



**MATERIAL MANAGEMENT DIVISION
HEAVY MACHINE BUILDING PLANT
HEAVY ENGINEERING CORPORATION LIMITED
RANCHI, JHARKHAND**

**TENDER DOCUMENT FOR SUPPLY OF GREASE LUBRICATION SYSTEM FOR
WALKING DRAGLINE AND OIL LUBRICATION SYSTEM FOR WALKING DRALINE**

TENDER DOCUMENT

FOR

**SUPPLY OF GREASE LUBRICATION SYSTEM AND OIL
LUBRICATION SYSTEM FOR WALKING DRAGLINE,
SUPERVISION OF ERECTION & COMMISSIONING, TESTING
AND SUCESSFUL DEMONSTRATION OF PERFORMANCE
GUARANTEE AT OUR CUSTOMER'S SITE.**



HEAVY ENGINEERING CORPORATION LIMITED

OPEN TENDER REF. No. PUR/HMB/17/965546/MW-5188

DTD 01.11.2017



**MATERIAL MANAGEMENT DIVISION
HEAVY MACHINE BUILDING PLANT
HEAVY ENGINEERING CORPORATION LIMITED
RANCHI, JHARKHAND**

**TENDER DOCUMENT FOR SUPPLY OF GREASE LUBRICATION SYSTEM FOR
WALKING DRAGLINE AND OIL LUBRICATION SYSTEM FOR WALKING DRALINE**

OPEN TENDER ENQUIRY

From:
Sr DGM / Purchase
Materials Management Division, Heavy Machine Building Plant
Heavy Engineering Corporation Limited (HEC
P.O: Dhurwa, Ranchi-834 004(Jharkhand),INDIA

To:
M/s _____

Dear Sirs,

Sealed tenders in **Two bids system** are invited by Heavy Engineering Corporation Limited, Plant Plaza Road, P.O: Dhurwa, Ranchi for the items indicated below:

ENQUIRY SCHEDULE

SI No	Description	Qty
1	Centralised Grease Lubrication System and interconnecting piping for Walking Dragline as per technical details mentioned in Annexure A	02 Sets
2	Centralised Oil Lubrication System with complete piping system for Rotate Gear Box consisting of all items of Drg no 1070.25.530 and as per the technical details mentioned in Annexure B	02 sets

Note:

- 1. Drawing with technical instruction are attached**
- 2. Firm can quote for both items or for any one item.**



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SALIENT FEATURES OF THE TENDER

A.	GLOBAL TENDER REF. No.	PUR/HMB/17/965546/MW- DTD 21.07.2017									
B.	ITEM DESCRIPTION	<p>Design, Engineering, Manufacturing & Supply</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">SI No</th> <th style="width: 75%;">Description</th> <th style="width: 20%;">Qty</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Centralised Grease Lubrication System and interconnecting piping for Walking Dragline as per technical details mentioned in Annexure A</td> <td style="text-align: center;">02 Sets</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Centralised Oil Lubrication System with complete piping system for Rotate Gear Box consisting of all items of Drg no 1070.25.530 and as per the technical details mentioned in Annexure B</td> <td style="text-align: center;">02 sets</td> </tr> </tbody> </table> <p>(Firm can quote for both items or for individual items)</p>	SI No	Description	Qty	1	Centralised Grease Lubrication System and interconnecting piping for Walking Dragline as per technical details mentioned in Annexure A	02 Sets	2	Centralised Oil Lubrication System with complete piping system for Rotate Gear Box consisting of all items of Drg no 1070.25.530 and as per the technical details mentioned in Annexure B	02 sets
SI No	Description	Qty									
1	Centralised Grease Lubrication System and interconnecting piping for Walking Dragline as per technical details mentioned in Annexure A	02 Sets									
2	Centralised Oil Lubrication System with complete piping system for Rotate Gear Box consisting of all items of Drg no 1070.25.530 and as per the technical details mentioned in Annexure B	02 sets									
C.	SALE / DOWNLOADING OF TENDER DOCUMENTS	<p>Start (Web Site): 01.11.2017 Start (By Hand): 01.11.2017 Close (By Hand) : 15.11.2017 16.00 Hrs " Indian Standard Time (IST)" Close (Downloading from Web-Site) : 16.11.2017 13.00 Hrs " Indian Standard Time (IST)" Tender documents can be purchased between 09.00 AM to 4.00 PM on all working days (except Sundays and Holidays) as per above dates.</p>									
D.	PLACE OF PURCHASE OF TENDER DOCUMENTS	<p>A) HMBP MM Department Sr. DGM /PUR / MM Division Heavy Machine Building Plant Heavy Engineering Corporation Limited, Plant Plaza Road Dhurwa, Ranchi Jharkhand, India -834004</p> <p>B) Branch Offices</p> <ul style="list-style-type: none"> • Branch Manager Heavy Engineering Corporation Limited, 77,Park Street Kolkata-700016 (INDIA) Ph: +9133- 22172397. • Branch Manager Heavy Engineering Corporation Limited, E-84, Masjid Moth, Greater Kailash Phase -3, New Delhi – 110 048.(INDIA) Ph: +9111 – 29220224, Mob:- 09312004822 									



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		Tender Documents may also be downloaded from Purchaser's web-site www.hecltd.com .
E.	COST OF TENDER DOCUMENTS	Rs.1500/- (Rupees One Thousand Five Hundred Only) in the form of Demand Draft on any of the Scheduled Commercial Banks of India in favour of "Heavy Engineering Corporation Limited" payable at Ranchi .
F.	DUE DATE & TIME OF SUBMISSION	16.11.2017 by 13.00 Hrs "Indian Standard Time (IST)".
H.	DATE & TIME OF OPENING OF TECHNO-COMMERCIAL BID	16.11.2017 by 15.00 Hrs "Indian Standard Time (IST)".
G.	PLACE OF SUBMISSION OF BID	Sr. DGM /PUR / MM Division Heavy Machine Building Plant Heavy Engineering Corporation Limited, Plant Plaza Road Dhurwa, Ranchi Jharkhand, India -834004 Ph: +91651 2400921, 2401349 Or in tender box located at the offer of MM Division HMBP, HEC Limited
I.	EARNEST MONEY DEPOSIT(BID SECURITY)	Rs.7,50,000/- (Indian Rupees Seven Lakhs Fifty Thousand only)
K.	VALIDITY OF BID	90 days from the scheduled date of opening of PART- I.

1.0 PRE-QUALIFYING CRITERIA

Bidder should have experience of manufacturing / supply of lubrication system for Dragline or other equipment of equivalent of higher capacity.

2.0 Documents to be submitted with techno-commercial bid for technical evaluation

The tenderer shall submit self attested/notarised copies of the following documents issued by client of the tenderer/end user firm in proof of meeting the prescribed eligibility criteria with specific mention of information required.

- i) Letter of Award of Work/ Purchase Order/ Contract / Reference list
- ii) Commissioning / Performance Certificate from end user of similar system supplied by them.

3.0 EARNEST MONEY DEPOSIT (EMD)/COST OF TENDER DOCUMENT

- a) Bids must be accompanied by a Earnest Money Deposit (Bid Security) amounting to **Rs.7,50,000/- (Indian Rupees Seven Lakhs Fifty Thousand only)** and cost of Bid Document amounting to **Rs. 1500/- (Rupees One Thousand Five Hundred only)** alongwith Part-I of the bid in the following forms :



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- (i) a Bank Draft towards cost of Bid Document.
- (ii) a Demand Draft/Bank Guarantee in the form provided in the bidding documents towards cost of EMD/Bid Security.

The instruments mentioned above, shall be submitted from an Indian Scheduled Bank other than a Co-operative or Gramin Bank. The Demand Draft has to be drawn in favour of "**Heavy Engineering Corporation Limited**" and payable at Par at Ranchi.

- c) In case of online transfer the following bank details of HEC can be referred

Name of Bank - SBI SME Branch, Doranda , Ranchi (Jharkhand)
Swift Code SBINNBB387
IFSC Code- SBIN0009620
A/c No- 10324841034

- d) In case of non submission of EMD the offer shall be summarily rejected.

- a) EMD of unsuccessful tenderers will be returned after finalization of contract and Interest of any sort will not be payable on EMD.
- b) EMD of a tenderer will be forfeited, if the tenderer withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender.
- c) If the successful tenderer fails to furnish the required Security deposit within the specified period, its EMD will be forfeited. The EMD shall be forfeited if the successful tenderer fails to accept the order.
- d) EMD Validity:
EMD/Bid Security shall remain valid for a period of sixty (60) days beyond the original bid validity period, and beyond any extension subsequently requested by the Purchaser.
- e) **Interest on EMD:** No interest shall be payable on EMD.

N.B.:

Tenderers registered with National Small Industries Corporation/ Small Scale Industries/ Micro, Small scale Industry (MSE) or DGS&D for the tendered item will be exempted from submission of EMD. The tenderer should enclose an authenticated copy / notarized copy of their valid registration certificate with NSIC, DGS&D for grant of exemption.

4.0 Tenders must be submitted in sealed cover with TENDER NO., DUE DATE , TENDER TITLE and VALIDITY PERIOD of the offer super scribed on it, failing which the tenders may be ignored.

5.0 The bid will consist of two parts:



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Part-I: Cost of Tender Document, EMD/ Bid Security, Pre-Qualifying Documents, Technical Part & Commercial Part, Integrity Pact and Un-priced Price Schedule

This part shall be marked as Part-I: “**Cost of Tender Document, EMD/ Bid Security, Pre-Qualifying Documents, Technical Part & Commercial Part, Integrity Pact and Un-priced Price Schedule**” containing Cost of Tender Document, EMD/Bid Security, Pre-Qualifying Documents, Technical part, Commercial part and shall not contain price at all. The cost of bidding documents should be attached only in case the document is downloaded from the web-site.

However, an un-priced copy of the Price Bid shall be attached with Part-I with the word “QUOTED” in place of price data furnished in the Price Bid. Integrity Pact (if applicable) duly signed shall also be enclosed.

All commercial terms and condition, Compliance Statement towards Instructions to Tenderers, Technical specification, Special Terms & Condition of the Contract will be submitted along with Part-I: techno-commercial bid.

Part-II: Price Bid

This part shall be marked as “Part-II Price Bid” and shall contain prices only without any terms and conditions.

Note: Any footnotes, remarks etc. made in the Price Bid must also appear in the Un-priced copy thereof to be submitted with Part-II of the Bid. In case of any discrepancy between the footnotes, remarks etc. made in the Un-priced copy of Price Bid and those in the Priced Price Bid, the stipulations made in the Un-priced copy of Price Bid shall prevail for the purpose of price bid evaluation. Footnotes, remarks etc. made only in the Price Bid and not featuring in the Un-priced copy shall not be taken into cognizance and shall be ignored.

On the tender opening date Part-I shall be opened. The offer received without EMD/Bid Security shall be rejected.

Tenderers are expected to submit all necessary documents in support of fulfilment of Pre-Qualifying Criteria. However, in case any further document is found necessary for proper assessment, the Tenderer shall have to furnish the same within fifteen (15) days from the date of intimation, failing which the Tender will be considered as non-responsive & in-eligible and their offer will not be processed any further.

- 6.0** Tenders in sealed cover should be sent by registered post/ Speed Post /Courier and if delivered by hand should be put in the Tender Box located at MM Division (Purchase Deptt)/HMBP.



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7.0 LANGUAGE OF BID

The bid prepared by the Tenderer and all correspondence & documents related to the bid exchanged by the Tenderer and the Purchaser, shall be written in the English language. Bid submitted in any other language is liable to be rejected. In case any printed literature furnished by the Tenderer, is written in another language, it must be accompanied by a translation of its pertinent passages in the English language and for the purposes of interpretation of the bid, such translation shall govern.

- 8.0** Tender is liable to be ignored if complete information is not given therein or if the particulars and data (if any) asked for in the schedule to the tender, are not fully filled in. Special attention must be paid to the delivery dates and also to the General Conditions of the Contract of HEC LTD. with latest amendments and those contained in this booklet as the contract shall be governed by them.

9.0 LATE/ DELAYED TENDER

Tenders or modifications to tenders received after opening of tenders are to be called as Late Tender. Tenders or modification to it received after time fixed for receipt of tenders, is to be called Delayed Tenders. Such delayed/ late tenders will be rejected and not be opened.

10.0 RIGHT OF ACCEPTANCE OF OFFER

- 15.1 The purchaser reserves his right to accept partly or reject any bid without assigning any reason thereof. The purchaser does not pledge itself to accept the lowest or any bid and reserves to itself the right of acceptance the whole or any part of the bid or portion of the quantity offered and the tenderer shall supply the same at the price quoted.
- 15.2 The Purchaser reserves the right to accept or reject any bid or to annul the Bidding process and reject all bids at any time prior to award of the Contract without assigning any reason whatsoever and without thereby incurring any liability whatsoever to the affected Tenderer(s). Mere purchase and submission of tender document shall not mean fulfilment of requirements of eligibility of the Tenderer(s).

11.0 EARNEST MONEY DEPOSIT (EMD)

TECHNO-COMMERCIAL BID MUST ACCOMPANY INFORMATION ABOUT SUBMISSION OF EMD AND TENDER FEE. EMD to be submitted as detailed in clause no. 3 of IFB above.



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EMD EXEMPTION.:

Tenderers registered with National Small Industries Corporation/ Small Scale Industries/ Micro, Small scale Industry (MSE) or DGS&D for the tendered item will be exempted from submission of EMD. The tenderer should enclose an authenticated / notarized copy of their valid registration certificate with NSIC, MSME, SSI, DGS&D for grant of exemption.

- 12.0 Security Deposit (SD):-** Successful bidder has to deposit Security deposit to the extent of 5% of total Purchase Order Value within 21 days from P.O. date and it
- 13.0 PBG:** To ensure satisfactory performance of goods supplied by the successful bidder a sum of 10% of Purchase Order value in the form of Bank Guarantee against release of final payment. should remain valid for a period till Warrantee/Guarantee period.
- 14.0 Guarantee / Warranty -** Performance of the Lubrication system offered / supplied by the firm shall be guaranteed for a period of 12 months from the date of commissioning or 18 months from the date of supply. Any failure at site during guarantee / warranty period, the failed items to be replaced free of cost at site.

15.0 EVALUATION OF TECHNO-COMMERCIAL BIDS

Tender Evaluation will involve recording and analyzing the merits of each tender. After detail scrutinizing of the Techno commercial bids, the successful tenderers will be listed for opening of Price bid. The offer which does not meet the prequalifying criteria shall not be considered for techno-commercial evaluation.

The price comparison shall be at “Purchaser’s site/HEC(HMBP) Destination” on Landed Cost Net of CENVAT basis of the equipment including supervision of erection and commissioning as per the scope of work stipulated in the tender documents. L1 will be decided based on Landed Cost Net of CENVAT Price of individual items (i.e. for Item no 1 and Item no 2 separately)

NOTE:

1. Offers to be submitted on FOR HMBP Stores Basis, including Freight , Transit insurance and P & F charges.
2. The rate quoted shall be inclusive of all packing & forwarding.
3. If submitted on Ex-works basis then freight charges to be submitted separately for the material to reach HMBP Stores, Ranchi.
4. The Price quoted by the tenderer should be exclusive of GST. The rate and nature of sales tax applicable should be shown separately. Sales tax will be paid to the seller at the rate at which it is liable to be assessed or has actually been assessed on the date of supply provided the transaction of sale is legally liable to sales tax and within the delivery period. Any change on the taxes & duty structure beyond the delivery period will not be considered by HEC.



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5. The rates quoted must be firm and the offers made must remain open for acceptance for three months from the date of opening of the tender.
6. Quotations erased or over written are likely to be rejected unless all corrections are authenticated with the tenderer's signature.
7. Delivery:-Within 3 months after approval of Drawings as mentioned in our drawing.
8. Payment :- **For Supply** - 90% payment with 100% GST will be paid to firm within 60 days after receipt of material at HMBP store Ranchi through RTGS and submission of PBG.
Balance 10% payment will be released on successfully commissioning of the system on submission of invoice and commissioning certificate from Customer / site incharge.
For Supervision of Erection and Commissioning -100 % payment with 100% GST will be paid within 60 days on completion of work under the scope and successful commissioning and performance guarantee of system duly certified by Site incharge / customer.
9. Full particulars i.e. specification, literature and / or drawing wherever applicable should be submitted along with the quotation. The **brand** and **'Make'** name must be indicated.
10. The Corporation does not pledge itself to accept the lowest or any tender and reserves to itself the right of accepting the whole or any part of tender or portion of the quantity offered and you shall supply the same at the rate quoted.
11. Order placed as a result of this tender will be subject to the Corporation's General Terms and Conditions of contract which can be down loaded from our website (www.hecltd.com).
12. Corporation reserves the right to call for and examine at any time the books of accounts and other documents and papers of the firm for the purpose of ascertaining whether any excess payments has been made or the firm likely to be received / received undue benefit out of execution of the particular contract.
13. The final quantity may vary at the time of finalization of tender; however the proper clarification / confirmation shall be taken from the firm.
14. Based on HEC's requirement and in order to ensure security of supply from more than one source, the total tendered quantity of any item may be split amongst more than one successful bidders at L1 Landed price. Hence purchase order may be placed on more than one firm and the repeat order for 100% quantity may be placed on successful bidder.
15. Delivery: The time for and the date of delivery of the Stores stipulated in the acceptance of tender shall be deemed to be the essence of the contract and delivery must be completed not later than the dates specified therein.

Otherwise:

- a) The purchaser to recover from the contractor a sum of 0.5 % per week (completed week) of the price of the stores(upto maximum 10 %) as liquidated damages, which the contractor has failed to deliver as aforesaid or,
- b) The purchaser may procure the undelivered stores / similar items from elsewhere, without notice to the contractor at the risk of the contractor without canceling the contract in respect of the consignment not yet due for delivery or,
- c) To cancel the contract or a portion thereof.



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16. Risk Purchase Clause: - If the material is not supplied within the stipulated period then material can be procured at the risk & cost of the firm without giving any notice to the firm.
17. There is no obligation on our part to accept delayed / late tenders. Tenders received after the due date of opening are liable to be summarily rejected.

Special Note:

While submitting tender pl. mention your Registration No. with HEC as a registered vendor with valid paper.

Please submit the format of Commercial Terms & Conditions duly filled in and signed by the tenderer along with your tender in techno-commercial bid.



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Commercial Terms & Conditions

Sl. No	Contents	Desired by HEC	Bidders Confirmation
1	Price Term	FOR HMBP stores Ranchi basis	
2	Packing and Fwd. (Extra/Included/Not Applicable)	To be indicated if any (Inclusive)	
3	Payment Terms	<p>For Supply - 90% payment with 100% GST will be paid to firm within 60 days after receipt of material at HMBP store Ranchi through RTGS and submission of PBG.</p> <p>Balance 10% payment will be released on successfully commissioning of the system on submission of invoice and commissioning certificate from Customer / site incharge.</p> <p>For Supervision of Erection and Commissioning -100 % payment with 100% GST will be paid within 60 days on completion of work under the scope and successful commissioning and performance guarantee of system duly certified by Site incharge / customer.</p>	
4	Validity of Offer	3 Months	
5	Discount offered(Yes/No)	To be indicated separately if any	
6	Delivery Schedule	Within 3 months after approval of drawing	
7	Certificate for country of origin	To be provided by manufacturer	
8	Manufactures Test Certificate	To be provided by manufacturer	
9	Manufactures Guarantee Certificate	To be provided by manufacturer	
10	PBG(Performance Bank Guarantee)	10% of contract value	
11	L/D Clause	To be Accepted	



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	Acceptable (Yes/No)		
12	Guarantee	To be Accepted 12 months from the date of commissioning or 18 months from the date of supply whichever is earlier. The failed item to be replaced at site free of cost. (Clasue no 14 of NIT)	
13	Acceptance of Risk Purchase Clause (Yes/No)	To be Accepted	
14	EMD	Rs. 750000/- to be submitted in the form of demand draft/ BG.	
15	Security Deposit	To be accepted (5% of order value)	
16	Special terms (If Any)		

NOTE: . Terms & Conditions duly filled in and to be submitted along with Tech – Bid of offer otherwise your offer may not be evaluated.

**(R K JHA)
SDGM / PURCHASE/ HMBP
HEC LIMITED, DHURWA RANCHI
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A – FOR Centralised Grease Lub System

**Price Bid Format for Centralised Grease Lubrication System (Technical specification
Annexure A (DAP No 0147/17M)**

SI No	Description	Qty	Rate per Set	Total Value
1	Supply of Centralised Grease Lubrication System and interconnecting piping for Walking Dragline as per technical details mentioned in Annexure A including commissioning spares.	02 Sets		
	GST			
	Total Value (1)			
2	Supervision of Erection and Commissioning Charge	02 sets		
A	GST on Supervision of Erection and Commissioning			
	Total Value (2)			
	G Total = Total (1) + Total (2)			

Note –

- 1. If any other charges are required, then it is to be mentioned clearly.**
- 2. Blank price bid format with mentioning “Quoted” in the price space is to be submitted alongwith techno-commercial bid.**



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B – For Centralised Oil Lubrication System

**Price Bid Format for Centralised Oil Lubrication System (Technical specification
Annexure B (DAP No 0148/17M))**

SI No	Description	Qty	Rate per Set	Total Value
1	Supply of Centralised Oil Lubrication System with complete piping system for Rotate Gear Box consisting of all items of Drg no 1070.25.530 and as per the technical details mentioned in Annexure B	02 Sets		
A	GST			
	Total Value (1)			
2	Supervision of Erection and Commissioning Charge	02 sets		
A	GST on Supervision of Erection and Commissioning			
	Total Value (2)			
	G Total = Total (1) + Total (2)			

Note –

- 1. If any other charges are required, then it is to be mentioned clearly.**
- 2. Blank price bid format with mentioning “Quoted” in the price space is to be submitted alongwith techno-commercial bid.**



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TECHNICAL SPECIFICATION

<u>Annexure A</u>			Centralized Grease Lub System and Interconnecting Piping			
			DAP No 0147-17M			
Sl. No.	Drawing No.	Item code	Raw Material Code	Description	Material	Quantity per M/C (for 1 set only)
<u>A. Centralised Grease Lubrication for system 1 to 6.</u>						
1	1070.25.120	4107025120		Control Panel for Grease Lub System 1 to 6	Assly.	1
2				Centralized Grease Lub System – 1 consisting of the following main items (For walk & Dig Lub. Points)		
2.1		3845225001		Automatic Motorized dual line end type Grease Lub Station BS-B of DENCO or eqvt. Consisting of the following main items :	Assly.	1
				i) Reservoir capacity-100 liters,.		
				ii) Hi-low Level switch		
				iii) Motor driven double plunger type pumps discharge-22ltrs./hr		
				Max. pr.-400 bar		
				iv) EI motor- 1.5kw ;415±10%, 3Ph, 50Hz ± 3%,insulation class-F,		
				IP-54,Temp rise limited to class-B		
				v) Pressure relief valve, Air bleed valve, check valve, filter, filler connection, etc.		
				vi) Hyd. reversing valve(end type) DR4-2 of DENCO or eqvt. Imported make with Micro-switch & 3 nos Pressure gauge,		
				port connection- 3/8" BSP,		
				Working medium - Grease NLGI-2.		



