT

100% value of the spares and consumables and 100% taxes & duties and other charges shall be made within 21 Days after receipt and acceptance of the materials at consignee's end.

BCCL is making payment of supplier's bills through Electronic Fund Transfer (EFT). Bidders are therefore, advised to indicate their Bank Account number and other Bank Details in their Invoice.

Name of the Bank.
Name of the Branch with complete address.
Party's Account Style.
Party's nature of Account.
Party's Account Number.
Your E-Payment mandate is enclosed as **ANNEXURE- O**

8. **DELIVERY:** 08 Nos of Dumper to be supplied within 6 months from the date of receipt of purchase order and balance dumpers to be supplied@ 8 Dumpers per month till completion of order Quantity. However the earlier supply will be appreciated. Delivery schedule shall be reckoned from the 10TH day from the date of order and the date of receipt of materials at our stores shall be treated as the date of delivery. However, the earlier supply will be appreciated.

Every machine (Machine to be supplied in each Project) shall be delivered with spares parts and consumable adequate, initially for 12 months/4000 Hours operations. Thereafter spares & consumables for balance Six years beyond first year of the warranty of the equipment shall be delivered periodically in minimum two separate lots for each year from the date of The Purchaser's Acceptance Certificate in order to comply with the provision herein contained.

9. **ERECTION & COMMISSIONING PERIOD**: Within 30 days from the date of receipt of each complete equipment at site.

10. **ERECTION & COMMISSIONING:** The supplier shall be responsible for the erection and commissioning within the period specified in the Delivery Clause of NIT. However, the purchaser will assist in providing necessary erection tools & tackles etc. for this purpose. If the supplier fails to commission the equipment with in the specified period as incorporated in the NIT Liquidated damages will be recovered @ 0.5% of the delivered/landed price of the equipment along with accessories per week or part thereof for the delayed period subject to a maximum of 10% of the delivered/landed price of equipment along with accessories. Wherever felt necessary, the limit of 10% can be increased to 15% at the discretion of Head of the Materials management Division of BCCL.
In case there is delay in erection & commissioning on account of BCCL, the period of delay (on account of BCCL) shall not be counted for levy of liquidated damages.

11. **LIQUIDATED DAMAGES CLAUSE**: In the event of failure to deliver or dispatch the stores within the stipulated date/period in accordance with the samples and / or specifications mentioned in the supply order and in the event of breach of any of the terms and conditions mentioned in the supply order, BCCL should have the right:-

a) To recover from the successful tenderer as agreed liquidated damages, a sum of 0.5 % (half percent) of the price of any 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). Wherever felt necessary, the limit of 10% can be increased to 15% at the discretion of Head of the Materials management Division of BCCL.
b) or to purchase elsewhere, after due notice to the successful tenderer on the account and at the risk of the defaulting supplier the stores not supplied or others of similar description without canceling 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 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 fully or partly.
f) Whenever, under this contract, a sum of money is recoverable from and payable by the supplier, BCCL 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 contract should this sum be not sufficient to cover the full amount recoverable, the successful tenderer shall pay BCCL on demand the remaining balance. The supplier shall not be entitled to any gain on any such purchase.
g) CGST, SGST or IGST will be levied as applicable as per the provision of GST Act and Rule thereon.

h) Supplier will issue credit note as per the provision of Rule 53 of CGST Rule, 2017 on quality deduction or liquidity damage, if any arises

12. **ALLOCATION/CONSIGNEE:**
The equipment allocated to the mine /projects/ areas as follows which is subject to change as per the requirement of purchaser:

Sl. No.	Name of the Area	Allocated Qty. (Nos.)	CONSIGNEE
1	Block II	10	DO, Regional Stores, BlockIIArea PO Nawagarh, Dhanbad, Pin 828306
2	Govindpur	05	DO, Regional Stores, Govindpur Area, Dhanbad Pin 828128
3	Katras	10	DO, Regional Stores, Katras Area, Dhanbad, Pin 828121
4	Sijua	02	DO,Regional Stores, Sijua Area, RS Loyabad, Dhanbad Pin 828101
5	Kusunda	01	DO,Regional Stores, Kusunda Area, Godhur, Dhanbad Pin 828116
6	Bastacolla	04	DO,Regional Stores, Bastacolla Area, Dhanbad Pin 828106
7	CV	02	DO, Regional Stores, CV Area, Lakdhi PO Chirkunda, Pin 828202
	Total	34	

13. **PAYING AUTHORITY**: The HOD (Finance)/MM, Koyla Bhawan: Koyla Nagar, Dhanbad

14. **SECURITY DEPOSIT:** Exempted being a CPSU under the Ministry of Defence; Govt of India.

15. **COMPOSITE GUARANTEE / WARRANTY:** As indicated in Technical Specification (ANNEXURE-A)

16. **PERFORMANCE GUARANTEE:** In accordance with the provisions of clauses of the special terms and conditions, you, shall guarantee that the annual availability of the equipment shall be of (1th -4th yr: 80% and 5th-7th yr: 75%) with expected annual working hours of 3500±500. Total obligation of guarantee shall be 07 years (including one year warranty).

You shall furnish a Performance Guarantee equivalent to 10% of the total value of the supply order / contract (by adding all taxes such GST etc to the FOR destination price of the equipment ordered, in case of suppliers from purchaser's country and the estimated Marine Freight & Insurance, port charges and Customs Duty etc., in case of imported items). The performance guarantee shall be submitted in the form of a Bank Guarantee issued by a scheduled bank in the format Attached as ANNEXURE-G. This Bank Guarantee shall be initially valid for a period of 90 months from the date of receipt and acceptance of the equipment and the same shall either be released or extended depending upon the merit of the case. This Performance Guarantee shall be for the performance of the Contract / Supply Order.

The Performance Bank Guarantee (s) may be submitted equipment wise also.

The Performance Bank Guarantee shall be released after fulfillment of all contractual obligations including warranty /guarantee conditions stipulated in the contract. For unsatisfactory performance and/or contractual failure, BCCL shall have the full right to invoke/en-cash the Performance Bank Guarantee.

Release of PBG for each equipment, may be done separately on satisfactory performance of the respective equipment as above.

You have to submit the Performance Bank Guarantee in INR.

The Performance Bank Guarantee shall be issued by a scheduled bank in the format attached as ANNEXURE - G and shall be irrevocable and unconditional and BCCL shall have the powers to invoke/en-cash it notwithstanding any dispute or difference between supplier and BCCL pending before the court, tribunal, arbitrator or any other authority.

In case of Performance Bank Guarantee, the bidder may also please note the following:
The Bank Guarantee issued by the Bank on behalf of the supplier in favor of "BHARAT COKING COAL LIMITED" shall be in paper form as well as issued under "Structural Financial Messaging System". The detail of beneficiary for issue of BG under SFMS platform is furnished below.

Name of beneficiary & its details	Name	Bharat Coking Coal Limited
	Area	HQ,BCCL
	Bank Account No	35160317947
	Deptt	MM Department
Beneficiary Bank Branch &Address	State Bank of India	
	Main Branch Dhanbad	
IFSC Code	SBIN0000066	

Name of beneficiary & its details	Name	Bharat Coking Coal Limited
	Area	HQ,BCCL
	Bank Account No	35160317947
	Deptt	MM Department
Beneficiary Bank Branch &Address	ICICI Bank	
	ICICI Bank Dhanbad	
IFSC Code	ICIC0000196	

The above particulars are to be incorporated by the issuing Bank properly while issuing BG under SFMS mode to avoid any problem in future. The original Bank Guarantee issued by the issuing Bank shall be sent by the issuing Bank to the beneficiary (MM Department), BCCL by Registered Post (A.D.).

The total value of **PERFORMANCE BANK GUARANTEE is Rs. 10,93,71,076.37 Or Rs.32,16,796.36/-per Equipment**

17. **INTEGRITY PACT):** The Integrity Pact document has been signed by you and the same is deemed to have been signed by BCCL authorities.

18. **PRICE FALL CLAUSE** – You undertake that You have not supplied / or not supplying similar product/systems or subsystems at a price lower than that offered in the present Bid in respect of any other Ministry / Department of the Government of India or PSU and if it is found at any stage that similar product / Systems or Subsystems was supplied by the Bidder to any other Ministry / Department of the Government of India or a PSU at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by the Bidder to the Buyer, if the contract has already been concluded.

19. **INSPECTION AND TESTS:**

a) The purchaser or its authorized representative shall have the right to inspect and/or to test the goods to confirm their conformity to the contract. The purchaser shall notify the supplier in writing of the identity of any representative retained for these purposes.

b) The inspections and tests may be conducted on the premises of the supplier or its subcontractors), at point of delivery and/or at the goods final destination when conducted on the premises of the supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production date, shall be furnished to the inspectors at no charge to the purchaser.

c) Should any inspected or tested Goods fail to conform to the specifications, the purchaser may reject them and the supplier shall both replace the rejected goods and make all alternatives necessary to meet specification requirements free of cost to the Purchaser.

d) The Purchaser's right to inspect, test and, where necessary, reject the goods after the Goods arrival in the Purchaser's country shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representatives prior to the Goods shipment from the country of origin.

e) Materials are subject to inspection by the purchaser before dispatch. The materials may also be subject to stage inspection by a third party nominated by BCCL for the purpose. Final inspection shall, however, be carried out at the consignee's end by GM(Excv);BCCL or his authorized representative

f) Nothing in these documents shall in any way release the supplier from any warranty or other obligations under this contract.

g) The purchaser shall, at its discretion, have the right to test the ordered material in a Government Test House or in a test house nominated by the purchaser. In case of failure of the material after testing, the cost of tests as well as of the material shall have to be borne by the supplier.

h) Pre-dispatch inspection by CM (Excv), 40 KempeGowda Road, 4th Floor, Geetha Mansion, Coal India Ltd., Bangalore – 560 009

20. **FORCE MAJEURE CLAUSE:** If the execution of the contract/supply order is delayed beyond the period stipulated in the contract/supply order as a result of outbreak of hostilities, declaration of an embargo or blockage or fire, flood, acts of nature or any other contingency beyond the supplier's control due to act of God, then the BCCL may allow such additional time by extending the delivery period as he considers to be justified by the circumstances of the case and its decision in this regard shall be final. If and when additional time is granted by the purchaser, the contract/supply order shall be read and understood as if it had contained from its inception the delivery date as extended. Power failure will not be considered as a force majeure conditions.
(a) The successful bidder will advise, in the event of his having to resort to this clause, by a registered letter, duly certified by the local chamber of commerce, or statutory authorities, the beginning and end of the causes of the delay, within 15 days of the occurrence and cession of such force majeure conditions. In the event of delay last out of force majeure, BCCL will reserve the right to cancel the contract, and provisions governing termination of contract as stated in the bid documents will apply.
(b) For delay arising out of Force majeure, the bidder will not claim any extension in completion date for a period exceeding the period of delay attributable to the causes of force majeure and neither BCCL nor the bidder shall be liable to pay extra cost provided it is mutually established that the force majeure conditions did actually exist.

21. **SUBMISSION OF BILLS:** Pre- receipted stamped original bill for 100% value in six copies along with delivery challan in original quoting number and date of L/R or consignments notes, Guarantee/ Warranty certificate and other relevant documents as indicated elsewhere in the order should be submitted to the paying authority through Consignee only

22. **GENERAL TERMS AND CONDITIONS:** Unless otherwise specified in the purchase order, the Purchase order shall be subject to the General Terms and Conditions of Supply of Stores given as ANNEXURE –D. In case there is a conflict in any particular term of the NIT with the General Terms, the terms of the NIT will prevail.

23. **JURISDICTION:** Any dispute arising out of this enquiry shall come under the sole jurisdiction of the Dhanbad/Jharkhand High Court, (INDIA).

ALL OTHER TERMS & CONDITIONS AND TECHNICAL SPECIFICATIONS ALONG WITH SCOPE OF SUPPLY WILL STRICTLY BE AS PER OUR NIT.

The contract is concluded with the issuance of this order. We are enclosing 2 copies of the Purchase Order, one of which should be returned to us duly stamped and signed. This is issued with the approval of the competent Authority.

Yours faithfully,
For & on behalf of Bharat Coking Coal Limited

01/02/2020
(Shivam Pandey)
AM(MM)

07/2/2020
(A.K.Sinha)
CM (MM)

Enclosures:

SL	ANNEXURE	DESCRIPTION
1	ANNEXURE - A	TECHNICAL SPECIFICATIONS COMPRISING SECTION - V SCHEDULE OF REQUIREMENT; PARTS I, II, SCHEDULE OF REQUIREMENTS OF SERVICE, TECHNICAL SPECIFICATIONS PREFACE - INSTRUCTIONS TO BIDDERS A. SCOPE OF SUPPLY B. GENERAL REQUIREMENTS, PARTS C. EQUIPMENT SPECIFICATION
2	ANNEXURE - B	LIST OF WARRANTY SPARES& SPARE PARTS AND CONSUMABLES FOR 06 YEARS AFTER WARRANTY PERIOD
3	ANNEXURE - C	QUALITY ASSURANCE PLAN
4	ANNEXURE - D	GENERAL T&C OF SUPPLY OF SUPPLY OF STORES
5	ANNEXURE - E	PERFORMANCE OF EQUIPMENT UNDER PERFORMANCE GUARANTEE DURING WARRANTY PERIOD
6	ANNEXURE - F	TOOL LIST
7	ANNEXURE - G	PERFORMA OF PERFORMANCE BANK GUARANTEE
8	ANNEXURE - H	LEAFLET OF BH60M
9	ANNEXURE - I	ENGINE PERFORMANCE CURVES
10	ANNEXURE - J	TECHNICAL DESCRIPTION OF 60T REAR DUMPER
11	ANNEXURE - K	LIST OF MAJOR BOUGHT OUT ITEMS FOR BH60M
12	ANNEXURE - L	TRAINING SCHEDULE
13	ANNEXURE - M	ERECTION PROGRAM FOR DUMPER
14	ANNEXURE - N	MAINTENANCE SCHEDULE FOR DUMPER
15	ANNEXURE - O	AUTHORIZATION FOR E PAYMENT

Copy to:

- **GM(Excv)/HoD, Koyla Bhawan: Koyla Nagar, Dhanbad**
- **The HOD (Finance)/MM, Koyla Bhawan: Koyla Nagar, Dhanbad**
- **The GM(Areas), BlockII, Govindpur, Katras, Sijua, Kusunda, Bastacolla, CV**
- **GM(Company Seceraty), BCCL, Koyla Bhawan: Koyla Nagar, Dhanbad**
- **GM(UMD), CMPDI Ltd, Gondwana Place, Kanke Road ranchi-8**
- **GM/GM(MM), ECL/CCL/WCL/SECL/NCL/MCL**
- **CM(Excv), 40 Kempe Gowda Road, 4th Floor, Geeta Mansion, Coal IndiaLtd, Bangalore – 560009**
- **The Depot Office BlockII, Govindpur, Katras, Sijua, Kusunda, Bastacolla, CVarea, BCCL Dhanbad**
- **AM, Techcell, MM Divn, Koyla Bhawan: Koyla Nagar, Dhanbad**
- **The Independent External Monitor for Integrity Pact :-**

Shri Aditya Prakash Mishra IRSE (Retd.)
Address: Flat No.-24, Aster-1 , Vatika City, Sohna Road, Sector-49 , Gurgaon-122003

Shri Pramod Deepak Sudhakar
A-002, Stellar Park Apartments, C-58/42, Sector-62, Noida (UP)-201301

This issued with approval of agenda item No 360.6E of the BCCL Board meeting by the Board of Directors of BCCL as communicated by Company Secretary vide note dated 06/02/2020.

This order is placed against the consolidated indent Ref no. INDENT/HEMM/Capital/60T Dumper/18-19/46 dated 22.09.2018 by Excavation Department, BCCL HQ.

07/4/2020

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Budget Certification:

The Area-Wise allocation of capital amount of Rs 799836383.84 is as follows:

Area	Quantity (Nos)	Area wise FC (Rs)	SL. No.	eFC Nos	eBC Nos
Block-II	10	235245977.60	17	28	02
Govindpur	5	117622988.80	15	61	01
Katras	10	235245977.60	17	63	01
Sijua	2	47049195.52	18	52	02
Kusunda	1	23524597.76	22	62	02
Bastacolla	4	94098391.04	21	56	02
CV	2	47049195.52	44	106	203
Total	34	799836323.84			

07/02/2020

(Shivam Pandey)
AM (MM)

07/2/2020

(A.K.Sinha)
CM (MM)

Annexure -A

Section-V-Schedule of requirements

Part I

S. No	Brief Description of Goods & Services	Quantity	Expected Delivery Schedule at Site
1	60 US Ton (55 metric ton approx) Rear Dumper	34 no's	08 No's Dumpers to be supplied within 6 months from the date of receipt of purchase order and balance Dumpers to be supplied @ 8 Dumpers per month till completion of ordered quantity. However early supply will be appreciated.
2	Ancillary Equipment and other requirements for each of Item 1 as specified in Technical Specifications included in Section VI Attachments	In accordance with item 1	Delivery to be made along with the machine.

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The equipment allocated to the mine projects are as follows which is subject to change as per the requirement of purchaser:

Sl No.	Area/Project	Company	Total Requirement	
			Under NCD	Under PCD
1.	B-II Area	BCCL	10 No's	-
2.	Govindpur Area	do	05 No's	-
3.	Katras Area	do	10 No's	-
4.	Sijua Area	do	02 No's	-
5.	Kusunda Area	do	01 no	
6.	Bastacolla Area	do	04 No's	-
8.	CV Area	do	02 No	-
	TOTAL		**34 No's**	**NIL**

Part II

S.No	Brief Description of Services	Period/Quantum
1	Training of Purchaser's Personnel at the manufacturer's works or elsewhere outside India.	Please refer to Schedule of Requirements of Services later in this Section and to the Technical Specifications (Section VI).
2	Training of Purchaser's Personnel on Site.	Please refer to Schedule of Requirements of Services later in this Section and to the Technical Specifications (Section VI).
3	Assembly and erection of equipment at Site in accordance with the Technical Specification and Conditions of Contract.	To be specified by the Bidder to comply with the Technical Specifications (Section VI) and the terms and Conditions of Contract.

Note:

1. Price for the equipment along with accessories should be quoted with Normal Custom Duty (NCD) for 34 no's. and Project Concessional Duty (PCD) for zero nos. applicable for the imported contents.

2. The bidder has to quote for full quantity of the tender as given above; other-wise their offer will not be considered.

Schedule of Requirements of Services

The Supplier's scope of the Contract will include the following -

I. Type test on each equipment included in the technical specification and offered in the bid.

II. Providing Services of Supplier's qualified engineer(s)/personnel for:

A. unloading, transportation to site, storage at site and/or

B. transportation from storage to erection site, installation, testing and commissioning.

III. Training of Purchaser's Personnel: Training of Purchasers personnel to be confirmed by the bidder in respect of training to be provided at manufacturer's works or at our site in the following format :

Type of Personnel	*At Manufacturer's Works*					*At Site*				
	No	*Period*		*Total*		*No*	*Period*		*Total*	
Mech Engineer			*weeks*		*weeks*			*Week*		*Week*
Elec Engineer			*weeks*		*weeks*			*Week*		*Week*
Mech Supervisor			*weeks*		*weeks*			*Week*		*Week*
Elec Supervisor			*weeks*		*weeks*			*Week*		*Week*
Mech Fitter								*Week*		*Week*
Electrician								*Week*		*Week*
Operator								*Week*		*Week*
Total			***weeks***		*weeks*					***weeks***

Definitions:

Mech/Elect Engineer- Graduate Engineer having basic knowledge of the equipment

Elect/Mech Supervisor - Diploma Holder Engineer having basic knowledge of the equipment

Mech Fitters/Electricians/Operators - Un-skilled, semi-skilled and skilled.

VI - Technical Specifications

Preface - Instructions to Bidders

Introduction

These Technical Specifications identify the technical requirements of the Goods and Services which are the subject of this Tender.

The Technical Specifications are presented in five parts as follows:

A. Scope of Supply

B. Specific Project Requirements

C. General Requirements

1) Geography and Climatic Conditions
2) Goods (Equipment and Machinery)
3) Services
4) Standards
5) Supplier's Responsibility
6) Spare Parts Provisions
7) Warranty/Guarantee clause
8) Quality Assurance

E. Equipment Specifications

Technical Response

Bidders shall provide a Clause by Clause commentary demonstrating compliance with the Purchaser's Technical Specifications, identifying any deviations thereto, together with full supporting technical literature and data sheets.

Wherever graphical representation of data (e.g load, power, performance curve) is required, the grid axis and data shall be properly and clearly labelled for ready comprehension.

Additionally, Bidders shall provide the information specifically requested in the Attachment to the Technical Specifications.

Failure to demonstrate compliance in all respects with the requirements of the Technical Specifications may render the bid non-responsive.

Failure to provide any information requested in any part of this specification may deem the bid non-responsive.

Site Visits

The Bidder prior to making any Bid calculation and as part of the preparation of its Bid, shall be deemed to have visited and inspected the Site(s), made all enquiries and collected all information documentary or otherwise, including climatic conditions, as considered necessary by the Bidder for the proper and accurate preparation of its bid.

A Bidder may visit the Site(s) by prior appointment with the purchaser. The number of Bidder's representatives permitted to make visits to the Site(s) shall be limited to a maximum of two.

Bidders wishing to make appointments for Site Visits should do so in writing or by facsimile direct with the subsidiary company and concerned officer as detailed in the following schedule. Copies of all such communications should be transmitted by facsimile to:

General Manager (MM)
Bharat Coking Coal Ltd.
Koyla Bhawan,Koyla Nagar
Annexue Building (4th Floor)
Dhanbad-826005 (Jharkhand),India
Fax 91 (0)326 2230183

Subsidiary Company	Project
Bharat Coking Coal Limited Koyla Bhawan, Koyla Nagar Dhanbad - 826005 Fax: 91(0) 326 2230177 Tel : 91(0) 326 2230177 Attention General Manager (Excv)	All projects

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A.Scope of Supply

A.1 Equipment Package

The Supplier is required to provide a complete package of equipment for the supply of 60 Ton Rear Dumper to open cast (surface) coal mining projects:
The supplier is required to bid for the Equipment Package including accessories, consumables, training, installation, commissioning and testing at the coal-mining project.
The Scope and Phasing of supply for the 60 Ton Rear Dumper is given in Sec. V.

A.2 Supplementary Items

a)The Equipment shall be provided with a comprehensive toolkit,which shall include any special tools required for erection, commissioning and for the maintenance and repair of all the Equipment.

b)First fill of all oils,grease and lubricants needed for test and commissioning of each equipment.

c) Supply of spares & Consumables required for equipment to maintain availability of the equipment for SEVEN years from the date of commissioning.

A.3 Information and Drawings

At least one month before the scheduled installation date, the Supplier shall provide not less than:

(a) Suitably illustrated copies of Operating, Repair and Maintenance Manuals for each type/model of equipment and accessories, written in the English language, substantially bound in book form;

Three (3) copies to each project site; and
One (1) copy alongwith soft copyto the General Manager(Excv.), Bharat Coking Coal Ltd.,Koyla Bhawan, Koyla Nagar ,Dhanbad- 826005

(b) Suitably illustrated copies of detailed Spares Parts Manuals for each type/model of equipment and accessories, written in the English language, substantially bound in book form;

Three (3) copies to each project site; and
One (1) copy along with soft copy to the General Manager(Excv.), Bharat Coking Coal Ltd.,Koyla Bhawan, Koyla Nagar ,Dhanbad- 826005

A.4 Erection/Assembly, Commissioning and Performance Testing

The Supplier shall provide the Services of Specialist Technicians to supervise the installation/erection/assembly, commissioning and any performance testing of the plant, Equipment and accessories supplied.
The Technician shall remain at site following commissioning until all necessary personnel are fully conversant with the maintenance and operation of the Equipment.

The Equipment shall be commissioned at site within 30 days of receipt of last consignment of each equipment.

A.5 Training

The supplier in consultation with the project in-charge / HOD [Excavation] of the respective site shall make available experienced personnel to conduct training of engineers, supervisors, technicians and operation personnel for suitable period from the date of issue of acceptance certificate of the equipment. The training shall cover the following:

a) Training on Simulator Modules by the bidder at their works / suitable locations is mandatory.
b) Equipment system, safety and risk assessment
c) Equipment operation and maintenance
d) Trouble shooting, localization of fault and their remedies covering:

1. Electrical and electronics
2. Mechanical
3. Hydraulic system
4. Lubrication system
5. Pneumatic system etc.

Comprehensive training manuals with clear illustration shall be provided to each participant in English language. The training courses shall be conducted in both English and Hindi language.

B Specific Site Requirements

All the projects of BCCL are located within 30 KM range (approx) from Dhanbad Railway Station.

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Part C.

General Requirements

C.1 Geography and Climatic Conditions

Elevation:-

The natural surface varies from 100 to 1000 m 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 1,000mm, 90 to 95% of which may fall in rainy season from June to October.
Wind:-	April to September	-	South to South Westerly
	October to March	-	North Westerly
	Speed:-	-	8 km per hr average
		-	100 km per hr maximum

C.2 Goods (Equipment and Machinery)

Detailed specifications of the Equipment to be supplied are given in **Part E** of this section.

In general, all items shall be:

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

Electrical Equipment 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 environment shall be suitably protected to prevent any effects of corrosion or erosion.

C.3 Services

The supplier shall be responsible for the erection and commissioning of the equipment at sitewithin 30 days of receipt of last consignment .The supplier shall depute qualified and competent Engineer(s) and specialist technicians to supervise the entire assembly, erection and commissioning of equipment.

C.4 Standards

The design supply, erection, testing and commissioning of all Equipment under this Contract shall in all respects comply with the requirement of this specification and with the appropriate current Indian standards and codes, or relevant Standards issued by the International Standards Organisation or any other equivalent international standards, which

corresponds to specific ISO/Indian standards indicated in the technical specification. Such equivalent international standards are to be supported by documentary evidence certifying that offered standards are identical to the corresponding ISO/Indian standards.
The Equipment shall be to the 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 ***Système International d'Unités*** **(S.I.).**

C.5 Suppliers Responsibility

The Purchaser requires that the Supplier shall accept responsibility for the provision of complete operable and compatible Equipment and systems within the Scope of Supply. This document identifies only the major items required for the installation and the Supplier shall ensure that the total supply includes all necessary Equipment for it to function effectively, safely and efficiently. Any additional items the Supplier considers necessary to ensure compliance with such a requirement shall be identified and included.
If the Supplier observes that this Specification document contains any anomalies, ambiguities, flaws, errors or omissions, the Supplier shall immediately bring these to the attention of the Purchaser.
The Supplier shall be responsible for the testing and commissioning of the Equipment and ensure that it meets the requirements as specified. The commissioning and setting to work of the whole Equipment Supply package shall be carried out under the supervision of the Supplier in conjunction with the Purchaser's nominated personnel.

C.6 Spare Parts Provisions

a . Availability of Spare Parts.

All items and Equipment proposed shall be of current design and manufacture. The Supplier shall warrant that sufficient spares and servicing facilities will be available to maintain the Equipment in use throughout its life.

b. Provision of Spare Parts & Consumables:

Spares & Consumables recommended for initial 12 months/4000 hrs operation.(the machine is expected to run 3500± 500 hrs in a year) must be provided along with each equipment.Thereafter spares & consumables for balance Six years beyond first year of the warranty of the equipment shall be delivered periodically in minimum two separate lots for each year.List of such spares & consumables Areawise as detailed below to be submitted, required to maintain minimum availability as stipulated in Clause C 7.2.CPerformanceGuaranteeof NIT.

The bidder has to furnish following lists of spares and consumables excluding Oil, Lubricant and Tyres only.

1. Spare parts and consumables for first year of the warranty.
2. Spare parts and consumables for second, third, fourth, fifth, sixth, seventh year of the guaranteed period.

i) The list of fast moving spares and consumables shall be submitted Area wise and
ii) The list of Slow moving spares and consumables shall be submitted Area wise.

For fast moving Spares and consumables the purchaser will have the right to review the list in the beginning of each year starting from 2nd year (i.e. after the warranty period) in consultation with the supplier to reduce the quantity for that year on the basis of the consumption pattern of the spares and consumables (fast moving) in the previous year and the Spares and consumables not used in the preceeding years.
In case the total working hours of the equipments in the Area exceeds the Expected working hours (Total No of equipments in the Area x Expected working hour per year for one equipment), the fast moving spares scheduled in the subsequent years for the fleet of equipment working in particular Area may be preponed by the supplier and the payment for pre-poned items will be made as per the price indicated in the year of

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actual use (If the item is covered in that relevant year of use) or if that item is not available in the list of relevant years of use then the price payable shall be equal to discounted price worked out on NPV basis to bring to the relevant year of use. Discounting rate shall be %per annum basis as considered for evaluation of offers on Net Present value Method as indicated in the NIT.

For "Slow Moving" Spares and consumables the supplier shall have the option to use any slow moving spares and consumables if the same is required prior to the year in which it has been provisioned or they can also supply the same free of cost. In case the utilization of any slow moving spares and consumables is preponed the same shall be done from the earliest year in which it has been provisioned and it will be reduced from the year in which it has been provisioned. The basis of arriving at the price of the spares and consumables so preponed shall be equal to discounted price worked out on NPV basis to bring it to the relevant year of use.

In the event of any item and/or quantity of fast moving spares and consumables or slow moving spares and consumables required over and above the quantity covered in the contract for a period of 7 years shall be supplied by the bidder Free of Cost.

In the event the equipment completes 28000 Hrs prior to completion of 7 years, requirement of spares and consumables for the remaining balance period shall be prepared with the consent of the supplier and BCCL and the same shall be supplied by the supplier at the price of spares and consumables as already quoted with the bid for that year. The cost of spares and consumables over and above 28000 hrs will be borne by BCCL. For the items not covered in the list, the price shall be mutually agreed by buyer and seller.

