



BHARAT COKING COAL LIMITED
(A Subsidiary of Coal India Limited)
Materials Management Department
Commercial Block L-III , Koyla Bhawan : Koyla Nagar
Dhanbad : 826005 (Fax No- 0326-2230183))

Under jurisdiction of Dhanbad Court and
Jharkhand High Court only

FORMAL ORDER

NO.BCCL/PUR/411102/410 HP Dozer/2011-12/264

Date: 05-03-2012

M/s BEML Limited
Kamal Kunj, Kola Kusma
Saraidhela, Dhanbad-828 127.

Sub : Supply of 410 HP Dozer-13 nos.

Ref : i) **This office e- Tender Enquiry No. PUR /411102/410 HP Dozer/11-12/110 dtd. 17.10.2011 & opened on 01.12.2011.**

ii) **Your Offer No. BEML/MFM/20XBD355/11-12/1424(OFF-LINE) dt.29.11.2011, subsequent correspondence and your last correspondence vide letter dated 24.01.2012.**

Dear Sirs,

With reference to the above, we for and on behalf of BCCL hereby place **ORDER** for supply of 13(Thirteen) Nos of 410 HP Dozer at the following price, terms and conditions and also as per our General Terms & Conditions.

Description	U/M	Qty.	Unit Rate in Rs.	Value in Rs.
(1) BEML Model BD355 Crawler Dozer powered by BEML diesel engine model BS6D170 EG with turbocharged, water cooled and developing 310KW(416 HP) @ 2000 rpm and fitted with hydraulically controlled semi U blade attachment and AC cabin along with tools & tackles (accessories) and as per the scope of specification mentioned in the order.	No.	13	17500000.00	227500000.00
ED @ 10.3% (Including Ed. Cess @ 3% on ED)			1802500.00	23432500.00
Central Sales Tax @ 2% against Form "C".			386050.00	5018650.00
Packing & Forwarding Charges			NIL	
Freight Charges including 10.3% service tax on 25% of freight charge.			268650.00	3492450.00
Transit Insurance Charges including 10.3% ST.			3937.71	51190.23
TOTAL-1			19961137.71	259494790.23
2. (A) Spares & Consumables required for first year of operation as per ANNEXURE -B.(inclusive of ED @ 10.30%).	Set	13	856148.00	11129924.00
JVAT Extra @ 14%			119860.72	1558189.36
2. (B) Spares & Consumables required for second year of operation of Dozer as per ANNEXURE- B. (inclusive of ED @ 10.30%).	Set	13	4482133.00	58267729.00
JVAT @ 14%			627498.62	8157482.06
2. (C) Spares & Consumables required for third year of operation of Dozer as per ANNEXURE -B. (inclusive of ED @ 10.30%).	Set	13	2425078.00	31526014.00
JVAT @ 14%			339510.92	4413641.96
TOTAL-2			8850229.26	115052980.38

TOTAL ORDER VALUE RS. (1+2)

374547770.61

TOTAL ORDER VALUE FOR 13 NOS MACHINE ALONG WITH SPARES AND CONSUMABLES FOR 36 MONTHS WILL BE RS.374547770.61 (RS. THIRTY SEVEN CRORES FORTY FIVE LAKH FORTY SEVEN THOUSAND SEVEN HUNDRED SEVENTY AND PAISE SIXTY ONE ONLY)

We reserve the right to increase the quantity up to 20 equipments and 20 sets of spares and consumables against this order

TERMS & CONDITIONS:

1. Payment Terms : 80% value of each equipment and the accessories and 100% taxes and duties along with 100% transportation & insurances and other charges will be paid only within 21 days from the date of receipt and acceptance of the equipment at the consignee end. The bill should be accompanied with relevant dispatch documents like challan , Maker's Test - Cum Inspection Certificate, Warranty Certificate, CIL/ BCCL's Inspection Certificate etc. This payment will be released only after receipt of required value of the Bank Guarantee as specified at sl.no 8.

Balance 20% payment of equipment shall be made after successful completion of erection, testing, commissioning and final acceptance of the equipment (along with accessories) at site and upon presentation of certificates from the project officer/GM(Excv) to the effect that the equipment has been erected and commissioned to their entire satisfaction. However, if the equipment is not put to use by the project within 60 days from the date of receipt and acceptance at consignee end, the balance 20% shall be released.

For Spares and Consumables: 100% payment of spares and consumables along with taxes and duties for 1st , 2nd and 3rd year shall be released within 21 days from the date of receipt and acceptance of the materials or submission of bills at consignee end, whichever is latter.

2. Prices – (a) FIRM , However Govt taxes & duties will be paid whatever applicable at the time of dispatch within the specified delivery period)

(b) FOR Destination.

3. Delivery – (a) For Equipment: To commence within 3 months from the 10th day of order and supply of to be completed within 6 months.

(b) For SPARES & CONSUMABLES :

- FOR FIRST YEAR: Delivery of the set of spares required during first year warranty period shall commence within 3 months from the date of receipt of purchase order and supply to be completed within 6 months from the date of receipt of purchase order.
- FOR SECOND YEAR: Delivery of the spares required for second year operation of equipment shall be in four lots and shall start after completion of first year of operation and shall be completed by the end of second year of commissioning of the equipment.
- FOR THIRD YEAR: Delivery of the spares required for third year operation of equipment shall be in four lots and shall start after completion of second year of operation and shall be completed by the end of third year of commissioning of the equipment.

(c) It is responsibility of M/s BEML Ltd. for safe arrival of the equipment at the consignee end.

(d) The date of receipt of Equipment at the consignee end shall be treated as date of delivery.

4. Excise Duty – It will be paid extra against documentary evidence at the rate prevailing at the time of delivery (Present rate is 10.30% (with cess)

5. Sales Tax – On equipment CST will be paid Extra . Current rate of CST is 2% against form "C". VAT will be payable extra on spares and consumables at the rate prevailing at the time of delivery (Current rate of VAT is 14%.)

6. Freight & Transit Insurance Charge :- Freight Charges will be paid at actual against documentary evidence with a maximum ceiling up to Rs.2,68,650.00 per machine (including service tax). Transit insurance will be paid at actual against documentary evidence with a maximum ceiling up to Rs.3,937.71 per machine (including service tax).

7.Composit Warranty/Guarantee: BEML 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. Any defect arising observed on this account will have to be attended immediately.

c) BEML must ensure that there is no major breakdown due to manufacturing / design defects during the warranty period. In case such breakdown occurs the purchaser reserves the right to extend the warranty period suitably. The warranty shall cover for total equipment so that comprehensive responsibility lies only with the equipment supplier although components may be supplied by different suppliers to the bidder.

8. Performance Guarantee : The availability of the equipment shall not be less than 75%(Seventy five percentage) measured over each 12 months, for a period of 36(Thirty Six) months from the accepted date of commissioning irrespective of hours operated by the equipment during the period of the guarantee. The penalty for low performance will be equal to half(0.5) % of the delivered price of the equipment for each week or part thereof during which the guaranteed availability is not achieved and will be up to a maximum of 10% of the equipment landed price. The amount shall be recovered (if required) from the PBG.

9. Performance Bank Guarantee – You will have to furnish the following Performance Bank Guarantees (on a non judicial stamp paper of value Rs. 250.00only) on a Scheduled/Nationalized Bank in India valid for 40 months from the date of receipt and acceptance of equipments for 10% value of the order (Equipment wise) as a coverage towards the machine's performance as soon as you supply equipments. The Performance Guarantee may be released or extended depending upon the merit of the case. No payment will be released without submission of the Performance Bank Guarantee. The order value means FOR destination price including taxes, duties , transportation & insurance and other charges. The total value of the performance Bank Guarantee will be Rs.37454777.00

10.Erection and Commissioning Charge – nil.

11.Consignee –: Depot Officer , Central Stores , Jealgora.

Address: Lodna Area- X, Khas Jeanagora, Dhanbad. Jharkhand-828115

TIN: 20801800089, JST No. : JH-14(R) : CST No. JH-8(C) ; Circle: Jharia circle, Dhanbad;

Service Tax Registration No. AAACB7934MST 016.

Central Excise Duty Registration No. : AAACB7934MEM005.

Range: Sindri(Code 04); Division: Bokaro(Code 01); Commissioner ate : Ranchi(Code 87) .

12.Paying Authority- GM(F)MM , Koyla Bhawan.

13. ALL DISPUTES ARE SUBJECT TO DHANBAD COURT AND JHARKHAND HIGH COURT JURISDICTION ONLY.

14. ALL OTHER TERMS & CONDITIONS AND TECHNICAL SPECIFICATIONS ALONG WITH SCOPE OF SUPPLY OF SPARES AND CONSUMABLES AND TOOLS & TACKLES WILL STRICTLY AS PER OUR ORDER AND ANNEXURE ENCLOSED HERewith.

This contract is concluded with the issuance of this order, We are enclosing 3 copies of the Purchase order, one of which should be returned to us duly stamped and signed. This issues with the approval of the competent Authority .

- Encl: (i) Equipment Specification. & scope of Supply– Annexure- “A”
(ii) List of spares and consumables required for 36 months of operation – Annexure “B”
(iii) List of Tools – Annexure- “C”
(iv) General Terms & Conditions- Annexure – “D”
(v) Format of PBG- Annexure – “E”
(vi) Training Required for fleet of Dozers- Annexure- “F”.
(vii) Equipment Technical leaflet- Annexure- “G”.
(viii) Preventive & Periodical Maintenance Schedule – Annexure- “H”
(ix) Erection Chart for Dozer- Annexure- “I”.

Yours faithfully,
For & on behalf of Bharat Coking Coal Ltd.