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2.2	1070.25.111	4107025111		Motorized change over valve as per DENCO model. No. VDD23A01 or Eqvt.	Assly.	1
2.3		3845225014		Air operated heavy duty barrel pump 50:1, Discharge-950 cc/min, Max. W.Pr.-400 bar, Suitable for drum size-180kgs., Complete with drum cover follower plate, Air Pr.- 4 to 8 kg/cm ² , Grease supply & return ports 3/8" BSP (female), Air supply port-1/2" (female) Make GRACO. Working Medium-Servogem EP2/ Servotak 40 of IOCL or Eqvt.	Assly.	1
2.4	1070.25.140	4107025140		Double swivel connector LH part no. MS 1140 A of DENCO or eqvt.	Assly.	1
2.5	1070.25.140	4107025141		Double swivel connector RH part no. MS 1140 A of DENCO or eqvt.	Assly.	1
2.6	-	4107025142		Swivel 1/8"M x 1/4"F BSP Part No- U906B1 of DENCO or eqvt	-	4
2.7	-	3845225361		Dual line Dose Feeder complete with mounting pad; fixing screws & mounting pad; fixing screws & transparent dust proof stem cover, working pr. 400 bar, Inlet port size – 3/8" BSP, outlet port – 1/4" BSP, Working medium- Servogem EP2/Servotak - 40 of IOC or eqvt. Discharge-3 to 14.25cc/point/stroke; No of Outlet-1, DM 61 of DENCO or eqvt	-	9
2.8	-	3845225351		-do- But DM 51 of DENCO or eqvt., Discharge – 1.2 to 5.12 cc/point/stroke No. of outlet-1	-	8



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2.9	-	3845225342		-do-But DM 42; Discharge - 0.6 to 2.25 cc/point/stroke, No. of outlet- 2.	-	5
2.10	-	3845225334		Dual line Dose Feeder complete with mounting pad; fixing screws & transparent dust proof stem cover, working pr. 400 bar, inlet port size – 3/8" BSP, outlet port – 1/4" BSP, Working medium - Servogem EP-2/ Servotak - 40 of IOC or eqvt. Discharge – 0.2 to 1.2 cc/point/stroke No. of outlet -4, DM 34 of Denco or eqvt.	-	20
2.11	-	3845225333		-do- But DM 33 of Denco or eqvt. Discharge- 0.2 to 1.2 cc/Stroke/point No. of outlets - 3	-	2
2.12	-	3845225332		-do- But DM 32 of Denco or eqvt. Discharge – 0.2 to 1.2 cc/stroke/point No. of outlets - 2	-	3
2.13	-	3845225331		-do- but DM 31 of Denco or eqvt. Discharge – 0.2 to 1.2cc/point/stroke, No. of outlet - 1	-	10
2.14	-	3845225136		-do- . but Discharge- 0.13 to 0.60 cc/point/stroke, No. of outlet – 2, DD22 of Denco or eqvt.	-	2
2.15		3845225138		Check Valve 1/8" M x 1/4" F BSP. Part No- U1938 of Denco or Eqvt.		2
3				Centralized Grease Lub. System – 2 consisting of the following main items (For Hoist & Pulley Brgs Boom Head)		1
3.1	-	3845225014		Air operated heavy duty barrel pump 50:1, Discharge-950 cc/min, Max. W.Pr.-400 bar,	-	1



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			Suitable for drum size-180kgs., Complete with drum cover follower plate, Air Pr.- 4 to 8 kg/cm ² , Grease supply & return ports 3/8" BSP (female), Air supply port-1/2" (female) Make GRACO. Working Medium-Servogem EP2/ Servotak 40 of IOCL or Eqvt.		
3.2	3845225354		Dual line Dose Feeder complete with mounting pad; fixing screws & transparent dust proof stem cover, working pr. 400 bar, Inlet port size – 3/8" BSP, outlet port – 1/4" BSP, Working medium- Servogem EP2/Servotak-40 of IOC or eqvt. Discharge – 1.2 to 5.1cc/point/stroke. No of outlet- 4;DM 54 of DENCO or Eqvt.	-	1
3.3	3845225331		-do- But DM 31 of DENCO or eqvt., Discharge – 0.2 to 1.2 cc/point/stroke. No. of outlet - 1	-	1
3.4	3845225332		-do- but DM 32 of DENCO or eqvt., Discharge- 0.2 to 1.2 cc/point/stroke, No. of outlet - 2	-	1
4			Centralized Grease Lub. System – 3 (For LH & RH Walk Gear Spray Lubrication) Consisting of the following items:	-	1
4.1	3845225014		Air operated heavy duty barrel pump 50:1, Discharge-950 cc/min, Max. W.Pr.-400 bar, Suitable for drum size-180kgs., Complete with drum cover follower plate, Air Pr.- 4 to 8 kg/cm ² , Grease supply & return ports 3/8" BSP (female),	-	1



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				Air supply port-1/2" (female)		
				Make GRACO.		
				Working Medium-Servogem EP2/ Servotak 40 of IOCL or Eqvt.		
4.2	1070.25.010	4107025010		Valve Panel LH Walk Gear	Assly.	1
4.3	1070.25.020	4107025020		Valve Panel RH Walk Gear	Assly.	1
4.4	1070.25.030	4107025030		Spray Lance 3 rd reduction walk (LH&RH)	Assly.	2
4.5	1070.25.040	4107025040		Spray Lance 2 nd reduction walk (LH&RH)	Assly.	2
5				Centralized Grease Lub System - 4 (For Hoist; Drag & Swing Rack Spray)		
				consisting of the following items:		
5.1	-	3845225014		Air operated heavy duty barrel pump 50:1, Discharge-950 cc/min, Max. W.Pr.-400 bar, Suitable for drum size-180kgs., Complete with drum cover follower plate, Air Pr.- 4 to 8 kg/cm ² , Grease supply & return ports 3/8" BSP (female), Air supply port-1/2" (female)	-	1
				Make GRACO.		
				Working Medium-Servogem EP2/ Servotak 40 of IOCL or Eqvt.		
5.2	1070.25.050	4107025050		Spray Panel Hoist & Drag Gear	Assly.	2
5.3	1070.25.060	4107025060		Spray Lance Assly. for Swing Rack	Assly.	4
5.4	1070.25.070	4107025070		Valve mounting panel for swing Rack Spray Lance	Assly.	4
6				Centralized Lubrication System 5 & 6 (Wire rope oil lubrication of Hoist & Drag rope.)		



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				consisting of following main items:-		
6.1	-	3845225003		Centralized Auto Motorized single line non-return type Oil Lub. Station BM-B of DENCO or equivalent., consisting of the following main items all mounted on a common base frame. i) Reservoir capacity 15 liters ii) Level gauge iii) Plunger pump, Delivery 4 liters./hr working pr. 400 bar maxim. iv) Relief Valve, Air bleeder valve, check valve, filter, filler connection etc. v) Pr. Gauge vi) El. Motor – 0.37 KW 415±10%, 3Ph, 50Hz ± 3%, Insulation class-F, IP-54, Temp rise limited to Class-B. Working Medium – Wire rope oil compound of IOC or eqvt	Assly.	2
6.2	1070.25.080	4107025080		Spray Nozzle Assly. for Boom head hoist rope	Assly.	2
6.3	1070.25.100	4107025100		Spray Nozzle Assly. for Drag rope	Assly.	2
6.4	-	3845225017		Divider block (single line progressive distributor series – 2000, 3 sections 2 outlets, working medium: Servotak-40 of IOC or equivalent.	Assly.	2
6.5	1070.70.090	4107025090		High Pressure indicator	Assly.	4
6.6	-	3845225018		Line strainer: 3/8" BSP 100 mesh, Part No. U111C of DENCO or eqvt.	-	4
6.7	-	3501650180		Manual lub. transfer pump complete with hose 1.5 meters with end fittings to suit reservoir - 25 Kg., capacity-60cc/stroke, W. Pr-10kg/cm2	-	2



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6.8	-	9151040664		Flexible Hose 1/4" x 6';SAE 100R1	-	4
6.9	-	9151181064		Flexible Hose 3/8" x 6';SAE 100R2	-	4
6.10	-	9151041564		Flexible Hose 1/2" x 6';SAE 100R1	-	4
6.11	-	9151181564		Flexible Hose 1/2" x 6';SAE 100R2	-	1
6.12	-	9151182064		Flexible Hose 3/4" x 6';SAE 100R2	-	2
6.13	-		1021051470	ISA 50 50x5	-	10 Meters.
6.14	-	3362401716		Hex screw M10x30	Steel PC 4.6	50
6.15	-	3302400117		Hex Nut M10	Steel PC 4	50

B. Grease Lubrication System for Roller Bearings

1	1070.25.300	4107025300		<u>Centralized Grease Lub. System</u>		1
1.1	-			Centralized Auto motorized Dual line non - returnable type Grease Lubrication System consisting of the following items all assembled & mounted on a common base frame.		
				i) Reservoir capacity – 30 liters.		
				ii) Hi-Low level switch		
				iii) Plunger Pump, delivery – 4 liters./hr.		
				Working Pr.- 400 Bar maxm.		
				iv) Relief Valve, Air bleeder valve, check valve, filter, filler connection, etc.		
				v) Hydraulic reversing valve (non-return type) with micro switch & Pr. Gauges, DR4-2 of		



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				DENCO or eqvt. Imported make.		
				vi) El. Motor – 0.37 KW 415±10%, 3Ph,		
				50Hz ± 3%, Insulation class-F, IP-54,		
				Temp rise limited to Class-B.		
				vii) El. Control post provision for		
				local/remote, auto & continuous mode		
				of operation, signal lamp for pump		
				ON/OFF & Fault conditions.		
				Working medium : Grease NLGI-2.		
1.2				Dual Line Dose Feeder complete		30
				with mounting pad, fixing screws		
				& dust proof transparent stem		
				cover, Working Pr. – 400 bar maxm.;		
				Working medium- Grease NLGI-2.		
				Inlet Port- 3/8" BSP;		
				Outlet Port- 1/4" BSP;		
				Discharge- 0.6 to 2.25 cc/point/stroke;		
				No. of outlets -4,		
				DM 44 of DENCO or eqvt.		
1.3				Quick coupler -1/2" BSP complete	Assly	8
				with male & female with check		
1.4				Pipe, Pipe Fittings, Hoses, Clamp	Set	1
				& Fasteners as per drawing		

C. Interconnecting Piping of Grease Lubrication for system 1 to 6.

1	--		9115010201	Seem less steel pipe as per	C.S.	8 mtrs
				B.S.1387H size-3/4" NB SCH-80		
2	--		9109014991	Seem less steel tube as per DIN 2391	St35	15 mtrs
				Size- OD 10x1.5		



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3	--		9109014571	Seem less steel tube as per DIN 2391 Size- OD 6x1	St35	60 mtrs
4	--	9151040622		Flexible hose 1/4" L=2'6" C/W swivel end fittings SAE 100R1	Rubber	2
5	--	9151040646		Flexible hose 1/4" L=4'6" C/W swivel end fittings SAE 100R1	Rubber	2
6	--	9151040640		Flexible hose 1/4" L=4'0" C/W swivel end fittings SAE 100R1	Rubber	8
7	--	9151040628		Flexible hose 1/4" L=3' C/W swivel end fittings SAE 100R1	Rubber	8
8	--	9150131025		Male connector 10mmx3/8" BSP	C.S.	35
9	--	9150131061		Male connector 6mmx1/4" BSP	C.S.	25
10	--	9150131062		Male connector 6mmx1/8" BSP	C.S.	10
11	--	9191530200		Elbow F/F 3/4" BSP BS:1740	C.S.	14
12	--	9191580070		Reducing Socket 3/4"x3/8" BSP BS:1740	C.S.	2
13	--	9191550070		Reducing Tee 3/4"x3/8"x3/4" BSP BS:1740	C.S.	2
14	--	9191560200		St. union F/F 3/4" BSP BS:1740	C.S.	2
15	--	9191590100		Plug 3/8" BSP BS:1740	C.S.	15



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16	--	9150200615		Male Stud elbow 6x1/4" BSP	C.S.	35
17	--	9160190280		Pipe Clamp 3/4" NB	P.P.	10
18	--	9160190100		Tube Clamp 10mm OD	P.P.	15
19	--	9160190060		Single Tube clip 6mm	M.S.	40
20	--	9100610201		Barrel Nipple 3/4" BSP BS:1740	C.S.	10
21	--	9191530080		Elbow 1/4" BSP F/F BS:1740	C.S.	10
22	--	9100470031		Reducing barrel nipple 3/8"x1/4" BSP BS:1740	C.S.	7
23	--	9100480030		Anchor Block 1/4" BSP U1927C	C.S.	2
24	--	9100480031		Reducing Bush 3/8" x1/4" BSP BS:1740	C.S.	4
25	--	9152181015		Female Stud coupling 10x1/4" BSP	C.S.	6
26	--	9100480181		Reducing Bush 1 1/4" x3/8" BSP BS:1740	C.S.	3
27	--	9100470032		Reducing nipple 3/8" x1/8" BSP BS:1740	C.S.	5
28	--	9191570100		Socket 3/8" BSP BS:1740	C.S.	5
29	--	9150131015		Male Stud coupling 10x1/4" BSP	C.S.	5



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30	--	9191560080		Union 1/4"BSP BS:1740	C.S.	25
31	--	9191570200		Socket 3/4" BSP BS:1740	C.S.	3
32	--	9100470071		Reducing nipple 3/4" x3/8" BSP BS:1740	C.S.	3
33	--	9150121005		St. Coupling tube 10mm OD	C.S.	20
34	--	9191540060		Equal Tee 1/4" BSP BS:1740	C.S.	6
35	--	9191560200		union 3/4"BSP BS:1740	C.S.	10
36	--		9115010251	Seem less steel pipe as per B.S.1387H size-1" NB	C.S.	15 mtrs
37	--		9115010201	Seem less steel pipe as per B.S.1387H size-3/4" NB	C.S.	60 mtrs
38	--		9109014991	Seem less steel tube as per DIN 2391 Size- OD 10x1.5	St35	80 mtrs
39	--		9109014571	Seem less steel tube as per DIN 2391 Size- OD 6x1	St35	50 mtrs
40	--	9191560250		union 1"BSP BS:1740	C.S.	4
41	--	9191560200		union 3/4"BSP BS:1740	C.S.	15
42	--	9191560150		union 1/2"BSP BS:1740	C.S.	6
43	--	9191530250		Elbow 1" BSP F/F BS:1740	C.S.	4



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44	--	9191530200	Elbow 3/4" BSP F/F BS:1740	C.S.	30
45	--	9191530150	Elbow 1/2" BSP F/F BS:1740	C.S.	15
46	--	9191580070	Reducing Socket 3/4" x3/8" BSP BS:1740	C.S.	8
47	--	9191590100	Plug 3/8" BSP BS:1740	C.S.	15
48	--	9191540200	Equal Tee3/4" BSP BS:1740	C.S.	4
49	--	9191540150	Equal Tee1/2" BSP BS:1740	C.S.	4
50	--	9191550110	Reducing Tee 1"x1"x3/8" BSP BS:1740	C.S.	6
51	--	9150131025	Male connector 10 mmx3/8" BSP	C.S.	30
52	--	9150131062	Male connector 6 mmx1/8" BSP	C.S.	8
53	--	9150210615	Male Elbow 6mmx1/4" BSP	C.S.	8
54	--	9191550070	Reducing Tee 3/4"x3/4"x3/8" BSP BS:1740	C.S.	6
55	--	9100480020	Anchor Block 3/8" BSP U1927C	C.S.	4
56	--	9191580050	Reducing Socket 1/2"x3/8" BSP BS:1740	C.S.	2
57	--	9100480131	Reducing Bush 1 " x3/4" BSP BS:1740	C.S.	2



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58	--	9191550130		Reducing Tee 1"x1"x3/4" BSP BS:1740	C.S.	2
59	--	9150121005		St connector 10mmTube	C.S.	16
60	--	9150120605		St connector 6mmTube	C.S.	16
61	--	9160190320		Pipe Clamp 1" NB	P.P.	4
62	--	9160190280		Pipe Clamp 3/4" NB	P.P.	50
63	--	9160190100		Tube Clamp 10mm OD	P.P.	60
64	--	9160190060		Tube Clip 6mm OD	C.S.	50
65	--	9151181028		Flexible hose 3/8" L=3' C/W swivel end fittings SAE 100R2	Rubber	4
66	--	9151041028		Flexible hose 3/8" L=3' C/W swivel end fittings SAE 100R1	Rubber	2
67	--		9115010151	Seem less steel pipe as per B.S.1387H size-1/2" NB	C.S.	25 mtrs
68	--	9160190220		Pipe Clamp 1/2" NB	P.P.	20
69			9115010251	Seem less steel pipe as per B.S.1387H size-1" NB SCH-80	C.S.	130 mtrs
70			9115010201	Seem less steel pipe as per B.S.1387H size-3/4" NB SCH-80	C.S.	100 mtrs
71			9109014991	Seem less steel tube as per DIN 2391	St35	85 mtrs



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				Size- OD 10x1.5		
72		9109014570		Seem less steel tube as per DIN 2391	St35	70 mtrs
				Size- OD 6x1		
73		9191560250		union 1"BSP BS:1740	C.S.	35
74		9191560200		union 3/4"BSP BS:1740	C.S.	35
75		9191530250		Elbow 1" BSP F/F BS:1740	C.S.	60
76		9191530200		Elbow 3/4" BSP F/F BS:1740	C.S.	50
77		9191530150		Elbow 1/2" BSP F/F BS:1740	C.S.	40
78		9100610251		Barrel nipple 1' BSP BS:1740	C.S.	12
79		9191580110		Reducing Socket 1"x3/8" BSP BS:1740	C.S.	10
80		9100480071		Reducing Bush 3/4 " x3/8" BSP BS:1740	C.S.	10
81		9191570250		Socket 1" BSP BS:1740	C.S.	5
82		9191540250		Equal Tee1"BSP BS:1740	C.S.	20
83		9191540200		Equal Tee3/4"BSP BS:1740	C.S.	17
84		9191540150		Equal Tee1/2"BSP BS:1740	C.S.	10
85		9191550120		Reducing Tee 1"x1"x1/2" BSP	C.S.	8



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				BS:1740		
86		9191550110		Reducing Tee 1"x1"x3/8" BSP	C.S.	10
				BS:1740		
87		9191550070		Reducing Tee 3/4"x3/4"x3/8" BSP	C.S.	10
				BS:1740		
88		9191590200		Pipe Plug 3/4" BSP BS:1740	C.S.	10
89		9191590100		Plug 3/8" BSP BS:1740	C.S.	20
90		9150210615		Male Elbow 6mmx1/4" BSP	C.S.	10
91		9150211025		Male Elbow 10mmx3/8" BSP	C.S.	15
92		9150231005		Tee 10 mm OD Tube	C.S.	10
93		9150131025		Male connector 10 mmx3/8" BSP	C.S.	25
94		9150131061		Male connector 6 mmx1/4" BSP	C.S.	30
95		9150131062		Male connector 6 mmx1/8" BSP	C.S.	3
96		9100480131		Reducing Bush 1 " x3/4" BSP	C.S.	5
				BS:1740		
97	1070.25.331	4107025331		End of Line Pressure Gauge Assly	-	1
98		9191560251		Pipe union 1/2" BSP BS:1740	C.S.	40
99			9115010151	Seem less steel pipe as per	C.S.	156 mtrs
				B.S.1387H size-1/2" NB SCH-80		



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100		9160190220	Pipe Clamp 1/2" NB	P.P.	110
101		9160190320	Pipe Clamp 1" NB	P.P.	90
102		9160190280	Pipe Clamp 3/4" NB	P.P.	70
103		9160190100	Tube Clamp 10mm OD	P.P.	60
104		9191580130	Reducing Socket 1"x3/4" BSP BS:1740	C.S.	10
105		9191580080	Reducing Socket 3/4"x1/2" BSP BS:1740	C.S.	10
106		9160190060	Tube Clip 6mm OD	P.P.	50
107	--	9191560150	St Union M.I.-1/2" BSP	C.S.	8
108	--	9150131025	Male connector 10x3/8" BSP	C.S.	10
109	--	9150131061	Male connector 6x1/4" BSP	C.S.	10
110	--	9151040652	Flexible hose 1/4" L=5' C/W swivel end fittings SAE 100R1	Rubber	3
111	--	9151040664	Flexible hose 1/4" L=6' C/W swivel end fittings SAE 100R1	Rubber	2
112	--	9150120605	St connector 6mm tube	C.S.	25



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113	--	9151181054		Flexible hose 3/8" L=5' 1 1/2"C/W	rubber	4
				swivel end fittings SAE 100R2		
114	--	9151181070		Flexible hose 3/8" L=6' 6"C/W	rubber	1
				swivel end fittings SAE 100R2		
115		9191530150		Elbow 1/2" BSP F/F BS:1740	C.S.	15
116		9150210615		Male stud Elbow 6x 1/4" BSP	C.S.	50
117		9100480051		Reducing Bush 1/2 " x3/8" BSP	C.S.	10
				BS:1740		
118			9115010151	Seem less steel pipe as per	C.S.	15 mtrs
				B.S.1387H size-1/2" NB SCH-80		
119		9191590100		Plug 3/8" BSP BS:1740	C.S.	5
120			9109014571	Seem less steel tube as per DIN 2391	St35	40 mtrs
				Size- OD 6x1		
121	--		9109014991	Seem less steel tube as per DIN 2391	St35	2 mtrs
				Size- OD 10x1.5		
122	--	9150121005		St connector 10mm OD tube	C.S.	12
123		9160190220		Pipe Clamp 1/2" NB	P.P.	15
124	--	9160190100		Tube Clamp 10mm OD	P.P.	4
125	--	9160190060		Tube Clip 6mm OD	C.S.	25
126		9191580050		Reducing Socket 1/2"x3/8" BSP	C.S.	8
				BS:1740		



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127	1070.25.311	4107025311		ISPL 1000x250x6	Fe410 S	1
					IS:226-75	
128	--	9191560150		St Union M.I. - 1/2" BSP	C.S.	8
129	--	9150131025		Male connector 10x3/8" BSP	C.S.	10
130	--	9150131061		Male connector 6x1/4" BSP	C.S.	10
131	--	9151040652		Flexible hose 1/4" L=5' C/W swivel end fittings SAE 100R1	rubber	3
132	--	9151040664		Flexible hose 1/4" L=6' C/W swivel end fittings SAE 100R1	rubber	2
133	--	9150120605		St connector 6mm tube	C.S.	25
134	--	9151181054		Flexible hose 3/8" L=5' 1 1/2" C/W swivel end fittings SAE 100R2	rubber	4
135	--	9151181070		Flexible hose 3/8" L=6' 6" C/W swivel end fittings SAE 100R2	rubber	1
136	--	9191530150		Elbow 1/2" BSP F/F BS:1740	C.S.	15
137	--	9150210615		Male stud Elbow 6x1/4" BSP	C.S.	50
138	--	9100480051		Reducing Bush 1/2 " x3/8" BSP BS:1740	C.S.	10
139	--		9115010151	Seem less steel pipe as per B.S.1387H size-1/2" NB	C.S.	15 mtrs



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140	--	9191590100		Plug 3/8" BSP BS:1740	C.S.	5
141	--		9109014571	Seem less steel tube as per DIN 2391 Size- OD 6x1	St35	40 mtrs
142	--		9109014991	Seem less steel tube as per DIN 2391 Size- OD 10x1.5	St35	2 mtrs
143	--	9150121005		St connector 10mm OD tube	C.S.	12
144		9160190220		Pipe Clamp 1/2" NB	P.P.	15
145	--	9160190100		Tube Clamp 10mm OD	P.P.	4
146	--	9160190060		Tube Clip 6mm OD	C.S.	25
147		9191580050		Reducing Socket 1/2"x3/8" BSP BS:1740	C.S.	8
148	1070.25.311	4107025311		ISPL 1000x250x6	Fe410 S IS:226- 75	1
149	--		9109014571	Seem less steel tube as per DIN 2391 Size- OD 6x1	St35	98 mtrs
150	--		9109014991	Seem less steel tube as per DIN 2391 Size- OD10x1.5	St35	14 mtrs
151	--		9115010151	Seem less steel pipe as per B.S.1387H size-1/2" NB SCH-80	C.S.	20 mtrs



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152	--		9115010201	Seem less steel pipe as per B.S.1387H size-3/4" NB SCH-80	C.S.	42 mtrs
153	--	9100610101		Barrel nipple 3/8" BSP BS:1740	C.S.	20
154	--	9100610201		Barrel nipple 3/4" BSP BS:1740	C.S.	12
155	--	9191540200		Tee 3/4" BSP BS:1740	C.S.	16
156	--	9191550070		Reducing Tee 3/4"x3/4"x3/8" BSP BS:1740	C.S.	10
157	--	9191550050		Reducing Tee 1/2"x1/2"x3/8" BSP BS:1740	C.S.	16
158	--	9191530200		Elbow 3/4" BSP F/F BS:1740	C.S.	48
159	--	9191560200		union 3/4"BSP BS:1740	C.S.	10
160	--	9150121005		St connector 10mm OD tube	C.S.	5
161	--	9150120605		St connector 6mm OD tube	C.S.	20
162	--	9191590200		Plug 3/4" BSP BS:1740	C.S.	4
163	--	9191580070		Reducing Socket 3/4"x3/8" BSP BS:1740	C.S.	6
164	--	9191580050		Reducing Socket 1/2"x3/8" BSP	C.S.	10