In the event of spares cost if any due to accidental damages will not be included in the supplier's account.

In the event that the spare parts, and consumables, as recommended by the Supplier, are in excess of actual requirements. The Purchaser may at its option.

a) Retain such excess spare parts and consumables as, in its discretion it may elect to do so

OR

b) Require the Supplier to repossess or repatriate or otherwise dispose of such excess

spare parts and consumables in exchange for payment to the Purchaser of the Contract Price of the spare parts and Consumables concerned.

The Purchaser shall notify the Supplier, in writing of its requirements under this Clause within thirty (30) days of completion of every year.

c. Emergency Spare Parts

The Bidder shall ensure that Spare Parts required urgently by the Purchaser for repair of breakdown equipment are supplied at over riding priority.

d. Lifetime Spare Parts

1. The Supplier undertakes and guarantees to produce and maintain stocks, to be available for purchase by the Purchaser under separate agreement, of all Spare Parts and Consumables as may be required for maintenance and repair of the Plant throughout its working life. In the event that the Supplier wishes to terminate production of such Spare Parts, the Supplier shall:

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

immediately following termination, provide to the Purchaser at no cost,

manufacturing drawings material specifications and all necessary permissions to facilitate manufacture of the Spare Parts elsewhere.

In any event, the Supplier shall not seek to terminate manufacture of spare parts for a period of not less than ten (10) years from Date of commissioning.

e. Oils, Lubricants and Fluids

Not less than one (1) month before the scheduled date for Acceptance, the Supplier shall provide to the Purchaser a detailed schedule of all necessary oils, lubricants, fluids and the like for the operation and maintenance of Equipment. The schedule shall indicate estimated annual consumption and specify the appropriate international standard number or the name and reference number of an equivalent available in India considered being acceptable by the Supplier.

f. General

Nothing in this Clause **C.6** shall relieve the Supplier of any Guarantee, Availability, Performance or other obligations or liabilities under the Contract..

C.7 Warranty/ Guarantee Clause

C.7.1.A Composite Warranty / Guarantee for Equipment

The Bidder 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 & 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

the Equipment Bidder although components may be supplied by different suppliers to the Bidder.

C.7.2 Performance Guarantee

C.7.2.A Introduction

a. The Supplier 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. Where Equipment supplied under the Contract fails to meet the criteria of the Availability Guarantee, the Supplier shall, at it's 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.

c. The Supplier shall provide the Services of such personnel at Site within seven (7) days of notification by the Purchaser that the availability criteria have not been met in any one (1) month.

C.7.2.B Guarantee

a. The Supplier 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.

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b. The Supplier 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. The method of assessment applied shall be as follows:

c. Method of Assessment:

The following calculation shall determine the availability of the Equipment:

% Availability = (Scheduled Available time – Down time)/ Scheduled Available time *100

Scheduled Available Time shall equate to 24 hours.

Downtime shall mean all hours of work lost due to mechanical, electrical or other failure, including:

i)Routine servicing and maintenance in accordance with the manufacturer's published recommendations, including: changing oils, oil filters and air filters; lubrication; changing identified consumable or wear parts.

ii) Planned preventative maintenance programmes; It shall not however include:

I. damage due to abusive use or incorrect operation methods by the Purchaser;
II. accidents;
III. strikes or stoppage of work by the Purchaser's personnel;
IV. Natural disaster;
V. lack of Spare Parts not attributable to a failure of the Supplier, it's Agents or Representatives

Downtime shall also specifically include all hours lost due to failures determined to be guarantee failures.

The Supplier shall state the number of hours per day required to carry out (i) and (ii) above. The time stated shall, with the agreement of the Purchaser, form the basis of the assessment of the availability.

The Purchaser will assist the Supplier, without relieving the Supplier of any other obligations under the Contract, to achieve the guaranteed availability by:
Providing normal and proper maintenance, including preventative maintenance in accordance with the Supplier's standard/published recommendations, and making all necessary repairs using only genuine manufacturer's spares .
Providing co-operation to all Suppliers's authorised representatives, complying with all reasonable procedural suggestions to improve efficiency of machine operation or reduce downtime.
Where appropriate, providing and maintaining such conditions as:
Proper electrical Supply
Terrain Area
Bench preparation
Reasonable floor conditions
Providing all Supplier's authorised representatives access at all reasonable times to the machine service and repair facilities.Maintaining a log-book for each shift wherein the working hours, breakdown times, maintenance hours, idle time, etc. shall be recorded. This record will be available for examination and signature by the Supplier's representative.

d. Effect and Duration of Guarantee

i.This Guarantee shall become effective on the day on which the Equipment is

commissioned at the Site. Commissioning shall be evidenced by the issue of the Purchaser's Acceptance Certificate.

ii. This Guarantee shall remain effective for 7 (Seven) Years from the date of commissioning, irrespective of the hours operated by the Equipment during the period of the guarantee.

iii. In the event that the Equipment fails to achieve the Availability herein provided during each year of this 7 (Seven) Years period, the Supplier shall be liable to pay to the Purchaser, as Penalty , a sum equal to , as indicated hereunder for each equipment : -

a)1% of the delivered price of the equipment for every percentage reduction from the Guaranteed Availability for the first 5%

b)10% of the delivered price of the equipment for reduction beyond 5% from the Guaranteed Availability .

The Supplier has however the option to modify the equipment , if felt necessary , to bring its availability to the guaranteed level within three (3) months after expiry of initial guarantee period of twelve (12) months from the date of commissioning.

iv When the supplier is unable to supply the replacement of a failed part under warranty within 21 days of giving intimation by the consignee and if the machine is commissioned by using the spare from the stock of the project the period (after 21 days) till the supplier replaces the part under warranty shall be treated as "**Deemed Breakdown**" (the credit for keeping machine available shall not be given to the supplier).

C.7.2.C Performance Guarantee

In accordance with the provisions of clauses of the special terms and conditions, the supplier shall guarantee that the annual availability of the equipment shall be of (1th-4th yr: 80% and 5th-7th yr : 75%) with expected annual working hours of 3500±500. Total obligation of guarantee shall be 07 years(including one year warranty).

C.8. Quality Assurance

a. The Supplier should furnish in detail its quality assurance plan for various stages of manufacture.. The Quality Assurance plan shall comply with an internationally recognised quality assurance standard such as ISO 9000 or latest.

b. The Supplier shall provide facilities to Purchaser or their authorised representatives for progress inspection during manufacture at his works and furnish all test data available in this regard for quality control, both for bought out items and his own manufactured items.

c. The Purchaser or his agent, when so required by him, shall also be provided with samples of "bought-out" materials for the purposes of undertaking independent tests which independent tests shall be at the expense of the Purchaser.

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PART E:- EQUIPMENT SPECIFICATIONS

EQUIPMENT SPECIFICATION OF 60 US Ton (55 Metric Ton Approx) REAR DUMPER

1. Scope of Specification

This specification is intended to cover the technical requirements for the design, manufacture, testing, delivery, on-site erection and commissioning of a diesel powered, self-propelled, wheeled Rear Dumper with 60 US Ton (55 Metric Ton Approx.)Rock Body.

2. References

The following International Standards are referred to in, and form part of, the Specification. The supplier has to provide the relevant portion of ISO indicated below as reference:

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 6483	Earth-moving machinery - Dumper bodies - Volumetric rating
ISO 6682	Earth-moving machinery - Zones of comfort and reach for controls
ISO 6750	Earth-moving machinery - Operation and maintenance - Format and content of manuals
ISO 7132	Earth-moving machinery - Dumpers - Terminology and commercial specifications
ISO 7457	Earth-moving machinery - Measurement of turning dimensions of wheeled machines
ISO 9249	Earth-moving machinery - Engine test code - Net power
ISO 10268	Earth-moving machinery - Retarders for dumpers and tractor-scrapers - Performance tests
ISO 10968	Earth-moving machinery - Operator's controls

3. Design Criteria

The dumper shall be capable of continuous operation for protracted periods on a system of 3 shifts each of 8 hours duration per day throughout the year.

The dumper shall be suitable for 2:1 heap loading by 3 to 7 m3 excavators with rock having a density, after blasting, of 1,800 kg/m3.

4. Technical Requirements

4.1 Engine

The dumper shall be powered by a 4-stroke diesel engine of not less than 475 KW net power measured between 1900to 2150 r/min according to ISO 9249. The engine shall be provided with Variable Horse Power control, 24V electric starting, dry type 2-stage air-cleaner with automatic dust evacuator, dust level indicator 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 dumper 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 and auto idling system or equivalent system. The engine shall be provided with a heavy duty pan guard.

Engine of Imported origin/Caterpillar/Cummins will be accepted only. For indigenous engine other than Caterpillar/ Cummins engine, CIL guideline will be followed for acceptance. The Supplier should indicate Fuel Consumption of offered equipment in Ltrs/hr pertaining to BCCL mine condition. Fuel efficient machine will always be preferred.

The engine shall meet the latest emission norms as recommended by CMVR or any other regulations issued by central/state government.self-certificate of the engine manufacturer should be submitted with supply.

4.2 Transmission

The dumper shall be provided with an off-highway minimum 6-speed fully automatic power shift hydraulic transmission with lock-up clutch. The dumper shall be provided with downshift inhibitor, over-run inhibitor, forward/reverse shift inhibitor, anti-hunting system, neutral safety and reverse inhibitors.. Suitable protection of the transmission pan from external damage should be provided. The pan guard should be designed to minimise accumulation of dirt and debris.

4.3 Drive System

A dynamically balanced propel shaft with universal joints at both ends should be utilised for transmission of power. Adequate means should be provided to prevent damage to other components in the event of failure of the universal joints. Provision of Retarder and Spin Regulator will be preferred.

The final drive shall comprise a heavy duty differential with high quality bevel gear and pinions, and a heavy duty planetary gear system and drive axle.

4.4 Suspension

Front and rear suspension shall be of hydra-air type to absorb road shocks and prolong tyre life.

4.5 Steering

Full hydraulic orbitrol power steering and emergency steering which complies with ISO 5010 shall be provided. .Emergency steering shall be automatically activated in the event of failure of the normal steering power source.Suitable steering locking device shall be provided in steering linkage to avoid unwanted rotation of wheel when men at work under the machine in engine running condition.

4.6 Hoses

All hoses shall befire/heat resistant/retarded type, grouped as far as possible and suitably clipped to reduce damage from scuffing.

4.7 Brakes

Suitable reliable service, secondary and parking brakes which comply with ISO 3450 shall be provided.

4.7.1 Service brakes

The front service brakes shall be air and/or oil actuated calliper type/multiple disc type.

The rear service brakes shall be air and/or oil actuated multiple disc type and should operate automatically in the event of low air/oil pressure.

They should preferably be fully enclosed to prevent entry of dust and water, and designed for low maintenance.

4.7.2 Parking brakes

The parking brakes should be operational even at zero air pressure.

4.7.3 Emergency Brakes

Provision of Automatic emergency brake and also manual emergency brake system for the event of failure of brake paddle shall be provided.

4.7.4 Retarder

Retarding system shall be provided to control speed while descending grades.

4.8 Tyres

Rock duty, cut-resistant tyres size 24.00 – 35 , E4 type shall be provided..

4.9 Frame

The frame should be a rugged, durable construction of high strength steel and free from any stress concentration. The design must take care of all forces encountered during the operation of the dumper.

4.10 Dump Body

The type of body required on the dumper is for handling "Rock". The body capacity should have a minimum 53,000kg payload based upon 2:1 heap loading. The body should be an exhaust heated, heavy duty type with high hardness abrasion resistant side, front and bottom plates. The dump body should be made of high tensile strength steel of not less than 125kg/sq mm. The width of the body should be such that it protrudes over the tyres to prevent damage due to spillage of material from the body.A body position indicator shall be provided.The body design should be such that it can accommodate 6(six) pass loads from 5 CuM Shovel and 5(five) pass load from 6 cum Shovel without spillage and the stability of the machine is maintained in all operating conditions especially during turning.

4.11 Fuel Tank

The fuel tank shall be of sufficient capacity to allow 16 hours operation without re-fuelling and be provided with a level indicator and lockable hinged filler cap. Construction of the tank should be such that it provides for easy accumulation and drainage of water with minimum loss of fuel.

4.12 Lubrication System

A centralised automatic lubrication system of positive pressure type should be provided with warning alarms for identification of failed points.

4.13 Operator's Cab

A fully insulated, sound suppressed, air-conditioned operator's cab with safety glass, power windows, rear-view mirror, windshield wipers, washers, a ROPS which complies with ISO 3471 shall be provided and a FOPS which complies with ISO 3449 shall be provided.

All operating controls, gauges (with colour indication for safe and unsafe working), monitoring and working signals shall be conveniently located within easy reach of the operator and comply with ISO 6405-1, ISO6405-2, ISO 6682 and ISO 10968.

A fully adjustable operator's seat, passenger seat, floor mat shall be provided.

Steps 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

b) Engine oil pressure

c) Converter/transmission oil temperature

d) Fuel capacity

e) Engine tachometer

f) Engine hour-meter

g) Speedometer

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h) Air pressure (if applicable)

4.15 Warning Alarms/Lights

Audio/visual warning alarm systems shall be provided for the following:

a) Reversing

b) Parking brake actuation

c) Low engine oil pressure

d) High coolant temperature

e) Low air pressure (if applicable)

f) Emergency steering

g) Dumping buzzer

h) Alarm for failure of lubrication points of automatic lubrication system

4.16 Electrical Equipment

The dumper shall be provided with the following:

a) 24V DC electrical system with suitably rated alternator of reputable make

b) Electric start

c) Reputable make high capacity sealed maintenance freebatteries

d) Battery isolation switch

All electrical circuits shall be protected by adequately rated fuses/MCBs which shall be easily accessible for maintenance. IN case of fuses, 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 (no) Headlights

b) Stop and tail lights

c) Turn signal lights (left and right) on both front and rear

d) Fog Lamps

Headlights and rear lights shall be fitted in steel protective enclosures.

4.18 Guards and Shields

Adequate guards and shields which comply with ISO 3457 shall be provided on the dumper.

4.19 Fire Extinguisher

Min 2 no. fire extinguisher shall be provided on the dumper, 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.

4.20 Automatic fire suppression system

A suitable automatic fire detection and suppression system of reputed manufacturer (indigenous or imported) confirming to DGMS circular/DGMS approval No.02 dated 8.7.2013.

5. Ancillary Equipment and Other Requirements

The following shall be provided on the dumper:

a) Front and rear tow hooks and two lifting loops.

b) Pressurised radiator cap

c) Head light high-beam indicator.

d) Cab protection spill guard.

e) Safety provision for holding the dump body in hoist condition.

f) Water separators in air lines.

g) Rock ejector bars between each set of dual rear wheels

h) Tyre inflation kit

i) Automatic fire detection and suppression system of a standard reputed make

j) Vehicle Health Monitoring System/Equivalent monitoring system

k) Payload Meter

l) Three sets of operation ,maintenance and spare parts manual with each machine.

60T DUMPER

Safety Features

The offered Equipment shall be provided with all safety features required as per gazette notification on 1st oct 2018 under the head safety features and devices to be provided in heavy Earth moving machineries (HEMM) including trucks and tippers point no.1 general requirement and point no.2.1for Dumper, detailed in Annexure-I of NIT.

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6. Special Guarantees

The complete equipment consisting of all assemblies/sub-assemblies/components eg- Engine, transmission, differential, brake, steering system ,electrical system, AFDSS, Air conditioner ,centralised lubrication system etc shall be covered for suitable replacement/repairs (on merit of the case),beyond the list of spares submitted by the supplier, free from all costs to the purchaser during total 7 years/84 months from accepted date of commissioning beyond the list of spares submitted by the supplier.

7. Performance Guarantee

As per clause no. C.7.2.C part-C "General requirement" of NIT.

8. Information To Be Provided By The Supplier

8.1 *The Supplier shall furnish the following information. All technical information shall be in SI units.*

General

a) Number of similar model supplied during the last five years.

The information shall be given in the following format and in the order of most recent first.

Company Mine
Name
Mine
Location
Mine Type
No. of machines
Model Commissioning date

b) Details of nearest Depot/Warehouse and Service Facility available for the present offer, in the following format.

Major Depot / Warehouse Service Facility

Location Contact Nos. Inventory Value (Approx.)

Location Type of facility available

No.of Engineers *

* Engineers / Technicians employed to service the equipment either at the facility or on site.

c) Details of special tools to be provided with the equipment.

d) Details of erection programmes for the bid.

e) Recommended Spares List for 6 years to be provided.

f) Rehabilitation Schedule in Lifetime to be indicated.

8.2 Technical Details

a) Latest engine performance curves showing net power, net torque and specific fuel

consumption of the installed engine, measured according to ISO 9249.

b) Maximum speed determined according to ISO 6014.

c) Latest Rim-pull - Speed - Gradeability Curves of the offered model, clearly indicating:

Driving speed fully loaded up 14% effective grade.

d) Latest Retarding performance chart of the offered model, in accordance with ISO 10268,clearly indicating:

Maximum constant speed fully loaded down 10% effective grade.

e) Results of service and secondary brake stopping tests carried out according to ISO 3450, in the following format:

Braking system tested

Slope (%)

Machine speed (km/h)

Stopping distance (m)

Service Secondary

f) Turning diameter

g) Calculations and drawings verifying the body capacity.

h) Detailed technical descriptions of the dumper.

i) Layout drawings and detailed technical descriptions of hydraulic systems and components.

j) Details of major bought-out assemblies and sub-assemblies including manufacturer, type,etc.

k) Comprehensive commercial literature specifications, the content of which must comply withISO 7132.

l) Operation and maintenance manuals in accordance with ISO 6750.

m)Details and layout of automatic lubrication system.

n) Details & layout of automatic fire detection and suppression system

8.3 Dimensions, Weights and Performance Details

8.3.1 Dimensions

a) Maximum overall length

b) Maximum overall width

c) Maximum height, without body

d) Maximum height, with body

e) Loading height

f) Dump height

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g) Discharge height

h) Maximum body depth

i) Body target area (inside length and width at top)

j) Wheelbase

8.3.2 Weight Distribution

a) Empty vehicle

Front axle

Rear axle

Total

b) Loaded vehicle

Front axle

Rear axle

Total

8.3.3 Engine

a) Manufacturer and model

b) Number of cylinders

c) Bore

d) Stroke

e) Displacement

f) ISO net power at.....r/min

g) Maximum torque

8.3.4 Transmission

a) Make and Model

b) Type

c) Number of gear speeds, forward and reverse

d) Travel speeds, forward and reverse

8.3.5 Differential

a) Type & Make

b) Ratio

8.3.6 Final Drive

a) Type & Make

b) Ratio

8.3.7 Suspension

8.3.7.1 Front

a) Type & Make

b) Stroke

c) Load - deflection rate, loaded and empty

8.3.7.2 Rear

a) Type & Make

b) Stroke

c) Load - deflection rate, loaded and empty
8.3.8 Steering
a) Type & Make
b) Emergency steer method
8.3.9 Brakes
8.3.9.1 Service brakes: Make & Model
8.3.9.1.1 Front
a) Type
b) Actuating system
8.3.9.1.2 Rear
a) Type
b) Actuating system
8.3.9.2 Secondary brakes
a) Type
b) Actuating system
8.3.9.3 Parking brake
a) Type
b) Actuating system
8.3.9.4 Retarder
a) Type
b) Actuating system

8.3.10 Tyres
a) Make
b) Size and type
c) Tread
d) Ply rating
e) Rim size
8.3.11 Hydraulic System
a) Make & model, number, flow rates, operating pressures of pumps
b) Make & model, number, piston diameters, stroke lengths of cylinders
c) Relief valve operating pressures
8.3.12 Electrical System
a) Starter make and model
b) Starter control make and model
c) Alternator make and model
d) Batteries, numbers and rating
e) Lighting details.

ANNEXURE-B 33/112

BH60M Consumables for 1st Year

Sl. No.	Part No.	Description	Change Interval	Qty / Engr	Quantity Area Wise							Total
					[illegible] Area	[illegible] Area	[illegible] Area	[illegible] Area	[illegible] Area	[illegible] Area	[illegible] Area	
					10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos	
Fast Moving												
1	3377720	ELEMENT,FUEL FILTER	300	1	120	60	120	24	12	48	24	408
2	151881	GASKET,FUEL FILTER COVER	300	1	120	60	120	24	12	48	24	408
3	3329289	SEPARATOR,FUEL WATER	300	2	240	120	240	48	24	96	48	816
4	3889310	ELEMENT,LUB OIL FILTER	300	2	240	120	240	48	24	96	48	816
5	3889311	ELEMENT,OIL BYPASS FILTER	300	1	120	60	120	24	12	48	24	408
6	3010837	SEAL,O RING	300	1	120	60	120	24	12	48	24	408
7	4069592	ELEMENT AIR CLEANER	1000	1	40	20	40	8	4	16	8	136
8	4035591	ELEMENT AIR CLEANER	1000	1	40	20	40	8	4	16	8	136
9	4026654	INHIBITOR CORROSION	600	1	60	30	60	12	6	24	12	204
10	5581S50127	BH60M-KIT150C	1000	1	30	15	30	6	3	12	6	102

MANISH KUMAR
5th Floor, Unity Building, J.C. Road,
BENGALURU - 560 002

BH60M Spares and Consumables for 2nd Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			B-II Area	Govindpur Area	Katras Area	Sijua Area	Kusunda Area	Bastacolla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
Fast Moving																
1	3877720	ELEMENT,FUEL FILTER	120	60	120	24	12	48	24	408	499.00	203592.00	5988.00	84212300	18.00%	1,077.84
2	151881	GASKET,FUEL FILTER COVER	120	60	120	24	12	48	24	408	33.00	13464.00	396.00	84219900	18.00%	71.28
3	3329289	SEPARATOR,FUEL WATER	240	120	240	48	24	96	48	816	2,918.00	2381088.00	70032.00	84212300	18.00%	12,605.76
4	3889310	ELEMENT,LUB OIL FILTER	240	120	240	48	24	96	48	816	1,992.00	1625472.00	47808.00	84212300	18.00%	8,605.44
5	3889311	ELEMENT,OIL BYPASS FILTER	120	60	120	24	12	48	24	408	2,242.00	914736.00	26904.00	84212300	18.00%	4,842.72
6	3010937	SEAL,O RING	120	60	120	24	12	48	24	408	14.00	5712.00	168.00	40169330	18.00%	30.24
7	4055592	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	9,475.00	1288600.00	37900.00	84213100	18.00%	6,822.00
8	4055591	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	2,585.00	351560.00	10340.00	84213100	18.00%	1,861.20
9	4926654	INHIBITOR CORROSION	60	30	60	12	6	24	12	204	2,427.00	495108.00	14562.00	38200000	18.00%	2,621.16
10	AX1013359	RADIWASH_3LTR	10	5	10	2	1	4	2	34	2,465.00	83810.00	2465.00	34022010	18.00%	443.70
11	3816985	COOLANT TEST KIT	60	30	60	12	6	24	12	204	942.00	192168.00	5652.00	38200000	18.00%	1,017.36
12	3816981	INHIBITOR CORROSION (205 Lt)	10	5	10	2	1	4	2	34	46,809.00	1591506.00	46809.00	38200000	18.00%	8,425.62
13	958HGB0127	BH60M-KIT1000	30	15	30	6	3	12	6	102	57,840.00	5899680.00	173520.00	87089900	28.00%	48,585.60
Slow Moving																
14	564300008740	GROMMET	40	20	40	8	4	16	8	136	42.00	5712.00	168.00	87089900	28.00%	47.04
15	PB2194	VALVE, CHARGING	20	10	20	4	2	8	4	68	2,394.00	162792.00	4788.00	87089900	28.00%	1,340.64
TOTAL												15215000.00	447500.00			98397.60

BEML LIMITED BANGALORE 560 002

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Ph.)
बीईएमएल लिमिटेड BEML Limited
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5th Floor, Unity Building, J.C. Road,
बेंगलूरु - 560 002

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BH60M Spares and Consumables for 3rd Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			B-II Area	Gevadpur Area	Katras Area	Sijua Area	Kumardi Area	Bastapila Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
Fast Moving																
1	3877720	ELEMENT,FUEL FILTER	120	60	120	24	12	48	24	408	524.00	213792.00	6288.00	84212300	18.00%	1,131.84
2	151881	GASKET,FUEL FILTER COVER	120	60	120	24	12	48	24	408	34.00	13872.00	408.00	84219900	18.00%	73.44
3	3329269	SEPARATOR FUEL WATER	240	120	240	48	24	96	48	816	3,064.00	2500224.00	73536.00	84212300	18.00%	13,236.48
4	3899310	ELEMENT,LUB OIL FILTER	240	120	240	48	24	96	48	816	2,092.00	1707072.00	50208.00	84212300	18.00%	9,037.44
5	3899311	ELEMENT,OIL BYPASS FILTER	120	60	120	24	12	48	24	408	2,354.00	960432.00	28248.00	84212300	18.00%	5,084.64
6	3010937	SEAL,O RING	120	60	120	24	12	48	24	408	15.00	6120.00	180.00	40169330	18.00%	32.40
7	4055592	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	9,948.00	1352928.00	39792.00	84213100	18.00%	7,162.56
8	4055591	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	2,715.00	369240.00	10860.00	84213100	18.00%	1,954.80
9	4926654	INHIBITOR CORROSION	60	30	60	12	6	24	12	204	2,548.00	519792.00	15288.00	38200000	18.00%	2,751.84
10	3816595	COOLANT TEST KIT	60	30	60	12	5	24	12	204	989.00	201756.00	5934.00	38200000	18.00%	1,068.12
11	958HSB0127	BH60M-KIT1000	30	15	30	6	3	12	6	102	59,575.00	6076650.00	178725.00	87089900	28.00%	50,043.00
Slow Moving																
12	956HC00017	STEERING CYL SEAL KIT	20	10	20	4	2	8	4	68	21,504.00	1462272.00	43008.00	87089900	28.00%	12,042.24
13	564300008740	GROMMET	40	20	40	8	4	16	8	136	43.00	5848.00	172.00	87089900	28.00%	48.16
14	936CC01034	SPOT FAN	10	5	10	2	1	4	2	34	2,252.00	76568.00	2252.00	87089900	28.00%	630.56
15	649900025600	EXHAUST BLANKET	150	75	150	30	15	60	30	510	3,293.00	1679430.00	49395.00	87089900	28.00%	13,830.60
16	776RC02187	DOOR LOCK LH	10	5	10	2	1	4	2	34	1,641.00	55794.00	1641.00	87089900	28.00%	459.48
17	776RC02179	DOOR LOCK RH	10	5	10	2	1	4	2	34	1,371.00	46614.00	1371.00	87089900	28.00%	383.88
18	958EG71022	POWER WINDOW SWITCH	10	5	10	2	1	4	2	34	667.00	22678.00	667.00	87089900	28.00%	186.76
19	955EG78363	POWER WINDOW RELAY	20	10	20	4	2	8	4	68	328.00	22304.00	656.00	87089900	28.00%	183.68
20	955EG11258	ACCU PRESSURE SW	20	10	20	4	2	8	4	68	4,201.00	285668.00	8402.00	87089900	28.00%	2,352.56

BEML LIMITED * beml * V Floor Unity Buildings J.C. Road BANGALORE 560 002 *

नरेश कुमार NARESH KUMAR
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5th Floor, Unity Building, J.C. Road,
बेंगलूरु BENGALURU - 560 002

BH60M Spares and Consumables for 3rd Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			B-II Area	Govindpur Area	Kalras Area	Sijua Area	Kusunda Area	Bastacolla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
21	985EG81883	CIRCUIT BREAKER(5A)	110	55	110	22	11	44	22	374	629.00	235246.00	6919.00	87089900	28.00%	1,937.32
22	985EG81891	CIRCUIT BREAKER(10A)	140	70	140	28	14	56	28	476	518.00	246568.00	7252.00	87089900	28.00%	2,030.56
23	985EG81912	CIRCUIT BREAKER(20A)	30	15	30	6	3	12	6	102	1,621.00	165342.00	4863.00	87089900	28.00%	1,361.64
24	5610661510	EMERGENCY STEERING RELAY	10	5	10	2	1	4	2	34	12,638.00	429692.00	12638.00	87089900	28.00%	3,538.64
25	985EG03563	HEAD LAMP (HIGH BEAM)	20	10	20	4	2	8	4	68	3,082.00	209576.00	6164.00	87089900	28.00%	1,725.92
26	985EG02997	HEAD LAMP (LOW BEAM)	50	25	50	10	5	20	10	170	2,949.00	501330.00	14745.00	87089900	28.00%	4,128.60
27	787EG81092	TURN SIGNAL LAMP AMBER	40	20	40	8	4	16	8	135	1,788.00	243168.00	7152.00	87089900	28.00%	2,002.56
28	787EG81084	TAIL/STOP LAMP RED	20	10	20	4	2	8	4	68	1,788.00	121584.00	3576.00	87089900	28.00%	1,001.28
29	953EG83482	ROOF LAMP	10	5	10	2	1	4	2	34	9,245.00	314330.00	9245.00	87089900	28.00%	2,588.60
30	955RC03308	POWER WINDOW MOTOR ASSY	10	5	10	2	1	4	2	34	10,865.00	369410.00	10865.00	87089900	28.00%	3,042.20
31	0809620000	STARTER SWITCH	10	5	10	2	1	4	2	34	10,019.00	340646.00	10019.00	87089900	28.00%	2,805.32
32	451EG11975	BUZZER	10	5	10	2	1	4	2	34	1,247.00	42398.00	1247.00	84314900	18.00%	224.46
33	561842002300	CENTER WARNING LAMP	10	5	10	2	1	4	2	34	323.00	10982.00	323.00	87089900	28.00%	90.44
34	953EG83341	HAZARD LIGHT SWITCH	10	5	10	2	1	4	2	34	1,000.00	34000.00	1000.00	87089900	28.00%	280.00
35	953EG83352	HEAD LAMP SWITCH	10	5	10	2	1	4	2	34	935.00	31790.00	935.00	87089900	28.00%	261.80
36	953EG83311	ENGINE SHUT OFF SWI (OFF-ON)	10	5	10	2	1	4	2	34	1,623.00	55182.00	1623.00	87089900	28.00%	454.44
37	953EG83263	ROOF LAMP SWITCH	10	5	10	2	1	4	2	34	946.00	32164.00	946.00	87089900	28.00%	264.88
38	953EG83271	WIND SHIELD WASHER SWITCH	10	5	10	2	1	4	2	34	896.00	30464.00	896.00	87089900	28.00%	250.88
39	953EG83395	WIPER MOTOR SWITCH	10	5	10	2	1	4	2	34	906.00	30804.00	906.00	87089900	28.00%	253.68
40	953EG83328	PARKING BRAKE SWITCH	10	5	10	2	1	4	2	34	940.00	31960.00	940.00	87089900	28.00%	263.20
41	953EG83369	FOG LAMP SWITCH	10	5	10	2	1	4	2	34	858.00	29206.00	859.00	87089900	28.00%	240.52