(P.K.SINHA)
Sr. Manager (MM)

(A.K.CHAUDHARY)
Chief Manager (Pur)

INDENT REFERENCE

Sl.no	Indent no. and Date	Area	A/R	Qty.	Budget Certification no. & dt.
1	BCCL/GM(Excvn),LA/11-12/46 dtd. 19.07.11	LODNA AREA	R	1	Existing Mines Code 7615, head HEMM. Ledger Folio-1 Sr. No. of Indent 02 dtd. 8.8.11. BE: Rs. 18247081.00. for year 11-12.
2	BCCL/BA/IX/CAP/11-12/03 dtd. 13.07.11	BASTACOLLA AREA	R	1	Existing Mines Code 7615, head HEMM. Ledger Folio-1 Sr. No. of Indent 02 dtd. 8.8.11. BE: Rs. 18247081.00. for year 11-12.
3	ROCP/11-12/111 dtd. 13.07.11.	KUSTORE AREA.	R	1	Existing Mines Code 7615, head HEMM. Ledger Folio-1 Sr. No. of Indent 02 dtd. 8.8.11. BE: Rs. 18247081.00 for year 11-12.
4	GM/SA/EXCVN/11/06 dtd. 13.07.11	SIJUA AREA	R	1	Existing Mines Code 7615, head HEMM. Ledger Folio-1 Sr. No. of Indent 02 dtd. 8.8.11. BE: Rs. 18247081.00. for year 11-12.
5	BCCL/IV/EXCVN/11/538 dtd. 18.07.11	KATRAS AREA	R	1	Existing Mines Code 7615, head HEMM. Ledger Folio-1 Sr. No. of Indent 02 dtd. 8.8.11. BE: Rs. 18247081.00. for year 11-12.
6	RSS/CAP/AREA III/11-12/07 dtd. 18.07.11	GOVINDPUR AREA	R	1	Existing Mines Code 7615, head HEMM. Ledger Folio-1 Sr. No. of Indent 02 dtd. 8.8.11. BE: Rs. 18247081.00 for year 11-12.
7	GM/AR-I/CE(X)/08/11-12 dtd. 13.07.11	BARORA AREA	R	3	Existing Mines Code 7615, head HEMM. Ledger Folio-1 Sr. No. of Indent 02 dtd. 8.8.11. BE: Rs. 54741243.00 for year 11-12.
8	R/S-B 2 -15/195/11-12 dtd. 14.07.11	BLOCK-II AREA.	R	4	Existing Mines Code 7615, head HEMM. Ledger Folio-1 Sr. No. of Indent 02 dtd. 8.8.11. BE: Rs.72988324.00 for year 11-12.

BC Reference: 1. BA/GMPP/EXIST.MINES/HEMM/76 DTD. 25.06.2011 FOR RS. 3649.4162 LACS.
2. BCCL/PP/SR.M/CAP/AC/12-13/P&M/A-4/13/TCR DTD. 18.02.2012 FOR RS. 342.81 LACS.

FC Reference: BCCL/P&P/SR.M/CAP/FC/12-13/02/06 DTD. 05.03.2012. FOR RS. 399222754.20

REVENUE BUDGET:

ADVANCE BUDGET FOR HEMM SPARES	YEAR	AMOUNT(RS.)	Budget Certification Reference No.
	2012-13	19520174.40	Ref. No. 531 Dt. 22.08.2011 & BCCL/FIN(C&B)/12/D/291 dtd. 01.03.2012.
	2013-14	102192632.40	
	2014-15	55291778.40	

Copy to :

1. D(T)Opr/D(T)P&P/D(F)
2. GM(Excv) ,GM(Finance)
3. GM(F)MM
4. GM(Co.Secy)-This has reference to approval of BCCL Board vide Agenda item No. 283.5S
5. Depot Officer, Central Stores , Jealgora.
6. CGM(MM)/GM(MM) , CIL/SECL/CCL/WCL/NCL/MCL/ECL
7. CGM(ES) ,CIL,Kolkata.
8. Engg & Equ.Division ,CIL, GEETA MANSION, 40 , Kempagewda Road ,Banglore.
9. Master File
Copy for kind information to:
Justice Ashok Kumar Chakraborty (Retd)
BB 69, Sector –I, Salt Lake
Kolkata:- 700064

Annexure - A

EQUIPMENT TECHNICAL SPECIFICATION OF BD355 DOZER

1. SCOPE OF SPECIFICATION:

BEML Model BD355 Crawler Dozer powered by BEML BS6D170EG diesel engine developing 310KW @ 2000 rpm and fitted with hydraulically controlled semi U blade attachment and AC cabin along with tools & tackles (accessories) as per the scope of specification mentioned hereunder.

- TORQUEFLOW power shift transmission with 4 forward and 4 reverse speed
- Heavy duty spur and planetary gear type final drive
- Independent track steering with wet multiple disc clutches interconnected with brakes.
- Heavy duty undercarriage of rugged construction, 7 track rollers (each side), 2 carrier rollers (each side), segmented bolt-on type sprocket teeth, 710 mm extreme service grouser shoes
- Hydraulically controlled semi U dozer attachment
- AC Cabin with required gauges and alarms
- 24V electrical system, front and rear lights
- Rigid drawbar
- One no. portable fire extinguisher
- First fill of oils, grease and lubricants (excluding fuel)
- Spares & Consumables for 36 months of operation.

2 References

Access systems should be as per ISO 2867 Earth-moving machinery. Falling object protective structures
Laboratory tests and performance requirements should be as per ISO 3449 Earth-moving machinery.
Guards and shields Definitions and specifications should be as per ISO 3457 Earth-moving machinery
Roll-over protective structures Laboratory tests and performance requirements should be as per
ISO 3471 Earth-moving machinery
Determination of ground speed should be as per ISO 6014 Earth-moving machinery
Symbols for operator controls and other displays i.e. Common symbols, should be as per
ISO 6405-1 Earth-moving machinery
Symbols for operator controls and other displays i.e. Specific symbols for machines, equipment and
accessories, should be as per ISO 6405-2. Earth-moving machinery - Tractors - Terminology and commercial
specifications should be as per ISO 6747.
Operation and maintenance - Format and content of manuals should be as per ISO 6750 . Crawler tractors and
crawler loaders - Operator's controls should be as per ISO 7095.
Tractors with dozer, graders, tractor scrapers – Cutting edges – Principal shapes and basis dimensions
should be as per ISO 7129 Earth-moving machinery
Method of test for the measurement of drawbar pull should be as per ISO 7464 Earth-moving machinery
Crawler and wheel tractor dozer blades – Volumetric Ratings I, should be as per ISO 9246 Earth-moving
machinery
Engine test code - Net power should be as per ISO 9249 Earth-moving machinery

3 Design Criteria

The dozer should be capable of continuous operation for protracted periods on a system of 3 shift
each of 8 hours duration per day throughout the year in hard, highly abrasive, blasted sandstone / rock
having a density after blasting of 1800 kg/cum..

The dozer should have the following maximum drawbar pull, measured according to ISO 7464. Usable
drawbar pull depends on weight and traction of equipped tractor/dozer.

(a) Maximum drawbar pull of 702.16 kN at 1 km/h speed

(b) Maximum drawbar pull of 882.9 kN at zero speed

4 Technical Requirements

4.1 Engine

The dozer is powered by a direct injection 4-stroke BEML diesel engine model BS6D170EG developing 310 KW power at 2000 r/min according to ISO9249.

The engine is provided with 24V electric starting, dry type 2-stage air cleaner with dust evacuator and dust level indicator and 2-stage fuel filter with water separator. The engine is having 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 dozer to continuously operate at the full rated output at the maximum ambient temperature. The moving parts of the engine are lubricated by an engine driven oil pump, with full flow oil filtration and cooling. The engine is equipped with an over-speed governor. The engine will be provided with a heavy-duty removable fan guard.

The electronic engine with electronic governor is having downloading facilities through laptop for all engine parameters. You shall provide the test bench certification with equivalent emission norms of Tier-I

4.2 Drive System

Power transmission from the engine to the crawler drive sprocket should be through conventional means i.e. torque flow transmission, final drive, steering and brakes.

4.3 Transmission

Torque-flow transmission should consist of 3 element, single stage torque converter, planetary gear drives and hydraulically operated multiple disc type clutches equipped with suitable valves for developing 4 forward and 4 reverse speeds.

Heavy duty removable belly guard should be provided so that it does not allow accumulation of dirt.

4.4 Differential: Not applicable.

4.5 Final Drive

It should be of Heavy duty, spur and planetary gear, double reduction.

4.6 Steering

It should be Independent track steering by means of hydraulically actuated oil cooled multiple disc steering clutches and brakes. These should be held in engagement by springs and disengaged hydraulically.

4.7 Hoses

All hoses and piping should be clamped as far as possible and protected from damages.

4.8 Alternate Drive System: Not Applicable.

4.9 Undercarriage

Undercarriage should be heavy duty rugged design suitably suspended with oscillating type equalizer bar and pivot shaft to reduce shock loads transmitted to the dozer.

Track frames and track rollers should be of sufficient strength and can withstand high loads, which are encountered during operation of the equipment in various ground conditions. The structure should be of welded type construction and stress relieved as required.

The sprocket should be segmented bolt-on type. Idler and rollers should be sealed and lubricated type. Track tensioning arrangement should be provided.

Extreme service single grouser shoes of 710 mm width should be provided.

4.10 Dozer attachment

The dozer should be fitted with hydraulically controlled semi U dozer attachment. The dozer blade should be of heavy duty type with steel wear plate and heavy duty end bits, Heavy duty hardened steel wear resistant cutting edges, which comply with ISO 7129.

4.11 Fuel Tank

Fuel tank capacity should be sufficient for 16 hours of continuous operation without re-fuelling. Fuel level indicator should be provided. Hinged Fuel cap should be screwed and lockable type. Construction of tank should be suitable for easy accumulation and drainage of water with minimum loss of fuel.

4.12 Operator's Cab

A fully insulated, sound suppressed, air conditioned walk-through operator's cab with tinted safety glass, windshield wiper and washer should be provided. The operator's seat should be fully adjustable bucket type with foam rubber cushion and best quality upholstery. Heavy duty rubber floor mats & cooling fan should be provided. All doors, windows and vents should have dust and weatherproof seals.

Both a ROPS and FOPS which comply with ISO 3471 and ISO 3449 respectively should be provided.

All operating controls, monitoring and working signals should be conveniently located in consoles within easy reach of the operator and should comply with ISO 6405-1, ISO 6405-2 and ISO 7095.

Non slip type walkways, which comply with ISO 2867 should be provided for access.

4.13 Gauges and Indicators

The following gauges & indicators should be provided.

- a) Water temperature gauge in engine display.
- b) Engine oil pressure gauge/indicator in engine display..
- c) Fuel level Gauge
- d) Engine Tachometer in engine display.
- e) Engine hour meter in engine display..