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				BS:1740		
165	--	9150131062		Male stud coupling 6x1/8" BSP	C.S.	60
166	--	9191590100		Plug 3/8" BSP BS:1740	C.S.	30
167	--	9150131025		Male stud coupling 10x3/8" BSP	C.S.	54
168	--	9150131061		Male stud coupling 6x1/4" BSP	C.S.	18
169	--	9151042074		Flexible hose 3/4" L=7'C/W swivel end fittings SAE 100R1	rubber	4
170	--	9151042052		Flexible hose 3/4" L=5'C/W swivel end fittings SAE 100R1	rubber	4
171	--	9151040615		Flexible hose 1/4" L=2'C/W swivel end fittings SAE 100R1	rubber	4
172	--	9100480081		Reducing Bush 3/4"x1/2 " BSP BS:1740	C.S.	18
173	--	9100480051		Reducing Bush 1/2"x3/8" BSP BS:1740	C.S.	6
174	--	9160190061		Tube Clip two way 6mm OD	C.S.	25
175	--	9160190060		Tube Clip 6mm OD	C.S.	60
176	--	9160190100		Tube Clamp 10mm OD	P.P..	12
177	--	9160190280		Pipe Clamp 3/4" NB	P.P.	40



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178	--	9160190220		Pipe Clamp 1/2" NB	P.P.	20
179	--	9150210615		Male Stud Elbow 6x1/4" BSP	C.S.	20
180	--	9191560150		union 1/2"BSP BS:1740	C.S.	10
181	--	9191510150		45° Elbow 1/2" BSP F/F BS:1740	C.S.	35
182	1070.25.331	4107025331		End of Line Pressure Gauge Assly	-	2
183			9115010201	Seem less steel pipe as per B.S.1387H size-3/4" NB	C.S.	270 mtrs
184			9115010151	Seem less steel pipe as per B.S.1387H size-1/2" NB	C.S.	125 mtrs
185	--		9109014991	Seem less steel tube as per DIN 2391 Size- OD10x1.5	St35	50 mtrs
186	--		9109014571	Seem less steel tube as per DIN 2391 Size- OD6x1	St35	20 mtrs
187	--	9100480060		Anchor Block 1/4" BSP U1927B C/W Base plate with fasteners	C.S.	14
188	--	9151042022		Flexible hose 3/4" L=30"C/W swivel end fittings SAE 100R1	rubber	9
189	--	9151041522		Flexible hose 1/2" L=30"C/W swivel end fittings SAE 100R1	rubber	1
190	--	9151040622		Flexible hose 1/4" L=30"C/W swivel end fittings SAE 100R1	rubber	8



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191	--	9191540200		Tee 3/4" BSP BS:1740	C.S.	7
192	--	9191560200		union 3/4"BSP BS:1740	C.S.	60
193	--	9191580070		Reducing Socket 3/4"x3/8" BSP BS:1740	C.S.	6
194	--	9191590100		Plug 3/8" BSP BS:1740	C.S.	4
195		9160190280		Pipe Clamp 3/4" NB	P.P.	160
196	--	9160190100		single Tube Clamp 10mm OD	P.P..	40
197	1070.25.191	4107025191		Rail for Pipe Clamp part no. S100x6M/PG	P.P..	6 mtrs
198	--	9.1501E+10		Male connector 10x3/8" BSP	C.S.	30
199	--	9150131061		Male connector 6x1/4" BSP	C.S.	25
200	--	9150131062		Male connector 6x1/8" BSP	C.S.	10
201		9150210615		Male stad Elbow 6mmx1/4" BSP	C.S.	10
202	--	9100610081		Barrel nipple 1/4" BSP BS:1740	C.S.	10
203	--	3354701662		M 8x60 SKT head cap screw	C.S.	6
204	--	9160190060		single Tube Clip 6mm OD	C.S.	14
205	--	9160190061		Double Tube Clip 6mm OD	C.S.	8



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206	--	9191530080		Elbow 1/4" BSP F/F BS:1740	C.S.	20
207	--	9150120635		Male connector 6x3/8" BSP	C.S.	4
208	--	9100480010		Reducing Bush 1/8"x1/4" BSP BS:1740	C.S.	4
209	1070.25.192	4107025192		ISPL 370x370x5	C.S.	2
210	1070.25.193	4107025193		ISA 75x75x6	C.S.	10 mtrs
211	--	9191580040		Reducing Socket 1/2"x1/4" BSP BS:1740	C.S.	5
212	--	9100470041		Reducing nipple 1/8" x3/8" BSP BS:1740	C.S.	10
213		9191570100		Socket 3/8" BSP BS:1740	C.S.	15
214	--	9100480181		Reducing Bush 1 1/4"x3/8" BSP BS:1740	C.S.	6
215	--	9191560150		union 1/2"BSP BS:1740	C.S.	25
216	--	9160190220		Pipe Clamp 1/2" NB	P.P.	80
217			9115010201	Seem less steel pipe as per B.S.1387H size-3/4" NB	C.S.	2 mtrs
218	--		9109014991	Seem less steel tube as per DIN 2391 Size- OD10x1.5	St35	3 mtrs



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219	--		9109014571	Seem less steel tube as per DIN 2391	St35	8 mtrs
				Size- OD6x1		
220	--	9191520200		Elbow 3/4" BSP M/F BS:1740	C.S.	6
221	--	9100480071		Reducing Bush 3/4"x3/8 " BSP	C.S.	2
				BS:1740		
222	--	9191590100		Plug 3/8" BSP BS:1740	C.S.	2
223	--	9150131025		Male connector 10mmx3/8" BSP	C.S.	4
224	--	9150210615		Male Elbow 6mmx1/4" BSP	C.S.	2
225	--	9150210625		Male Elbow 6mmx1/8" BSP	C.S.	2
226	--	9191560200		union 3/4"BSP BS:1740	C.S.	2
227	--	9100610201		Barrel Nipple 3/4" BSPx50	C.S.	2
228	--	9160190100		Tube Clamp 10mm OD	P.P..	2
229	--	9160190060		Tube Clamp 6mm OD	P.P..	5
230	--	9151182040		Flexible hose 3/4" L=4 ' C/W	rubber	2
				swivel end fittings SAE 100R2		
231			9115010201	Seem less steel pipe as per	C.S.	25 mtrs
				B.S.1387H size-3/4" NB		
232	--		9109014991	Seem less steel tube as per DIN 2391	St35	10 mtrs
				Size- OD10x1.5		



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233	--		9109014571	Seem less steel tube as per DIN 2391	St35	10 mtrs
				Size- OD6x1		
234	--	9191580070		Reducing Socket 3/4"x3/8" BSP	C.S.	4
235	--	9191540200		Tee 3/4" BSP	C.S.	2
				BS:1740		
236	--	9191590200		Pipe Plug 3/4" BSP BS:1740	C.S.	2
237	--	9191590100		Plug 3/8" BSP BS:1740	C.S.	2
238	--	9150131025		Male connector 10x3/8" BSP	C.S.	4
239	--	9150131062		Male connector 6x1/8" BSP	C.S.	2
240		9150210615		Male Elbow 6mmx1/4" BSP	C.S.	2
241	--	9191570200		Socket 3/4" BSP BS:1740'	C.S.	8
242	--	9160190280		Pipe Clamp 3/4" NB	P.P.	30
243	--	9160190100		Tube Clamp 10mm OD	P.P..	6
244	--	9160190060		Tube Clip 6mm OD	C.S.	6
245	1070.25.281	4107025281		Spray Nozzel 0-200 ,SC 2642 D		4
246	1070.25.282	4107025282		Nozzel Block MS2314D		4
247	1070.25.283	4107025283		Nozzel Gasket S2183D		4
248	1070.25.284	4107025284		Adaptor Elbow MV782		8



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249	1070.25.285	4107025285		Adaptor STR. MV382		4
250	1070.25.286	4107025286		Adaptor STR. MV383		4
251	--	9191580050		Reducing Socket 1/2"x3/8" BSP	C.S.	4
252	--	9191570060		Socket 1/4" BSP BS:1740	C.S.	4
253	--	9191570150		Socket 1/2" BSP BS:1740	C.S.	4
254	--	9100560151		Hex nipple 1/2" BSP BS:1740	C.S.	4
255	--	9191520080		Elbow 1/4" BSP M/F BS:1740	C.S.	4
256	--	9191520150		Elbow 1/2" BSP M/F BS:1740	C.S.	4
257	--	9191540150		Tee 1/2" BSP BS:1740	C.S.	4
258	--	3400105017		Punched Washer M10	C.S.	4
259	--	9151040640		Flexible hose 1/4"x4'-0"C/W swivel end fittings SAE 100R1	rubber	13
260	--	9151040664		Flexible hose 1/4"x6'-0"C/W swivel end fittings SAE 100R1	rubber	3
261	--	9151041540		Flexible hose 1/2"x4'-0"C/W swivel end fittings SAE 100R1	rubber	10



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262	--	9151041564		Flexible hose 1/2"x6'-0"C/W	rubber	2
				swivel end fittings SAE 100R1		
263	--	3335401309		Slotted cheese hd. Screw M5x12	C.S.	16
264	--		9109014571	Seem less steel tube as per DIN 2391	St35	2 mtrs
				Size- OD6x1		
265	--	9160190060		Tube Clip 6mm OD	C.S.	4
266	1070.25.287	4107025287		Hose Clip 5/8"	C.S.	8
267	1070.25.288	4107025288		Hose Clip 1"	C.S.	8
268	--	3362401716		Hex. Screw M10x30	C.S.	16
269	--	3362401712		Hex. Screw M10x20	C.S.	16
270	--	3302400117		Hex. Nut M10	C.S.	32
271	--	3403308017		Spring Washer M10	C.S.	32
272	--	9151041564		Flexible hose 1/2"x6'-0"C/W	rubber	2
				swivel end fittings SAE 100R1		
273	--		9115010151	Seem less steel pipe as per	C.S.	110 Mtrs
				B.S.1387H size-1/2" NB		
274	--		9109014991	Seem less steel tube as per DIN 2391	St35	40 mtrs
				Size- OD10x1.5		
275	--		9109014571	Seem less steel tube as per DIN 2391	St35	80 mtrs



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				Size- OD6x1		
276	--	9100480020		Anchor Block 3/8" BSP U1927C	C.S.	2
277	1070.25.301	4107025301		Quick Release coupling 1/2" BSP	C.S.	8
278	1070.25.302	4107025302		Plug Quick Release coupling 1/2" BSP	C.S.	8
279	1070.25.303	4107025303		Bracket 1/2" NB Pipe Support	C.S.	30
280	1070.25.304	4107025304		Bracket Measuring valve Support	C.S.	30
281	1070.25.305	4107025305		Bracket tube 40x50x3	C.S.	60
282	1070.25.306	4107025306		Extension Nipple 1/2" BSPx4 1/2"LG	C.S.	3
283	1070.25.307	4107025307		Extension Nipple 1/2" BSPx2 1/2"LG	C.S.	3
284	--	9100610151		Barrel Nipple 1/2" BSPx100	C.S.	6
285	--	9100610081		Barrel Nipple 1/4" BSPx50	C.S.	130
286	--	9100470051		Reducing Hex nipple 1/2"x3/8" BSP BS:1740	C.S.	2
287	--	9191560150		union 1/2"BSP BS:1740	C.S.	38
288	--	9191580040		Reducing Socket 1/2"x1/4" BSP	C.S.	2
289	--	9191570150		Socket 1/2"BSP	C.S.	10
290	--	9100470051		Hex nipple 1/2"x3/8" BSP BS:1740	C.S.	2



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291	--	9191530150	Elbow 1/2" BSP F/F BS:1740	C.S.	20
292	--	9191530080	Elbow 1/4" BSP F/F BS:1740	C.S.	130
293	--	9100480031	Reducing Bush 3/8"x1/4 " BSP BS:1740	C.S.	2
294	--	9191590100	Plug 3/8" BSP BS:1740	C.S.	68
295	--	9191540150	Equal Tee 1/2"BSP BS:1740	C.S.	8
296	--	9191550050	Tee 1/2" x1/2" x3/8"BSP BS:1740	C.S.	70
297	--	9150131025	Male connector 10x3/8" BSP	C.S.	70
298	--	9160190060	Tube Clip 6mm OD U301B1	C.S.	60
299	--	9150211025	Male Elbow 10mmx3/8" BSP	C.S.	70
300	--	9150131061	Male connector 6mmx1/4" BSP	C.S.	140
301	--	9160190220	Pipe Clamp 1/2" NB	P.P.	100
302	--	9160190100	Tube Clamp 10mm OD	P.P..	20

Note :-

1. All above items should be procured from single source only.
2. For Special Notes, refer Technical Specification No – LH/RPD/HMB/Dragline/Lube/01



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Technical Specification No – LH/RPD/HMB/Dragline/Lube/01

**Term & Condition for procurement of Grease Lubrication System for walking
Dragline against DAP No. 147/17M**

Suggested Make for Lubrication System:-

1). M/s Bijur Delimon., 2). M/s Graco India, 3). M/s Lincoln SKF Ltd., 4). M/s Cenlub System., 4). M/s Lubrite Industries., or equivalent Imported or Indigenous Make.

Preferred Make of Electrical Motor:-

KEC / Siemens / ABB / Crompton / Bharat Bijlee / Areva.

Notes:-

- 1. Scope of work: -**
 - A). Supply and Supervision during Erection & Commissioning.
 - B). Testing & Successful Demonstration of Performance Guarantee at our Customer site of the complete lubrication systems including inter connecting lubrication & air piping below & above deck & Electrics etc.
2. The system should be suitable for mounting on HEC make Walking Dragline working in dusty environment of Indian Coal Mines at 55 ° C ambient temperature.
3. Bidder should have experience of manufacturing / supply of lubrication system for Dragline or other equipment of equivalent of higher capacity and shall furnish reference list & commissioning / performance certificate of end user of similar system supplied by them.
4. Bidder to ensure the completeness of the system offered to meet the functional requirement as per technical specifications and per block diagram. Any items required for the completeness of the system should be under bidder / supplier scope of supply. Price of the same should be included in offer. Bidder may visit the machine at site in this regard in consultant with HMBP Marketing Department.
5. Control system of lubrication system shall be PLC based and firm shall furnish schematic diagram; functional write-up and its electrical control circuit diagram along with offer.
6. List of commissioning spares should be furnished along with offer. Price of the same to be included in offer. During commissioning if any extra items required other than this list should be supplied by successful bidder without any price implication.
7. Operational spares list with Item wise price valid for 2 years shall be furnished.
8. Catalogues, Drawings, Make and Model numbers of Main items. ie., Pump, Valve, Nozzles etc with complete specifications should to be furnished with the offer.



**MATERIAL MANAGEMENT DIVISION
HEAVY MACHINE BUILDING PLANT
HEAVY ENGINEERING CORPORATION LIMITED
RANCHI, JHARKHAND**

**TENDER DOCUMENT FOR SUPPLY OF GREASE LUBRICATION SYSTEM FOR
WALKING DRAGLINE AND OIL LUBRICATION SYSTEM FOR WALKING DRALINE**

9. List of inter-connecting piping, hoses, fittings & clamp etc given in specification/drawings are for reference only. However the sufficient quantities of these items are to be supplied for the completeness of the system without any price implication.
10. The piping layout drawings will be furnished to successful bidder by HEC. Accordingly, before manufacturing, the firm should submit drawings of all systems as well as piping layout with complete BOM for approval. Any change during drawing approval from HEC / Consultant / Customer should be incorporated without any price implication.
11. Firm should submit both soft copies of CAD drawings and hard copies for approval.
12. Six sets of OM shall be supplied for each M/c.
13. Bidder should furnish Warranty / Guarantee certificate for satisfactory performance of the system. After sales service is to be provided free of cost at our customers site during warranty period.
14. Bidder to confirm all the technical parameters / specifications mentioned in the drawing. Any deviation there off to be specifically mentioned in their offer in the format given in annexure – I. Any deviation other than this will not be considered.
15. List documents/ Drawings to be referred for offer:-

1. 4301.72.100
2. 4301.72.105
3. 4301.72.110
4. 4301.72.115
5. 4301.72.120
6. 1070.25.010
7. 1070.25.020
8. 1070.25.030
9. 1070.25.040
10. 1070.25.050
11. 1070.25.060
12. 1070.25.070
13. 1070.25.080
14. 1070.25.090
15. 1070.25.100
16. 1070.25.111
17. 1070.25.120
18. 1070.25.140
19. 1070.25.300



**MATERIAL MANAGEMENT DIVISION
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TENDER DOCUMENT FOR SUPPLY OF GREASE LUBRICATION SYSTEM FOR
WALKING DRAGLINE AND OIL LUBRICATION SYSTEM FOR WALKING DRALINE

Annexure B			Centralized oil Lob. system of Rotate boxes (System 7,8 & 9)			
			DAP 0148-17M			
Sl. No.	Drawing No.	Item code	Description	Material	Quantity per M/C (for 1 set only)	
1	1070.25.530 (2 sheets)	4107025530	Centralized Oil Lub. System- 7,8 & 9 for Rotate Gear Boxes Centralized Oil Lub. Systems for front & rear rotate gear box consisting of all items of Drg. No. 1070.25.530 which includes the following sub units.	as sly	1	
1.1	1070.25.550	4107025550	Lub. Unit serving front rotate gear box variant -I	as sly	1 set	
1.2	1070.25.550	4107025550	-do- but variant -II	as sly	1 set	
1.3	1070.25.510	4107025510	Lub. Unit serving Rear Rotate Gear Box	as sly	1 set	
1.4	1070.25.590	4107025590	Pipe work mounted externally on Rotate Gear Box	as sly	3 set	
1.5	1070.25.470	4107025470	Pipe work mounted internally on Rotate Gear Box	as sly	3 set	
1.6	1070.25.480	4107025480	Detail items of Lub. Reservoir serving front Rotate Gear Boxes.(LH & RH)	as sly	1 set	
1.7	1070.25.490	4107025490	Detail items of Lub. Reservoir serving rear Rotate Gear Box.	as sly	1 set	
1.8	-	-	Electrical control post for Lub. System, 7,8 & 9	as sly	3 set	

Note :-

1. All above items should be procured from single source only.
2. For Special Notes, refer Technical Specification No – LH/RPD/HMB/Dragline/Lube/02



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**TENDER DOCUMENT FOR SUPPLY OF GREASE LUBRICATION SYSTEM FOR
WALKING DRAGLINE AND OIL LUBRICATION SYSTEM FOR WALKING DRALINE**

Technical Specification No – LH/RPD/HMB/Dragline/Lube/02

**Term & Condition for procurement of Oil Lubrication System for walking Dragline
against DAP No. 148/17M**

Suggested Make for Lubrication System:-

- 1) M/s Bijur Delimon, 2) M/s Graco India 3) M/s Lincoln SKF Ltd.
4). M/s Cenlub System 5). M/s Lubrite Industries., or equivalent Imported or
Indigenous Make.**

Preferred Make of Electrical Motor:-

KEC / Siemens / ABB / Crompton / Bharat Bijlee / Areva.

Notes:-

16. Scope of work: -
A). Supply and Supervision during Erection & Commissioning.
B). Testing & Successful Demonstration of Performance Guarantee at our Customer site of the complete lubrication systems including inter connecting lubrication & air piping below & above deck & Electrics etc.
17. The system should be suitable for mounting on HEC make Walking Dragline working in dusty environment of Indian Coal Mines at 55 ° C ambient temperature.
18. Bidder should have experience of manufacturing / supply of lubrication system for Dragline or other equipment of equivalent of higher capacity and shall furnish reference list & commissioning / performance certificate of end user of similar system supplied by them.
19. Bidder to ensure the completeness of the system offered to meet the functional requirement as per technical specifications and per block diagram. Any items required for the completeness of the system should be under bidder / supplier scope of supply. Price of the same should be included in offer. Bidder may visit the machine at site in this regard in consultant with HMBP Marketing Department.
20. Control system of lubrication system shall be PLC based and firm shall furnish schematic diagram; functional write-up and its electrical control circuit diagram along with offer.



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HEAVY MACHINE BUILDING PLANT
HEAVY ENGINEERING CORPORATION LIMITED
RANCHI, JHARKHAND**

**TENDER DOCUMENT FOR SUPPLY OF GREASE LUBRICATION SYSTEM FOR
WALKING DRAGLINE AND OIL LUBRICATION SYSTEM FOR WALKING DRALINE**

21. List of commissioning spares should be furnished along with offer. Price of the same to be included in offer. During commissioning if any extra items required other than this list should be supplied by successful bidder without any price implication.
22. Operational spares list with Item wise price valid for 2 years shall be furnished.
23. Catalogues, Drawings, Make and Model numbers of Main items. ie., Pump, Valve, Nozzles etc with complete specifications should to be furnished with the offer.
24. List of inter-connecting piping, hoses, fittings & clamp etc given in specification/drawings are for reference only. However the sufficient quantities of these items are to be supplied for the completeness of the system without any price implication.
25. Before manufacturing, the firm should submit drawings of all systems as well as piping layout with complete BOM for approval. Any change during drawing approval from HEC / Consultant / Customer should be incorporated without any price implication.
26. Firm should submit both soft copies of CAD drawings and hard copies for approval.
27. Six sets of OM shall be supplied for each M/c.
28. Bidder should furnish Warranty / Guarantee certificate for satisfactory performance of the system. After sales service is to be provided free of cost at our customers site during warranty period.
29. Bidder to confirm all the technical parameters / specifications mentioned in the drawing. Any deviation there off to be specifically mentioned in their offer in the format given in annexure – I. Any deviation other than this will not be considered.
30. List documents/ Drawings to be referred for offer:-
 1. 4301.72.125.
 2. 1070.25.480.
 3. 1070.25.490.
 4. 1070.25.510.
 5. 1070.25.530 Sh 1 of 2 & 2 of 2.
 6. 1070.25.550.
 7. 1070.25.590.



**MATERIAL MANAGEMENT DIVISION
HEAVY MACHINE BUILDING PLANT
HEAVY ENGINEERING CORPORATION LIMITED
RANCHI, JHARKHAND**

TENDER DOCUMENT FOR SUPPLY OF GREASE LUBRICATION SYSTEM FOR
WALKING DRAGLINE AND OIL LUBRICATION SYSTEM FOR WALKING DRALINE

FORMAT FOR

BANK GURANTEE FOR EARNEST MONEY DEPOSIT

NO.

Dated:

TO

MATERIAL MANAGEMENT DIVISION
HEAVY MACHINE BUILDING PLANT
HEAVY ENGINEERING CORPORATION LTD.
RANCHI-834004, JHARKHAND
INDIA

Dear Sirs,

In consideration of your agreeing to accept the Earnest money deposit of Rs.------(Rs-----
-----) furnishable to you by M/s-----
------(Hereinafter Referred to As
Contractor) In terms of the Enquiry No. -----Dtd. ---
----- for Supply of ----- (Hereinafter Referred to as the
Contract) in the form of a Bank Guarantee in the Manner hereinafter contained we -----
-----, having registered office at -----
-----do hereby covenant and agree with you as follows.

1. We hereby undertake to indemnify you up to a sum of Rs. ----- (Rs. -----
----- only) against any loss or damage caused to or suffered by you or that may
be caused to or suffered by you by reason of any breach or breaches on the part of the
contractor of any of the terms and conditions contained in the said contract and in the event the
Contractor shall make any default or defaults in carrying out any of the works under the said
contract or otherwise in the observance and performance of any of the terms and conditions
relating thereto in accordance with the true intent and meaning thereof, we shall forthwith on
demand and without any protest or demur pay to you such sum or sums not exceeding in total
the said sum of Rs.----- (Rs. -----*amount*-----only) as may be
claimed by you as your losses and/or damages, costs, charges or expenses by reason of such
default or defaults on the part of the contractor.

2. Notwithstanding anything to the contrary contained in this guarantee your decision as to
whether the contractor has made any such default or defaults and the amount or amounts to
which you are entitled by reasons thereof will be binding on us and we shall not be entitled to
ask you to establish your claim or claims or damages or losses suffered by you but will pay the



**MATERIAL MANAGEMENT DIVISION
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HEAVY ENGINEERING CORPORATION LIMITED
RANCHI, JHARKHAND**

**TENDER DOCUMENT FOR SUPPLY OF GREASE LUBRICATION SYSTEM FOR
WALKING DRAGLINE AND OIL LUBRICATION SYSTEM FOR WALKING DRALINE**

amount demanded by you under this guarantee forthwith on your demand without any protest or demur.

3. This guarantee shall continue and hold good until it is released by you on the application by the contractor after expiry of the related warranty period of the said contract and after the contractor have discharged all their obligations under the said contract and produced a certificate of due completion of the work under the said contract and submitted a "NO Demand Certificate" provided always that this guarantee shall in no event remain in force after the date of----- without prejudice to your claim or claims arisen and demanded from or otherwise notified to us in writing before the expiry of six months from the said date which will be enforceable against us not withstanding that the same is or are enforced after the said date.

4. We-----, further undertake to extend the validity of this beyond the period prescribed in clause 3 or as extended from time to time for such further period as may be required in writing before the Expiry of this and upon such extension(s), all terms and conditions of this shall remain in full force till the expiry of this extended period(s).

