Bharat Heavy Electricals Limited
Heavy Equipment Repair Plant

Works Contract Management (WCM) Department

TARNA, SHIVPUR, VARANASI-221003

Tender Document

Name of Work: - Repairing & refurbishment of CLH & VLH assemblies" within HERP premises for a period of one year

TENDER NO.: HERP/WCM/FY25/EM/REPAIR/CLHVLH **DATE.** **02/12/2025**

Bharat Heavy Electricals Limited
Heavy Equipment Repair Plant
Works Contract Management (WCM) Department
TARNA, SHIVPUR, VARANASI-221003

Tender (NIT) Details

TENDER NO.: HERP/WCM/FY25/EM/REPAIR/CLHVLH **DATE. 02/12/2025**

Open Tender is invited for "**Repairing & refurbishment of CLH & VLH assemblies" within HERP premises for a period of one year**" as per details mentioned under:

Last Date of submission of Tender	**12/12/2025**	**Time :**	**14:00**
Date and Time for opening of Technical Bid	**12/12/2025**	**Time :**	**16:00**

Name of work	Earnest Money Deposit (EMD)	Security Deposit (SD)	Period of contract	Cost of Tender Document	Reverse Auction
Repairing & refurbishment of CLH & VLH assemblies" within HERP premises for a period of one year	NIL	10% of the contract value	365 Days	NIL	Not Applicable

- All NIT/ Tender document/ Corrigenda / Addenda / Amendments / Time extensions etc. to the tender will be hosted on NIC portal **(https://eprocurebhel.co.in/)**, only and will not be published in any other media. Tender NIT will also be floated on **http://www.bhel.com** & **https://herp.bhel.com** for vide publication. Bidders should regularly visit above websites to keep themselves updated.

- **Bidder to note that this is an e-tender and bidders have to submit this only through NIC portal (https://eprocurebhel.co.in) site only. No hard copies of tender shall be accepted.**

- Bidder is requested to contact undersigned for any query or clarification.

(Issued by)
Atendr Kumar Pal
Manager (WCM)
Email: atendrpal@bhel.in
Telephone No. 0542-2720-928

1. BHEL reserves the right to accept or reject any/ all application(s) without assigning any reason thereof.
2. If any document submitted by the bidder is found false at any stage, the bid/ work order will be cancelled immediately and the financial loss to BHEL if any in making alternative arrangement will be recovered from the contractor.

DIRECTIONS TO PARTIES FOR TENDERING

1. Bidder to note that work will be awarded at lowest quoted Rates. All other details regarding the same will be as per General Condition of Contract (GCC).
2. Party may visit the site for assessment of actual quantum or nature of work if they wish before quoting their rates.
3. This is **Two part** bid system and the bidder should submit Technical Bid & Price Bid as per details mentioned under:

Details of Tender Document

The Tender document has been detailed as follows, under single part bid:

(TECHNO-COMMERCIAL BID)

1. Tender (NIT) Details
2. Details of Bid & Bidder
3. Pre-Qualifying criteria (PQC)
4. Scope of work
5. Special Conditions of Contract
6. BOQ & Price schedule
7. No deviation certificate
8. General Condition of Contract (GCC)
9. Bidder's Declaration
10. Procedure and Drawings

(PRICE BID)

1. Price to be quoted on NIC Portal only.

4. Tenders shall be opened by authorized officers of BHEL at their office at the time and date as specified in the tender notice in the presence of bidders or their authorized representative who may be present.

5. A representative of bidder (only 01 per bidder) shall be permitted to be present at the time of opening of bid. However, ***the bidder should give prior intimation of the same & seek permission after giving details of its representative by contacting designated person as per details mentioned in NIT at least 02 days in advance.***

6. The successful Tenderer shall submit security deposit (if applicable) and must sign contract agreement (if required) within 15 days from the date of Work Order/ LOA given by Bharat Heavy Electricals Limited and further start the work under reference.

7. All expenses towards procurement of Stamp paper (if applicable) and preparation of contract agreement shall be in the scope of contractor.

Details of Bid & Bidder (To be filled by bidder)

Sl. No.	Description	To be filled by bidder	
1	Bidder Offer No. & Date		
2	Legal Name of the bidder (as mentioned in GST registration)		
3	Address for Communication	**Address:**	
		State	
		PIN code:	
		Mobile No.	
		Phone / Fax No.	
		Name of Contact Person	
		Email ID	
4	Type of firm	Individual / Proprietorship / Partnership / HUF / Association of Persons / Private Limited company / Public Limited company	
5	GST registration No.		
6	PAN No.		
7	UDYAM Registration No. (If available)		
8	Remark (If any)		

Certificates to be attached:
Copy of PAN, GST Registration Certificate., UDYAM Certificate (for MSMEs).

Pre- Qualifying Criteria (PQC)

Sr	Criteria
	1. TECHNICAL EXPERIENCE PQC: Contractor should have experience of having successfully completed **fabrication/assembly/refurbishment/repair works** during last 7 years ending last day of month previous to the one in which applications are invited should be any of the following.
	Three similar completed/ executed works each costing not less than the amount equal to Rs 1.9 Lacs including taxes. Or Two similar completed/executed works each costing not less than the amount equal to Rs 2.38 Lacs including taxes. Or One similar completed/executed work costing not less than the amount equal to Rs 3.8 lacs including taxes.
	Similar work means: Similar works include the experience working in metal items for its fabrication/ assembly/ refurbishment/ repair in an Industrial/ Construction Set-Up. Copy of such work orders and Performance-Report/ Completion- Certificate/ Inspection-Clearance- Report/ Other Equivalent Document issued by customer for executed/ completed work is to be submitted. The value of work executed against a framework agreement shall be considered as one completed/executed order.
	2. FINANCIAL CAPABILITY: Bidders should have minimum average annual financial turnover of Rs 1.42/- Lakhs during last 3 years' financial years 2022-23 2023-24 and 2024-25. Bidder to submit following documents for this- If Applicable, Audited Profit & loss account and balance sheet to be submitted for FY 24-25, FY 23-24 & FY 22-23 else CA certified TO Sheet of the FY 24-25, FY 23-24 & FY 22-23 to be submitted. **All the CA certified/ audited documents should have UDIN** **Note**: In case the date of constitution / incorporation of the bidder's firm is less than 3-year-old, the average turnover in respect of the completed financial years after the date of constitution shall be taken into account for financial criteria.

Note: Being this work as Works Contract, no relaxation for "Experience and Turnover" will be given to MSEs & Startups.

Scope of Work

VALIDITY OF CONTRACT: One Years from the date of Contract Agreement

LOCATION OF WORKPLACE: The Assembly of Constant Load Hangers (CLH) is to be carried out inside BHEL – HERP, Varanasi premises, Uttar Pradesh.

Detailed Scope of Work: The Scope of Work shall be divided in two parts.

Part-A: Scope of Work for Constant Load Hangers (CLH)

1. DISMANTLING

1.1 The vendor shall begin by collecting the issued Constant Load Hangers (CLH) from the designated area inside HERP. The vendor must verify and record the variant type, and quantities received, ensuring proper traceability throughout the entire refurbishment process.

1.2 The vendor shall then carry out **complete dismantling** of the CLH assembly in a systematic manner. As the load hanger are in loaded condition and hence they must be unloaded using CLH Testing Machine of BHEL before starting any dismantling activity. Once unloaded, the dismantling activity shall include the dismantling of the load tube assembly, disk assembly, cam assembly, and other constituent components. **Springs must be carefully removed and segregated, as these will be replaced by BHEL-supplied new springs.**

1.3 During dismantling, the vendor must exercise caution to ensure that reusable components do not get damaged. The vendor must create clear segregation between reusable parts, repairable parts, and scrap items. All the scrap item shall be provided by BHEL for replacement and record of the same shall be maintained by vendor.

1.4 All dismantled items must be arranged in an orderly manner to avoid mix-up between different hangers. No component shall be discarded without joint verification from **BHEL executives.**

2. ASSESSMENT

2.1 After dismantling, the vendor shall conduct a **comprehensive assessment** of each component. A detailed **dimensional assessment** shall be carried out to verify the condition of structure body as well as the mechanical components.

2.2 The vendor shall conduct Visual check on every dismantled component. Wherever any crack, surface defect, or suspect weld is found the same shall be reported to BHEL.

2.3 After inspection, the vendor shall classify every part into three categories:
(a)**Serviceable** — parts that can be reused after cleaning.
(b)**Repairable**-parts requiring machining, welding, straightening, grinding, de-rusting

etc.
(c) **Unserviceable** — parts that must be replaced.

2.4 The vendor shall prepare a **unit-wise Inspection Report (IR)** documenting the detailed findings. This report shall include observations on damage, required restoration tasks, parts missing, and component condition classification. The IR must be submitted to BHEL for review before the restoration stage begins.

3. RESTORATION

3.1 Based on the inspection findings, the vendor shall carry out **structural restoration** activities which include straightening bent rods or plates, correcting misaligned holes, repairing cracks through qualified welding, rebuilding worn-out edges by welding and grinding, and reshaping distorted structural components to meet drawing requirements.

3.2 All components shall undergo **thorough cleaning and derusting**. Corrosion, rust flakes, old paint, oil, and contaminants must be removed using wire brushing, emery, scrapers and mechanical tools.

3.3 In case of CLH, the vendor shall **not repair or modify springs** in any manner. All springs are to be replaced with **new springs issued by BHEL**. As all the springs obtained from the CLH will be recorded by BHEL, hence vendor has to ensure that all the removed old springs must be returned to BHEL separately.

3.4 All restored parts must be re-checked dimensionally and visually before assembly begins, ensuring that they meet the functional and structural criteria prescribed in BHEL drawings.

4. ASSEMBLY

4.1 Assembly shall be performed strictly in accordance with BHEL procedures: **RV-PROC-004 (Single Cell CLH Assembly), RV-PROC-005 (Multi-Cell CLH Assembly), and RV-PROC-003 (Rectification Procedure)**. These procedures must be followed without deviation.

4.2 In case of **Multi-Cell CLH**, the vendor shall assemble individual single cells first, and then combine them into multi-cell units, ensuring uniform load distribution and precise alignment. The multi-cell components shall also undergo the activities of Restoration, as explicitly mentioned in Clause-3.1, 3.2 & 3.4 above.

4.3 After assembly is completed, the vendor shall carry out painting activities (primer + enamel), apply colour coding as per BHEL standards, and mark the hanger with identification details such as variant number and refurbishment year.

5. FUNCTIONAL TESTING

5.1 After assembly, the refurbished CLH must be offered to BHEL for **functional testing**. The vendor shall assist BHEL in positioning, holding, and operating the hanger during the test.

5.2 The **load testing** shall be performed to verify the constant load characteristics of the hanger. The hanger shall be tested over the full travel range, and its response under load shall conform to specifications.

5.3 The vendor shall ensure that the hanger:

- Maintains constant load behaviour (within acceptable limits of +/- 6%) throughout travel
- Moves smoothly without jerk or obstruction
- Exhibits correct hot and cold load positions
- Meets spring deflection and travel parameters
- Does not show signs of binding or misalignment

5.4 If the hanger fails functional testing, the vendor must carry out rectification work immediately. This may include readjustment, reassembly, correction of alignment, part replacement, or rework of any defective operation. All rectification work must be done **at no extra cost** to BHEL.

Part-B: Scope of Work for Variable Load Hangers (VLH)

1. ASSESSMENT

1.1 Upon receipt of the VLH units from the designated HERP stores, the vendor shall verify the quantity, type, and identification marks of each hanger. This includes confirming the VLH variant number (if marked), visual condition of housing, springs, tie-rods, turnbuckle, and external surfaces.

1.2 The vendor shall carry out a **thorough visual assessment** of each VLH assembly to determine the extent of deterioration and to identify damages affecting the external surfaces. This assessment shall include the condition of the spring housing, springs, hanger bracket, load plates (Top & Bottom), travel indicator (if present), nuts, tie-rods, turnbuckle etc.

1.3 The vendor shall inspect the hanger for **corrosion levels**, i.e., identification of rusted surfaces, scaling, paint peeling, moisture-induced corrosion, and any signs of surface degradation that may require additional cleaning efforts.

The assessment shall be submitted to BHEL for review prior to initiating surface restoration activities.

2. SURFACE RESTORATION

2.1 Surface restoration shall be executed only on the **external and accessible parts** of the VLH assembly, as dismantling of VLH or spring mechanism is not permitted under this contract.

2.2 The vendor shall begin by removing all loose dust, accumulated dirt, moisture, and surface deposits through brushing to expose the metal surface adequately for de-rusting operations.

2.3 **Comprehensive de-rusting** shall be carried out using wire brushes, mechanical hand tools, emery sheets, scrapers, and rotary tools (wherever required). The vendor shall remove rust flakes, corrosion pits, and scaling from the hanger body, ensuring the surface is free from contaminants that may affect paint adhesion.

2.4 Once cleaned, the vendor shall apply **one uniform coat of approved primer**, ensuring full coverage of all surfaces with **minimum dft. = 40-micron minimum**. Primer application shall avoid dripping, sagging, and over-thickness.

2.5 After primer curing, the vendor shall apply **one coats of enamel paint** of the shade specified by BHEL with **minimum dft. = 30-micron minimum** Each coat must be applied only after sufficient drying time to prevent surface defects and to ensure a smooth finish.

2.6 Completed units shall be allowed to dry in a dust-free area. The vendor shall ensure no paint damage, smudges, or touch marks occur during drying and handling.

3. FUNCTIONAL TESTING

3.1 After restoration, each VLH shall be offered for **final visual inspection** by BHEL to confirm paint quality, uniformity, and compliance with appearance standards. The vendor shall present the hangers properly arranged for inspection.

3.2 The vendor shall ensure that all moving external components—such as the load arm, rod connection etc are free from obstruction. Although internal spring mechanism testing is not part of this contract, basic movement checks shall be done to confirm that painting has not hindered functionality.

3.3 Any unit not meeting visual or surface finish standards shall be reworked by the vendor at no extra cost until it meets BHEL acceptance criteria.

3.4 The refurbished VLH must be offered to BHEL for **functional testing**. The vendor shall assist BHEL in positioning, holding, and operating the hanger during the test.

The vendor shall ensure that the hanger:

- Moves smoothly without jerk or obstruction
- Exhibits correct hot and cold load positions
- Meets spring deflection and travel parameters
- Does not show signs of binding or misalignment

3.5 If the hanger fails functional testing, the vendor must carry out rectification work immediately. This may include readjustment, reassembly, correction of alignment, part replacement, or rework of any defective operation. All rectification work must be done **at no extra cost** to BHEL.

3.6 The refurbished VLH units shall then be shifted to the designated area for final handover to HERP Stores. The vendor shall ensure proper handling during movement and storage to avoid paint scratches or damage.

Special Conditions of Contract (SCC)

1. Contractor Scope:

A. Material Handling, Receipt & Disposal

The vendor shall be responsible for the safe collection, internal transportation, and handling of dismantled, damaged, or returned Constant Load Hangers (CLH) and Variable Load Hangers (VLH) issued by BHEL to the designated repair location. After completion of the repair work, the vendor shall return all unused or surplus items to HERP Stores and shall dispose of all packing waste, rust flakes, and scrap at the location specified by BHEL. All manpower required for handling, shifting, and housekeeping shall be arranged by the vendor.

B. Execution as per Latest Drawings & Repair Procedures

All repair and refurbishment activities shall be performed strictly in accordance with the latest BHEL drawings, approved repair procedures, QAP, WPS, specifications, and written instructions issued by the executing department. The vendor shall ensure that the latest revisions of all documents are being used without exception.

C. Dimensional Accuracy & Documentation of Repairs

The repaired/refurbished CLH shall strictly comply with the dimensional tolerances, alignment requirements, structural soundness, and functional criteria laid down in BHEL drawings.
Any deviations noticed during inspection or restoration must be recorded and presented to BHEL.

D. **Consumables & Indirect Materials in Vendor Scope**

All indirect materials and consumables required for repair—including grinding wheels, emery sheets, welding electrodes, Welding Machines, cleaning agents, gas cutting accessories, primer/enamel painting consumables like brushes, Safety gloves, Shoes, ear plugs etc. and general-purpose tools—shall be arranged entirely by the vendor.

E. Deployment of Qualified Manpower for Repair Work

The vendor shall deploy adequate numbers of skilled technicians, fitters, welders, grinders, and competent supervisors/engineers for the execution of repair activities. The vendor shall maintain welder qualification records and provide the same to BHEL on demand.

F. Incorporation of Drawing Revisions & Technical Instructions

If any repair activity requires modification due to updated drawings, revised technical instructions, or changes in BHEL's quality/engineering requirements, the vendor shall implement such revisions without claiming any additional charges. Any rework required due to changes issued during the contract period shall be carried out at no extra cost.

G. Statutory Compliance, Labour Regulations & Safety Responsibility

The vendor shall follow all statutory provisions under the Factories Act, Labour Laws, ESI, PF, minimum wage rules, insurance requirements, and any other legal regulations applicable to labour engaged for repair works. Vendor must submit the **POLICE VERIFICATION** of all the manpower involved in the contract to BHEL HR. It shall be the sole responsibility of the vendor to ensure the safety of their workforce while working with repair tools, welding equipment, grinders, lifting tools, paints, and during handling of heavy CLH/VLH components. All personnel must adhere to BHEL's safety rules and use appropriate PPE at all times.

H. Completion Responsibility for All Related Repair Activities

Any incidental, auxiliary, or related repair activity not explicitly mentioned but necessary to restore the CLH/VLH to the required functional and dimensional condition shall be considered included in the vendor's scope. No extra billing shall be entertained for any activity required to complete the refurbishment in accordance with BHEL standards.

2. BHEL's SCOPE:

A. Supply of Technical Documents

BHEL shall provide the vendor with all necessary technical documents, including the latest revisions of Drawings, QAP, WPS, Repair Procedures, and any other engineering or quality documents required for carrying out refurbishment and testing activities. These documents shall serve as the governing technical references for all work under the contract.

B. Supply of Input Materials & Major Components

BHEL shall supply all major components and inputs required for the refurbishment of CLH and VLH assemblies. This includes, but is not limited to, Case Assemblies, Load Tube Assemblies, Load Adjustment Assemblies, Rods, Plates, Brackets, and **new Springs** to replace old or worn-out springs in CLH units. Any additional parts deemed necessary during the repair process shall also be issued free of cost as per BHEL's discretion.

C. Provision of Special Tools & Common Equipment

For execution of repair activities, BHEL shall provide certain common tools and equipment such as Pneumatic Impact Wrenches, Adaptors, Hydraulic Jacks, Hexagonal Wrenches, Hammers, Circlip Pliers, Wire Rope Slings, Jute Ropes, and other standard tools generally used in handling and repair of hanger assemblies. The vendor shall be responsible for safe usage, routine upkeep, and return of such tools in working condition.

For Unloading the CLH Hangers, Vendor can use the Load Hanger Testing Machines of BHEL. However, these machines shall be provided to vendor in B-shift only.

D. Utilities – Electricity & Water Supply

BHEL shall supply electricity and water free of cost at a single designated point within the work premises. The vendor shall make its own further distribution arrangements from this point to the actual workplace. Any cabling, piping, extension boards, connectors, hoses, and other accessories required for such distribution shall be arranged by the vendor.

E. Material Handling Facilities

Material handling facilities such as cranes, hoists, forklifts, or other lifting devices shall be provided by BHEL free of cost for the movement of heavy components within the premises. However, the vendor shall deploy its own manpower for slinging, guiding, positioning, and all associated material-handling activities. The vendor shall ensure proper coordination with BHEL operators and adhere to all safety protocols during material movement.

3. ***CONTRACTOR'S RESPONSIBILITY:***

- **A.** The contractor shall complete the assigned work within the stipulated time in A & B shifts as per BHEL Timing. However, whenever required, Vendor shall work in 'Night Shift (as per approved rules), and on Holidays after obtaining due permission from BHEL.
- **B.** The contractor or his authorized representative shall supervise the work on a daily basis to ensure proper execution and adherence to quality requirements.
- **C.** All tools and equipment such as grinding machines, hand tools, and accessories required for repair work shall be arranged by the contractor. BHEL shall provide electrical connection for welding and grinding at one point free of cost.
- **D.** If more than 20 workmen are engaged, the contractor shall obtain a valid labour license from the DLC, Varanasi within one month of award of contract and comply with all statutory labour requirements.
- **E.** POLICE VERIFICATION of all the involved manpower shall be submitted by vendor to BHEL HR within one month of award of contract
- **F.** The contractor shall submit daily and monthly reports indicating manpower deployment, progress of work, and other details as required by BHEL.
- **G.** After completion of refurbishment, all required technical information and checklists related to CLH shall be filled in the prescribed formats and submitted for BHEL's confirmation.
- **H.** The contractor shall deploy adequate skilled and unskilled manpower required for repair, reassembly, welding, functional testing, painting, and associated activities.
- **I.** The contractor shall coordinate with other ongoing activities in the shop and ensure that his work does not hinder or delay other operations. Cooperation with other contractors and BHEL personnel shall be maintained at all times.
- **J.** The contractor shall ensure that his personnel do not cause any nuisance, disturbance, or inconvenience to others working in or around the site.
- **K.** All engineers, supervisors, and workmen deployed by the contractor shall be fully insured at his own cost, and insurance documents must be submitted before commencement of work.
- **L.** Any damage caused by the contractor or his workmen to BHEL property, components, structures, cables, equipment, or facilities shall be repaired or

made good by the contractor at his own cost. Penalties may be imposed for failure to comply.

M. The contractor shall be responsible for the safety and security of all materials and equipment issued to him and shall maintain proper accountability and quality of work throughout the contract period.

N. The contractor shall ensure full compliance with safety norms and provide all safety PPE (shoes, helmets, goggles, gloves, etc.) to his workmen at his own cost. Safety precautions shall be strictly followed during grinding, painting, welding, and handling of heavy items.

O. The contractor shall handle or shift other components, if required, to access the parts to be repaired. No extra payment shall be made for such incidental handling work.

P. Before starting any work, the contractor shall verify the latest revision of drawings, specifications, and technical instructions issued by HERP and clarify the exact scope with the executing department.

Q. The contractor shall submit the list of the complete team proposed to be deployed, along with their qualifications and experience, before commencement of work.

R. All workmen deployed by the contractor shall be full-time employees under the contractor's own employment conditions; casual or unauthorized labour shall not be engaged.

S. After completion of CLH-VLH refurbishment activities, the contractor shall present the unit to BHEL for verification and obtain formal clearance confirming completeness and acceptability before handing it over to BHEL.

4. DELIVERY SCHEUDLE: -

Job order given for repairing of CLH & VLH shall contain list of CLH-VLH of different variant type along with respective quantities. For each Job-Order provided by BHEL to the vendor, the delivery schedule will be calculated by based on the time for each unit of hanger mentioned in job-order as per the below table. The time (in Min.) for each Variant as in below table shall be used to get Due Date for each job Order. **If Vendor fails to meet the Delivery Schedule Due Date as mentioned against the Job-Order, LD will be applicable as per GCC.**

S. No.	Ref. No.	Qty.	Total Time Per Unit (in Min)	Total Time In Min for Contract (in Min)
1	CLH-1153	1	299	299
2	CLH-1162	4	293	1172
3	CLH-1163	1	313	313
4	CLH-1164	5	336	1680
5	CLH-1172	3	301	903
6	CLH-1173	24	323	7752
7	CLH-1174	8	355	2840
8	CLH-1182	3	313	939
9	CLH-1183	7	341	2387
10	CLH-1184	7	383	2681

11	CLH-1185	3	426	1278
12	CLH-1192	1	364	364
13	CLH-1193	1	401	401
14	CLH-1194	1	515	515
15	CLH-1195	5	546	2730
16	CLH-1282	6	750	4500
17	CLH-1283	2	807	1614
18	CLH-1284	4	1008	4032
19	CLH-1285	2	1290	2580
20	CLH-1293	1	842	842
21	CLH-1295	7	1306	9142
22	CLH-1383	4	1131	4524
23	CLH-1385	3	1834	5502
24	CLH-1395	2	1857	3714
25	CLH-1495	5	2409	12045
26	CLH-7173	3	430	1290
27	CLH-7183	1	464	464
28	CLH-7282	1	807	807
29	CLH-7284	1	1133	1133
30	CLH-7295	1	1625	1625
31	CLH-7385	2	1857	3714
32	CLH-7495	2	2585	5170
33	VLH-SAT-07-080	11	34	374
34	VLH-SAT-09-080	8	37	296
35	VLH-SAT-11-160	7	61	427
36	VLH-SAT-12-080	10	53	530
37	VLH-SAT-12-160	33	68	2244
38	VLH-SH-06-080	12	31	372
39	VLH-SH-07-160	2	39	78
40	VLH-SH-08-080	48	33	1584
41	VLH-SH-11-080	8	49	392
42	VLH-SH-11-160	4	61	244
43	VLH-SH-12-080	36	53	1908
44	VLH-SH-13-080	1	62	62
45	VLH-SH-13-160	11	82	902
46	VLH-SS-09-080	3	37	111

Work-Out Example to Calculate the Due Date

Here, following work-out example is given as following to show the calculation behind the Due-Date & LD Calculation taking a sample Job-Order

Sample Job Order Item Details are as following

Job Order No.: XXXXXXX		**DATE: XX/YY/ZZZZ**
S. No.	Ref. No. (CLH-VLH Variant)	Qty. (in Nos.)
1	CLH-1172	2
2	CLH-1184	6
3	CLH-1195	5
4	CLH-1293	1
5	CLH-1395	2
6	CLH-7495	2
7	VLH-SH-13-160	8

The Calculation of Job Order Due Date will be as Following for the above Sample Job Order.

S. No.	**Hanger TYPE**	**Qty. (in Nos.) (N)**	**Per Unit Time (in Min) (T)**	**Total Time In Min (T1)= (NxT)**
1	CLH-1172	2	301	602
2	CLH-1184	6	383	2298
3	CLH-1195	5	546	2730
4	CLH-1293	1	842	842
5	CLH-1395	2	1857	3714
6	CLH-7495	2	2585	5170
7	VLH-SH-13-160	8	82	656
			Total Time in Min. for Job Order	16012

S. No.	***Description of Steps***	***Calculated Values***	***Remark***
1	***Total Min for Job order (M)***	*16012*	
2	***Total Hours***	*266.87*	*1 Hour = 60 Min*

	H =M/60		
3	***Per Day Working Hour***	***7***	*Working hours for 1 day will be 7 hours*
4	***No. of Days (D)=H/7***	*38.12*	
5	***Total No. of Days for Job-Order Rounding off to Next higher Value***	*39*	*Total Days will round off to next higher value.*
6	***Stating Date (Filled By BHEL)***	*01-12-2025*	*Starting date will be the date by which contractor shall start the work after receiving the input material by BHEL and the same will be noted by BHEL*
7	***Due Date = (Starting Date) + (Total No. of Days) - (1)***	*08-01-2026*	*Starting date will also be a working day hence 1 needs to be subtracted to get due date.*
8	***Case-1 : Completion Date (Filled By BHEL Executive)***	*08-01-2026 or earlier date*	*LD shall Not be Applicable* *Job Order Completion Date (Filled By BHEL)*
9	***Case-2: Completion Date (Filled By BHEL Executive)***	*08-01-2026 or later date*	*LD shall be Applicable* *Job Order Completion Date (Filled By BHEL)*

5. INSPECTION:

Item will be checked by BHEL personnel for completeness per required parameters.

6. QUANTITY DISTRIBUTION: -

There is no quantity distribution for this works contract however in case there are more than one L1 vendors (on Total Landed cost to BHEL basis) then the L1 vendor shall be selected as per GCC.

7. PAYMENT TERMS:

Payment to the contractor shall be made on completion of each job-order provided to contractor by executing department. More than one Job-Order may be clubbed in single bill. Rest All terms & conditions of the Payments shall be as per GCC.

PVC for this contract will not be applicable

BOQ & Price Schedule

Important Instruction:-

1. Bidder to quote their premium/ discount in form of % below OR At par OR % Above over total cost on all items i.e. Rs 4,73,112/- (Inclusive of GST)

2. Lowest bidder shall be decided on overall cost by adding cost on items including premium/ discount.

Sl. No.	Ref. No.	Hanger Type	Estimated Unit Rate	Qty.	Estimated Total Value (Rs.)
1	CLH-1153	CLH TYPE	501	1	501
2	CLH-1162	CLH TYPE	497	4	1988
3	CLH-1163	CLH TYPE	730	1	730
4	CLH-1164	CLH TYPE	1049	5	5245
5	CLH-1172	CLH TYPE	674	3	2022
6	CLH-1173	CLH TYPE	957	24	22968
7	CLH-1174	CLH TYPE	1408	8	11264
8	CLH-1182	CLH TYPE	890	3	2670
9	CLH-1183	CLH TYPE	1279	7	8953
10	CLH-1184	CLH TYPE	1843	7	12901
11	CLH-1185	CLH TYPE	2572	3	7716
12	CLH-1192	CLH TYPE	1106	1	1106
13	CLH-1193	CLH TYPE	1625	1	1625
14	CLH-1194	CLH TYPE	2309	1	2309
15	CLH-1195	CLH TYPE	2866	5	14330
16	CLH-1282	CLH TYPE	1955	6	11730
17	CLH-1283	CLH TYPE	2738	2	5476
18	CLH-1284	CLH TYPE	3867	4	15468
19	CLH-1285	CLH TYPE	5324	2	10648
20	CLH-1293	CLH TYPE	3484	1	3484
21	CLH-1295	CLH TYPE	5967	7	41769
22	CLH-1383	CLH TYPE	4183	4	16732
23	CLH-1385	CLH TYPE	8058	3	24174
24	CLH-1395	CLH TYPE	9022	2	18044
25	CLH-1495	CLH TYPE	12123	5	60615
26	CLH-7173	CLH TYPE	1539	3	4617
27	CLH-7183	CLH TYPE	2003	1	2003
28	CLH-7282	CLH TYPE	2501	1	2501
29	CLH-7284	CLH TYPE	5140	1	5140
30	CLH-7295	CLH TYPE	7703	1	7703
31	CLH-7385	CLH TYPE	9964	2	19928
32	CLH-7495	CLH TYPE	14377	2	28754
33	VLH-SAT-07-080	VLH TYPE	54	11	594

34	VLH-SAT-09-080	VLH TYPE	75	8	600
35	VLH-SAT-11-160	VLH TYPE	196	7	1372
36	VLH-SAT-12-080	VLH TYPE	145	10	1450
37	VLH-SAT-12-160	VLH TYPE	238	33	7854
38	VLH-SH-06-080	VLH TYPE	39	12	468
39	VLH-SH-07-160	VLH TYPE	88	2	176
40	VLH-SH-08-080	VLH TYPE	48	48	2304
41	VLH-SH-11-080	VLH TYPE	120	8	960
42	VLH-SH-11-160	VLH TYPE	196	4	784
43	VLH-SH-12-080	VLH TYPE	145	36	5220
44	VLH-SH-13-080	VLH TYPE	202	1	202
45	VLH-SH-13-160	VLH TYPE	329	11	3619
46	VLH-SS-09-080	VLH TYPE	75	3	225
			TOTAL	**315**	**400942**
				GST @ 18%	**72170**
				Total Estimated Cost including GST	**473112**

Bidder to quote.....To be Quoted on NIC portal....% above/ at par/ % below on total cost for all items placed at Sl. No. - 1 to 46.