4.14 Warning Alarms/Lights

Following Audio/visual warning alarm should be provided :

- a) Coolant level and temperature in engine display.
- b) Engine oil pressure in engine display.
- c) Converter oil temperature
- d) Front warning horn
- e) DGMS approved audio visual reversing alarm.

4.15 Electrical Equipment:

Following should be provided

- a) 24V DC electrical system with 24V, 100A alternator of Reputed make.
- b) 24V, 9kW Electric starting motor.
- c) Reputed make high capacity 200AH/160AH Batteries.
- d) Battery isolation switch.

4.16 Lighting:

The lighting system should include the following:

- a) 4 nos. Head lights
- b) 2 nos. rear working lights
- c) 4 nos. ROPS mounted working lights (2 front & 2 rear)
- d) Cabin dome light

Headlights and rear working lights should be identical in type and size and fitted in steel protective enclosures.

4.17 Guards and Shields

Adequate Guards and shields should be provided to protect personnel from accidental hazards & comply to ISO-3457.

4.18 Fire Extinguisher

One no. fire extinguisher should be provided on the dozer, 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 IS 2171 standard.

4.19. Safety Features

The following safety features should be provided with the dozer

- a) ROPS-FOPS Cabin.
- b) Turbo Charger Guard.
- c) Fire/heat resistant/retarder hydraulic hoses. All the sleeves and conduits where cable/wire are passed shall be fire/heat resistant.
- d) Seat Belt.

5. Ancillary equipment and other requirement.

The following ancillary should be provided with the dozer

- a) Front Pull hook.
- b) Rear mounted rigid drawbar.

6. Performance Guarantee.

The availability of the equipment shall be not less than 75% (seventy five percent) for a period of 36 months from the accepted date of commissioning.

Details of performance guarantee are given at Clause 7 of Annexure-D.

7. Special Guarantees :

The following guarantee should apply for the different components. The period indicated will be reckoned from the date of commissioning.

- a) Body, Chassis and Differential: 10000 hours or 1000 calendar days (whichever is earlier). This is subject to carrying out preventive maintenance by the project at 5000 hrs. of operation.
- b) Complete engine system – 24 months or 6550 hours (whichever is earlier). Replacement / repair of engine system during guarantee period will be considered depending upon the merit of the case and through mutual discussions with project and BEML.
- c) Transmission Assy – 24 months or 6000 hours (whichever is earlier).
- d) Final drive (excluding sprocket) and steering system – 24 months or 6000 hours (whichever is earlier).
- e) Electrical Items – 12 months or 3000 hours (whichever is earlier).
- f) Engine Hour meter, Guages, Indicators & Sensors – 12 months or 3000 hours (whichever is earlier).

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

8. Expected Life of Major Assemblies.

- i. Main Frame : 15000 to 25000 Hrs.
- ii. Engine: 10000 to 12000 Hrs.
- iii. Transmission: 10000 to 12000 Hrs.
- iv. Electrical System: 2000 to 4000 Hrs.
- v. Final Drive (Excluding Sproket) & Steering System: 10000 to 12000 hrs.
- vi. Under Carriage – Track Chain, Roller, Idler & Sprocket Teeth 3000 - 3500 hrs

9 Technical Details

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

SL.NO	ITEM	MANUFACTURER
01	Torque converter	M/s Ghatge patil Industries. Kolhapur/Reputed
02	Hydraulic cylinder	M/s Wipro / M/s Usha telehoist/ BEML/Reputed
03	Radiator	M/s Poona Radiator / Reputed
04	ROPS/ FOPS CABIN	BEML Designed Cabin from M/s Trident Fabrications / any reputed make
05	Air conditioner	M/s. RED DOT/DTAC/Reputed make

- b) Operation & Maintenance manual should be in accordance with ISO 6750 . Three sets of Operating, Repair & Maintenance Manuals and Parts catalogue shall be supplied against each project.
One set of above manuals shall be delivered to the General Manager(Excvn), BCCL, Koyla Bhavan.

9.2 Dimensions, Weights and Performance Details	
9.3 Dimensions	
a) Maximum overall length with & without blade	With blade : 7.163 m Without blade : 5.405 m
b) Maximum overall width with & without blade	With blade : 4.315 m Without blade. : 3.030 m
c) Maximum overall height	4.035 m (to exhaust pipe top)/ 4.125 m with cabin
d) Drawbar height	0.64 m
9.3.2 Machine Weights	
a) Shipping weights of individual components	Basic Equipment – 34520 Kg Blade & St. Frame – 7830 Kg ROPS/FOPS cabin –1316 Kg
b) Total Operating weight	43840 Kg
c) Operating weight excluding dozer attachment	36016 Kg
9.3.3 Engine	
a) Manufacturer and model	BEML BS6D170EG
b) Number of cylinders	6
c) Bore	170 mm
d) Stroke	170 mm
e) Displacement	23.15 litres
f) ISO net power at.....r/min	310 kW (416 FHP) at 2000 rpm
g) Maximum torque	1780 Nm @ 1400 rpm

9.3.4 Transmission		
a) Make and Model	BEML, Planetary gear, multi disc clutch.	
b) No. of gear speeds, forward and reverse	4 forward and 4 reverse	
c) Travel speeds, forward and reverse	Gear	Forward kmph
	1st gear	0-3.3
	2nd gear	0-5.1
	3rd gear	0-8.5
	4th gear	0-12.7
9.3.5 Differential	Not applicable for dozers	
9.3.6 Final Drive		
a) Type	Spur and planetary gear double reduction	
b) Ratio	1 : 33.74	
9.3.7 Steering & Braking		
a) Type	Steering : Wet contracting disc Service Brakes : Wet contracting band Parking Brakes : Mechanical	
b) Actuating system	Actuating System : Steering : Hydraulic Service Brakes : Foot operated steering brakes with hydraulic booster Parking Brakes : Mechanical linkage	
9.3.8 Undercarriage		
a) Undercarriage overall width	3.030 m	
b) Crawler tracks height	1.581 m	
c) Crawler effective length	3.360 mX2	
d) Crawler width	0.710 m	
e) Crawler shoes, total number	39 each (Total - 78)	
f) Ground contact area	4.099 sq.m.	
g) Ground bearing pressure	82.58 kPa (without blade)	
h) Load rollers, diameter and number per crawler	S/F - 2 Nos., D/F - 5 Nos.(per track) , dia- 0.27m	
i) Driving sprocket diameter	1.1289 m (PCD)	
j) Idler roller diameter	0.880 m	
k) Centre to centre of idler roller and sprocket	3.360 m	
9.3.9 Hydraulic System		
a) Make & model, Number, flow rates and operating pressures of pumps	Make	BEML
	Model	Gear pump
	Number	1
	Flow Rate	419.3 lpm at rated rpm
	Operating pressure	13.73 Mpa.

b) Make & model, Number and rating of motors (whether applicable)	Not applicable
c) Make & model, number, piston diameters and stroke lengths of cylinders	BEML / UT / Other reputed make Blade lift: 2 nos. : 160 x 1440 mm Blade Tilt: 1 no. : 250 x 180 mm
d) Relief valve operating pressures	13.73 MPa
e) Oil quantity in system and tank	280 ltrs and 100 ltrs.
f) Filtration system type.	i) Engine : Replaceable cartridge type filter for lubrication as well as for fuel lines. ii) Transmission: One magnetic oil strainer and one replaceable element bypass filter is provided. iii) Steering & Braking: Magnetic oil strainer common to transmission, steering & braking system. Separate replaceable element type filter is provided iv) Hydraulic: Magnetic plug & replaceable element type filter is provided.
9.3.10 Dozer Attachment	
a) Maximum digging depth	0.700 m
b) Ground clearance at full lift	1.545 m
c) Maximum tilt adjustment	1.000 m
d) Maximum pitch adjustment	0.20m
9.3.11 Electrical System	
a) Starter make and model	TVS/REIL, 50MT
b) Starter control make and model	Ignition switch control
c) Alternator make and model	TVS/REIL 24V, 100A
d) Batteries, numbers and rating & Make	2 x 12V, 200AH/160AH
9.3.12 General	
a. Details , number and location of the fire extinguishers.	One no. fire extinguisher is provided on the dozer at suitable location 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 IS 2171 standard
b. Lighting details.	Following lights to be provided : 24V, 70/75W

List of spares required for one no. BD355 Dozer for 3 year Operation.