5. You will have the fullest liberty without affecting this guarantee from time to time to vary any of the terms and conditions of the said contract or extend the time of performance of the contractor or to postpone for any time or from time to time any of your rights or powers against the contractor and either to enforce or forbear to enforce any of the terms and conditions of the said contract and we shall not be released from our liability under this guarantee by the exercise of your liberty with reference to matters aforesaid or by reason of any time being given to the contractor or any other forbearance, act or omission on your part or any indulgence by you to the contractor or by any other variation or modification of the said contract or any other act, matter or things whatsoever, which, under the law relating to sureties, would but for the provisions hereof, have the effect of so releasing us from our liability hereunder provided always that nothing herein contained will enlarge our liability hereunder beyond the limit of Rs. ----- --(Rs.-----) as aforesaid or extend the period of the guarantee beyond the said Date of -----unless expressly agreed to by us in writing in terms of clause 4 hereof.

6. This guarantee shall not in any way be affected by your taking or varying or giving up any securities from the contractor or any other person, firm or company on its behalf or by the winding up, dissolution, insolvency or death as the case may be of the contractor.

7. In order to give full effect to the guarantee herein contained, you shall be entitled to act as if we are your principal debtors in respect of all your claims against the contractor hereby guaranteed by us as aforesaid and we hereby expressly waive all our rights of suretyship and other rights, if any, which are in any ways inconsistent with any of the provisions of this guarantee.

8. Subject to the maximum limit of our liability as aforesaid this guarantee will cover all your claim or claims against the contractor from time to time arising out of or in relation to the said



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**TENDER DOCUMENT FOR SUPPLY OF GREASE LUBRICATION SYSTEM FOR
WALKING DRAGLINE AND OIL LUBRICATION SYSTEM FOR WALKING DRALINE**

contract and in respect of which your claim in writing is lodged on us before expiry of six months from the date of expiry of this guarantee.

9. Any notice by way of demand or otherwise hereunder shall be in writing and may be sent by special Courier or Telefax to us or our Local Address as aforesaid.

10. This guarantee and the powers & provisions herein contained are in addition to and not by way of limitation or substitution for any other guarantee or guarantees heretofore given to you by us whether jointly with others or alone and now existing uncanceled and that this guarantee is not intended to and shall not revoke or limit such guarantee or guarantees.

11. This guarantee shall not be affected by any change in the constitution of the contractor or us nor shall it be affected by any change in your constitution or by any Amalgamation or absorption thereof or therewith but will ensure for the benefit or and be available to and enforceable by the absorbing or amalgamated company or concern.

12. This guarantee is irrevocable during the period of its currency and shall not be revoked without your previous consent in writing.

13. We further agree and undertake to pay you the amount demanded by you in writing irrespective of any dispute or controversy between you and the contractor or any reference to arbitration of the said dispute/controversy pending or a civil suit filed by the contract or in respect of the dispute or controversy.

14. Notwithstanding anything contained herein above our liability under this guarantee is restricted to Rs.----- (Rs. -----only) and this guarantee shall remain in force until -----unless a written claim is lodged on us for payment under this guarantee within six months from the date of expiry of this guarantee . i.e. On or before-----all your rights under this guarantee shall be forfeited and we shall be deemed to have released and discharged from all liabilities there under, irrespective of whether or not the original guarantee is returned to us.

15. We have power to issue this guarantee in your favour under the memorandum and articles of association of the bank and the undersigned has full power to execute this guarantee under the power of Attorney Granted to them by the Bank.

FOR AND ON BEHALF OF



**MATERIAL MANAGEMENT DIVISION
HEAVY MACHINE BUILDING PLANT
HEAVY ENGINEERING CORPORATION LIMITED
RANCHI, JHARKHAND**

TENDER DOCUMENT FOR SUPPLY OF GREASE LUBRICATION SYSTEM FOR
WALKING DRAGLINE AND OIL LUBRICATION SYSTEM FOR WALKING DRALINE

FORMAT OF PERFORMANCE BANK GURANTEE

(TO BE STAMPED IN ACCORDANCE WITH STAMP ACT & TO BE ISSUED BY ANY NATIONALISED /SCHEDULED BANK AUTHORISED BY RBI TO ISSUE A BANK GUARANTEE)

Name of Equipment: ----- Guarantee NO-----
Purchase Order No.:----- dated: ----- Date:-----
Validity -----
Claim period-----

To:
M/s Heavy Engineering Corporation Ltd.
Heavy Machine Building Plant
Ranchi-834004 Jharkhand

In consideration of your having placed an order bearing Purchase Order No.-----dated:-----
----- with-----
------(hereinafter referred to as
Supplier) for the supply of-----
------(hereinafter referred to as the-----

We ----- do hereby agree with you irrevocably that, should the machinery and equipment fail to give the guarantee performance and achieve the efficiency as stipulated in the Purchase Order within the period of guarantee or should the material and/or workmanship of the machinery and equipment supplied or any part thereof be found defective and/or fully, as per the purchase order, we undertake to pay without any demur merely on demand a sum of Rs. -----
-----being 20% of the value of Rs. -----for the supply of -----

Your decision whether the supplier have made any such defaults and the amount to which you are entitled by reasons thereof shall be conclusive and bind on us, subject to maximum of Rs. --
----- as aforesaid.

We-----further guarantee that the machinery and equipment manufactured and supplied by the supplier shall be new, of good quality materials and of the first class workmanship as specified in the Purchase order and



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RANCHI, JHARKHAND**

**TENDER DOCUMENT FOR SUPPLY OF GREASE LUBRICATION SYSTEM FOR
WALKING DRAGLINE AND OIL LUBRICATION SYSTEM FOR WALKING DRALINE**

should the machinery and equipment supplied or any part thereof be found defective and that should the defect as pointed out in inspection note be not made good and/or in case of failure within guarantee period same shall be replaced on free of cost or repaired on free of cost to the entire satisfaction of Heavy Engineering Corporation Ltd.

We -----agree that the guarantee herein contained shall remain in full force and effect till the machinery and equipment give the desired performance and it shall continue to be enforceable till your dues have been fully paid and claims satisfied or discharged subject to a period not later than----- . In the event of any extension granted for commissioning/dispatch suitable extension shall be given on your request.

We-----, further agree that any neglect, omission or forbearance or indulgence in enforcing any claim as per the terms and conditions of your purchase order or performance guarantee or any of them or any extension of the time granted for the performance or payment of penalty under the guarantee or any dispute between the supplier and yourselves as regard performance of machinery and equipment supplied or issued related to your Purchase order, shall not effect in any way our liability under this guarantee until the full payment, but in any case, shall not extend beyond-----.

This guarantee is in addition and not substitution for guarantee given to you by the seller or by their bankers on their behalf.

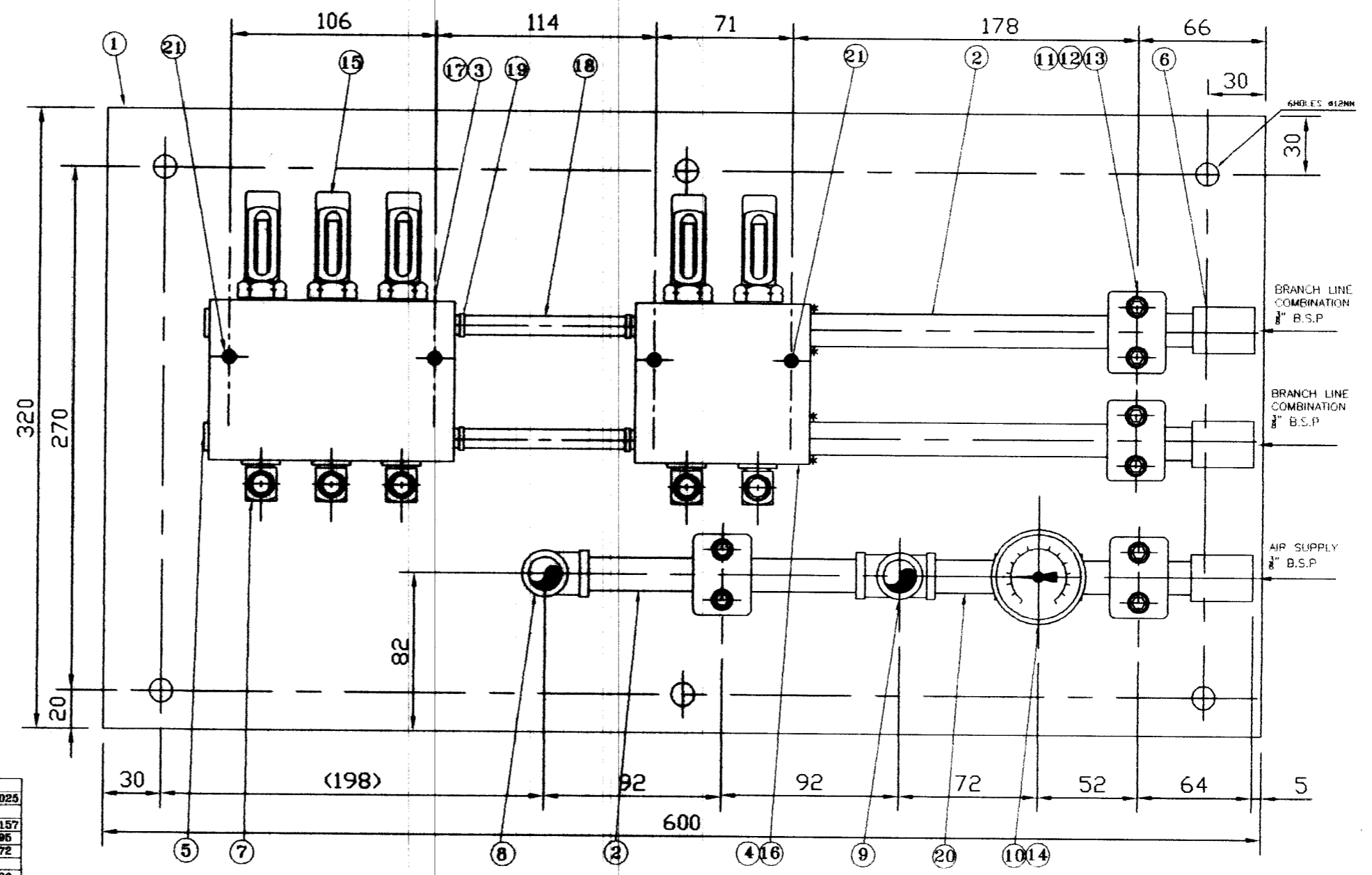
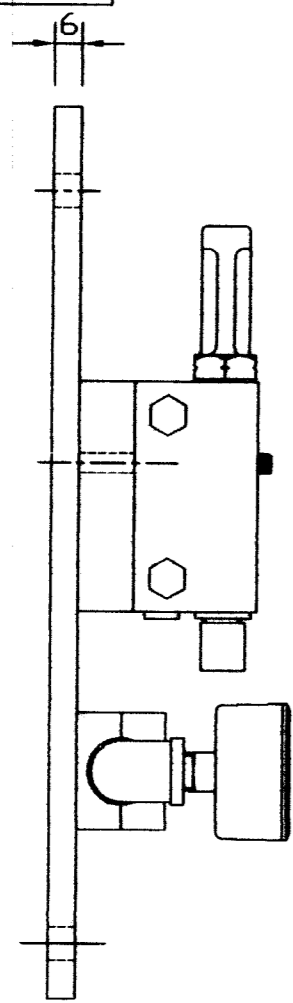
We----- lastly undertake not to revoke this bank guarantee during its currency except with the previous consent of the corporation in writing.

Notwithstanding anything to contrary stated above, our liability under this guarantee will be restricted to Rs.----- and shall remain in force up to -----, unless a demand or claim under this guarantee is made from the date i.e. on or before----- all your rights under the said guarantee shall be forfeited and we shall be released and discharged from all liabilities thereunder.

Dated at ----- day of -----

Seal of the Bank

1070.25.010



ITEM	DESCRIPTION	QTY.	WT/piece In Kg	Total WT In Kg
21	HEXAGONAL SOCKET HEAD SCREW M8 X 60	4		
20	BARREL NIPPLE 3/8" BSP	1	0.025	0.025
19	COMBINATION OF NUT & SLEEVE(M8x1.03)	4		
18	TUBE 18mm O.D. COPPER	0.6MTRS	0.314	0.157
17	SPACER PLATE 12MM THICK (127x82)	1	0.95	0.95
16	SPACER PLATE 12MM THICK (80x82)	1	0.72	0.72
15	STEM COVER	5		
14	PRESSURE GAUGE 602M-20A	1	0.30	0.30
13	WASHER M10	8		
12	BOLT M10 x 56	8		
11	PIPE CLAMP STAUFFY TYPE 217-2 PP	4	0.35	1.40
10	TEE REDUCING 3/8" x 3/8" x 1/4" BSP	1	0.097	0.097
9	TEE EQUAL 3/8" BSP	1	0.094	0.094
8	ELBOW 3/8" BSP F/F 90°	1	0.059	0.059
7	ELBOW STREET 90° 1/4" x 1/4" BSP M/F	5	0.07	0.35
6	SOCKET 3/8" BSP	3	0.034	0.102
5	PLUG 3/8" BSP	2	0.034	0.068
4	DM52 MEASURING VALVE	1	2.40	2.40
3	DM53 MEASURING VALVE	1	3.40	3.40
2	3/8" I.D. M. STL. PIPE	0.75MTRS	0.314	0.235
1	VALVE MOUNTING PLATE	1	9.30	9.30

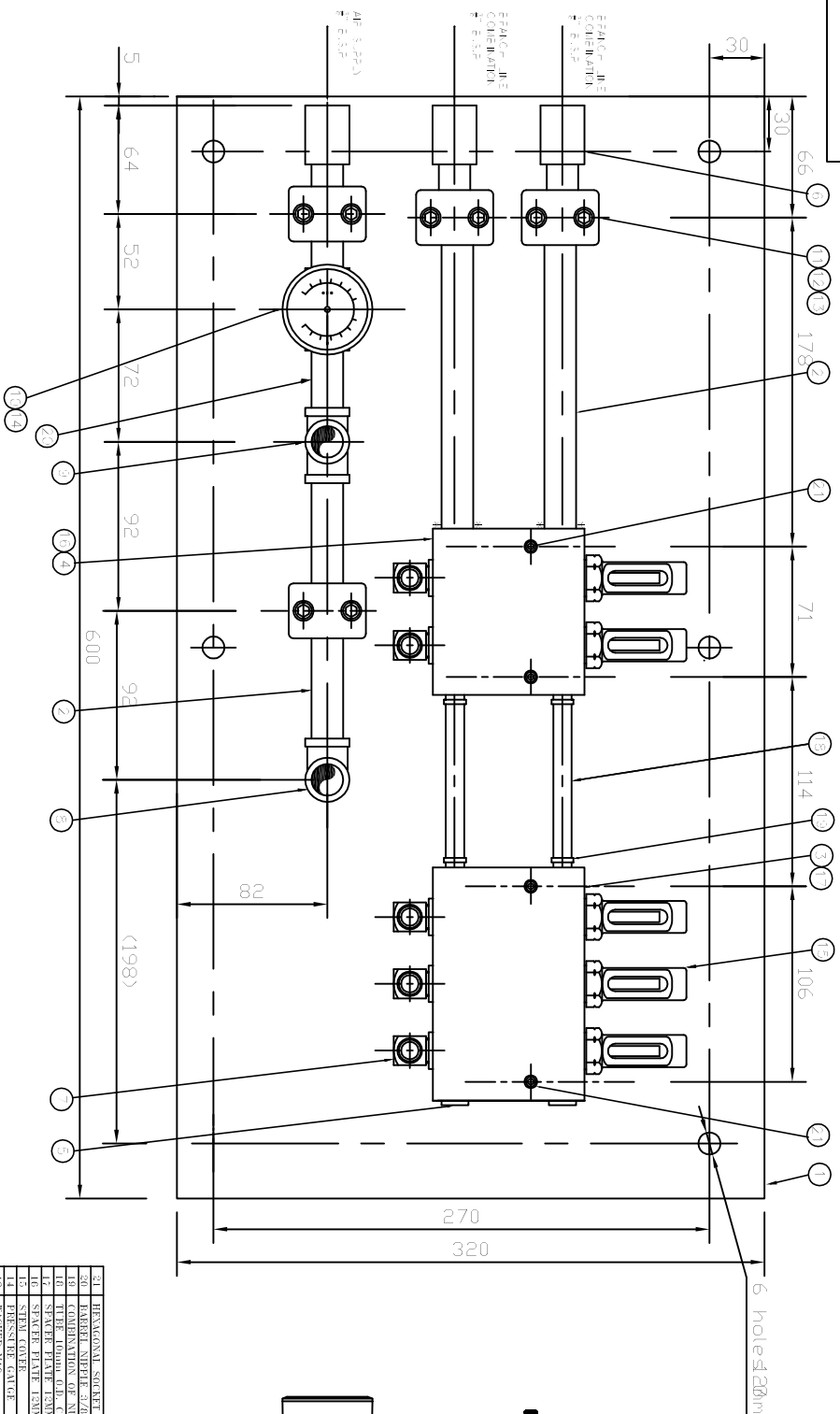
QTY: 1NOs

INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE

	WALK GEAR VALVE PANEL (L.H)		1070.25.010	
	WEIGHT IN KG.-21.00			
एच.ई.सी.	BUREAU-CHIEF	R.B.Bhagat	SCALE-	1:2.5
	GROUP LEADER	R.B.Bhagat		Feb'11
	DESIGNER	R.B.Bhagat		
	DRAWN BY	A.P.Toppo		H.M.B. HEC LTD.,RANCHI
REF.DRG.NO.				

10-3-6708-A

1070.25.020



QTY: 1 NOS

ITEM	QTY	DESCRIPTION	UNIT	REV
1	1	HEXAGONAL SOCKET HEAD SCREW M6 X 60	4	0.057
2	1	RUBBER WIPPER 3/2" BSP	1	0.057
3	1	COMBINATION OF NUTS (HEAVY DUTY)	1	0.157
4	1	SPACER PLATE (20MM THICK (127x82))	1	0.057
5	1	SPACER PLATE (20MM THICK (FORGED))	1	0.22
6	1	SPRING COVER	1	0.20
7	1	PRESSURE GAUGE - 0-0.20-30V	1	0.20
8	1	HOI M10 X 25	1	0.20
9	1	HOI M10 X 25	1	0.20
10	1	HOI M10 X 25	1	0.20
11	1	HOI M10 X 25	1	0.20
12	1	HOI M10 X 25	1	0.20
13	1	HOI M10 X 25	1	0.20
14	1	HOI M10 X 25	1	0.20
15	1	HOI M10 X 25	1	0.20
16	1	HOI M10 X 25	1	0.20
17	1	HOI M10 X 25	1	0.20
18	1	HOI M10 X 25	1	0.20
19	1	HOI M10 X 25	1	0.20
20	1	HOI M10 X 25	1	0.20
21	1	HOI M10 X 25	1	0.20

WALK GEAR VALVE PANEL (R.H)

1070.25.020



REPRESENTED BY

R.B. Bhagat

1:2.5

DESIGNED BY

R.B. Bhagat

H.M.B.

DATE

AP: Toppo

Rev-0

INDEX	NO.	DESCRIPTION	REVISION SIGNATURE	DATE

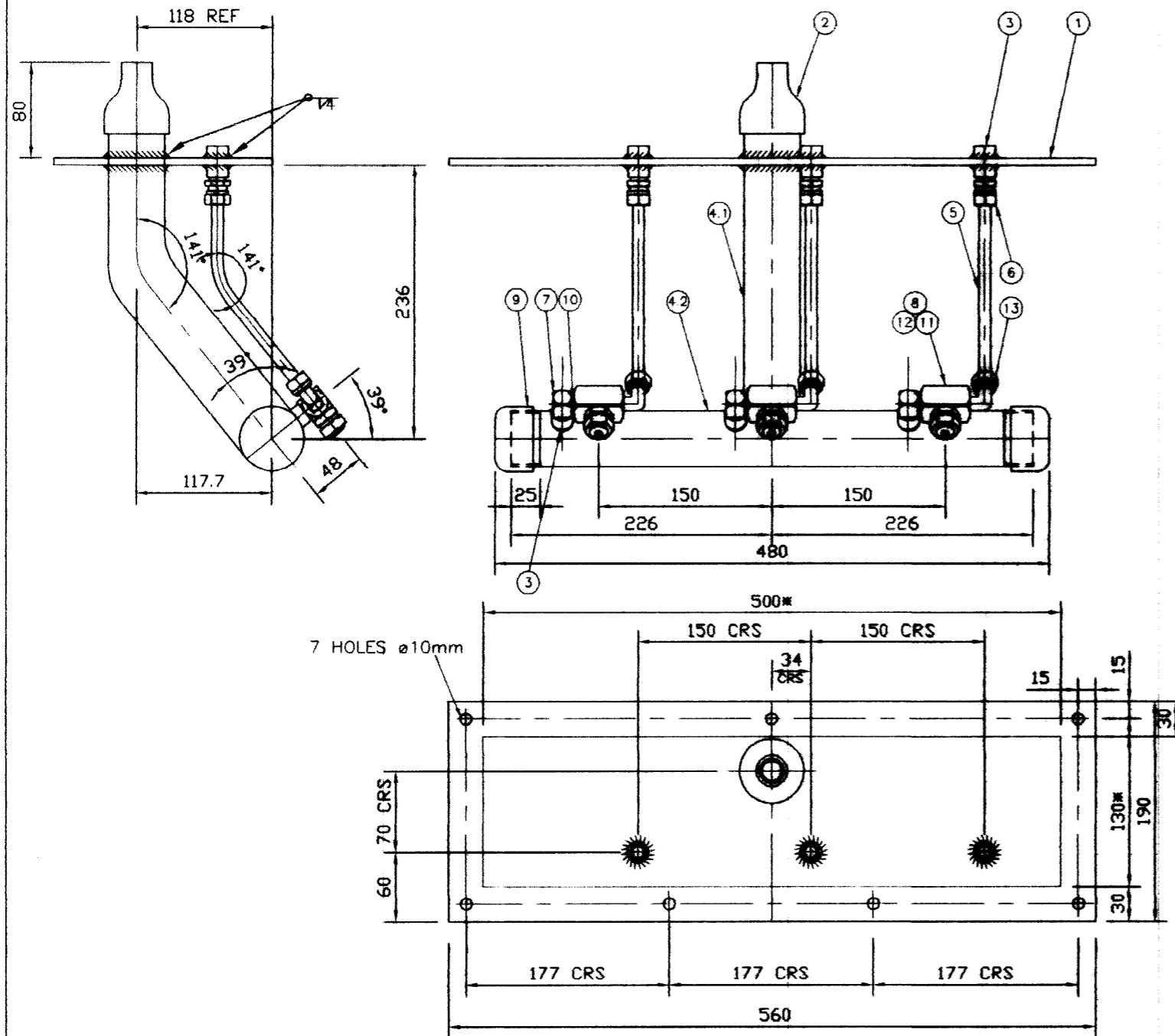
HEC LTD., RANCHI

SCALE

1:2.5

Feb'11

1070.25.030

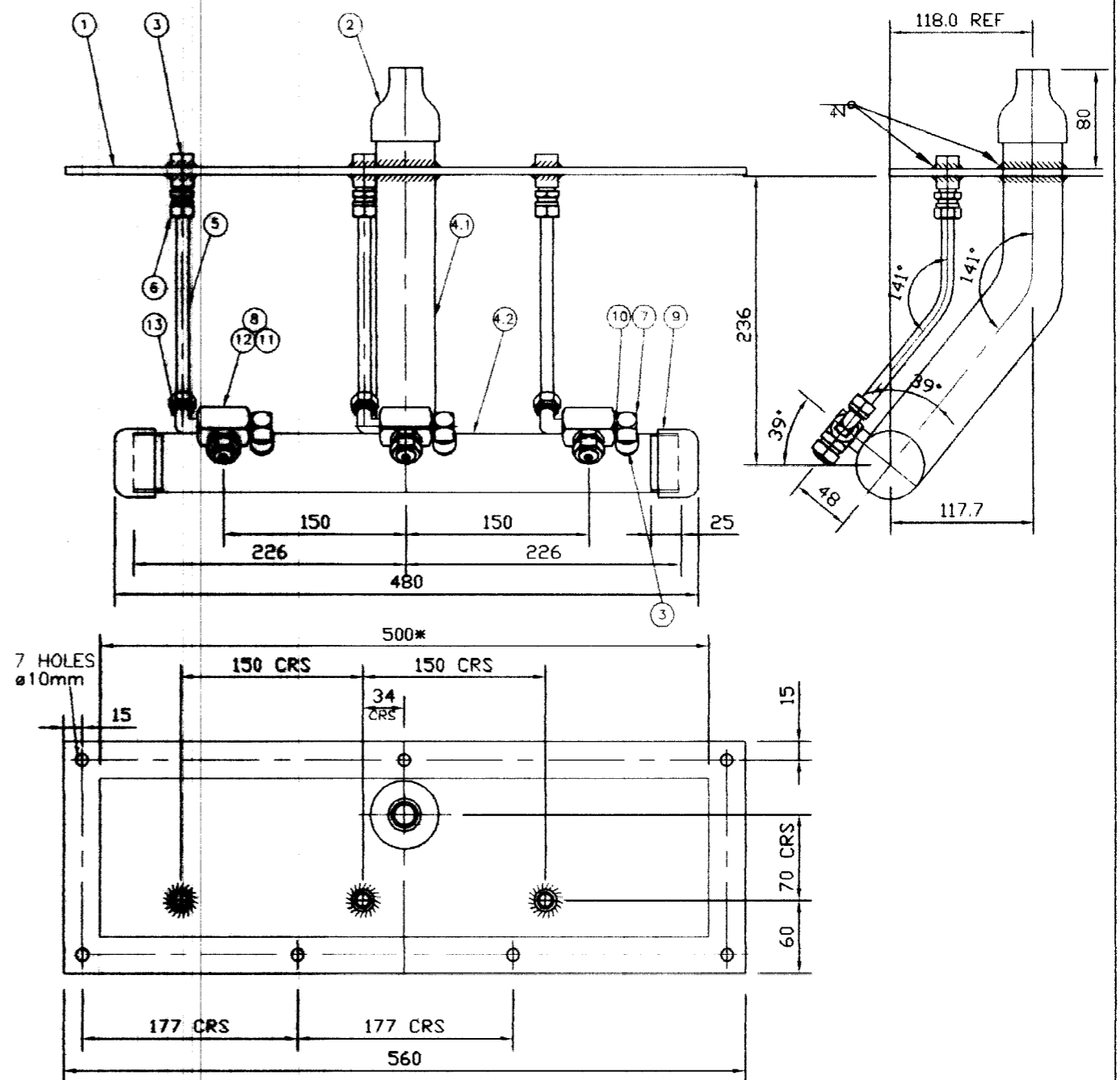


* APERTURE REQUIREMENT ON SITE
TO ENABLE FITTING ON SITE
SPRAY LANCE TYPE 'X'

13	ELBOW 10mm O.D. x 1/4" BSP	3	0.10	0.30
12	NOZZLE BLOCK	3		
11	SPRAY NOZZLE SUB ASSY.	3		
10	NIPPLE RUNNING 1/4" BSP x 20mm LG.	3		
9	CAP 1/4" BSP	2	0.286	0.57
8	GASKET	3		
7	STREET ELBOW 1/4" M x 1/4" F	3	0.08	0.25
6	STRAIGHT CONNECTOR 10 X 1/4" BSP	3	0.047	0.15
5	TUBE COPPER 10mm O.D.	0.55MTRS	0.314	0.18
4.2	PIPE STEEL 1 1/2" N.B.(AIR MANIFOLD)	1	4.05	4.05
4.1	PIPE STEEL 1 1/2" N.B.(AIR SUPPLY PIPE TO MANIFOLD)	0.85MTRS	4.05	3.45
3	SOCKET 1/4" BSP BS1740	3	0.024	0.072
2	SOCKET REDUCING 1 1/2" x 1/2" BSP	1	0.24	0.24
1	PLATE M.S. 6mm THK.	1	5.20	5.20
ITEM	DESCRIPTION	QTY.	WT/Piece in Kg.	Total wt in Kg.