No Deviation Certificate

To,

Manager (WCM)
Bharat Heavy Electricals Ltd.
Tarna, Shivpur
Varanasi

Sub: No deviation certificate for "Repairing & refurbishment of CLH & VLH assemblies" within HERP premises for a period of one year**".**

Sir,

This is to inform you that we have not taken any deviation from any of the Special Terms and Conditions for "**Repairing & refurbishment of CLH & VLH assemblies" within HERP premises for a period of one year**" while quoting the rates. All terms & conditions mentioned in the Special Terms & conditions are acceptable to us except following:

1.

2.

3.

Thanking you,

Yours Sincerely

GENERAL CONDITIONS OF CONTRACT
For
WORKS/SERVICE CONTRACTS

BHARAT HEAVY ELECTRICALS LIMITED
HEAVY EQUIPMENT REPAIR PLANT
TARNA, SHIVPUR
VARANASI-221003

INDEX

CHAPTER I

1.0 DEFINITIONS

In these general conditions of contract, the following terms shall have the meaning hereby assigned to them except where the context otherwise requires: -

a) "CONTRACT" or "CONTRACT DOCUMENT" shall mean and include the Agreement of Work Order, the accepted appendices of Rates, Schedules, Quantities if any, General Conditions of Contract, Special Conditions of Contract, Instructions to the Tenderers, Drawings, Technical Specifications, the Special Specifications if any, the Tender documents, subsequent amendments mutually agreed upon and the Letter of Intent/Award/Acceptance issued by BHEL. Any conditions or terms stipulated by the contractor in the tender documents or subsequent letters shall not form part of the contract unless, specifically mentioned.

b) "TENDER SPECIFICATION" or "TENDER" or "TENDER DOCUMENTS" shall mean and include General Conditions, Special Conditions, Price Bid, Rate Schedule, Technical Specifications, Appendices, Annexures, Corrigendum, Amendments, Forms, procedures, Site information, etc and drawings/documents pertaining to the work for which the tenderers are required to submit their offers.

c) "WORK" means all Permanent and Temporary Works as described in the Scope of Work and BOQ in individual work order and /or accompanying drawings and specifications as may be issued from time to time to the contractor by the Engineer - Incharge in writing, including all modifications or additional works and obligations to be carried out either at the site or in factory, workshop or any other place as may be essentially required for the performance of the work.

d) The "SITE" means the land and/ or other place on/into/ through which the work is to be executed under the contract or any adjacent land, part or structure which may be allotted to or used for the purpose of carrying out the contract.

e) The "CONTRACTOR" means the individual firm or company whether incorporated or not, undertaking the work and shall include the legal personal representatives of such individuals or the person(s) composing the firm or company and the permitted assigns of such individuals or firm or company.

f) "ENGINEER" or "ENGINEER IN CHARGE" shall mean an employee of BHEL as may be duly appointed and authorized by Competent Authority/Accepting Officer of BHEL to act as "Engineer" on his behalf for the purpose of the Contract, to perform the duty set forth in this General Conditions of Contract and other Contract documents.

g) BHEL shall mean Bharat Heavy Electricals Limited, a company registered under Indian Companies Act 1956, with its Registered Office at BHEL HOUSE, SIRI FORT, NEW DELHI – 110 049, or its unit HEAVY EQUIPMENT REPAIR PLANT located at Tarna, Shivpur Varanasi, Uttar Pradesh -221003.

h) "COMPETENT AUTHORITY" /" ACCEPTING OFFICER" shall mean Executive Director or General Manager (In charge) or General Manager-Head of Unit (HERP) or BHEL Officers who are empowered to act on behalf of the Executive Director or General Manager (In charge) or General Manager of BHEL.

i) "DEFECT LIABILITY PERIOD" (DLP) in relation to a work means the specified period from the date of Completion Certificate up to the date of issue of Final Certificate during which the Contractor stands responsible for rectifying all defects that may appear in the works executed by the Contractor in pursuance of the Contract and includes warranties against manufacturing/fabrication/erection/construction defects covering all materials plants, equipment, components, and the like supplied by the Contractor, works executed against workmanship defects.

j) "Letter of Intent/Letter of Award (LoA)" means the formal letter of intent or letter of acceptance or letter of award issued by BHEL.
k) "SCC" means 'Special Conditions of Contract forming part of this Contract / Agreement.
l) "Bill of Quantity" shall mean subsequent to the placement of the Contract/Agreement/Purchase Order the successful bidder shall be required to furnish the detailed price break-up within a specified time frame. This detailed break-up of items and prices shall be considered as Bill of Quantities (BOQ).
m) "Engineer" shall mean an Executive or Engineer in charge.
n) "NIT" shall mean Notice Inviting Tender.
o) "First Party" shall mean BHEL.

CHAPTER II

2.0 GENERAL INSTRUCTIONS TO THE TENDERERS

2.1 GENERAL INSTRUCTIONS

The General Condition of Contract form part of the Tender Specifications. All pages of the tender documents shall be duly signed stamped and submitted along with the offer by the tenderers.

Tenderers are advised to study all the tender documents carefully. The contractor shall be deemed to have satisfied himself as to the nature of site, local facilities of access and all matters affecting the execution and completion of the work. No extra charges consequent on any misunderstanding in these respects or otherwise will be allowed by the First Party.

The contractor shall examine the quantum of work and shall satisfy himself before submitting his tender. He shall himself asses the requirement of materials, contingencies and other circumstance which may affect or influence his tender, no extra charges on any misunderstanding or otherwise shall be allowed.

The contractor shall be deemed to have satisfied himself before tendering as to correctness and sufficiency of his tender, the work and prices. This shall except as otherwise provided all obligation under the contracts all matters and things necessary for the proper completion and maintenance of the works.

2.2 SUBMISSION OF TENDERS

2.2.1. The tenderers must submit their tender as per instructions in NIT.

2.2.2. Tenders submitted by Post shall be sent by Post with due allowance for any postal/ courier delays. BHEL shall not be responsible for any postal delay.

2.2.3. Tenders shall be signed by a person authorised/empowered to do so. In case the tender is signed by an individual other than the sole proprietor, an attested copy of the power of attorney shall be submitted by bidder along with tenders with details mentioned under:

For proprietary firm	Proprietor's full name, address and place & nature of business.
For partnership firm	The names of all the partners and their addresses, A copy of the partnership deed/instrument of partnership dully certified by the Notary Public shall be enclosed.
For companies	Date and place of registration including date of commencement certificate in case of Public Companies (certified copies of Memorandum and articles of Association are also to be furnished. Nature of business carried on by the Company and the provisions of the Memorandum relating thereof.

2.2.5. Unless otherwise specified in NIT the bids shall be invited in two parts:

PART I (Techno-Commercial bid) - This shall consist of following documents:

- Signed & stamped copy of all pages of NIT.
- Technical specifications of the offer.

- Duly filled, signed & stamped forms and documents in support of meeting the pre-qualifying requirement.
- Signed and stamped copy of Price Bid Format (without price).
- Documentary evidence like Cash Receipt, EFT/UPI receipt, DD, FDR, Banker's cheque / Pay order etc for proof of payment against Tender Document Cost and Earnest Money Deposit (EMD).

PART II (Price Bid) - This shall consist of price bid in format specified in NIT.

2.2.6 The Part-I (Techno-Commercial bid) and Part-II (Price Bid) shall be submitted by bidder as specified in NIT.

2.3 EVALUATION OF TENDERS

(i) Techno-Commercial bids submitted by the tenderer will be opened first and evaluated for fulfilling Pre Qualifying requirement and other conditions in NIT/ Tender documents

(ii) The Techno-Commercial bids will be opened as per date & time mentioned in NIT.

(iii) The Bidder or his authorised representative may be present at the time of opening of bid on the specified date after seeking written permission in this regard from Tender Inviting authority. Written permission shall be taken for this purpose prior to tender opening date. A copy of confirmation /acceptance must be produced in the office by the person attending the opening of bid else he shall be denied permission to attend the opening of bid.

(iv) In case of unscheduled holiday on the closing/opening day of bid, the next working day will be treated as scheduled prescribed day of closing/opening of bid, the time notified remaining the same.

2.4 EARNEST MONETY DEPOSIT (EMD)

2.4.1 EMD amount will be as indicated in NIT. EMD shall not carry any interest.

2.4.2 The EMD may be accepted only in the following forms:

(i) Cash deposit as permissible under the extant Income Tax Act (before tender Opening).

(ii) Electronic Fund Transfer credited in BHEL account (before tender opening)

(iii) Banker's cheque/ Pay order/ Demand draft, in favour of BHEL (along with offer).

(iv) Fixed deposit receipt (FDR) issued by any scheduled banks/ Public Finance Institutions as defined in Companies Act (FDR should be in the name of the **contractor, a/c BHEL Varanasi**).

(v) Insurance Surety Bonds

Account details of BHEL-HERP, Varanasi are as mentioned below:

EFT /RTGS Details	**UPI Details**
Bank Name: State Bank of India, IFSC Code: SBIN0000201, Account No: 011103264820, Branch Code: 0201, Address: State Bank of India, Main Branch Kachaheri, Varanasi.	Scan & Pay Using Any UPI App to UPI ID: bhel20@sbi MERCHANT NAME: BHARAT HEAVY ELECTRICALS LTD

In addition to above, if the EMD amount is more than Rs Two Lakh, the amount in excess of Rs Two Lakh may also be accepted in the form of Bank Guarantee (BG) from scheduled bank. The Bank Guarantee in such cases shall be valid for at least six months. SFMS message must be included along with BG. *Format of BG for EMD,* ***List of scheduled banks and beneficiary bank account will be provided to bidders separately in case the EMD amount happens to be more than Rs Two Lakh****.*

2.4.3. FORFEITURE OF EMD

EMD by the Tenderer will be forfeited as per NIT conditions, if:

i) After opening the tender and within the offer validity period, the tenderer revokes his tender or makes any modification in his tender, which is not acceptable to BHEL.

ii) The Contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/ Contract.

EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged under the provisions of extant "Guidelines on Suspension of business dealings with suppliers/ contractors" and forfeited/ released based on the action as determined under these guidelines.

2.4.4 EMD given by all unsuccessful tenderers shall be refunded normally within fifteen days of award of work. In case of expiry of offer validity period or any other circumstances, EMD can be released with due approval.

2.4.5 EMD of successful tenderer will be retained as part of Security Deposit.

2.5 SECURITY DEPOSIT (SD)

2.5.1. The total amount of Security Deposit would be as mentioned in NIT. EMD of the successful tenderer shall be converted and adjusted towards the required amount of Security Deposit.

2.5.2. The balance amount to make up the required Security Deposit of the contract value may be accepted in the following forms:

i) Cash (as permissible under the extant Income Tax Act)

ii) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL

iii) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. *Format of BG for SD,* ***List of scheduled banks and beneficiary bank account will be provided to bidders separately to successful bidder(s****).*

iv) Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the **Contractor, a/c BHEL, Varanasi**)

v) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL)

vi) Insurance Surety Bonds

(Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith)

2.5.3. COLLECTION OF SECURITY:

2.5.3.1 At least 50% of the required Security Deposit, including the EMD, should be collected before start of the work. Balance of the Security Deposit can be collected by deducting 10% of the gross amount progressively from each of the running bills of the Contractor until the total amount of the required Security Deposit is collected.

2.5.3.2 If the value of work done at any time exceeds the contract value, the amount of Security Deposit shall be correspondingly enhanced and the additional Security Deposit shall be immediately deposited by the Contractor or recovered from payment/s due to the Contractor.

2.5.3.3 In case of delay in submission of performance security, enhanced performance security, which would include interest (Repo rate + 4%) for the delayed period, shall be submitted by the bidder.

2.5.3.4 The recoveries made from running bills (cash deduction towards balance SD amount) can be released against submission of equivalent Bank Guarantee in acceptable form, but only once, before completion of work, with the approval of the authority competent to award the work.

2.5.3.5 (Note: In case of (a) small value contracts not exceeding Rs. 20 lakhs or (b) SAS jobs, work can be started before the required Security Deposit is collected. However, payment can be released only after collection/ recovery of initial 50% Security Deposit).

2.5.4 REFUND OF SECURUTY DEPOSIT:

2.5.4.1 After expiration of the Defect Liability period, provided always that the contractor shall first have been paid final bill and have rendered a" No Demand" certificate", the security deposit shall be refunded to the contractor as follows:

100% shall be released after satisfactory completion of the Defect liability period of the work after verification/certification by Engineer-In-charge.

2.5.4.2 The Defect liability period of work shall be as per section 2.6.

2.6 PERFORMANCE GUARANTEE FOR WORKMANSHIP/ DEFECT LIABILITY PERIOD

Unless otherwise specified in Special Conditions of contract (SCC), the contractor shall be responsible for the quality of the workmanship and shall make good or remedy at his own expense within defect liability period, which shall be for a period of 12 months from date of completion of works or else as mentioned in special conditions for contract. During this period the contractor shall rectify free of cost all defects due to faulty erection, installation & commissioning detected during defect liability period. In the event of the contractor, failing to repair the defective works within the time specified by the Engineer, BHEL might proceed to undertake the repairs of such defective works at the contractor's risk and cost without prejudice to any other rights & recover the same from the Security deposit. Completion date of work shall be considered as provided in Form WAM 7 of Works Accounts Manual 2017.

2.6.1 **BANK GUARANTEES**

2.6.1.1 Wherever Bank Guarantees are to be furnished / submitted by the contractor, the following shall be complied with:

- Bank Guarantees shall be from scheduled Banks/ Public Financial Institutions as defined in the companies Act.
- The Bank Guarantees shall be as per prescribed format approved by BHEL.

- It is the responsibility of the bidder to get the Bank Guarantees revalidated/ extended for the required period (subject to a minimum period of 6 months), as per the advice of Engineer in charge.
- BHEL shall not be liable for issue of any reminders regarding expiry of the Bank Guarantees.
- In case of extension / further extensions of any Bank Guarantees are not required, the bidders shall ensure that the same is explicitly endorsed by the Head of Department and approved by the Head of unit.

2.6.1.2. In case the Bank Guarantees are not extended before the expiry date, BHEL reserves the right to invoke the same by informing the concerned Bank in writing, without any advance notice/communication to the concerned bidder

2.6.1.3. Bidders to note that any corrections to the Bank Guarantees shall be done by issuing Bank, only through an amendment in an appropriate non-judicial stamp paper.

2.6.1.4. The Original Bank Guarantee shall be sent directly by the Bank to BHEL under Registered Post (Acknowledgement Due), addressed to the head of contracting department.

2.6.1.5. The validity of Bank Guarantee towards security deposit shall initially be up to completion period plus defect liability period plus 3 months, and the same shall be further kept valid as per advice of Engineer in charge. Claim period will be 3 months more than validity period.

2.6.1.6. Further BHEL reserves the right of forfeiture of security deposit in addition to other claims & penalty in the event of contractor's failure to fulfil any of the contractual obligations or in the event of termination of contract as per terms & conditions of the contract. BHEL reserves the right to set off the security deposit against any claims of any contracts with BHEL.

2.6.1.7 Release of SD: 100% SD shall be released only after expiry of Defect liability period subject to satisfactory completion of work as per contract & submission of claim as per prescribed claim format.

2.7 TENDOR COST:

Bidders must deposit the Tender cost as mentioned in the NIT through EFT and submit proof of the same along with bid.

2.8 VALIDITY OF OFFER:

The validity of the offer shall be 90 days or else as specified in NIT.

2.9 RIGHT OF BHEL TO REJECT TENDERS:

2.9.1 The acceptance of tender will rest with BHEL which does not bind itself to accept the lowest tender or any tender and reserves to itself full rights for the following without assigning any reasons whatsoever: -

a. To reject any or all of the tenders.
b. To split up the work amongst two or more tenderers as per NIT
c. To award the work in part if specified in NIT
d. In case of either of the contingencies stated in (b) and (c) above, the time for completion as stipulated in the tender shall be applicable.

2.9.2 Conditional tenders, unsolicited tenders, tenders which are incomplete or not in the form specified or defective or have been materially altered or not in accordance with the tender conditions, specifications etc., are liable to be rejected.

2.9.3 Tenders are liable to be rejected in case of unsatisfactory performance of the tenderer with BHEL, or tenderer under suspension (hold/banning /delisted) by any unit / region / division of BHEL or tenderers who do not comply with the latest guidelines of Ministry/Commissions of Govt. of India. BHEL reserves the right to reject a bidder in case it is observed that they are overloaded and may not be in a position to execute this job as per the required schedule. The decision of BHEL will be final in this regard.

2.9.4 In the course of evaluation, if more than one bidder happens to occupy L-1 status, effective L-1 will be decided by soliciting discounts from the respective L-1 bidders. In case more than one bidders happen to occupy the L-1 status even after soliciting discount, the L-1 bidder shall be decided by a toss/draw of lots, in the presence of the respective bidder(s) or their representative(s). When the tender is on GEM portal, in case of multiple L1, effective L1 will be decided through system available on GEM portal. BHEL's decision in such situation shall be final and binding.

CHAPTER III

3.0 CONTRACT EXECUTION & PERFORMANCE

3.1. GENERAL INSTRUCTION TO CONTRACTOR FOR WORK EXECUTION

3.1.1. The decision of BHEL regarding interpretation of any of terms and conditions set forth in the agreement shall be final and binding on the contractor.

3.1.2. In case of any discrepancy between the specification and / or the drawing, the Accepting Officer shall be the deciding authority as to which shall prevail and his decision shall be final and conclusive. If neither drawings nor specifications contain any minor details of construction, which are essential and reasonably & fairly intended for the satisfactory completion for the work in the opinion of the Accepting Officer, the decision of Accepting Officer shall be final and conclusive.

3.1.3. The contractor shall, at his own expense, supply all stores and material required for the contract other than those, which may be provided by BHEL at the rates detailed therein subject to availability at the place of issue indicated therein. All stores and materials to be supplied by the contractor shall be of the best quality as described in the specification and the contractor shall ensure that the stores and materials comply with the specifications.

3.1.4. The contractor shall not sub-contract any portion of the contract without the prior written approval of the Accepting Authority. Employment of piece rate workers shall not be deemed as sub-contracting.

3.1.5. Contractor shall decide the number of employees to be deployed for execution of the work awarded to him and he or his authorized representative will be solely entitled to dictate such workers about the manner of carrying out the work as per the prescribed specifications and quality plan. Contractor/ authorized supervisor of the contractor shall supervise the work allotted to him and to be carried out by his employees.

3.1.6. Contractor to ensure that the employees deployed in the premises of BHEL are physically and mentally fit and do not have any criminal record. Such employees should possess requisite skill, proficiency, qualification, experience etc.

3.1.7. Contractor will keep watch on his employees and he will be liable for any pilferage / loss to BHEL due to acts of omission and commission by his employees. Similarly, liability for any compensation to outsiders on account of any act of omission and commission by the employees deployed by the contractor shall lie exclusively with him.

3.1.8. The successful tenderer's responsibility under these contracts commences from the date of issue of the letter of intent (LOI) by BHEL. The tenderer shall submit unqualified acceptance to the letter of intent/ award within the period stipulated therein.

3.1.9. The successful tenderer shall be required to execute an agreement with BHEL in the prescribed format 'within time limit specified by BHEL in LOI/LOA (maximum 30 days)' and in any case before releasing the first running bill. The contract agreement shall be signed by a person dully authorized / empowered by the tender. The write-up for agreement will be provided by BHEL and cost of non-judicial stamp paper will be borne by contractor.

3.1.10. After signing the formal contract agreement, as above, BHEL shall issue work order to the party containing all salient features of the contract agreement required by both the parties.

3.1.11. Contractor shall carry out operations hereunder with due diligence and shall maintain strict discipline and shall abide by and conform to all rules and regulations promulgated by BHEL. Should BHEL feel that the conduct of any of contractor/subcontractors employees is detrimental to Organization's interest & Safety, BHEL shall have the unqualified right to request for the removal of such employee either for incompetence, unreliability, misbehavior, security reasons etc. while on or off the job.

3.2. WORK COMPLETION TIME

3.2.1. Time is the essence of the contract and is specified in the Special Conditions of Contract of the Tender document

3.2.2. After issuance of LOI (through E-Mail/Fax/Courier), contractor shall report to the Manager of BHEL-HERP, Varanasi within 07 days and make Kick-of-Meeting (KOM) for discussing & finalizing start date of work, detailed completion program, mobilization of manpower & other resources and other related issues. Date of Start of Work shall be reckoned as 15 days after date of issue of LOI. However, the date of start of work may be reviewed and changed by Engineer In-charge of BHEL-HERP, Varanasi with recorded reasons in the KOM.

3.2.3. If the contractor fails to start the work within stipulated time as per LOI or as intimated by BHEL, then BHEL at its sole discretion will have the right to cancel the contract. The Earnest money and or Security Deposit with BHEL will stand forfeited without any further reference to him without prejudice to any and all of BHEL's other rights and remedies in this regard.

3.2.4. The contract shall be considered and closed upon completion of all contractual obligations and settlement of Final Bill or completion of Guarantee period whichever is later. Upon closing of contract, BHEL shall issue a completion certificate as per standard format, based on specific request of contractor.

3.2.5. The entire work shall be completed by the contractor within the time schedule or within such extended periods as may be allowed by BHEL.

3.3. EXTENSION OF TIME FOR COMPLETION

3.3.1. If the completion of work as detailed in the scope of work is delayed beyond the contract period, the contractor shall request for an extension of the contract and BHEL at its discretion may extend the contract.

3.3.2. Based on the progress review & performance evaluation, the works balance at the end of original contract period less the backlog attributable to the contractor shall be quantified, and the number of months of 'Time extension' required for completion of the same shall be jointly worked out. Within this period of 'Time extension', the contractor is bound to complete the portion of the backlog attributable to the contractor. Any further 'Time extension' at the end of the previous extension shall be worked out similarly.

3.3.3. However, if any 'Time Extension 'is granted to the contractor to facilitate continuation of work and completion of contract, due to backlog attributable to the contractor alone, then it shall be without prejudice to the rights of BHEL to impose penalty/ LD for the delays attributable to the contractor, in addition to any other actions BHEL may wish to take at the risk & cost of contractor.

3.3.4. At the completion of progressive / milestone work / total work as certified by BHEL Engineer and upon total delay analysis, the portion of time extensions attributable to (i) Contractor, (ii) Force Majeure conditions and (iii) BHEL, shall be worked out and shall be considered to be exhausted in the same order. The total period of extensions shall be the sum of (i), (ii) and (iii) above and shall be equal to period between the scheduled date of completion and the actual date of completion of contract. LD shall

be imposed / levied for the portion of time extensions attributable to contractor and recoverable form the dues payable to the contractor.

3.4. PROGRESS MONITORING, MONTHLY REVIEW AND PERFORMANCE EVALUATION

3.4.1. As soon as possible after awarding of work, the Engineer-In-charge and the contractor shall (if so required by the Engineer-In-charge) agree on major milestones/ Action Plan / time and progress chart for completion of the work within scheduled time. The chart in the work order shall have the completion date of the individual items thereof and/ or the contract or order as a whole. It shall indicate the forecast of the dates for commencement and completion of the various processes or sequences of the work, and shall be amended as may be required by agreement between Engineer-In-charge and contractor writing the limitations of time imposed in the tender document or order.

3.4.2. In the absence of any specific time and progress chart to be agreed to between the contractor and Engineer In charge, the contractor shall ensure and maintain, uninterrupted progress of the work such that the entire work shall be completed within the time imposed in the tender documents or order and the proportion of work that shall be completed up to any time in relation to the entire work to be done under the contract or order shall not be less than the proportion that the time elapsed bears to the total time of completion provided in the tender documents or order.

3.4.3. The contractor shall suspend the execution of the work or any part or parts thereof whenever called upon in writing by the Engineer-In-charge. The contractor will be allowed an extension of time for completion limited to not less than the period of suspension but no other claim in respect for compensation or otherwise whatsoever will be admitted. Time may also be extended to allow for alteration of work made by the deviation order as may be decided upon by the Engineer-In-charge in consultation with the contractor.

3.4.4 Unless otherwise specified in the Special conditions of contract, evaluation of Contractor Performance shall be carried out as per procedure for performance evaluation. These shall also be used for evaluation of bids for future tenders.

3.5. QUANTITY VARIATION

The quantities given in the contract are tentative and may change to any extent (both in plus side and minus side). The quoted rates for individual items shall remain firm irrespective of any variations in the individual quantities. No compensation becomes payable in case the variation of the final executed contract value unless specifically mentioned in NIT.

Increase in quantity by contractor / vendor will be done only after getting confirmation from BHEL / Site Engineer. Quantity variation of 30% in plus side will not require any approval provided there is no increase in contract price. If there is change in contract price, approval from competent authority is required

3.6. Removed/Deleted

3.7. STRIKES & LOCKOUT

3.7.1. The contractor will be fully responsible for all disputes and other issues connected with his labour.

3.7.2. In the event of the contractor's labour resorting to strike or the Contractor resorting to lockout and if the strike or lockout declared is not settled within a period of one

month, BHEL shall have the right to get the work executed through any other agencies and the cost so incurred by BHEL shall be at risk & cost of the Contractor.

3.8. DELAY AND EXTENSION OF TIME:

3.8.1 The Contractor shall be entitled to extension of time in following cases:

3.8.1.1 FORCE MAJEURE

The following shall amount to Force Majeure: -

3.8.1.1.1 Acts of God, act of any Government, War, Sabotage, Riots, Civil Commotion, local combination of worker strike or lockout, Police Action, Revolution, Flood, serious loss or damage by Fire, Cyclones, Earthquake and epidemic and other similar causes over which the contractor has no control.

3.8.1.1.2 Non-availability of stores, which are responsibility of BHEL etc. the same shall be covered under force majeure.

3.8.1.1.3 Because of any other cause, which in the absolute discretion of the (Accepting officer of the contract) beyond the contractor control.

3.8.1.2. The Contractor's work held up for not being given possession of or access to the Site by BHEL.

3.8.1.3. Instruction of the Engineer-in-charge to suspend the Works and the Contractor not being in default as to reasons of suspension;

3.8.1.4 Any order of Court restraining the performance of the Contract in full or in any part thereof;

3.8.1.5 Any other event or occurrence which, according to BHEL is not due to the Contractor's failure or fault, and is beyond its control without BHEL being responsible for the same;

3.8.1.6 Acts or omissions of other Consultants in executing their works not forming part of the Contract.

3.8.2. Except as mentioned above, the Contractor shall not be entitled to any extension of time for any reason whatsoever including:

3.8.2.1. The Contractor shall not be entitled to any extension of time where the instructions or acts of BHEL are necessitated by or intended to cure any default of or breach of the terms of the Contract committed by the Contractor;

3.8.2.2. The Contractor shall also not be entitled to any extension of time where any delay is due to:

- The failure of its Subcontractor, to commence or to carry out the part of the Works in due time; or
- Non-availability, or shortage of Contractor's equipment, labour, utility services, Plant and Materials; or
- Inclement weather conditions except in case of Force Majeure;

3.8.3. If the contractor suffers delay in the due execution of the contractual obligation due to delays caused by factors mentioned in Clause 3.8.1 above, the agreed time of completion of the job covered by this contract or the obligations of the contractor shall be extended by a period of time equal to period of delay, provided that on the occurrence of any such contingency, the contractor reports to BHEL in writing the causes of delay within 07 days of its occurrence and the contractor shall not be eligible for any compensations.

3.8.4 When in such case(s) the accepting officer (or higher Authority), on recommendation of the Engineer-In- charge, may make fair and reasonable extension, in the completion date of the individual items of work of the contract as a whole. Such

extension, which will be communicated to the contractor by the Engineer- In-charge in writing, but shall nevertheless use constantly his best endeavor to prevent or make good the delay and shall do all that may be reasonable required to the satisfaction of the Engineer-In- charge to proceed with the work.

3.9. INSURANCE

3.9.1. BHEL shall arrange for insuring the materials/properties of BHEL covering the risks during transit, storage, erection and commissioning.

3.9.2. It is the sole responsibility of the contractor to insure his materials, equipment, workers, etc. against accidents and injury while at work and to pay compensation, if any, to workers as per Workmen's compensation Act.

3.9.3. If due to negligence and or non-observation of safety and other precautions by the contractors, any accident/injury occurs to the property / labor belong to third party, the contractor shall have to pay necessary compensation and other expense, if so decided by the appropriate authorities.

3.9.4. The contractor will take necessary precautions and due care to protect the material, while in his custody from any damage/ loss due to theft or otherwise till the same is taken over by BHEL or customer.

3.9.5. For lodging / processing of insurance claim the contractor will submit necessary documents. BHEL will recover the loss including the deductible franchise from the contractor, in case the damage / loss is due to carelessness / negligence on the part of the contractor. In case of any theft of material under contractor's custody, matter shall be reported to police by the contractor immediately and copy of FIR and subsequently police investigation report shall be submitted to BHEL for taking up with insurance. However, this will not relieve the contractor of his contractual obligation for the material in his custody.

3.9.6 The contractor shall ensure that no damage is caused to any person/property of other parties working at site. If any such damage is caused, it is responsibility of the contractor to make good the losses or compensate for the same.

3.10 TEMPORARY WORKS

3.10.1 All Temporary Works necessary for the proper execution of the Works shall be provided and maintained by the Contractor at its own cost and subject to the consent of the Engineer-in-Charge, shall be removed by the Contractor at its own expense when such Works are no longer required and in such manner as the Engineer-in-Charge shall direct. In case the Contractor fails to remove the Temporary Works on completion of the Works, the Engineer-in-charge is authorized to get such Temporary Works removed and recover the cost thereof from the Contractor or deduct such costs from the payments to be made to the Contractor.

3.10.2 The contractor shall keep the area of work clean and shall remove the debris etc. while executing day-to-day work. Upon completion of work, the contractor shall remove from the vicinity of work, all scrap, packing materials, rubbish, unused and other materials and deposit them in places specified by the Engineer. The contractor will also demolish all the hutments, sheds, offices, etc. constructed and used by him and shall clean the debris. In the event of his failure to do so, the same will be arranged to be done by the Engineer and the expenses recovered from the contractor.

CHAPTER-IV
4.0 VALUATION AND PAYMENT

4.1. RECORDS AND MEASURMENTS:

4.1.1. All items having a financial value shall be entered in the BHEL Measurement book so that a complete record is obtained on all work performed under the contract.

4.1.2. Measurement shall be carried out as per unit mentioned in the bill of quality (price-bid).

4.1.3. The measurements shall be taken jointly by any person or persons duly authorized on the part of the BHEL and the contractor.

4.1.4. The Engineer-In-charge shall give reasonable notice in writing to the contractor for appointments for measurements.

4.1.5. The contractor shall without extra charge, provide assistance with appliance and other things necessary for measurements.

4.1.6. The contractor shall bear all the cost of measurement of his work.

4.1.7. Measurement shall be entered in the BHEL measurement book and signed and dated by both parties on the site on completion of measurement. If the contractor objects to any of the measurement recorded on behalf of BHEL in the Measurement Book or against the item or items objected to, and such note shall be signed and dated by both parties engaged in taking the measurements.

4.1.8. If as a result of such objection it becomes necessary to re-measure the work wholly or in part, the expense of such measurement shall be borne by the party requiring the measurement to be retaken provided that error found by this re-measurement amounts to less than 5% (five percent) of the value as recorded by the first measurement.