EQPT. MODEL : BD355		DESC	Basic Unit Rate(Rs.)	For 1 st Year.		For 2 nd Year.		For 3 rd Year.	
SLNO	PARTNO			Qty	Extended Value	Qty	Extended Value	Qty	Extended Value
1	0706301142	ELEMENT (HYD.)	690.00	3	2070.00	4	2760.00	3	2070.00
2	524300450001	ELE. TRANS & STEERIN	421.00	42	17682.00	42	17682.00	42	17682.00
3	CHS0102115	O-RING	480.00	42	20160.00	42	20160.00	42	20160.00
4	CHS0103120	O-RING	484.00	3	1452.00	4	1936.00	3	1452.00
5	CHS0115175	O-RING	650.00	3	1950.00	4	2600.00	3	1950.00
6	CFN4311625	NUT	90.00	196	17640.00	196	17640.00	161	14490.00
7	130TD11117	EDGE CUTTING	20630.00	12	247560.00	12	247560.00	9	185670.00
8	130TD12851	BOLT	350.00	196	68600.00	196	68600.00	161	56350.00
9	130TD52825	END BIT LH	18810.00	7	131670.00	8	150480.00	7	131670.00
10	130TD52833	END BIT RH	18810.00	7	131670.00	8	150480.00	7	131670.00
11	CFW0527080	WASHER	96.00	196	18816.00	196	18816.00	161	15456.00
12	125EC62947	HOSE	690.00	0	0.00	1	690.00	0	0.00
13	125EC62955	HOSE	650.00	0	0.00	1	650.00	0	0.00
14	125EG81433	TEMP SENSOR COOLANT	860.00	0	0.00	1	860.00	0	0.00
15	125EG81441	TEMP SENSOR CONV/ENG	3960.00	0	0.00	1	3960.00	0	0.00
16	125IP81198	SWITCH MOM-ON	620.00	0	0.00	1	620.00	0	0.00
17	130PT91011	HOSE	1380.00	0	0.00	1	1380.00	0	0.00
18	130PT91052	HOSE	890.00	0	0.00	1	890.00	0	0.00
19	CHH2200616	HOSE	990.00	0	0.00	1	990.00	0	0.00
20	CHH2200806	HOSE	690.00	0	0.00	1	690.00	0	0.00
21	CHH2300605	HOSE	530.00	0	0.00	1	530.00	0	0.00
22	CHH2301004	HOSE	512.00	0	0.00	1	512.00	0	0.00
23	CHH3021416	HOSE	106.00	0	0.00	1	106.00	0	0.00
24	CHH3024122	HOSE	280.00	0	0.00	1	280.00	0	0.00
25	CHS0102055	O-RING	94.00	3	282.00	6	564.00	0	0.00
26	CHS0103030	O-RING	54.00	6	324.00	12	648.00	6	324.00
27	CHS0103035	O-RING	82.00	10	820.00	10	820.00	10	820.00
28	CHS0103038	O-RING	360.00	3	1080.00	3	1080.00	3	1080.00
29	CHS0103048	O-RING	86.00	30	2580.00	45	3870.00	30	2580.00
30	CLN0110000	FITTING GREASE	29.00	50	1450.00	50	1450.00	20	580.00
31	CVL0130000	LUBRICATOR	187.00	2	374.00	2	374.00	0	0.00
32	CCC0952400	GASKET	220.00	2	440.00	4	880.00	0	0.00
33	CCC0951200	GASKET	490.00	2	980.00	4	1960.00	0	0.00
34	130TF63199	PACKING	920.00	2	1840.00	2	1840.00	0	0.00
35	130HC02134	LIFT CYL. KIT	67930.00	0	0.00	2	135860.00	0	0.00
36	Under Carriage SET consisting	FOR D355 EQUIPMENT	1650000.00	0	0.00	1	1650000.00	1	1650000.00
	130TF00171	TRACK ROLLER SF -4 No.		0	0.00	0	0.00	0	0.00
	130TF00188	TRACK ROLLER DF- 10 No.		0	0.00	0	0.00	0	0.00
	130TF00139	CARRIER ROLLER - 4 No.		0	0.00	0	0.00	0	0.00

List of spares required for one no. BD355 Dozer for 3 year Operation.

EQPT. MODEL : BD355		DESC	Basic Unit Rate(Rs.)	For 1 st Year.		For 2 nd Year.		For 3 rd Year.	
SLNO	PARTNO			Qty	Extended Value	Qty	Extended Value	Qty	Extended Value
	130CTB0048	TRACK SHOE ASSY-2 No.		0	0.00	0	0.00	0	0.00
	130TF00147	IDLER ASSY - 2 No.		0	0.00	0	0.00	0	0.00
	130FD52046	SPROCKET - 18 No.		0	0.00	0	0.00	0	0.00
	BFB1412491	BOLT - 54 No.		0	0.00	0	0.00	0	0.00
	BFN2612430	NUT -54 No.		0	0.00	0	0.00	0	0.00
37	51Z9900906	ENGINE MAINT KIT	9340.00	14	130760.00	14	130760.00	14	130760.00
38	41Z1200244	AC ELEMENT	6280.00	7	43960.00	7	43960.00	7	43960.00
39	0412222581	V BELT	6230.00	1	6230.00	1	6230.00	1	6230.00
40	0412021933	V BELT	590.00	2	1180.00	1	590.00	1	590.00
41	00Z0090498	ACF 5 Lit CAN	1810.00	1	1810.00	1	1810.00	0	0.00
42	30Z1110146	PLUG,EXPANSION	24.00	12	288.00	12	288.00	0	0.00
43	0867002001	DUST INDICATOR	380.00	1	380.00	1	380.00	0	0.00
44	51Z2380274	SEAL,FRONT	4660.00	0	0.00	1	4660.00	0	0.00
45	51Z5161296	GASKET(CENTRIFUGAL FILTER)	8.00	0	0.00	16	128.00	8	64.00
46	CPF0601612	GASKET(CENTRIFUGAL FILTER)	190.00	0	0.00	1	190.00	0	0.00
47	41Z5160749	HOSE(CENTRIFUGAL FILTER)	570.00	0	0.00	1	570.00	0	0.00
48	130SU91011	EQUALIZER BAR PAD	1870.00	0	0.00	4	7480.00	0	0.00
49	CHH0621006	TILT HOSE	2100.00	1	2100.00	1	2100.00	0	0.00
50	125EG02077	CABLE	4550.00	0	0.00	1	4550.00	1	4550.00
51	CCC0902400	COUPLING ASSY	3150.00	0	0.00	1	3150.00	1	3150.00
52	CCC0901200	COUPLING ASSY	1770.00	0	0.00	1	1770.00	1	1770.00
53	130HC02142	TILT CYL. KIT	34790.00	0	0.00	1	34790.00	0	0.00
54	757EG11026	SMART ALARM	11910.00	0	0.00	1	11910.00	0	0.00
55	CEK0110000	STARTING SWITCH	13600.00	0	0.00	1	13600.00	0	0.00
56	CET0401175	TERMINAL	91.00	0	0.00	4	364.00	0	0.00
57	CET0402160	TERMINAL	91.00	0	0.00	4	364.00	0	0.00
58	30Z7181024	WATER SEPERATOR	2250.00	0	0.00	2	4500.00	0	0.00
59	30Z6180529	HOSE	520.00	0	0.00	2	1040.00	0	0.00
60	51Z6100028	WATER PUMP ASSY	30000.00	0	0.00	1	30000.00	0	0.00
61	130HM01035	HYD. PUMP ASSY	100540.00	0	0.00	1	100540.00	0	0.00
62		RECON ENGINE	1250000.00	0	0.00	1	1250000.00	0	0.00
63	51Z8280736	ALTERNATOR	19250.00	0	0.00	1	19250.00	0	0.00
64	52Z8280855	STARTER	44060.00	0	0.00	1	44060.00	0	0.00
65	130TF71396	WEAR RING	198.00	0	0.00	2	396.00	0	0.00
66	130HM01002	T/M PUMP	83820.00	0	0.00	1	83820.00	0	0.00
67	882000000031	GEAR SHIFT LINKAGE	18590.00	0	0.00	1	18590.00	0	0.00
68	881900000034	STG LINKAGE	37675.00	0	0.00	1	37675.00	0	0.00
69	51Z9900063	GASKET KIT,CYLINDER HEAD	112400.00	0	0.00	1	112400.00	0	0.00
TOTAL(RS.)					856148.00		4482133.00		2425078.00

(18)

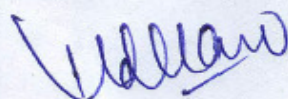
ANNEXURE- C

LIST OF TOOLS FOR EACH BD355 DOZER

SL. NO.	PART NUMBER	DESCRIPTION	QTY
1	175 TI 01018	Tool Kit consists of :	
a)	881908000001	Spanner Set (mm) 8 x 10 12 x 14 13 x 17 19 x 22 24 x 27 30 x 32	1 set
b)	885009000001	Bi-Hexagonal Socket Set (mm) 10 mm 13 mm 14 mm 17 mm 19 mm 22 mm 24 mm 27 mm 30 mm 32 mm 2 - Extension Bars, 127 & 254 mm Flexible Hand 254 mm Reversible Ratchet 254 mm Universal Joint 75 mm T-Handle	1 set
c)	030104001000	Feeler Gauge	1 no.
d)	09036 00150	Plier	1 no.
e)	520900000201	Grease Gun (Hand operated)	1 no.
f)	520900000520	Hammer	1 no.
g)	520900000801	Hydrometer	1 no.
h)	520900050000	Oil Can	1 no.
i)	520900000920	Pinch Bar	1 no.
j)	520900070000	Screw Driver 6 x 75	1 no.
k)	520900080000	Screw Driver 8 x 150	1 no.
l)	190900000100	Star Screw Driver 2 x 100	1 no.
m)	504300010004	Tool Box	1 no.
2	030101052100	Spanner 36 x 41	1 no.
3	030101053100	Spanner 41 x 46	1 no.
4	030102018100	Socket 36	1 no.
5	030102019100	Socket 41	1 no.
6		Filter Wrench	1 no.
7	7455590505	6 Lever Lock with 2 keys	1 no.

SPECIAL TOOLS (PER PROJECT)

1	Laptop loaded with Soft ware.	1 no.
---	-------------------------------	-------

1. TRANSPORTATION

It shall be your responsibility to arrange transportation of the equipment to the project site by road.

2. TRANSIT INSURANCE

Transit Insurance shall be arranged by you.

3. SUBMISSION OF BILLS

i) The duly stamped and pre-receipted bills in quadruplicate, as per terms of the contract must be submitted to the Paying Authority along with the following documents :

- a) Pre-despatch Inspection note and receipt of equipment certificate by the concerned project officer.
- b) Consignment Note
- c) Test and guarantee/Warranty Certificate
- d) Copy of Invoice cum Excise Duty Gate Pass
- e) Any other statutory documents required.

Covering 80% value of complete equipment (including accessories plus 100% Excise duty, Transportation & Insurance Charges and Concessional CST as applicable).

ii) Bills in quadruplicate along with other necessary documents, duly stamped and pre-receipted, for balance 20% value of the equipment, accessories should be submitted to the consignee for forwarding the same to paying authority concerned for payment stipulated as above. The consignee will attach the final stores receipt voucher and forward the same to the paying authority for payment.

4. SALES TAX AND EXCISE DUTY

Central/State sales tax and excise duty will be paid extra as admissible.

CST declaration in Form 'C' will be issued against your bills by the consignee. The Excise duty will be paid on submission of documentary evidence. Your self declared Invoice shall be construed as the evidence of the Excise Duty paid by you. You will have to submit CENVET INVOICE for supplies for availing CENVET credit as coal has become an excisable commodity w.e.. 01.03.2011.

5 PENALTY FOR FAILURE TO SUPPLY IN TIME

Delivery schedule stipulated in Purchase order shall be deemed to be the essence of the contract and supply must be completed by the date specified . No materials should be supplied beyond the specified delivery period, unless specific approval has been obtained from the purchaser.