BEML LIMITED 5th Floor Unity Building J.C.Road BANGALORE-560 002

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BH60M Spares and Consumables for 3rd Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Exid Price per Eqpt	HSN Code	GST %	GST Value
			B-9 Area	Govindpur Area	Katras Area	Sijua Area	Kusunda Area	Bastacolla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
42	955EG83441	DUMP BRAKE SWITCH	10	5	10	2	1	4	2	34	928.00	31552.00	928.00	87089900	28.00%	259.84
43	955EG81059	OVER RIDE SWITCH	10	5	10	2	1	4	2	34	2,211.00	75174.00	2211.00	87089900	28.00%	619.08
44	955EG11274	RELAY, AUTO DIMMER	10	5	10	2	1	4	2	34	531.00	18054.00	531.00	87089900	28.00%	148.68
45	128409	RELAY	10	5	10	2	1	4	2	34	15,820.00	537880.00	15820.00	87089900	28.00%	4,429.60
46	P34707	RELAY	10	5	10	2	1	4	2	34	2,893.00	98362.00	2893.00	87089900	28.00%	810.04
47	955EG71291	MAINTENANCE FREE BATTERY	10	5	10	2	1	4	2	34	19,839.00	674526.00	19839.00	87089900	28.00%	5,554.92
48	955EG11241	LOW STEERING PRESSURE SW	10	5	10	2	1	4	2	34	35,675.00	1212950.00	35675.00	87089900	28.00%	9,989.00
49	955EG11258	ACCU PRESSURE SW	30	15	30	6	3	12	6	102	4,286.00	437172.00	12858.00	87089900	28.00%	3,600.24
50	787EG81157	BATTERY CUT OFF SWITCH	10	5	10	2	1	4	2	34	1,032.00	35088.00	1032.00	87089900	28.00%	288.96
51	955HSB0116	HOSE ASSY KIT	5	3	5	1	1	2	1	18	26,133.00	470394.00	13835.12	87089900	28.00%	3,873.83
52	955HSB0124	HOSE ASSY KIT	5	3	5	1	1	2	1	18	20,751.00	373518.00	10983.82	87089900	28.00%	3,076.03
53	955HSB0092	HOSE ASSY KIT	5	3	5	1	1	2	1	18	68,466.00	1232388.00	36245.71	87089900	28.00%	10,149.08
54	955HSB0108	HOSE ASSY KIT	5	3	5	1	1	2	1	18	49,147.00	884646.00	26019.00	87089900	28.00%	7,285.32
55	955ZZ12262	HOSE ASSY KIT	5	3	5	1	1	2	1	18	2,10,599.00	3790782.00	111493.59	87089900	28.00%	31,218.20
56	958BR02504	HOSE ASSY	5	3	5	1	1	2	1	18	352.00	6336.00	186.35	87089900	28.00%	52.18
57	958BR02342	HOSE ASSY	5	3	5	1	1	2	1	18	741.00	13338.00	392.29	87089900	28.00%	109.84
58	958BR02359	HOSE ASSY	5	3	5	1	1	2	1	18	809.00	14562.00	428.29	87089900	28.00%	119.92
59	958BR02375	HOSE ASSY	5	3	5	1	1	2	1	18	40,339.00	726102.00	21355.94	87089900	28.00%	5,979.66
60	958BR02123	HOSE ASSY	5	3	5	1	1	2	1	18	5,621.00	101178.00	2975.82	87089900	28.00%	833.23
61	958BR02391	HOSE ASSY	10	5	10	2	2	4	2	35	913.00	31955.00	939.85	87089900	28.00%	263.16
62	958BR02504	HOSE ASSY	5	3	5	1	1	2	1	18	352.00	6336.00	186.35	87089900	28.00%	52.18

BEML LIMITED 1 Floor Unity Building J.C. Road BANGALORE 560 002

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.)
बीईमएल लिमिटेड BEML Limited
5 वीं मंजिल, यूनिटी बिल्डिंग्स, जे. सी. रोड
5th Floor, Unity Building, J.C. Road,
बेंगलूरु BENGALURU - 560 002

BH60M Spares and Consumables for 3rd Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			B-II Area	Govindpur Area	Katras Area	Sijua Area	Kusunda Area	Bastacolla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
63	95BBR02342	HOSE ASSY	5	3	5	1	1	2	1	18	741.00	13338.00	392.29	87089900	28.00%	109.84
64	95BBR02359	HOSE ASSY	5	3	5	1	1	2	1	18	809.00	14562.00	428.29	87089900	28.00%	119.92
TOTAL												31885089.00	937796.74			239364.19

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.)
भारतकोकिंग कोल लिमिटेड BCCL Limited
5 वीं मंजिल, कोयला भवन, जे. सी. रोड
5th Floor, Coal Bhawan, J.C. Road,
बेंगलूरु BENGALURU - 560 002

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BH60M Spares and Consumables for 4th Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			B-II Area	Govindpur Area	Kalwa Area	Sijua Area	Kusunda Area	Bastacolla Area	CV Area							
			10 Nos	6 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
Fast Moving																
1	3877720	ELEMENT,FUEL FILTER	120	60	120	24	12	48	24	408	550.00	224400.00	6600.00	84212300	18.00%	1,188.00
2	151881	GASKET,FUEL FILTER COVER	120	60	120	24	12	48	24	408	36.00	14688.00	432.00	84219900	18.00%	77.76
3	3323289	SEPARATOR,FUEL WATER	240	120	240	48	24	96	48	816	3,217.00	2625072.00	77208.00	84212300	18.00%	13,897.44
4	3939310	ELEMENT,LUB OIL FILTER	240	120	240	48	24	96	48	816	2,197.00	1792752.00	52728.00	84212300	18.00%	9,491.04
5	3939311	ELEMENT,OIL BYPASS FILTER	120	60	120	24	12	48	24	408	2,472.00	1008576.00	29664.00	84212300	18.00%	5,339.52
6	3010937	SEAL O RING	120	60	120	24	12	48	24	408	16.00	6528.00	192.00	40169330	18.00%	34.56
7	4056592	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	10,446.00	1420656.00	41784.00	84213100	18.00%	7,521.12
8	4056591	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	2,851.00	387736.00	11404.00	84213100	18.00%	2,052.72
9	4926554	INHIBITOR CORROSION	60	30	60	12	6	24	12	204	2,676.00	545904.00	16056.00	38200000	18.00%	2,890.08
10	AX1013359	RADIWASH_3LTR	10	5	10	2	1	4	2	34	2,718.00	92412.00	2718.00	34022010	18.00%	489.24
11	3816985	COOLANT TEST KIT	60	30	60	12	6	24	12	204	1,038.00	211752.00	6228.00	38200000	18.00%	1,121.04
12	3816981	INHIBITOR CORROSION(205 Lit)	10	5	10	2	1	4	2	34	51,607.00	1754638.00	51607.00	38200000	18.00%	9,289.26
13	958HSB0127	BH60M-KIT1000	30	15	30	6	3	12	6	102	61,362.00	6258924.00	184086.00	87089900	28.00%	51,544.08
Slow Moving																
14	564300008740	GROMMET	40	20	40	8	4	16	8	136	44.00	5984.00	176.00	87089900	28.00%	49.28
15	958SU00015	FRONT SUSPENSION SEAL KIT	20	10	20	4	2	8	4	68	42,812.00	2911216.00	85624.00	87089900	28.00%	23,974.72
16	958SU00023	REAR SUSPENSION SEAL KIT	20	10	20	4	2	8	4	68	40,386.00	2746248.00	80772.00	87089900	28.00%	22,616.16
17	TD0544	SNAP RING (REAR SUSPENSION)	40	20	40	8	4	16	8	136	2,340.00	318240.00	9360.00	87089900	28.00%	2,620.80
18	TH7096	BUSHING (REAR SUSPENSION)	40	20	40	8	4	16	8	136	14,501.00	1972136.00	58004.00	87089900	28.00%	16,241.12
19	TX8390	PIN (REAR SUSPENSION)	40	20	40	8	4	16	8	136	2,837.00	385832.00	11348.00	87089900	28.00%	3,177.44
20	P82194	VALVE, CHARGING	20	10	20	4	2	8	4	68	2,540.00	172720.00	5080.00	87089900	28.00%	1,422.40

BEML LIMITED * Bharat * V Floor Unity Buildings J.C. Road BANGALORE 560 002 *

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.)
बीईएमएल लिमिटेड BEML Limited
5 वें मंजिल, यूनिटी बिल्डिंग, जे. सी. रोड
5th Floor, Unity Building, J.C. Road
बेंगलूरु BENGALURU - 560 002

BH60M Spares and Consumables for 4th Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			Bell Area	Govindpur Area	Katras Area	Sijua Area	Kusunda Area	Basteralla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
21	VEZ206	PRESSURE REDUCTION VALVE	10	5	10	2	1	4	2	34	20,748.00	705432.00	20748.00	87089900	28.00%	5,809.44
22	953EG71291	MAINTENANCE FREE BATTERY	20	10	20	4	2	8	4	68	20,434.00	1389512.00	40868.00	87089900	28.00%	11,443.04
23	955EG82709	HORN	10	5	10	2	1	4	2	34	999.00	33966.00	999.00	87089900	28.00%	279.72
24	985C002406	PRESSURE SENSOR	40	20	40	8	4	16	8	136	17,007.00	2312952.00	68028.00	87089900	28.00%	19,047.84
TOTAL												29253276.00	861714.00			231617.92

BEML LIMITED Board Floor Unity Building J.C. Road BANGALORE 560 002

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.)
बीईएमएल लिमिटेड BEML Limited
5 वाँ मंजिल, यूनिटी बिल्डिंग, जे. सी. रोड
5th Floor, Unity Building, J.C. Road,
बेंगलूरु BENGALURU - 560 002

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BH60M Spares and Consumables for 5th Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			Bill Area	Gobindpur Area	Katras Area	Sijua Area	Kusunda Area	Bastacolla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
Fast Moving																
1	3877720	ELEMENT,FUEL FILTER	120	60	120	24	12	48	24	408	577.00	235416.00	6924.00	84212300	18.00%	1,246.32
2	151881	GASKET,FUEL FILTER COVER	120	60	120	24	12	48	24	408	38.00	15504.00	456.00	84219900	18.00%	82.08
3	3329269	SEPARATOR,FUEL WATER	240	120	240	48	24	96	48	816	3,378.00	2756448.00	81072.00	84212300	18.00%	14,592.96
4	3899310	ELEMENT,LUB OIL FILTER	240	120	240	48	24	96	48	816	2,306.00	1881696.00	55344.00	84212300	18.00%	9,961.92
5	3899311	ELEMENT,OIL BYPASS FILTER	120	60	120	24	12	48	24	408	2,595.00	1058760.00	31140.00	84212300	18.00%	5,605.20
6	3010937	SEAL,O RING	120	60	120	24	12	48	24	408	17.00	6936.00	204.00	40169330	18.00%	36.72
7	4055592	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	10,968.00	1491648.00	43872.00	84213100	18.00%	7,896.96
8	4055591	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	2,993.00	407048.00	11972.00	84213100	18.00%	2,154.96
9	4926654	INHIBITOR CORROSION	60	30	60	12	6	24	12	204	2,809.00	573036.00	16854.00	38200000	18.00%	3,033.72
10	3818985	COOLANT TEST KIT	60	30	60	12	6	24	12	204	1,090.00	222360.00	6540.00	38200000	18.00%	1,177.20
11	9EBHSB0127	BH60M-KIT1000	30	15	30	6	3	12	6	102	63,203.00	6446706.00	189609.00	87089900	28.00%	53,090.52
Slow Moving																
12	0600006217	BEARING	10	5	10	2	1	4	2	34	16,581.00	563754.00	16581.00	84099990	28.00%	4,642.68
13	952DA02084	OIL SEAL	10	5	10	2	1	4	2	34	4,070.00	138380.00	4070.00	87089930	28.00%	1,139.60
14	955E111247	BEARING	10	5	10	2	1	4	2	34	744.00	25296.00	744.00	87089900	28.00%	208.32
15	955E102167R	RECON ENGINE UNDER EXCHAN	10	5	10	2	1	4	2	34	20,82,813.00	70815642.00	2082813.00	87089900	28.00%	5,83,187.64
16	564300008740	GROMMET	40	20	40	8	4	16	8	136	45.00	6120.00	180.00	87089900	28.00%	50.40
17	951BD02074	PAD, BODY	40	20	40	8	4	16	8	136	4,057.00	551752.00	16228.00	87089900	28.00%	4,543.84
18	935CC01034	SPOT FAN	10	5	10	2	1	4	2	34	2,390.00	81260.00	2390.00	87089900	28.00%	669.20
19	649000029600	EXHAUST BLANKET	150	75	150	30	15	60	30	510	3,494.00	1781940.00	52410.00	87089900	28.00%	14,674.80
20	778RC02187	DOOR LOCK LH	10	5	10	2	1	4	2	34	1,741.00	59194.00	1741.00	87089900	28.00%	487.48

BEML LIMITED Bangalore 560 002

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.)
बीईएमएल लिमिटेड BEML Limited
5 वीं मंजिल, यूनिटी बिल्डिंग्स, जे. सी. रोड
5th Floor, Unity Building, J.C. Road,
बेंगलूरु BENGALURU - 560 002

BH60M Spares and Consumables for 5th Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			B-II Area	Govindpur Area	Katras Area	Sijua Area	Kusunda Area	Bastacolla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
21	776RC02179	DOOR LOCK RH	10	5	10	2	1	4	2	34	1,454.00	49436.00	1454.00	87089900	28.00%	407.12
22	561842001500	EWT SENSOR	10	5	10	2	1	4	2	34	3,790.00	128860.00	3790.00	87089900	28.00%	1,061.20
23	06L1990335	EOP SENSOR	10	5	10	2	1	4	2	34	6,415.00	218110.00	6415.00	87089900	28.00%	1,796.20
24	955EG82985	ENGINE SPEED SENSOR	10	5	10	2	1	4	2	34	6,106.00	207604.00	6106.00	87089900	28.00%	1,709.68
25	06L0980351	TOP SENSOR	10	5	10	2	1	4	2	34	6,111.00	207774.00	6111.00	87089900	28.00%	1,711.08
26	955EG11259	ACCU PRESSURE SW	20	10	20	4	2	8	4	68	4,457.00	303076.00	8914.00	87089900	28.00%	2,495.92
27	985EG81883	CIRCUIT BREAKER(5A)	60	30	60	12	6	24	12	204	667.00	136068.00	4002.00	87089900	28.00%	1,120.56
28	985EG81891	CIRCUIT BREAKER(10A)	130	65	130	26	13	52	26	442	550.00	243100.00	7150.00	87089900	28.00%	2,002.00
29	985EG81912	CIRCUIT BREAKER(20A)	20	10	20	4	2	8	4	68	1,720.00	116960.00	3440.00	87089900	28.00%	963.20
30	963EG83344	HAZARD LIGHT SWITCH	10	5	10	2	1	4	2	34	1,061.00	36074.00	1061.00	87089900	28.00%	297.08
31	963EG83352	HEAD LAMP SWITCH	10	5	10	2	1	4	2	34	992.00	33728.00	992.00	87089900	28.00%	277.76
32	963EG83311	ENGINE SHUT OFF SWI (OFF-ON	10	5	10	2	1	4	2	34	1,722.00	58548.00	1722.00	87089900	28.00%	482.16
33	963EG83263	ROOF LAMP SWITCH	10	5	10	2	1	4	2	34	1,003.00	34102.00	1003.00	87089900	28.00%	280.84
34	963EG83271	WIND SHIELD WASHER SWITCH	10	5	10	2	1	4	2	34	951.00	32334.00	951.00	87089900	28.00%	266.28
35	963EG83385	WIPER MOTOR SWITCH	10	5	10	2	1	4	2	34	961.00	32674.00	961.00	87089900	28.00%	269.08
36	963EG83328	PARKING BRAKE SWITCH	10	5	10	2	1	4	2	34	997.00	33898.00	997.00	87089900	28.00%	279.16
37	963EG83369	FOG LAMP SWITCH	10	5	10	2	1	4	2	34	912.00	31008.00	912.00	87089900	28.00%	255.36
38	963EG83441	DUMP BRAKE SWITCH	10	5	10	2	1	4	2	34	985.00	33490.00	985.00	87089900	28.00%	275.80
39	956EG81039	OVER RIDE SWITCH	10	5	10	2	1	4	2	34	2,345.00	79730.00	2345.00	87089900	28.00%	656.60
40	959EG11274	RELAY, AUTO DIMMER	10	5	10	2	1	4	2	34	563.00	19142.00	563.00	87089900	28.00%	157.64
41	78/EG81157	BATTERY CUT OFF SWITCH	10	5	10	2	1	4	2	34	1,095.00	37230.00	1095.00	87089900	28.00%	306.60
		TOTAL										91191342.00	2682113.00			725553.84

BEML LIMITED BANGALORE

नरेश कुमार / NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.)
बेईएमएल लिमिटेड BEML Limited
5 वें मंजिल, यूनिटी बिल्डिंग, जे. सी. रोड
5th Floor, Unity Building, J.C. Road,
बेंगलूरु BENGALURU - 560 002

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BH60M Spares and Consumables for 6th Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			B-II Area	Gowdapur Area	Kotras Area	Sijua Area	Kusunda Area	Basticolla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
Fast Moving																
1	3877720	ELEMENT,FUEL FILTER	120	60	120	24	12	48	24	408	606.00	247248.00	7272.00	84212300	18.00%	1,308.96
2	151681	GASKET,FUEL FILTER COVER	120	60	120	24	12	48	24	408	40.00	16320.00	480.00	84219900	18.00%	86.40
3	3329289	SEPARATOR,FUEL WATER	240	120	240	48	24	96	48	816	3,547.00	2894352.00	85128.00	84212300	18.00%	15,323.04
4	3889310	ELEMENT,LUB OIL FILTER	240	120	240	48	24	96	48	816	2,422.00	1976352.00	58128.00	84212300	18.00%	10,463.04
5	3889311	ELEMENT,OIL BYPASS FILTER	120	60	120	24	12	48	24	408	1,725.00	1111800.00	32700.00	84212300	18.00%	5,886.00
6	3010937	SEAL,O RING	120	60	120	24	12	48	24	408	17.00	6936.00	204.00	40169330	18.00%	36.72
7	4065592	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	11,516.00	1566176.00	46064.00	84213100	18.00%	8,291.52
8	4065591	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	3,143.00	427448.00	12572.00	84213100	18.00%	2,262.96
9	4926654	INHIBITOR CORROSION	60	30	60	12	6	24	12	204	2,950.00	601800.00	17700.00	38200000	18.00%	3,186.00
10	AX1013359	RADIWASH_3LTR	10	5	10	2	1	4	2	34	2,996.00	101864.00	2996.00	34022010	18.00%	539.28
11	3816985	COOLANT TEST KIT	60	30	60	12	6	24	12	204	1,145.00	233580.00	6870.00	38200000	18.00%	1,236.60
12	3810981	INHIBITOR CORROSION (205 Lit)	10	5	10	2	1	4	2	34	56,897.00	1934498.00	56897.00	38200000	18.00%	10,241.46
13	95BHSB0127	BH60M-KIT1000	30	15	30	6	3	12	6	102	65,099.00	6640098.00	195297.00	87089900	28.00%	54,683.16
Slow Moving																
14	95BTMB0068R	RECON TRANSMISSION M6E10A	6	3	6	1	1	2	1	20	11,01,311.00	22026220.00	647830.00	87089900	28.00%	1,81,392.40
15	584300008740	GROMMET	40	20	40	8	4	16	8	136	46.00	6256.00	184.00	87089900	28.00%	51.52
16	FB3060	RACE SPLIT OUTER	20	10	20	4	2	8	4	68	632.00	42976.00	1264.00	87089900	28.00%	353.92
17	955HS03277	HOIST C/V SEAL KIT	10	5	10	2	1	4	2	34	9,208.00	313072.00	9208.00	87089900	28.00%	2,578.24
18	FB2194	VALVE, CHARGING	20	10	20	4	2	8	4	68	2,694.00	183192.00	5388.00	87089900	28.00%	1,508.64
19	959EG71022	POWER WINDOW SWITCH	10	5	10	2	1	4	2	34	729.00	24786.00	729.00	87089900	28.00%	204.12
20	955EG78368	POWER WINDOW RELAY	20	10	20	4	2	8	4	68	358.00	24344.00	716.00	87089900	28.00%	200.48

BEML LIMITED Bengal V Floor Unity Buildings J.C. Road BANGALORE 560 002

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.
बीईमएल लिमिटेड BEML Limited
5 वीं मंजिल, यूनिटी बिल्डिंग्स, जे. सी. रोड
5th Floor, Unity Building, J.C. Road,
बेंगलूरु BENGALURU - 560 002

BH60M Spares and Consumables for 6th Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			B-B Area	Govindpur Area	Kolras Area	Sijua Area	Kamunda Area	Bastacolla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
21	985EG81883	CIRCUIT BREAKER(5A)	10	5	10	2	1	4	2	34	687.00	23358.00	687.00	87089900	28.00%	192.36
22	985EG81891	CIRCUIT BREAKER(10A)	40	20	40	8	4	16	8	136	567.00	77112.00	2268.00	87089900	28.00%	635.04
23	985EG81912	CIRCUIT BREAKER(20A)	10	5	10	2	1	4	2	34	1,772.00	60248.00	1772.00	87089900	28.00%	496.16
24	5610681510	EMERGENCY STEERING RELAY	10	5	10	2	1	4	2	34	13,810.00	469540.00	13810.00	87089900	28.00%	3,866.80
25	985EG03563	HEAD LAMP (HIGH BEAM)	20	10	20	4	2	8	4	68	3,367.00	228956.00	6734.00	87089900	28.00%	1,885.52
26	985EG02997	HEAD LAMP (LOW BEAM)	50	25	50	10	5	20	10	170	3,222.00	547740.00	16110.00	87089900	28.00%	4,510.80
27	787EG81092	TURN SIGNAL LAMP AMBER	40	20	40	8	4	16	8	136	1,954.00	265744.00	7816.00	87089900	28.00%	2,188.48
28	787EG81084	TAIL/STOP LAMP RED	20	10	20	4	2	8	4	68	1,954.00	132872.00	3908.00	87089900	28.00%	1,094.24
29	959EG83482	ROOF LAMP	10	5	10	2	1	4	2	34	10,102.00	343468.00	10102.00	87089900	28.00%	2,828.56
30	955RC03399	POWER WINDOW MOTOR ASSY	10	5	10	2	1	4	2	34	11,873.00	403682.00	11873.00	87089900	28.00%	3,324.44
31	0606620X00	STARTER SWITCH	10	5	10	2	1	4	2	34	10,949.00	372266.00	10949.00	87089900	28.00%	3,065.72
32	451EG11875	BUZZER	10	5	10	2	1	4	2	34	1,363.00	46342.00	1363.00	84314930	18.00%	245.34
33	5618420C2300	CENTER WARNING LAMP	10	5	10	2	1	4	2	34	353.00	12002.00	353.00	87089900	28.00%	98.84
34	963EG71281	MAINTENANCE FREE BATTERY	10	5	10	2	1	4	2	34	21,678.00	737052.00	21678.00	87089900	28.00%	6,069.84
35	955EG11241	LOW STEERING PRESSURE SW	10	5	10	2	1	4	2	34	38,982.00	1325388.00	38982.00	87089900	28.00%	10,914.96
36	955EG11258	ACCU PRESSURE SW	30	15	30	6	3	12	6	102	4,683.00	477666.00	14049.00	87089900	28.00%	3,933.72
37	955EG82709	HORN	10	5	10	2	1	4	2	34	1,060.00	36040.00	1060.00	87089900	28.00%	296.80
38	955HS30116	HOSE ASSY KIT	5	2	5	1		2	1	16	28,557.00	456912.00	13438.59	87089900	28.00%	3,762.80
39	955HS80124	HOSE ASSY KIT	5	2	5	1		2	1	16	22,675.00	362800.00	10670.59	87089900	28.00%	2,987.76
40	955HS80092	HOSE ASSY KIT	5	2	5	1		2	1	16	74,815.00	1197040.00	35207.06	87089900	28.00%	9,857.98
41	955HS80108	HOSE ASSY KIT	5	2	5	1		2	1	16	53,704.00	859264.00	25272.47	87089900	28.00%	7,076.29

नरेश कुमार NARESH KUMAR
महाप्रबंधक (वित्त) / Gen General Manager (Fin.)
भारत कोकिंग लिमिटेड / BCCL Limited
5 वीं मंजिल, यूनिटी बिल्डिंग, जे. सी. रोड
5th Floor, Unity Building, J.C. Road,
बेंगलूरु / BENGALURU - 560 002

44/112

BH60M Spares and Consumables for 6th Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			Bih Area	Govindpur Area	Katras Area	Sijua Area	Kusunda Area	Bastacolla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
42	958BR02504	HOSE ASSY	5	2	5	1		2	1	16	385.00	6160.00	181.18	87089900	28.00%	50.73
43	958BR02342	HOSE ASSY	5	2	5	1		2	1	16	810.00	12960.00	381.18	87089900	28.00%	106.73
44	958BR02359	HOSE ASSY	5	2	5	1		2	1	16	884.00	14144.00	416.00	87089900	28.00%	116.48
45	958BR02123	HOSE ASSY	5	2	5	1		2	1	16	6,143.00	98288.00	2890.82	87089900	28.00%	809.43
46	958BR02391	HOSE ASSY	10	5	10	2		4	2	33	997.00	32901.00	967.68	87089900	28.00%	270.95
47	958BR02504	HOSE ASSY	5	2	5	1		2	1	16	385.00	6160.00	181.18	87089900	28.00%	50.73
48	958BR02342	HOSE ASSY	5	2	5	1		2	1	16	810.00	12960.00	381.18	87089900	28.00%	106.73
49	958BR02359	HOSE ASSY	5	2	5	1		2	1	16	884.00	14144.00	416.00	87089900	28.00%	116.48
TOTAL												49012527.00	1441544.91			370795.18

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.
बीईएमएल लिमिटेड BEML Limited
5 वाँ मंजिल, युनिटी बिल्डिंग, जे. सी. रोड
5th Floor, Unity Building, J.C. Road,
बेंगलूरु BENGALURU - 560 002

BH60M Spares and Consumables for 7th Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			Bill Area	Govindpur Area	Katras Area	Sijua Area	Kusunda Area	Bastacolla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
Fast Moving																
1	3877720	ELEMENT,FUEL FILTER	120	60	120	24	12	48	24	408	636.00	259488.00	7632.00	84212300	18.00%	1,373.76
2	151681	GASKET,FUEL FILTER COVER	120	60	120	24	12	48	24	408	41.00	16728.00	492.00	84219900	18.00%	88.56
3	3329289	SEPARATOR,FUEL WATER	240	120	240	48	24	96	48	816	3,725.00	3039600.00	89400.00	84212300	18.00%	16,092.00
4	3889310	ELEMENT,LUB OIL FILTER	240	120	240	48	24	96	48	816	2,543.00	2075088.00	61032.00	84212300	18.00%	10,985.76
5	386931	ELEMENT,OIL BYPASS FILTER	120	60	120	24	12	48	24	408	2,861.00	1167288.00	34332.00	84212300	18.00%	6,179.76
6	3010937	SEAL O RING	120	60	120	24	12	48	24	408	18.00	7344.00	216.00	40169330	18.00%	38.88
7	4055592	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	12,092.00	1644512.00	48368.00	84213100	18.00%	8,706.24
8	4055591	ELEMENT AIR CLEANER	40	20	40	8	4	16	8	136	3,300.00	448800.00	13200.00	84213100	18.00%	2,376.00
9	4926654	INHIBITOR CORROSION	60	30	60	12	6	24	12	204	3,097.00	631788.00	18582.00	38200000	18.00%	3,344.76
10	3816985	COOLANT TEST KIT	60	30	60	12	6	24	12	204	1,202.00	245208.00	7212.00	38200000	18.00%	1,298.16
11	368HSS0127	BH60M-KIT1000	30	15	30	6	3	12	6	102	67,052.00	6839304.00	201156.00	87089900	28.00%	56,323.68
Slow Moving																
12	564300008740	GROMMET	10	20	40	8	4	16	8	136	47.00	6392.00	188.00	87089900	28.00%	52.64
13	985EG81683	CIRCUIT BREAKER(5A)	60	30	60	12	6	24	12	204	708.00	144432.00	4248.00	87089900	28.00%	1,189.44
14	985EG81681	CIRCUIT BREAKER(10A)	130	65	130	26	13	52	26	442	584.00	258128.00	7592.00	87089900	28.00%	2,126.76
15	985EG81812	CIRCUIT BREAKER(20A)	20	10	20	4	2	8	4	68	1,825.00	124100.00	3650.00	87089900	28.00%	1,022.00
16	953EG83344	HAZARD LIGHT SWITCH	10	5	10	2	1	4	2	34	1,126.00	38284.00	1126.00	87089900	28.00%	315.28
17	953EG83352	HEAD LAMP SWITCH	10	5	10	2	1	4	2	34	1,053.00	35802.00	1053.00	87089900	28.00%	294.84
18	953EG83311	ENGINE SHUT OFF SWI (OFF-ON)	10	5	10	2	1	4	2	34	1,827.00	62118.00	1827.00	87089900	28.00%	511.56
19	953EG83263	ROOF LAMP SWITCH	10	5	10	2	1	4	2	34	1,064.00	36176.00	1064.00	87089900	28.00%	297.92
20	953EG83271	WIND SHIELD WASHER SWITCH	10	5	10	2	1	4	2	34	1,009.00	34306.00	1009.00	87089900	28.00%	282.52

BEML LIMITED

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (वित्त) Asst. General Manager (Fin)
भैरूंगुल लिमिटेड BEML Limited
5 वीं मंजिल, यूनिटी बिल्डिंग, जे. सी. रोड
5th Floor, Unity Building, J.C. Road,
बेंगलूरु 560002, भारत / Bengaluru 560002, India

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BH60M Spares and Consumables for 7th Year

Value in Rs.