4.1.9. If the contractor's representative fails to attend when required, the Engineer-in-Charge shall have power to proceed by himself to take measurements, and in that case, these measurements shall be accepted by the contractor as final.

4.2. RUNNING & FINAL BILLS:

4.2.1. For progress running bills payment: As soon as possible after completion of each quarter of work (else at any period as specified in Special conditions for contract) to the satisfaction of the Engineer-in-charge, the contractor shall prepare & forward certified bills & work out the financial value. These will be entered in Measurement Book & signed by both parties. Payment shall be made after affecting the recoveries due from the contractor.

4.2.2. The contractor shall be entitled to be paid the final sum less the value of payments already made on account subject to certification to the final bill by the Engineer in Charge. No charge shall be allowed to the contractor on account of the preparation of the final bills.

4.2.3. Final bill shall be submitted as per prescribed format after completion of work as per scope and upon material reconciliation (if apply) along with the following –

- No claim certificate by contractor on a non-judicial stamp paper or Indemnity bond as per prescribed format duly notarized indemnifying BHEL in respect of specified works contract against all claims & demand against third party liability including labour and government agencies.
- Clearance certificates whichever applicable viz., clearance certificate from customer, various statutory authority like labour department, PF authority commercial tax dept. etc.

4.2.4. BHEL, after receipt of the Bill/invoice complete in all respects, shall settle the final bill to contractor after deducting all dues to BHEL, within the stipulated days as per Clause 4.3.

4.3. PAYMENT OF BILLS:

The payment for bills will normally be **released within 30 days of submission of bills complete in all respects** with all documents. The Contractor should submit a duly filled EFT Mandate form certified through Bank for release of payment. It is the responsibility of the contractor to make his own arrangements for making timely payments towards labour wages, statutory payments, outstanding dues etc. and other dues in the meanwhile.

Uploading the Invoices on BHEL SUVIDHA Portal

Irrespective of the value of the invoice amount, the supplier/ contractor should necessarily upload the invoice details on BHEL SUVIDHA portal at https://suvidha.bhel.in/suvidha /, prior to despatch/raising invoice. All documents as per contract checklist, along with additional documents (if any), must be uploaded on the portal. It is mandatory that tax invoices with a net amount (including taxes) exceeding Rs five lakhs uploaded on the portal are digitally signed using a Class 3 Digital Signature Certificate (DSC) issued by a licensed Certifying Authority. Submission of invoice document in hard copy is allowed for invoices with a net amount (including taxes) equal to and up to Rs five lakhs in case the requirement for digitally signed invoice is not explicitly mentioned in the contract checklist.

The Invoice will not be accepted in absence of the above.

4.4. RECOVERY FROM THE CONTRACTOR:

4.4.1. Whenever under the contract any sum of money shall be recoverable from or payable to the contractor, the same may be deducted from any sum then due or which at any time thereafter may become due to the contractor under the contract or under any other contract with BHEL or from his security deposit, or he shall pay the claim on demand.

4.4.2. Recoveries arising out of Risk & Cost and LD or any other recoveries due from Contractor:

Following sequence shall be applicable for recoveries from contractor:

a) Dues available in the form of Bills payable to contractor, SD, BGs against the same contract.

b) Demand notice for deposit of balance recovery amount shall be sent to contractor, if funds are insufficient to effect complete recovery against dues indicated in (a) above.

c) If contractor fails to deposit the balance amount to be recovered within the period as prescribed in demand notice, following action shall be taken for balance recovery.

d) If recovery cannot be made out of dues payable to the contractor as above, balance amount to be recovered, shall be informed to other Regions/Units for making recovery from the Unpaid Bills/Running Bills/SD/BGs/Final Bills of contractor.

4.4.3 For civil contracts, recoveries on account of water supply charges shall be made at the rate of 0.1% of executed contract value unless exempted as per terms & conditions of contract.

4.4.4 Recoveries for tools, plant, and electricity shall be effected as per terms & conditions of the contract.

4.5. TAXES AND OTHER DUTIES:

4.5.1 All statutory taxes, cess, levies & duties shall be deducted from the payment, as per GST Act 2017 & other prevailing government rules.

4.5.2. GST RELATED TERMS & CONDITIONS

4.5.2.1 Bidder has to specify the following in their techno commercial bid (part I bid in case of two-part bid):

a) Legal Name of the bidder as in GST registration, GST registration No., State, Place of business, category of registration under GST i.e. Registered dealer / Unregistered dealer/ dealer opted for Composition Scheme,

b) HSN (Harmonised System Nomenclature) / SAC (Service Accounting Code), description of Goods/Services and applicable IGST / CGST / SGST rate and any other statutory levy, if any, for each item of Goods or Services.

4.5.2.2 Unregistered Dealer: Since in case of unregistered dealer, GST will have to be paid by BHEL under reverse charge mechanism, the same shall be added to the quoted price for evaluation bid.

4.5.2.3 Dealer opting for Composition Scheme in case of registered dealer, who opt for composition scheme at the time of submission of bid, no GST will be payable to the bidder and also same will not be considered for evaluation of bid. Dealer has to declare in technical bid that no GST is shown separately in price bid. However, in case at the time of actual supply, the bidder charges GST at normal rate, the same shall be reimbursed subject to the availability of GST credit to BHEL. In case GST credit is not available to BHEL, no GST will be payable to the bidder.

4.5.2.4 Reimbursement of GST shall be made by BHEL HERP on matching of Contractor inputs as mentioned below at GST portal and after ensuring of availability of input credit to BHEL, HERP. Hence, Contractor has to ensure compliance as follows:

a) Timely raising & submission of GST compliant Invoices

b) Timely receipt of Goods & Services

c) Timely and correct payment of applicable GST by supplier/contractor

d) Timely filing of return

e) Compliance of other applicable provisions on supplier/contractor:

4.5.2.5 Contractor has to also give consent to accept payment of tax after such matching in all cases where bills are submitted directly to BHEL-HERP or through bank or under LC or through any other mode.

4.5.2.6 In the event of any disallowance of input credit (including reversal of credit) or applicability of interest or arising of any other financial liability on BHEL-HERP due to any default of supplier/contractor under GST such as non/delayed receipt of Good/Services, delayed raising & submission of invoices, delayed payment of tax, non/wrong declaration of sale by Contractor in return etc. or any other reason not

attributable to BHEL, such implication shall be to supplier's/contractor's account and will be deducted from bills.

4.5.2.7 In the event of any change in the status of the bidder after submission of the bid but before the supply/service, GST applicable at the time of supply/service or GST quoted in the bid, based on the registration status of the bidder, whichever is lower shall be payable.

4.5.2.8. Statutory Variation in Taxes & duties as applicable at the time of supply shall be payable. However, in the event of no change in law but bidder quoting certain tax structure in bid document which is lower than the applicable one, such amount shall be the maximum amount of tax that can be claimed by bidder.

4.5.2.9 In case of Liquidated damage (LD) recovery, GST is not applicable on LD.

4.5.2.10. As per the extant GST rules, as of now it is not mandatory to file returns immediately and ITC has been allowed on self-declaration. In view of the changed scenario, the payment of GST shall have made to the contractors simultaneously with their work/services invoices. GST portion of invoice value will be paid only after fulfilling following conditions:

(a) Payment of GST amount into Govt. Account by supplier against invoice raised to BHEL.
(b) Filing of GST return within scheduled date.
(c) Display of GST credit against BHEL GSTIN NO.09AAACB4146P2ZC on GSTN portal.

4.6. INCOME TAX- IT:

All statutory taxes & levies shall be deducted from the payment, as per prevailing government rules.

4.7. MISCELLANEOUS CHARGES:

Unless otherwise specified in the Special conditions of Contract, Electricity shall be provided by BHEL free of cost. All charges on account of octroi, terminal, Entry tax, royalty and/or other duties on materials obtained for the work (excluding materials provided by BHEL) shall be borne by the contractor.

4.8. LIQUIDATED DAMAGE (LD)

4.8.1. If the contractor fails to maintain the required progress of work which results in delay in the completion of the work as per the contractual completion period, BHEL shall have the right to impose Liquidated Damage/Penalty at the rate of 0.5% of the contract value, per week of delay or part thereof subject to a maximum of 10% of the contract value. For this purpose, the period of delay shall be the delay attributable to the Contractor for the completion of work as per contract.

4.8.2 LD against delay in executed work/supply in case of Termination of Contract LD against delay in executed work/supply shall be calculated in line with LD clause of the contract for the delay attributable to contractor/ supplier.

For this purpose, contract value shall be taken as Executed Value of work/supply for the purpose of limiting maximum LD value. Method for calculation of "LD against delay in executed work/supply" is given below.

i. Let the time period from scheduled date of start of work till termination of contract excluding the period of Hold (if any) not attributable to contractor/ supplier= T1
ii. Let the value of executed work/supply till the time of termination of contract= X
iii. Let the Total Executable Value of work/supply for which inputs/fronts were made available to contractor/ supplier and were planned for execution till termination of contract = Y
iv. Delay in executed work/supply attributable to contractor/supplier i.e. T2= (1-X/Y) x T1
v. LD shall be calculated in line with LD clause of the Contract for the delay attributable to contractor/ supplier taking "X" as Contract Value and "T2" as delay attributable to contractor/ supplier.

Reason for the delay due to drawing, foundation, deputation of resources etc. will be documented properly for delay analysis and same to be submitted to finance for LD calculation, if applicable.

4.9. Risk & Cost Amount against Balance Work

Risk & Cost Clause, in line with Conditions of Contract may be invoked in any of the following cases:

1. Contractor/ supplier's poor progress of the work vis-à-vis execution timeline as stipulated in the Contract, backlog attributable to contractor/ supplier including unexecuted portion of work/ supply does not appear to be executable within balance available period (#) considering its performance of execution.
2. Withdrawal from or abandonment of the work by contractor before completion of the work as per contract.
3. Non-completion of work/ Non-supply by the Contractor/ supplier within scheduled completion/delivery period as per Contract or as extended from time to time, for the reason attributable to the contractor/ supplier.
4. Termination of Contract on account of any other reason (s) attributable to Contractor/ Supplier.
5. Assignment, transfer, subletting of Contract without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.
6. Non-compliance to any contractual condition or any other default attributable to Contractor/ Supplier.

Risk & Cost amount against balance work shall be calculated as follows:

Risk & Cost Amount= [(A-B) + (A x H/100)]

Where A= Value of Balance scope of Work as per rates of new contract

B= Value of Balance scope of Work as per rates of old contract being paid to the contractor at the time of termination of contract i.e. inclusive of PVC, if any.

H = Overhead Factor to be taken as 5

7. The Supplier / Contractor shall on no account be entitled to any gain on such risk & cost purchase.

4.10. No Interest payable to Contractor

Notwithstanding anything to the contrary contained in any other document comprising in the Contract, no interest shall be payable by BHEL to Contractor on any moneys or balances including but not limited to the Security Deposit, EMD, Retention Money, RA Bills or the Final Bill, or any amount withheld and/or appropriated by BHEL etc., which becomes or as the case may be, is adjudged to be due from BHEL to Contractor whether under the Contract or otherwise.

CHAPTER- V

5.0 RESPONSIBILITIES OF THE CONTRACTOR IN RESPECT OF LAWS, EMPLOYMENT OF WORKERS ETC.

5.1. The contractor should ensure compliance of labour laws, payment of wages, bonus, PF, ESIC, allowances for safety & hardship & other nonmonetary/ statutory benefits etc to labours employed by him either directly or through sub- contractors, in accordance with the provisions of:

- Contract Labour (R&A) Act 1970 and rules 1971.
- Payment of wages Act.
- Minimum Wages act 1948,
- Employees State Insurance Act 1948, Rules and regulations 1950.
- Employees Provident Fund Act 1952 and Pension Scheme 1995.
- Employees Compensation Act 1923.
- Maternity Benefit Act 1961.
- Equal Emolument Act 1976.
- Payment of Bonus Act 1963.
- Inter State Migrant Act.
- Building and Other Constructions Workers Act, 1996,

5.2. The contractor shall at all times indemnify BHEL HERP against all claims, damages or compensation under the provisions of above acts or any modifications thereof or any other law relating thereof and rules made thereunder from time to time or as consequence of any accident or injury to any workman or other persons in or about the works, whether in the employment of the contractor or not, save and except where such accident or injury has resulted from any act of the Corporation, its agents, or servants, and also against all costs, charges and expenses of any suit, action or preceding arising out of such accident or injury and against all sum or sums which may with the consent of the contractor be paid to compromise or compendia any such claim.

5.3 The Contractor in the event of engaging 20 or more workmen, shall obtain Independent license under the Contract labour (Regulation and Abolition) Act 1970 from the concerned authorities based on Form-V issued by the Principal Employer/Customer. In order to issue Form-V by Customer, Contractor shall fulfill all Statutory requirements like Insurance Policy, PF Code/PF Account number etc as per the requirement of BHEL/Customer.

5.4 BHEL shall recover the amount of compensation paid to victim(s) by BHEL towards loss of life/permanent disability due to an accident which is attributable to the negligence of contractor, agency or firm or any of its employees as per Employee's Compensation Act, 1923 & Guidelines for Settlement of Claims for Compensation on accidents applicable to the Department of Public Enterprises.

5.5 Contractor shall ensure payment of statutory prescribed minimum wages as applicable from time to time in the presence authorized representative of BHEL and maintain proper records of their timely disbursement. These records need to be preserved for a period of at least any 3 years and should be made available even after the contract is over for any verification by the statutory/BHEL authorities.

5.6. In case of the contractor employs Women as employee he will discharge his obligation under law in respect of such women workers as per Factory Act, Maternity Benefit Act and other laws of Uttar Pradesh.

5.7. The contractor shall pay and bear all taxes, fees, license charges, Cess, duties, deposits, tolls, royalties, commission or other charges which may be leviable on account of his operations in executing the contract.

5.8 All safety rules and codes applied by the BHEL at site shall be observed by the contractor without exception. The contractor shall be responsible for the safety of the equipment/material and works to be performed by him and shall maintain all light, fencing guards, slings etc. or other protection necessary for the purpose. Contractor shall also take such additional precautions as may be indicated from time to time by the Engineer-in-charge with a view to prevent pilferage, accidents, fire hazards. Due precautions shall be taken against fire hazards and atmospheric conditions.

5.9. Suitable number of Clerical staff, watch and ward, store keepers to take care of equipment/materials and construction tools and tackles shall be posted at site by the contractor till the completion of work under this contract.

5.10. The contractor shall arrange for such personal protective equipment as are necessary for such type of work and carry out the requisite site tests of handling equipment, lifting tools, tackles etc. as per prescribed standards and practices.

5.11. Contractor has to ensure the implementation of Health, Safety and Environment (HSE) requirements as per directions given by BHEL. The contractor has to assist in HSE audit by BHEL and submit compliance Report. The contractor has to generate and submit record/reports as per HSE plan/activities as per instruction of BHEL.

5.12 The Contractor shall not deploy any person below the age of 18 years or above the age of 60 years.

CHAPTER- VI

6.0 RIGHTS OF BHEL FOR TERMINATION/CANCELLATION OF CONTRACT

6.1. BHEL reserves the right to withdraw any portion of work and/or to restrict/alter quantum of work as indicated in the contract during the progress of work and get it done through other agencies to suit BHEL's commitment to its customer or in case BHEL decides to advance the date of completion due to other emergent reasons/ BHEL's obligation to its customer.

6.2. BHEL reserves the right to terminate the contract or withdraw portion of work and get it done through other agency, at the risk and cost of the contractor after due notice of a period of Two weeks by BHEL in any of the following cases:

i). Contractor's poor progress of the work vis-à-vis execution timeline as stipulated in the Contract, backlog attributable to contractor including unexecuted portion of work does not appear to be executable within balance available period considering its performance of execution.

ii). Withdrawal from or abandonment of the work by contractor before completion of the work as per contract.

iii). Non-completion of work by the Contractor within scheduled completion period as per Contract or as extended from time to time, for the reasons attributable to the contractor.

iv). Termination of Contract on account of any other reason (s) attributable to Contractor.

v). Assignment, transfer, subletting of Contract without BHEL's written permission.

vi). Non-compliance to any contractual condition or any other default attributable to Contractor.

6.3. If at any time after the acceptance of the tender, BHEL shall for any reason whatsoever not require the whole or any part of the work, to be carried out, the Engineer-In-charge shall give notice in writing of the fact to the contractor, who shall have no claim to any payment of compensation or otherwise, howsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of the foreclosing of the work.

6.4. The contractor shall be paid at contract rates for the full amount of the work executed including such additional work i.e., cleaning of site etc. as may be rendered necessary by the said foreclosing. He shall also be allowed a reasonable payment (as decided by the Accepting Officer) for any expenses sustained on account of labour and material collected but which could not be utilized on the work as verified by the Engineer-In-charge but the contractor shall not have any claim for compensation on account of any alterations having been made in the original specifications, drawings, designs and instructions involving and curtailment of the work as originally contemplated.

Chapter VII

7.0 MISCELLANEOUS PROVISIONS & OTHER ISSUES.

7.1 SETTLEMENT OF DISPUTES & ARBITRATION:

i. All questions/interpretations regarding subject matter of the contract shall be decided by the BHEL on the request of the vendor and the decision of the BHEL shall be final.
ii. In case of dispute, steps shall be taken by the parties to the contract to settle the same through negotiations.
iii. In case, dispute is not settled in negotiations, it shall be referred to conciliator appointed by the competent authority of the BHEL. The conciliation proceedings with respect to a dispute as defined in the BHEL Conciliation Scheme, 2018 and subsequent revisions can be initiated under the scheme at any stage whether before, during or even after the commencement of arbitration proceedings or litigation before courts. This conciliation scheme is available on our websites https://herp.bhel.com and www.bhel.com.
iv. In case dispute is not settled in conciliation proceedings, the same shall be referred to arbitration as per corporate guidelines of the BHEL and the arbitration proceeding shall be conducted as per provisions of the arbitration and conciliation act, 1996 read with corporate guideline as amended from time to time.
vi. The vendor shall continue to perform the contract, pending settlement of dispute(s).

7.2. LAWS GOVERNING THE CONTRACT:

The Order/Contract shall be executed and governed by the laws of India and the courts of India alone shall have jurisdiction in respect of any matter arising under or in connection with the Order/Contract.

7.3. ORDERS UNDER THE CONTRACT:

All orders, notices etc. to be under the contract shall be in writing, typescript or printed and if sent by registered post to the address given in tender of the contractor, shall be deemed to have been on the date when in ordinary course they would have been delivered to him. The contractor shall carry out without delay all orders given to him.

7.4. JURISDICTION OF COURT:

All disputes or differences arising out of or in connections with the contract shall be subject to the exclusive jurisdiction of the court at Varanasi (U.P.) Only.

7.5. CLOSING OF CONTRACTS

The Contract shall be considered completed and closed upon completion of all contractual obligations and settlement of Final Bill or completion of Guarantee period whichever is later. Upon closing of Contract, BHEL shall issue a completion certificate as per standard format, based on specific request of Contractor.

7.6. REVERSE AUCTION:

BHEL reserves the right to go for Reverse Auction. The Business Rules for Reverse Auction shall be as per BHEL guidelines issued from time to time.

7.7. SUSPENSION OF BUSINESS DEALINGS WITH CONTRACTORS:

Guidelines for suspension of business dealings with suppliers/ contractors: the revised guidelines for suspension of business dealings are available on BHEL website at "www.bhel.com" on "supplier registration page". Respective bidders / suppliers may refer

this before quoting as per their requirement. Action against the defaulted suppliers/ contractors' shall be taken as per these guidelines only.

7.8 PUBLIC PROCUREMENT POLICY:

As per the directives of government of India in form of public procurement (preference to make in India) order, 2017 and subsequent orders, BHEL will extend the purchase preference to Indian vendors over foreign suppliers for items identified by the respective nodal ministries from time to time. "for this procurement, public procurement (preference to make in India), order 2017 dated 15.06.2017, 28.05.2018, 29.05.2019 & 04.06.2020 and subsequent orders issued by the respective nodal ministry shall be applicable even if issued after issue of this NIT but before finalization of contract/ PO/ WO against this NIT. In the event of any nodal ministry prescribing higher or lower percentage of purchase preference and/ or local content in respect of this procurement, same shall be applicable."

7.9 INTEGRITY PACT (IP):

The revised Implementation Circular, IP document and the IP clause will be applicable for all tenders (covered under Purchase Policy/ Works Policy) above threshold value (presently Rs. 2 Cr.) floated on or after 01.04.2022 as per SS&P Ref: AA: SSP: IP Circular No. 32 of 2021-22 dated 28.02.2022 & Ref: AA: SSP: IP:22-23:01 Circular 12 of 2022-23 dated 26.07.2022.

7.10 Conflict of interest among Bidders/Agents:

A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of procuring entity's interests. The bidder found to have a conflict of interest shall be disqualified. A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if

a) They have controlling partner (s) in common; or

b) They receive or have received any direct or indirect subsidy financial stake from any of them; or

c) They have the same legal representative/agent for purposes of this bid; or

d) They have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another bidder; or

e) Bidder participates in more than one bid in this bidding process. Participation by a bidder in more than one bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly assemblies from one bidding manufacturer in more than one bid; or

f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorise only one agent/dealer. There can be only one bid from the following:

1. The principal manufacturer directly or through one Indian agent on his behalf; and
2. Indian/foreign agent on behalf of only one principal; or

g) A bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the bid; or

h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business.

7.11 Breach of contract, Remedies and Termination:

In case of breach of contract, wherever the value of security instruments like performance bank guarantee available with BHEL against the said contract is at least 10% of the contract value, the same be encashed. In case the value of the security instruments available is less than 10% of the contract value, the balance amount be recovered from other financial remedies (i.e. available bills of the contractor, retention amount, etc. with BHEL) or legal remedies be pursued. The balance scope shall be got done independently without Risk & Cost of the failed supplier/ contractor.

Further, levy of liquidated damages, debarment, termination, de-scoping, short-closure, etc., shall be applied as per provisions of the contract.

7.12 SPECIAL CONDITIONS FOR MICRO AND SMALL ENTERPRISES (MSEs):

Special benefits as per govt rules will provided to MSEs unless stated otherwise in Tender Document. Benefits will be passed on only in specific categories of services and only for specific categories of MSEs, which qualifies for exemption as per govt rules. Following conditions will be applicable for MSEs:

i. MSE contractor can avail the intended benefits as per guidelines of Ministry of MSE only if they submit **Valid UDYAM certificate** along with Technical Bid.
ii. To avail the benefit intended for MSEs, bidders must claim for such benefit. Without such claims, benefits will not be passed on to them.

7.13 OTHER ISSUES:

Value of Non-Judicial Stamp paper for Bank guarantee and for Contract agreement shall be not less than Rs.100 unless otherwise required under relevant statutes. All expenses towards procurement of Stamp paper and preparation of contract agreement shall be in the scope of contractor.
In case of any conflict between the General Conditions of Contract and special Conditions of contract, provisions specified in the Special conditions of contract shall prevail.
BHEL may not insist for signing of Contract Agreements in respect of low value and short time period.

Bidders Declaration

I / we have read the terms and conditions of the tender document, our contractual obligations towards execution of the Contract as per the tender document, we know of all obligations to be performed by us under the contract, the financing cost, administrative expenses, Statutory liabilities, etc. and undertake to fulfil its entire requirement under the quoted rates.

Thanking you,

Yours Sincerely

Signature, seal and address of the party

PROCEDURE FOR ASSEMBLY OF CONSTANT LOAD HANGERS (CLH) (LISEGA DESIGN)

This document covers the procedure to be followed for assembly of Constant Load Hanger (CLH) (Lisega Design).

Before doing final assembly of a Constant Load Hanger, few sub-assemblies are to be done. The sub –assemblies are as follows: -

- **Load Tube Assembly**-Assemble Load Tube with Bearings (along with Bearing Housing in case of CLH-1195), Bearing Axles, Distance Tubes, Circlips & Washers.
- **Disk Assembly**- Disk to be assembled Dowel Bolt.
- **CAM Assembly**-Cam to be assembled with CAM Tube (spring dowel sleeve to be fitted as per requirement).

After completing the above sub-assemblies, following procedure to be followed for main assembly: -

- Case assembly to be placed on ground horizontally and assembly to be done in lying position.
- Load tube to be inserted inside case assembly from upper connection block side to lower connection blocks.
- GTS (Guide and Travel Stop Bolt) to be put inside upper spring end plate pipe.
- Stell rings to be fitted with pipe in USEP (upper spring end plate).
- GTS to be fitted while matching the front plate slot and USEP pipe.
- Now insert the disk assembly and Auxiliary Springs inside the case assembly and place the free end of spring over centering ring at side plate.

- Both the auxiliary springs to be compressed and retained at their position, while clamping with the help of fixture studs, nuts and hydraulic jacks.
- Assemble main spring (qty of springs as per drg) over Load Tube.
- Assemble the guide bushing, guide tube and LA bolts with nuts and washers as per drg.
- Now place the assembly in vertical position in a suitable fixture in such a way that top connection block should be on downward side.
- Fit the bearing bolt with dowel bolt.
- Now insert the CAM assembly with bearing shell and assemble the cam axle through cam tube as per drg. Place the washer and split pin as per drg.
- Release both auxiliary springs from compressed position, so that CAM comes in contact with Bearings.
- Ensure at least 80% contact of bearings on both Cam profiles and uniform gap between bearing Axle and Case assly. Use taper wedges to ensure the uniform gaps.
- Ensure alignment and uniform gaps of load tube & Guide tube.
- Stell ring should be loose fitted (around 1-2 mm loose). Reduce thickness of stell ring by machining/grinding for maintaining the gap, if required.
- Ensure placement of all the washers, circlips , split pins, dowel sleeve as per drg.

Revisions: Refer to record of revisions:	Prepared: Amit Kumar 04-04-19	Approved: S K Tiwari 4/4/19	Date: 04/04/19

RECORD OF REVISIONS

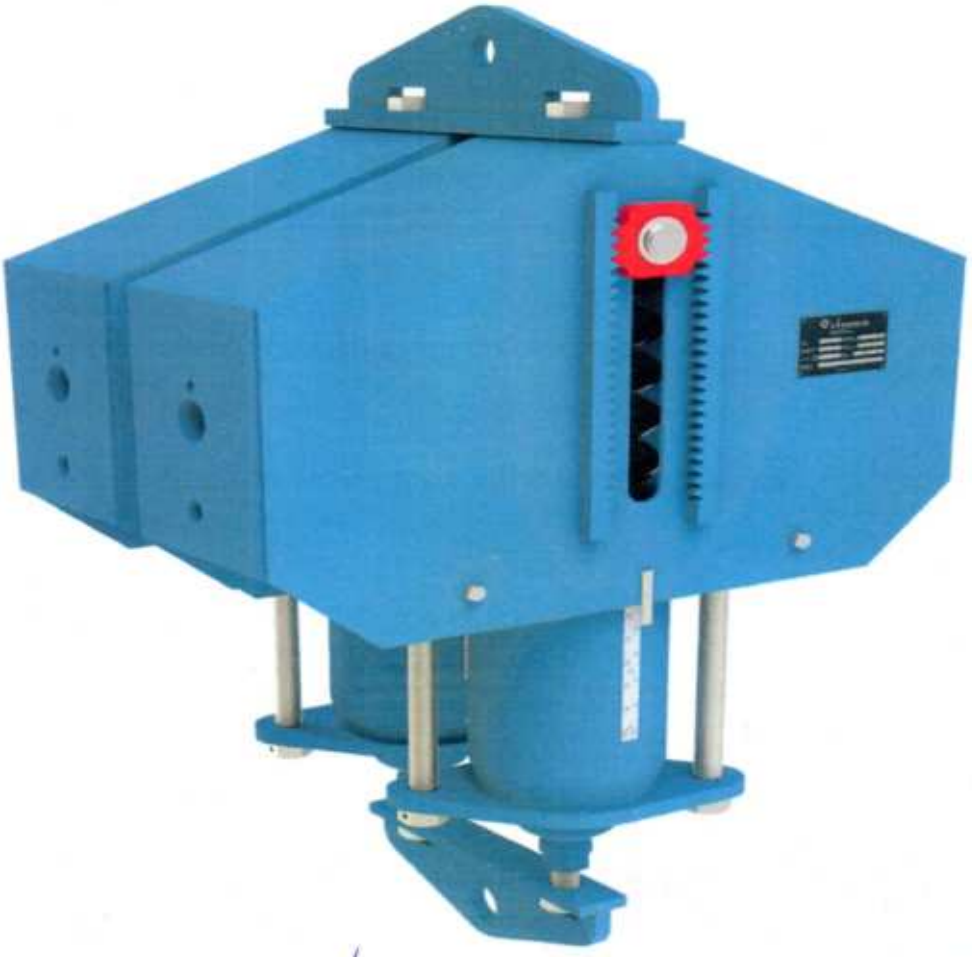
REV. NO	DATE	REVISION DETAILS	REVISED	APPROVED

PROCEDURE FOR ASSEMBLY OF SUPPORT TYPE (6 & 7 SERIES), SINGLE CELL/ MULTICELL AND TRAPEZE TYPE (9 SERIES) CONSTANT LOAD HANGERS (CLH).

This document covers the procedure to be followed for below assemblies: -

1. Multicell CLH
2. Single Cell Support Type CLH (61 & 71 Series)
3. Multicell Support Type CLH (72,73 & 74 Series)
4. Trapeze Type CLH (9 Series)

1. Assembly procedure for Multicell CLH



Revisions:-	Prepared By	Approved By	Date:
Refer Record of Revisions	Amit Kumar	S K Tiwari	20-09-2019

Single cell CLH to be checked for testing in accordance with below points before going for multicell assly-

- Load at which multicell to be tested, is to be equally divided into single cell load.
- Test each single cell CLH with above single cell load derived from multicell CLH load.
- After single cell testing, place a rod in between USEP and case assly slot and remove the GTS while CLH is still hanging in testing stand. then bring down the single cell CLH (Ensure Same dia rod for all hangers for each multicell lot).

<u>After completing the above steps, following procedure to be followed for multicell assembly: -</u>

- Single cell CLH to be placed on ground horizontally and assembly to be done in lying position.
- Multicell GTS (Guide and Travel Stop Bolt) to be put inside upper spring end plate (USEP) pipe.
- take CLH of multicell set, match the GTS of multicell CLH with USEP pipe. assembly of CLH-1482 to clh-1495 is to be done then eye plate of transport lock assembly is to be inserted over mulitcell GTS. In the same way third and fourth CLH should be inserted in position, assembled as per drawing as applicable.
- Assemble the rectangular side connecting plate with the help of threaded bolts and washer on both the side as per drawing.