QTY: 2 NOs., ONE OFF EACH HAND REQUIRED
PER MACHINE (1 OFF 'X' & 1 OFF 'Y')

INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE



* APERTURE REQUIREMENT ON SITE
TO ENABLE FITTING ON SITE
SPRAY LANCE TYPE 'Y'



SPRAY LANCE - WALK GEAR
3rd REDUCTION

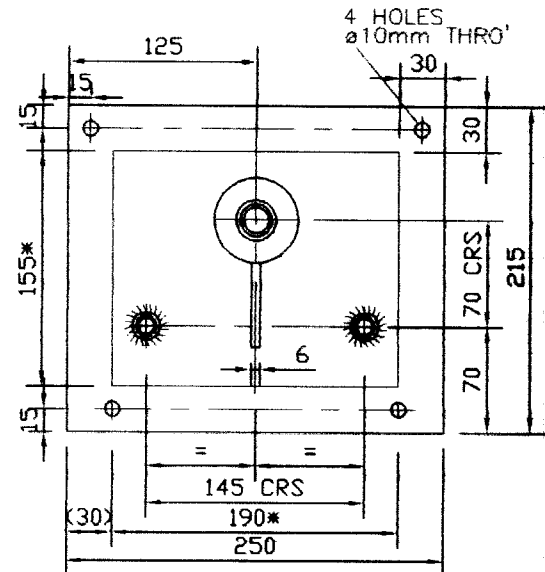
1070.25.030

WEIGHT IN KG-16.00

एच.ई.सी.	BUREAU-CHIEF	R.B.Bhagat	SCALE-	1:5	Feb'11
	GROUP LEADER	R.B.Bhagat			
	DESIGNER	R.B.Bhagat			H.M.B. HEC LTD.,RANCHI
	DRAWN BY	A.P.Toppo			
REF.DRG.NO.					Rev-0

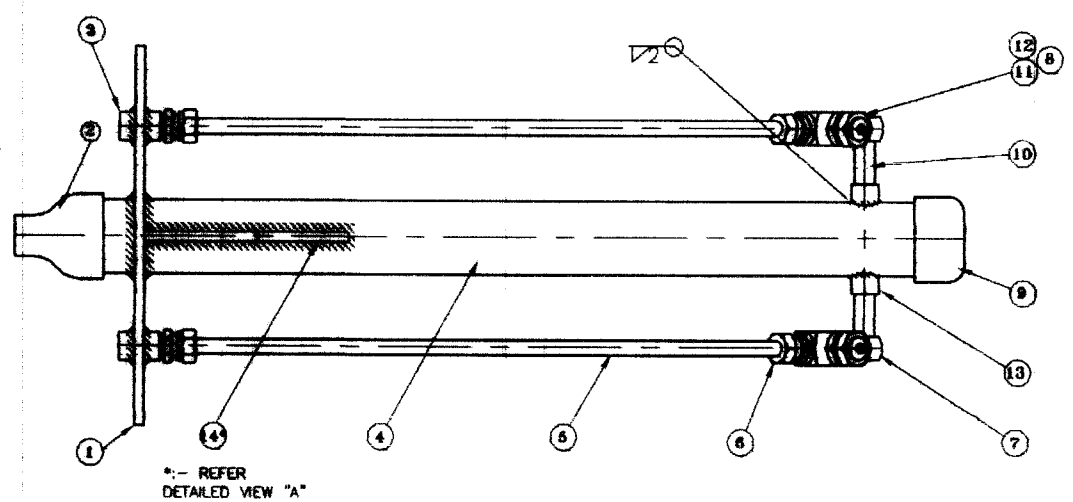
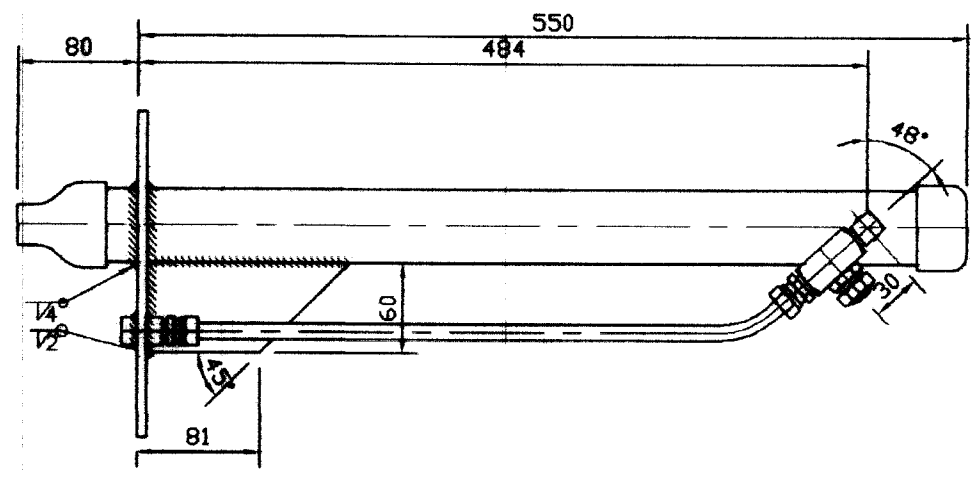
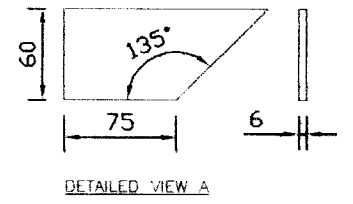
10-3-6712

1070.25.040



* PROPOSED APERTURE DIMENSIONS

14* PIPE SUPPORTING PLATE
Qty:1 No.



14	PIPE SUPPORTING PLATE 135X60X5 THK		0.33	0.33
13	HALF SOCKET 1/4" BSP	2	0.01	0.02
12	NOZZLE BLOCK	2		
11	SPRAY NOZZLE SUB ASSY.	2		
10	NIPPLE BARREL 1/4" BSP	2	0.021	0.042
9	CAP 1 1/2" BSP	1	0.285	0.285
8	GASKET	2		
7	STREET ELBOW 1/4" M x 1/4" F	2	0.08	0.16
6	STRAIGHT CONNECTOR 10 X 1/4" BSP	4	0.047	0.20
5	TUBE COPPER 10mm O.D.	1.2 MTRS	4.05	4.86
4	PIPE STEEL 1 1/2" N.B.	0.6 MTRS	4.05	2.45
3	SOCKET 1/4" BSP	2	0.022	0.044
2	SOCKET REDUCING 1 1/2" x 1/2" BSPT	1	0.24	0.24
1	PLATE M.S. 6mm THK.	0.06MTRS	2.60	2.60
ITEM	DESCRIPTION	QTY.	Wt/piece In kg.	Total wt. In kg.

TOTAL QTY
2Nos.

INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE

SPRAY LANCE - WALK GEAR

2nd REDUCTION

1070.25.040

WEIGHT IN KG.-12.50

एच. ई. सी.	BUREAU-CHIEF	R.B.Bhagat	SCALE-	1:5	Feb'11
	GROUP LEADER	R.B.Bhagat			
	DESIGNER	R.B.Bhagat			
	DRAWN BY	A.P.Toppo			
REF.DRG.NO.					

H.M.B.

HEC LTD., RANCHI

Rev-0

10 - 3 - 6713

INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE

HEC

SPRAY LANCE ASSEMBLY

FOR SWING RACK

WEIGHT IN KG-6.50

1070.25.060

REV. DRG. NO.	DRAWN BY	DESIGNER	GROUP LEADER	BUREAU-CHIEF
	A.P. Toppo	R.B. Bhagat	R.B. Bhagat	R.B. Bhagat

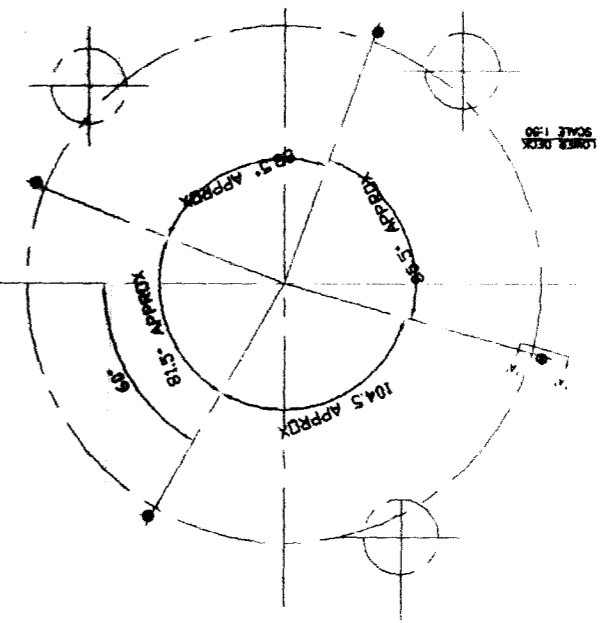
H.M.B.

HEC LTD., RANCHI

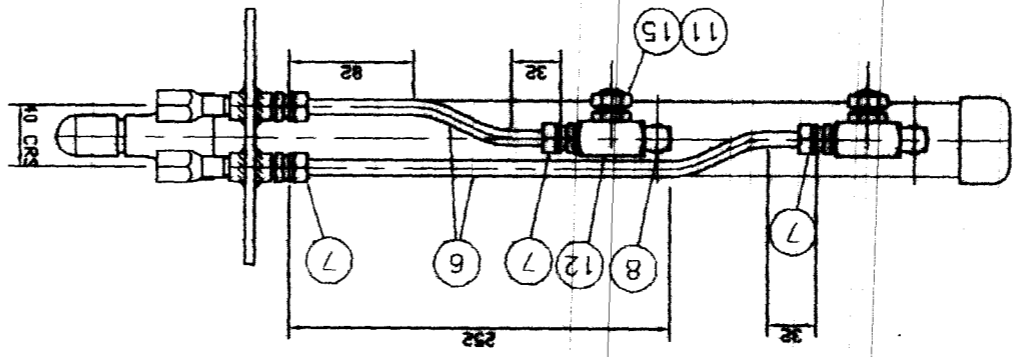
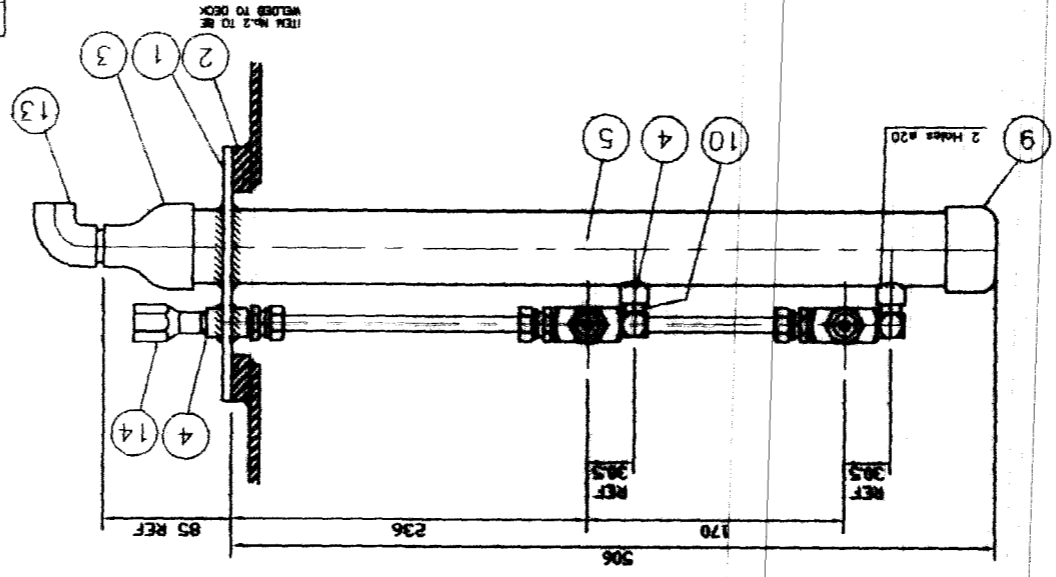
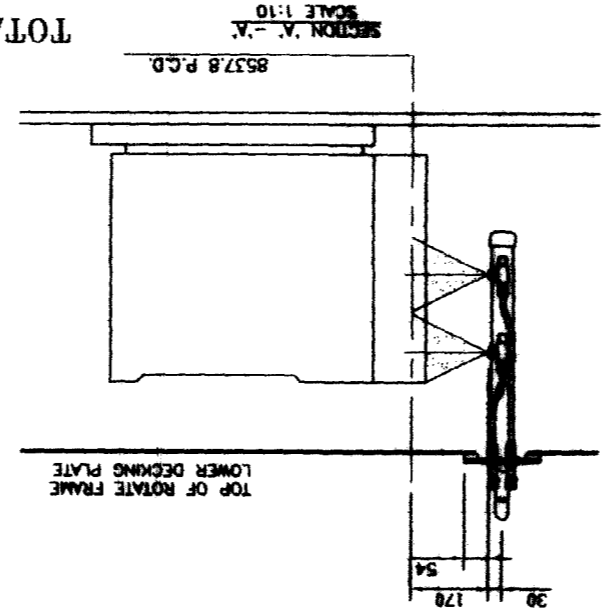
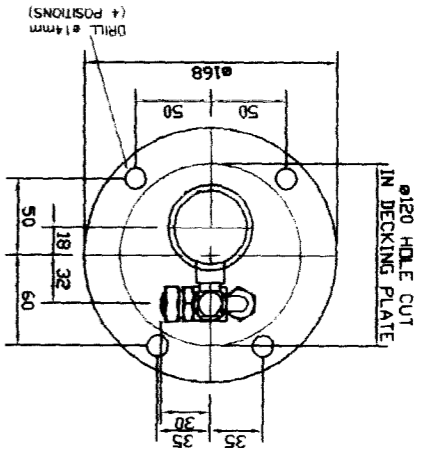
SCALE- 1:2.5

Feb'11

Rev-0



ASSEMBLY'S POSITION AND WORKING:

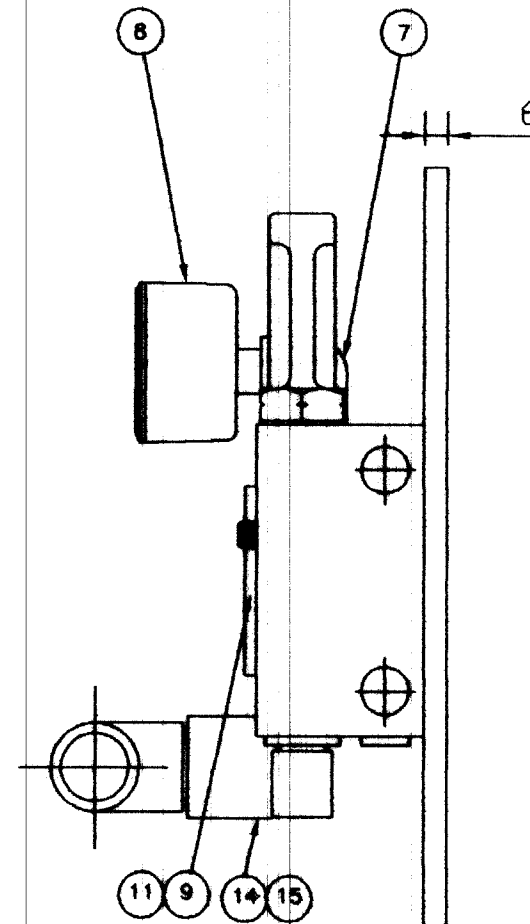
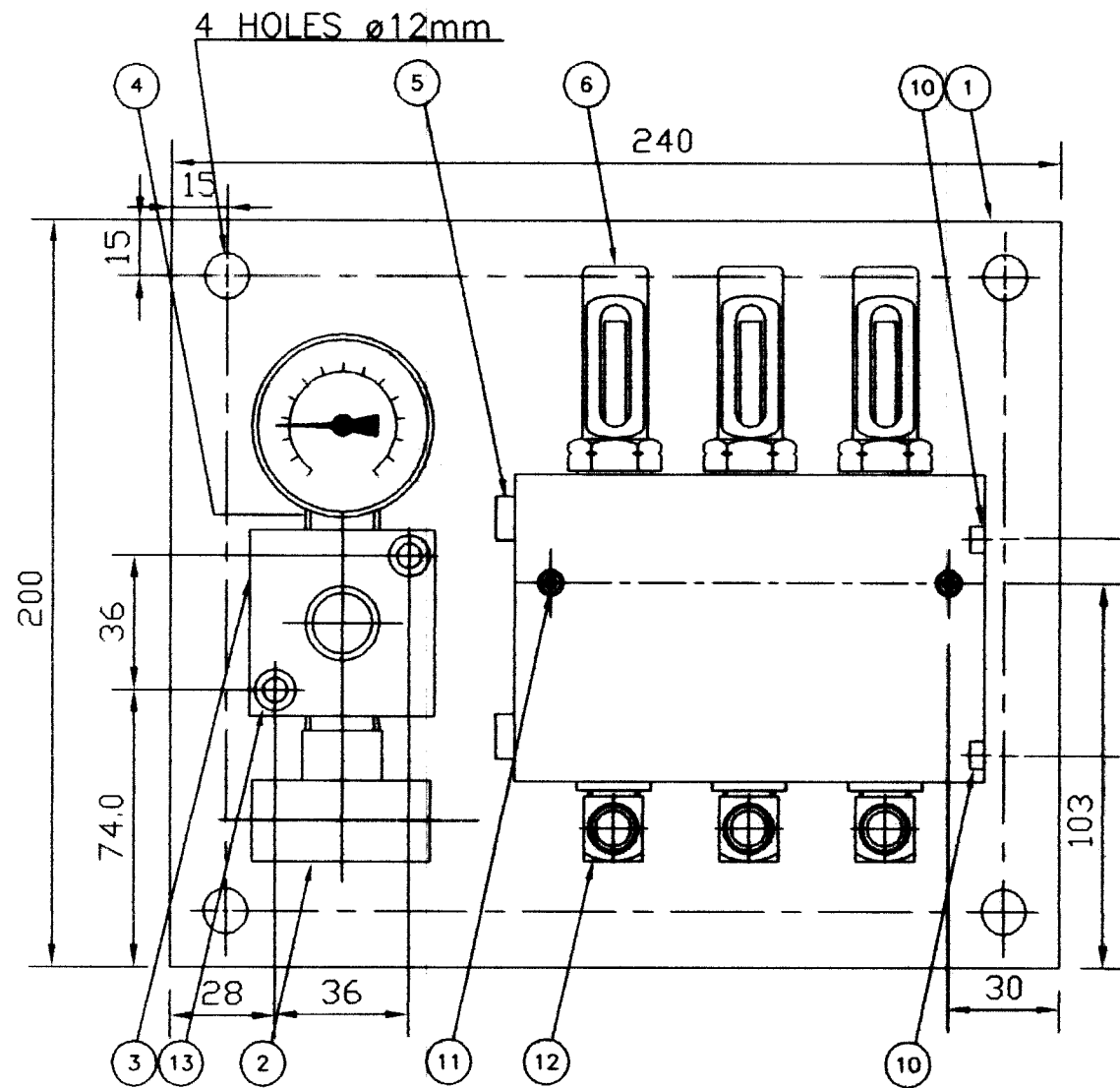


TOTAL QTY.: 4 NOS.

ITEM	DESCRIPTION	QTY.	Wt./piece In kg.	Total Wt In kg.
1	PLATE M.S. BS1501-151-430A 6mm THK.	0.04m	1.10	1.10
2	PLATE M.S. BS1501-151-430A 6mm THK.	0.04m	0.68	0.68
3	SOCKET REDUCING 1 1/2" x 1/2" BSP	1		
4	SOCKET 1/2" BSP BS1740	4		
5	PIPE STEEL 1 1/2" N.B.	0.55m		
6	TUBE COPPER 10mm O.D.	0.50m		
7	STRAIGHT CONNECTOR 10mm O.D 1/4" BSP	4	0.047	0.20
8	STREET ELBOW 1/2" M x 1/2" F	2	0.08	0.16
9	CAP 1 1/2" BSP	1		
10	NIPPLE CLOSE 1/2" BSP	2		
11	SPRAY NOZZLE SUB ASSY.	2		
12	NOZZLE BLOCK	2		
13	ELBOW 1/2" BSP M & F	1		
14	NIPPLE EXTENSION 1/2" BSP(F) x 1/2" BSP(M)	2		
15	GASKET	2		

1070.25.060

1070.25.070



ITEM	DESCRIPTION	QTY.	Wt/Piece in Kg.	Total Wt. in Kg.
15	HEX. NIPPLE 1/4" BSP	1	0.08	0.08
14	ELBOW 1/2" BSP 90° FF	1	0.095	0.095
13	SCREW SKT HD M6 x 50	2		
12	ELBOW STREET 90° 1/4" x 1/4" BSP M/F	3	0.08	0.20
11	SCREW M8 X 55	2		
10	CAP RED POLYTHENE 3/8" BSP	2		
9	DM53 MEASURING VALVE	1	3.40	3.40
8	PRESSURE GAUGE 802M-20A	1	0.30	0.30
7	ELBOW 1/4" BSP F/F	1	0.038	0.038
6	STEM COVER	3		
5	PLUG 3/8" BSP	2	0.034	0.068
4	HEX. RED NIPPLE 1/4" x 1/4" BSP	1	0.09	0.09
3	ANCHOR BLOCK 3-PORT 1/4" BSP	1	0.31	0.31
2	EQUAL TEE 1/4" BSP M/F	1	0.118	0.118
1	PLATE MS BS1501-151-430A 6mm	1	2.35	2.35

QTY : 4NOs.