Sl. No.	Part No.	Description	Quantity Area Wise							Total	Unit Price	Extd. Price for 34 Eqpt	Extd Price per Eqpt	HSN Code	GST %	GST Value
			B-II Area	Govindpur Area	Katras Area	Sijua Area	Kusunda Area	Bastacolla Area	CV Area							
			10 Nos	5 Nos	10 Nos	2 Nos	1 No.	4 Nos	2 Nos							
21	953EG83385	WIPER MOTOR SWITCH	10	5	10	2	1	4	2	34	1,020.00	34680.00	1020.00	87089900	28.00%	285.60
22	953EG83328	PARKING BRAKE SWITCH	10	5	10	2	1	4	2	34	1,058.00	35972.00	1058.00	87089900	28.00%	296.24
23	953EG83369	FOG LAMP SWITCH	10	5	10	2	1	4	2	34	967.00	32878.00	967.00	87089900	28.00%	270.76
24	953EG83441	DUMP BRAKE SWITCH	10	5	10	2	1	4	2	34	1,045.00	35530.00	1045.00	87089900	28.00%	292.60
25	958EG81059	OVER RIDE SWITCH	10	5	10	2	1	4	2	34	2,487.00	84558.00	2487.00	87089900	28.00%	696.36
26	955EG11274	RELAY, AUTO DIMMER	10	5	10	2	1	4	2	34	597.00	20298.00	597.00	87089900	28.00%	167.16
27	787EG81157	BATTERY CUT OFF SWITCH	10	5	10	2	1	4	2	34	1,162.00	39508.00	1162.00	87089900	28.00%	325.36
TOTAL												17388310.00	511715.00			115233.60

BEML LIMITED Board V Floor Unity Buildings J C Road BANGALORE 560 002

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विनिर्माण) Asst. General Manager (Mktg.
बीईएमएल लिमिटेड BEML Limited
5 वीं मंजिल, यूनिटी बिल्डिंग्स, जे. सी. रोड
5th Floor, Unity Building, J.C. Road,
बेंगलूरु BENGALURU - 560 002

QUALITY ASSURANCE PLAN

MODEL : BH60M DUMP TRUCK
CLIENT : M/s BEML LIMITED

QAP Ref : QAP/BH60M/
Date of issue:

SL NO	COMPONENT	CHARACTER/ PARAMETER	NATURE OF CHECK	QUANTITY OF CHECK	ACCEPTANCE STANDARD	RECORDING FORMAT	INSPN. AGENCY			REMARKS
							PERF	WIT	VERIFY	
1.	Equipment	Model	Visual			JIR	2	1		
		Frame	Visual			JIR	2	1		
		Engine Sino	Visual			JIR	2	1		
2.	Engine	Model	Visual							
		Rated HP, Torque	Test Bench performance	100%	BEML acceptance stds.	Test Certificate	2		1	
		Lub. Oil Pr at Lo and Hi Idle.								
3.	Major Assembly	Engine-T/M alignment.	Measure	100%	BEML assembly stds.		2			
		Torque on Critical Bolts.	Measure	100%	BEML assembly stds.					
4.	Transmission	Pressures	Measure	100%	BEML assembly stds.	Beml in-process/ stage check sheets	2			
5.	Hydraulic System	System flushing	Visual	100%	BEML assembly stds.		2			
		Pressure & Leak checks			BEML assembly stds.		2			
		Hoist operations	Measure	100%	BEML assembly stds.		2			
6.	Strg. & Brake	Effectiveness	Function	100%	BEML assembly stds		2			
		Pressure checks	Measure		BEML assembly stds		2			
7.	Checks on completed equipment									
a	Engine	Engine Hi and Lo Idle rpm.	Measure		BEML assembly stds.	JIR	2	1		
		Engine Hi and Lo Idle pressures.	Measure	100%			2	1		
b	Transmission	Effective Gear shifting	Function	100%	BEML assembly stds.		2	1		
		Neutral start feature	Function				2	1		
c	Brake & Steering	Effective Braking and Brake Lock.	Function				2	1		
		Normal Steering	Function	100%	BEML assembly stds.		2	1		
		Function of Gauges	Visual				2	1		
d	Gauges & Electricals	Electrical checks (working of accessories)	Function		BEML assembly stds.		2	1		
		Interlock tests (Parking Brake)								
		Proper routing of Wire Harness .	Visual	100%			2	1		
		Correct actuation of Warning systems.	Function				2	1		

ANNEXURE-C

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SL NO	COMPONENT	CHARACTER/ PARAMETER	NATURE OF CHECK	QUANTITY OF CHECK	ACCEPTANCE STANDARD	RECORDING FORMAT	INSPN. AGENCY			REMARKS
							PERF	WIT	VERIFY	
e	Equipment	Oil levels (Engine , Transmission , Final Drive and Hydraulics)	Visual	100%	BEML assembly stds.	JIR	2	1		
		Painting & aesthetics	Visual				2	1		
		Lubrication at all points	Visual				2	1		
		Physical condition & Charging of Battery	Visual				2	1		
		Socket clearances for : • Hyd. Cylinder Piping flange bolts • Suction and Delivery line bolts (Hyd Pump , Transmission Pump and Steering Pump)	Visual				2	1		
		Proper routing and clamping of Hoses .	Visual				2	1		
f	Optional Items	Optional items as per PO	Visual	100%	As per order terms.		2	1		

The QAP meets the requirements of ISO9001-2015 Quality Management System Standard.

Note : 1. CUSTOMER 2. BEML JIR – JOINT INSPN. REPORT

SIGNATURE OF BEML REP. SIGNATURE OF CUSTOMER REP.

	NAME & DESIGNATION	SIGNATURE	DATE
APPROVED BY	R. RAMESH AGM – CORPORATE QUALITY		21-05-2019

आर. रमेश R. RAMESH
सहायक महा प्रबंधक Assistant General Manager
कॉर्पोरेट गुणवत्ता CORPORATE QUALITY

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg)
बीईमएल लिमिटेड BEML Limited
5वी मंजिल, यूनिटी बिल्डिंग्स, जे. सी. रोड
5th Floor, Unity Building, J.C. Road,
बेंगलूरु BENGALURU - 560 002

BEML LIMITED Unity Building J.C. Road BANGALORE-560002

ANNEXURE - D

GENERAL TERMS AND CONDITIONS OF SUPPLY OF STORES

1. Definition: In the interpretation of the Contract and the general and special conditions governing it unless the context otherwise requires:

i. "Contract" means the invitation of tender, instructions to tenderers, acceptance of tender, particulars and the general and special conditions specified in the acceptance of tender and includes a repeat order which has been accepted and acted upon by the supplier.
ii. The term "SUPPLIER" shall mean the person, firm or company with whom the contract is placed and shall be deemed to include the supplier in successors (approved by the Purchaser) representatives, heirs, executors, administrators and permitted assignee as the case may be.
iii. "CONTRACT PRICE' shall mean the sum accepted or the sum calculated in accordance with the price and / or terms accepted by or on behalf of the purchaser.
iv. The Chairman – cum- Managing Director means Chairman – cum Managing Director of BCCL, Dhanbad
v. The term DRAWING shall mean the drawings, the plans specified in or annexed to the schedule of specification.
vi. The term "PURCHASE EXECUTIVE" shall mean the purchaser or purchaser named in the schedule to the tender, his or their successors or assignees.
vii. The term INSPECTOR shall mean any person nominated by or on behalf of the purchaser to inspect supplies, Stores or works under the contract or his duly authorized agent.
viii. The term PROGRESS OFFICER shall mean any person nominated by or on behalf of the purchaser to visit supplier's works to ascertain the position of deliveries of stores purchased.
ix. The term MATERIALS shall mean anything used in the manufacture or fabrication of the stores.
x. The term PARTICULARS shall mean the following:
   a. Specification
   b. Drawing
   c. Sealed pattern denoting a pattern sealed and signed by the inspector
   d. Certified or sealed sample denoting a copy of the sealed patter or sample sealed
by the purchaser for guidance of the Inspector.
   e. Trade pattern denoting a standard of the ISI or other standardizing authority of
      Bharat Coking Coal Ltd and / or a general standard of the Industry and obtainable in the open market.
   f. Proprietary make denoting the product of an individual manufacturer
   g. Any other details governing the construction, manufacturer and or supply as existing in the contract
xi. STORES means the goods specified in the supply order or schedule which the contractor has agreed to supply under contract.
xii. The term TEST shall mean such test or tests as are prescribed by the specification or considered necessary by the inspector or any agency acting under direction of the Inspector.
xiii. The term SITE shall mean the place or places named in the SUPPLY ORDER or such other place or places at which any work has to be carried out as may be approved by the purchaser.
xiv. Works denoting the persons shall include any company or association or body of individuals whether incorporated or not.
xv. WRITING shall include any manuscript, typewritten or printed statement under or over signature or seal as the case may be.
xvi. UNIT & QUALITY means the unit and quantity specified in the schedule.
xvii. SUPPLY ORDER or PURCHASE ORDER means an order for supply of stores and includes an order for performance.

2. The delivery of stores shall be deemed to take place on delivery of the stores in accordance with the terms of the contract after approval of stores by the Inspector to :

i. The consignee at his premises or
ii. Where so provided the interim consignee at his premises or
iii. A carrier or other persons named in the contract an interim consignee for the purpose of transmission to the consignee.
iv. The consignee at the destination station in case of contracts stipulated for delivery stores at destination station.

3. Words in the singular include the plural and vice-versa.

4. Words denoting the masculine gender shall be taken to include the famine gender and work persons, shall include any company or association or body of individuals, whether incorporated or not.

5. Terms and expressions not herein defined shall have the meanings assigned to them in the India Sale of Goods Act 1930 or the Indian Contract, 1872 or the General Clauses Act 1897 and as amended in respect of all the Acts as the case may be.

6. (a) Parties :The Parties to the contract are the supplier and the purchaser named in the schedule or any other specifically mentioned in the contract.

5)
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(b) Address to which communications are to be sent for all purposes of the contract, including arbitration there under, the address of the supplier mentioned in the tender shall be the address to which all communications addressed to the supplier shall be sent, unless the supplier has notified a change by a change by a separate letter containing no other communication and sent by registered post acknowledgement due to the head of the office placing the supply order. The supplier shall be solely responsible for the consequence of an omission to notify a change of address in the manner aforesaid. Any communication or notice on behalf of the purchaser in relation to the contract may be issued to the supplier by Purchase Executive and all such communications and notices may be served on the supplier either by registered post or under certificate of posting or by ordinary post or by hand delivery at the option of such executive.

7. i. The price quoted shall be either FOR place or Railway station of dispatch, FOR destination. Delivery free to the consignee, FOB or CIF as specified in the invitation to the tender. All offers from countries other than Purchaser's country shall quote on FOB and CIF basis.

ii. In all cases the prices quoted must be net per unit shown in the enquiry and must include all packing and delivery where applicable. Refunds on account of returnable packages (if any) are to be separately specified. The price should show separately the Foreign Exchange element and the Rupee element for stores to be imported. Sales Tax shall be shown separately and whether it is State Sales Tax or Central Sales Tax. If no mention is made about Sales Tax, it will be assumed to be included in the price quoted.

The prices should be included of Excise, or excise duty should be separately mentioned. In case where price is quoted inclusive of excise duty, the rate of quantum of the same should be separately indicated. In case of contracts providing for free delivery to the consignee, octroi charges shall be included where leviable.

iii. The price must be stated separately for each item on unit basis.

iv. When quotations are made for units other than those specified in the enquiry, the relationships should be stated.

v. The prices quoted must be firm and the offers made must remain open for at least Six months from the date of submitting quotations unless otherwise specified.

vi. Tender must invariably be submitted along with illustrated literature giving complete and detailed specifications, particulars etc. of the main unit and of the standard accessories to be supplied with the stores.

vii. Tender must clearly specify their recommended spare parts that will be supplied along with the main unit and item wise prices of the spares parts, also what are fast moving, medium moving, slow moving and insurance spares and the period up to which they are likely to last.

viii. Printed terms and conditions of the tendering firms shall not be considered as forming part of their tender. In case the terms and conditions of contract applicable to this invitation to tender are not acceptable to the tendering firms, they should clearly specify deviations there from in their tender.

ix. Typed quotations should be submitted. Those containing erasures and over-writings are liable to be rejected. Any corrections made in the tenders must be initialled by the tenderers, failing which their tenders will not be considered.

x. Insurance arrangement will be made as per instructions being issued from time to time by the Materials Management Division of Coal India Limited and / or its subsidiary companies.

8. i. Samples of each item, if considered necessary, should be submitted simultaneously by the contractor for inspection by Inspector / Inspectors unless the articles under tender are of considerable bulk in which case separate arrangement will be made for inspection of the articles offered while considering the quotation.

ii. All samples required for inspection or test shall be supplied by the successful tenderer free of cost.

iii. All samples must be clearly labelled with the tenderer's name, this offer enquiry number and the last date of opening of tender.

9. a) Subletting and Assignment: The supplier shall not save with the previous consent in writing of the purchaser, sublet, transfer, assign the contract or any part thereof or interest therein or benefit or advantage thereof in a manner whatsoever. Provided nevertheless that any such consent shall not relieve the supplier from any obligation, duty or responsibility under the contract.

b) Change in a Firm:

i. Where the supplier is a partnership firm, a new partner shall not be introduced in the firm except with the previous consent in writing of the purchaser (which may be granted only as an exception) of a written undertaking by the new partner to perform the contract and accept as liabilities incurred by the firm under the contract prior to the date of such undertaking.

ii. On the death or retirement of any partner of the supplier firm before complete performance of the contract the purchaser may at his option cancel the contract in such case the supplier shall have no claim whatsoever for compensation against the purchase.

iii. If the contract is not determined as provided in the sub-clause 1.ii above notwithstanding the retirement of a partner from the firm, he shall continue to be liable under the contract for acts of the firm until a copy of the public notice given by him under Section 32 of the Partnership Act has been sent by him to the purchaser by registered post acknowledgement due.

10. (a) Consequence of Breach: Should the supplier or a partner in the supplier firm commit breach of either of the conditions (a) or (b) of this sub-clause, it shall be lawful of the purchaser to cancel the contract and purchase or authorise the purchaser of the stores at the risk and cost of the supplier and in that event the provisions of clause 20 shall as far as applicable shall apply.

(b) The decision of Coal India Ltd. and/or its subsidiary companies as to any matter or thing concerning or arising out of this sub-clause or any question whether the supplier or any partner of the supplier firm has committed a breach of any of the conditions in this sub-clause contained shall be final and binding on the supplier.

11. Use of raw materials secured with Government assistance:

a. Where any raw material for the execution of the contract is procured with the assistance of CIL and or its subsidiary companies by purchase or under arrangement made or permit, license, quota certificate or release order issued by or on behalf of or under authority or by any officer empowered in that behalf by law, or is issued from government stock and where advance payments are made to the supplier to enable him to purchase such raw materials for the execution of the contract, the supplier.

I. Shall hold such material as trustee of Coal India Limited and / or its subsidiary companies.

II. Shall use such material economically and solely for the purpose of the contract.

III. Shall not dispose of the same without the previous permission in writing of the purchaser; and

IV. Shall tender due account of such material and return to the purchaser at such place as the purchaser may direct all surplus or unserviceable material that may be left after the completion of the contract or its termination for any reason whatsoever. On returning such material, the supplier shall be entitled to such price thereof as the purchaser may fix having regarding the condition of such material.

b. Where the contract is terminated due to any default on the part of the supplier, the supplier shall pay all transport charges incurred for returning any material up to such destination as may be determined by CIL and / or its subsidiary companies whose decision shall be final.

c. If the supplier commits breach of any of the conditions in this clause specified, he shall, without prejudice to any other liability, penal or otherwise, be liable to account to CIL and or its subsidiary companies all money, advantages of profits accruing from or which in the usual course would have accrued to him by reasons of such breach.

d. Where the stores manufactured or fabricated by the supplier out of the materials arranged or procured by or on behalf of Coal India Limited and / or its subsidiary companies are rejected the supplier shall, without prejudice to any other right or remedy of the Government, pay to the Government on demand the cost price or market value of all such materials whichever is greater.

12. The tenderers in case of imported items, shall clearly mention in the question that in the event of the supply order being placed with them, they shall arrange for supply within a reasonable period of all necessary maintenance tools and spares parts that may be required from time to time during the normal life of the machines, on a continuous basis and at a price not in excess of the landed cost at their premises plus a stated percentage differential (such a differential should be indicated) and proper servicing of the main unit supplied by them as and when required. In case there is a Rate Contract with the DGS&D supply be made at the RC rates.

13. For orders placed directly on overseas suppliers, the tenderers should separately indicate whether their prices quoted include any commission for the manufacturer's agents in India and the amount of remuneration for the agent included in the quoted price. The Price shall include:

a. The service that will be rendered by them as manufacturer's agent

b. The name and address of agents, if any, in India, and

c. The agency commission or remuneration or freight in case FOR prices are accepted will be paid in Rupees in India

14. On acceptance of the tender, a formal acceptance of tender or supply order will invariably be issued. Advance intimation in writing of acceptance of the tender will be given whenever considered necessary by the said authority. In case advance intimation has been given, the formal acceptance of tender of supply order shall follow in due course, but immediate action towards execution of supply order shall be taken on receipt of the advance intimation.

15. Inspection and Rejection: Generally the stores shall be of the best quality and workmanship and comply with the contract or supply order in all respect. The stores supplied shall be in accordance with specification unless any deviation is authorised and specified and specified in the contract or supply order or any amendment thereof.

a) Facilities for Test and Examination: The supplier shall, at his own expenses, afford to the Inspector all responsible facilities and such accommodation as may be necessary for satisfying it, that the stores are being and/or have been manufactured in accordance with particulars. The Inspector shall have full and free access at any time during the execution of the contract to the suppliers work for the purpose aforesaid, and he may require the supplier.

b) Cost of Test: The supplier shall provide without any extra charge, all materials, tools, labour and assistance of every kind which the inspector may demand from him for any test, and examination, other than special or independent test, which he shall require to be made on the supplier's premises and the supplier shall bear and pay all costs attendant thereon. If the supplier fails to comply with the conditions aforesaid, the Inspector shall in consultation with the purchaser, be entitled to remove for test and examination all or any of the stores manufactured by the supplier to any premises other than his (suppliers) and in all such cases the supplier bear the cost of transport and/or carrying out such tests elsewhere. A certificate in writing of the Inspector that the supplier has failed to provide the facilities and the means, for test and examination shall be final.

c) Delivery of Stores for Test : The supplier shall also provide and deliver the test free of charge, at such place other than his premises as the Inspector may specify, such materials or stores as he may require.

d) Liability for Costs of Laboratory Test : In the event of rejection of stores or any part thereof by the Inspector in consequence of the sample thereof, which removed to the laboratory or other place of test, being found on test to be not in conformity with

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the contract or in the event of the failure of the supplier for any reason to deliver the stores passed on test within the stipulated period, the supplier shall, on demand pay to the purchaser all costs incurred in the inspection and/or test cost of the test shall be assessed at the rate charged by the laboratory to provide persons for similar work.

e) Method of Testing: The Inspector shall have the right to put all the stores or materials forming part of the same or any part thereof to such tests as he may think fit and proper. The supplier shall not be entitled to object on any ground whatsoever to the method of testing adopted by the Inspector.

f) Stores Expended in Test: Unless otherwise provided for in the contract, all stores/materials expended in test will be to suppliers account.

g) Inspector – Final Authority and to Certify Performance

i. The Inspector shall have the power: Before any stores or part thereof are submitted for inspection to certify that they cannot be in accordance with the contract owing to the adoption of any unsatisfactory method of manufacturer.

ii. To reject any stores submitted as not being in accordance with the particulars.

iii. To reject the whole of the instalment tendered for inspection, if after inspection of such portion thereof as he may in his discretion think fit, he satisfied that the same is unsatisfactory; and

iv. To mark the rejected stores with a rejection mark so that they may be easily identified if resubmitted.

(h) Consequence of Rejection : If on the stores being rejected by the Inspector or consignee at the destination, the supplier fails to make satisfactory supplies within the stipulated period of delivery, the purchaser shall be at liberty to "

i. Allow the supplier to resubmit the stores, in replacement of those rejected, within a specified time, the suppliers bearing the cost of freight, if any, on such replacement without being entitled to any extra payment on the account; or

ii. Purchase or authorise the purchase of quantity of the stores rejected or so others of a similar description (when stores exactly complying with particulars opinion of the purchase executive which shall be final, readily available) without notice to the supplier's liability as regards the supply of any further instalment due under the contract; or

iii. Cancel the contract and purchase or authorise the purchase of the stores or others of a similar description (when stores exactly complying with particulars are not in the opinion of the purchaser, which shall be final readily available) at the risk and cost of the supplier. In the event of action being taken under sub-clause (ii) above or this sub-clause in the provisions of clause 20 shall apply as far as applicable.

(i) Inspector's Decision as to Rejection Final: The Inspector's decision as regards the rejection shall be final and binding on the supplier.

(j) Where under a contract, the price payable is fixed on FOR station of despatch basis, the supplier shall, if the stores are rejected at destination by the consignee, be liable in addition to other liabilities to reimburse to the purchaser the freight paid by the purchaser.

(k) Notification of Result of Inspection: Unless otherwise provided in the specification or schedule, the examination of the stores will be made as soon as practicable after the same have been submitted for inspection and the result of the examination shall be notified to the supplier.

(l) Marking of Stores: The supplier shall if so required, at his own expense mark or permit the Inspector to mark all the approved stores with a recognised Government or purchaser's mark. The stores which can not be so marked shall, if so required by the Inspector, be packed in suitable package or cases each of which shall be sealed and marked with such mark.

(m) Removal of Rejection

i. Any stores submitted for inspection at a place other than the premises of the supplier and rejected shall be removed by the supplier subject as hereinafter provided within 14 days of the date of receipt of intimation of such rejection. If it is proved that letter containing such intimation is addressed and posted to him at the address mentioned in the schedule, it will be deemed to have been served on the supplier at the time when such letter would in the course of ordinary post reach the supplier. It shall be competent for the Inspector to call upon the supplier to remove what he considers to be dangerous, infected or perishable stores within 48 hours of the receipt of such intimation.

ii. Such rejected stores shall under all circumstances lie at the risk of the supplier for the moment such rejection and if such stores are not removed by the supplier within the period aforementioned, the Inspector/Purchaser may either return the same to the supplier at his risk and cost a public tariff rate by such mode of transport as the purchaser or Inspector may select, or dispose of such stores at the supplier's risk on his account and retain in such portion of the proceeds as may be necessary to cover any expense incurred in connection with such disposal. The purchaser shall also be entitled to recover handling and storage charges for the period during which the rejected stores are not removed.

(n) Inspection Notes: On the stores being found acceptable by the Inspector, he shall furnish the supplier with necessary copies of inspection note duly completed, for being attached to the supplier's bill thereof.

16. Packing and Transport

(a) It shall be the responsibility of the successful tenderers to arrange for the stores being sufficiently and properly packed for transport by Rail, Road or Sea as the case may be so as to their being free from loss or injury on arrival at destination. The packing of the stores shall be done at the expense of the successful tenderer.

(b) The successful tenderer is responsible for obtaining a clear receipt from the transport authorities specifying the goods despatched. He will not book any consignment on a "said to contain" basis. If he does so, he does it on his own responsibility. Bharat Coking coal Ltd shall pay for only such stores as are actually received by them in accordance with the contract.

(c) All packing cases, containers, packing and other similar materials shall be supplied free by the successful tenderer and shall not be returned unless otherwise specified in the contract/supply order.
(d) Packages must be so marked that identification is made easy. Packages will be stamped with identification marks both outside the packages as well as on the contents inside. Packages containing articles liable to be broken by rough handling like glass or machinery made of cast iron will be marked with cautionary works like 'Fragile', 'Handle with care'. Weight of each package will be marked on the package.
(e) A complete list of contents in each package called the packing list will be prepared
and one copy will be packed in the package itself and another copy will be forwarded to the consignee in advance.

17. Delivery: The time for and the date of delivery of the stores stipulated in the 'Purchase Order' shall be deemed to be the essence of the contract and delivery of the stores must be completed by the date specified.

18. If the execution of the contract / supply order is delayed beyond the period stipulated in the contract / supply order as a result of outbreak of hostilities, declaration of any embargo or blockage, or fire, flood, acts of nature or any other contingency beyond the suppliers' control due to act of God then CIL or its subsidiary Companies may allow such additional time by extending the delivery period, as it considers to be justified by the circumstances of the case and its decision shall be final. If and when additional time is granted by the CIL and its subsidiary companies, the contract / supply order shall be read and understood as if it had contained from its inception the delivery date as extended.

19. The supplier shall allow reasonable facilities and free access to his works and records to the Inspector, Progress Officer or such other Officer nominated for the purpose. Inspector of stores, i.e. supplies made by the successful tenderer against the supply order mentioned at (15) above, shall be carried out by the Inspector / Consignee at the Colliery site/ stores or by the Inspecting Wing (inclusive of all its branch officer) of the DGS&D, New Delhi or any other agency as may be specified in the supply order. Where necessary, inspection may be carried out at the supplier's premises.

20. Coal India Ltd and / or its subsidiary companies do not bind itself to accept the lowest or any tender and reserves to itself the right of accepting the whole or any part of the tender or portion of the quantity offered and the tenderer shall supply the same at the rate quoted.

21. The supplier shall at all times indemnify CIL and its subsidiary companies against all claims which may be made in respect of the supplies for infringement of any right protected by patent, Registration of Design, or Trade Mark, provided that in the event of any claim in respect of alleged breach of Letter Patent, Registered Design, or Trade Mark being made against CIL and / or its subsidiary companies, the said authority shall notify the supplier of the same and the supplier shall be at liberty at his own expense to settle any dispute or to conduct any litigation that may rise there from

22. Carrying vessels for Imported Items: In case of machinery imported from abroad, it is preferable that shipment should be affected in Indian Vessels, wherever possible. Supplies will however not be delayed on this account.

23. Freight: The stores shall be dispatched at Public tariff rates in the case of FOR station of dispatch contract and the stores shall be booked at full wagon rates whenever available and by the most economical route or by the most economical tariff available at the time of dispatch as the case may be. Failure to do so will render the supplier liable for any avoidable expenditure causes to the purchaser. Where alternative routes exist, CIL and or its subsidiary companies shall, if called upon also to do indicate the most economical route available or name the authority whose advice in the matter should be taken and acted upon. If any advice of any such authority is sought his decision or advice in the matter shall be final and binding on the supplier.

24. Passing of Property: Property in the stores shall not pass to the purchaser unless and until the stores have been delivered to the consignee or interim consignee as the case may be in terms of the contract.

25. Laws Governing the Contract.

(a) This contract shall be governed by the Laws of India for the time being in force.
(b) Irrespective of the place of delivery, the place of performance of place of payment under the contract, the contract shall be deemed to have been made at the place from which the acceptance of tender or supply order has been issued.
(c) Jurisdiction of Courts: The courts of the place from the acceptance of tender has been issued shall alone have Jurisdiction to decide any dispute arising out of or in respect of the contract.
(d) Marking of Stores: The marking of the stores must comply with the requirement of the law relating to merchandise marks for the time being in force in force in India.

26. Corrupt Practices:

(a) The supplier shall not offer or give or agree to give to any person in the employment of the purchaser or working under the orders of Coal India Ltd. and/or its subsidiary companies any gift or consideration of any kind as an inducement or reward for going or forbearing to do or for having done or forborne to do any act in relating to the obtaining or execution of the contract or any other contract with the purchaser or for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other with the Purchaser. Any breach of the aforesaid condition by the supplier or any one employed by him or acting on his behalf (whether with or without the knowledge of the supplier) or the Commission of any offence by the supplier or by any one employed by him or acting on the behalf under Chapter IX of the Indian Panel Code, 1860 or the Prevention of Corruption Act, 1947 and any amendments thereto or any other Act enacted for the prevention of corruption by Public Servants shall entitle Coal India Limited and or its subsidiary companies to cancel the contract and all or any other contract with the supplier and to recover from the supplier the amount of any loss arising from such cancellation in accordance with the provisions of Clause 20.

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(b) Any dispute or difference in respect of either the interpretation effect or application of the above condition or of the amount recoverable, the re-under by the purchaser from the supplier shall be decided by Coal India Limited and its subsidiary companies whose decision shall be final and binding on the supplier.