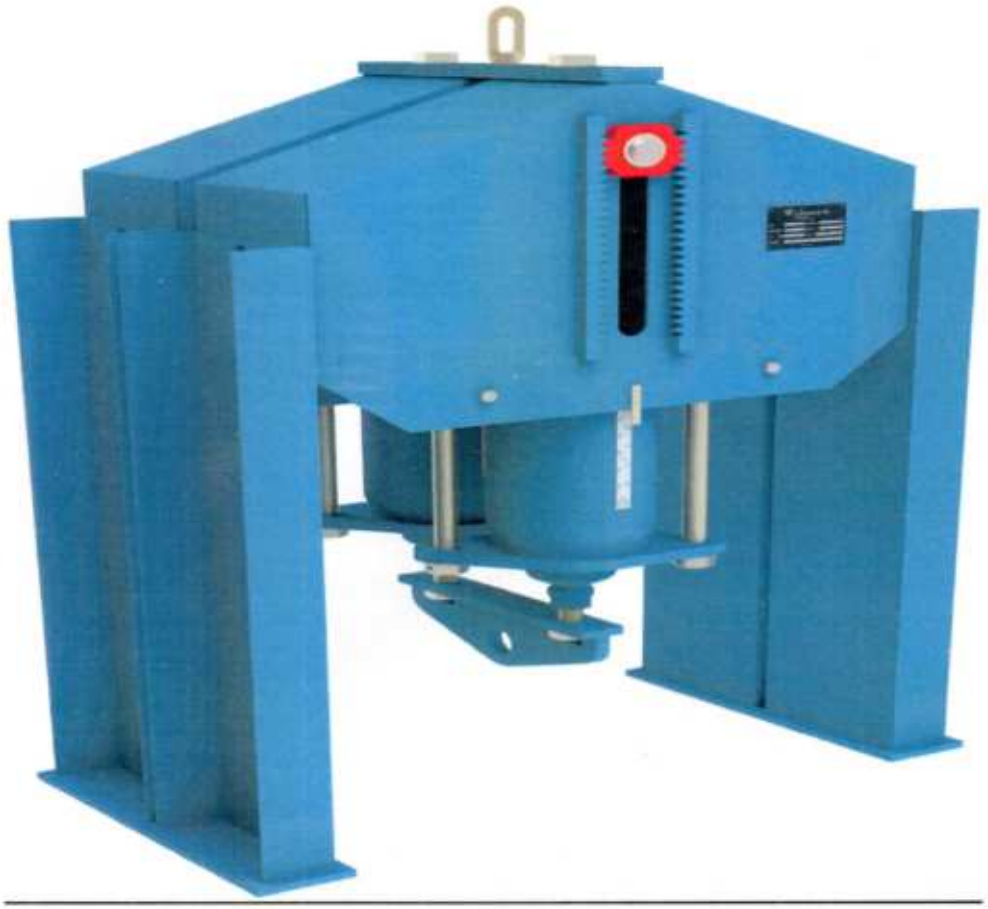
- Assemble upper load connecting assembly and then lower load connecting assembly as per drawing. Minor adjustment in hole alignment to be done by fitting. Ensure all the holes to be properly cleaned and deburred.
- Assemble the washer, stud and nut in transport lock assembly (keep the nut in fully loose position) If applicable.
- Now take multicell CLH to test stand for testing at given parameters as per RVPROC-001.
- Fix the travel stop plate between serrated plates to lock the GTS from both the sides. now insert the distance bush, washers, circlips etc both the sides as per drawing at cold position.
- now unload the assembly from test stand and put on ground in horizontal position and assemble the LA bolt connecting plate (hook type) to lock the load adjustment bolt both side as per drawing. This connecting plate (hook type) to also be locked by nuts of LA bolts as per drg.
- Tight the nut of transport lock assembly completely.

2. ASSEMBLY PROCEDURE FOR SINGLE CELL SUPPORT TYPE (6 & 7 series) CLH.

- Tested single cell CLH (as per RVPROC-001) to be placed on ground horizontally and assembly to be done in lying position.
- Assemble the support assemblies with the help of bolts, washers, threaded bolt and nut on both the side as per drawing. Minor adjustment in hole alignment to be done by fitting. Ensure all the holes to be properly cleaned and deburred.
- Assemble the stepped stud, washer and eye nut (in top connection block) as per drawing.
- Assemble the dust covers and fasteners where applicable as per drawing.

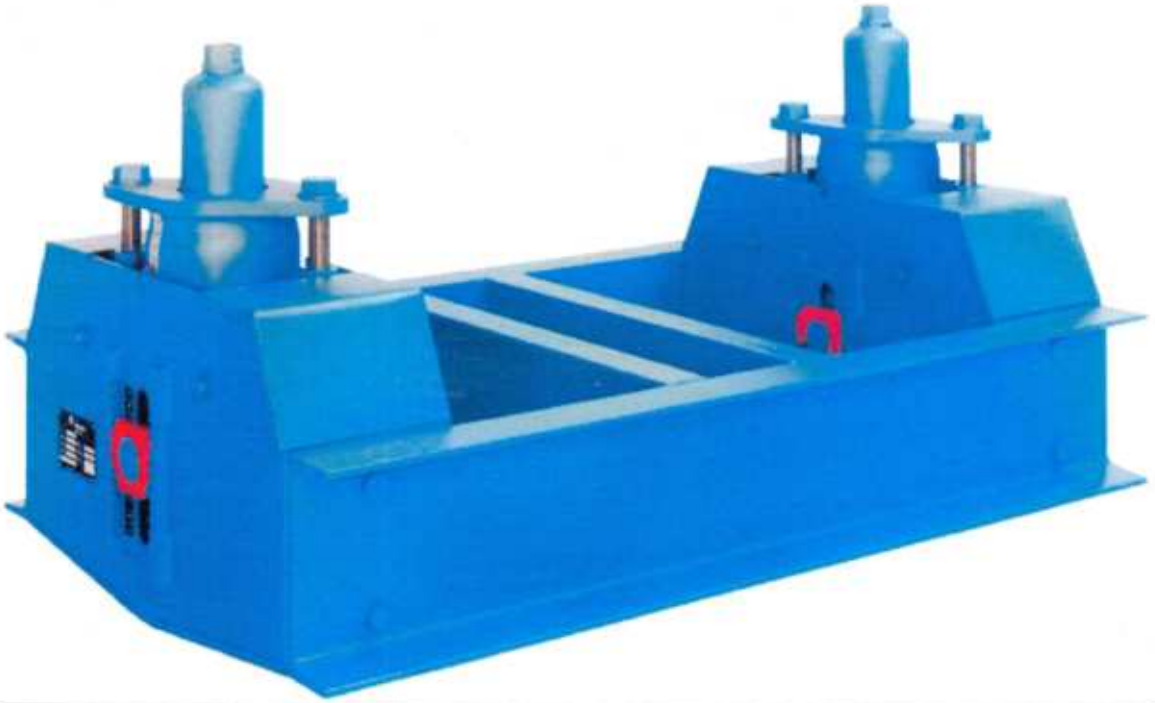
Revisions:-	Prepared By	Approved By	Date:
Refer Record of Revisions	Amit Kumar	S K Tiwari	20-09-2019

3. ASSEMBLY PROCEDURE FOR MULTICELL SUPPORT TYPE CLH (72, 73 & 74 SERIES)



- Take a tested multicell (at given parameter) constant load hanger as per RVPROC-001 and put it on stand in horizontal position.
- dismantle the upper load connecting assembly and assemble support connecting plate as per drg.
- Dismantle one side connecting plate and assemble one side support assly.
- Dismantle other side connecting plate and assemble support assly.
- assemble the studs, washers and eye nuts as per drawing.
- Minor adjustment in hole alignment to be done by fitting. Ensure all the holes to be properly cleaned and deburred.

4. ASSEMBLY PROCEDURE FOR TRAPEZE TYPE CLH (9 SERIES).



- Fabricated trapeze structure as per drg while tack welding the joints.
- Test (at given parameter) 02 nos of CLHs single cell CLH as per RCPROC-001.
- Assemble the tested CLH on one side and fasten both the end of load hanger with threaded bolt, nut, washer and bolt with trapeze structure as per drawing. and same to be done for another side assembly as per drawing.
- Complete welding of trapeze structure as per drg and ensure DP test of welded joints.
- Assemble dust cover and fasteners where applicable as per drawing.

Revisions:-	Prepared By	Approved By	Date:
Refer Record of Revisions	Amit Kumar	S K Tiwari	20-09-2019

RECORD OF REVISIONS

REV. NO	DATE	REVISION DETAILS	REVISED	APPROVED

Revisions:-	Prepared By	Approved By	Date:
Refer Record of Revisions	Amit Kumar	S K Tiwari	20-09-2019

PROCEDURE FOR RECTIFICTION OF CONSTANT LOAD HANGERS (CLH) (LISEGA DESIGN)

This document covers the procedure to be followed for Rectification of Constant load Hanger (CLH) (Lisega Design) as per specific problem category.

Following problems are being witnessed so far in CLH testing at HERP.

A). Main Spring under Load (Load not adjusting).
B). Stell Ring rubbing with Case assy.
C). GTS Rubbing with Case assy slot.
D). Bearing Axle rubbing with Case Assy.
E). Guide Bush rubbing with Load Tube.
F). Cam Problem (Notch in Graph).
G). Dowel Bolt Jam.

A). Main Spring under Load (Load not adjusting).

1.0 Retain both auxiliary springs at their position, while clamping with the help of fixture studs, nuts and hydraulic jacks.

2.0 Take out under loaded previous assembled Main spring of CLH while dismantling Guide Tube, LA Bolts.

3.0 Assemble correct main spring (duly cleared by QC) in Load Tube.

4.0 Assemble Guide Tube, LA Bolts as per drawing.

5.0 Release both auxiliary springs from stretched position, so that CAM comes in contact with Bearings. Ensure at least 80% contact of bearings on both Cam profiles and uniform gap between bearing Axle and Case assy. Use taper wedges to ensure the uniform gaps.

6.0 Ensure alignment and uniform gaps of load tube & Guide tube.

7.0 Stell ring should be loose fitted (around 1-2 mm loose). Reduce thickness of stell ring by machining/grinding for maintaining the gap, if required.

B). Stell Ring rubbing with Case Assy .

1.0 Retain both auxiliary springs at their position, while clamping with the help of fixture studs, nuts and hydraulic jacks.

2.0 Take out GTS (Guide & Travel Stop Bolt) after removing circlips & washers.

3.0 Further Take out Load Tube Assembly while dismantling Guide Tube, LA Bolts.

4.0 Take out Stell Ring from Load Tube Assly.

5.0 Stell ring should be loose fitted (around 1-2 mm loose). Reduce thickness of stell ring by machining/grinding for maintaining the gap as required.

6.0 Assemble Guide Tube, LA Bolts as per drawing.

7.0 Release both auxiliary springs from stretched position, so that CAM comes in contact with Bearings. Ensure at least 80% contact of bearings on both Cam profiles and uniform gap between bearing Axle and Case assy. Use taper wedges to ensure the uniform gaps.

8.0 Ensure alignment and uniform gaps of load tube & Guide tube.

C). GTS Rubbing with Case Assy.

1.0 Mark the rubbing points of GTS with case assly slot during testing of CLH.

2.0 Retain both auxiliary springs at their position, while clamping with the help of fixture studs, nuts and hydraulic jacks.

3.0 Take out GTS (Guide & Travel Stop Bolt) after removing circlips & washers.

4.0 Further Take out Load Tube Assembly while dismantling Guide Tube, LA Bolts.

5.0 Gas cut the already marked area. Grind to make smooth the gas cut portion.

6.0 Re-assemble Load Tube, Guide Tube, LA Bolts, GTS as per drawing.

7.0 Release both auxiliary springs from stretched position, so that CAM comes in contact with Bearings. Ensure at least 80% contact of bearings on both Cam profiles and uniform gap between bearing Axle and Case assy. Use taper wedges to ensure the uniform gaps.

8.0 Ensure alignment and uniform gaps of load tube & Guide tube.

9.0 Stell ring should be loose fitted (around 1-2 mm loose). Reduce thickness of stell ring by machining/grinding for maintaining the gap as required.

D). Bearing Axle rubbing with Case Assy.

1.0 Retain both auxiliary springs at their position, while clamping with the help of fixture studs, nuts and hydraulic jacks.

2.0 Take out GTS (Guide & Travel Stop Bolt) after removing circlips & washers.

3.0 Further Take out Load Tube Assembly while dismantling Guide Tube, LA Bolts.

4.0 Re-assemble Load Tube by using taper wedges to ensure the uniform gaps bearing axle & case assly.

5.0 Assemble Guide Tube, LA Bolts, GTS as per drawing.

6.0 Release both auxiliary springs from stretched position, so that CAM comes in contact with Bearings. Ensure at least 80% contact of bearings on both Cam profiles and uniform gap between bearing Axle and Case assy. Use taper wedges to ensure the uniform gaps.

7.0 Ensure alignment and uniform gaps of load tube & Guide tube.

8.0 Stell ring should be loose fitted (around 1-2 mm loose). Reduce thickness of stell ring by machining/grinding for maintaining the gap as required.

E). Guide Bush rubbing with Load Tube.

1.0 Retain both auxiliary springs at their position, while clamping with the help of fixture studs, nuts and hydraulic jacks.

2.0 Take out Guide Tube while removing LA Bolts.

3.0 Take out main springs and Guide bush from Load Tube.

4.0 Re-assemble Guide bush and main springs (while maintaining uniform gaps and proper seating of springs) with spring plate & Guide bush.

5.0 Assemble Guide Tube, LA Bolts, GTS as per drawing using taper wedges to ensure the uniform gaps.

6.0 Release both auxiliary springs from stretched position, so that CAM comes in contact with Bearings. Ensure at least 80% contact of bearings on both Cam profiles and uniform gap between bearing Axle and Case assy. Use taper wedges to ensure the uniform gaps.

7.0 Ensure alignment and uniform gaps of load tube & Guide tube.

8.0 Stell ring should be loose fitted (around 1-2 mm loose). Reduce thickness of stell ring by machining/grinding for maintaining the gap as required.

F).Cam Problem (Notch in Graph).

1.0 Retain both auxiliary springs at their position, while clamping with the help of fixture studs, nuts and hydraulic jacks.

2.0 Take out Cam Assly. Remove Cam tube by press. Replace both the CAMs by new CAMs and press fit the Cam tube into CAMs.

3.0 Re-Assemble CAM assly.

4.0 Release both auxiliary springs from stretched position, so that CAM comes in contact with Bearings. Ensure at least 80% contact of bearings on both Cam profiles and uniform gap between bearing Axle and Case assy. Use taper wedges to ensure the uniform gaps.

5.0 Ensure alignment and uniform gaps of load tube & Guide tube.

6.0 Stell ring should be loose fitted (around 1-2 mm loose). Reduce thickness of stell ring by machining/grinding for maintaining the gap as required.

G). Dowel Bolt Jam.

1.0 Retain both auxiliary springs at their position, while clamping with the help of fixture studs, nuts and hydraulic jacks.

2.0 Take out GTS (Guide & Travel Stop Bolt) after removing circlips & washers.

3.0 Further Take out Load Tube Assembly while dismantling Guide Tube, LA Bolts. Also take out Cam Assly.

4.0 . Now release both the auxiliary springs. Loose the dowel bolt and Dismantle the Disk (Machined) from auxiliary spring and tap it as required.

5.0 Again tighten the dowel bolt and Re-Assemble Disk. Check for smooth rotation of dowel bolt in disc.

6.0 Again retain both auxiliary springs at their position, while clamping with the help of fixture studs, nuts and hydraulic jacks.

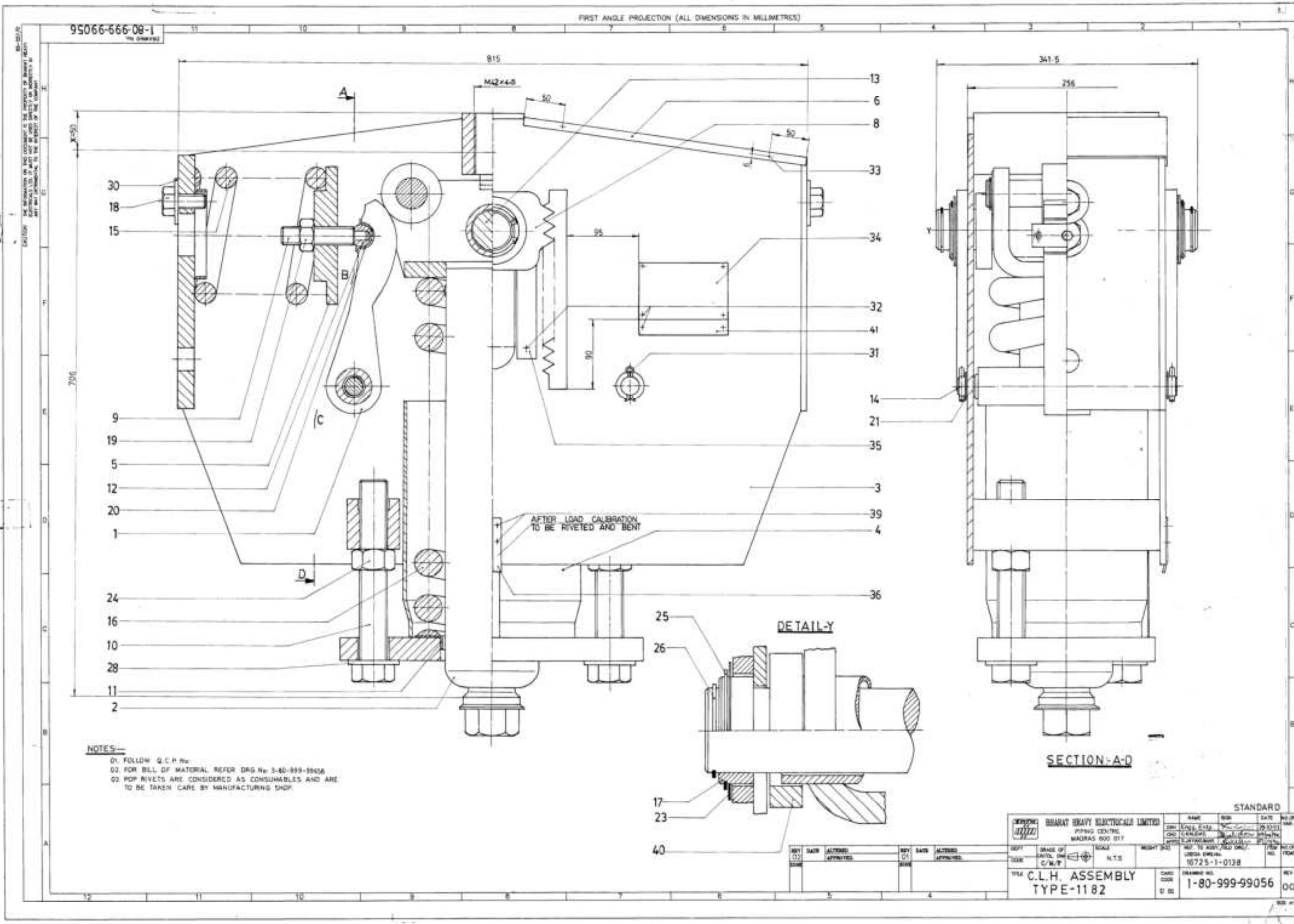
7.0 Re-assemble CAM assly , Load Tube, Guide Tube, LA Bolts, GTS as per drawing using taper wedges to ensure the uniform gaps.

8.0 Release both auxiliary springs from stretched position, so that CAM comes in contact with Bearings. Ensure at least 80% contact of bearings on both Cam profiles and uniform gap between bearing Axle and Case assy. Use taper wedges to ensure the uniform gaps.

9.0 Ensure alignment and uniform gaps of load tube & Guide tube. Stell ring should be loose fitted (around 1-2 mm loose). Reduce thickness of stell ring by machining/grinding for maintaining the gap as required.

RECORD OF REVISIONS

REV. NO	DATE	REVISION DETAILS	REVISED	APPROVED



95066-666-08-1
FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)
815
M42×4.5
50
341.5
256
95
90
706
AFTER LOAD CALIBRATION
TO BE RIVETED AND BENT
DETAIL-Y
SECTION:-A-D
NOTES:—
01. FOLLOW Q.C.P No:
02. FOR BILL OF MATERIAL REFER DRG No: 3-80-999-99056
03. POP RIVETS ARE CONSIDERED AS CONSUMABLES AND ARE
TO BE TAKEN CARE BY MANUFACTURING SHOP.
STANDARD
BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017
N.T.S
16725-1-0138
C.L.H. ASSEMBLY
TYPE-1182
1-80-999-99056
00

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

DRAWING NO. 3-80-999-99658

NOTES:-
01 ITEMS MARKED THUS * ARE TO BE ELECTROPLATED WITH ZINC AND YELLOW CHROMATIZED FOR 10 TO 15 μ m.

	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/P	UNIT / D1	UNIT WEIGHT / QUANTITY	KG
	41	NAME PLATE PART II.		4-80-999-99386		– / SA 240 TYPE 304	C		0.020 / 1	
	40	STELL RING		4-80-999-99387	08	– / NYLON-6			0.093 / 2	
	39	POP RIVET ø3x10		1-80-999-99056		– / –			0.001 / 2	
	38	NOT APPLICABLE.								
	37	NOT APPLICABLE.								
	36	LOAD INDICATOR.		4-80-999-99384		15 011 104 / IS:1079 SL34	C		0.013 / 1	
	35	TRAVEL SCALE 150mm		4-80-999-99382		– / ALUMINIUM			0.006 / 1	
	34	NAME PLATE.		4-80-999-99213		– / SA 240 TYPE 304	C		0.080 / 1	
	33	POP RIVET ø3x15		1-80-999-99056		– / –			0.002 / 8	
	32	POP RIVET ø3x4		1-80-999-99056		– / –			0.001 / 8	
	31	PIN SPLIT ø6.3x40		41704 06040		41704 60040 / IS:549			0.011 / 4	
	30	WASHER OD75/ID21		4-80-999-99467	01	15 011 182 / IS:1079 Fe330	C		0.096 / 2	
	29	NOT APPLICABLE.								
*	28	WASHER MCD 36 OD66/ID37		41406 36000		41406 00036 / IS:2016			0.092 / 2	
	27	NOT APPLICABLE.								
	26	CIRCLIP LIGHT A55		41902 05500		41902 00055 / IS:3075-A			0.015 / 2	
	25	CIRCLIP LIGHT A70		41902 07000		41902 00070 / IS:3075-A			0.029 / 2	
*	24	HEX.NUT M36x4		4-80-999-99290	01	41319 40036 / SA 194 2H	C		0.430 / 2	
*	23	WASHER MCD 72 OD125/ID74		41406 72000		41406 00072 / IS:2016			0.626 / 2	
	22	NOT APPLICABLE								
*	21	WASHER MCD24 OD44/ID26		41408 24000		41406 00024 / IS:2016-A			0.031 / 4	
	20	BEARING SHELL.		4-80-999-99379	05	– / SUB DELY.			0.060 / 2	
*	19	HEX.NUT M24x3		41322 24000		41322 00024 / IS:1364			0.110 / 2	
*	18	HEX.BOLT M20x2.5 L=40		41245 20040		41245 20040 / IS:1364			0.160 / 2	
	17	DISTANCE BUSH		4-80-999-99468		15 062 041 / SA 106 Gr.B	C		0.350 / 2	
	16	MAIN SPRING.		2-80-999-99295	20	– / 50 Cr.V4 DIN 17221			33.400 / 1	
	15	AUXILIARY SPRING.		2-80-999-99295	08	– / 50 Cr.V4 DIN 17221			10.200 / 2	
	14	AXLE.		4-80-999-99481		15 024 258 / SA 182 Gr.F6aCl.3	C		1.100 / 2	
	13	GUIDE AND TRAVEL STOP BOLT.		4-80-999-99462		15 924 382 / SA 276 TYPE420	C		8.350 / 1	
	12	BEARING BOLT ASSEMBLY.		3-80-999-99482	09	– / SUB ASSY.			0.474 / 2	
	11	GUIDE BUSHING.		4-80-999-99380	06	18 005 276 / BRASS			0.405 / 1	
	10	LOAD ADJUSTMENT BOLT M36x4 L=240		3-80-999-99488	29	15 039 119 / SA 193 Gr.B7	P		2.328 / 2	
	09	DOWEL BOLT M24x3		4-80-999-99374	04	15 039 095 / SA 193 Gr.B7	P		0.270 / 2	
	08	TRAVEL STOP PLATE.		3-80-999-99557		15 011 0260000 / IS:2062 Fe 410A	C		1.900 / 2	
	07	NOT APPLICABLE.								
	06	DUST COVER.		4-80-999-99552		15 011 076 / IS:513 TYPE D	C		1.285 / 2	
	05	DISK. (MACHINED)		2-80-999-99297	07	15 942 199 / SA 515 Gr.70	C		3.910 / 2	
	04	LOAD ADJUSTMENT ASSEMBLY.		3-80-999-99588		– / WELDMENT			18.304 / 1	
	03	CASE ASSEMBLY.		3-80-999-99590		– / WELDMENT			109.071 / 1	
	02	LOAD TUBE ASSEMBLY.		2-80-999-99363		– / SUB ASSY.			38.343 / 1	
	01	CAM ASSEMBLY.		3-80-999-99565		– / SUB ASSY.			7.535 / 2	

ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/P	UNIT / D1	UNIT WEIGHT / QUANTITY	KG

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	M.C.SEKARAN.		24-03-94	
CHD	C.KALIDAS.		28-04-94	
APPD	S.JAYAKUMAR.		29/4/94	

REV	DATE	ALTERED / APPROVED	DEPT CODE	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG)	REF. TO ASSY./OLD DRG. LISEGA DRG.No:	ITEM NO.	NO.OF ITEMS
01	02 03 94			C/M/F	N.T.S	268.312	16726-5-0138		

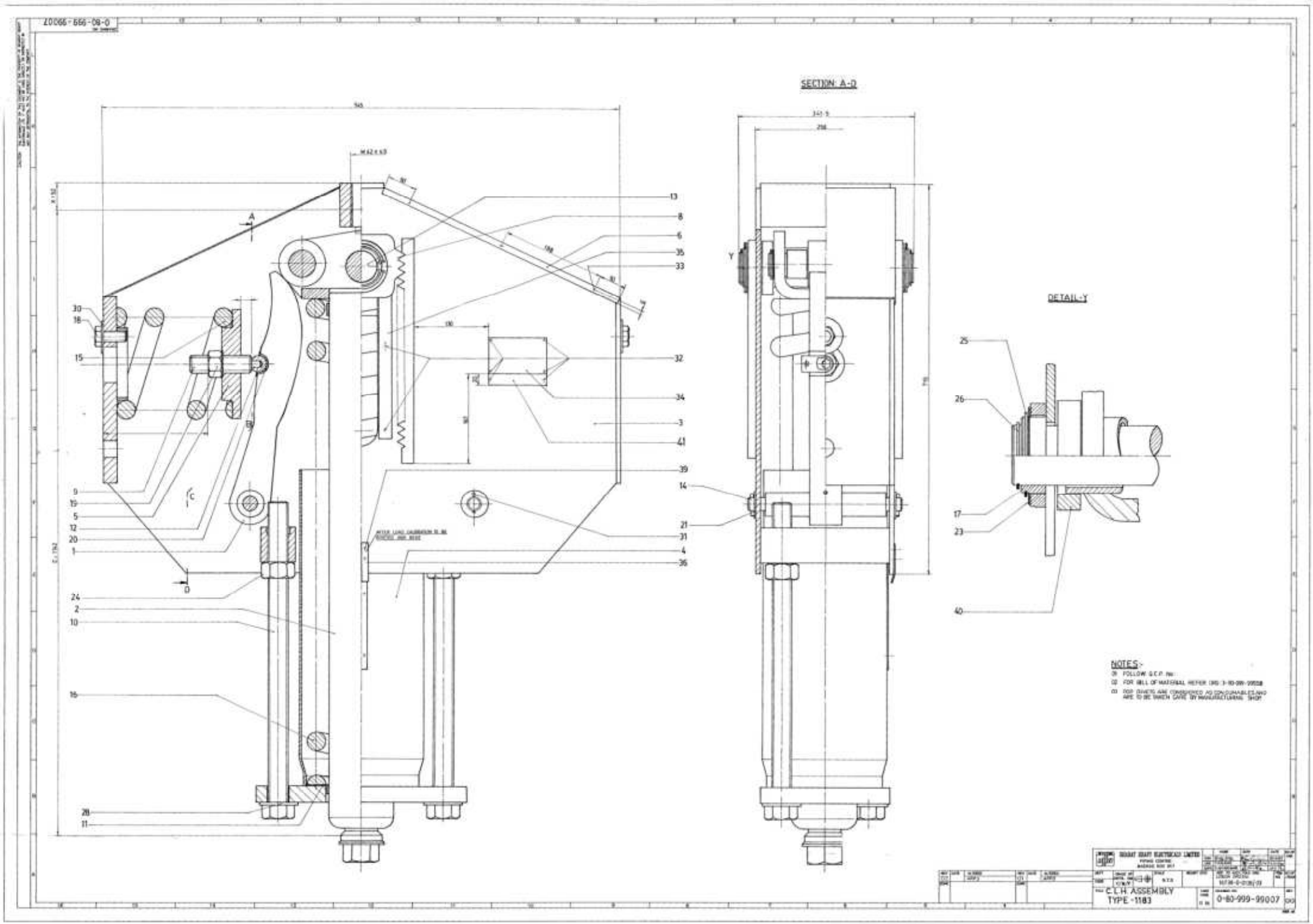
ZONE: PRODUCT ATTEST MARK 'P' INDICATED INSTEAD OF 'C' FOR ITEM NOS. 05 & 19 AS PER STANDARD INSTRUCTION NO 110 MATL. SPCN. CHANGED FROM SA182Gr.F6a. Cl.3 To SA182Gr.F6a. Cl.3 FOR ITEM No. 14

TITLE: BOM FOR CLH ASSEMBLY
TYPE No: 1182

CARD CODE: U 01

DRAWING NO. 3-80-999-99658 REV 01

Size A3


SECTION A-D
DETAIL-Y
NOTES :-
C.L.H. ASSEMBLY
TYPE -1183
0-80-999-99007

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

DRAWING NO. 3-80-999-99558

NOTES: —
01 ITEMS MARKED THUS * ARE TO BE ELECTROPLATED WITH ZINC AND YELLOW CHROMATIZED FOR 10 TO 15 μ m.