In the event of failure to deliver/dispatch the equipment/stores within the stipulated date/period to effect supply in accordance with the terms and conditions and the specifications mentioned in the supply order and in the event of breach of any of the terms and conditions mentioned in the supply order, Bharat Coking Coal Ltd., shall be entitled at its option either to enforce the following:

- a) To recover from the successful bidder as agreed liquidated damages, a sum not less than 0.5%(Half Percent) of the price of any stores which the supplier 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) and where felt necessary by BCCL, it may be increased up to 15 %.
- b) To cancel the supply order or a portion thereof, and if so desired to purchase the stores at the risk and expenses of the defaulting supplier and also/or
- c) To purchase elsewhere after notice to the supplier on the account and at the risk of the defaulting supplier, the equipment/stores not supplied or others of similar description without cancelling the supply order in respect of the consignment not yet due for supply/or

- d) To extend the period of delivery with or without liquidated damages as may be considered fit and proper. The liquidated damages if imposed, shall not be more than the agreed liquidated damages referred to in CLAUSE 5 (a) above except in case of force majeure condition
- e) Whenever under this contract any sum of money is recoverable from and payable by the supplier, Bharat Coking Coal Limited, shall be entitled to recover such sum by appropriating in part or in whole by deducting any sum or which at any time thereafter may become due to the successful tenderer in this or any other contract, should this sum be not sufficient to recover the full amount recoverable, the successful tenderer shall pay. Bharat Coking Coal Limited, the balance amount on demand the remaining balance. The supplier shall not be entitled to any gain on any such purchase.
- f) To forfeit the security deposit fully or in part.

6. FORCE MEJEURE CLAUSE

If the execution of the Contract / Supply Order is delayed beyond the period stipulated in the Contract / Supply Order as a result of hostilities, declaration of embargo or blockade or flood, acts of nature or any other contingency beyond the supplier's control due to act of God, then BCCL may allow such additional time by extending the delivery period as is considered justified by the circumstances of the case and its decision shall be final. In case additional time is granted by BCCL for execution of the Contract / Supply Order, the Contract / Supply Order shall be read and understood as if it had contained from its inception the delivery date as extended

- 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 lasting 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 the 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.
- c) If any of the force majeure conditions exist in the place of operation of bidder even in the time of submission of bid, he will categorically specify them in his bid, and state whether they have been taken in to consideration in their quotation.

7. AVAILABILITY GUARANTEE:

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.

Where Equipment supplied under the Contract fails to meet the criteria of the Availability Guarantee, the Supplier shall, at its own 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.

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.

The Supplier shall guarantee that the Equipment supplied pursuant to the Contract shall have availability not less than 75%(Seventy five percentage) measured over each 12 months, for a period of 36(Thirty Six) months from the date of commissioning. The method of assessment applied shall be as follows:

Method of Assessment:

The following calculation shall determine the availability of the Equipment:

$$\% \text{ Availability} = \frac{\text{Scheduled Available Time} - \text{Downtime}}{\text{Scheduled Available Time}} \times 100$$

Scheduled Available Time shall equate to 24 hours daily.

Downtime:-

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

- a) 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.
- b) 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 provide a schedule of maintenance required to carry out (a) and (b) above for the first three years of operation and shall state the number of hours required to carry out each maintenance task. The time stated shall, with the agreement of the Purchaser, form the basis of the assessment of the availability.

This schedule of tasks and time will be reviewed periodically by the Purchaser and the Supplier, jointly, to monitor the practicality of the schedule.

The Purchaser will assist the Supplier, without relieving the Supplier of any other obligations under the Contract, to achieve the guaranteed availability by:

1. Providing normal and proper maintenance, including preventative maintenance in accordance with the Supplier's standard/published recommendations, and making all necessary repairs using only spare parts provided by the Supplier in accordance with the requirements specified in part B6.
2. Providing co-operation to all Supplier's authorised representatives, complying with all reasonable procedural suggestions to improve efficiency of machine operation or reduce downtime.
3. Where appropriate, providing and maintaining such conditions as:
 - Proper electrical Supply
 - Terrain Area
 - Bench preparation
 - Reasonable floor conditions

4. Providing all Supplier's authorised representatives access at all reasonable times to the machine service and repair facilities.

Maintaining a logbook for each shift wherein the working hours, breakdown hours, maintenance hours, idle hours, etc. shall be recorded. This record will be available for examination and signature by the Supplier's representative.

Effect and Duration of Guarantee

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.

This guarantee shall remain effective for thirty six (36) months from the date of commissioning irrespective of the hours operated by the Equipment during the period of the guarantee.

Compensation for not achieving Guaranteed Availability

In the event that Equipment fails to achieve the Availability herein provided, measured over each twelve (12) month period, the Supplier shall be liable for and pay to the Purchaser, as liquidated damages, a sum or sums equal to half (0.5) percent of the delivered price of the Equipment for each week or part thereof during which the Guaranteed Availability is not achieved up to a maximum of ten (10) percent of the Contract Price.

DEEMED BREAKDOWN

When the supplier is unable to supply the replacement of a failed part under warranty within 21 days 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 as "Deemed Breakdown" (the credit for keeping machine available shall not be given to the supplier).

8. INSPECTION

The equipment shall be inspected prior to despatch at your works by our CIL BANGALORE/BCCL Dhanbad Office , However, the initial inspection call MUST be given by the supplier well in advance. The equipment shall be inspected on load at the time of final inspection by the consignee at destination site.

i) 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.

ii) The pre-dispatch inspections and tests shall be conducted on the premises of the supplier or its sub-contractor (s) , and final inspection shall be carried out at the goods final destination inspection when conducted on the premises of the supplier or its subcontractor(s), all reasonable facilities and assistance including access to drawings and production data, shall be furnished to the inspectors at no charge to the purchaser.

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

iv) The materials will be inspected on arrival at site by the consignee, which will be considered as final . This 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 dispatch of the Goods.

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

9. AFTER SALES SERVICE

A) Supervision of Erection and Commissioning:

The supplier shall be responsible for the erection and commissioning of the material at site. The purchaser will assist in providing necessary erection tools and tackles etc. and unskilled manpower for this purpose.

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

B) 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) Equipment system, safety and risk assessment
- b) Equipment operation and maintenance
- c) 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. You shall provide training to BCCL personnel as per Annexure- "F" for entire fleet of 20 Nos. of Dozers.

C) FOLLOW UP VISIT

The supplier shall provide follow up visit at site of a regional Manager/Senior Technical Person competent to take decision on the spot to settle any dispute/problems associated with the machine and to render his expert advice to the project personnel in operation and maintenance.

D) SPARE PARTS

Within the ordered list of spares and consumables the supplier shall maintain the equipment for 36 months of operation from the date of commissioning.

Consumables shall include, but not be limited to, items such as batteries and auto-electricals.

Consumables shall not include oils, lubricants and fluids for the purposes of this Guarantee.

In the event that the spare parts and consumables, as recommended by the Supplier, in any way fall short of actual requirements during the period for which they are said to be adequate, the supplier shall provide such additional spare parts and consumables as are necessary at the final destination. Such additional spare parts and consumables shall be provided by the Supplier to the Purchaser free of all cost and shall be transported to Site by air freight internationally and by air, rail or fast road transport within India.

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 direction, it may elect to do so
- b) Require the Supplier to repossess or repatriate or otherwise dispose of such excess spare parts 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 the contract period.

In the event that operation of the equipment is inhibited or frustrated as a direct result of lack of spare parts and consumables, during the availability guarantee period of 36 months , then the period shall be extended by a period of not less than the period during which operation as aforesaid was inhibited or frustrated.

The supplier shall not be liable for the supply of additional spare parts and consumables, nor to extend the period, if and to the extent that, additional Spare Parts and Consumables are required by reason of unforeseen accidents, negligence or misuse on the part of the Purchaser.

Emergency Spare Parts

Emergency spare parts required by the Purchaser to repair breakdowns shall be dispatched to the site by the Supplier by the fastest, practicable, means as directed from time to time by the Purchaser.

For the purpose of "Emergency Spare Parts" shall mean those spare parts or components required by the Purchaser to repair any item of equipment supplied pursuant to the Contract in the event of a breakdown not attributable to a failure covered by guarantee or a failure of the Supplier to provide adequate Spare Parts, or Consumables.

Payment in respect of the supply and delivery of such Emergency Spare Parts shall be made promptly, retrospectively, by the Purchaser, in a manner consistent with the terms of payment described in the contract.

Lifetime Spare Parts

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:

- (a) give not less than six months notice in writing of its intention to terminate production in order to permit the Purchaser reasonable time in which to procure needed requirements; and
- (b) immediately following termination, provide to the Purchaser at no cost, manufacturing drawings material specifications and all necessary permissions to facilitate manufacture of the Spare Parts elsewhere.

- (c) Any change in part number or superseded part number should be informed to the HOD of Excavation department / MM department of BCCL hqrs. and the project site wherever the equipment is operating.

In any event, the Supplier shall not seek to terminate manufacture of spare parts for a period of not less than *(15) years from the date of completion of warranty period*

E) Oils, Lubricants and Fluids

The Supplier shall provide to the Purchaser a detailed schedule of all necessary oils, lubricants, fluids 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 to be acceptable by the Supplier.

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

10 PRICE FALL CLAUSE

The price charged for the Stores / Equipment supplied against the order, shall in no event exceed the lowest price at which the bidder shall sell or offer to sell the Stores / Equipment of identical description to its any customer during the pendency of the Contract / Supply Order. If the successful tenderer at any time during the pendency of the Contract / Supply Order sells or offers to sell such stores to any customer, at a price lower than the price stipulated in the Contract / Supply Order placed by BCCL, the successful tenderer shall forthwith notify to BCCL such reduction in sale price of stores / equipment supplied after such reduction coming into force shall stand correspondingly reduced.

11 INVOICES :

The following information must be contained in the invoice issued by the supplier for availing CENVAT credit

- Serial No. of Invoice
- Registration No.
- Address of the concerned Central Excise Range, Division , commissioner ate.
- Name of the consignee
- Description of the goods
- Classification of the goods (CETSH CODE)
- Time and date of removal
- Mode of Transport and vehicle registration
- Rate of duty
- Quantity and value of goods and
- Duty payable thereon.

Tax invoice or CENVAT invoice , as the case may be , are to be submitted in Seven copies to the Consignee. Five copies to be forwarded by consignee to the paying authority including “ Original for buyer” and “ Duplicate for Transporter” for CENVAT CREDIT, besides three extra copies.

Following information must be contained for availing CENVAT Credit on input Service.