27. Insolvency and Breach of Contract

a) Coal India Limited and or its subsidiary companies may at any time by notice in writing, similarly determine the contract without compensation to the supplier in any of the following events that is to say –

If the supplier being an individual or if a firm any partner thereof shall at any time be adjudged insolvent or shall have a receiving order or order of administration of his estate made against him or shall take any proceeding for composition under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or enter into any arrangements or composition with his creditors or suspend payment or if the firm be dissolved under the Partnership Act.

b) If the supplier being a company is wound up voluntarily by the order of a court or a receiver, Liquidating Manager on behalf of the Debenture-Holders is appointed or circumstances shall have arisen which entitles the court or Debenture-Holders to appoint a Receiver, Liquidator or Manager.

c) If the supplier commits any breach of the contract not herein specifically provided for – Provided always that such determination shall not prejudice any right of action or remedy which shall have accrued or shall accrue thereafter to the purchaser and provided also the supplier shall be liable to pay to the purchaser for any extra expenditure he is thereby put to and the supplier shall under no circumstances be entitled to any gain on repurchase.

28. Progress Report

a) The supplier shall from time to time render such reports concerning the progress of the contract and or supply of the stores in such form as may be required.

b) The submission, receipt and acceptance of such reports shall not prejudice the right of the purchaser under the contract, nor shall operate an estoppel against the purchaser merely by reason of the fact that he has not taken notice of or objected to any information contained in such report.

29. All disputes arising out of this contract shall be under the jurisdiction of Dhanbad /Jharkhand Court only and as per the "Law of the Land".

Tender Inviting Authority: GM (MM) BCCL HQ

Name of Work: Supply of 60 US ton (55 Metric Ton Approx) Rear Dumper

NIT No: BCCL/ PUR/419075/60T Rear Dumper /19-20/45 Date: 26.10.2019

Bidder Name: BEML Limited

TECHNICAL PARAMETER SHEET

S. No *	Item Code *	Description of Item *	Bidder's Eligibility Status	Specification Parameter *	Unit of Measure *	Evaluation Criteria (To be selected from drop down box in each cell) *	Required Value *	Bidder's value *	Eligibility		Remarks by bidder, if any
									Specification wise	Overall	
1	item1	60 US ton (55 Metric Ton Approx) Rear Dumper	0	Whether quoted or not quoted for this item?	NA	NOT NULL	NOT NULL	QUOTED	TRUE		
				"Schedule of Requirements" as per Annexure-A of NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Schedule of Requirements of Services" as per Annexure-A of NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Instructions to Bidders" as per Annexure-A of NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"General Requirements" as per Annexure-A of NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Scope of specification" as per "Equipment Specification" of Annexure-A of NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Design criteria" as per "Equipment Specification" of Annexure-A ofNIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Technical Specification- Engine" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Technical Specification- Transmission" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Technical Specification- Drive system" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Technical Specification- Suspension" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Technical Specification- Steering" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Technical Specification- Hoses" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Technical Specification- Brakes" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
				"Technical Specification- Service brakes " as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		

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"Technical Specification-Parking brake " as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- Retarder" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification-Tyre" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- Frame" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- Dump body " as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification-Fuel tank" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- Lubrication system" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- Operator's Cab" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE	COMPLIED	
"Technical Specification- Guages & Indicator" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- Warning Alarm/ lights" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- Electrical equipments" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- Lightings" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- Guard & shields" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- Fire Extinguishers" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- Ancillary equipment & other requirements " as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Safety features " as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		

"Special Guarantees" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Performance Guarantee" as per "Equipment Specification" of Annexure-A NIT	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- 7.1 General" as per Annexure-A NIT (details to be uploaded separetly in relevent upload section)	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- 7.2 Technical Details" as per Annexure-A NIT(details to be uploaded separetly in relevent upload section)	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
"Technical Specification- 7.3 Dimensions, weights and performance details" as per Annexure-A NIT(details to be uploadad separetly in relevent upload section)	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
Supplementary Items, Information and drawing, Erection, Assembly, Commissioning, Performance testing, and Training as per Scope of Supply of Annexure-A	NA	AGREED or DISAGREED	AGREE	AGREE	TRUE		
Do you have MSME status certificate for this item?	NA	YES or NO		NO	TRUE		
Do you have Ancillary status of BCCL certificate for this item?	NA	YES or NO		NO	TRUE		
Specify make and model:	NA	NOT NULL	NOT NULL	Make: BEML Model: BH50M	TRUE		
Specify Offered Quantity	NA	NOT NULL	NOT NULL	34	TRUE		

***TECHNICAL PARAMETER SHEET

***PLEASE ENTER THE DETAILS AS PER THE INFORMATION AND DOCUMENTS YOU HAVE W.R.T. YOUR OFFERED ITEM/S

BY TENDER INVITING AUTHORITY

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ANNEXURE-F 59/112

STANDARD TOOL KIT

Model : BH60M

SL NO	PART NO	DESCRIPTION		Q/E
1	451TI11007	SOCKET EXTN.BAR 1/2" SQ.DRIVE-125mm		1
2	935TI11799	QUICK COUPLER(FEMALE)		1
3	950TI02073	SOCKET STR		1
4	955TI11006	SPANNER WRENCH		1
5	955TI11014	PULLER SCREW		2
6	985TI01002	TOOL BOX		1
7	**990TI01074**	**SCREW DRIVER SET**		1
a	451TI11032	ENGG. PATTERN SCREW DRIVER - 5 X 75 MM	1	
b	990TI11329	ENGG. PATTERN SCREW DRIVER - 8 X 200 MM	1	
c	990TI11337	ENGG. PATTERN SCREW DRIVER - 10 X 300 MM	1	
8	**990TI01106**	**ADJUSTABLE SCREW SPANNER SET**		1
a	985TI11306	ADJUSTABLE SCREW SPANNER -250 MM LONG	1	
b	990TI11353	ADJUSTABLE SCREW SPANNER - 380 MM LONG	1	
c	997TI11098	ADJUSTABLE SCREW SPANNER - 300 MM LONG	1	
9	990TI11345	SLIDING T HANDLE 1/2" SQ.DR.		1
10	997TI11024	SLIDING T HANDLE - 3/4" SQ.DR.		1
11	JG9389	SOCKET STR.30T		1
12	**958TI02018**	**ALLEN KEY SET**		1
a	990TI11126	ALLEN KEY 3/8"	1	
b	990TI11118	ALLEN KEY 1/4"	1	
c	990TI11101	ALLEN KEY 7/32"	1	
d	990TI11094	ALLEN KEY 3/16"	1	
e	985TI11274	ALLEN WRENCH - 8MM	1	
f	985TI11282	ALLEN WRENCH - 6 MM	1	
g	985TI11777	ALLEN KEY 4mm	1	
13	**958TI02026**	**SOCKET 1/2" SQUARE DRIVE**		1
a	990TI11183	BI-HEX SOCKET 1/2"SQ.DRIVE 3/4"	1	
b	985TI11371	BI-HEX SOCKET 1/2"SQ.DRIVE 5/8"	1	
c	935TI11741	BI-HEX SOCKET 1/2"SQ.DRIVE 1/2"	1	
d	451TI11202	BI-HEX SOCKET 1/2" SQ. DRIVE 30MM	1	
e	451TI11186	BI-HEX SOCKET 1/2" SQ.DRIVE - 24 MM	1	
f	451TI11161	BI-HEX SOCKET 1/2" SQ.DRIVE - 19 MM	1	
g	985TI11809	BI-HEX/HEX SOCKET 1/2" SQ DR - 18 MM	1	
h	451TI11153	BI-HEX SOCKET 1/2" SQ.DRIVE - 17 MM	1	
i	985TI11793	BI-HEXAGONAL SOCKET 1/2" SQ DR - 16 MM	1	
j	451TI11145	BI-HEX SOCKET 1/2" SQ. DRIVE 14MM	1	
14	**958TI02034**	**BIHEXAGONAL/HEXAGONAL SOCKET SET**		1
a	958TI11017	3/4" SQ DR SOCKET 1 7/8"	1	
b	990TI11231	BI-HEX SOCKET 3/4" SQ.DR. - 1-1/2"	1	
c	985TI11914	3/4" SQ DR BI-HEXAGONAL SOCKET 32 MM	1	
d	985TI11882	3/4" BI-HEXAGONAL SOCKET 24 MM	1	
15	**958TI02042**	**SOCKET 1' SQUARE DRIVE**		1
a	985TI11939	BI HEX SOCKET 1" SQ DRIVE 46mm	1	

BEML LIMITED 9 FLOOR Unity Buildings J C Road BANGALORE-560002

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.,
बीईएमएल लिमिटेड BEML Limited
5 वीं मंजिल, यूनिटी बिल्डिंग्स, जे. सी. रोड
5th Floor, Unity Building, J.C. Road,
बेंगलूरु BENGALURU - 560 002

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SL NO	PART NO	DESCRIPTION		Q/E
16	955TI02023	DOUBLE ENDED OPEN JAW SPANNER SET		1
a	452TI11021	D.E.O.J. SPANNER - 36 X 41 MM	1	
b	451TI11097	D.E.O.J. SPANNER - 30 X 32 MM	1	
c	451TI11081	D.E.O.J. SPANNER - 24 X 27 MM	1	
d	955TI11103	D.E.O.J. SPAN - 21X23 MM	1	
e	955TI11096	D.E.O.J. SPAN - 20X22 MM	1	
f	955TI11088	D.E.O.J. SPAN - 18X19 MM	1	
g	955TI11071	D.E.O.J. SPAN - 16X17 MM	1	
h	955TI11063	D.E.O.J. SPAN - 14X15 MM	1	
i	955TI11055	D.E.O.J. SPAN - 12X13 MM	1	
j	955TI11047	DOUBLE ENDED OPEN JAW SPAN SET 10X11 MM	1	
17	955TI02031	RING SPANNER SET		1
a	955TI11177	RING SPANNER 12X13 MM	1	
b	955TI11185	RING SPANNER 14X15 MM	1	
c	955TI11193	RING SPANNER 16X17 MM	1	
d	955TI11209	RING SPANNER 18X19 MM	1	
e	955TI11217	RING SPANNER 20X22 MM	1	
f	958TI11033	RING SPANNER 1/2" X 9/16"	1	
g	955TI11169	RING SPANNER 10X11 MM	1	
18	935TI11425	T HANDLE		1
19	985TI11963	STEEL SCALE 12"		1
20	935TI02191	TYRE INFLATION KIT		1
21	787SS03024	PIN STR.		1
22	997TI11146	S.E.O.J. SPANNER - 55 MM		1
23	TX5167	PIN		2
24	CFP0108080	COTTER PIN		2
25	997TI11016	BI-HEX SOCKET 3/4" SQ.DR.-1 5/16 OR 3/4W		1
26	958BR11333	SCREW M20 X 2.5 - (BI-HEX SPECIAL)		8
27	958BR11877	BI-HEX SCREW (L=205)		4
28	958BR11382	NUT (FLANGED)		12
29	958BR11909	CLAMP (ASSEMBLY TOOL)		6
30	CFS0131225	SCREW HEX HD M12X25		12

नरेश कुमार NARESH KUMAR
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BEML LIMITED
beml
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ANNEXURE - G

FORMAT OF PERFORMANCE BANK GUARANTEE

1. Messers ---------- a company having Regd. Office /its office at ----------
----------hereinafter called the Seller has entered into a Contract No.----------dt.----------
--(hereinafter called the said Contract) with Bharat Coking Coal Limited having its Regd. Office (address to be given.....(hereinafter called , the Purchaser) to supply equipment on the terms and conditions in the said Contract.

It has been agreed that hundred percentage(100%) payment of the value of the equipment will be made to the seller in the terms of the said Contract on the seller furnishing to the Purchaser a Bank Guarantee for the sum of ---------- equivalent to 10 % of the value of each equipment and accessories dispatched by the seller as security for the due and faithful performance of the terms of the said contract and against any loss or damage caused to or would be caused to or suffered by the purchaser by reason of any of the terms or conditions contained in the said contract.

The---------- Bank having its office at ---------- has at the request of seller agreed to give the guarantee herein after contained.

2. We,---------- (Name of the Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demur merely on a demand from the purchaser stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the purchaser by reason of any breach by the said seller of any of the terms or conditions contained in the said contract or by reason of the seller's failure to perform the said contract. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. We shall not withhold the payment on the ground that the seller has disputed its liability to pay or has disputed the quantum of the amount or that any arbitration proceeding or legal proceeding is pending between purchase and the seller regarding the claim. However , our liability under this guarantee shall be restricted to an amount not exceeding ----------

3. We,---------- (Name of the Bank) further agree that the guarantee herein contained shall come into force from the date hereof and shall remain in full force and effect during the period of the said contract and that it shall continue to be enforceable till all the dues of the purchase under or by virtue of the said contract have been fully paid and its claim satisfied or purchase certified that the terms and conditions of the said contract have been fully and properly carried out by the said seller and accordingly discharged the guarantee .Unless a demand or claim under this guarantee is made on us in writing on or before the ----------(date to be given----------period of contract + 90 days from the date of Bank Guarantee) we shall be discharged from all liability under this guarantee thereafter.

4. We., (Name of the Bank) further agree with the purchaser ,that the purchaser , shall have the fullest liberty without our consent and without affecting in any manner no obligations hereunder to vary any of the terms and conditions of the said contract or to extend time of performance by the said seller(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the purchaser , against the said seller and to forbear or enforce any of the terms and conditions relating to the said contract and we shall not be relived from our liability by reason or any such variation or extension being granted to the said seller or for any forbearance act or omission on the part of the purchaser , or any indulgence by the purchaser to the said seller by any such matter or thing whatsoever which under the law relating to sureties would be for this provision have effect of an relieving us. The Bank further agrees that in case this guarantee is required for a longer period and it is not extended by the bank beyond the period specified above , the bank shall pay to this purchaser the said sum of ---------- or such lesser sum as may than be due the purchaser and as the purchaser may demand.

5. We ,---------- (Name of the Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the purchaser , in writing.

6. The Bank has under its constitution power to give this guarantee and Mr.----------Manager , who has signed it on behalf of the Bank has authority to do so.

7. This Bank Guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

[In case the BGs are from outstation branch of Dhanbad then BG shall be encashable at Dhanbad/Kolkata branch of issuing bank with address and location of the said branch at Dhanbad/Kolkata will be as under :

Name of the Bank :
Name of the Branch :
Location & address :

The BG shall be subject to the jurisdiction of the Civil courts Dhanbad District only.]

The Bank guarantee issued by the Bank on behalf of the supplier in favour of Bharat Coking Coal Limited, shall be in paper form as well as issued under " Structural Financial Messaging System". The detail of beneficiary for issue of BG under SFMS mode platform are furnished below:

Name of Bank : State Bank of India
Branch name : Main Branch Dhanbad
A/C no. : 35160317947
IFSC Code : SBIN0000066

OR

Name of Bank : ICICI Bank
Branch name : ICICI Bank, Dhanbad
A/C no. : 019605001057
IFSC Code : ICIC0000196
platform is furnished below:

Date---------- Day of ----------20

For ---------- Bank

Signature of the authorised person

for and on behalf of the Bank

Emp. Code.

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ANNEXURE-H

BH60M

REAR DUMP TRUCK

- High Performance
- Enhanced Productivity
- Increased Reliability
- Excellent Serviceability
- Exceptional Manoeuvrability
- Superior Operator Comfort
- Improved Safety

Max. payload	60 tonne (t)
Capacity (heaped) SAE/ISO 2:1	30.4 m³
Flywheel power (net)	485 kW/650 hp @ 2100 rpm

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.)
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BEML LIMITED * BENGALURE-560002 * V FLOOR Unity Buildings J C Road

www.bemlindia.com

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BH60M REAR DUMP TRUCK

Salient Features :

Performance

[illegible]

Productivity

[illegible]

Reliability

[illegible]

Serviceability

[illegible]

Manoeuvrability

[illegible]

Comfort

[illegible]

Safety

[illegible]

ENGINE

Make	Cummins
Model	KTTA 19-C
Type	Diesel, 4-stroke, 2 stage turbocharged and after cooled, direct injection water cooled

Flywheel power (Net)	485 kW(650hp)@2100 rpm
Maximum torque (Net)	2659 Nm (271 kgm) @ 1400 rpm

Cylinders

Bore & Stroke	Ø 159x159mm
Displacement	19.0 l

Electricals	Cummins
Alternator	24V, 75A
Starting motor	24V, 9 kW
Battery	2 x 12 V, 150Ah

POWER TRAIN

Transmission

AVTEC M5610A

AVTEC electronic shift control (ECS), TC 682 Torque Convertor, reverse and downshift inhibitor. Six Forward and two reverse speeds. Reverse is torque convertor drive. First gear has both convertor drive and direct drive. Gears second through sixth are direct (or maximum efficiency (convertor drive is used momentarily for smooth shifting).

Final Drive

Planetary final drive with full floating axle shafts and plug-in differential carrier assembly.

RATIOS :

Bevel set (differential)	:	3.85:1
Planetary	:	5.70:1
Total reduction	:	21.93:1
Maximum speed	:	56.73 km/h

Travel Speeds (km/h)

Range	1st	2nd	3rd	4th	5th	6th
Forward	9.5	14.2	16.2	28.2	38.1	56.7
Reverse		R1:-7.4		R2:-12.1		

STEERING SYSTEM

Orbitrol power steering control with pressure compensating steering pump and two double-acting steering cylinders. Front Hydrair suspensions serve as steering kingpins to provide excellent manoeuvrability. Automatic supplemental, accumulator steering is standard.

Turning circle radius	10.5 m
Vehicle clearance diameter	24 m
Steering pump capacity	85.9 l./min

STANDARD EQUIPMENT

[illegible]

OPTIONAL EQUIPMENT & ACCESSORIES

[illegible]

BEML LIMITED VINDOOR Unity Building J.C.Road BANGALORE 560002

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6 TYRES

Standard tyre	24 x 35, 48 PR (E-4)
Optional	24 R 35 (Radial)
Rim	17 x 33

BEML recommends the user to evaluate all job conditions and consult the tyre manufacture to make proper tyre selection

7 BRAKES

Front : Hydraulically actuated Rockwell calliper disc Braking Surface : 2,532 cm²

Rear : Oil-cooled hydraulically actuated multiple disc brakes provide both service and dynamic retarding. Brakes are sealed for protection from environmental contaminants. Braking Surface : 58193 cm²

Automatic emergency brake system : Unique designed brake control module constantly monitors brake pressure in the dual brake accumulators and will activate an audio - visual alarm if pressure on either accumulator drops below a tolerable level. If pressure should continue to drop, service brakes will automatically apply.

Manual emergency braking system : In the event of failure of the brake pedal, the service brakes can be manually applied by an operator switch located on the instrument panel.

Parking brake : Dry caliper disc-type mounted on axle input flange. Spring applied hydraulically released / Integral parking brake , the parking brake will automatically apply if hyd. pressure is lost.

Dynamic retarder : Constant speed retarder is provided by a separate foot pedal for the retarder function, allowing the operator to apply the retarder without removing his hands from the steering wheel. The foot operated valve controls the hydraulically actuated oil-cooled wet disc brakes on the rear axle.

Wheel brake lock : Controlled by a switch on control panel activates and locks brakes while loading and dumping.

8 SUSPENSION

Hydrair : Variable rate independant oil pneumatic suspension cylinders with integral rebound control. Suspension stroke front and rear is 276 mm.

Load/Deflection rate	Front	Rear
Empty (kg/cm)	637	435
Loaded (kg/cm)	2401	24385

9 SYSTEM REFILL CAPACITIES

System	Capacity (l)
Engine lube oil	49.2
Cooling systems	181.7
Fuel tank	770
Hydraulic tank	360
Transmission (sump plus ext. filters, lines, etc...)	79.6
Final drive	212.2
Front spindle grease (EP-2)	13 kg

10 BODY

ROCK TYPE

V-shaped body with single-slope flat floor provides optimum carrying capacity and smooth, controlled dumping. Wide horizontal bolsters provide rigid support for the high tensile, heat-treated steel side. Bolt on body rubber pads cushion prevents the frame from loading shocks and are easily replaceable. Pivot exhaust heating is standard.

Material	Thickness
Floor Plates	20 mm
Front Plates	12 mm
Side Plates	10 mm
Volumetric Capacity	
Struck Capacity	26.0 m³
Heaped Capacity (SAE/ISO) 2:1	36.4 m³

11 CABIN

Integral ROPS cabin, engineered to provide superb working comfort, excellent visibility and maximum production efficiency. Features include tinted safety-glass, fully adjustable operator's seat with seat belt, fresh air fan, insulation for sound and temperature control, convenient gauge arrangement, left and right hand external mirrors and sun visor.

12 MASS

Net vehicle mass	43,500 kg
Rated payload	54,500 kg
Gross vehicle mass	98,000 kg

Mass distribution	Empty (kg)	Loaded (kg)
Front axle	21,385	33,040
Rear axle	22,115	64,960

13 FRAME

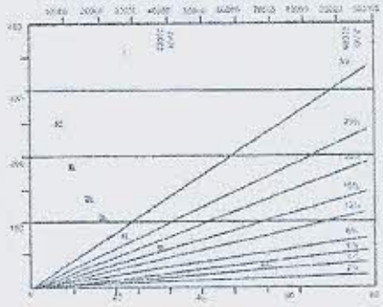
Box section main rails, proportioned to accommodate relative behind and torsional loads, are connected by tubbular cross members, an integral front bumper and rugged, continuous horse collar. Cross member to frame joints use large radii to minimise stress. The frame rails and other structural plates are fabricated from high yield strength steel. Castings at the rear cross members incorporate the body pivot, body-up pins and rear suspension strut pivot, as well as the panhard rod attachment.

14 BODY HOIST

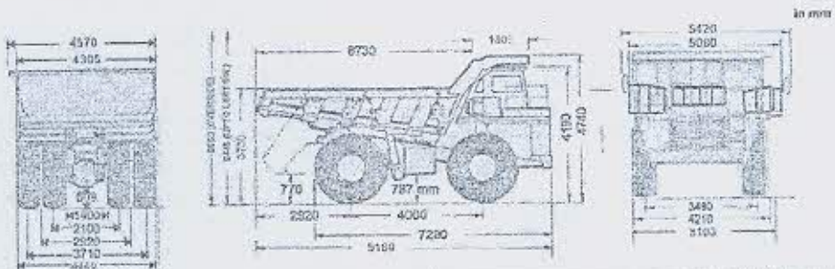
Twin , two-stage hydraulic cylinders mounted outside frame rails for accessibility. Electro-hydraulic control provides quick response. Hydraulic system has dual full-flow, remote-mounted filters.

Pump capacity	316 l / min
Relief valve setting	18.98 Mpa (193.34 kg/cm²)
Body raise time	13±2 seconds

15 PERFORMANCE



How to use this chart :
1. Enter chart at gross vehicle weight.
2. Determine total resistance (grade in percent plus rolling resistance).
3. Connect point on weight scale with point on total resistance scale and project it to tractive effort scale effort scale. Read required tractive effort.
4. Read horizontally from required tractive effort to intersect to appropria...



Materials & specifications are subject to change without notice. Illustrations may include optional equipment & accessories

TECHNICAL SPECIFICATIONS

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बी ई एम एल लिमिटेड

BEML LIMITED

Corporate Office | International Business Division | Marketing Division | Global Service HQ

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Form No. BH60M/001/01.2012

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Represented by :

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BEML LIMITED
V FLOOR
Unity Buildings
J.C. Road
BANGALORE-560002

Rear Dump Truck

ANNEXURE-I

Model: BH60M Dumper

Rehabilitation Schedule *(Tentative)*:

Assembly	@ Hours / Year
Engine	15000-17000 / 4th / 5th Year
Transmission	15000-17000 / 4th / 5th Year
Final Drive	15000-17000 / 4th / 5th Year
Differential	15000-17000 / 4th / 5th Year

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.
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BEML LIMITED
bemi
V FLOOR
Unity Buildings
J.C. Road
BANGALORE-560002

KTTA19C_BH60M_gross and net curve with SFC.xls

BH60M, KTTA19C, rated 700 HP @ 2100 RPM														
Engine speed, rpm	Gross Torque (Lb-ft)	Gross Torque (N-m)	Gross Power HP	Gross Power kW	Torque rise, %	Accessory power, HP (Fan)	Accessory power, HP (Alt)	Total Acc. Power HP	Net power, HP	Net power, kW	Net Torque, N-m	Gross SFC lb/ bhp-hr	Gross SFC gms/ kW-hr	Net SFC gms.kW-hr
2100	1751	2374	700	522	15%	48	2	50	652	486	2212	0.342	208	223
2000	1805	2448	687	513		41	2	43	646	482	2300	0.338	206	219
1900	1870	2536	676	505		36	2	38	641	478	2402	0.331	201	212
1800	1903	2580	652	487		30	2	32	622	464	2461	0.33	201	210
1700	1934	2623	626	467		25	2	27	601	448	2516	0.33	201	209
1600	1962	2660	598	446		21	2	23	576	430	2566	0.33	201	208
1500	1987	2694	567	423		17	2	19	550	410	2611	0.33	201	207
1400	2014	2731	537	400		14	2	16	523	390	2659	0.331	201.25	207
1300	1965	2665	486	363		11	2	13	475	354	2602	0.34	206.72	212
Production tolerence : Within + - 5 %														

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg)
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BEML LIMITED
V FLOOR
Unity Buildings
J C Road
BANGALORE-560002

KTTA19C_BH60M_gross and net curve with SFC.xls

CUMMINS INDIA LIMITED	Basic Engine Model	Ref.Curve No.:	
Kothrud , Pune 411038	KTTA19C	P-4524	
ENGINE PERFORMANCE CURVE FOR KTTA19C	CPL	Date	By
	951	Sep-12	

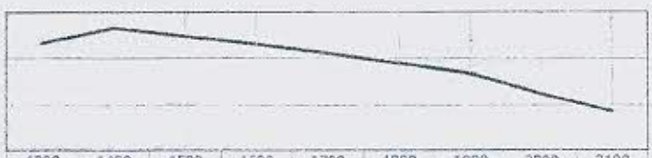
Displacement Cu.In (lts): 1,150(18.9 L)	Aspiration: Turbocharged and Aftercooled	No. of Cylinders : Six, In-line
Bore, Inch (mm) : 6.25(159)	Stroke, Inch (mm) : 6.25(159)	Fuel System : PT, Mechanical

GROSS POWER- kW

	1300	1400	1500	1600	1700	1800	1900	2000	2100
Gross Power kW	363	400	423	446	467	487	505	513	522

SPEED, RPM

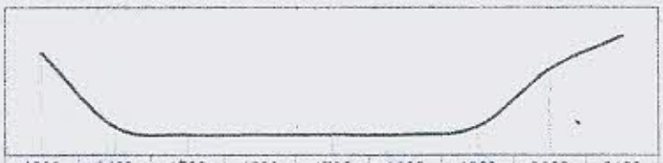
GROSS TORQUE (N-m)



	1300	1400	1500	1600	1700	1800	1900	2000	2100
Gross Torque N-m	2665	2731	2694	2660	2623	2590	2536	2448	2374

SPEED, RPM

GROSS SPECIFIC FUEL CONSUMPTION (gms/kW-hr)



	1300	1400	1500	1600	1700	1800	1900	2000	2100
Gross Bsfc gms/kw-hr	206.72	201.248	201	201	201	201	201	206	208

SPEED- RPM

Notes: Production Tolerence : Within + / 5 %

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KTTA19C_BH60M_gross and net curve with SFC.xls

CUMMINS INDIA LIMITED	Basic Engine Model	Ref.Curve No.:	
Kothrud , Pune 411038	KTTA19C	P-4524	
ENGINE PERFORMANCE CURVE FOR KTTA19C	CPL	Date	By
	951	Sep-12	

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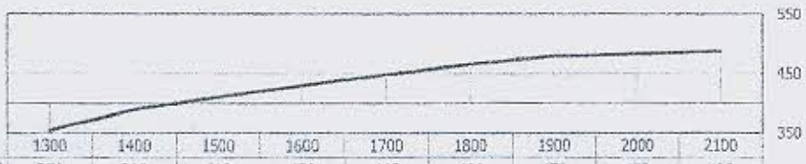
Bore, Inch (mm) : 6.25(159)	Stroke, Inch (mm) : 6.25(159)	Fuel System : PT, Mechanical

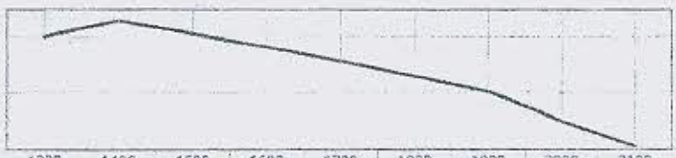
NET POWER- kW



	1300	1400	1500	1600	1700	1800	1900	2000	2100
NET Powe kW	354	390	410	430	448	464	478	482	486

SPEED-RPM

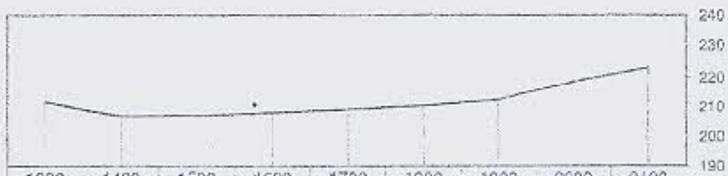
NET TORQUE (N-m)



	1300	1400	1500	1600	1700	1800	1900	2000	2100
NET Torque N-m	2602	2659	2611	2566	2516	2461	2402	2300	2212

SPEED-RPM

NET SPECIFIC FUEL CONSUMPTION (gms/kW-hr)



	1300	1400	1500	1600	1700	1800	1900	2000	2100
Net Bsfc gms/kW-hr	212	207	207	208	209	210	212	219	223

SPEED- RPM

AS PER ISO 9249 CONDITIONS

Notes: Production Tolerance : Within + / 5 %

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Date: 09th Dec 2019

NIT NO : BCCL/ PUR/419075/60T Rear Dumper /19-20/46 dt 26.10.2019

SELF CERTIFICATE

This is to certify that the Central Motor Vehicles Rules, 1989 for the exhaust emissions do not apply to the off-Highway vehicles adopted for use in any enclosed premises, factory or mine other than road network.

Cummins Engine Model KTTA 19 C used on BEML BH 60 Dump Truck is used on Off-highway Mining application and hence does not come under the ambit of emissions as per govt. regulations.