	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/A	UNIT / D1	UNIT WEIGHT / QUANTITY	GS
	41	NAML PLATE PART II.		4-80-999-99386		SA 240 TYPE 304	C		0.020 1	
	40	STELL RING		4-80-999-99387	08	NYLON-6			0.093 2	
	39	POP RIVET ø3x10		0-80-999-99007		– –			0.001 2	
	38	NOT APPLICABLE.								
	37	NOT APPLICABLE.								
	36	LOAD INDICATOR.		4-80-999-99384		15 011 104 IS:1079 St.34	C		0.013 1	
	35	TRAVEL SCALL.		3-80-999-99486		ALUMINIUM			0.012 1	
	34	NAML PLATE.		4-80-999-99213		SA 240 TYPE 304	C		0.080 1	
	33	POP RIVET ø3x15		0-80-999-99007		– –			0.002 12	
	32	POP RIVET ø3x4		0-80-999-99007		– –			0.001 9	
	31	PIN SPLIT ø6.3x40		41704 06340		41704 63040 IS:549			0.011 4	
	30	WASHER 0075/ID21		4-80-999-99467	01	15 011 182 BMC 10	C		0.096 2	
	29	NOT APPLICABLE.								
*	28	WASHER MCD 36 OD66/ID37		41406 36000		41406 00036 IS:2016			0.092 2	
	27	NOT APPLICABLE.								
	26	CIRCLIP LIGHT A56		41902 05600		41902 00056 IS:3075-A			0.016 2	
	25	CIRCLIP LIGHT A70		41902 07000		41902 00070 IS:3075-A			0.029 2	
*	24	HEX.NUT M36x4		4-80-999-99290	01	41319 40036 SA 194 2H	C		0.430 2	
*	23	WASHER MCD 72 OD125/ID74		41406 72000		41406 00072 IS:2016			0.626 2	
	22	NOT APPLICABLE								
*	21	WASHER MCD A27 OD50/ID28		41406 27000		41406 00027 IS:2016			0.042 4	
	20	BEARING SHELL.		4-80-999-99379	05	– SUB DELY.			0.060 2	
*	19	HEX.NUT M30x3.5		41322 30000		41322 00030 IS:1364			0.193 2	
*	18	HEX.BOLT M20x2.5;L=40		41245 20040		41245 20040 IS:1364			0.160 2	
	17	DISTANCE BUSH		4-80-999-99468		15 082 041 SA 106 Gr.B	C		0.350 2	
	16	MAIN SPRING.		2-80-999-99295	28	– 50 Cr.V4 DIN 17221			62.400 1	
	15	AUXILIARY SPRING.		2-80-999-99295	09	– 50 Cr.V4 DIN 17221			17.000 2	
	14	AXLE.		4-80-999-99461		15 024 256 SA 182 Gr.F6a(CL3	C		1.100 2	
	13	GUIDE AND TRAVEL STOP BOLT.		4-80-999-99462		15 924 382 SA 276 TYPE 420	C		6.350 1	
	12	BEARING BOLT ASSEMBLY.		3-80-999-99482	09	– SUB ASSY.			0.474 2	
	11	GUIDE BUSHING.		4-80-999-99380	08	16 005 276 BRASS			0.405 1	
	10	LOAD ADJUSTMENT BOLT M36x 4; L=550		3-80-999-99488	30	15 039 119 SA 193 Gr.B7	P		4.805 2	
	09	DOWEL BOLT M30x3.5		4-80-999-99374	05	15 039 087 SA 193 Gr.B7	P		0.470 2	
	08	TRAVEL STOP PLATE.		3-80-999-99557		15 011 026 BMC 20	C		1.900 2	
	07	NOT APPLICABLE.								
	06	DUST COVER.		4-80-999-99460		15 011 076 IS:513 TYPE D	C		1.668 2	
	05	DISK. (MACHINED)		2-80-999-99297	08	15 942 116 SA515 Gr.70	C		5.750 2	
	04	LOAD ADJUSTMENT ASSEMBLY.		3-80-999-99526		– WELDMENT			24.368 1	
	03	CASE ASSEMBLY.		3-80-999-99530		– WELDMENT			129.225 1	
	02	LOAD TUBE ASSEMBLY.		2-80-999-99354		– SUB ASSY.			50.021 1	
	01	CAM ASSEMBLY.		3-80-999-99528		– SUB ASSY.			13.835 2	

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	M.C.SEKARAN.		04-01-94	
CHD	C.KALIDAS.		12-01-94	
APPD	S.JAYAKUMAR.		21-01-94	

REV	DATE	ALTERED / APPROVED	DEPT / CODE	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG)	REF. TO ASSY./OLD DRG.	ITEM NO.	NO.OF ITEMS
01	02.03.95			C/M/F	N.T.S	371.435	16739-5-0138		

ZONE: PRODUCT ATTEST MARK 'P' INDICATED INSTEAD OF 'C' FOR ITEM NOS 09 AND 10 AS PER STANDARD INSTRUCTION No 110 MATL.SPEN. CHANGED FROM SA182Gr F6a CL3 TO SA182Gr F6a CL3 FOR ITEM No. 14

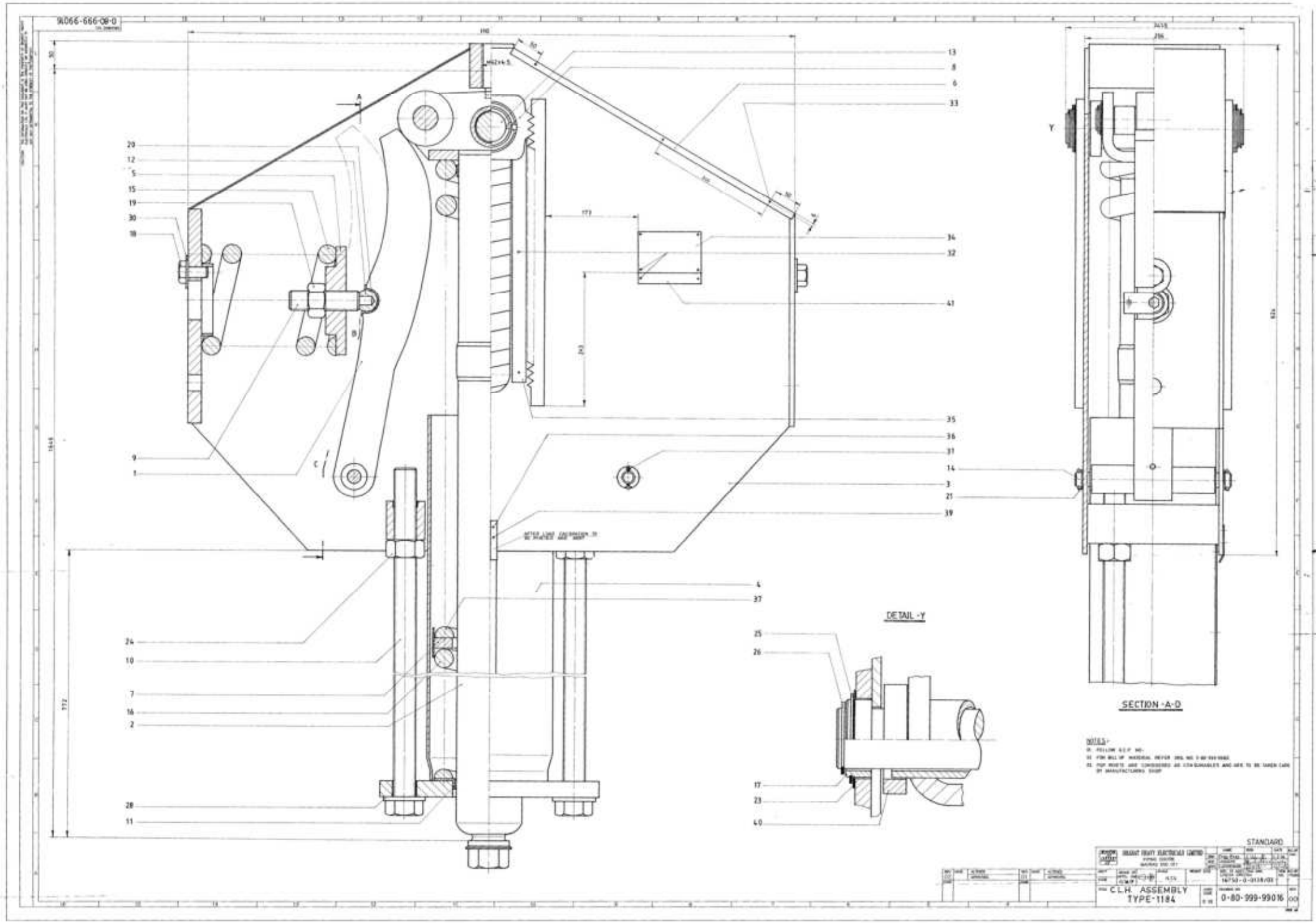
TITLE: BOM FOR CLH ASSEMBLY
TYPE No: 1183

CARD CODE: U 01

DRAWING NO.: 3-80-999-99558 REV: 01

Size A3

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.


DETAIL -Y
SECTION -A-D
STANDARD
C.L.H. ASSEMBLY
TYPE-1184
0-80-999-99016

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

DRAWING NO. 3-80-999-99662

NOTES:-
01 ITEMS MARKED THUS * ARE TO BE ELECTROPLATED WITH ZINC AND YELLOW CHROMATIZED FOR 10 TO 15 μ m.

	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/P	UNIT / D1	UNIT WEIGHT / QUANTITY	GS
	41	NAME PLATE PART II.		4-80-999-99386		-	C		0.020	
						SA 240 TYPE 304			1	
	40	STELL RING		4-80-999-99387		-			0.093	
					08	NYLON-6			2	
	39	POP RIVET ø3x10		0-80-999-99016		-			0.001	
						SUB DELY.			2	
	38	NOT APPLICABLE.								
	37	MAIN SPRING.-II		2-80-999-99295		-			62.400	
					28	50 Cr.V4 DIN 17221			1	
	36	LOAD INDICATOR.		4-80-999-99384		15 011 104	C		0.013	
						IS:1079 St.34			1	
	35	TRAVEL SCALE 450mm.		2-80-999-99301		-			0.017	
						ALUMINIUM			1	
	34	NAME PLATE.		4-80-999-99213		-	C		0.080	
						SA 240 TYPE 304			1	
	33	POP RIVET ø3x15		0-80-999-99016		-			0.002	
						SUB DELY.			12	
	32	POP RIVET ø3x4		0-80-999-99016		-			0.001	
						SUB DELY.			9	
	31	PIN SPLIT ø6.3x40		41704 06040		41704 60040			0.011	
						IS:549			4	
	30	WASHER OD75/ID21		4-80-999-99467		15 011 182	C		0.096	
					01	IS:1079 Fe 330			2	
	29	NOT APPLICABLE.								
*	28	WASHER MCD 42 OD78/ID43		41406 42000		41406 00042			0.180	
						IS:2016			2	
	27	NOT APPLICABLE.								
	26	CIRCLIP LIGHT A55		41902 05500		41902 00055			0.015	
						IS:3075-A			2	
	25	CIRCLIP LIGHT A70		41902 07000		41902 00070			0.029	
						IS:3075-A			2	
*	24	HEX.NUT M42x4.5		4-80-999-99290		41319 45042	C		0.810	
					02	SA 194 2H			2	
*	23	WASHER MCD 72 OD125/ID74		41406 72000		41406 00072			0.626	
						IS:2016			2	
	22	NOT APPLICABLE								
*	21	WASHER MCD A24 OD44/ID26		41408 24000		41408 00024			0.031	
						IS:2016-A			4	
	20	BEARING SHELL.		4-80-999-99379		-			0.080	
					06	SUB DELY.			2	
*	19	HEX.NUT M36x4		4-80-999-99290		41319 40036	C		0.430	
					01	SA 194 Gr.2H			2	
*	18	HEX.BOLT M20x2.5 L=40		41245 20040		41245 20040			0.160	
						IS:1364			2	
	17	DISTANCE BUSH		4-80-999-99468		15 082 041			0.350	
						SA 106 Gr.B			2	
	16	MAIN SPRING.-I		2-80-999-99295		-			33.400	
					20	50 Cr.V4 DIN 17221			1	
	15	AUXILIARY SPRING.		2-80-999-99295		-			18.400	
					10	50 Cr.V4 DIN 17221			2	
	14	AXLE.		4-80-999-99461		15 024 256	C		1.100	
						SA 182 Gr.F6a Cl.3			2	
	13	GUIDE AND TRAVEL STOP BOLT.		4-80-999-99462		15 924 382	C		6.350	
						SA 276 TYPE 420			1	
	12	BEARING BOLT ASSEMBLY.		3-80-999-99482		-			0.978	
					11	SUB ASSY.			2	
	11	GUIDE BUSHING.		4-80-999-99380		16 005 276			0.405	
					08	BRASS			1	
	10	LOAD ADJUSTMENT BOLT M42x4.5 L=850		3-80-999-99488		15 039 120	P		9.920	
					31	SA 193 Gr.B7			2	
	09	DOWEL BOLT M36x4		4-80-999-99374		15 039 116	P		0.850	
					06	SA 193 Gr.B7			2	
	08	TRAVEL STOP PLATE.		3-80-999-99557		15 011 026	C		1.900	
						IS:2062 Fe410 A			2	
	07	SPRING PLATE ASSEMBLY.		3-80-999-99599		-			2.860	
						WELDMENT			1	
	06	DUST COVER.		4-80-999-99568		15 011 076	C		2.067	
						IS:513 TYPE D			2	
	05	DISK. (MACHINED)		2-80-999-99297		15 942 117	C		6.320	
					09	SA515 Gr.70			2	
	04	LOAD ADJUSTMENT ASSEMBLY.		3-80-999-99598		-			31.548	
						WELDMENT			1	
	03	CASE ASSEMBLY.		3-80-999-99602		-			168.693	
						WELDMENT			1	
	02	LOAD TUBE ASSEMBLY.		2-80-999-99365		-			65.619	
						SUB ASSY.			1	
	01	CAM ASSEMBLY.		3-80-999-99600		-			29.115	
						SUB ASSY.			2	

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	M.C.SEKARAN.		30-03-94	
CHD	C.KALIDAS.		11-04-94	
APPD	S.JAYAKUMAR.		23/4/94	

REV	DATE	ALTERED / APPROVED.
01		

ZONE

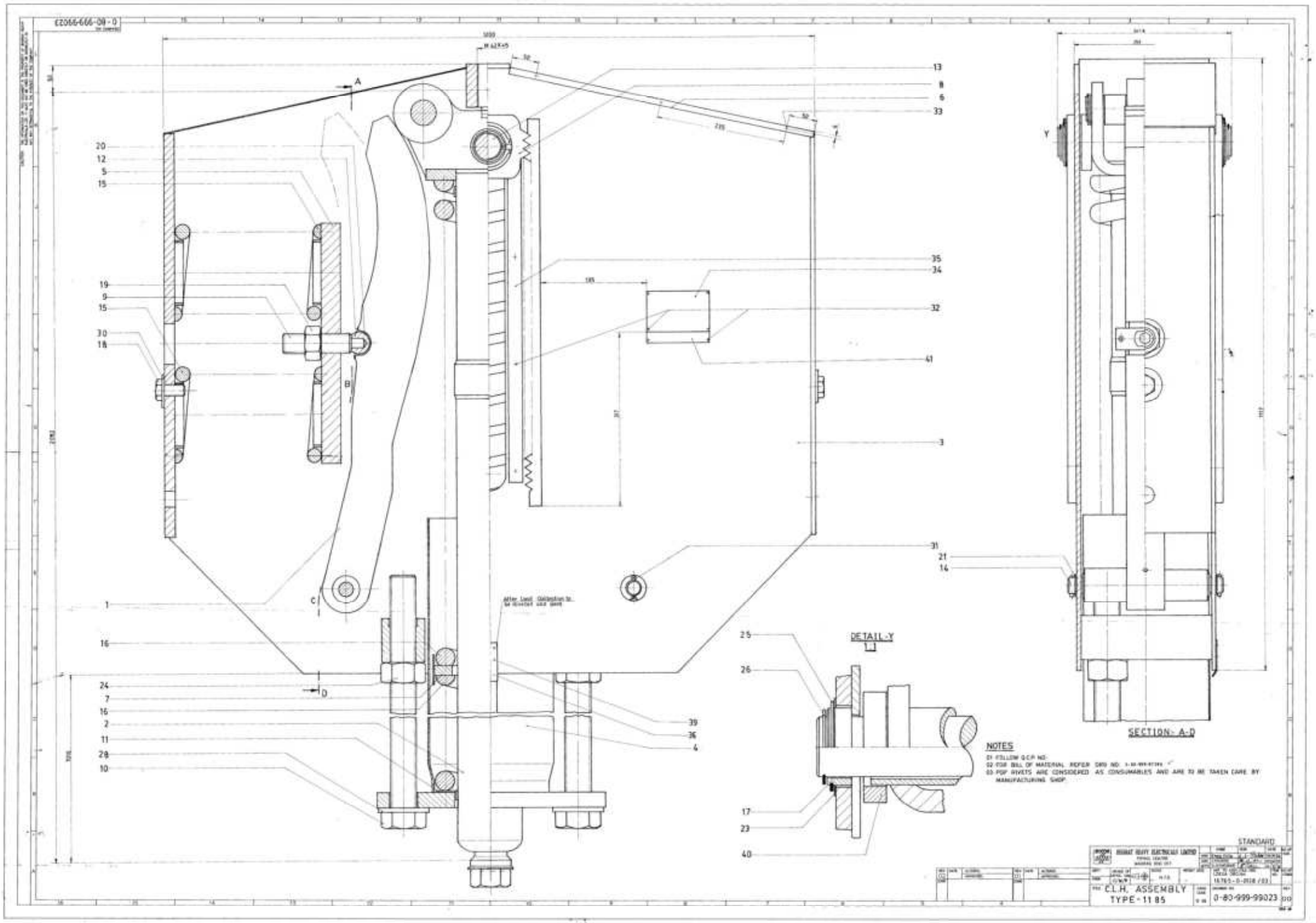
DEPT CODE	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG)	REF. TO ASSY./OLD DRG. LISEGA DRG.No:	ITEM NO.	NO.OF ITEMS
	C/M/F	N.T.S	518·644	16751-5-0138		

TITLE: BOM FOR CLH ASSEMBLY
TYPE No: 1184

CARD CODE: U 01

DRAWING NO.: 3-80-999-99662 REV: 00

Size A3


DETAIL-Y
SECTION- A-D
NOTES
STANDARD
C.L.H. ASSEMBLY
TYPE-11 85
0-80-999-99023

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

12

DRAWING NO. 3-80-999-97285

NOTES:-
01 ITEMS MARKED THUS * ARE TO BE ELECTROPLATED WITH ZINC AND YELLOW CHROMATIZED FOR 10 TO 15 μ m.

	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/E/P	UNIT / D1	UNIT WEIGHT / QUANTITY	QS
	41	NAME PLATE PART II.		4-80-999-99386		- / SA 240 TYPE 304	C		0.020 / 1	
	40	STELL RING		4-80-999-99387	08	- / NYLON-6			0.093 / 2	
	39	POP RIVET ø3x10		0-80-999-99023		- / -			0.001 / 2	
	38	NOT APPLICABLE.								
	37	NOT APPLICABLE.				-				
	36	LOAD INDICATOR.		4-80-999-99384		15 011 104 / IS:1079 St.34	C		0.013 / 1	
	35	TRAVEL SCALE 600mm		1-80-999-99074		- / ALUMINIUM			0.021 / 1	
	34	NAME PLATE.		4-80-999-99213		- / SA 240 TYPE 304	C		0.080 / 1	
	33	POP RIVET ø3x15		0-80-999-99023		- / -			0.002 / 12	
	32	POP RIVET ø3x4		0-80-999-99023		- / -			0.001 / 10	
	31	PIN SPLIT ø6.3x40		41704 06040		41704 60040 / IS:549			0.014 / 4	
	30	WASHER OD75/ID21		4-80-999-99467	01	15 011 182 / IS:1079 Fe 330			0.096 / 2	
	29	NOT APPLICABLE.				- / -				
*	28	WASHER MCD 48 OD92/ID50		41406 48000		41406 00048 / IS:2016			0.291 / 2	
	27	NOT APPLICABLE.				- / -				
	26	CIRCLIP LIGHT A55		41902 05500		41902 00055 / IS:3075-A			0.015 / 2	
	25	CIRCLIP LIGHT A70		41902 07000		41902 00070 / IS:3075-A			0.029 / 2	
*	24	HEX.NUT M48x5		4-80-999-99290	03	41319 50048 / SA 194 2H	C		1.240 / 2	
*	23	WASHER MCD 72 OD125/ID74		41406 72000		41406 00072 / IS:2016			0.626 / 2	
	22	NOT APPLICABLE				- / -				
*	21	WASHER MCD 30 OD58/ID31		41406 30000		41406 00030 / IS:2016			0.054 / 4	
	20	BEARING SHELL.		4-80-999-99379	06	- / SUB DELY.			0.080 / 2	
*	19	HEX.NUT M36x4		4-80-999-99290	01	41319 40036 / SA 194 Gr.2H	C		0.430 / 2	
*	18	HEX.BOLT M20x2.5 L=40		41245 20040		41245 20040 / IS:1364			0.160 / 2	
	17	DISTANCE BUSH		4-80-999-99468		15 082 041 / SA 106 Gr.B	C		0.350 / 2	
	16	MAIN SPRING.		2-80-999-99295	28	- / 50 Cr.V4 DIN 17221			82.400 / 2	
	15	AUXILIARY SPRING.		2-80-999-99295	18	- / 50 Cr.V4 DIN 17221			14.900 / 4	
	14	AXLE.		4-80-999-99667		15 024 257 / SA 182 Gr.F6a.CL3	C		1.589 / 2	
	13	GUIDE AND TRAVEL STOP BOLT.		4-80-999-99462		15 924 382 / SA 276 TYPE 420	C		6.350 / 1	
	12	BEARING BOLT ASSEMBLY.		3-80-999-99482	11	- / SUB ASSY.			0.978 / 2	
	11	GUIDE BUSHING.		4-80-999-99380	08	16 005 276 / BRASS			0.405 / 1	
	10	LOAD ADJUSTMENT BOLT M48x5 L=1110		3-80-999-99488	32	15 039 120 / SA 193 Gr.B7	P		17.100 / 2	
	09	DOWEL BOLT M36x4		4-80-999-99374	06	15 039 116 / SA 193 Gr.B7	P		0.850 / 2	
	08	TRAVEL STOP PLATE.		3-80-999-99557		15 011 026 / IS:2062 Fe 410 A	C		1.900 / 2	
	07	SPRING PLATE ASSEMBLY.		3-80-999-99599		- / WELDMENT			2.860 / 1	
	06	DUST COVER.		4-80-999-99665		15 011 076 / IS:513 TYPE D	C		1.990 / 2	
	05	DISK ASSEMBLY.		3-80-999-99665		- / WELDMENT			21.420 / 2	
	04	LOAD ADJUSTMENT ASSEMBLY.		3-80-999-97135		- / WELDMENT			39.175 / 1	
	03	CASE ASSEMBLY.		3-80-999-97138		- / WELDMENT			242.169 / 1	
	02	LOAD TUBE ASSEMBLY.		2-80-999-99376		- / SUB ASSY.			81.860 / 1	
	01	CAM ASSEMBLY.		3-80-999-97136		- / SUB ASSY.			44.074 / 2	

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	M.C.SEKARAN.		30-01-95	
CHD	C.KALIDAS.		03/02/95	
APPD	S.JAYAKUMAR.		24/2/95	

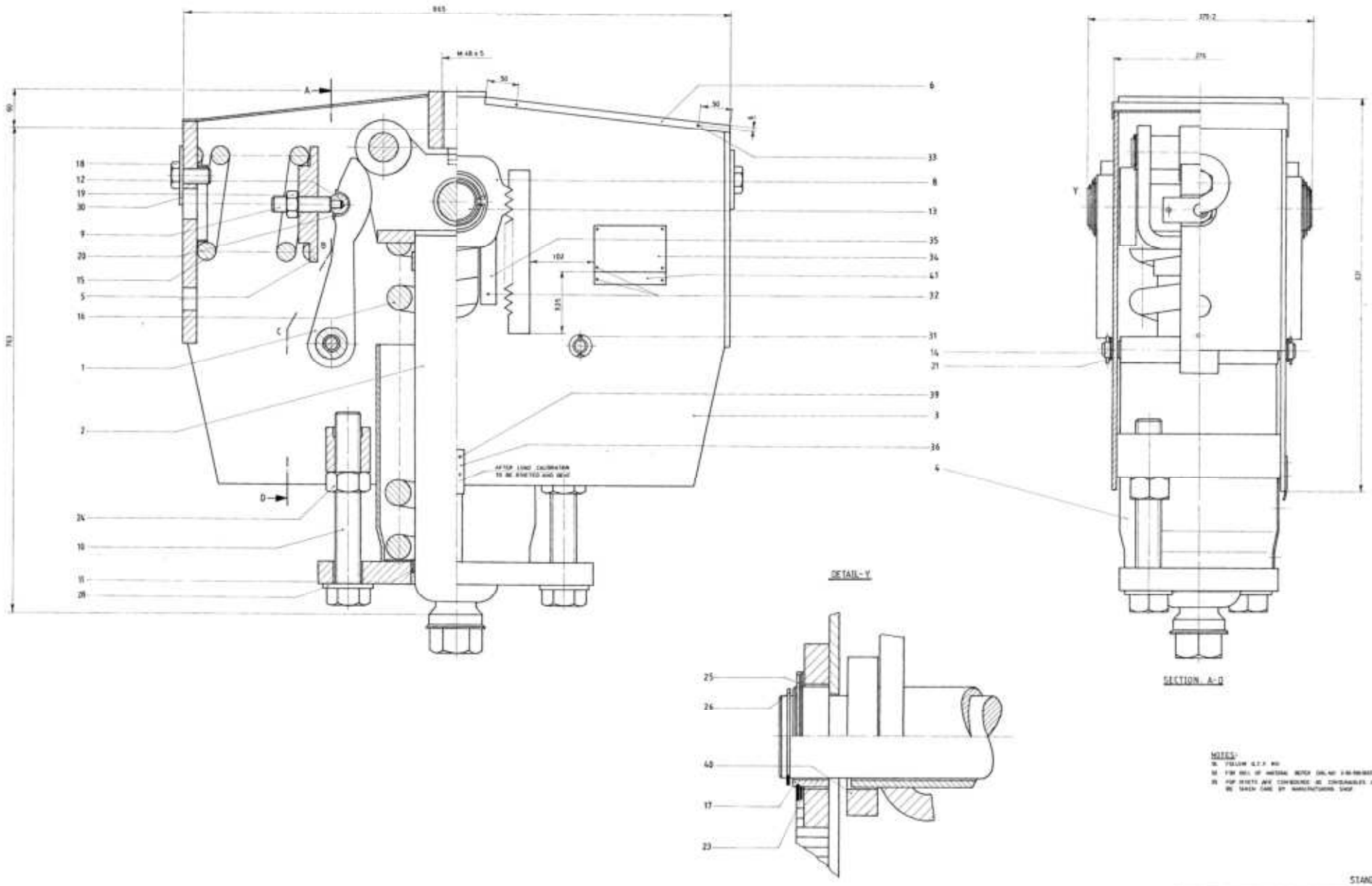
REV	DATE	ALTERED / APPROVED
01		

ZONE

DEPT CODE	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG)	REF. TO ASSY./OLD DRG. LISEGA DRG.No:	ITEM NO.	NO.OF ITEMS
	C/M/F	N.T.S	744.283	16766-5-0138		

TITLE	CARD CODE	DRAWING NO.	REV
BOM FOR CLH ASSEMBLY TYPE No: 1185	U 01	3-80-999-97285	00

Size A3


DETAIL-Y
SECTION A-D
STANDARD
C.L.H. ASSEMBLY
TYPE-1192
0-80-999-99011

DRAWING NO. 3-80-999-99657

NOTES:-

01 ITEMS MARKED THUS * ARE TO BE ELECTROPLATED WITH ZINC AND YELLOW CHROMATIZED FOR 10 TO 15 μ m.

	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/P	UNIT / D1	UNIT WEIGHT / QUANTITY	GS
						–	C		0.020	
						SA 240 TYPE 304			1	
	41	NAME PLATE PART II.		4-80-999-99386		–			0.211	
	40	STELL RING		4-80-999-99387	09	NYLON-6			2	
						–			0.001	
	39	POP RIVET ø3x10		0-80-999-99011		–			2	
	38	NOT APPLICABLE.								
	37	NOT APPLICABLE.								
						15 011 104	C		0.013	
	36	LOAD INDICATOR.		4-80-999-99384		IS:1079 St.34			1	
						–			0.006	
	35	TRAVEL SCALE 150mm		4-80-999-99382		ALUMINIUM			1	
						–	C		0.080	
	34	NAME PLATE.		4-80-999-99213		SA 240 TYPE 304			1	
						–			0.002	
	33	POP RIVET ø3x15		0-80-999-99011		–			8	
						–			0.001	
	32	POP RIVET ø3x4		0-80-999-99011		–			8	
						41704 60040			0.011	
	31	PIN SPLIT ø6.3x40		41704 06040		IS:549			4	
						15 011 182	C		0-122	
	30	WASHER OD85/ID25		4-80-999-99467	02	IS:1079 Fe 330			2	
	29	NOT APPLICABLE.								
*						41406 00042			0.183	
	28	WASHER MCD 42 OD78/ID43		41406 42000		IS:2016			2	
	27	NOT APPLICABLE.								
						41902 00065			0.026	
	26	CIRCLIP LIGHT A65		41902 06500		IS:3075-A			2	
						41902 00080			0.038	
	25	CIRCLIP LIGHT A80		41902 08000		IS:3075-A			2	
*						41319 45042	C		0.810	
	24	HEX.NUT M42x4.5		4-80-999-99290	02	SA 194 2H			2	
*						41406 00080			0.953	
	23	WASHER MCD 80 OD140/ID82		41406 80000		IS:2016			2	
	22	NOT APPLICABLE								
*						41408 00024			0.031	
	21	PUNCHED WASHER A24 OD44/ID26		41408 24000		IS:2016-A			4	
						–			0.060	
	20	BEARING SHELL.		4-80-999-99379	05	SUB DELY.			2	
*						41322 00024			0.110	
	19	HEX.NUT M24x3		41322 24000		IS:1364			2	
*						41218 24070			0.333	
	18	HEX.BOLT M24x3 L=70		41218 24070		Gr 8.8			2	
						15 339 134	C		0.506	
	17	DISTANCE BUSH		4-80-999-99481		SA 105			2	
						–	C		46.300	
	16	MAIN SPRING.		2-80-999-99295	21	50 Cr.V4 DIN 17221			1	
						–	C		12.000	
	15	AUXILIARY SPRING.		3-80-999-99544	02	50 Cr.V4 DIN 17221			2	
						15 024 256	C		1.181	(61)
	14	AXLE.		4-80-999-99562		SA 182 Gr. F6a.Cl.3			2	
						15 024 263	C		9.818	(61)
	13	GUIDE AND TRAVEL STOP BOLT.		4-80-999-99474		SA182 Gr. F6a. Cl.3			1	
						–			0.474	
	12	BEARING BOLT ASSEMBLY.		3-80-999-99482	09	SUB ASSY.			2	
						16 005 276			0.514	
	11	GUIDE BUSHING.		4-80-999-99380	09	BRASS			1	
						15 039 120	P		3.610	(60)
	10	LOAD ADJUSTMENT BOLT M42x4.5 L=270		3-80-999-99488	33	SA 193 Gr.B7			2	
						15 039 095	P		0.270	(60)
	09	DOWEL BOLT M24x3		4-80-999-99374	04	SA 193 Gr.B7			2	
						15 942 113	C		2.600	
	08	TRAVEL STOP PLATE.		3-80-999-99579		SA 515 Gr.70			2	
	07	NOT APPLICABLE.								
						15 011 076	C		1.452	
	06	DUST COVER.		4-80-999-99560		IS:513 TYPE D			2	
						15 942 199	C		3.910	
	05	DISK. (MACHINED)		2-80-999-99297	07	SA 515 Gr.70			2	
						–			26.527	
	04	LOAD ADJUSTMENT ASSEMBLY.		3-80-999-99592		WELDMENT			1	
						–			136.923	
	03	CASE ASSEMBLY.		3-80-999-99596		WELDMENT			1	
						–			49.674	
	02	LOAD TUBE ASSEMBLY.		2-80-999-99364		SUB ASSY.			1	
						–			9-235	
	01	CAM ASSEMBLY.		3-80-999-99594		SUB ASSY.			2	
	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/P	UNIT / D1	UNIT WEIGHT / QUANTITY	GS

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	M.C.SEKARAN.		24-03-94	
CHD	C.KALIDAS.		02-04-94	
APPD	S.JAYAKUMAR.		5-1-94	