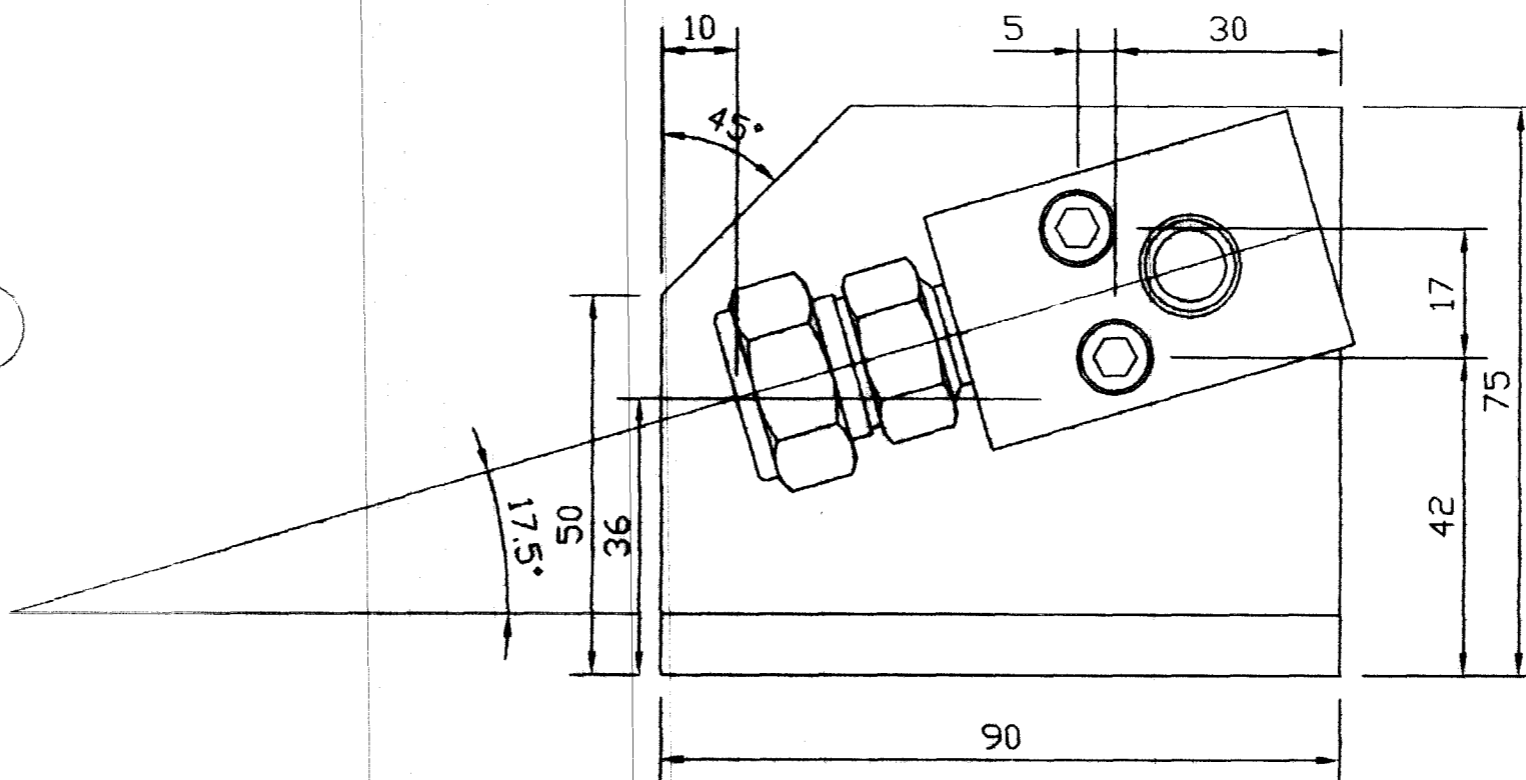
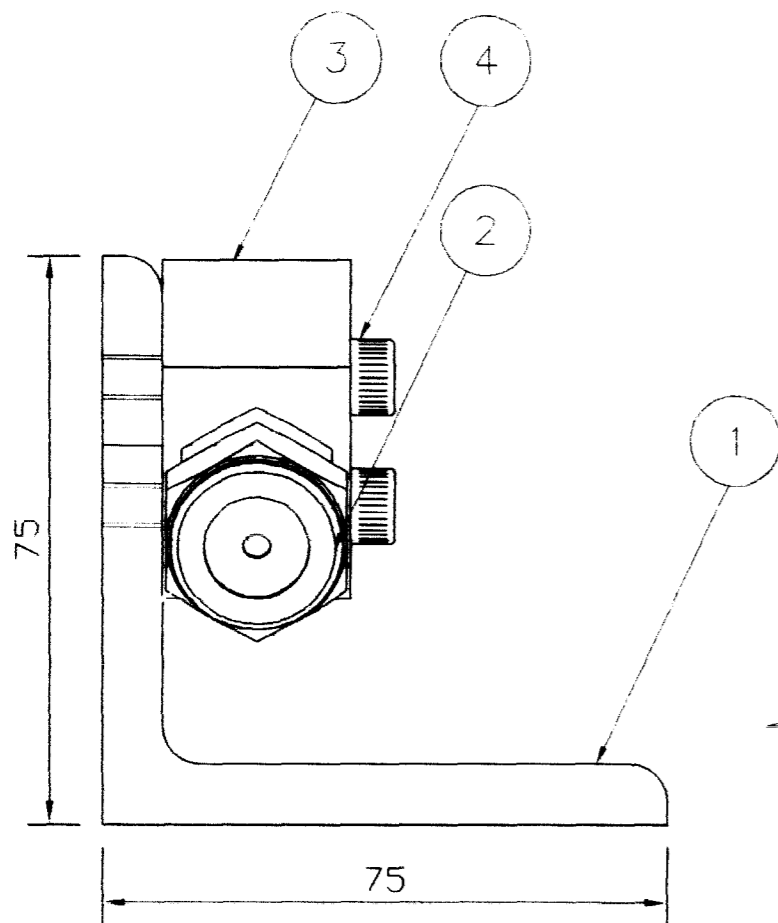
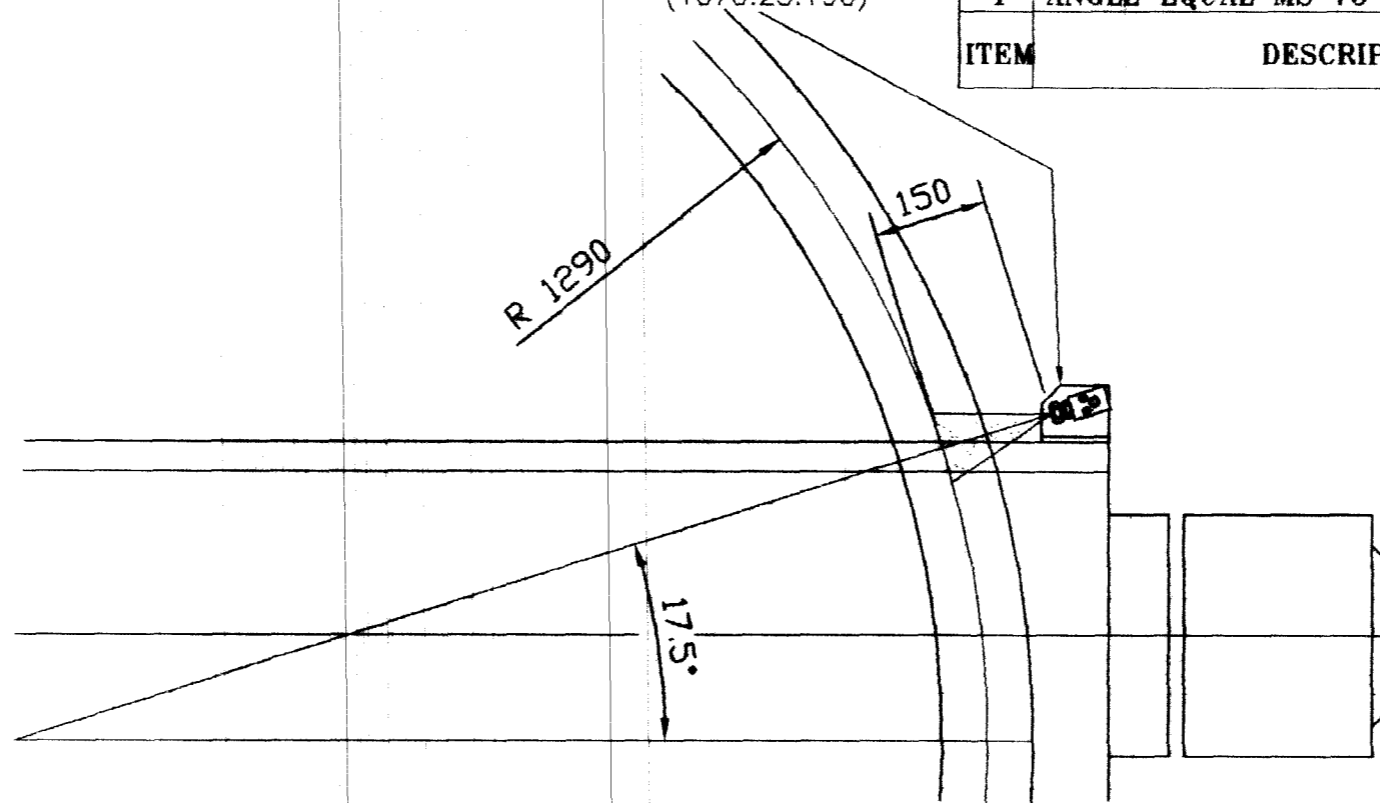
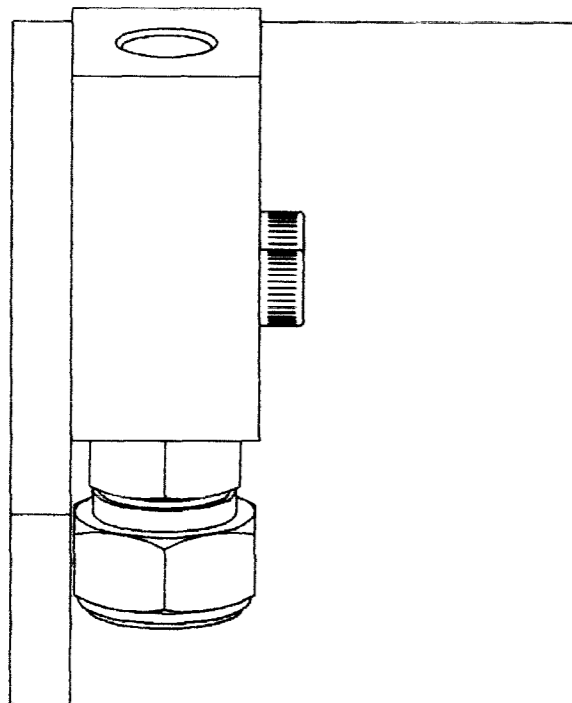
INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE

	VALVE MOUNTING PANEL TO SUPPLY LUBRICANT TO SWING SPRAY LANCES HOIST AND DRAG GEARS		1070.25.070	
			WEIGHT IN KG.-7.50	
एच.ई.सी.	BUREAU-CHIEF	R.B.Bhagat	SCALE- 1:1 H.M.B. HEC LTD.,RANCHI	Feb'11 Rev-0
	GROUP LEADER	R.B.Bhagat		
	DESIGNER	R.B.Bhagat		
	DRAWN BY	A.P.Toppo		
REF.DRG.NO.				

10 - 3 - 6710

FOR DETAILS OF LUBRICATION
SYSTEM SERVING SPRAY NOZZLE
SEE DRAWING
30410-W-PL-0-SP-005
(1070.25.190)

ITEM	DESCRIPTION	QTY.	Wt./piece in kg.	Total wt. in kg.
4	SCREW CAP HEAD M6 x 30 LG. (REDUCE FROM 35mm)	2		
3	BLOCK ANCHOR 1/4" BSPT	1		
2	SPRAY NOZZLE (1/4TT BRASS 4916 15-100 MESH)	1		
1	ANGLE EQUAL MS 75 x 8	1		



QTY: 1 NO.

INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE



SPRAY NOZZLE ASSLY &
MOUNTING BRACKET (L.H.)

1070.25.080
Sheet 1 of 2

WEIGHT IN KG.-1.35

एच. ई. सी.

BUREAU-CHIEF	R.B.Bhagat
GROUP LEADER	R.B.Bhagat
DESIGNER	R.B.Bhagat
DRAWN BY	A.P.Toppo

[Signature]

SCALE- 1:1

H.M.B.

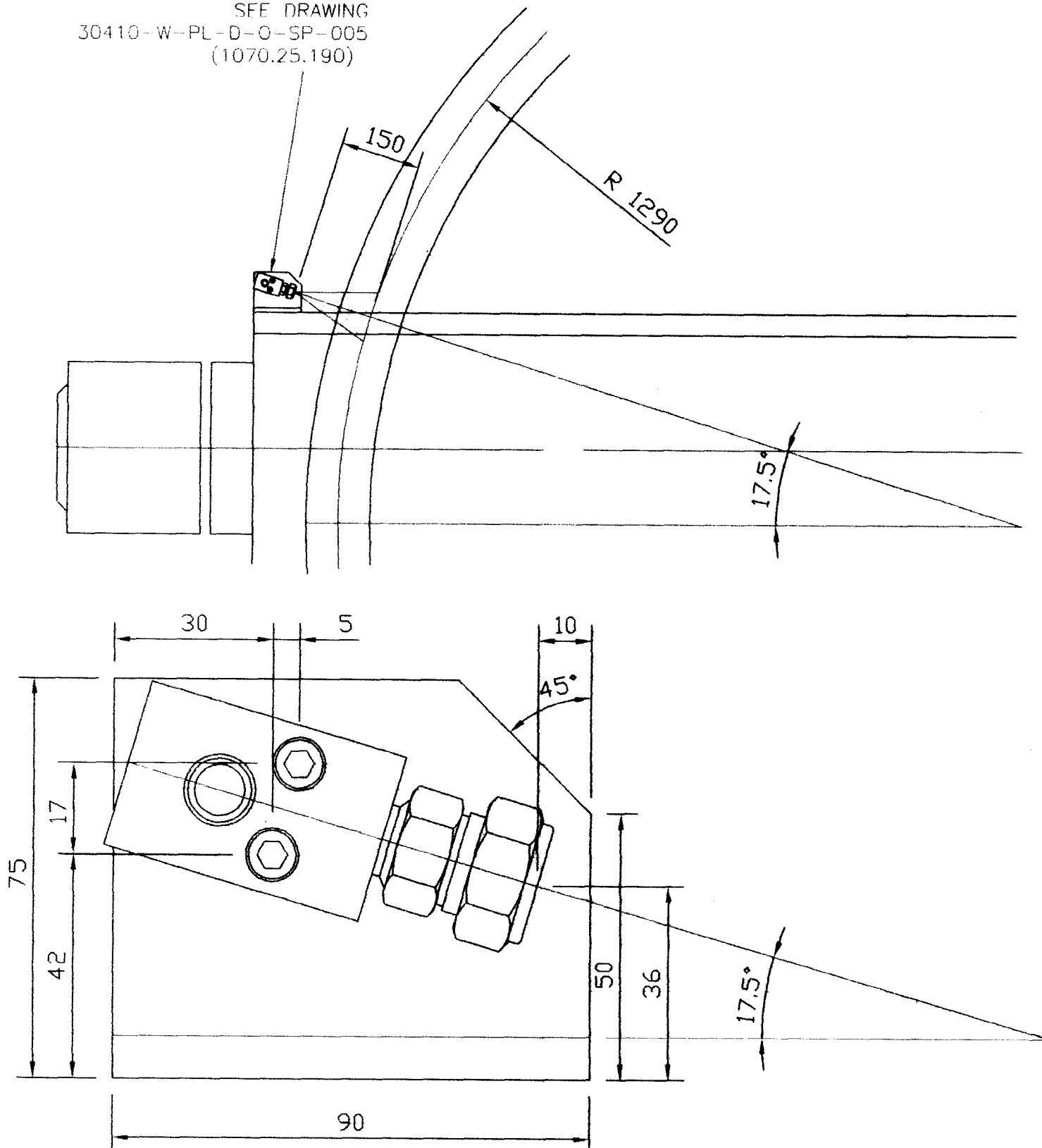
HEC LTD.,RANCHI

Feb'11

Rev-0

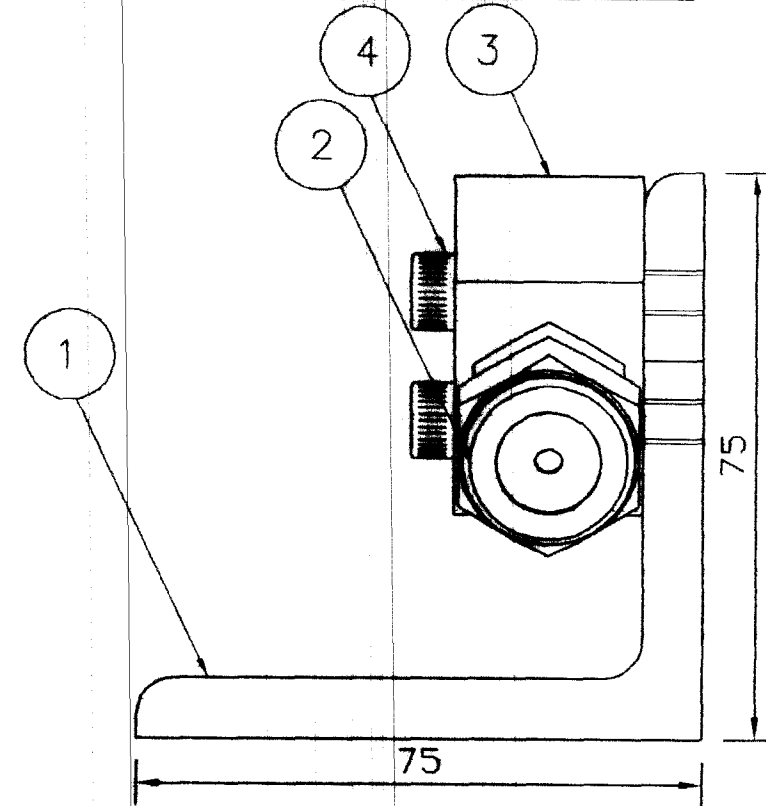
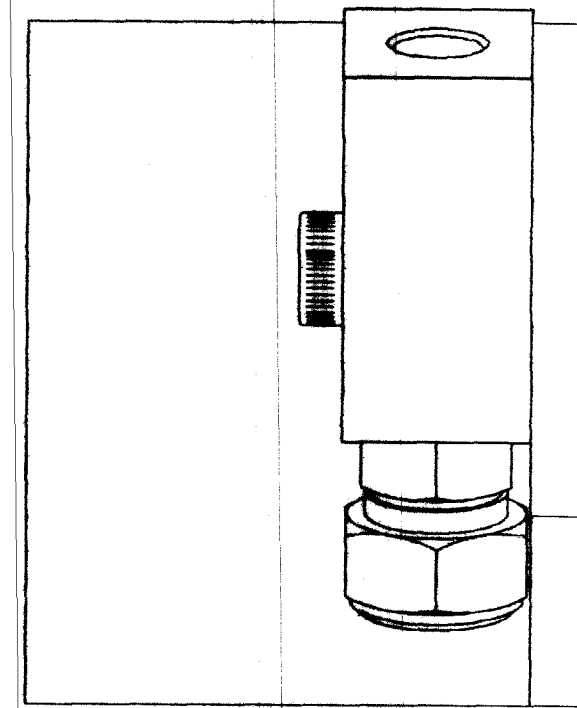
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FOR DETAILS OF LUBRICATION
SYSTEM SERVING SPRAY NOZZLE
SEE DRAWING
30410-W-PL-D-O-SP-005
(1070.25.190)

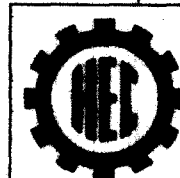


QTY: 1 NO.

INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE



ITEM	DESCRIPTION	QTY.	Wt/piece in kg.	Total wt. in kg.
4	SCREW CAP HEAD M6 x 30 LG. (REDUCE FROM 35mm)	2		
3	BLOCK ANCHOR 1/4" BSPT	1		
2	SPRAY NOZZLE (1/2" TT BRASS 4916 15-100 MESH)	1		
1	ANGLE EQUAL MS 75 x 8	1		



एच.ई.सी.

SPRAY NOZZLE ASSLY &
MOUNTING BRACKET (R.H.)

1070.25.080
Sheet 2 of 2

WEIGHT IN KG.-1.35

REF.DRG.NO.

BUREAU-CHIEF	R.B.Bhagat
GROUP LEADER	R.B.Bhagat
DESIGNER	R.B.Bhagat
DRAWN BY	A.P.Toppo

SCALE- 1:1

H.M.B.