However, the KTTA 19 C engine complies with the pre-Euro -1 emission Standards for Light-Duty Diesel Engines

EXHAUST EMISSIONS DATA

Test Cycle: ISO 8178, D1 – 8 Mode

Weighted mass emissions expressed as g/kW-h

Emissions Component	Test Result	CMVR Limit
NOx (Oxides of Nitrogen as NO_2)	13.76	18.00
HC (Total Unburned Hydrocarbons)	0.39	3.50
CO (Carbon Monoxide)	2.80	14.00
Smoke (@ 60% load over the torque curve)	12 HSU	75 HSU

TEST CONDITIONS

Emission data was recorded on development engine during steady-state rated engine speed (± 25 RPM) with load in ± 2 % and at less than 2 meters from engine exhaust

Fuel Specification:	ASTM D975 commercial No. 2-D diesel fuel
Fuel Temperature:	99±9 °F (37±3 °C) (at fuel pump inlet)
Intake Air Temperature:	77±9 °F (25±3 °C)
Barometric Pressure:	29.53 in Hg (100 kPa)
Back Pressure:	2 in. Hg (76.2 mm. Hg) above the mentioned barometric pressure
Air Inlet Restriction:	15 in. H_2O (381 mm. Hg) below the mentioned barometric pressure

[illegible]

Raju . P. Virkar
General Manager Marketing
Power system Business Unit

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[illegible] Head Manager (Mktg.)
[illegible] Limited
5 [illegible], [illegible], [illegible]
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Cummins India Limited
Registered Office
Cummins India Office Campus
Tower A, 7th Floor, Survey No. 21, Balewadi
Pune 411 045 Maharashtra, India

ANNEXURE-J 71/112

Model: BH60M Dumper

Maximum speed determined according to ISO 6014:	56.7 Kmph

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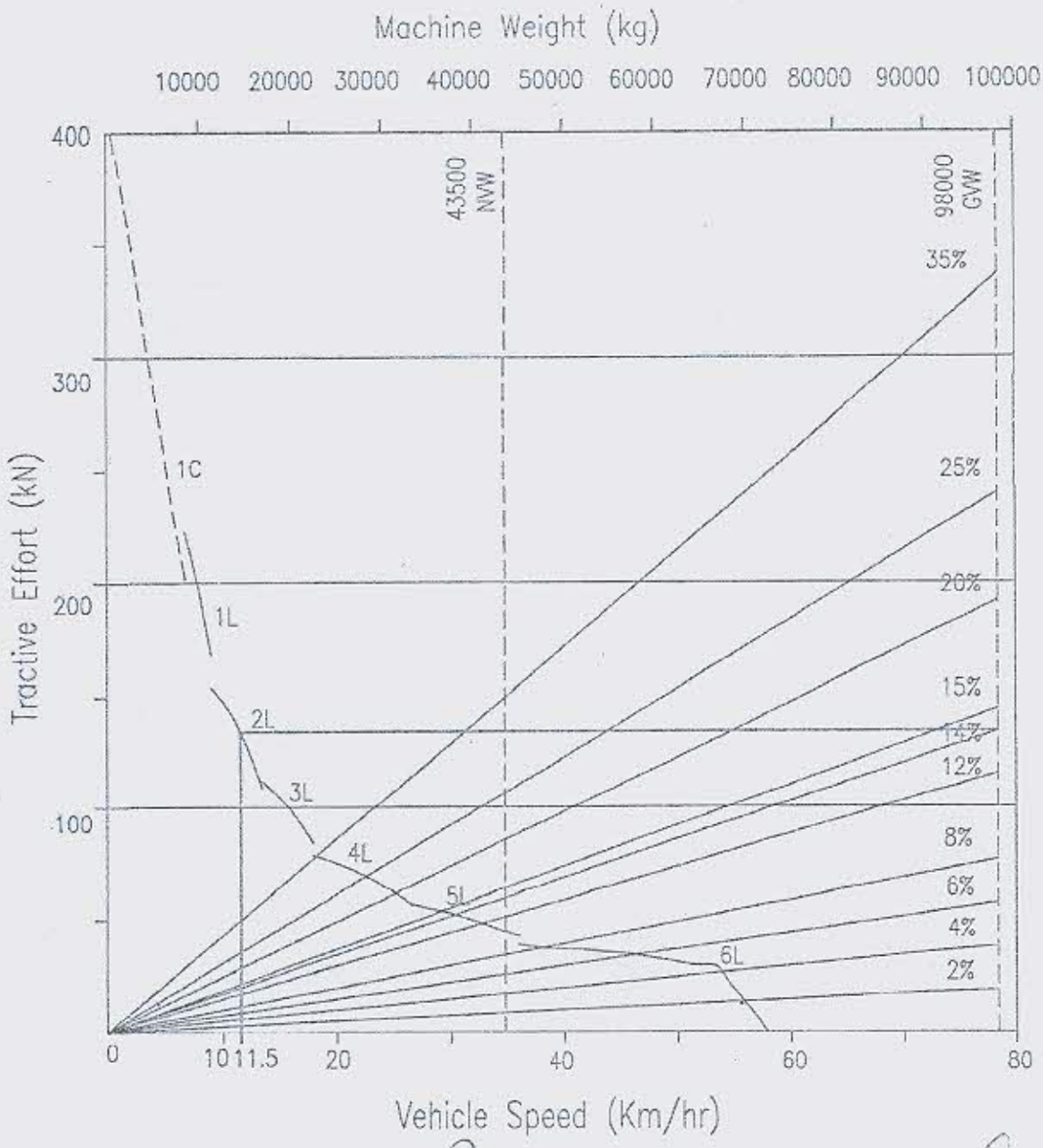
Gradeability/Speed/Rimpull of BH60M

Engine	:	KTTA 19C
Axle Ratio	:	5.7:1
Total Reduction Ratio	:	21.93



How to Use this Chart:

1. Enter Chart at (GVW).
2. Determine Total resistance,(grade in percent plus rolling resistance).
3. Connect point on weight scale with point on total resistance scale and project it to tractive effort scale. Read required tractive effort.
4. Read horizontally from required tractive effort to intersect to appropriate speed.

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DYNAMIC RETARDING CHART

BH60M REAR DUMP TRUCK

ENGINE KTTA 19C
TRANSMISSION: AVTEC M6610A

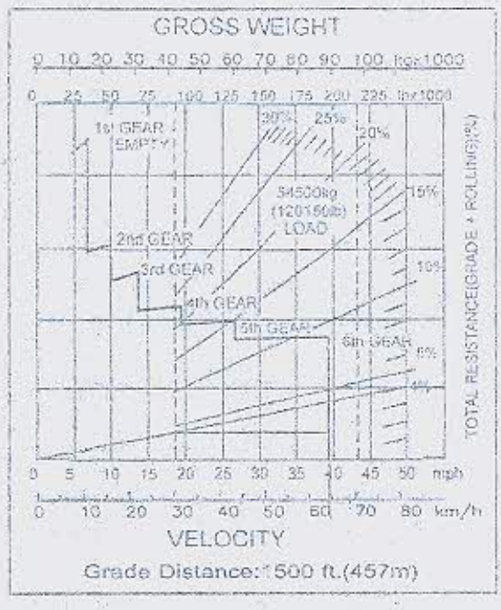
TOTAL REDUCTION: 21.93:1
TIRE SIZE: 24x35–48PR(E–4)

To use standard retarding charts for oil cooled brakes:

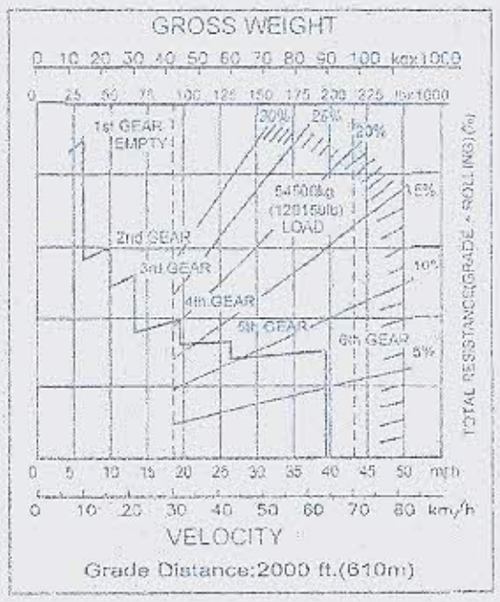
1. Select The Proper Chart by adding the lengths of all downhill segments of the haulage profile
2. Determine The Gross Weight and locate on the horizontal scale at the top of the chart.
3. Select The Grade to be considered. Effective grade is the percent favorable grade minus the percent rolling resistance.
4. Determine The Retarding Force by dropping a vertical line from the gross weight to its intersection with the diagonal effective grade line.
5. Read The Maximum Speed on the grade by projecting a horizontal line from the retarding force point to its intersection with the appropriate gear section of the curve. Read vertically to the speed on the horizontal scale at the bottom of the chart.

Note: The above procedure may be used to determine the minimum retarding capability on the typical downhill profiles. For unusual applications, contact BEML Marketing Division.

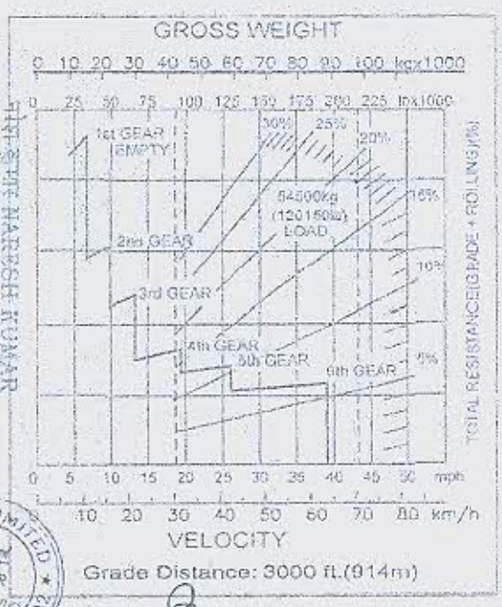
When retarding, engine RPM should be maintained at the highest possible level without overspeeding. If cooling oil overheats, reduce ground speed to allow transmission to shift to next lower gear.



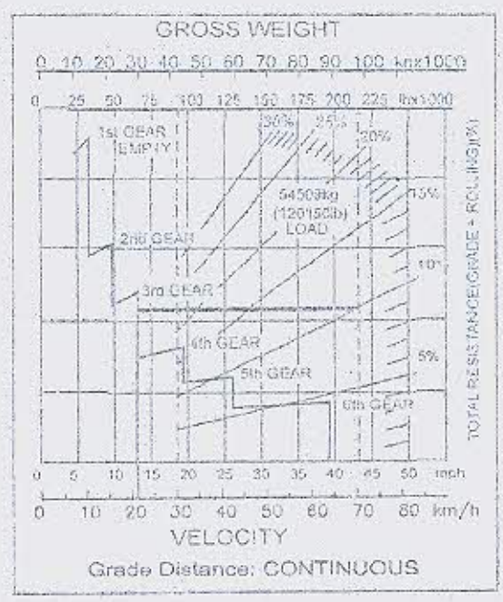
Grade Distance: 1500 ft.(457m)



Grade Distance: 2000 ft.(610m)



Grade Distance: 3000 ft.(914m)



Grade Distance: CONTINUOUS

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BRAKE TEST – BH60M DUMPER

Results of Service & Secondary Brake stopping Tests carried out according to ISO 3450:

Brake System Tested	Slope (%)	Machine Speed (km/h)	Stopping distance (m)
Service	9	50	47.00
Secondary	9	25	20.60

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Model: BH60M Dumper

Turning diameter as defined in clause 3.2 of ISO 7457:	21 m

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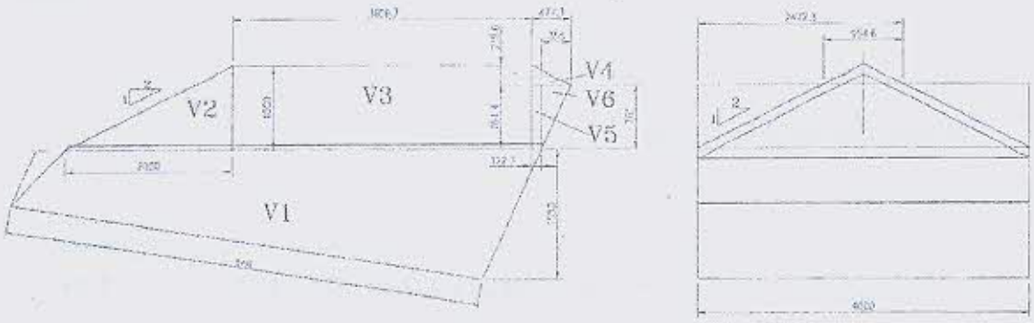
VOL CALC OF BH60M BODY.

(1550ht AND 4000 WIDTH)

WITH 2:1 HEAP



V1=V STRUCK= AW-V(corner)

= 6.58115x4.00-0.4 = 26.3246-0.4 = 25.9246m^3

V HEAP=V2+V3+V4+V5+V6

V2 =	1/3 X 2 X 1 X 4	= 2.6667m^3
V3 =	1/2 X 3.6057 X 1 X 4	= 7.2134m^3
V4 =	1/3 X 0.2386 X 0.4773 X 0.9546	= 0.0362m^3
V5 =	0.1223 X 0.7614 X 2.4773	= 0.2307m^3
V6 =	A X L - 0.13515 X 2.4773	= 0.3348m^3

(A=1/2 X 0.0355x0.0761, L= 4000, 954.6)

V HEAP = 10.4818m^3

TOTAL V = STRUCK V + HEAP V.

= 25.9246 + 10.4818 = 36.4064m^3

WITH EFFECTIVE OF 1.5METRIC TON/m^3=36.4064 X 1.5 = 54.61 METRIC TON.

(EFFECTIVE OF DENSITY = 1.8METRIC TON/m^3x 0.83 FILL FACTOR = 1.494METRIC TON/$m.^3$)

BODY:
Target Area : 6425 x 4000 mm^2
Depth : 1550 mm^2

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DETAILED TECHNICAL DESCRIPTION OF BH60M REAR DUMP TRUCK

BEML, BH60M Dumper model is designed for 60 Ton payload capacity is diesel powered, self propelled, wheeled mechanical rigid frame rear dumper with following configuration.

POWER TRAIN:

Powered by Direct injection, 4-stroke diesel engine model KTTA19C Engine which is compact engine for better accessibility and serviceability.

Fitted with remote mounted AVTEC, M6610A model power shift hydraulic transmission with Electronic Control system (ECS), torque converter, lock-up clutch and reverse inhibitor. The trim booster ensures smooth shifting both at high idle and low idle. Also transmission is provided with two reverse gears for higher productivity.

Heavy duty planetary axle with anchor structure and completely sealed oil cooled wet multiple disc forms the best power train combination.

BRAKES:

The equipment is provided with dry calliper disc brake on the front axle and oil cooled wet multiple disc brakes on rear axle. The rear brakes also act as retarder. Brake application is through highly reliable all hydraulic system.

Automatic emergency braking feature is provided. Uniquely designed brake control module which constantly monitor brake pressure in the dual brake accumulators and will activate an audible and visible alarm, if pressure on either accumulator drops below tolerable level. If pressure continues to drop, service brakes will be automatically applied. Rear brakes are completely sealed to be free from dust and water contaminants. Rear wheel brake lock is provided through a switch on control panel for locking brakes while loading and dumping.

HYDRAULICS:

Hydraulic system consists of one tandem pump and one energy conserving variable piston pump. The tandem vane pump provides oil for hoist operation and brake cooling. The piston pump provides oil for steering and brake application through accumulators.

The equipment is provided with orbitrol power steering control with pressure compensating steering pump and two double acting steering cylinders .Front hydrair suspension serves as steering king pins to provide excellent maneuverability. Automatic emergency steering feature is provided as standard through steering accumulators.

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SUSPENSIONS:

The frame is suspended on four independent hydro-pneumatic suspension cylinders with integral rebound control for excellent riding comfort.

FRAME:

The equipment is built on a lab tested/field proven frame structure of ladder type design with deep box section construction frame rail with integral bumper cross member and rugged continuous circular horse collar. Castings at the rear cross member incorporate the body pivot, body up locking pins and rear suspension strut pivots as well as the pan -hard rod arrangement. The frame is built with special alloy steel and is designed to take integral ROPS cabin mounting.

BODY:

V-shaped body with single slope flat floor provides optimum carrying capacity and smooth controlled dumping . The body is built up with high tensile strength, high hardness abrasion resistant plates with rugged bolster, sill construction. Body pivot exhaust arrangement is provided for exhaust heated body as standard. The rock body and coal body are interchangeable.

Body is provided with spill guard to protect the tyres from spillage and canopy structure protecting the operator's cab. Body hoisting is through two nos. twin stage hydraulic cylinders. Heavy duty body guide structure is provided to ensure proper alignment of body.

TYRES:

The equipment is provided with 24.00 x 35 - 48 PR tubeless rock grip tyres of reputed make.

CABIN:

Equipment is fitted with deluxe interior fully enclosed sound suppressed integral **ROPS Air conditioned cabin** with tinted glass, rear view mirror, wind shield washer and wipers for superb working comfort.

Logically located instrument panel with controls and easy to read parameters on LCD display /symbols/ diagnostic message to enhance operator's efficiency. Brake oil temperature, engine coolant temperature, hour meter, speedometer, tachometer, fuel level and voltmeter are provided to monitor real time vehicle parameter.

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CENTRALISED AUTO LUBE SYSTEM:

Centralised auto lubrication system of injector type distribution is provided on equipment. If there is any stoppage of flow of lubricant to lube points due to non operation of the pump or blockages, the fault indicator lamp and alarm will be activated to warn the operator. The pumps are designed for intermittent operation to provide regular pre programmed lubrication cycle as per operational requirement.

GENERAL:

Parking brake inter lock ensures that gear shifting from neutral position does not takes place while parking brakes are on, to enhance brake life and avoid fire hazards.

Reverse inhibition feature is provided, which prevents equipment reversing while body hoisting operation. However reverse movement is possible after completing hoist operation.

The equipment is provided with mechanical over speed governor and manual operated throttle pedal for idling.

Over center valve in hoist circuit prevents damage and sudden jerks to the hoist cylinder as they approach maximum extension and the weight of the load is at the rear edge of the dump body.

Electric system operated with 24V & all equipment control system are interfaced with colour coded high quality wire harness, four head lights, fog lamps, combination lamps, turn signal lights, battery isolation switch, back up lights and back up alarm. Alternator of 24V, 75 amps rating is provided for battery charging.

Drive line protector, fan guard, engine belly guard, transmission belly guard, hand rails and large convex rear view mirror are provided as safety features. Rock ejectors are provided between rear tyres.

The equipment is provided with portable extinguisher of dry chemical powder ABC type.

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DESCRIPTION OF HYDRAULIC SYSTEM OF BH60M DUMPER

Hydraulic system consists of Hoist, Steering, Brake cooling and Brake circuits. Common Hydraulic tank supplies oil for the entire system.

Two numbers of Pumps are used for the complete system, one number of tandem pump supplies oil to Hoist and Brake cooling and one number of Piston Pump supplies oil to Steering & brake system.

Shaft end of Tandem Pump supplies oil to Hoist Valve. "Hoist Valve" is a four position valve with float, lower, hold and raise position. Hoist Valve is actuated hydraulically through a solenoid operated pilot valve, provided in the auxiliary manifold. In the auxiliary manifold, pressure reducer valve is provided, which takes oil from steering accumulator, reduces pressure from 2750 psi to 125 psi for supplying to solenoid operated pilot valve. When the Hoist Valve is actuated, body hoisting and lowering functions are carried-out through two stage Hoist Cylinders.

Over center valve is provided between Hoist Valve and Hoist Cylinder. Over center valve prevent damage to the Hoist Cylinders as they approach maximum extension and the weight of the load is at the rear edge of the dump body. Auxiliary manifold also contain parking brake solenoid and pressure switches.

Oil from the cover end of the pump is routed through second filter. The filtered oil is combined with return oil from the hoist valve, which is also filtered and is routed to rear brake, to cool the rear brakes.

A portion of the oil leaving the cooler is routed to the inlet of the Piston Pump. The piston pump is provided with inbuilt pressure compensator, set at 2750 psi. The piston pump supplies oil to three accumulators through check valves. One accumulator is for steering, remaining two accumulators for rear and front brake system. Oil from the steering accumulator is routed to steering control valve through an inline filter. When the steering valve is operated, oil is supplied to steering cylinders, for steering function. In case of emergency oil is automatically supplied to steering control valve from the accumulator for carrying-out emergency steering function.

Oil from the rear and front brake accumulators is routed to low pressure detection module. The low pressure detection module contains emergency brake apply valve, set at 1650 psi, manual bleed down valve and shuttle valves. Part of the oil going to low pressure detection module, from the front brake accumulator is routed to retarder valve. Oil from the retarder valve is routed to rear brakes for rear brake actuation. Oil from the low pressure detection module is routed to brake module. The brake module consisting of brake lock solenoid, steering bleed down solenoid and shuttle valves. Bleed down solenoid is provided to drain the oil from steering accumulator, when the engine is shut down and the key switch is turned "off". Oil from the brake manifold is supplied to right/ left brake treadle valves for actuating the front/rear brakes.

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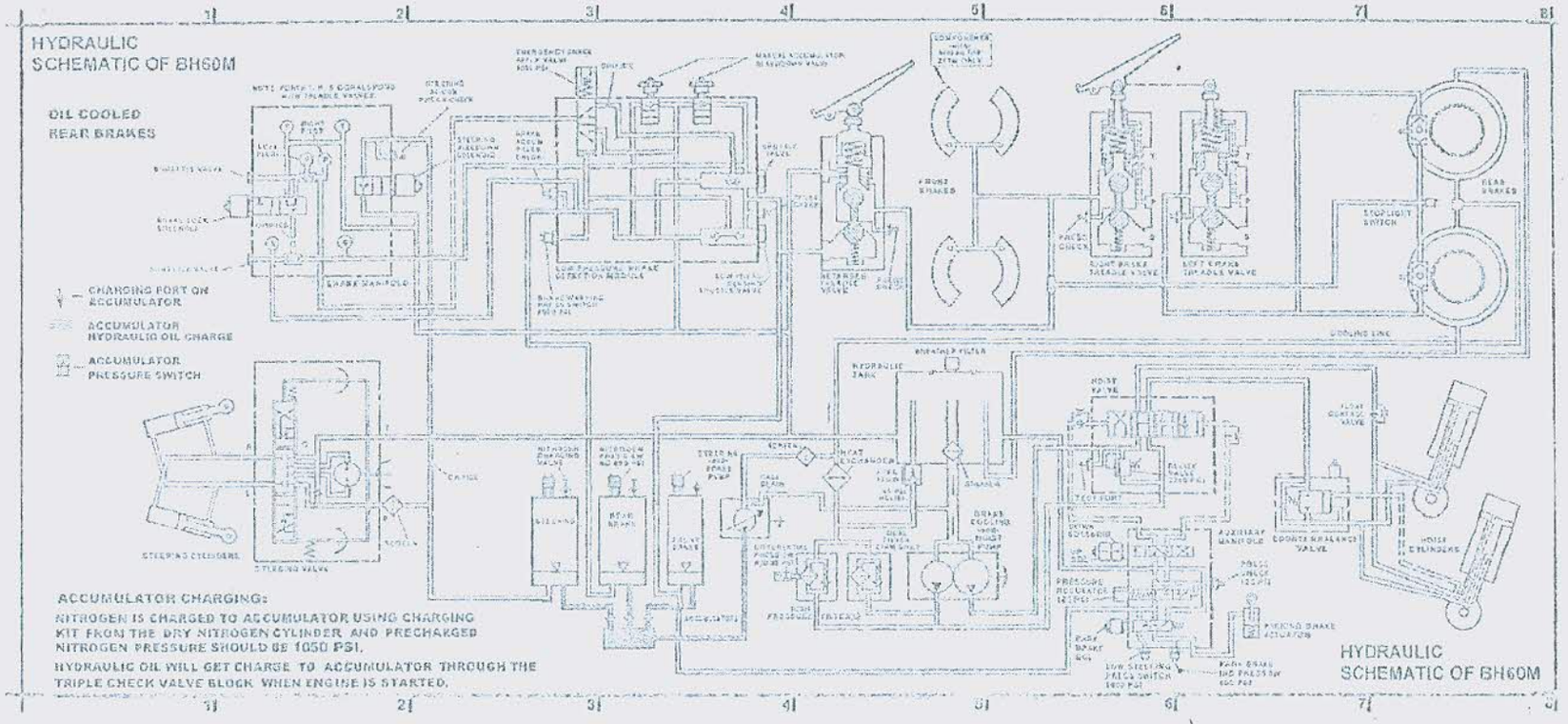

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DESCRIPTION OF AUTO LUBRICATION SYSTEM FOR BH60M DUMPER

It is a Single line parallel Centralized Lubrication System which feeds lubricant to various lubricating points on equipments both reality & economically.

OPERATION:

The operation is fully automatic it consists of flow master pump, vent valve, timer, pressure switch, injectors, tubing, fittings & accessories. The master flow pump used in the lubrication system is an electrically operated grease pump & operates on 24 dc power supply available in the equipment. The pump is driven by rotary motion through an accentric crank mechanism. The reciprocating action causes the pump cylinder to move up and down. The working pressure ranges from 130 – 240 bars.

The lubrication system is monitored by means of pressure switch provided along with the pump. The pressure required to charge all the injectors is set in the pressure switch. Signal from the pressure switch is used for control of the pump run and off times.

The sequence of operation of the lubrication system is controlled by a timer. The run time, pause time & other adjustment can be set in the timer. During run time power supply is maintained to the pump and the vent valve by the timer, the pump is in operation & the injectors are charged with set amount of grease. The power supply to the pump & vent valve is cut off by the timer as soon as the set pressure is reached and sensed by the pressure switch and vent valve opens. This causes the grease pressure in the line to relieve back to the reservoir through vent valve assembly. Once the grease line pressure relieves, the injectors will dispense the lubricant to the points and get ready for charging in the next cycle.