REV	DATE	ALTERED / APPROVED
01	02 03 95	

ZONE

PRODUCT ATTEST MARK 'P' INDICATED INSTEAD OF 'C' FOR ITEM NOS 09 & 10 AS PER STANDARD INSTRUCTION No. 110
MATL. SPCN. CHANGED FROM SA182 Gr F6a TO SA 182 Gr. F6a. Cl.3 FOR ITEM NOS 13&14

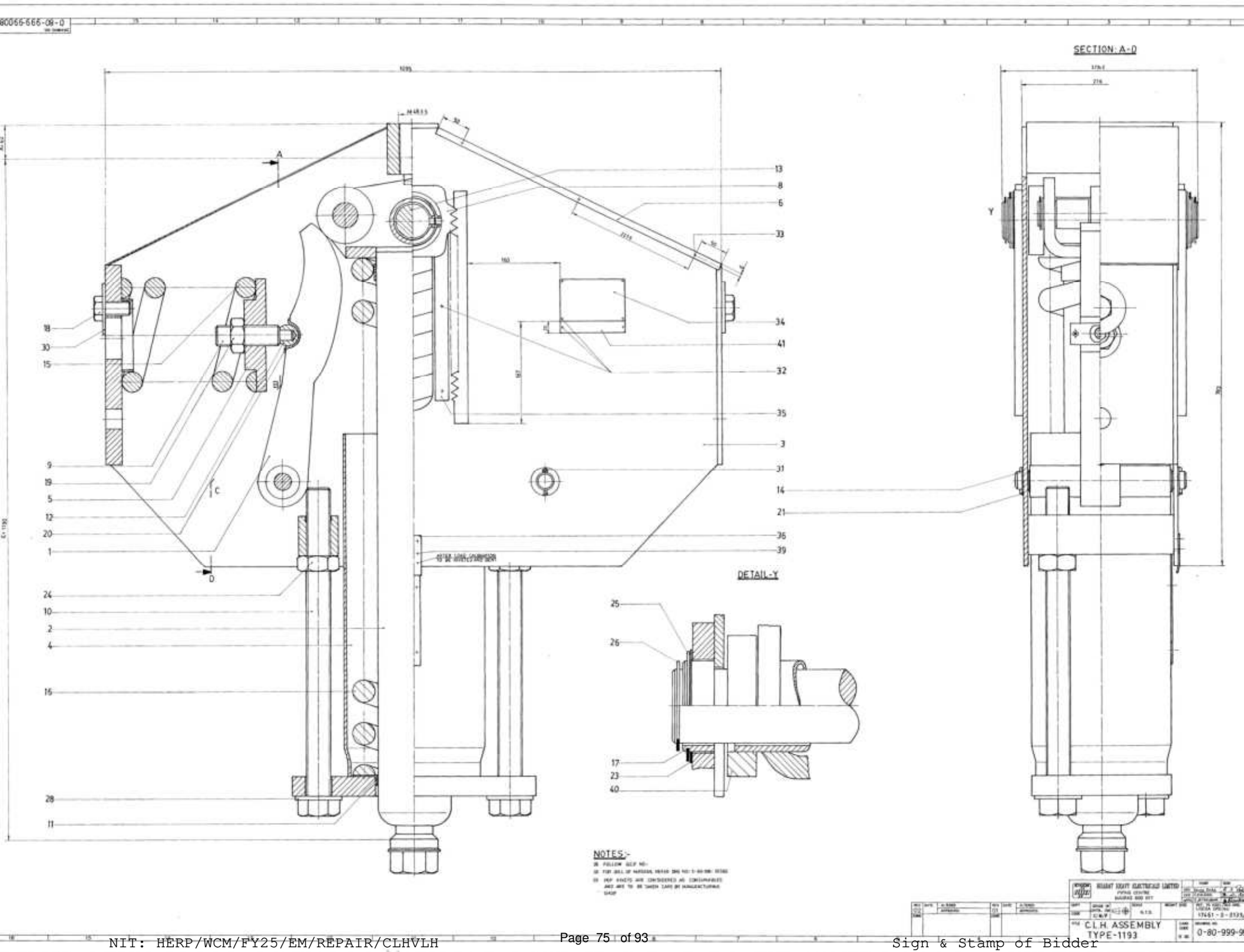
DEPT / CODE	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG)	REF. TO ASSY./OLD DRG. LISEGA DRG.No:	ITEM NO.	NO.OF ITEMS
	C/M/F	N.T.S	346-237	17522-5-0139		

TITLE: BOM FOR CLH ASSEMBLY
TYPE No: 1192

CARD CODE: U 01

DRAWING NO.: 3-80-999-99657 REV 01

Size A3


SECTION: A-D
DETAIL-Y
NOTES:-
C.L.H. ASSEMBLY
TYPE-1193

FIRST ANGLE PROJECTION (ALL DIMENSIOINS ARE IN MILLIMETRES)

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company

DRAWING NO. 3-80-999-99580

NOTES: –

01 ITEMS MARKED THUS * ARE TO BE ELECTROPLATED WITH ZINC AND YELLOW CHROMATIZED FOR 10 TO 15 μ m.

	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE	MATERIAL SPECN	A/C/P	UNIT D1	UNIT WEIGHT	QUANTITY
	41	NAME PLATE PART II.		4-80-999-99386		–	SA 240 TYPE 304	C		0.020	1
	40	STELL RING		4-80-999-99387	09		NYLON-6			0.211	2
	39	POP RIVET ø3x10		0-80-999-99008		–	–			0.001	2
	38	NOT APPLICABLE.									
	37	NOT APPLICABLE.									
	36	LOAD INDICATOR.		4-80-999-99384		15 011 104	IS:1079 St.34	C		0.013	1
	35	TRAVEL SCALE.		3-80-999-99486			ALUMINIUM			0.012	1
	34	NAME PLATE.		4-80-999-99213			SA 240 TYPE 304	C		0.080	1
	33	POP RIVET ø3x15		0-80-999-99008		–	–			0.002	12
	32	POP RIVET ø3x4		0-80-999-99008		–	–			0.001	9
	31	PIN SPLIT ø6.3x40		41704 06040		41704 60040	IS:549			0.011	4
	30	WASHER OD85/ID25		4-80-999-99467	02	15 011 182	BMC 10			0-122	2
	29	NOT APPLICABLE.									
*	28	WASHER MCD 42 OD78/ID43		41406 42000		41406 00042	IS:2016			0-183	2
	27	NOT APPLICABLE.									
	26	CIRCLIP LIGHT A65		41902 06500		41902 00065	IS:3075-A			0.026	2
	25	CIRCLIP LIGHT A80		41902 08000		41902 00080	IS:3075-A			0.038	2
*	24	HEX.NUT M42x4.5		4-80-999-99290	02	41319 45042	SA 194 2H	C		0.810	2
*	23	WASHER MCD 80 OD140/ID82		41406 80000		41406 00080	IS:2016			0.953	2

	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE	MATERIAL SPECN	A/C/P	UNIT D1	UNIT WEIGHT	QUANTITY
	22	NOT APPLICABLE									
*	21	WASHER MCD 30 OD58/ID31		41406 30000		41406 00030	IS:2016			0.054	4
	20	BEARING SHELL		4-80-999-99379	06	–	SUB DELY.			0.080	2
*	19	HEX.NUT M36x4		4-80-999-99290	01	41319 40036	SA 194 Gr.2H	C		0.430	2
*	18	HEX.BOLT M24x3 L=70		41218 24070		41218 24070	Gr 8.8			0-333	2
	17	DISTANCE BUSH		4-80-999-99481		15 339 134	SA 105	C		0.506	2
	16	MAIN SPRING.		2-80-999-99295	29	–	50 Cr.V4 DIN 17221			78.400	1
	15	AUXILIARY SPRING.		2-80-999-99295	10	–	50 Cr.V4 DIN 17221			18.400	2
	14	AXLE.		4-80-999-99475		15 024 257	SA 182 Gr. F6a. Cl.3	C		1.700	2
	13	GUIDE AND TRAVEL STOP BOLT.		4-80-999-99474		15 024 263	SA 182 Gr. F6a. Cl.3	C		9.818	1
	12	BEARING BOLT ASSEMBLY.		3-80-999-99482	11	–	SUB ASSY.			0.978	2
	11	GUIDE BUSHING.		4-80-999-99380	09	16 005 276	BRASS			0.514	1
	10	LOAD ADJUSTMENT BOLT M42x4.5 L=550		3-80-999-99488	34	15 039 120	SA 193 Gr.B7	P		6.633	2
	09	DOWEL BOLT M36x4		4-80-999-99374	07	15 039 116	SA 193 Gr.B7	P		0.850	2
	08	TRAVEL STOP PLATE.		3-80-999-99579		15 942 113	SA 515 Gr.70	C		2.600	2
	07	NOT APPLICABLE.									
	06	DUST COVER.		4-80-999-99473		15 011 076	IS:513 TYPE D	C		2.084	2
	05	DISK. (MACHINED)		2-80-999-99297	09	15 942 117	SA515 Gr.70	C		6.320	2
	04	LOAD ADJUSTMENT ASSEMBLY.		3-80-999-99532		–	WELDMENT			34.448	1
	03	CASE ASSEMBLY.		3-80-999-99536		–	WELDMENT			169.579	1
	02	LOAD TUBE ASSEMBLY.		2-80-999-99355		–	SUB ASSY.			61-491	1
	01	CAM ASSEMBLY.		3-80-999-99534		–	SUB ASSY.			22-876	2

REV	DATE	ALTD / APPD	
02	03 08 96	ALTD (M) [signature] / APPD [signature]	UNIT WT OF ITEM No 30 ALTD. FROM 0.096 To 0.122 TOTAL WT. ALTD FROM 486.884 To 486.936
01	02 03 95	ALTERED (M) [signature] / APPROVED. [signature]	ZONE: PRODUCT ATTEST MARK 'P' INDICATED INSTEAD OF 'C' FOR ITEM Nos. 09 AND 10 AS PER STANDARD INSTRUCTION No 110 MATL. SPECN. CHANGED FROM SA182Gr.F6a TO SA182Gr.F6a Cl3 FOR ITEM Nos 13 & 14.

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	M.C.SEKARAN.	[signature]	21-01-94	
CHD	C.KALIDAS.	[signature]	5-02-94	
APPD	S.JAYAKUMAR.	[signature]	11-02-94	

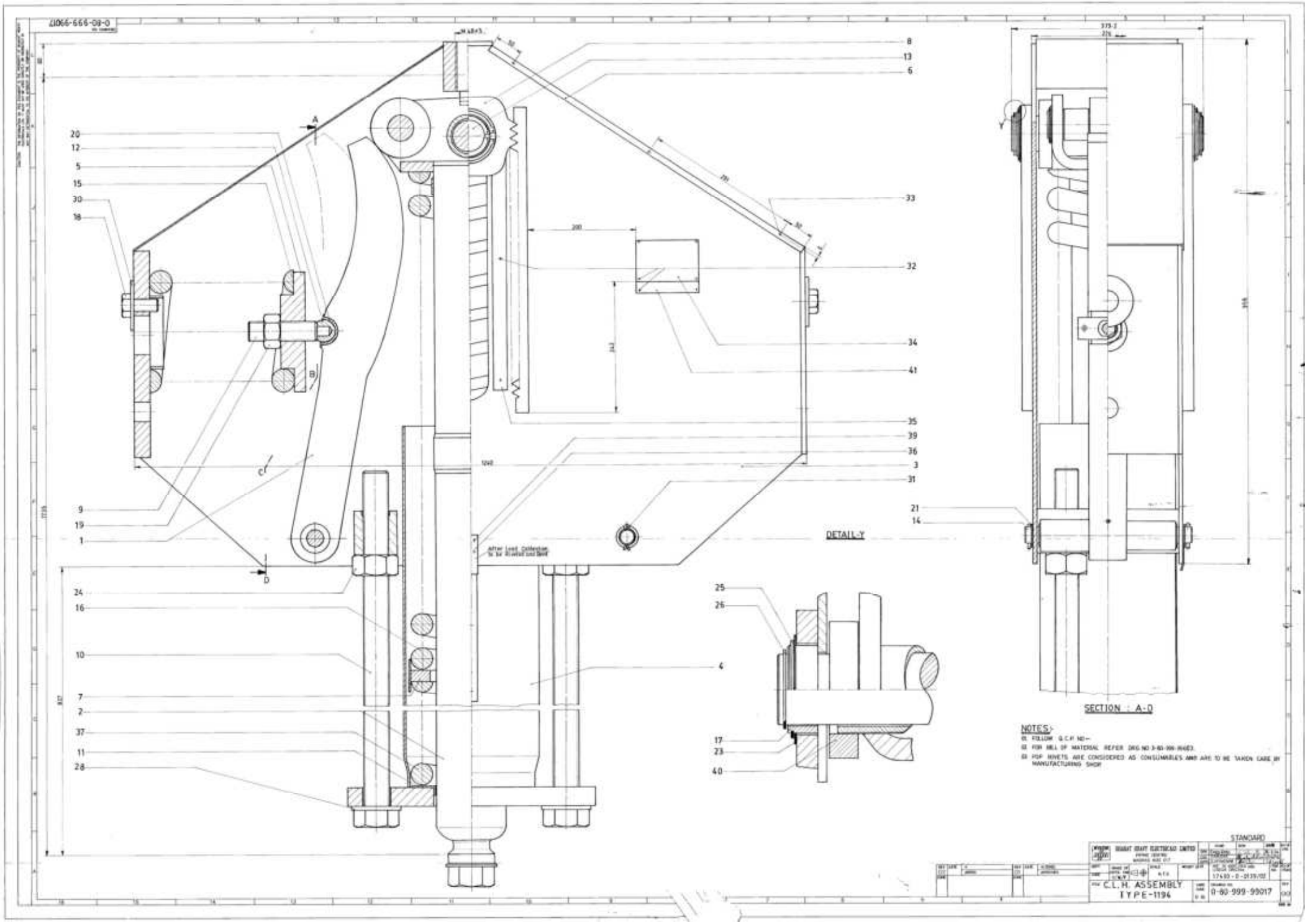
DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG)	REF. TO ASSY./OLD DRG.	ITEM NO.	NO.OF ITEMS
CODE	C/M/F	N.T.S	486.936	17462-5-0139		

TITLE: **BOM FOR CLH ASSEMBLY TYPE No: 1193**

CARD CODE: U 01

DRAWING NO.: 3-80-999-99580 REV 02

Size A3


DETAIL-Y
SECTION : A-D
NOTES:-
C.L.H. ASSEMBLY
TYPE-1194
STANDARD

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

3-80-999-99663 ON DRAWING

NOTES:-
01 ITEMS MARKED THUS * ARE TO BE ELECTROPLATED WITH ZINC AND YELLOW CHROMATIZED FOR 10 TO 15 μ m.

	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/P	UNIT / Q1	UNIT WEIGHT / QUANTITY	QS
	41	NAME PLATE PART II.		4-80-999-99386		- / SA 240 TYPE 304	C		0.020 / 1	
	40	STELL RING		4-80-999-99387	09	- / NYLON-6			0.211 / 2	
	39	POP RIVET ø3x10		0-80-999-99017		- / -			0.001 / 2	
	38	NOT APPLICABLE								
	37	MAIN SPRING-II		2-80-999-99295		- /			46.300	
					21	50 Cr.V4 DIN 17221			1	
	36	LOAD INDICATOR		4-80-999-99384		15 011 104 / IS:1079 St.34	C		0.013 / 1	
	35	TRAVEL SCALE 450mm		2-80-999-99301		- / ALUMINIUM			0.017 / 1	
	34	NAME PLATE.		4-80-999-99213		- / SA 240 TYPE 304	C		0.080 / 1	
	33	POP RIVET ø3x15		0-80-999-99017		- / -			0.002 / 12	
	32	POP RIVET ø3x4		0-80-999-99017		- / -			0.001 / 9	
	31	PIN SPLIT ø6.3x90		41704 06040		41704 60040 / IS:549			0.011 / 4	
	30	WASHER 0085/1025		4-80-999-99407	02	15 011 182 / IS:1079 Fe 330	C		0.122 / 2	
	29	NOT APPLICABLE								
*	28	WASHER MCD 48 0092/1050		41406 48000		41406 00048 / IS:2016			0.291 / 2	
	27	NOT APPLICABLE								
	26	CIRCLIP LIGHT A65		41902 06500		41902 00065 / IS:3075-A			0.026 / 2	
	25	CIRCLIP LIGHT A80		41902 08000		41902 00080 / IS:3075-A			0.038 / 2	
*	24	HEX.NUT M48x5		4-80-999-99290	03	41319 50048 / SA 194 2H	C		1.240 / 2	
*	23	WASHER MCD 80 00140/1082		41406 80000		41406 00080 / IS:2016			0.953 / 2	
	22	NOT APPLICABLE								
*	21	WASHER MCD 30 0056/1031		41406 30000		41406 00030 / IS:2016			0.054 / 4	
	20	BEARING SHELL.		4-80-999-99379		- /			0.080	
					06	SUB DELY.			2	
*	19	HEX.NUT M36x4		4-80-999-99290		41319 40036 /	C		0.430	
					01	SA 194 Gr.2H			2	
*	18	HEX.BOLT M24x3 L=50		41245 24050		41245 24050 / IS:1364			0.257 / 2	
	17	DISTANCE BUSH		4-80-999-99481		15 339 134 / SA 105	C		0.506 / 2	
	16	MAIN SPRING. - I		2-80-999-99295		- /			78.400	
					29	50 Cr.V4 DIN 17221			1	
	15	AUXILIARY SPRING.		2-80-999-99295		- /			29.800	
					11	50 Cr.V4 DIN 17221			2	
	14	AXLE		4-80-999-99475		15 024 257 / SA 182 Gr.F6a Cl.3	C		1.700 / 2	
	13	GUIDE AND TRAVEL STOP BOLT.		4-80-999-99474		15 024 263 / SA 182 Gr.F6a Cl.3	C		9.818 / 1	
	12	BEARING BOLT ASSEMBLY.		3-80-999-99482		- /			0.978	
					11	SUB ASSY.			2	
	11	GUIDE BUSHING.		4-80-999-99380		16 005 276 /			0.514	
					09	BRASS			1	
	10	LOAD ADJUSTMENT BOLT M48x5 L=930		3-80-999-99488		15 039 120 /	P		14.216	
					35	SA 193 Gr.B7			2	
	09	DOWEL BOLT M36x4		4-80-999-99374		15 039 116 /	P		0.850	
					07	SA 193 Gr.B7			2	
	08	TRAVEL STOP PLATE.		3-80-999-99579		15 942 113 / SA 515 Gr.70	C		2.600 / 2	
	07	SPRING PLATE ASSEMBLY.		3-80-999-99603		- / WELDMENT			3.551 / 1	
	06	DUST COVER.		4-80-999-99576		15 011 076 / IS:513 TYPE D	C		2.553 / 2	
	05	DISK. (MACHINED)		2-80-999-99297		15 942 119 /	C		8.730	
					10	SA515 Gr.70			2	
	04	LOAD ADJUSTMENT ASSEMBLY.		3-80-999-99605		- / WELDMENT			47.255 / 1	
	03	CASE ASSEMBLY.		3-80-999-99608		- / WELDMENT			208.015 / 1	
	02	LOAD TUBE ASSEMBLY.		2-80-999-99366		- / SUB ASSY.			83.251 / 1	
	01	CAM ASSEMBLY.		3-80-999-99606		- / SUB ASSY.			38.776 / 2	

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	M.C.SEKARAN.		01-03-94	
CHD	C.KALIDAS.		11-04-94	
APPD	S.JAYAKUMAR.		23/3/94	

REV	DATE	ALTERED / APPROVED	DEPT	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG)	REF. TO ASSY./OLD DRG. USEGA DRG.No:	ITEM NO.	NO.OF ITEMS
01	23.03.94		CODE	C/M/F	N.T.S	686.243	17491-5-0139		

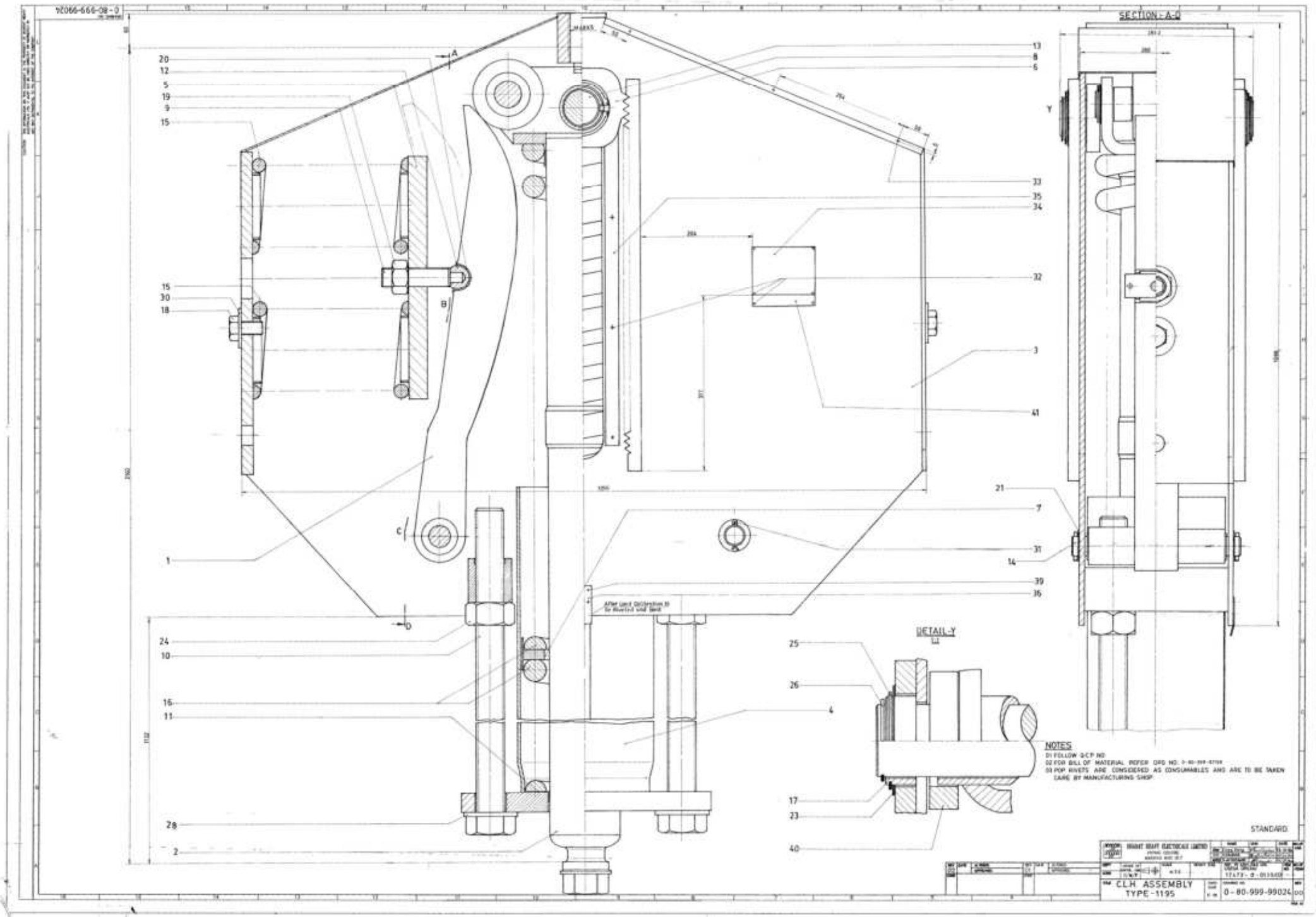
ZONE: UNIT WT OF ITEM No 20 ALTD FROM 0.036 To 0.122 TOTAL WT ALTERED FROM 686.121 To 686.243

TITLE: BOM FOR CLH ASSEMBLY
TYPE No: 1194

CARD CODE: U 01

DRAWING NO.: 3-80-999-99663 | REV: 01

Size A3


SECTION - A-A
DETAIL-Y
NOTES
STANDARD
CLH ASSEMBLY
TYPE-1195
0-80-999-99024

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

DRAWING NO. 3-80-999-97159

NOTES:-
01 ITEMS MARKED THUS * ARE TO BE ELECTROPLATED WITH ZINC AND YELLOW CHROMATIZED FOR 10 TO 15 μ m.

	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/P	UNIT / D1	UNIT WEIGHT / QUANTITY	QS
	41	NAME PLATE PART B.		4-80-999-99386		- / SA 240 TYPE 304	C		0.020 / 1	
	40	STELL RING		4-80-999-99387	09	- / NYLON-6			0.211 / 2	
	39	POP RIVET ø3x10		0-80-999-99024		- / -			0.001 / 2	
	38	NOT APPLICABLE.								
	37	NOT APPLICABLE.				-				
	36	LOAD INDICATOR.		4-80-999-99384		15 011 104 / IS:1079 St.34	C		0.013 / 1	
	35	TRAVEL SCALE 600mm		1-80-999-99074		- / ALUMINIUM			0.021 / 1	
	34	NAME PLATE.		4-80-999-99213		/ SA 240 TYPE 304	C		0.080 / 1	
	33	POP RIVET ø3x15		0-80-999-99024		- / -			0.002 / 12	
	32	POP RIVET ø3x4		0-80-999-99024		- / -			0.001 / 10	
	31	PIN SPLIT ø8x50		41704 08050		41704 80050 / IS: 549			0.027 / 4	
	30	WASHER OD85/ID25		4-80-999-99467	02	15 011 182 / IS:1079 Fe 330			0.122 / 2	
	29	NOT APPLICABLE.				- / -				
*	28	WASHER MCD 52 OD98/ID54		41406 52000		41406 00052 / IS: 2016			0.330 / 2	
	27	NOT APPLICABLE.				- / -				
	26	CIRCLIP LIGHT A65		41902 06500		41902 00065 / IS: 3075-A			0.026 / 2	
	25	CIRCLIP LIGHT A80		41902 08000		41902 00080 / IS: 3075-A			0.038 / 2	
	24	HEX.NUT M52x5		4-80-999-97412		- / SA 194 Gr.2H	C		1.550 / 2	
*	23	WASHER MCD 80 OD140/ID82		41406 80000		41406 00080 / IS: 2016			0.953 / 2	
	22	NOT APPLICABLE		-						
*	21	WASHER MCD 36 OD66/ID37		41406 36000		41406 00036 / IS: 2016			0.089 / 4	
	20	BEARING SHELL.		4-80-999-99379	06	- / SUB DELY.			0.080 / 2	
*	19	HEX.NUT M36x4		4-80-999-99290	01	41319 40036 / SA 194 Gr.2H	C		0.430 / 2	
*	18	HEX.BOLT M24x3 L=50		41245 24050		41245 24060 / IS:1364			0.257 / 2	
	17	DISTANCE BUSH		4-80-999-99481		15 339 134 / SA 105	C		0.506 / 2	
	16	MAIN SPRING.		2-80-999-99295	29	- / 50 Cr.V4 DIN 17221			78.400 / 2	
	15	AUXILIARY SPRING.		2-80-999-99295	18	- / 50 Cr.V4 DIN 17221			14.900 / 4	
	14	AXLE.		4-80-999-99658		15 024 258 / SA 182 Gr.F6a.CL3	C		2.383 / 2	
	13	GUIDE AND TRAVEL STOP BOLT.		4-80-999-99657		15 024 263 / SA 182 Gr.F6a.CL3	C		9.920 / 1	
	12	BEARING BOLT ASSEMBLY.		3-80-999-99482	12	- / SUB ASSY.			1.058 / 2	
	11	GUIDE BUSHING.		4-80-999-99380	09	18 005 276 / BRASS			0.514 / 1	
	10	LOAD ADJUSTMENT BOLT M52x5 L=1230		3-80-999-99488	36	15 039 358 / SA 193 Gr.B7	P		21.768 / 2	
	09	DOWEL BOLT M36x4		4-80-999-99374	07	15 039 116 / SA 193 Gr.B7	P		0.850 / 2	
	08	TRAVEL STOP PLATE.		3-80-999-99579		15 942 113 / SA 515 Gr.70	C		2.600 / 2	
	07	SPRING PLATE ASSEMBLY.		3-80-999-99603		- / WELDMENT			3.551 / 1	
	06	DUST COVER.		4-80-999-99654		15 011 076 / IS:513 TYPE D	C		2.382 / 2	
	05	DISK ASSEMBLY.		3-80-999-99665		- / WELDMENT			21.420 / 2	
	04	LOAD ADJUSTMENT ASSEMBLY.		3-80-999-99669		- / WELDMENT			54.611 / 1	
	03	CASE ASSEMBLY.		3-80-999-99668		- / WELDMENT			279.939 / 1	
	02	LOAD TUBE ASSEMBLY.		2-80-999-99375		- / SUB ASSY.			97.496 / 1	
	01	CAM ASSEMBLY.		3-80-999-99666		- / SUB ASSY.			43.958 / 2	

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	M.C.SEKARAN.		03-02-98	
CHD	C.KALIDAS.		17-02-98	
APPD	S.JAYAKUMAR.		21/2/98	

REV	DATE	ALTERED / APPROVED
01		

DEPT CODE	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG)	REF. TO ASSY./OLD DRG. LISEGA DRG.No:	ITEM NO.	NO.OF ITEMS
	C/M/F	N.T.S	865.109	17474-5-0139		

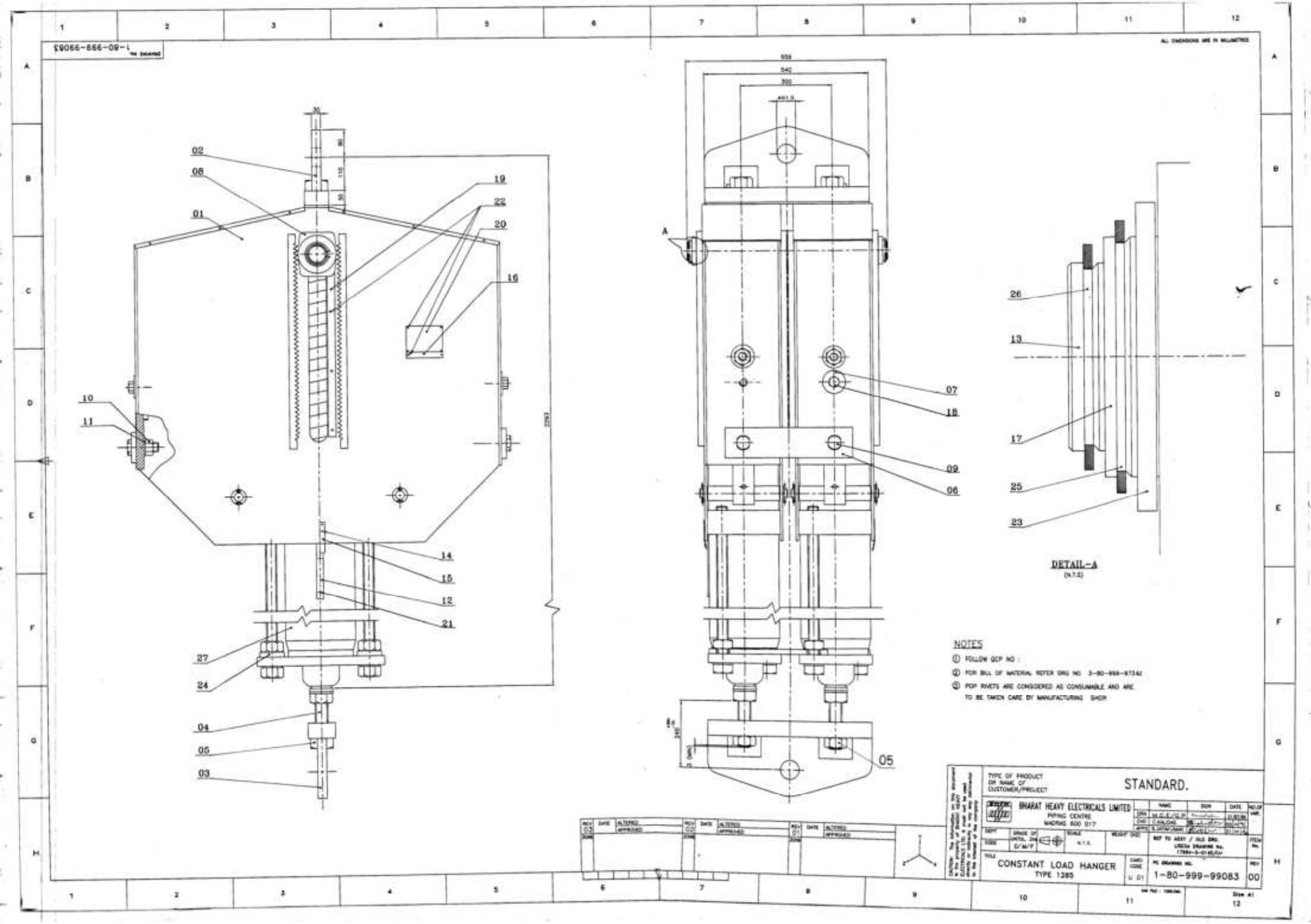
TITLE: BOM FOR CLH ASSEMBLY
TYPE No: 1195