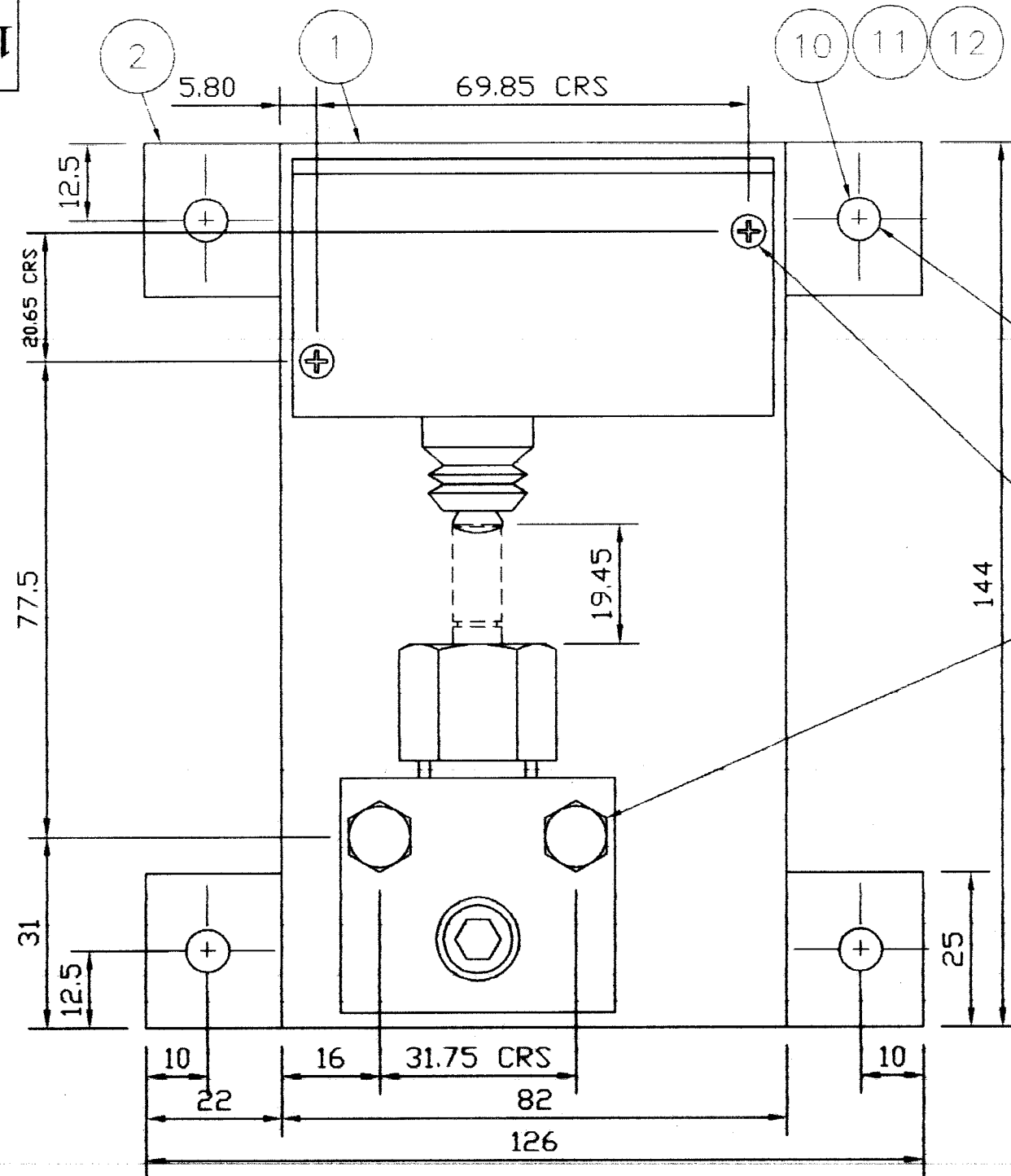
HEC LTD.,RANCHI

Feb'11

Rev-0

10-3-6706

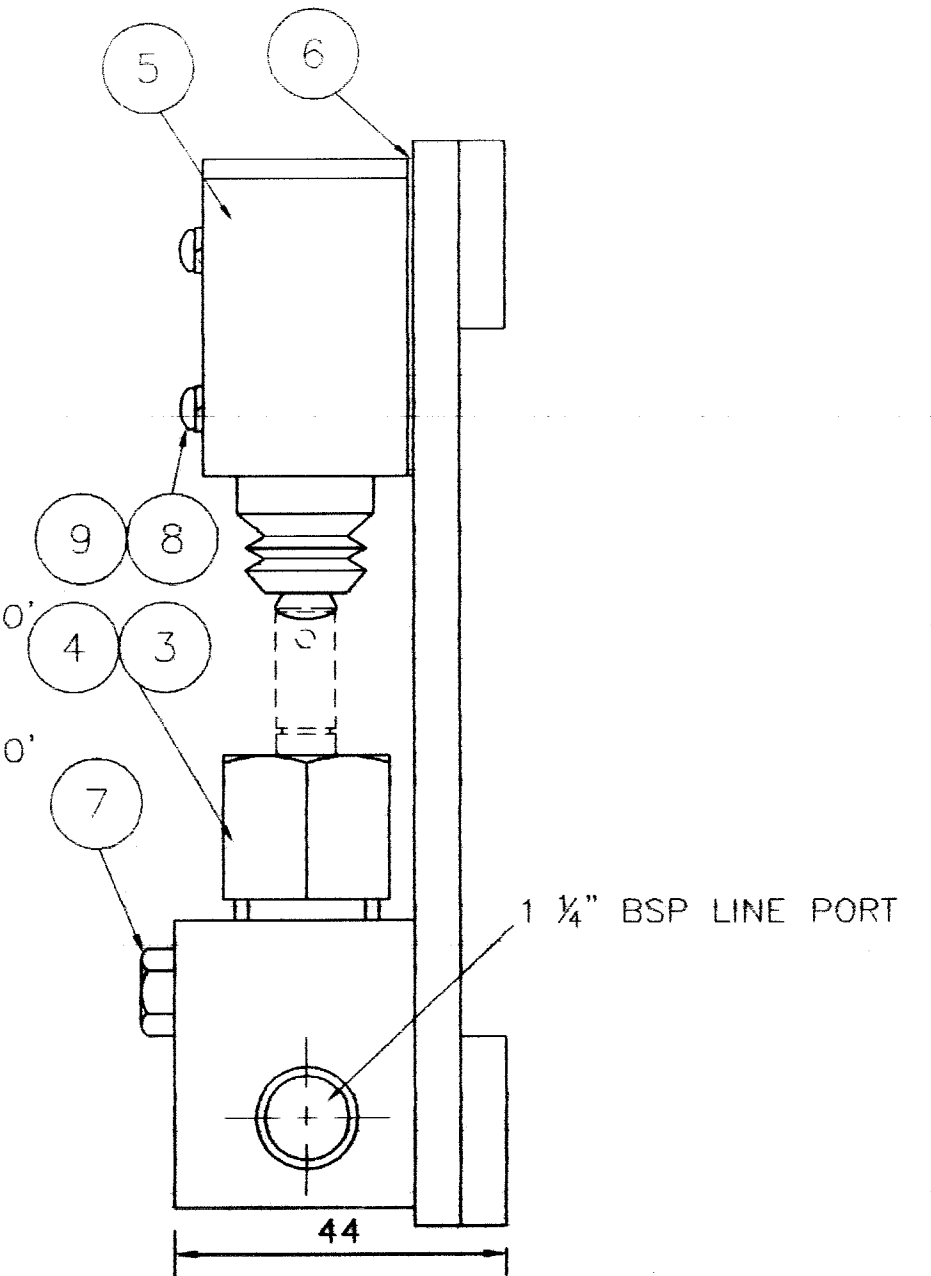
1070.25.090



DRILL ø7.0mm THRO'
(4 POSITIONS)

DRILL & TAP M3 THRO'
(2 POSITIONS)

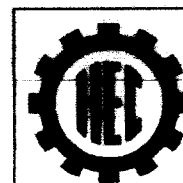
DRILL & TAP M6 THRO'
(2 POSITIONS)



ITEM	DESCRIPTION	QTY.	Wt./piece in kg.	Total Wt. in kg.
12	MOUNTING PAD 126 x 25 x 1/2THK	2		
11	WASHER M6	4		
10	SCREW M6 x 20 LG	4		
9	WASHER SPRING M3	2		
8	SCREW RD RD M3 x 40 LONG	2		
7	SET SCREW M6 x 40 LONG	2		
6	SHIM 0.8mm THICK	0.003m		
5	MICRO SWITCH 4BRM/510	1		
4	RUPTURE DISC (BLUE)	1		
3	HIGH PRESSURE INDICATOR	1		
2	STRIP 25 x 6 NSF	0.26m		
1	PLATE MS 6mm BS4360-43A	0.02m		

INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE

QTY NOS.: 4
2 FOR DRAG ROPE
2 FOR HOIST ROPE
WEIGHT IN kgs.: 2



PANEL FOR BURGESS MICRO SWITCH/HIGH PRESSURE INDICATOR

1070.25.090

WEIGHT IN KG.-1.35

एच.ई.सी.

BUREAU-CHIEF **R.B.Bhagat**
GROUP LEADER **R.B.Bhagat**
DESIGNER **R.B.Bhagat**
DRAWN BY **A.P.Toppo**

SCALE- 1:1

H.M.B.

HEC LTD.,RANCHI

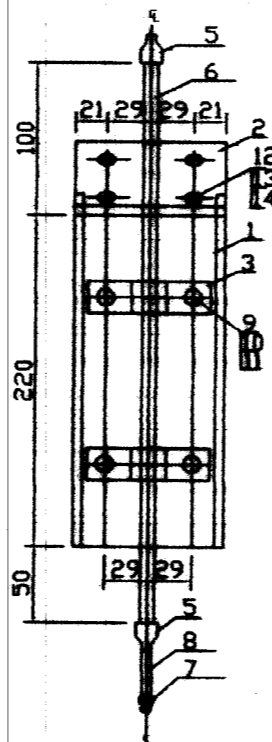
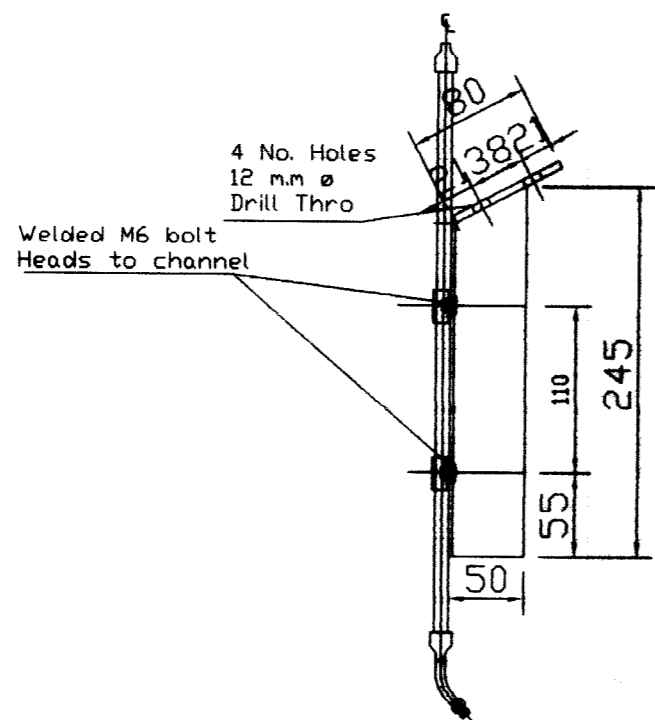
Feb'11

Rev-0

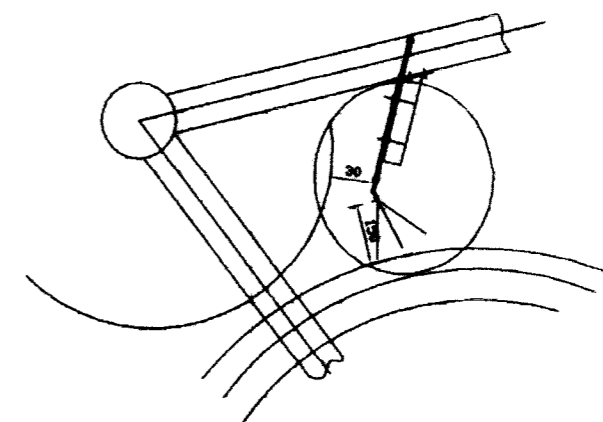
10-3-6702

1070.25.100

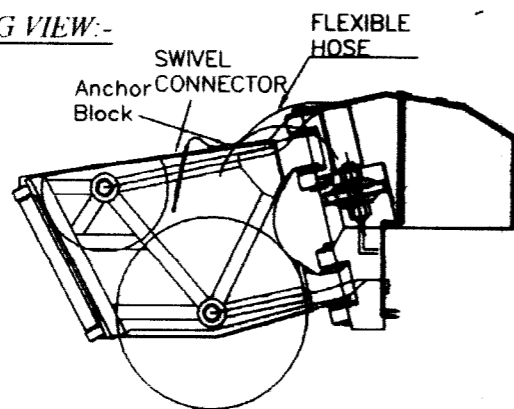
DETAIL OF NOZZLE:-



POSITION OF NOZZLE AND SPRAY:-



WORKING VIEW:-



14	Washer Spring M10	4		
13	Nut M10	4		
12	Bolt M10	4		
11	Washer Spring M6	4		
10	Nut M6	4		
9	Bolt M6	4		
8	Elbows - 45° M I 1/4" B.S.P.	1		
7	Spray Nozzle 1/4" T.T 491 Disc W100 Mesh Screen (Spraying System)	1		
6	Pipe 3/8" Steel	0.4MTRS		
5	Socket-Reducing M.I 3/8" x 1/4" B.S.P.	2		
4				
3	3/8" pipe clip	0.25MTRS		
2	Plate - 8 mm M.s	0.03 m ²		
1	Channel - 100x50x6	0.25MTRS		
S.N	DESCRIPTION	QTY.	Wt./piece in kg.	Total wt. in kg.

QTY: 2 NOS.

INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE



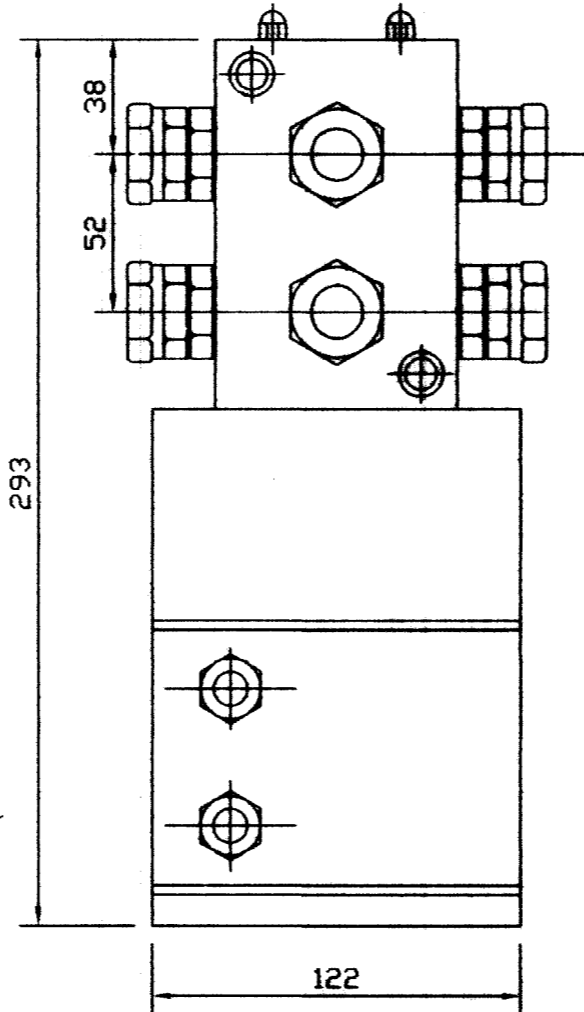
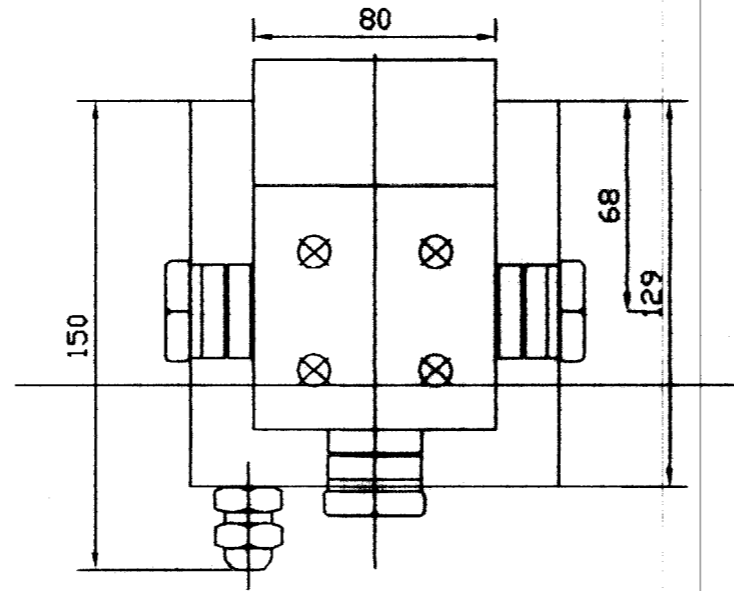
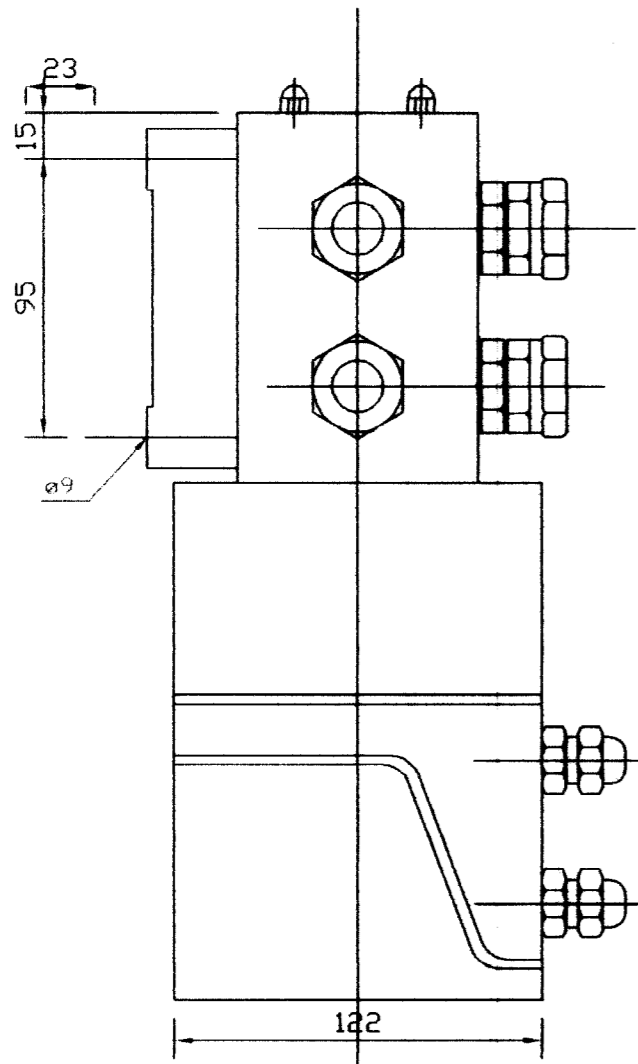
SPRAY NOZZLE ASSLY FAIRLEAD 1070.25.100
DRAG ROPE LUBRICATION
 WEIGHT IN KG.-3.50

एच.ई.सी.	BUREAU-CHIEF	R.B.Bhagat	SCALE-	1:5	Feb'11
	GROUP LEADER	R.B.Bhagat			
	DESIGNER	R.B.Bhagat			H.M.B. HEC LTD.,RANCHI
	DRAWN BY	A.P.Toppo			
REF.DRG.NO.					Rev-0

10-3-6703

1070.25.111

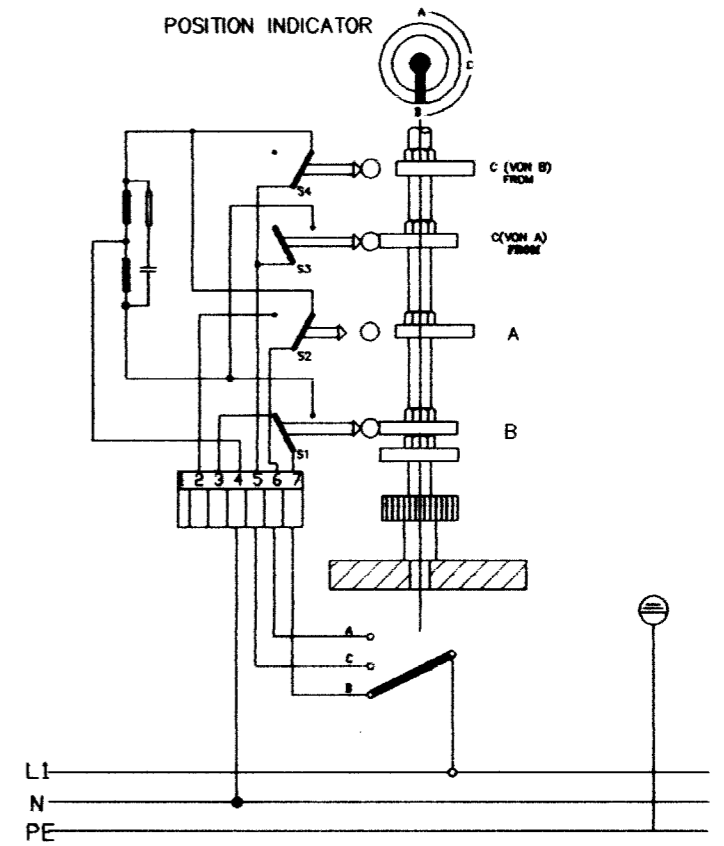
MOTORIZED CHANGE OVER VALVE - Type VDD




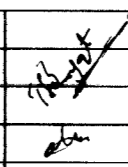
WIRING DIAGRAM:-

OPERATING VOLTAGE: 230V AC SINGLE PHASE

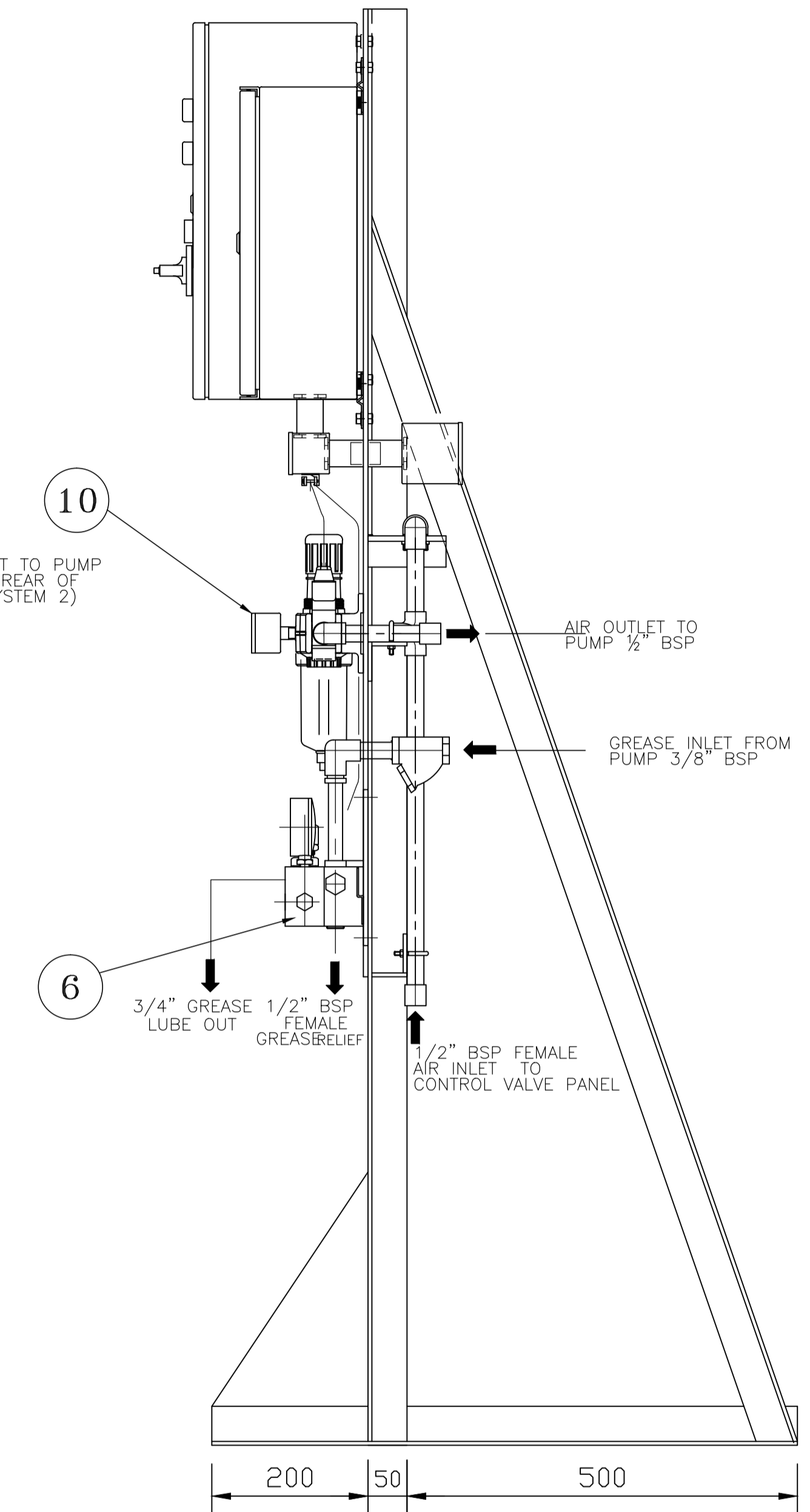
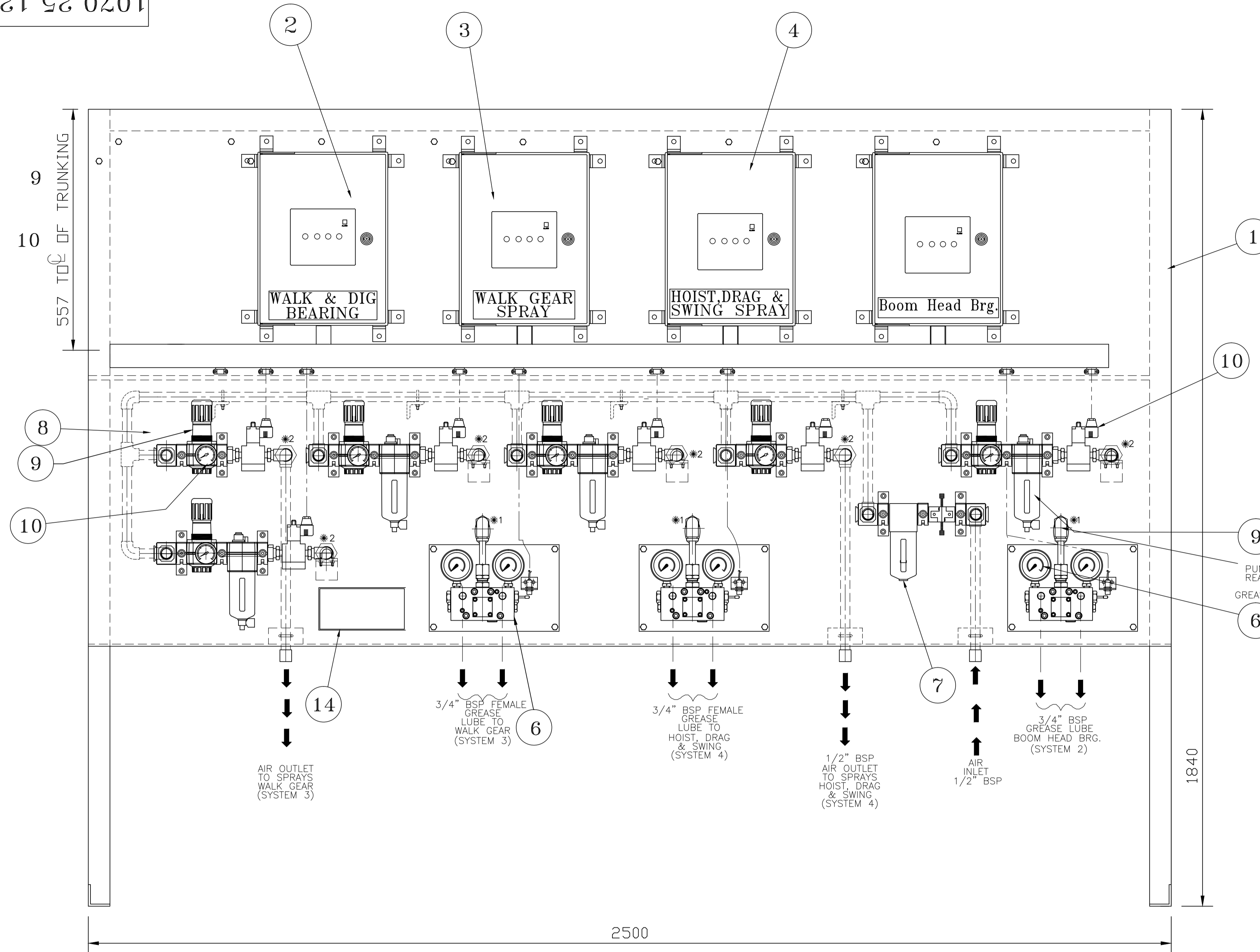
POSITION INDICATOR



INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE

 एच.ई.सी.	MOTORIZED CHANGE OVER VALVE		1070.25.111	
			WEIGHT IN KG.-9.00	
BUREAU-CHIEF	R.B.Bhagat		SCALE- 1:5	
GROUP LEADER	R.B.Bhagat		Feb'11	
DESIGNER	R.B.Bhagat		H.M.B.	
DRAWN BY	A.P.Toppo	HEC LTD.,RANCHI		Rev-0
REF.DRG.NO.				