SPECIFICATIONS:

- Reservoir capacity 20 litres
- Lubricant operating pressure 130 – 240 bars
- Lubricant output – Adjustable from 0.13cc to 1.33 cc/stroke

---------- X ----------

BEML LIMITED V FLOOR Unity Buildings J.C Road BANGALORE-560002

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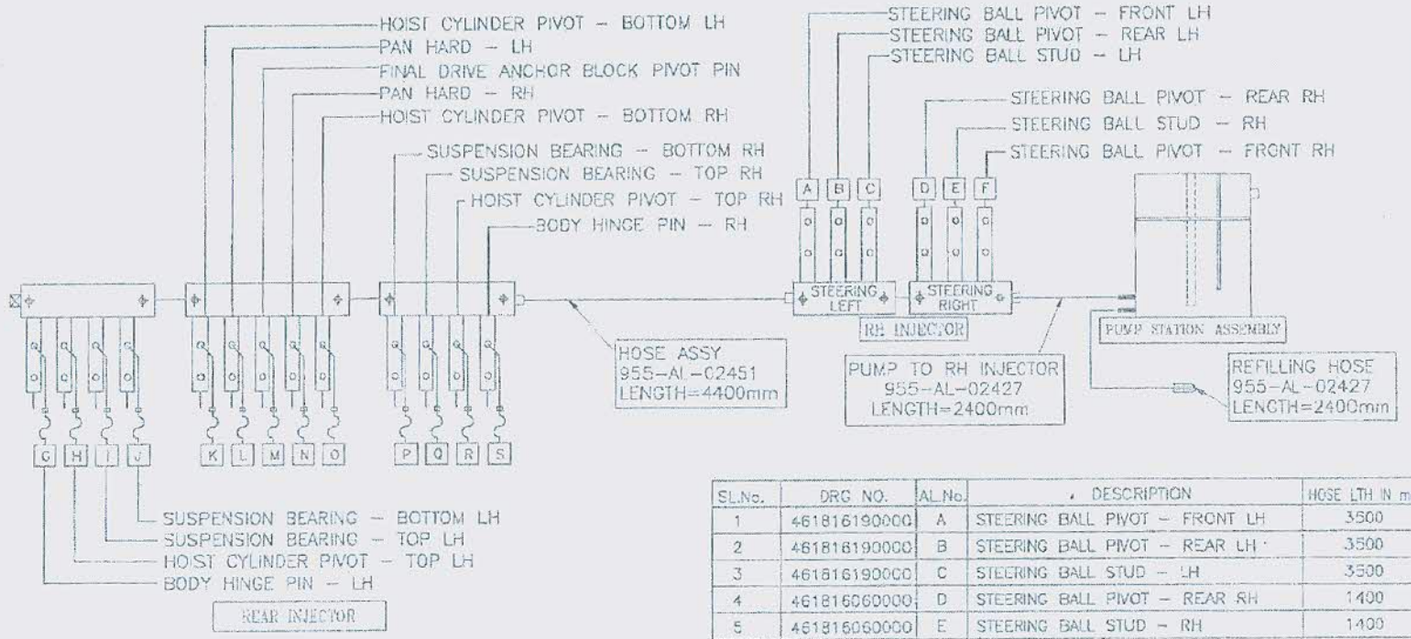
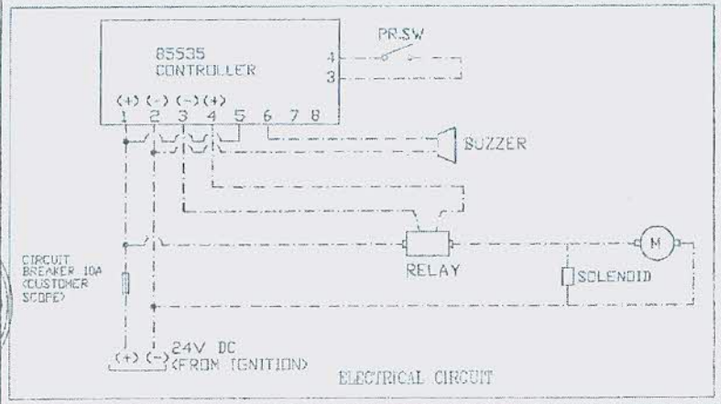
BH60M AUTO-LUBRICATION SYSTEM FOR ELECTRICALLY OPERATED INJECTOR TYPE





ELECTRICAL CIRCUIT

SL.No.	DRG NO.	AL.No.	DESCRIPTION	HOSE LTH IN mm
1	461816190000	A	STEERING BALL PIVOT – FRONT LH	3500
2	461816190000	B	STEERING BALL PIVOT – REAR LH	3500
3	461816190000	C	STEERING BALL STUD – LH	3500
4	461816060000	D	STEERING BALL PIVOT – REAR RH	1400
5	461816060000	E	STEERING BALL STUD – RH	1400
6	955 AL 02468	F	STEERING BALL PIVOT – FRONT RH	2000
7	461816040000	G	BODY HINGE PIN – LH	1200
8-a	955 AL 02131	H-a	HOIST CYLINDER PIVOT – TOP LH	1900
8-b	787 AL 02064	H-b	HOIST CYLINDER PIVOT – TOP LH	1000
9	461816030000	I	SUSPENSION BEARING – TOP LH	1100
10	787 AL 02072	J	SUSPENSION BEARING – BOTTOM LH	1300
11	461816190000	K	HOIST CYLINDER PIVOT – BOTTOM LH	3500
12	461816040000	L	PAN HARD – LH	1200
13	461816130000	M	FINAL DRIVE PIVOT PIN (A/BLOCK)	2500
14	461816010000	N	PAN HARD – RH	700
15	461816190000	O	HOIST CYLINDER PIVOT – BOTTOM RH	3500
16	787 AL 02072	P	SUSPENSION BEARING – BOTTOM RH	1300
17	461816030000	Q	SUSPENSION BEARING – TOP RH	1100
18-a	955 AL 02131	R-a	HOIST CYLINDER PIVOT – TOP RH	1900
18-b	787 AL 02064	R-b	HOIST CYLINDER PIVOT – TOP RH	1000
19	461816040000	S	BODY HINGE PIN – RH	1200

PRAVIN KUMAR NARESH KUMAR
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8.3 Dimensions, Weights and Performance Details:-

NIT Requirement	BEML Response
8.3.1 Dimensions	
a) Maximum overall length	9.18 m
b) Maximum overall width	5.42 m
c) Maximum height, without body	4.19 m
d) Maximum height, with body	4.74 m
e) Loading height	3.73 m
f) Dump height	8.445m
g) Discharge height	0.770 m
h) Maximum body depth	1.55 m
i) Body target area (inside length and width at top)	6730 mm X 4000 mm
j) Wheelbase	4.06 m
8.3.2 Weight Distribution	
a) Empty vehicle	
Front axle	21385 Kgs
Rear axle	22115 Kgs
Total	43500 Kgs
b) Loaded vehicle	
Front axle	33040 Kgs
Rear axle	64960 Kgs
Total	98000 Kgs
8.3.3 Engine	
a) Manufacturer and model	KTTA19C
b) Number of cylinders	6
c) Bore	159 mm
d) Stroke	159 mm
e) Displacement	19.0 liters
f) ISO net power at.....r/min	485 kw (650 hp) @ 2100 rpm
g) Maximum torque	2659 Nm(271 Kg-m) @ 1400 rpm
8.3.4 Transmission	
a) Make and Model	Make : AVTEC Model: M6610A
b) Type	Power shift automatic (AVTEC) transmission with ECS
c) Number of gear speeds, forward and reverse	Travel speeds: Forward: 6 & Reverse: 2
d) Travel speeds, forward and reverse	Travel speeds: Forward 1st 9.5 Km/h 2nd 14.2 Km/h 3rd 18.2 Km/h 4th 28.2 Km/h 5th 38.1 Km/h 6th 56.7 Km/h Reverse : 1st 7.4 Km/h 2nd 12.1 Km/h

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8.3.5 Differential	
a) Type & Make	Type: Plug-in differential, Make: BEML
b) Ratio	3.85 : 1
8.3.6 Final Drive	
a) Type & Make	Type: Planetary final drive, Make: BEML
b) Ratio	5.70 : 1
8.3.7 Suspension	
8.3.7.1 Front	
a) Type & Make	Type: Frame mounted hydro-pneumatic with integral rebound control, Make: BEML
b) Stroke	276 mm
c) Load - deflection rate, loaded and empty	Loaded: 2401 Kg/cm & Empty: 637 Kg/cm
8.3.7.2 Rear	
a) Type & Make	Type : Axle mounted, inverted hydro-pneumatic with integral rebound control, Make : BEML
b) Stroke	276 mm
c) Load - deflection rate, loaded and empty	Loaded : 24385 Kg/cm & Empty : 435 Kg/cm
8.3.8 Steering	
a) Type & Make	Type: Orbitrol full time power steering. Steering Control Unit, Make: EATON
b) Emergency steer method	Automatic emergency steering through accumulator is provided. Make: BEML
8.3.9 Brakes	
8.3.9.1 Service brakes: Make & Model	BEML & BH60M
8.3.9.1.1 Front	
a) Type	Dry type Disc Caliper
b) Actuating system	All hydraulic actuated.
8.3.9.1.2 Rear	
a) Type	Wet multiple disc brake
b) Actuating system	All hydraulic actuated
8.3.9.2 Secondary brakes	
a) Type	Either Front or Rear brakes independently meets the secondary braking requirement.
b) Actuating system	Actuating System: Actuation is automatic and a manual control switch is provided.
8.3.9.3 Parking brake	
a) Type	Wet multiple disc inboard in Rear axle
b) Actuating system	Spring loaded hydraulically released and will automatically apply whenever hydraulic pressure is low.
8.3.9.4 Retarder	
a) Type	Wet multiple disc brake
b) Actuating system	Hydraulically actuated
8.3.10 Tyres	
a) Make	JK / Apollo / Goodyear / MRF / CEAT / BKT
b) Size and type	24.00 x 35, E-4 type, tubeless
c) Tread	Deep tread Rock grip
d) Ply rating	48 PR
e) Rim size	17 x 35

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8.3.11 Hydraulic System	
a) Make & model, number, flow rates, operating pressures of pumps	**Make:** VELJAN formerly known as DENISON Make, **Model:** BH60M, 1 No. Tandem Vane Pump for Hoist/Brake, **Flow Rate :** 316 ltr/min, Operating Pressure-193.34 Kg/sqcm (18.96 Mpa) **Make :** Rexroth , **Model:** BH60M, 1 No. Axial Piston Pump for Steering, **Flow Rate :** 85.9 Lit/min, Operating Pressure- 193.34 Kg/sqcm(18.96 Mpa)
b) Make & model, number, piston diameters, stroke lengths of cylinders	**Make :** BEML **Model:** BH60M, 2 Nos for Hoist Cylinder **Cylinder** **Piston** **Stroke** 1st 165.10 mm 880.36 mm 2nd 95.25 mm 880.36 mm **Make :** BEML **Model:** BH60M, Steering – 2 nos double acting cylinder. Piston dia: 50.80 mm, Stroke : 381 mm
c) Relief valve operating pressures	Relief valve operating pressures : 193.34 Kg/sq cm (18.96 Mpa)
8.3.12 Electrical System	
a) Starter make and model	Make : Deloc remy/ Remy Electricals (India) Ltd., Model : R50
b) Starter control make and model	Reputed make & 4 POSITION SWITCH
c) Alternator make and model	Make : Deloc Remy/Remy Electricals (India) Ltd. & Model : 33SI
d) Batteries, numbers and rating	2 Nos 12V, 160 Ah. sealed maintenance free batteries of HBL make / reputed make is provided
e) Lighting details.	Lighting details: Following Lights have been provided: 4 No. Head lights. 4 No. Turn signal lights LED type 2 No. Tail and stop lights LED type 2 Nos. Back up light 1 No. Cabin lamp 1 No. Centralized warning lamp 2 No. Fog lamps

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DESCRIPTION OF AUTO FIRE PROTECTION SYSTEM FOR BH60M DUMPER:

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 pressurized 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 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 and 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.

General lay-out of the system is enclosed.

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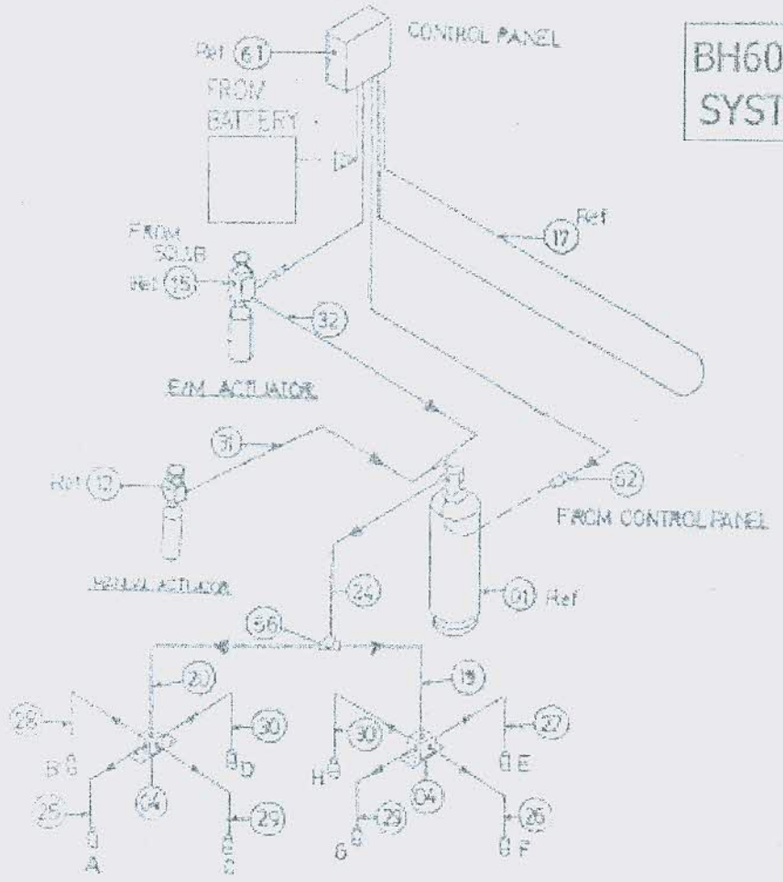
BH60M AUTO FIRE PROTECTION SYSTEM - SCHEMATIC DIAGRAM



NOZZLE 'A' IS AIMED TO SCREEN THE RH SIDE OF THE ENGINE.

NOZZLE 'B' IS AIMED TO SCREEN THE LH SIDE OF THE ENGINE.

NOZZLE 'C' IS AIMED TO SCREEN THE TURBO-CHARGER.

NOZZLE 'D' IS AIMED TO SCREEN THE TRANSMISSION.

NOZZLE 'E' IS AIMED TO SCREEN THE FUEL TANK AND POWER TAKEOFF

NOZZLE 'F' IS AIMED TO SCREEN THE HYDRAULIC TANK.

NOZZLE 'G' IS AIMED TO SCREEN THE PARKING BRAKE/TRANSMISSION.

NOZZLE 'H' IS AIMED TO SCREEN THE FINAL DRIVE.

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भारत सरकार /GOVERNMENT OF INDIA
श्रम एवं रोजगार मंत्रालय
MINISTRY OF LABOUR & EMPLOYMENT
खान सुरक्षा महानिदेशालय
DIRECTORATE GENERAL OF MINES SAFETY

No. S 29023/108/2008/S&T (HQ)/ 581 Dhanbad, dated 12/7/ 2013

From:
Director of Mines Safety (S&T),
DGMS, Dhanbad - 826001.

To:
Shri M. R. Bhaskar, Director,
M/s Southern Electronics (Bangalore) Private Ltd.,
No. 16-A, Peenya Industrial Area,
Phase –I, Peenya, Bangalore - 560 058.

Subject: Fire fighting and fire suppression systems including automatic fire detection and suppression systems to be used in HEMMs, materials and chemicals to be used in fire fighting or suppression systems in mines both on surface and belowground including oil and gas mines/fields.

Sir,

I am enclosing herewith a copy of DGMS (Approval) Circular No. 02 dated 8th July, 2013 on the above subject which is self explanatory.

As mentioned at para 4.0 of this circular, no specific approval will be required from this Directorate in this regard.

For your ready reference, a copy of this circular has also been published in DGMS web site www.dgmsindia.in.

Should you have any further clarifications, you may contact this Directorate any time.

Yours faithfully,

12/7/13

Director of Mines Safety (S&T)

Encl.: As above.

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GOVERNMENT OF INDIA
MINISTRY OF LABOUR & EMPLOYMENT
DIRECTORATE GENERAL OF MINES SAFETY

No. DGMS (Approval) Circular No. 02 dated, Dhanbad, 8th July '2013

To

All Owners/Agents/Managers of Coal Mines and Oil & Gas Mines/Fields.

Subject: Fire fighting and fire suppression systems including automatic fire detection and suppression systems to be used in HEMMs, materials and chemicals to be used in fire fighting or suppression systems in mines both on surface and belowground including oil and gas mines/fields.

Sir,

1.0 Through a Gazette notification vide No. 35 dated New Delhi, August 24th – August 30th, 2008 in Part - II, Section 3, sub-section (i) vide GSR 159, the subject matter of fire fighting and fire suppression systems including automatic fire detection and suppression systems to be used in HEMMs, materials and chemicals to be used in fire fighting or suppression systems in mines both on surface and belowground including oil and gas mines/fields, was brought under the approval regime of this Directorate from 1st November, 2008. Since then, many approvals have been accorded by this Directorate to various manufacturers of such fire fighting and fire suppression systems for being used in mines.

2.0 In order to simplify the matter of introduction and maintenance of proper fire fighting and suppression systems in mines so as to enable the mining industry to design appropriate Safety Management Plans, a Technical Workshop on "Fire Fighting Systems and Arrangements in Mines" was held on 17/8/2011 at DGMS, Dhanbad. The workshop was well attended by representatives of user mines, manufacturers and scientific organizations like CIMFR & ISM and many issues connected to the subject viz-a-viz fast changing mining technology in the country with import of latest mining machinery etc., were deliberated upon leading to better understanding.

3.0 In view of the technical workshop held and the experience gained till date on the subject, it is recommended that "all types of fire fighting and fire suppression systems including automatic fire detection and suppression systems to be used in HEMMs, materials and chemicals to be used in fire fighting or suppression systems in mines both on surface and belowground including oil and gas mines/fields shall conform to the following minimum requirements";

a) All types of fire fighting and fire suppression systems including automatic fire detection and suppression systems to be used in HEMMs, materials and chemicals to be used in fire fighting or suppression systems shall have valid test certificate(s) from any Government or Government approved Laboratory in compliance with relevant Indian Standards.

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b) All materials used in the fire fighting/fire suppressant systems shall be non-toxic and in no manner harmful to human beings during handling and use.

c) The high pressure storage vessels and hoses, if used with fire fighting and fire suppressant systems, shall conform to the requirements stipulated in the relevant Indian Standards.

3.1 As provided under Regulation 181(3) of the Coal Mines Regulations 1957, Regulation 73(1) of the Oil Mines Regulations, 1984 and the earlier published GSR 159 vide Gazette notification No. 35 dated New Delhi, August 24th – August 30th, 2008 in Part - II, Section 3, sub-section (i), the requirements stipulated at para 3.0 on the above subject is considered as approved by the Chief Inspector of Mines by this general order for the purpose. A fresh Gazette notification in this regard vide GSR 443(E), in Part - II, Section 3, sub-section (i) of Extraordinary Gazette Notification No. 315, dated New Delhi, Friday, June 28, 2013 has already been published for information and necessary compliance.

4.0 All Owners/Agents/Managers of Coal mines, oil and gas mines/fields are therefore, advised to ensure strict compliance with this circular in respect of all types of fire fighting and fire suppression systems including automatic fire detection and suppression systems to be used in HEMMs, materials and chemicals to be used in fire fighting or suppression systems in mines both on surface and belowground including oil and gas mines/fields. It may be noted that no specific approval will be required from this Directorate in this regard.

8.7.13

(Rahul Guha)
Director General of Mines Safety.

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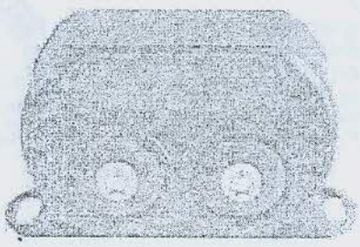
AUDIO VISUAL ALARM

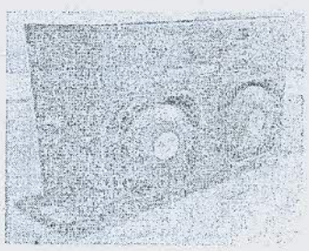
The Audio-Visual alarm is provided at the rear of the vehicle which is actuated by a switch when the reverse gear is used by the operator. The unit is housed in a case which is shock and vibration resistant.

Two fail safe synchronized speakers are provided in the Audio-Visual alarm. Dual Pizzo-Buzzer of 110 dB gain at 1.2 meter distance. Two buzzers are arranged in such a way that if there is fault in any one of the buzzers other will keep working without any problem. The unit is sealed completely to prevent unauthorized tampering.

The sound of the Audio Visual Alarm is more than the surrounding noise level so that it can be heard distinctly. The sound level Audio Visual Alarm is around 110 dB.

Red bright LED of sufficient quantity is provided in the Audio-Visual alarm and starts blinking when the vehicle is reversed.





Typical Audio Visual Alarms

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Govt. of India
भारत सरकार
Ministry of Labour and Employment
श्रम एवं रोजगार मंत्रालय
Directorate General of Mines Safety
खान सुरक्षा महानिदेशालय

सत्यमेव जयते

सं० DGMS (Approval)/AVA/ 01. धनबाद, दिनांक 29.02.2012

सेवा में
खान मालिक, अभिकर्ता, और प्रबन्धक,
कोल एवं मेटालिफेरस माइन्स ।

Sub : Audio visual Alarm for surface transport Machinery & other Heavy earth Moving Machinery.

Vide Circular No DGMS(Approval)/AVA/01 dated 25.05.2010, the standards for audio-visual alarms for surface transport Machinery & other Heavy earth Moving Machinery to be used in mines was circulated. However several queries are being raised on the status of approval of above item granted prior to 25.05.2010.

This is to inform that for using audio-visual alarms in the mine, the standards as stipulated vide Circular No DGMS(Approval)/AVA/01 dated 25.05.2010 have not changed and the audio-visual alarms complying with the specified standard shall be considered as approved by the Chief Inspector of Mines by a general order as provided in the Gazette Notification No. Gazette of India vide GSR no 144 dated 22nd July 2008.

The user industry are required to ensure that standard set Vide Circular No DGMS(Approval)/AVA/01 dated 25.05.2010 are met by suppliers and strict quality control is maintained as per the standard specified.

It is also necessary that inspection and maintenance of audio-visual alarms as specified in Circular No DGMS(Approval)/AVA/01 dated 25.05.2010 are also strictly complied with.

खान सुरक्षा महानिदेशक 28/2/12

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J.C. Road
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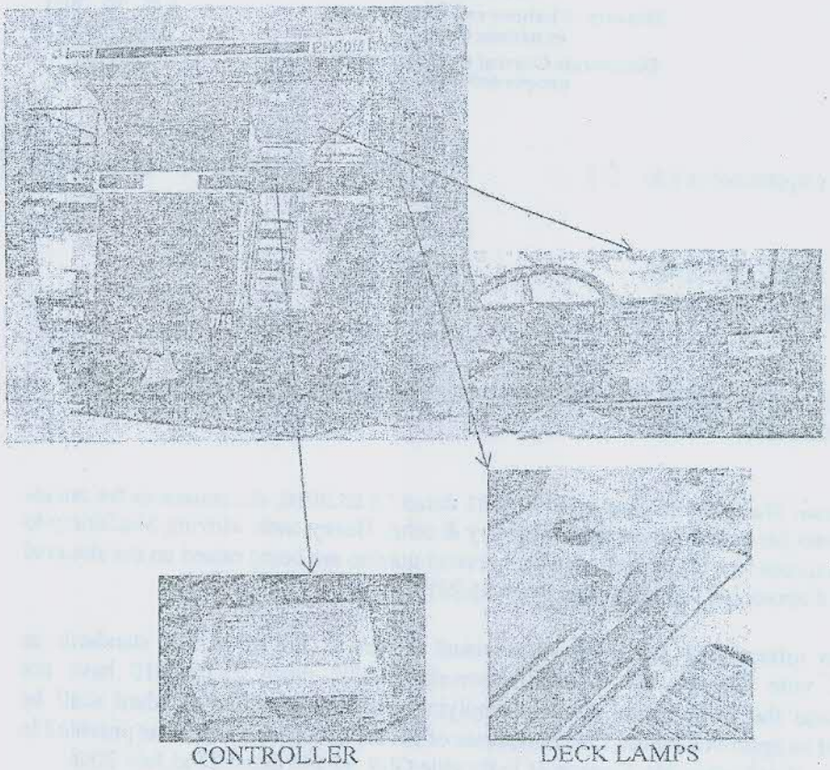
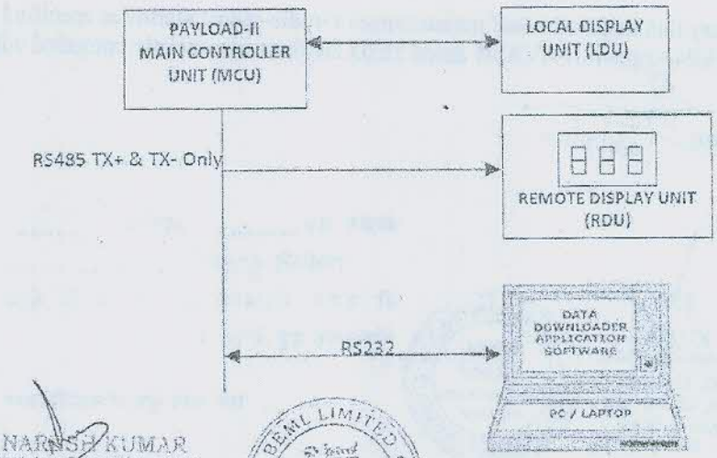
आपका सं० ..... दिनांक .....
प्रतिलिपि सूचनार्थ .....
की जाकर [illegible] के बीच
परिचालन हेतु प्रेषित ।

कृते खान सुरक्षा महानिदेशक

PAY LOAD MONITORING SYSTEM (PLMS):



A. BLOCK DIAGRAM:



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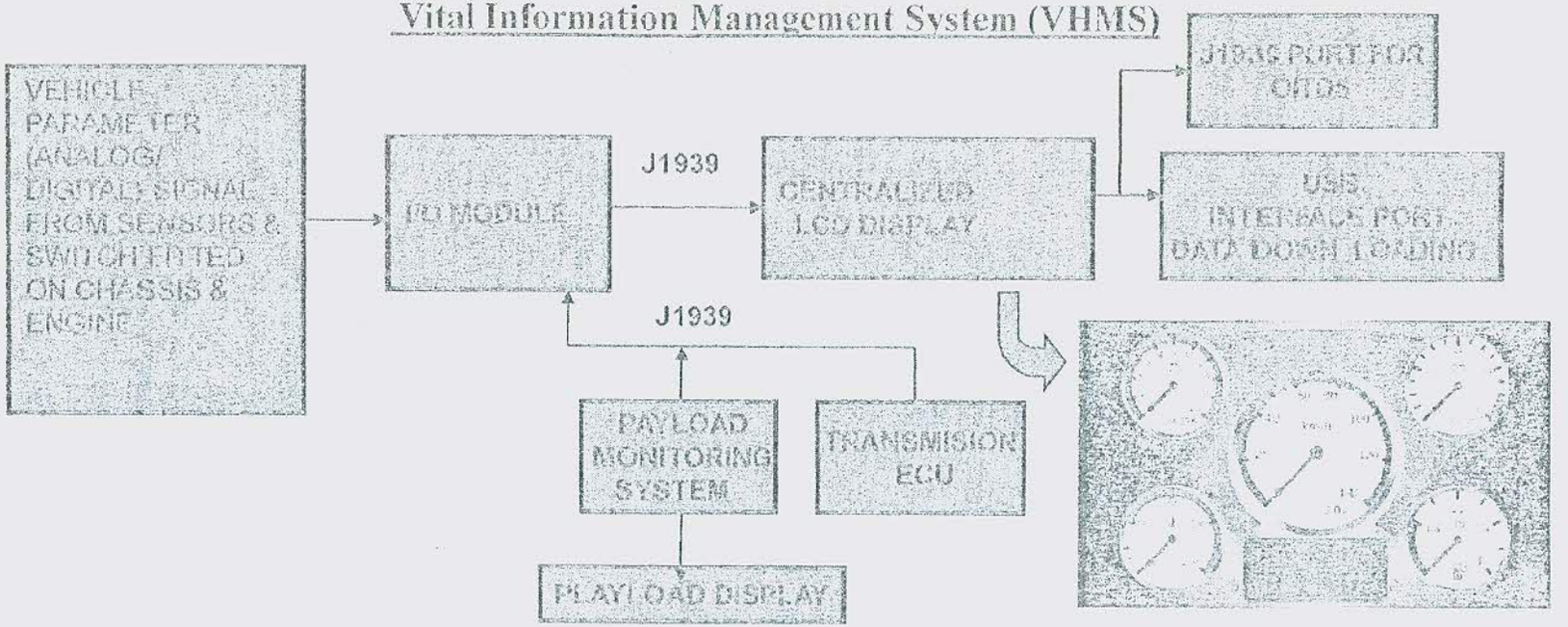
B. PRINCIPLE OF OPERATION:

- On-board payload monitoring system consists of a microcontroller based electronic unit, pressure sensors fitted on vehicle suspensions and Deck lamps.
- Vehicle load is reflected on pressure variation in four hydraulic suspensions. Based on this, individual load appearing on each suspension is computed and added to get total payload.
- In addition, parking brake and float signals are sensed to ensure proper load measurement and display only when it is in parked condition.
- An intelligent algorithm has been formulated to reduce uncertainty of payload measurement considering vehicle structure and loading pattern.
- The system alerts both shovel operator and dumper operator upon overload thro' a set of deck lamps and audio-visual warning.

C. SALIENT FEATURES:

- Provides on-line, on-board payload data
- Quick coupling for pressure sensors
- Deck lamp to indicate load status
- Records following data
  a. Trip no/weight with date/time
  b. Cycle time (load, haul, stop, dump, return ,stop total)
  c. cycle distance (Haul, return & total)
  d. Haul speed (MAX/ AVG)
  e. Return speed (MAX/AVG)
- Password protected reset facility
- Indicates no. of overload trips
- Self-diagnostic for pressure sensor status
- Payload display only when equipment is parked

Vital Information Management System (VHMS)



The centralized LCD Electronic Dash board system is used on dumper trucks to monitor, display and stores the vehicle health condition . The system will accept/read data from Engine, transmission and vehicle chassis parameters (from I/O module) through J1939 CAN bus and displayed the real time vehicle critical parameter values on LCD display screen and Also provides the audio/visual warning to operator in event any abnormality of parameter values

The following are feature of the system

1. CAN based centralized LCD display with fully module design .
2. Provision to interface truck dispatch system.
3. Data recording to find the causes for catastrophic failure and also to reveal the abuse of equipment in spite of warning.
4. Data downloading facility to Pen drive
5. Payload monitoring system to display real time load carrying values
6. Common J1939 port for OITDS (optional)

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LIST OF LUBRICANTS BH60M DUMPER

SLNO.	TYPE OF LUBRICANT/ GREASE	SPECIFICATION	Initial 250 Hours	Change Interval	Refill capacity	Unit of Measure	IOCL	BPCL	HPCL	CASTROL	BALMER LAWRIE
1	ENGINE OIL	SAE15W40 API CH4 / SJ		500	49.20	Litre	Servo Pride 15W-40 CH4	Mak 15W-40 CH4	HP Milcy 15W-40 CH4	RX Super Max 15W-40 (API CH4)	EXCELTURBO CH-4 15W-40
2	HYDRAULIC OIL	C4-SAE-30	Change	1000	360	Litre	Servo transmission C4-SAE30	MAK TO4 SAE 30	HP X3 30 KLT	Castrol TFC 30	Protomac C4 SAE30
3	TRANSMISSION OIL	C4-SAE-30	Change	1000	79.60	Litre	Servo transmission C4-SAE30	MAK TO4 SAE 30	HP X3 30 KLT	Castrol TFC 30	Protomac C4 SAE30
4	FINAL DRIVE & DIFF OIL	GEAR OIL GRADE SAE140 GL140(GD SAE 140)	Change	1000	212.2	Litre	Servo Gear SM 140	MAK Spirol EP 140	HP gear oil EP140	Axle oil 140	HP 140 spl
5	SUSPENSION (INDIVIDUALLY 14LTRS-RS 17.5LTRS-FS)	OIL HYDRAULIC, ANTI WEAR VG-68		4000	63	Litre	Servo system HVLP 68	Mak Hydrol 63	HP 68	Hyspin Heavy duty 68	Protomac T Series VG68
6	GREASE FOR JOINTS	NLGI-2 (EP-2)		10	As reqd.	Kg.	Servo grease FG EP2	Mak Lanthax EP2	HP EP2	Spheerol EP2	Liprex EP2
7	GREASE FOR FRONT AXLE	GREASE SC-HT 2		5000	13	Kg.	SERVO SC-HT 2	MAK SC-HT 2	HP Grease SC-HT 2	Optitemp HT2	BALMEROL SC-HT 2
8	GREASE FOR ENGINE OUTPUT SHAFT	GREASE MOLEX M-032		3000	0.5	Kg.	Servo Grease Molex	MAK Moly grease	HP Moly grease	Moly grease	Balmerol Moly grease

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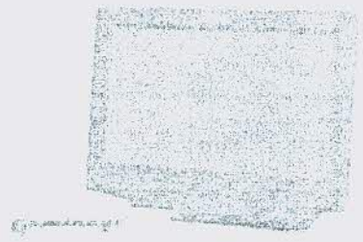
Technical specification of Rear view camera

Rear vision system consists of colour camera, colour monitor and the connecting cables. The monitoring system has a rugged construction and reliable for use on heavy earth moving machinery. System is designed to work efficiently in all sorts of environmental conditions like moisture, dust, vibration, heat and cold.