- Serial No.
- Name, address and registration number of supplier providing taxable service.
- Name, address and registration number of purchaser receiving taxable service.
- Description, classification and value of taxable services provided.
- Rate of duty.
- Service tax payable thereon.

12. Any terms and conditions of supply, not specified above, will be governed by the NIT and also by the General Terms and conditions of supply of stores, of Bharat Coking Coal Limited already given in our NIT

Sr. Manager(MM)

Chief Manage

Format of Performance Bank Guarantee
(RS.250 non-judicial stamp paper)

Messers -----, a Company having its office -----
 ----- (hereinafter called the Contractor) has entered into a Contract No. -----
 -----dated ----- (hereinafter called the said Contract) with Bharat Coking Coal
 Limited (hereinafter called BCCL, Buyer) to supply equipment on the terms and conditions contained in the said
 contract.

1. It has been agreed that hundred percent (100%) payment of the value of the equipment will be made to the
 Contractor in terms of the said contract on the Contractor furnishing to the purchaser a Bank Guarantee for the sum of
 ----- equivalent to 10% of the value of order by the Contractor, 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 Purchaser by reason of any breach by the said Seller of any of the terms and conditions contained in the
 said contract.

The ----- having its office at -----has at the request of Seller
 agreed to give the guarantee hereinafter contained.

2. We, -----Bank Ltd. 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 or any of the terms and 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 purchaser and the Seller regarding the claim. However, our liability under this guarantee shall be
 restricted to an amount not exceeding -----.

3. We, -----, 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 that would be taken for the
 performance of the said contract and that it shall continue to be enforceable till all the dues of the Purchaser under or
 by virtue of the said contract have been fully paid and its claims satisfied or purchaser certifies that the terms and
 conditions of the said contract have been fully and properly carried out by the said Seller and accordingly discharge
 the guarantee.

Unless a demand or claim under this guarantee is made on us in writing on or before the -----
 (date to be given), we shall be discharged from all liability under this guarantee thereafter.

4. We, -----Bank Ltd., further agree with the Purchaser, that the Purchaser,
 shall have the fullest liberty without our consent and without effecting in any manner our 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 relieved 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 or by
 any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect
 of so 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 the Purchaser the said sum of -----
 (specify the amount) or such lesser sum as may then be due to the Purchaser and as the Purchaser may demand.

5. We, -----Bank Ltd., further agree to renew the Bank Guarantee from time
 to time at the request of the BCCL.

6. We, -----Bank Ltd., lastly undertake not to revoke this guarantee during its
 currency except with the previous consent of the Purchaser, in writing.

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

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

Dated :..... Day of 20.....

for Bank Limited.

Signature of the authorised person

for and on behalf of the Bank.

ANNEXURE-“ F”.

**TRAINING ON BD355 Bull dozer a/c BCCL - for the fleet of
20 eqpt**

Type of Personnel	At Manufacturer works				At site		
	No. of persons	Period in weeks	Total in weeks		No. of persons	Period in weeks	Total in weeks
Mech Engineer	2	1 week	2 week		2	1 week	2 weeks
Elec Engineer	2	1 week	2 week		2	1 week	2 week
Mech Supervisor	2	1 week	2 week		4	1 week	4 week
Elec Supervisor	2	1 week	2 week		4	1 week	4 week
Mech Fitter					7	1 week	7 week
Electrician					7	1 week	7 week
Operator					11	1 week	11 weeks
Total	8		8 man weeks		37		37 man weeks

BD355

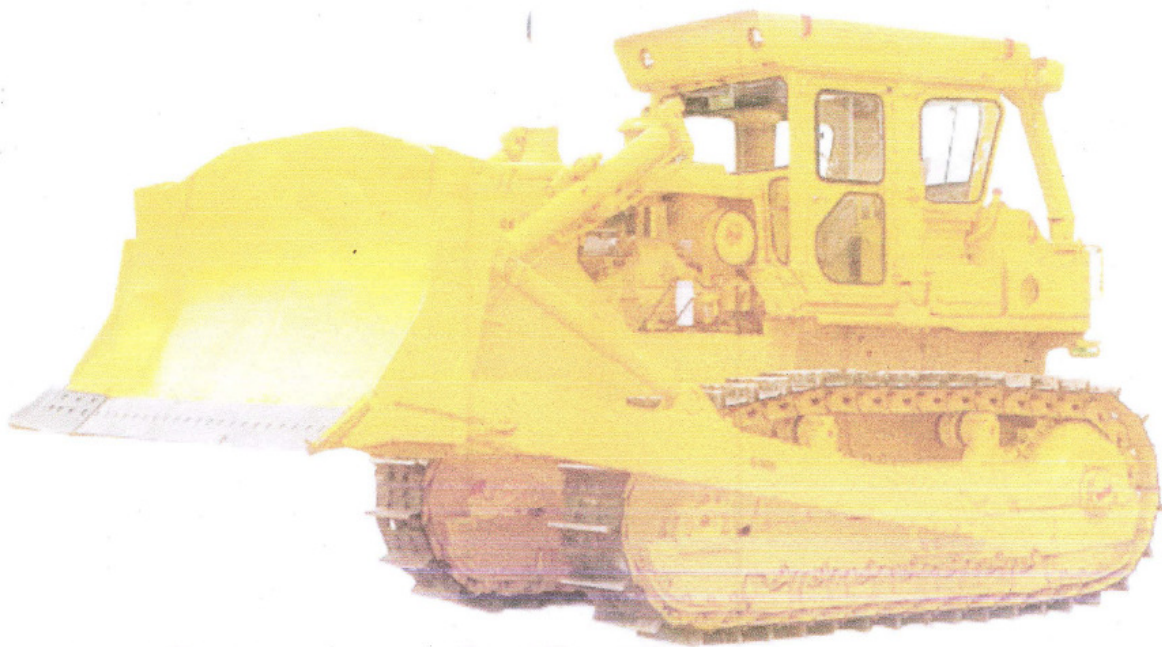
BULLDOZER

29



Salient Features

- **BEML BS6D170EG diesel engine:**
Features a generous Power to weight ratio for dynamic dozing performance
- **Power Shift transmission:**
Smooth and responsive power shift with single-lever control for instant speed and directional changes
- **Wet type interconnected steering clutches and brakes:**
Interconnected, wet-type steering clutches and brakes for easy operation and long service life. Steering clutches require no adjustment
- **Sturdy Construction:**
Track-roller frames are made of high tensile steel for maximum rigidity. The blade incorporates high-tensile steel at all key points to improve outstanding resistance to wear
- **Segmented sprockets:**
Sprockets with bolt-on rim segments permit quick on-site replacement without track removal
- **Grooved-type floating seals:**
These special seals are used in the idlers, track and carrier rollers to keep dirt out and lubricant in for extended undercarriage life, as well as reduced maintenance cost



Flywheel horsepower(net) : 310 kW (416HP) @ 2000 rpm
 Operating mass : 43840 kg
 (with straight tilt dozer)

BD355

H. K. WADHWA
 Regional Manager
 BEML Limited

Handwritten signature



Handwritten signature

Handwritten signature

BD355 BULLDOZER

30

Technical Specifications

Engine

Make	BEML
Model	BS6D170EG
Type	Diesel, 4-stroke, water cooled, turbo-charged, direct injection
Flywheel power (ISO 9249)	310 kW (418 hp) @ 2000 rpm
Maximum torque	1780 N.m (181.5 kg.m) @ 1400 rpm
No. of Cylinders	6 inline
Bore & Stroke	Ø 170 mm x 170 mm
Displacement	23.15 (0.02315 m³)
Electrical	
Alternator	24V, 55A, 1100 A with AVR
Starting motor	24V, 9kW
Battery	2 x 12V, 200 Ah

Transmission

Torque converter	
Model	TCS 46 - 1A
Type	3 element, single stage single phase
Star ratio	2.5
Transmission	
Type	Planetary power shift, 4 forward, 4 reverse
Final drive	
Type	Spur and planetary gear, double reduction
Lubrication	Splash type
Total reduction	33.74
Travel speeds m/sec (km/h)	
Range	Forward Reverse
1st	0-0.92 (0-3.30) 0-0.89 (0-3.20)
2nd	0-1.42 (0-5.10) 0-1.39 (0-5.00)
3rd	0-2.36 (0-8.50) 0-2.35 (0-8.47)
4th	0-3.53 (0-12.7) 0-3.50 (0-12.6)

Brake

Type	Wet, contracting band
Control	Foot operated steering brakes with hydraulic booster for light touch actuation and long service life. Brakes and steering clutches are interconnected for easy steering
Parking brake	Hand operated with mechanical linkage

Steering

Type	Wet, multiple disc steering clutches are hydraulically actuated and require no adjustment
Min. Turning Radius	3.8 m

Hydraulic System

Hydraulic Pump	
Type	Gear pump
Capacity	418.3 l/min
Relief pressure	13.73 MPa (140 kg/cm²)
Hydraulic cylinders	
Type	Double acting piston type
Blade Lift	2 cylinders
Bore x Stroke (mm)	Ø 160 mm x 1440 mm
Blade Tilt	1 cylinder
Bore x Stroke	Ø 250 mm x 180 mm
For optional ripper attachment	
Ripper lift	2 Cylinders
Bore x Stroke	Ø 225 mm x 600 mm
Ripper tilt	2 Cylinders
Bore x Stroke	Ø 225 mm x 600 mm

Filtration

Engine	Replaceable cartridge type filter for lubrication as well as for fuel line
Transmission	One magnetic oil strainer and one replaceable element by-pass filter is provided
Steering & Brake	Magnetic oil strainer is common to transmission, steering & braking system. Separate replaceable element type filter is provided for steering and braking
Hydraulic System	Magnetic plug & replaceable element type filter is provided

Under Carriage

Suspension	Oscillation type equalizer bar
Track Frame	Box section, high tensile strength steel construction
Track Rollers	7 no. each side
Carrier Rollers	2 no. each side
Track Shoes	39 no. each side
Track Pitch	2260 mm
Grouser Height	66 mm
Shoe width	610 mm (standard)
Ground Pressure	82.88 kPa (0.84 kg/cm²)
Ground contact area	4.099 m²

H. K. WADHWA
Regional Manager
BEML Limited

Pat

Vidya

Kanhu



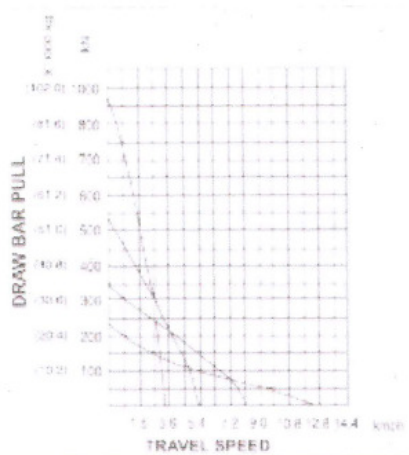
Coolant & Lubricants Capacity (Refill)

System	Specific amount	Refill capacity
Cooling System	180	
Fuel Tank	750	-
Engine Lub Oil	58	43
Transmission, bevel gear, torque converter & steering	230	190
Final Drive (each side)	68	68
Hydraulic system	280	100

Mass

Operating mass (Standard equipment with straight tilt dozer)	43640 kg
Shipping mass (Basic tractor with lubricants, hydraulic system, cooling system and 10% of fuel tank capacity)	34520 kg

BD355 DRAWBAR PULL Vs TRAVEL SPEED



Note: Usable pull will depend upon traction and weight of equipped tractor.