CARD CODE: U 01

DRAWING NO.: 3-80-999-97159

REV: 00

Size A3


1-80-999-99083
ALL DIMENSIONS ARE IN MILLIMETRES
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DETAIL-A
(N.T.S)
NOTES
① FOLLOW QCP NO :
② FOR BILL OF MATERIAL REFER DRG NO. 3-80-999-97342
③ POP RIVETS ARE CONSIDERED AS CONSUMABLE AND ARE TO BE TAKEN CARE BY MANUFACTURING SHOP
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
STANDARD.
BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017
CONSTANT LOAD HANGER
TYPE 1285
1-80-999-99083
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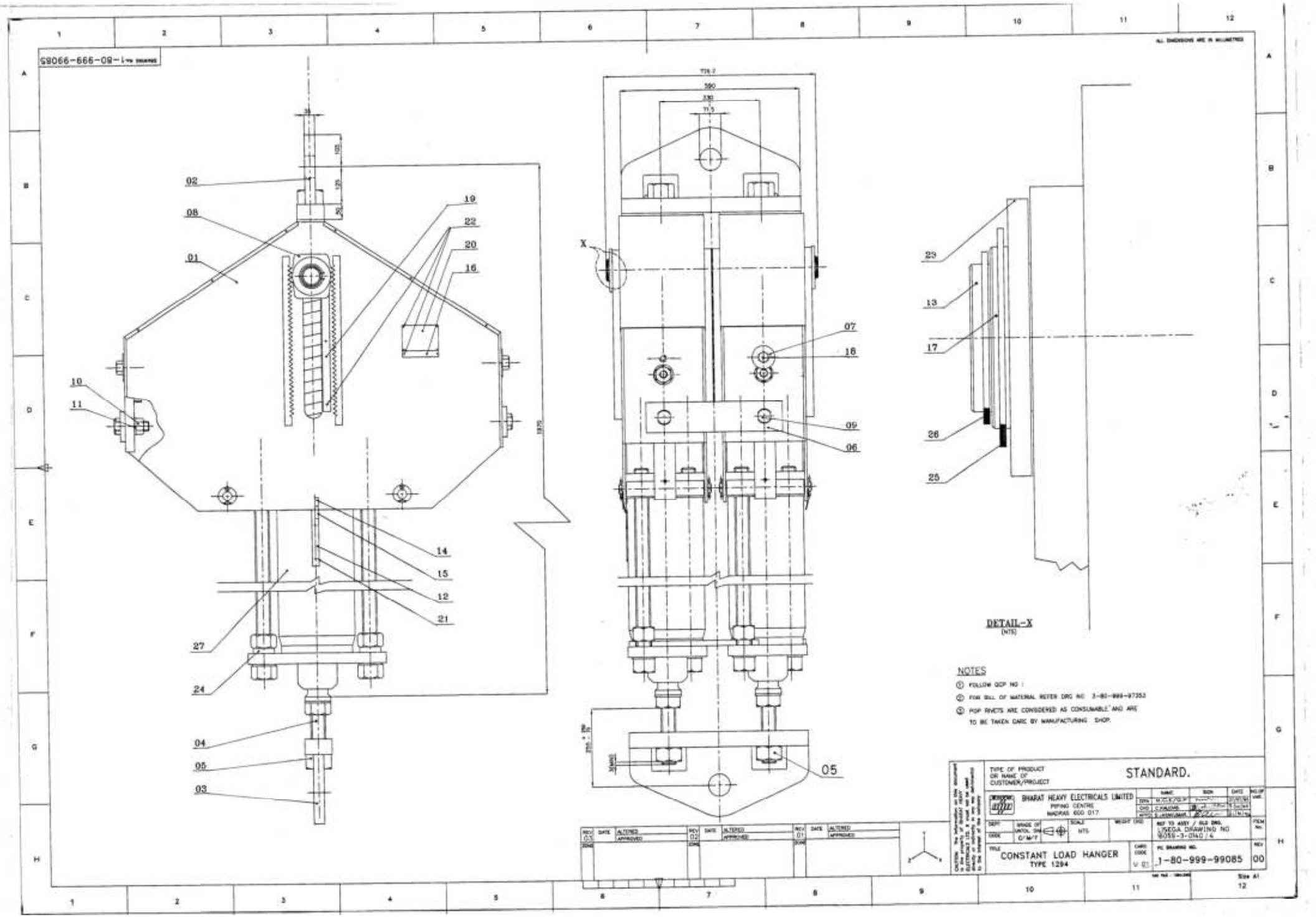
1-80-999-99085
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DETAIL-X
(NTS)
NOTES
① FOLLOW QCP NO :
② FOR BILL OF MATERIAL REFER DRG NO 3-80-999-97353
③ POP RIVETS ARE CONSIDERED AS CONSUMABLE AND ARE TO BE TAKEN CARE BY MANUFACTURING SHOP.
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
STANDARD.
BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017
CONSTANT LOAD HANGER
TYPE 1294
1-80-999-99085
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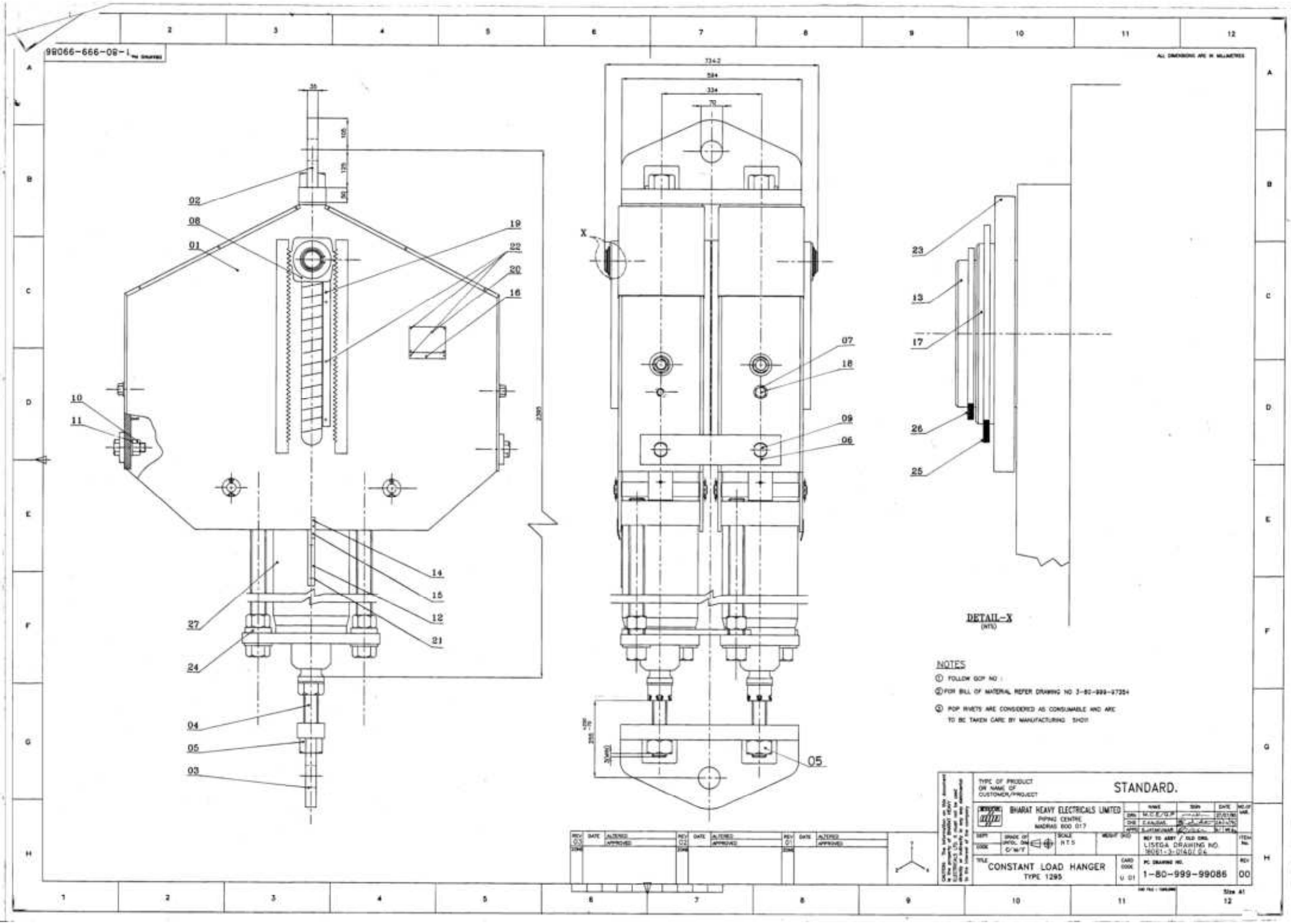
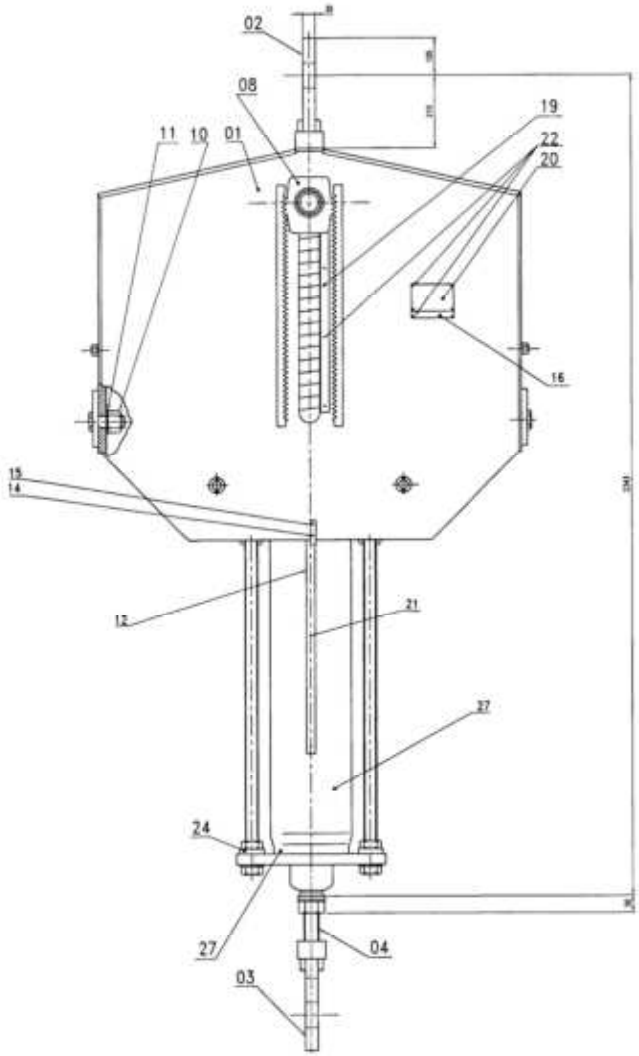

DETAIL-X
(NTS)
NOTES
① FOLLOW GOP NO :
② FOR BILL OF MATERIAL REFER DRAWING NO 1-80-999-97354
③ POP RIVETS ARE CONSIDERED AS CONSUMABLE AND ARE TO BE TAKEN CARE BY MANUFACTURING SHOP
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
STANDARD.
BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017
SCALE NTS
CONSTANT LOAD HANGER
TYPE 1295
1-80-999-99086
00

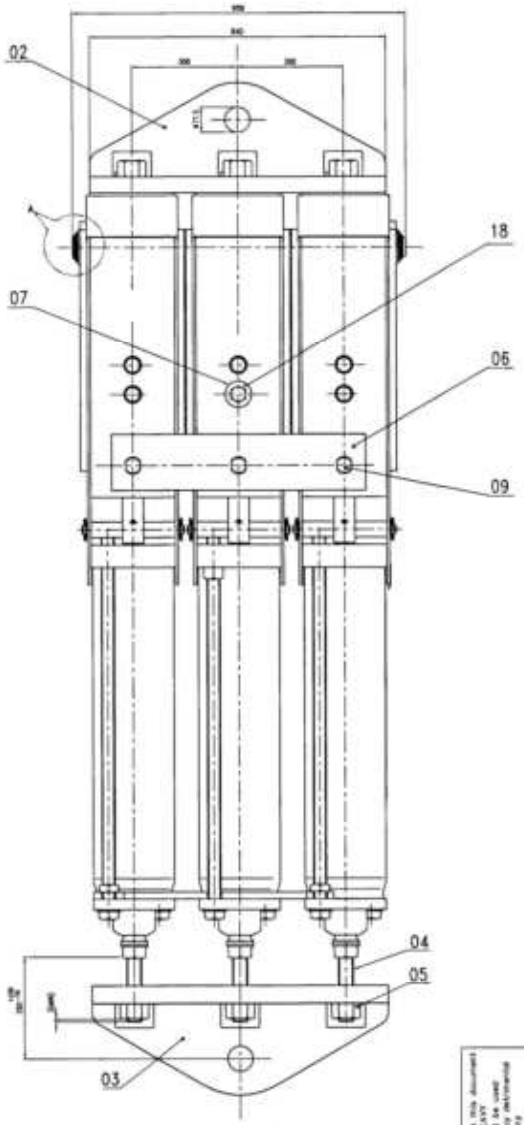
06066-666-08-I

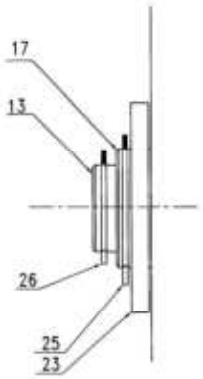
ALL DIMENSIONS ARE IN MILIMETERS

NOTES:-

01. FOLLOW Q.C.P. NO.
02. FOR BILL OF MATERIAL REFER DRAWING NO: 3-80-999-97555.
03. POP RIVETS ARE CONSIDERED AS CONSUMABLES AND ARE TO BE TAKEN CARE BY MANUFACTURING SHOP.







DETAIL - A

REV	DATE	ALTERED / APPROVED					

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: STANDARD

BHARAT HEAVY ELECTRICALS LIMITED
UNIT: PIPING CENTRE
MADRAS - 600 017

	ISSUE	SIGN	DATE	NO. OF VAR.
DRN	OMEGA STRUCT		20/11/96	
CHD	C.KALIDAS		21/11/96	
APPD	S.JAYAKUMAR		21/11/96	

DEPT CODE	GRADE OF MATL. DIM	SCALE	WEIGHT (KG)	REF TO ADDY / OLD DRG. LUBRIA DRAWING NO:	ITEM No.	No. OF ITEMS
	C/M/F	N.T.S.		18144-3-0141/3		

TITLE: CONSTANT LOAD HANGER TYPE 1385

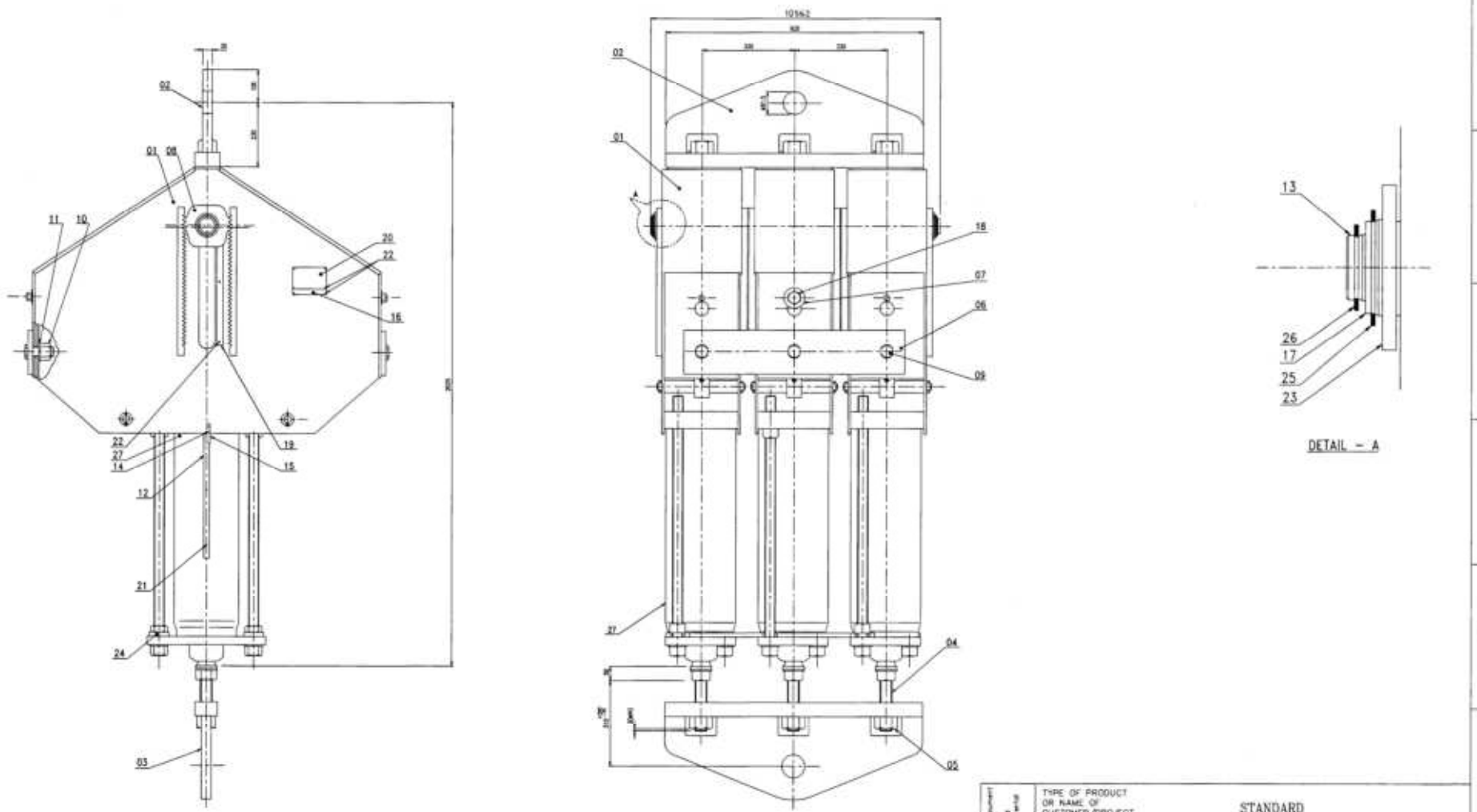
CARD CODE:

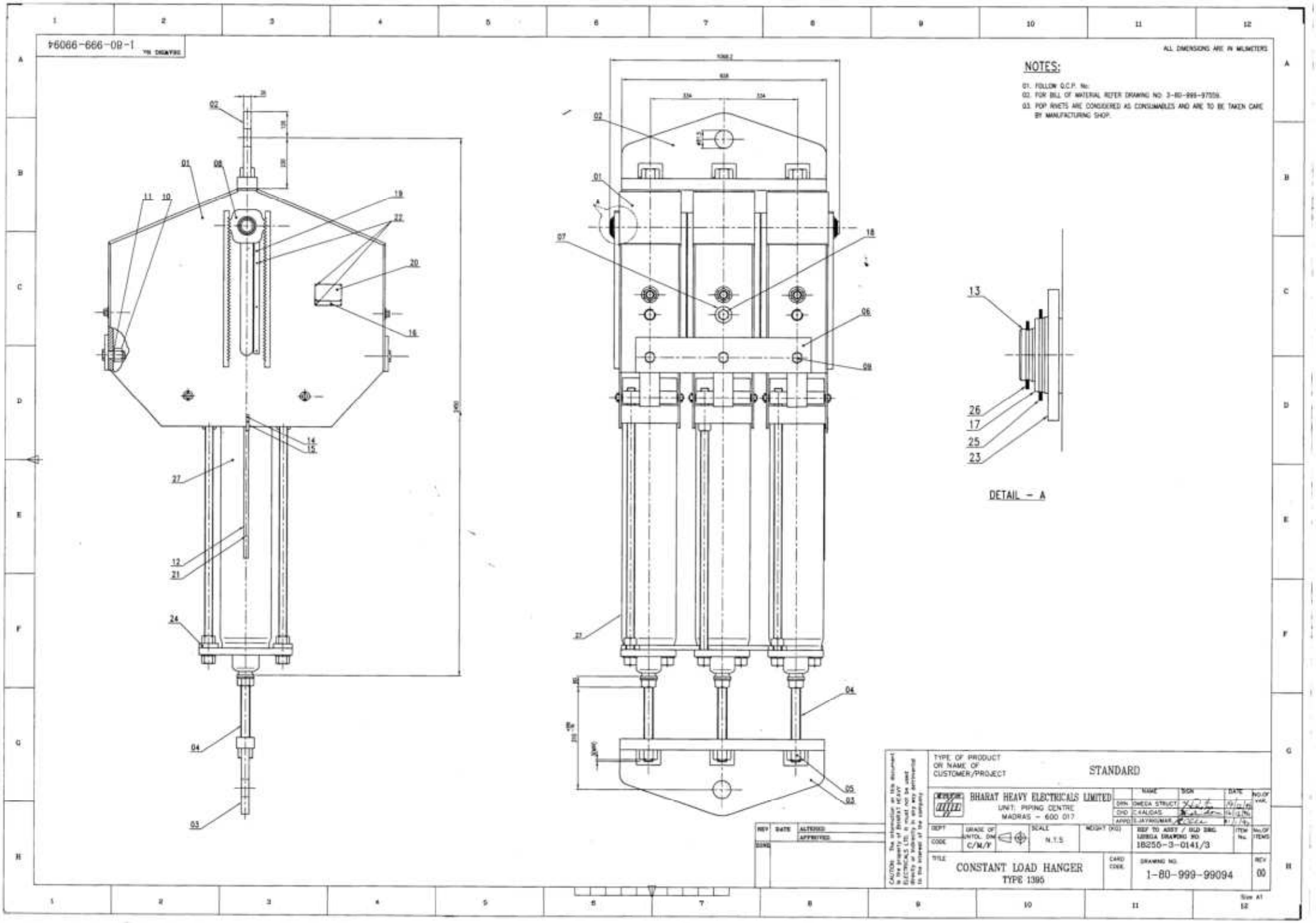
DRAWING NO.: 1-80-999-99090

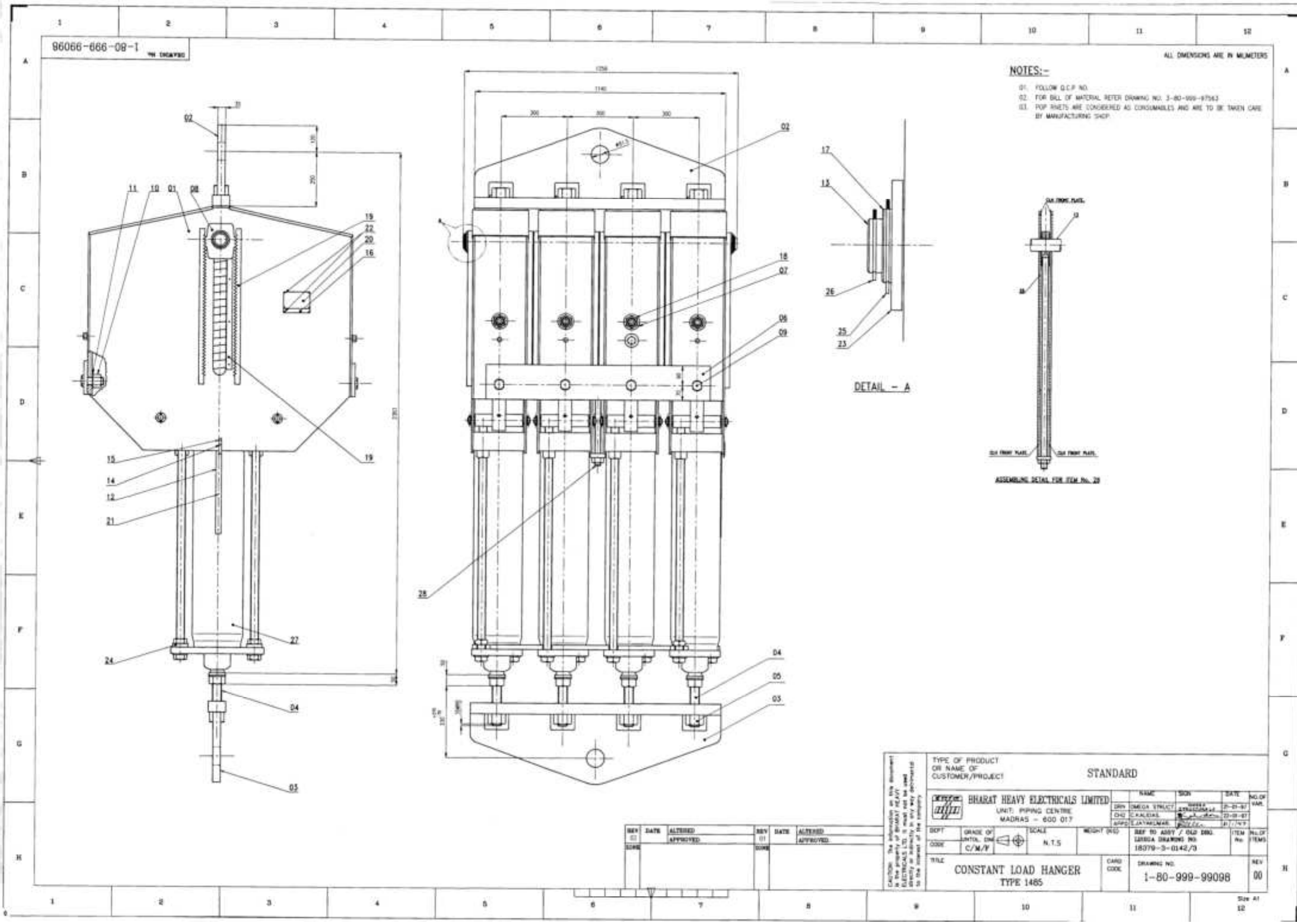
REV: 00

Size A1

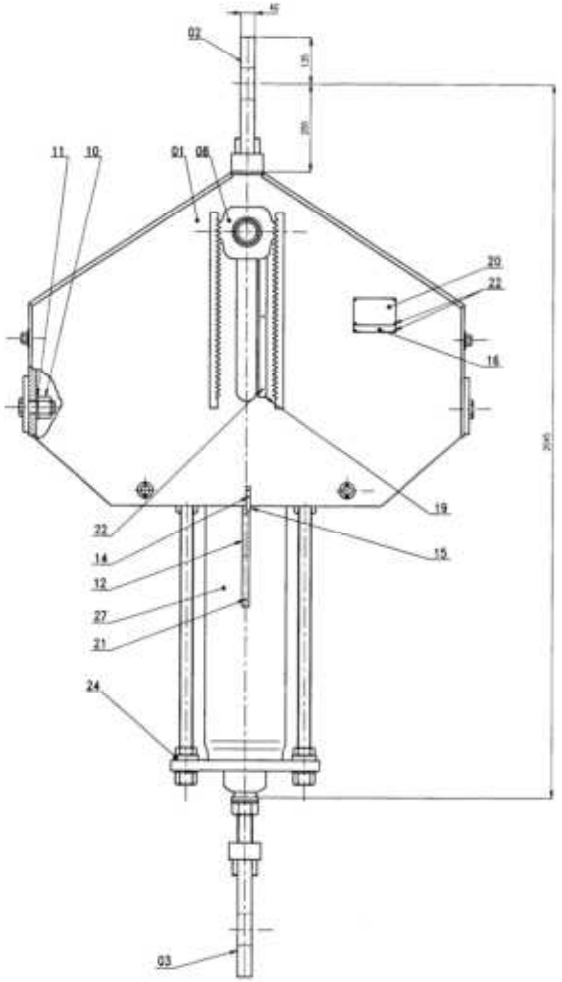
CAUTION: The information on this document is the property of BHEL and is not to be used directly or indirectly in any way detrimental to the interest of the company.