When the key switch is ON the system starts and the power is available to the monitor and the monitor shall be in standby mode. The monitor is automatically turned ON when the gear shift lever is in reverse position. The specification of monitor is detailed below:-



FA7000 – Gemineye™ 7.0" LCD Color Monitor (Integral Controller)

- 7.0" widescreen LCD color monitor with built in controller features volume contrast, brightness, day/night, mirror imaging control & camera 1 or 2 selection
- Automatic camera selection via trigger wire (when reverse gear or relevant control engaged)

Screen Size:	7" color
Voltage:	12-24 VDC
Power consumption:	7W
Audio:	Yes
Mirror/normal image switch:	Yes
Weight including stand:	1.2 lbs
Dimensions:	5.13(H) x 7.0(W) x 1.08(D)
Operating temp:	+14°F to +140°F
Day/night sensor:	Yes

C2000 – Standard Color Camera

- Audio
- 18 IR LEDs provide high definition night vision
- Light Sensor: Auto switches to black & white image in low light conditions
- Aluminum alloy housing

Resolution (pixels):	500(H) x 582(V)
Power consumption:	≤2W
Mechanical vibration:	8G
Image:	1/4" Sony CCD
Lens angle:	110 (diagonal)
Weight:	9 lbs
Dimensions:	3.19(H) x 3.15 (W) x 2.41(D)
Operating temp:	-22°F to +149°F
Plug:	4 pin
IP rating:	IP68

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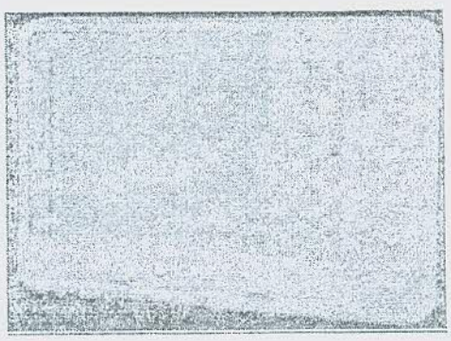
Brigade Model Number: VBV-770-000



Product Specification

Environmental Specifications:
- Shock Rating: 100 G
- Vibration Rating: 4 G (All 3 axis each 32hr random)
- Connector IP Rating: IP40
- Monitor IP Rating: IP30
- Operating Temperature: -30° to +70 °C
- Storage Temperature: -30° to +85°C

Approved Standards:
- CE - (EN 61000-6-2:2007 / EN 61000-6-3:2007)
- 'E' Mark - (ECE Regulation 10 Rev 04)
- FCC - (47 CFR Part 15 Subpart B)
- HALT
- RoHS
- WEEE

Technical Specifications:
- Operating Voltage: 12 / 24 Vdc
- Current Consumption: ≤ 1.5A @ 12Vdc
- Power Consumption: ≤ 18W @ 12Vdc
- TV System: PAL / NTSC
- Display Size: 7.0" (diagonal)
- Resolution: 800 x (RGB) x 480
- Contrast Ratio: 500:1
- Brightness: 400 cd/m²
- Speaker Rating: 8Ω @ 1 Watt
- Monitor Dimensions: (Without Sunshield)

195.5 mm (W) x 25.5 mm (D) x 117.5 mm (H)
- Monitor Weight: Approx. 500 Grams
- Video Input Impedance: 1.0 Vp-p / 75Ω
- Power / Trigger Cable Thickness: 18 AWG
- Cable Length:

- Monitor Pigtail: 900 ± 30mm
- Cable Adapter: 1800 ± 50mm
- Casing Material: ABS Plastic
- Finish / Colour: Soft Touch Black

Features:
- High Quality Digital LCD with LED backlight.
- Low Reflection TFT LCD (Anti Glare Coating)
- Integrated light sensor for picture dimming and Touch Keypad illumination.
- Keypad Disable/Lock Via OSD Menu.
- Integrated speaker.
- Automatic Detection of PAL or NTSC Signal.
- 6 x On Screen Display (OSD) languages: (English, French, German, Spanish Italian, Dutch, Portuguese, Russian)

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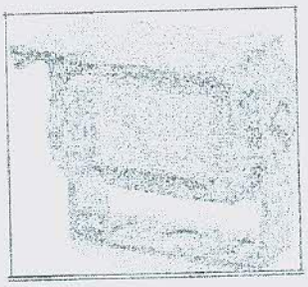
Brigade Model Number: VBV-700C



Product Specification

Environmental Specifications:
- Shock Rating: 100 G
- Vibration Rating: 10 G
- Camera IP Rating: IP69K
- Connector IP Rating: IP67
- Operating Temperature: -20° to +70°C
- Storage Temperature: -30° to +80°C
-

Approved Standards:
VBV-700C / VBV-790C
- CE - (EN 61000-6-1:2007 / EN 61000-6-3:2007)
- 'E' Mark - (ECE Regulation 10 Rev 04)

VBV-701C / VBV-791C
- FCC - (47 CFR Part 15 Subpart B)
- CE - (EN 61000-6-1:2007 / EN 61000-6-3:2007)

All
- Ingress Protection - (ISO 20653:2006)
- RoHS
- WEEE

Technical Specifications:
- Operating Voltage: 12 Vdc
- Current Consumption: 200mA @ 12 Vdc
- Power Consumption: 2.4 Watts @ 12 Vdc
- Imaging Devices: CCD - 1/3" Sharp

DSP - Sharp
- TV System:

VBV-700C / VBV-790C PAL
VBV-701C / VBV-791C NTSC
- Picture Elements:

VBV-700C / VBV-790C 512(H) x 582(V)
VBV-701C / VBV-791C 512(H) x 492(V)
- Visual Resolution: 420 TV Lines

Technical Specifications Continued...
- Lens Focal Length: 2.8mm
- Signal to Noise Ratio: 48dB
- Required Illumination: 0 Lux (IR LED ON)
- Illumination Distance: 15 Metres
- Viewing Angle: 92°(H), 70°(V), 115°(D) ± 5%
- Weight: 330 Grams
- Video Output: 1.0 Vp-p / 75Ω
- Length of Cable: 1000 ± 30mm
- Overall Dimensions:

81mm (W) x 70mm (D) x 77mm (H)
- Casing Material: Aluminium Alloy
- View: Mirror
- Finish: Black Powder Coating

Features:
- Back Light Compensation
- Automatic White Balance
- Fixed IRIS
- 18x High Power Infrared LEDS
- Integrated Day/Night Sensor
- VBV Type Connector
- High Quality Sharp CCD & DSP
- VBV-700C / VBV-791C - Integrated Microphone

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PROXIMITY WARNING SYSTEM :

FEATURES OF PROXIMITY SYSTEM:

- Patented pulsed radar object detection system.
  - Detects people and objects with in the detection area.
  - Moving and stationary objects detected.
  - Detection zone calibration*
  - Works in extreme weather conditions.

- Works in extreme site conditions.
  - Mud, Dust, Fog, Rain and Snow.
  - Diagnostic error code indicators via display LED's.
  - Simple and effective.
  - Total current draw of system is only 250mA

BENEFITS OF PROXIMITY DEVICE:

- Reduce costly repairs and downtime due to vehicle collisions.
- Provide ranging to objects such as vehicles, buildings, people etc.
- Provides an active component to vision systems notifying the operator with both an audible and visual indicator of the detected object distance. Can be used to trigger
- Vehicle camera system for extra safety.
- Can be used in most applications where proximity detection is required.

PULSED RADAR BASED PROXIMITY SYSTEM WORKING PRINCIPLE:

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- One way to measure the distance to an object is to transmit a short pulse of radio signal electromagnetic radiation), and measure the time it takes for the reflection to return.

- Since radio waves travel at the speed of light (186,000 miles per second or 300,000,000 meters per second), accurate distance measurement requires high performance electronics.

TECHNICAL DETAILS OF PULSED RADAR SENSOR:

- The sensor assembly transmits and receives low power 5.8GHz radar signals.

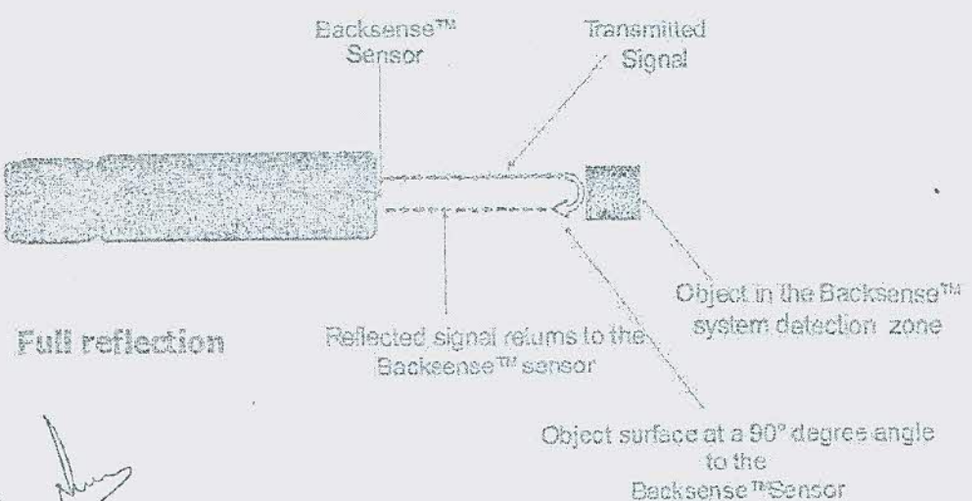
- Returned signals are processed to determine if an object has reflected any energy back to the sensor and report this to the operator display.

- Reflections are processed and reported within 500m/seconds of a Detection

- The radar signals RF output is pulse modulated so that it will not interfere with similar devices, in fact, multiple sensors may be used and even networked on the same vehicle.

- Not all objects will be detected

THE OBJECT DETECTION METHODS:



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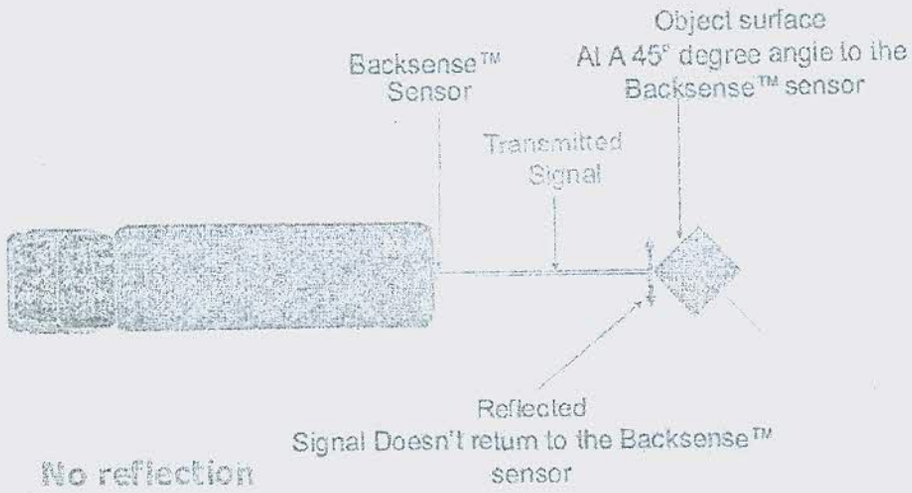
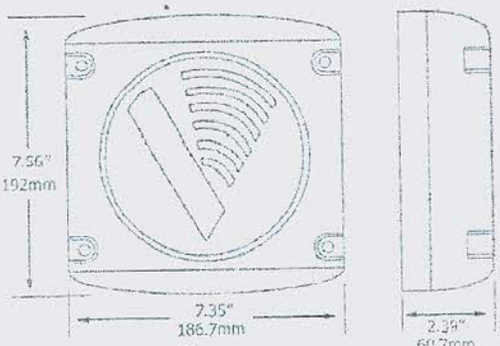


PULSED RADAR SENSOR DETAILS:



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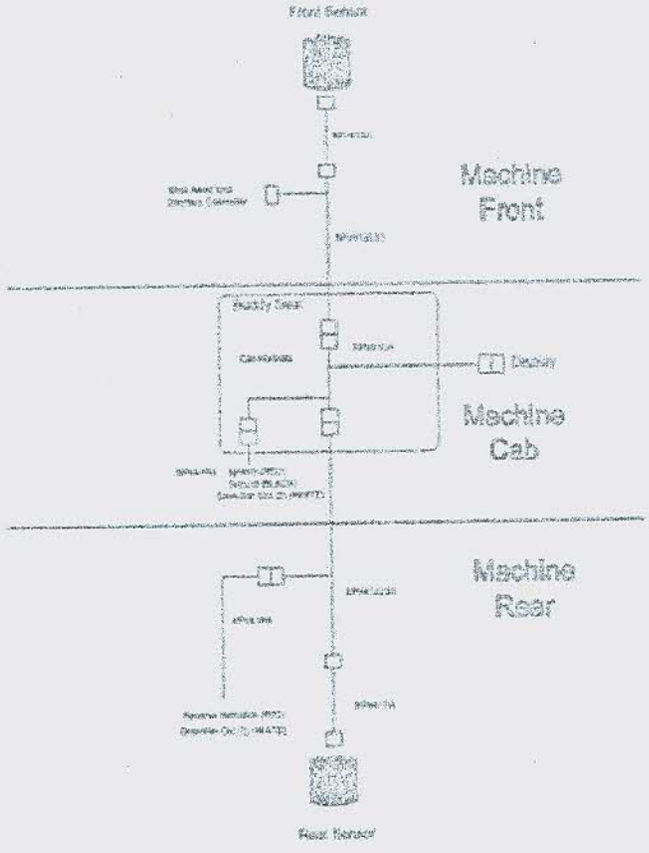
PROXIMITY DEVICE FOR FRONT& REAR COMBINATION LAYOUT :

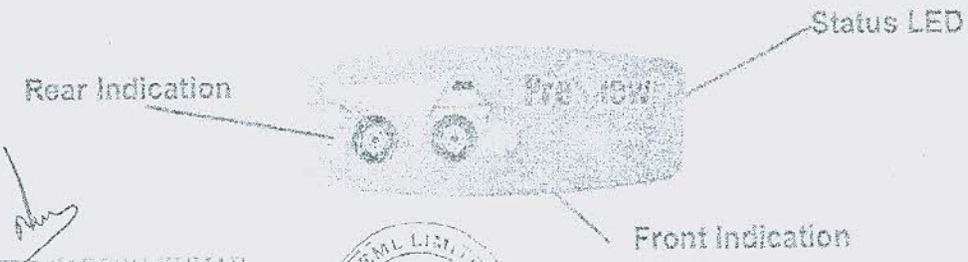
Multiple sensor system

- With the use of additional extension cable multiple sensor can be fitted to the vehicle to cover different detection zones

2 Sensor System – Front and Rear



PROXIMITY DEVICE MODE OF OPERATION:



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MODE OF OPERATION:

1. FRONT SENSOR CONTENIOUSLY ACTIVE WHILE VEHICLE IS MOVING IN FORWARD DIRECTION ON DETECTION OF OBJECT IN CALIBRATED ZONE THE VISUAL AND AUDIBLE INDICATIONS PROVIDES ON OPERATOR DISPLAY

2. REAR SENSOR ACTIVE ONLY WHILE VEHICLE IS MOVING IN REVERSE DIRECTION (SENSOR TIGGER BY REVERS SIGNAL FROM SHIFT TOWER) ON DETECTION OF OBJECT IN CALIBRATED ZONE THE VISUAL AND AUDIBLE INDICATION IS PROVIDE ON OPERATOR DISPLAY .

SENSOR SPECIFICATIONS (Typical)

Model:	XPV4220, XPV4226, and XPV4232
Transmitter:	Pulsed RF transmitter at 5.8GHz operating under FCC Part 15.249
Connector:	Conxall 72x1-8PG series (IP67 rated)
Sealing:	Encapsulated to protect from dust and moisture to IP67.
Housing Material:	Polycarbonate radome
Dimensions:	7.56"H x 7.35"W x 2.39"D (19.2cm x 18.7cm x 6.0cm)
Weight:	2.1 lb (0.95 kg)
Operating Temperature:	-40°F to +185°F (-40°C to +85°C)
Vibration:	25G RMS all three axes
Shock:	25G all three axes
Mounting:	Four 0.328" (8.3mm) diameter holes on 6.50" horizontal centers, and 5.00" vertical centers. Unit is supplied with ¼-20 screws for mounting purposes. Recommended torque is 50 inch-lbs.

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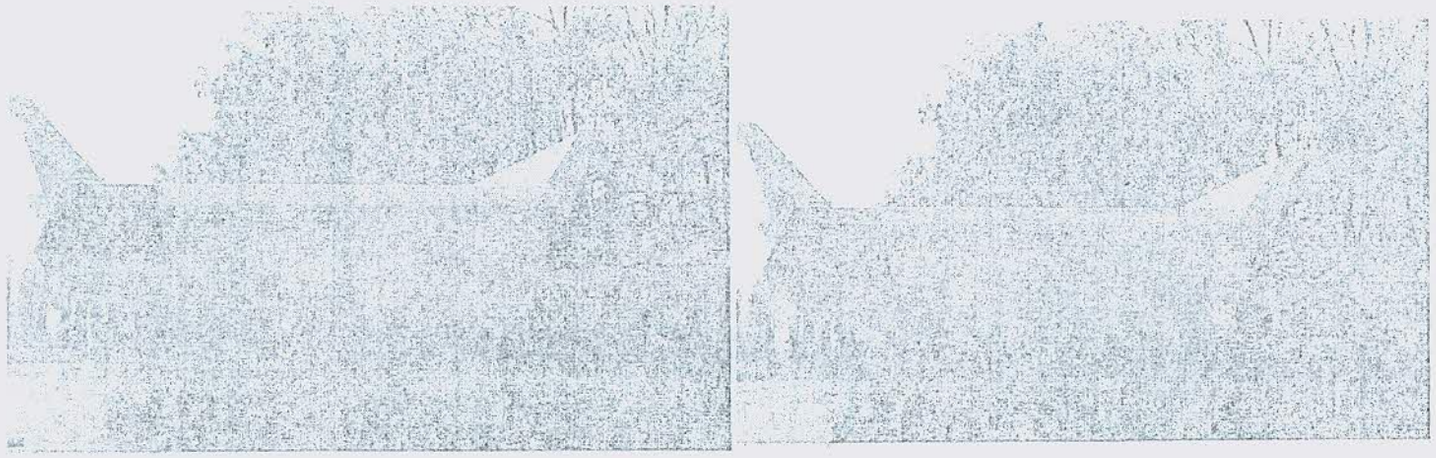
Mechanical Anti-collision structure on BH60M :



Function: Mechanical anti-collision structure is welded on to the tail portion of dump body. The height of this structure so designed that during collision between two equipment of same model of BEML make (as shown above) the structure will be collided against canopy structure without causing any damage to cabin / operator.

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Operator Fatigue Monitoring System

The real time and non intrusive Operator fatigue monitoring system to predict accurately and identify situations where drowsiness and fatigue may be setting into a driver, thereby it helps in preventing accidents and fatalities. The system will detect drowsiness based on drivers performance (considering physical signs).

The intelligent system will detect the onset of drowsiness in drivers, while the vehicle is in motion. Detection will be done by continuously looking out for symptoms of drowsiness, while considering physical signs. Physical cue including yawning, drooping eyelids, closed eyes and increased blink durations. The percentage of eyelid closure over the pupil over time (PERCLOS).

Features:

1) The device is able to monitor the driver's alertness and level of Fatigue.

2) Ability to alert drive the driver to drive the vehicle without dozing off.

3) Non-contact infrared camera with proven technology to monitor the driver's eyes.

4) Buzzer to alert the driver to wake up.

5) Provision to change sensitivity settings.

6) Functions in all light levels (day and night) including heavy rain.

7) Functions if a driver wears glasses.

8) Proven sensing technology with PERCLOS algorithm to avoid false warnings.

===()===

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सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mkt.)
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Unity Buildings
J.C. Road
BANGALORE - 560002

ANNEXURE-K

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Major Sought Out Items List

Model : BH60M

Slno	Description	Source
1	Engine KTTA19C	Cummins
2	Transmission	Avtec
3	Tyres 24.00 x 35 - 48 PR	JK / Apollo/ Goodyear/ MRF/ CEAT / BKT
4	Auto Lube System	Lincoln Helios / GRACO
5	Auto Fire Protection System	Southern Electronics / Associated Engineering
6	Air Conditioning System	Red Dot

BEML LIMITED

Training of Purchaser Personnel : (For 34 Nos BH60M Dumper)

Type of Personnel	At Site		
	No of Personal	Period	Total
Mech Engineer	17	1 week	17 man weeks
Elec Engineer	17	1 week	17 man weeks
Mech Supervisor	17	1 week	17 man weeks
Elec Supervisor	17	1 week	17 man weeks
Mech Fitter	34	1 week	34 man weeks
Electrician	34	1 week	34 man weeks
Operator	68	1 week	68 man weeks
Total	204 Man Weeks		

नरेश कुमार NARESH KUMAR
महाप्रबंधक (वित्त) General Manager (Fin)
भेल लिमिटेड BEML Limited
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ANNEXURE-L

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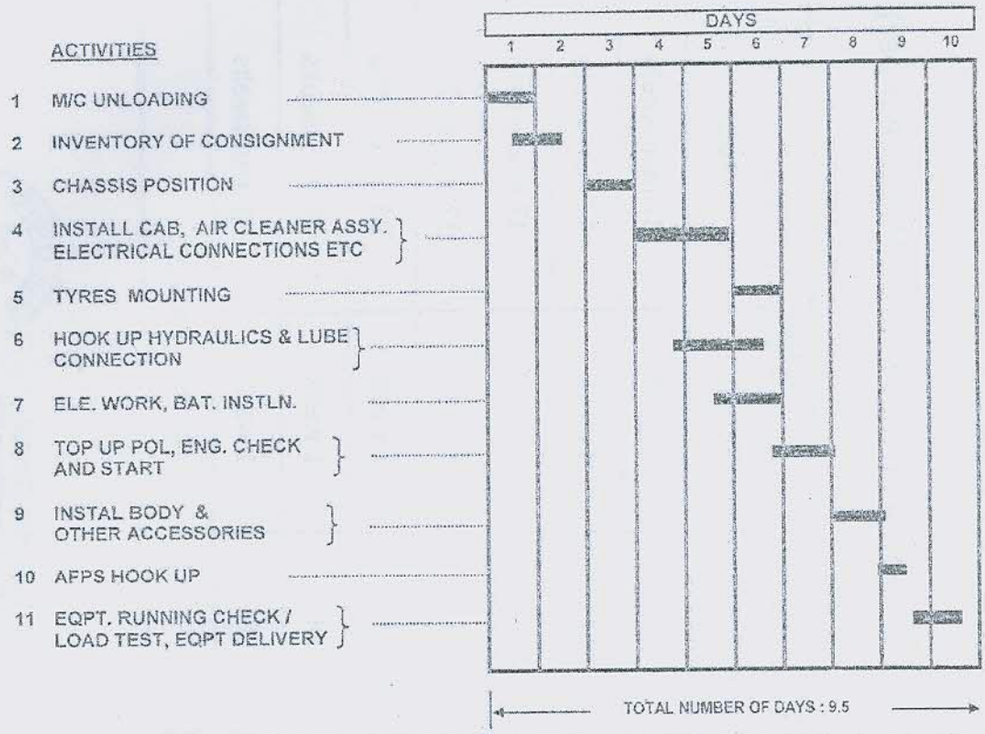
ANNEXURE-M

ERECTION CHART FOR BH60M REAR DUMPER



Note: The above schedule is indicative only. However, depending upon the manpower and facilities being extended by the purchaser it may vary.

Erection work will be commenced after receipt of full consignment at site and commissioning will be completed within the period specified in the NIT.

Any delay in erection and commissioning dus to non availability of facilites like, cranes of required capacity, manpower and other facilities which are to be provided by the customer, will be to the purchaser's account.

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (Mktg.)
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Board
V FLOOR
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ANNEXURE-N 111/112

MAINTENANCE SCHEDULE

Model: BH60M Dumper (KTTA19C)

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. CHECK ; Oil, Coolant level & Grease level. Tyre inflation pressure, Grease at all points, Air cleaner restriction and change air cleaner element if required, Suspension heights, Battery condition & function of Auto electrics and belt tension & adjust. DRAIN : Sediments form Air, Fuel tank & Water separator.	0.5 Hrs per Shift	2
2	Initial 250 hours	Change: Hydraulic and transmission filter elements. Change: Hydraulic oil, Transmission oil, Final Drive / Differential Oil.	4	2
3	Every 300 Hrs.	Engine 'B' - Check Change: Replace engine oil & lube oil filters, fuel water separator, Fuel Filter. Check: Transmission oil level, hydraulic oil level, differential & final drive oil level and correct.	2	2
4	Every 600 Hrs.	Change: Replace Resistor Corrosion. Check: pH value of coolant. Clean: Crank case breathers.	2	2
5	Every 1000 Hrs.	Change: Hydraulic oil & filter, Transmission oil & filter. Change: Final Drive & differential oil. Change: Hydraulic tank breather element. Change: Air Cleaner Elements. Clean: Transmission and Final Drive Breather Elements. Clean : Transmission magnetic strainer. Check: Drive shaft cross bolts torque and correct.	5	4
6	Every 2000 Hrs.	Check for front spindle grease level and pre-load of bearings	1	1
7	Every 2500 Hrs.	Engine 'C' - Check: Check and adjust Engine valve first 2500 Hrs clearance. Check fan hub/idler & water pump. Clean radiator fins.	3	2

PREVENTIVE MAINTENANCE SCHEDULE:

GROUP	TYPE OF P.M.	DETAILS
A	Initial 50 hrs.	Check and tighten all critical fasteners like drive shaft bolts, cabin mounting bolts, front suspension mounting bolts etc.
B	Every 2000 hrs.	Engine 'D' - Check Check and record all system pressure, check function of ATEC ECS system components.
C	Every 6000 hrs.	Clean and calibrate injector, clean turbo charger compressor wheel. Check turbo charger bearing clearance and vibration dampers, Air compressor.

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

नरेश कुमार NARESH KUMAR
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ANNEXURE-O

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(A Govt. of India Mini Ratna Company under Ministry of Defence)
CIN : L35202KA1964GOI001530

Regd. Office
BEML SOUDHA, 23/1
4th main, S.R. Nagar,
Bangalore - 560 027 India
Ph. : 080-22224141
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E-Mail : office@pr.beml.co.in

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e-mail : bemlcgmr@vsnl.com

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Mysore Complex
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International Business Division
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Technology Division
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Trading Division
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e-mail : office@trading.beml.co.in

Other Regional Offices :
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Sambalpur
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e-mail : sambalpur@rm.beml.co.in

Singrauli
Tel : 07805 - 268260
e-mail : singrauli@rm.beml.co.in

BEML Service Centres :
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e-mail : bilaspur@rm.beml.co.in

Hyderabad
Moula Ali, Hyderabad
Tel : 040-27240873
e-mail : vhg@zenet.beml.co.in

Kolkata
Service Centre & Stores
Kolkata - 700088
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e-mail : mcs@rm.beml.co.in

Singrauli
Tel : 07805 - 268260
e-mail : singrauli@rm.beml.co.in

Annexure-A4

Mandate Form for Electronic Fund Transfer / Internet Banking Payment

1	VENDOR / SUPPLIER / CONTRACTOR / CUSTOMER'S NAME & ADDRESS:	BEML LIMITED, MOUZA-KANGALO, AMAGHATA, P.O: GOVINDPUR DHANBAD-828109 PH: 0326-2227085, 2227038, 2227089 FAX NO.: 0326-2227082
2	PARTICULARS OF BANK ACCOUNT:	
	A. BANK NAME:	STATE BANK OF INDIA
	B. BRANCH NAME: Including RTGS Code)	DHANBAD BRANCH SBIN0000066
	ADDRESS:	SBI, DHANBAD BRANCH, BANK MORE DHANBAD-826001
	C. 9-DIGIT CODE NUMBER OF THE BANK & BRANCH (As appearing on MICR Cheque issued on the Bank) Or 5-DIGIT Code Number of SBI	826002002 00066
	D. ACCOUNT TYPE: (S.B. Account/Current Account Or Cash Credit with Code 10/11/13)	CURRENT ACCOUNT
	E. LEDGER NO./LEDGER FOLIO NUMBER:	NOT APPLICABLE
	F. ACCOUNT NUMBER (CORE BANKING) & STYLE OF ACCOUNT (As appearing on the Cheque book)	10976587403
3	DATE OF EFFECT:	IMMEDIATE

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold the user institution responsible. I have read the option invitation letter and agree to discharge responsibility expected of me as a participant under the scheme. Any bank charges levied by the bank of such e-transfer shall be borne by us.

BEML LIMITED
Authorised Signatory Authorised Signatory

Date: 22-12-15

Signature of the Customer / Vendor / Supplier / Contractor

Certified that the particulars furnished above are correct as per our records.

(.....)
Signature of the Authorized Officials from the Bank

Regional Office : Kangalo, Amaghata, P.O. Govindpur, Dhanbad - 828109 (Jharkhand)
E-mail : rm@bemlcd.in, dhanbad@rm.beml.co.in
Phone : 0326-2227038/85/89 Fax : 0326-2227082

नरेश कुमार NARESH KUMAR
सहायक महाप्रबंधक (विपणन) Asst. General Manager (MD)
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