Standard Accessories

STANDARD ACCESSORIES

- Hydraulic track adjusters
- Air cleaner inner element lock
- Wear resistant pulley
- Track roller guard
- Final drive case guard
- Decelerator pedal
- Segmented sprockets
- Dry horizontal type air cleaner
- Lower guard (4 pieces)
- 7 Roller track frame
- Adequate lighting system
- Front pull hook
- In-line radiator
- Tool kit
- Audio visual backup alarm
- Engine Auto shut off unit for low engine oil pressure and high water temperature abnormalities

CONTROL LEVERS

- Gearshift
- Steering clutch (right)
- Fuel control
- Ripper control (opt)
- Steering clutch (left)
- Blade control
- Safety lock for blade & ripper
- Pin puller control (opt)

METERS & GAUGES

- Engine oil pressure
- Engine water temperature
- Torque converter oil temperature
- Engine tachometer meter
- Voltmeter
- Fuel level
- Transmission oil pressure
- Engine oil temperature

WARNING INDICATOR

- Engine oil filter clog
- Battery Charging (Indicator only)
- Engine oil pressure
- Engine coolant level
- Engine oil temperature
- Engine Coolant temp
- Torque converter oil temperature

OPTIONAL ATTACHMENTS

- ROPS Cabin / Canopy
- Steel cabin
- Air Conditioner with heater
- Pin puller equipment (for giant ripper)
- Multi shank ripper
- Pusher plate for straight tilt dozer
- Auto lub system
- Desert kit application
- Electric hour meter and tachometer in place of engine oil temperature gauge and tachometer meter
- ROPS FOPS Cabin
- Canopy (Steel / Canvas)
- Heat / AC / Split AC
- Giant Ripper
- Auto fire suppression system
- Parking lamp

Dozer Attachment

	Straight tilt dozer	Angle dozer	Semi-U dozer	U dozer	Coal dozer
Overall length with dozer (mm)	7120	7215	7163	7600	7540
Blade length x height (mm)	4315 x 1875	5230 x 1350	4315 x 1875	4715 x 1875	5530 x 2125
Max. lift above ground (mm)	1545	1640	1545	1545	1565
Max. drop below ground (mm)	700	720	700	700	650
Max. lift adjustment (mm)	1000	550	1000	1000	-
Additional ground pressure xPa (kg/cm ²)	20.6(0.21)	19.6(0.20)	20.6(0.21)	23.5(0.24)	19.6(0.20)
Blade Capacity (m ³)	5.9	5.9	12.0	15.6	24.6
Mass in kgs					
Dozer Attachment	7530	7200	7840	8830	7660
Hydraulic Control Unit	880	870	550	550	550

*Tilt Cylinder for coal dozer is optional

H. K. WADHWA
Regional Manager
BEML Limited

Signature

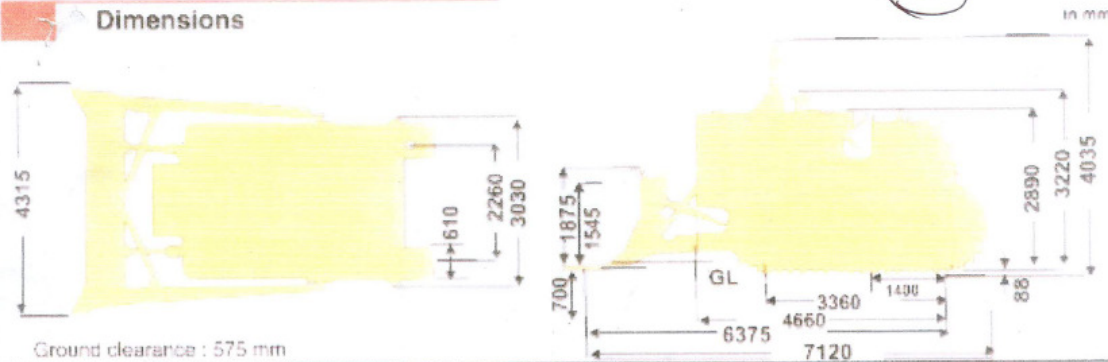


Signature

Signature

32

Dimensions



Ground clearance : 575 mm

1. Illustrations may include optional equipment & accessories and may not include all standard accessories.
2. Materials and specifications are subject to change without notice.
3. All the specifications meet relevant ISO standards.



MARKETING NETWORK

BEML LIMITED

Corporate Office : BEML Soudha, 23/1, 4th Main, SR Nagar, Bangalore-560 027, PH: +91-80-22963240 FAX: +91-80-22963164
Email: edc@beml.co.in; agm@beml.co.in

International Division : BEML Soudha, 23/1, 4th Main, SR Nagar, Bangalore-560 027 Ph. No. +91-80-22233350, 22222730
Fax No. +91-80-22224874 Email: office@export.beml.co.in

Marketing Division : 5th floor, Ummy Building, J C Road, Bangalore-560 002 Ph. No. +91-80-22963501/02/05, 22963607/09/10
Fax No. +91-80-22963541 Email: mmoffice@sales.beml.co.in

REGIONAL OFFICES

BELGAUM
1/6, Sector C, Begur, Belgaum Area, PO, Zila,
Belgaum-595 231 Ph. No. 01752 267560
Fax No. 01752 267565 E-mail: belgaum@beml.co.in

CHENNAI
Flat No. 10 & 11, Surya Station, Seering Road,
Nungambalam Road, Chennai-50 031
Telax No. 044-22267210 E-mail: chennai@beml.co.in

HYDERABAD
2-B/14, Pithapur Nagar, Hyderabad-500 029
Ph. No. 040-23277332 Fax No. 040-23221794
E-mail: hyderabad@beml.co.in

KOLKATA
Flat No. 9, 10 & 11, 56, Lord Sinha Road, Kolkata-700 011
Ph. No. 033-23630714 Fax No. 033-23621155
E-mail: kolkata@beml.co.in

MUMBAI
Regional, 1st Floor, 84, New Harmon Road, Churchgate,
Mumbai-400 021 Ph. No. 022-22852617
Fax No. 022-22852612 E-mail: mumbai@beml.co.in

NAGPUR
15, Chandra Road, Shivajinagar, Nagpur-440 010
Ph. No. 0712-2266001 Fax No. 0712-2266340
E-mail: nagpur@beml.co.in

NEW DELHI
Flat No. 1, 1st Floor, Vardaan, 11, Tolson Road,
New Delhi-110 011 Ph. No. 011-23219500
Fax No. 011-23225038 E-mail: delhi@beml.co.in

RANCHI
1122, Greater Road, Ranchi-834 001
Ph. No. 0661-2962577 Fax No. 0661-2960141
E-mail: ranchi@beml.co.in

SAMBALPUR
26/50, Complex, N.M.B. Barapada, Sambalpur-758 104
Ph. No. 0663-2521604 Fax No. 0663-2521601
E-mail: sambalpur@beml.co.in

SINGRAULI
Plot No. 4, Singrauli Colony, PO, Sagar Singrauli-480 000
Ph. No. 07626-266666 Fax No. 07626-267282
E-mail: singrauli@beml.co.in

DISTRICT OFFICES

ANANDIPUR
208-1, Dabang Vile, Ghatampur, District Road, Nawabshah,
Anandipur-380 208 Ph. No. 079-26415073,
Fax No. 079-26423660 E-mail: anandipur@beml.co.in

ASANOL
1, Bunkur Road, Asanoli-213 304 Ph. No. 0347-2252180
Fax No. 0347-2252661 E-mail: asanoli@beml.co.in

BILAI
Room No. 202, BSR Building, Near Post Office,
Bilal-490 001 (CG) Ph. No. 0788-2223480
Fax No. 0788-2223055 E-mail: bilal@beml.co.in

BHILAINAGAR
41/41, Shant Nagar, Bhilainagar-751 001,
Bhilai Ph. No. 0674-2645077
E-mail: bhilainagar@beml.co.in

CHANDRAPUR
Marshall Tins Factory Compound, Chandra Road,
Chandrapur-431 001 Ph. No. 07172-267230
Fax No. 07172-267230 E-mail: chandrapur@beml.co.in

DHANBAD
Karnal, Kunk, Kunk, Kunk, Dhanbad-826 127
Ph. No. 0326-2208962 Fax No. 0326-2208162
E-mail: dhانبad@beml.co.in

GUWAHATI
10, Saran Road, 9, Bypass (West), Tezpur,
Guwahati-781 024 Tezpur Ph. No. 0361-2454986
E-mail: guwahati@beml.co.in

HOSPET
No. 243, 2B Dharma Nigam, No. 40-1st Mah Road,
Rajawade Road, Hospet-515 201 (Karnataka)
Maha No. 0944546800

JAMMU
52C Block 52C, Gandhinagar, Jammu, Jammu-180 004
Ph. No. 0191-2430447 Fax No. 0191-2430784
E-mail: jammu@beml.co.in

KOTHAGUDEM
5-25, 2nd Floor, Lakshmi Nigam, Kothagudem-507 101 (A.P.)
Ph. No. 08744-242482 Fax No. 08744-245070
E-mail: kothagudem@beml.co.in