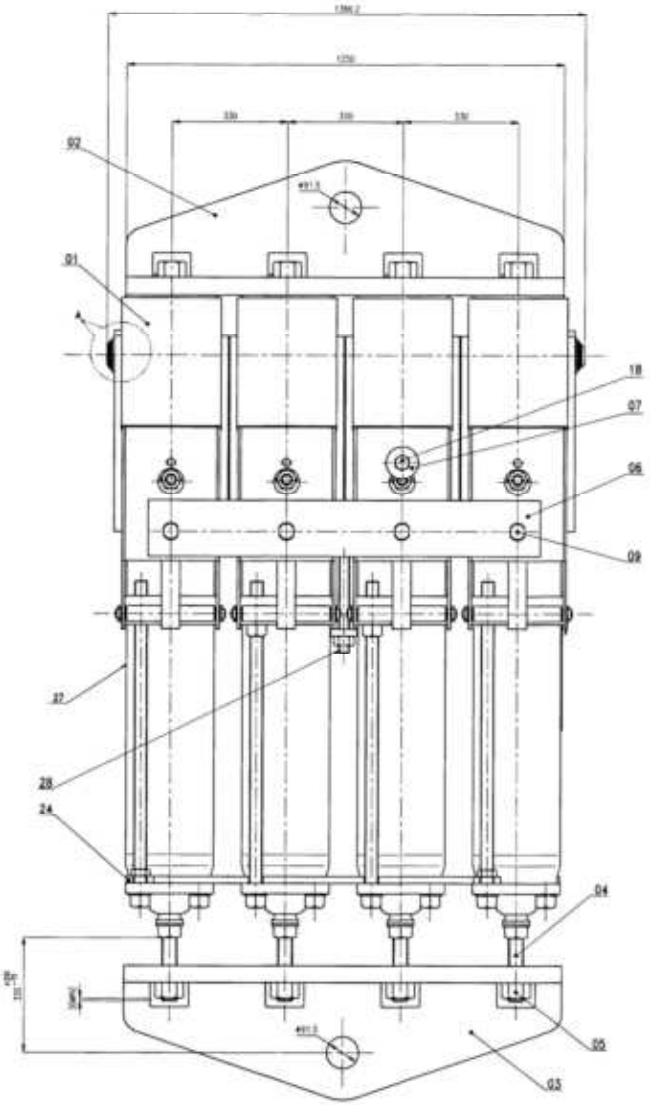

NOTES:
01. FOLLOW Q.C.P. No:
02. FOR BILL OF MATERIAL REFER DRAWING NO: 3-80-999-97558
03. POP RIVETS ARE CONSIDERED AS CONSUMABLES AND ARE TO BE TAKEN CARE BY MANUFACTURING SHOP.
ALL DIMENSIONS ARE IN MILLIMETERS
DETAIL - A
STANDARD
BHARAT HEAVY ELECTRICALS LIMITED
UNIT: PIPING CENTRE
MADRAS - 600 017
CONSTANT LOAD HANGER
TYPE 1394
1-80-999-99093
00

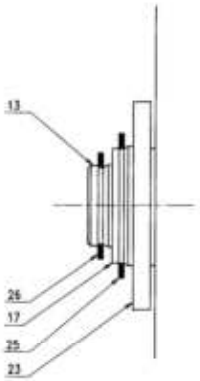

1-80-999-99094
ALL DIMENSIONS ARE IN MILIMETERS
NOTES:
01. FOLLOW Q.C.P. No.
02. FOR BILL OF MATERIAL REFER DRAWING NO. 3-80-999-97009.
03. POP RIVETS ARE CONSIDERED AS CONSUMABLES AND ARE TO BE TAKEN CARE BY MANUFACTURING SHOP.
DETAIL - A
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
STANDARD
BHARAT HEAVY ELECTRICALS LIMITED
UNIT: PIPING CENTRE
MADRAS - 600 017
DRN. DHEERA STRUCT.
CHD. C.KALIDAS.
APPD. S.JAYAKUMAR
DEPT CODE
GRADE OF SYNTOL DIN C/M/Y
SCALE N.T.S.
WEIGHT (KG)
REF TO ASSY / GLD DRG. LUBRIA DRAWING NO. 18255-3-0141/3
ITEM No.
No.OF ITEMS
TITLE
CONSTANT LOAD HANGER
TYPE 1395
CARD CODE
DRAWING NO.
1-80-999-99094
REV
00
REV DATE ALTERED APPROVED SIGNS
CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED & it is not to be used directly or indirectly in any way detrimental to the interest of the company.
Size A1



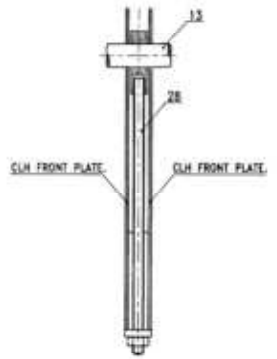
ALL DIMENSIONS ARE IN MILLIMETERS
NOTES:-
01. FOLLOW Q.C.P NO.
02. FOR BILL OF MATERIAL REFER DRAWING NO. 3-80-999-97563
03. POP RIVETS ARE CONSIDERED AS CONSUMABLES AND ARE TO BE TAKEN CARE BY MANUFACTURING SHOP.
DETAIL - A
ASSEMBLING DETAIL FOR ITEM No. 28
TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
STANDARD
BHARAT HEAVY ELECTRICALS LIMITED
UNIT: PIPING CENTRE
MADRAS - 600 017
NAME
SIGN
DATE
DRN
CHD
APPD
SCALE
N.T.S
C/M/F
REF TO ASSY / OLD DRG.
18379-3-0142/3
TITLE
CONSTANT LOAD HANGER
TYPE 1485
DRAWING NO.
1-80-999-99098
REV
00
Size A1







DETAIL - A



ASSEMBLING DETAIL FOR ITEM No.28

ALL DIMENSIONS ARE IN MILIMETERS

NOTES:

01. FOLLOW Q.C.P. No.
02. FOR BILL OF MATERIAL REFER DRAWING NO. 1-80-999-97566
03. POP RIVETS ARE CONSIDERED AS CONSUMABLES AND ARE TO BE TAKEN CARE BY MANUFACTURING SHOP.

REV	DATE	ALTERED / APPROVED	REV	DATE	ALTERED / APPROVED
02			01		

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: STANDARD

BHARAT HEAVY ELECTRICALS LIMITED
UNIT: PIPING CENTRE
MADRAS - 600 017

	NAME	SIGN	DATE	NO. OF SHT.
DRN	OMKAR STRUCT		01-01-97	
CHD	C.KALIDAS		02-01-97	
APPD	S.JAYAKUMAR		3.1.97	

DEPT CODE	GRADE OF MATRL. CONTROL	SCALE	WEIGHT (KG)	REF TO ASSY / OLD DRG. LEGEGA DRAWING NO:	ITEM No.	No. OF ITEMS
C/M/F		N.T.S		18348-3-0141/3		

TITLE: CONSTANT LOAD HANGER TYPE 1494

CARD CODE:

DRAWING NO.: 1-80-999-99101

REV: 00

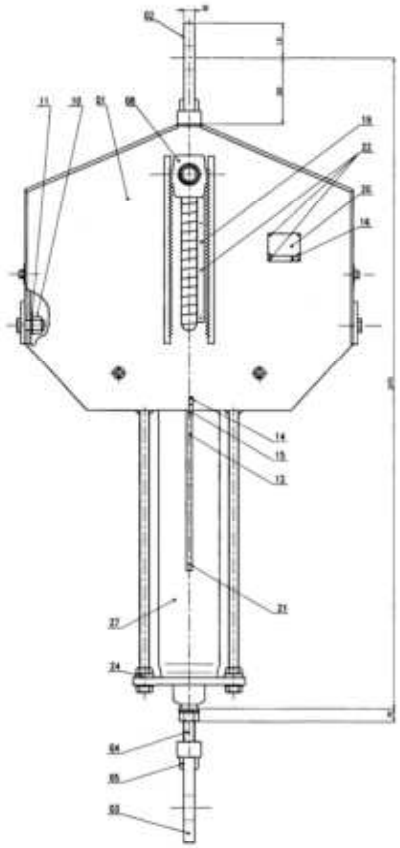
Size A1

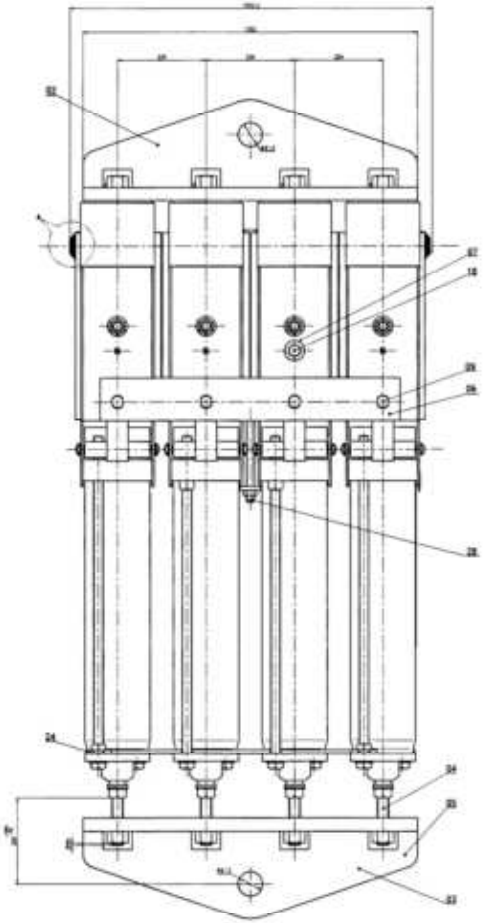
20168-666-08-1

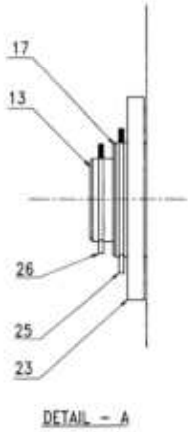
ALL DIMENSIONS ARE IN MILIMETERS

NOTES:-

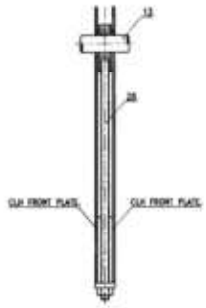
01. FULLON E.C.P. NO
02. FOR BILL OF MATERIAL REFER DRAWING NO: 3-80-999-97567
03. POP RIVETS ARE CONSIDERED AS CONSUMABLES AND ARE TO BE TAKEN CARE BY MANUFACTURING SHOP







DETAIL - A



ASSEMBLING DETAIL FOR ITEM No.29

REV	DATE	ALTERED / APPROVED	REV	DATE	ALTERED / APPROVED
02			01		

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TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: STANDARD

BHARAT HEAVY ELECTRICALS LIMITED
UNIT: PIPING CENTRE
MADRAS - 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	OMEGA STRUCT		22-01-97	
CHD	C.K.KUDAS		22-01-97	
APPD	S.JAYAKUMAR		1/1/74	

DEPT CODE	GRADE OF CONTROL DWG	SCALE	WEIGHT (KG)	REF TO ASSY / OLD DWG. LOGICA DRAWING NO.	ITEM No.	No.OF ITEMS
	C/M/F	N.T.S		18348-3-0142/3		

TITLE: CONSTANT LOAD HANGER TYPE 1495

CARD CODE

DRAWING NO. 1-80-999-99102

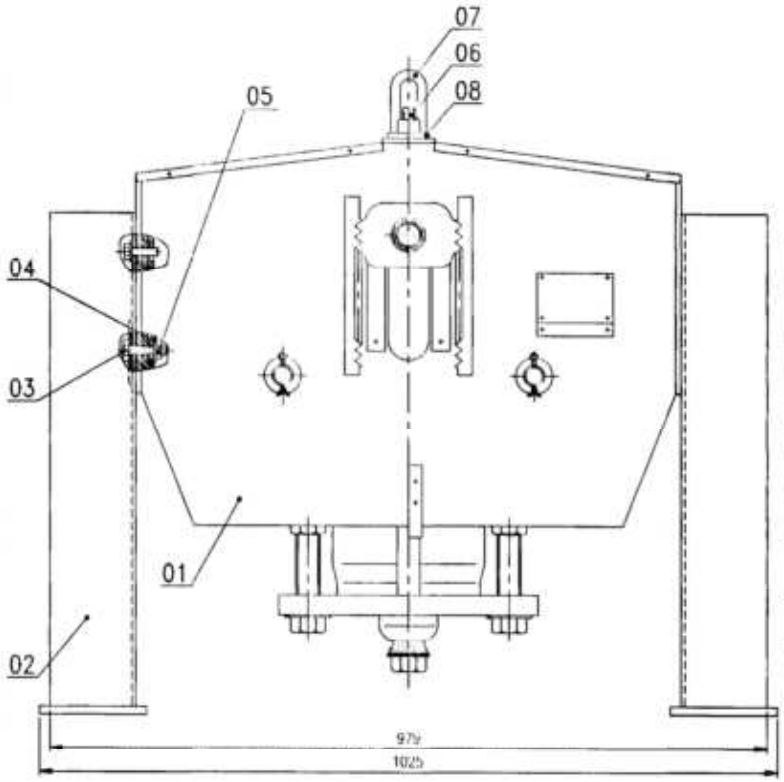
REV 00

Size A1

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

DRAWING NO. 3-80-999-97410

CAUTION: The information on this document is the property of Bharat HEAVY ELECTRICALS LTD; it must not be used directly or indirectly in any way detrimental to the interest of the company.



NOTES:-

01. FOLLOW Q.C.P. No.
02. ITEMS MARKED THUS '*' ARE TO BE ELECTROPLATED WITH ZINC AND YELLOW CHROMATISED FOR 10 TO 15 µm.
03. POP RIVETS ARE CONSIDERED AS CONSUMABLES AND ARE TO BE TAKEN CARE BY MANUFACTURING SHOP.

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C	UNIT / 01	UNIT WEIGHT / QUANTITY	GS
	08	WASHER OD 85 / ID 25		4-80-999-99467		15 011 182 0000	C		0.122	
					02	IS 1079 Fe 330			1	
	07	EYE NUT EN-4 M24x3		3-80-999-99127		94 821 304	C		0.930	
					04	-			1	
	06	STEPPED STUD M42x4.5/M24x3 L=155		3-80-999-97474		15 339 142 0000	C		0.898	
					03	SA 105			1	
	*05	HEX NUT M30x3.5		41319 30000		41319 00030	C		0.231	
						A194 Gr 2H			2	
	*04	WASHER MCD 30 OD 56/ID 31		41406 30000		41406 00030	C		0.053	
						IS 2016			2	
	03	THREADED BOLT M30x3.5 L = 90		2-80-999-99342		15 024 261	C		0.707	
					07	SA 182 Gr.F6a CL.3			2	
	02	SUPPORT ASSEMBLY		3-80-999-97528		-			32.824	
						WELDMENT			2	
	01	C.L.H. TYPE 1182		1-80-999-99056		-			268.312	
						SUB ASSEMBLY			1	

STANDARD.

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	OMEGA STRUCT		15/10/96	
CHD	C.KALIDAS		15/10/96	
APPD	S.JAYAKUMAR		15/10/96	

REV	DATE	ALTERED / APPROVED
01		

ZONE

DEPT CODE	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG)	REF. TO ASSY./OLD DRG. LISEGA DRG.No:	ITEM NO.	NO.OF ITEMS
	C/M/F	N.T.S	337.892	48266-3-6158/0		

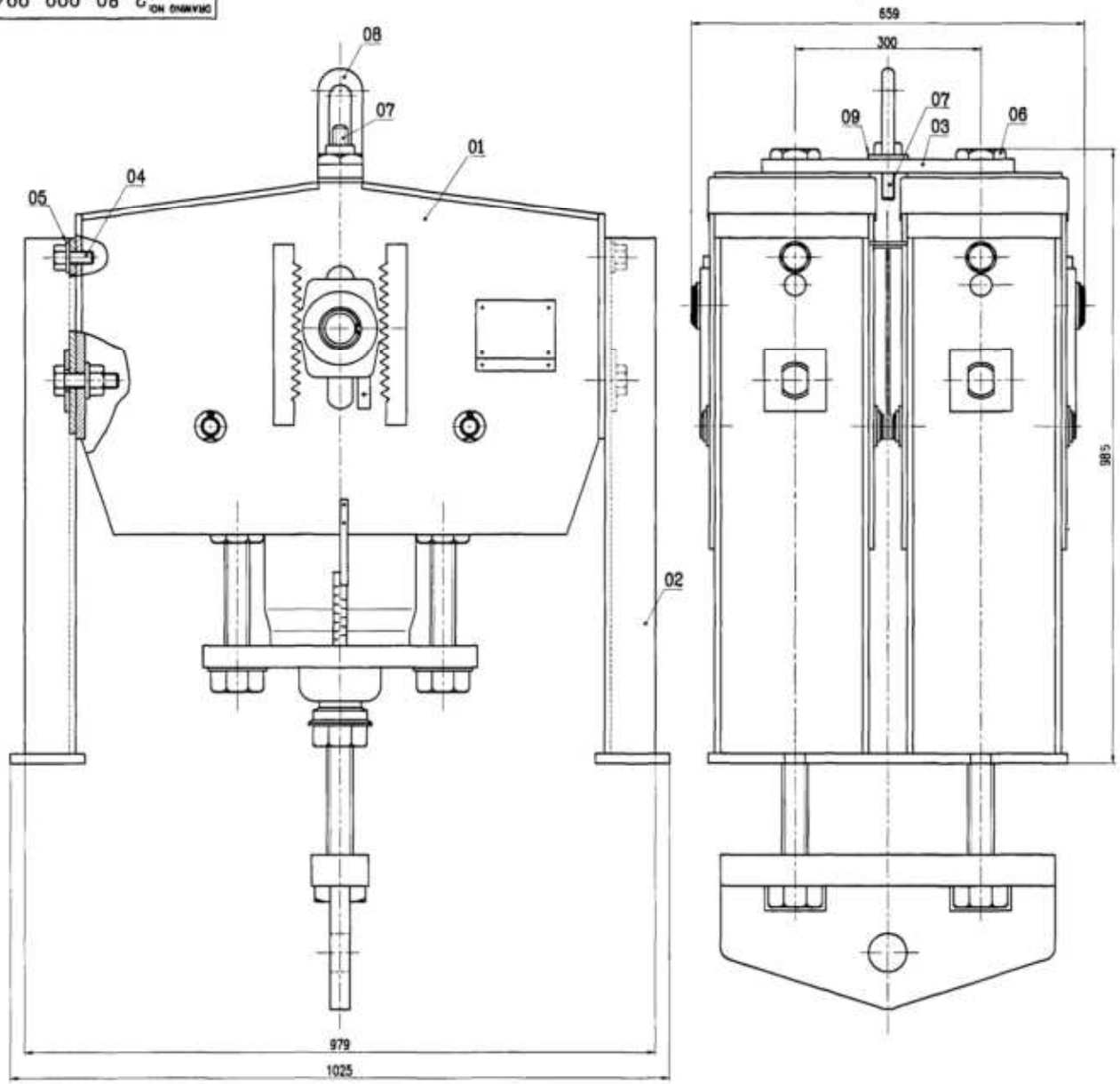
TITLE: C.L.H. ASSEMBLY (TYPE 7182)

CARD CODE: U 01

DRAWING NO.: 3-80-999-97410

REV: 00

Size A3



DRAWING NO 2-80-999-99410

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

NOTES :-

01. FOLLOW Q.C.P. NO:
02. ITEMS MARKED THUS * ARE TO BE ELECTROPLATED WITH ZINC AND YELLOW CHROMATISED FOR 10 TO 15 μm.

VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO / VAR NO	MATERIAL CODE / MATERIAL SPECN	A/C/P	UNIT WEIGHT / QUANTITY	QS	ZONE
	09	WASHER OD66/ID38		4-80-999-99457		15 011 182 0000		0.122		
					02	IS 1079 Fe330		1		
	08	EYE NUT EN-4 M24X3		3-80-999-99127		94 841 304		0.930		
					04	—		1		
	07	STUD M24x3.0 L=110		3-80-999-97481		15 239 139 0000	C	0.330		
					07	SA 105		1		
	06	HEX.BOLT M42x4.5 L=100		3-80-999-97147		15 039 119 0000	P	1.650		
					01	SA193 Gr.B7		2		
	*05	WASHER MCD 20 OD37/ID21		41406 20000		41406 00020		0.017		
						IS:2016		4		
	*04	HEX.BOLT M20x2.5 L=40		41245 20040		41245 20040		0.160		
						IS:1364		4		
	03	CONNECTING PLATE		4-80-999-97452		15 942 1140000	C	5.354		
						SA 515 Gr.70		1		
	02	SUPPORT ASSEMBLY		3-80-999-97327		-		66.451		
						WELDMENT		2		
	01	CLH TYPE 1282 (With 007 ITEM NOs. 02,06,07&18)		1-80-999-99075		-		577.530		
						SUB-ASSEMBLY		1		

STANDARD.

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	IN TECH		06-3-98	
CHD	C.KALIDAS			
APPD	S.JAYAKUMAR			

REV	DATE	ALTERED / APPROVED.	ZONE
04			
03			
02			
01			

DEPT / CODE | GRADE OF UNTOL. DIM C/M/F | SCALE N.T.S | WEIGHT (KG) 721.178 | REF. TO ASSY./OLD DRG. LISEGA DWG.No. 18071-3-0140/D & 18063-3-0140 | ITEM NO. | NO.OF ITEMS

TITLE: CLH ASSEMBLY TYPE: 7282

CARD CODE: U 01

DRAWING NO. 2-80-999-99410

REV 00

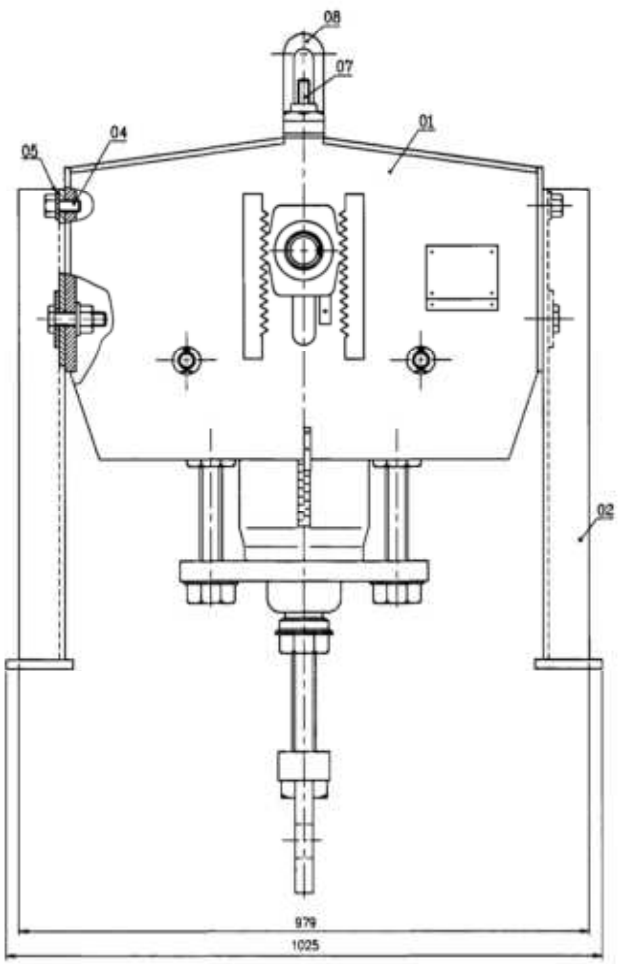
Size A2

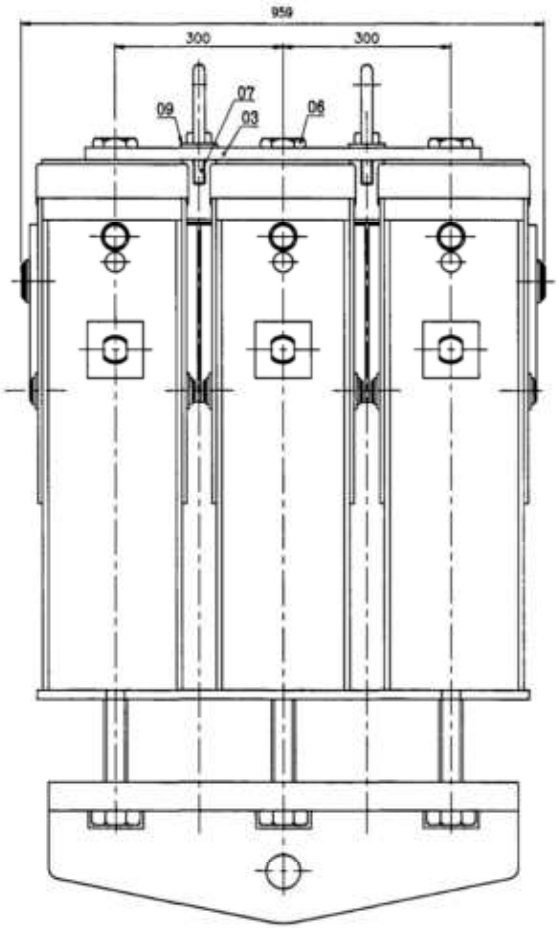
DRAWING NO. 2-80-999-99407

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MILLIMETRES)

NOTES :-

01. FOLLOW O.C.P. NO:
02. ITEMS MARKED THUS * ARE TO BE ELECTROPLATED. WITH ZINC AND YELLOW CHROMATISED FOR 10 TO 15 μ m.





VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER								ZONE
					ITEM NO	MATERIAL CODE	A/C/P	UNIT	UNIT WEIGHT			
					VAR NO	MATERIAL SPECN		01	QUANTITY			
	09	WASHER 0085/025		4-80-999-99467		15 011 182 0000	C		0.122			
					02	IS 1079 Fe330			2			
	08	EYE NUT EN-4 M24x3		3-80-999-99127		94 841 304	C		0.930			
					04	-			2			
	07	STUD M24x3 L=80		3-80-999-97481		15 339 139 0000	C		0.270			
					05	SA 105			2			
	06	HEX.BOLT M42x4.5 L=100		3-80-999-97147		15 039 119 0000	P		1.650			
					01	SA193 Gr.B7			3			
	*05	WASHER NCD 20 0037/1021		41406 20000		41406 00020	C		0.017			
						IS:2016			6			
	*04	HEX.BOLT M20x2.5 L=40		41245 20040		41245 20040	C		0.160			
						IS:1364			6			
	03	CONNECTING PLATE		4-80-999-97431		15 942 114 0000	C		9.710			
						SA 515 Gr.70			1			
	02	SUPPORT ASSEMBLY		3-80-999-97488		-			100.215			
						WELDMENT			2			
	01	CLH TYPE 7382 (WITH OUT ITEM Nos 02,06,07&08)		1-80-999-99087		-			875.503			
						SUB-ASSEMBLY			1			

STANDARD.

REV	DATE	ALTERED / APPROVED	REV	DATE	ALTERED / APPROVED	REV	DATE	ALTERED / APPROVED
03			02			01		

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO.OF VAR.
DRN	INTECH	INTECH	28-01-97	
CHD	C.KALIDAS		28-01-97	
APPD	S.JAYAKUMAR		31/1/97	

DEPT CODE	GRADE OF UNTOL. DIM	SCALE	WEIGHT (KG)	REF. TO ASSY./OLD DRG. LISEGA DRG.No.	ITEM NO.	NO.OF ITEMS
	C/M/F	N.T.S	1094.299	18071-3-0141/01		

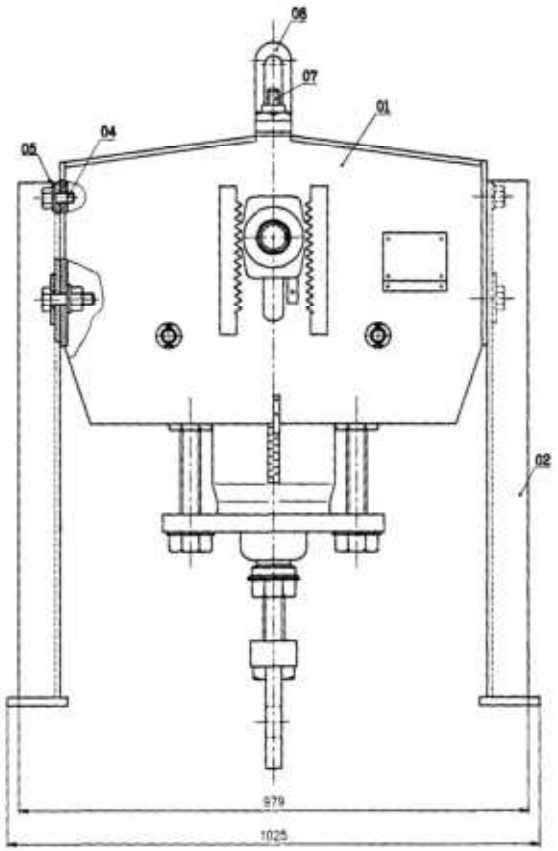
TITLE	CARD CODE	DRAWING NO.	REV
CLH ASSEMBLY TYPE: 7382	U 01	2-80-999-99407	00

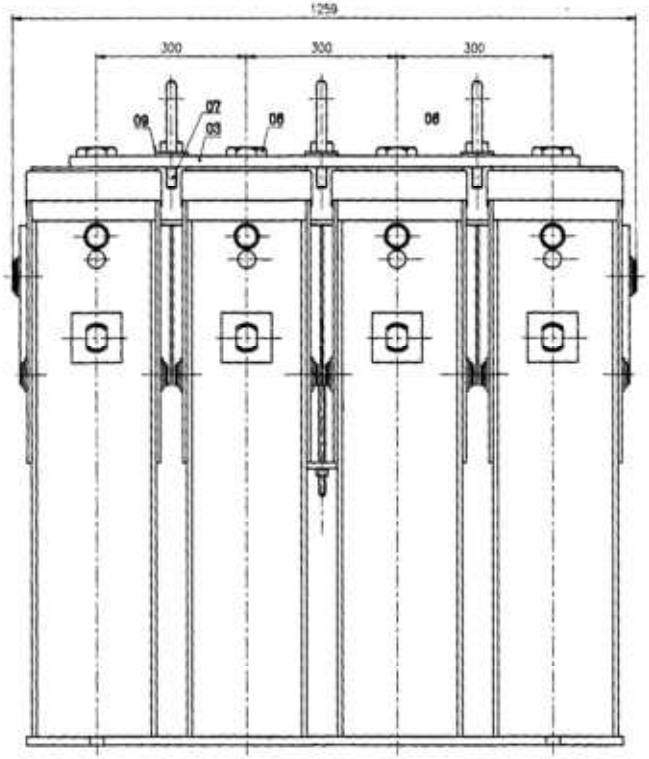
DRAWING NO 2-80-999-99419

FIRST ANGLE PROJECTN

NOTES :-

01. FOLLOW Q.C.P. NO.
02. ITEMS MARKED THUS * Ar
WITH ZINC AND YELLOW CHR





	09	WASHER 0085/025	4-80-999-99467	02	15 011 182 0000 IS 1079 Fe330	C	0.122 3		
	08	EYE NUT EN-4 M24x3	3-80-999-99127	04	B4 821 304 -		0.930 3		
	07	STUD M24x3 L=90	3-80-999-97481	05	15 339 139 0000 SA 105	C	0.270 3		
	06	HEX BOLT M45x4.5 L=100	3-80-999-97147	01	15 039 119 0000 SA193 Gr.B7	P	1.650 4		
	*05	WASHER MOD 20 0037/0021	41406 20000		41406 00020 IS:2016		0.017 8		
	*04	HEX BOLT M20x2.5 L=40	41245 20040		41245 20040 IS:1364		0.160 8		
	03	CONNECTING PLATE	4-80-999-97453		15 942 114 0000 SA 515 Gr.70	C	14.149 1		
	02	SUPPORT ASSEMBLY	3-80-999-97492		- WELDMENT		133.979 2		
	01	CLH TYPE 1482 (WITH OUT ITEM NOs 02,06,07&08)	1-80-999-99065		- SUB-ASSEMBLY		1174.209 1		
VARIANT NUMBER	ITEM NUMBER	DESCRIPTION	STD	DRAWING NUMBER	ITEM NO VAR NO	MATERIAL CODE MATERIAL SPECN	A/C/P	UNIT 01	UNIT WEIGHT QUANTITY	GS	ZONE

STANDARD.

REV	DATE	ALTERED APPROVED	REV	DATE	ALTERED APPROVED	REV	DATE	ALTERED APPROVED	REV	DATE	ALTERED APPROVED
04			03			02			01		
ZONE			ZONE			ZONE			ZONE		

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE
MADRAS 600 017

	NAME	SIGN	DATE	NO OF VAR
DRN	INTECH		27-01-97	
CHD	C KALIDAS		29-01-97	
APPD	S JAYAKUMAR		31/1/97	

DEPT CODE	GRADE OF UNTOL ON	SCALE	WEIGHT (KG)	REF TO ASSY./OLD DRG. LISEGA DRG No.	ITEM NO.	NO OF ITEMS
	C/M/F	N.T.S	1468.298	18391-3-0142/01		

TITLE: CLH ASSEMBLY TYPE: 7482

CARD CODE: U 01

DRAWING NO.: 2-80-999-99419

REV: 00