MADURAI
1, 449, Katar Nagar, 2nd Main Road, Madurai-625 011
Fax No. 0452-2549458 E-mail: madurai@beml.co.in

RAYCHUR
14, Rajendra Prasad Road, Box 27, Rayachur-607 102
Telax No. 04162-268517 E-mail: rayachur@beml.co.in

PAULUR
67-12, Gokulam Building, 11 Floor, MG Road, Palur-605 001
Telax No. 0893-2225105 E-mail: palur@beml.co.in

RAJAGURDAS
1st Floor, 50/2, T.A. Mares, 100, Rajagurda, Rajagurda-505 001
Ph. No. 06726-244516 E-mail: rajagurda@beml.co.in

UDAPUR
No. 22, B, Lohab Bazaar, Bazar Road, Udaipur-313 004 (Rajasthan)
Ph. No. 0294-245053/2450255, Telax No. 0294-245056



- ◆ Zonal Offices
- Regional Offices
- ▲ District Offices
- Activity Centres

Form No. BDM/03/03/06/2009



H. K. WADHWA
Regional Manager
BEML Limited

Handwritten signature

ANNEXURE- “H”

PREVENTIVE & PERIODICAL MAINTENANCE SCHEDULE FOR BD355 CRAWLER DOZER

A) PERIODICAL MAINTENANCE CHECK

Sl. No.	TYPE OF PM	DETAILS OF PM	HRS Reqd	No OF PM	Hrs Reqd For 3000 hrs/year
1.	<u>Daily Checks</u>	Visual check for any leakage, loose connection, loose bolts, coolants and lubricants level, Sediments drain etc., check AC Dust indicator and clean elements, if required.	0.5	300	150
2.	Every 250 hrs.	Engine oil / filter change, Trans. / Strg. oil filter change, fuel filter change, checking F/D oil, track shoe mounting bolts : check / Torque, lubricating all points.	04	12	48
3.	Every 500 hrs.	Corrosion resistor cartridge replacement, breathers cleaning	02	06	12
4.	Every 1000 hrs.	F/D oil change, Hyd. oil / filter change, Strg. clutch & Trans. Torque Conv. oil strainer clean, Turbo charger Mtg. Bolts : Check & tighten, U/C components inspection. change AC elements depending on service life.	06	03	18
5.	Every 2000 hrs.	Engine valve clearance check & adjust, engine breather cleaning, CBM of engine along with oil sample.	12	01	12
TOTAL HRS REQD FOR 3000 HRS OF OPERATION					240

B. PREVENTIVE MAINTENANCE

Every 2000 hrs.: check for leakages and pressure checkings of all systems. This will be carried out along with 2000 hrs. periodical maintenance.

C. WEAR OUT PARTS REPLACEMENTS

Every 1500 to 2000 Hrs : Replacement of end bits, cutting edges turn. This will be (Depending on wear) done concurrently with respective periodic maintenance.

Sub: Material Code

Ref.: Order No. BCCL/PUR/411102/410 HP Dozer/2011-12/264 dated 05.03.2012

The referred order has been placed on M/s BEML Limited for supply of Dozer Along with Spares and Consumables for First , Second and Third year of operation.

Material Code is required for the Equipment and Spares & Consumables as per description placed below:

Equipment: BEML Model BD355 Crawler Dozer powered by direct injection 4-stroke BEML diesel Engine (electronic) with governor model BS6D170 EG with turbocharged, water cooled and developing 310KW(416 HP) @ 2000 rpm and fitted with hydraulically controlled semi U blade attachment and AC cabin along with tools & tackles (accessories)

Spares & Consumables:

EQPT. MODEL : BD355		DESCRIPTION	MATERIAL CODE
SL.NO.	PART NO.		
1	0706301142	ELEMENT (HYD.)	
2	524300450001	ELE. TRANS & STEERIN	
3	CHS0102115	O-RING	
4	CHS0103120	O-RING	
5	CHS0115175	O-RING	
6	CFN4311625	NUT	
7	130TD11117	EDGE CUTTING	
8	130TD12851	BOLT	
9	130TD52825	END BIT LH	
10	130TD52833	END BIT RH	
11	CFW0527080	WASHER	
12	125EC62947	HOSE	
13	125EC62955	HOSE	
14	125EG81433	TEMP SENSOR COOLANT	
15	125EG81441	TEMP SENSOR CONV/ENG	
16	125IP81198	SWITCH MOM-ON	
17	130PT91011	HOSE	
18	130PT91052	HOSE	
19	CHH2200616	HOSE	
20	CHH2200806	HOSE	
21	CHH2300605	HOSE	
22	CHH2301004	HOSE	
23	CHH3021416	HOSE	
24	CHH3024122	HOSE	
25	CHS0102055	O-RING	
26	CHS0103030	O-RING	
27	CHS0103035	O-RING	
28	CHS0103038	O-RING	
29	CHS0103048	O-RING	
30	CLN0110000	FITTING GREASE	
31	CVL0130000	LUBRICATOR	
32	CCC0952400	GASKET	

33	CCC0951200	GASKET	
34	130TF63199	PACKING	
35	130HC02134	LIFT CYL. KIT	
36	Under Carriage SET consisting	FOR D355 EQUIPMENT	
	130TF00171	TRACK ROLLER SF -4 No.	
	130TF00188	TRACK ROLLER DF- 10 No.	
	130TF00139	CARRIER ROLLER - 4 No.	
	130CTB0048	TRACK SHOE ASSY-2 No.	
	130TF00147	IDLER ASSY - 2 No.	
	130FD52046	SPROCKET - 18 No.	
	BFB1412491	BOLT - 54 No.	
	BFN2612430	NUT -54 No.	
37	51Z9900906	ENGINE MAINT KIT	
38	41Z1200244	AC ELEMENT	
39	0412222581	V BELT	
40	0412021933	V BELT	
41	00Z0090498	ACF 5 Lit CAN	
42	30Z1110146	PLUG,EXPANSION	
43	0867002001	DUST INDICATOR	
44	51Z2380274	SEAL,FRONT	
45	51Z5161296	GASKET(CENTRIFUGAL FILTER)	
46	CPF0601612	GASKET(CENTRIFUGAL FILTER)	
47	41Z5160749	HOSE(CENTRIFUGAL FILTER)	
48	130SU91011	EQUALIZER BAR PAD	
49	CHH0621006	TILT HOSE	
50	125EG02077	CABLE	
51	CCC0902400	COUPLING ASSY	
52	CCC0901200	COUPLING ASSY	
53	130HC02142	TILT CYL. KIT	
54	757EG11026	SMART ALARM	
55	CEK0110000	STARTING SWITCH	
56	CET0401175	TERMINAL	
57	CET0402160	TERMINAL	
58	30Z7181024	WATER SEPERATOR	
59	30Z6180529	HOSE	
60	51Z6100028	WATER PUMP ASSY	
61	130HM01035	HYD. PUMP ASSY	
62		RECON ENGINE	
63	51Z8280736	ALTERNATOR	
64	52Z8280855	STARTER	
65	130TF71396	WEAR RING	
66	130HM01002	T/M PUMP	
67	882000000031	GEAR SHIFT LINKAGE	
68	881900000034	STG LINKAGE	
69	51Z9900063	GASKET KIT,CYLINDER HEAD	

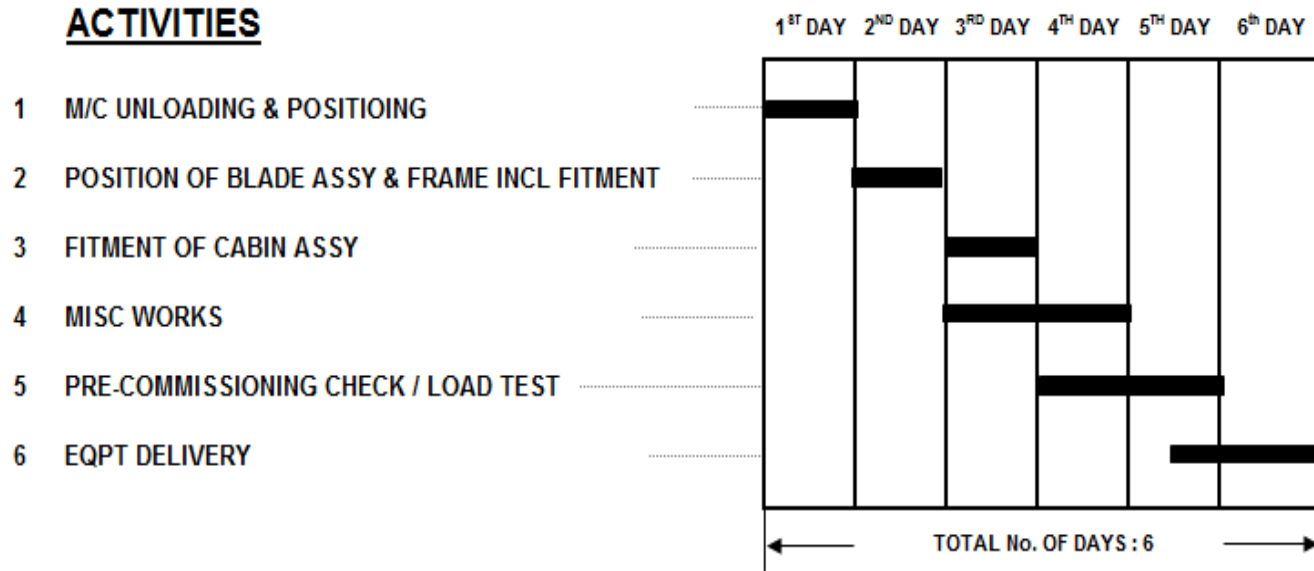
Submitted please for necessary action for providing Material Codes.

(P.K.Sinha)
CM(MM)

Sr. Manager (MM)

ERECTION CHART FOR BD355 BULL DOZER

ACTIVITIES



- Note :**
1. The above schedule is indicative only. However, depending upon the manpower and facilities being extended by the purchaser it may vary.
 2. Erection work will be commenced after receipt of full consignment at site and commissioning will be completed within the specified period.
 3. Any delay in erection and commissioning due to non-availability of facilities like cranes of required capacity, manpower and other facilities which are to be provided by the customer, will be to the purchaser's account.