10-3-6701

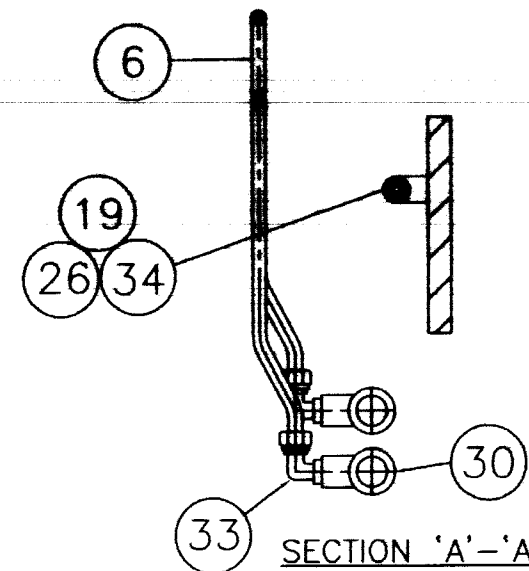
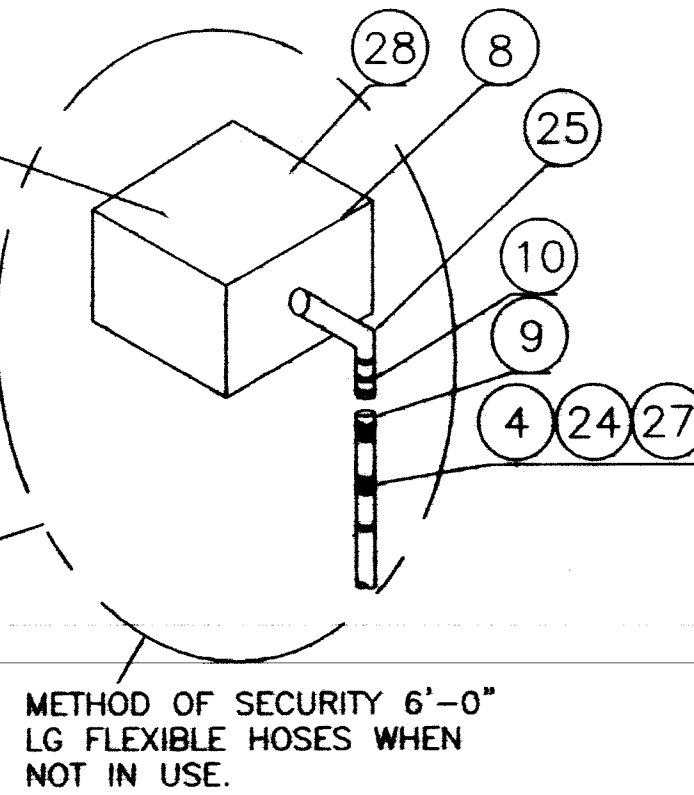
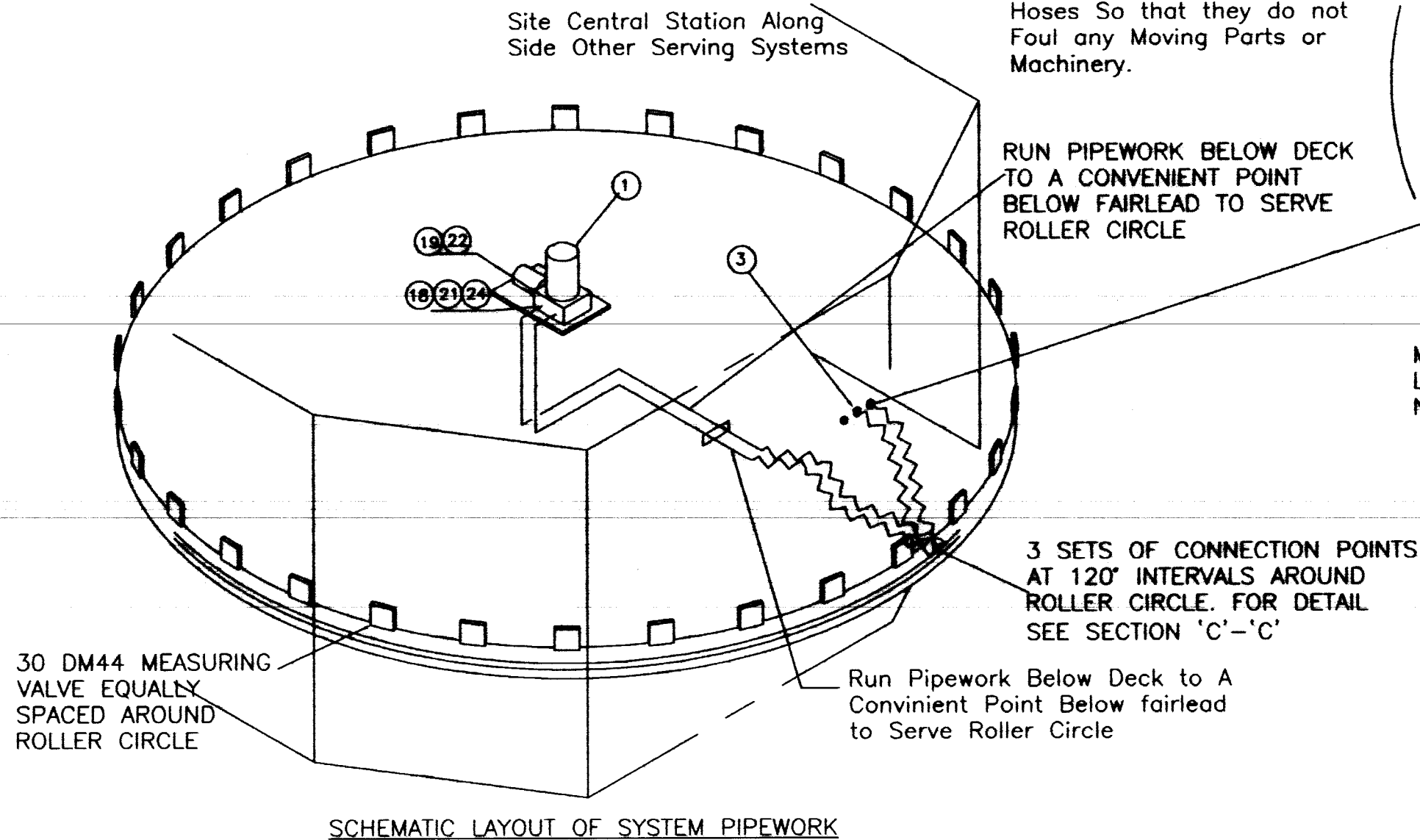
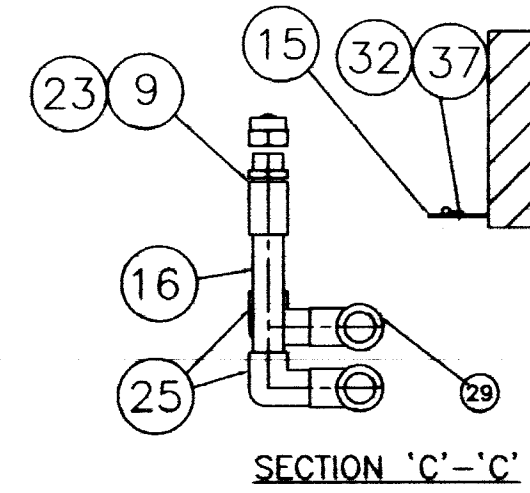
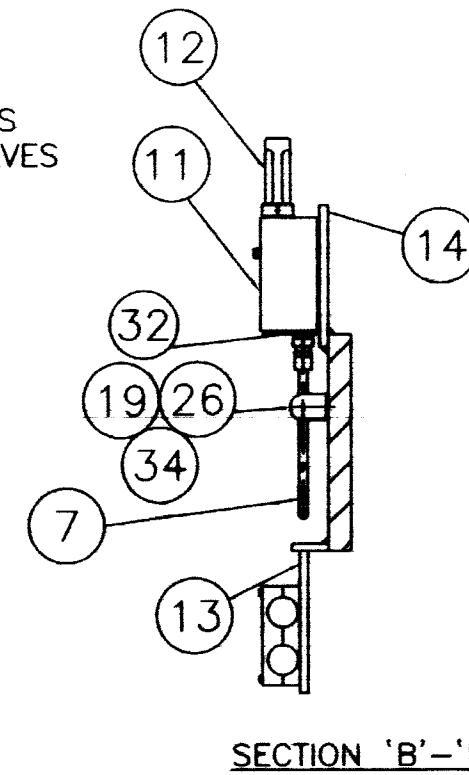
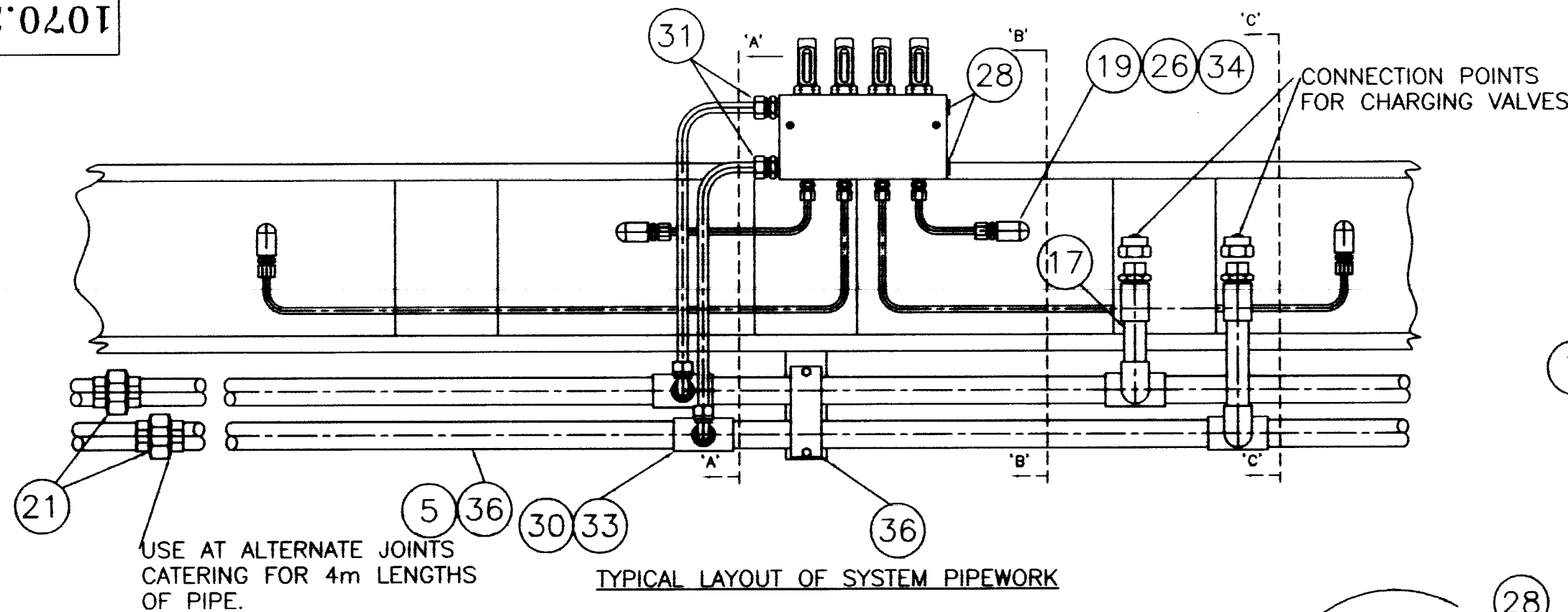


END ELEVATION ON PANEL
(ANGLE ON SIDE REMOVED FOR CLARITY)

10	3/2 WAY VALVE SOLENOID 110V AC 1/2" BSP WITH LEVER OPTD. MANUAL OVER RIDE WITH LOCK PROVISION.	4107525120-10	6
9	ASLY. REGULATOR & LUBRICATOR 1/2" BSP	4107525120-9	4
8	ASSLY REGULATOR 1/2" BSP	4107525120-8	2
7	ASSLY 1/2" FILTER WITH SHUT OFF VALVE	4107525120-7	1
6	ASSEMBLY DR4 & PROXISTOR	4107525120-6	3
4	LOCAL CONTROL POST FOR SYSTEM 2	4107525120-4	1
3	LOCAL CONTROL POST FOR SYSTEM 3 & 4	4107525120-3	2
2	LOCAL CONTROL POST FOR SYSTEM 1	4107525120-2	1
1	COMPLETE CONTROL VALVE PANEL ASSLY	4107525120	1
ITEM	DESCRIPTION	PART NO.	QTY

INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE

	CONTROL PANEL FOR LUBE SYSTEM		1070.25.120	
			WEIGHT IN KG.-335.00	
BUREAU-CHIEF GROUP LEADER DESIGNER DRAWN BY REF.DRG.NO.	R.B.Bhagat R.B.Bhagat R.B.Bhagat A.P.Toppo	SCALE- 1:2	H.M.B. HEC LTD.,RANCHI	Feb'11 Rev-0



S.NO	Drq. no.	DESCRIPTION	MTRL.	QTY.	WT/PIECE In kg.	TOTAL WT. In kg.	Remarks
37	----	10mm TUBE CLAMP P.P STAFF	P.P	20	0.02	1.00	
38	----	1/2" NB PIPE CLAMP P.P STAFF	P.P	100	0.12	12.00	
35	1070.25.302	ELECTRIC CONTROL PANEL		01	10.00	10.00	No drg.
34	----	6MM X 1/4" MALE CONNECTOR	C.S	140	0.04	5.60	
33	----	10MM X 3/8" BSP MALE ELBOW	C.S	70	0.08	5.60	
32	----	TUBE CLIP U 30MM 6MM	C.S	60	0.01	0.60	
31	----	10 MM X 3/8" BSP MALE CONNECTOR	C.S	70	0.08	5.60	
30	----	TEE REDUCING 1/2" X 3/8" BSP	C.S	70	0.10	7.00	
29	----	1/2" BSP EQUAL TEE	C.S	08	0.118	0.944	
28	----	PLUG 3/8" BSP	C.S	08	0.054	0.432	
27	----	BUSH 3/8" X 1/4" BSP	C.S	02	0.018	0.036	
26	----	ELBOW FF 90° M 1 1/4" BSP	C.S	120	0.028	3.36	
25	----	ELBOW FF 90° M 1 1/2" BSP	C.S	20	0.08	1.60	
24	----	HOSE HIPPLE 1/2" X 3/8"	C.S	08	0.08	0.64	
23	----	SOCKET 1/2" BSP	C.S	10	0.063	0.63	
22	----	SOCKET REDUCING 1/2" X 1/4" BSP	C.S	02	0.085	0.17	
21	----	UNION FF M 1/2" BSP	C.S	20	0.141	2.82	
20	----	HEX HIPPLE 1/2" X 3/8" BSP	C.S	02	0.08	0.16	
19	----	SWIVEL HIPPLE 1/4" BSP L=60mm	C.S	130	0.058	7.54	
18	----	SWIVEL HIPPLE 1/2" BSP L=60	C.S	01	0.010	0.010	
17	----	EXTENSION HIPPLE 1/2" BSP X 2 1/2" LG	C.S	03	0.10	0.30	
16	----	EXTENSION HIPPLE 1/2" BSP X 4 1/2" LG	C.S	03	0.15	0.45	
15	----	BRACKET TUBE 40x30x LG 80 80	STEEL	08	0.05	0.40	
14	----	BRACKET MEASURING VALVE SUPPORT	STEEL	30	0.30	9.00	
13	----	BRACKET 1/2" NB PIPE SUPPORT	STEEL	30	0.02	0.60	
12	----	STEM COVER DM40	PLASTIC	120	0.001	0.12	
11	----	MEASURING VALVE DM44 C/W BASE PLATE & MOUNTING SCREWS		30	1.7730	53.19	
10	----	PLUG QUICK RELEASE SELF SEALING 1/2" BSP	C.S	08	0.10	0.80	
9	----	QUICK RELEASE COUPLING 1/2" BSP	C.S	08	1.50	12.00	
8	----	ANCHOR BLOCK U1927C 3/8" BSP		02	0.40	0.80	
7	----	6mmx1 OD TUBE C.S;DN 2391	C.S	80 MTRS	0.123	9.84	
6	----	10mmx1.5 OD TUBE C.S;DN 2391	C.S	40 MTRS	0.314	12.56	
5	----	STEEL PIPE 1/2" NB TO BS1740	C.S	110 MTRS	1.62	178.20	
4	----	FLEXIBLE HOSES 1/2"x6'-0" LG C/W END CONNECTORS SAE100R1		02	2.30	4.60	
3	1070.25.301	PUSH BOTTON (LOCATE ADJUSTMENT TO FLEX HOSES)		01	0.001	0.001	No drg.
1	1070.25.007	Grease Pump station with 30Litrs RESERVOIR AND 415 V 3 PH. 50 Hz GEARED MOTOR 0/L : 3/8" BSP MAX PR. 400 BAR.		01	80.00	80.00	

NOTE:

1.PIPES ARE TO BE CLAMPED SUITABLY AT EQUAL INTERVALS OF 1.2M

INDEX	NO.	DESCRIPTION	REVISION	SIGNATURE	DATE

HEC

LAYOUT OF PIPE WORK SERVING ROLLER CIRCLE BEARING 1070.25.300

WEIGHT IN KG.-450.00

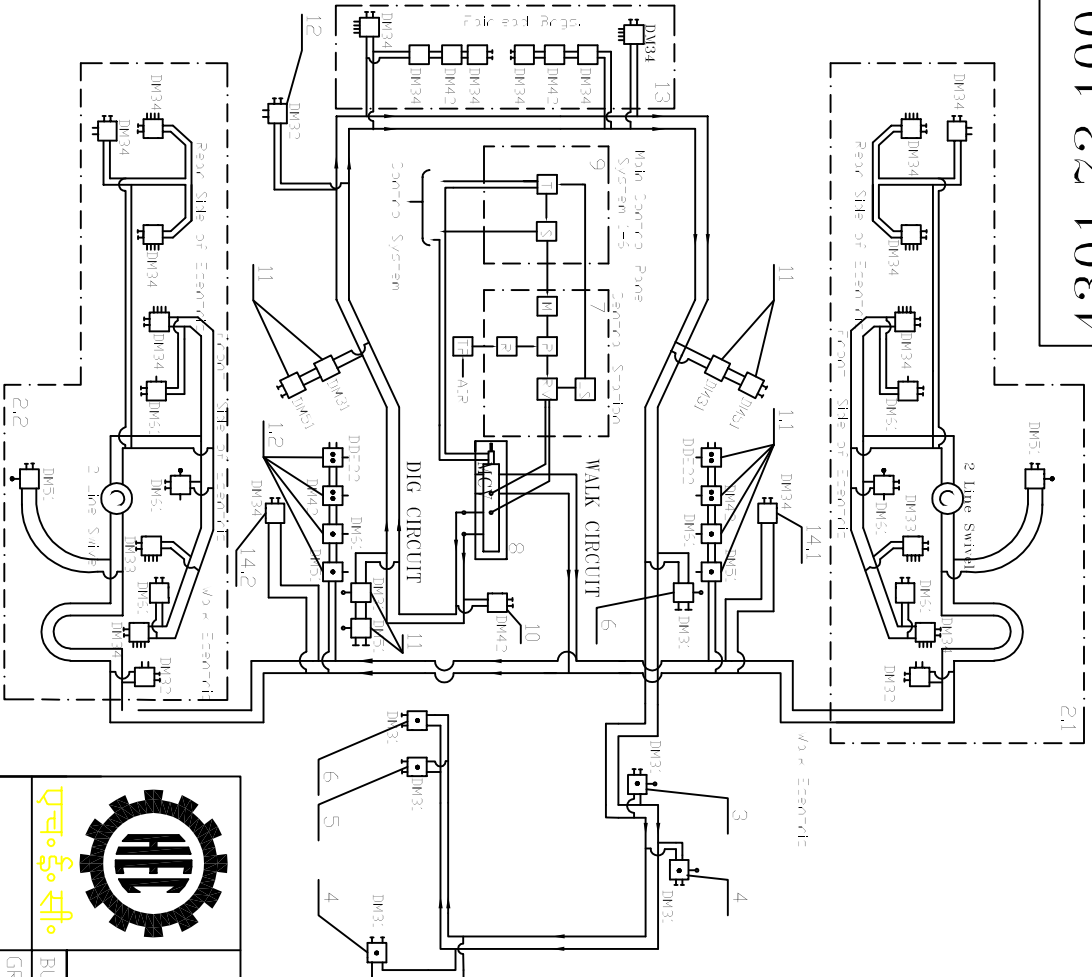
SCALE- 1:5

BUREAU-CHIEF R.B.Bhagat
 GROUP LEADER R.B.Bhagat
 DESIGNER R.B.Bhagat
 DRAWN BY A.P.Toppo

H.M.B.
 HEC LTD.,RANCHI

Feb'11
 Rev-0

4301.72.100



Technical Instruction

System 1 is an automatic dual line, PLC controlled, grease lubrication system which serves a total 113 points distributed between the walk and dig machinery. A motorised change-over valve directs lubricant to the walk or dig machinery as required by the control system.

The timeclock comprises two 'interval' timers, one for each circuit, and a common 'signal' timer. When the selected 'interval' timer expires, the motor starter closes, the 'signal' timer starts running and the 'interval' timer resets. Pumping continues through the selected lubrication circuit, via the change-over valve, until the return pressure has increased sufficiently to operate the reversing valve. Operation of the limit switch stops the pump and restarts the 'interval' timer.

Key:-

- 1.Walk gear Box (LH & RH)
- 2.Eccentric & Leg
- 3.Drog pinion bearing
- 4.Holst Drum bearing
- 5.Holst pinion bearing
- 6.Drog drum bearing
- 7.Control Lube. Station
- 8.Motorised change over valve (Walk & Dig)
- 9.Control panel
- 10.Centre pintle
- 11.Swing Drive Shaft
- 12.A-frame Sheave
- 13.Foil Lead
- 14.Com foot keep



वैद्युत संयंत्र

Block Diagram for
Grease Lub. System-1 of
Walking Dragline

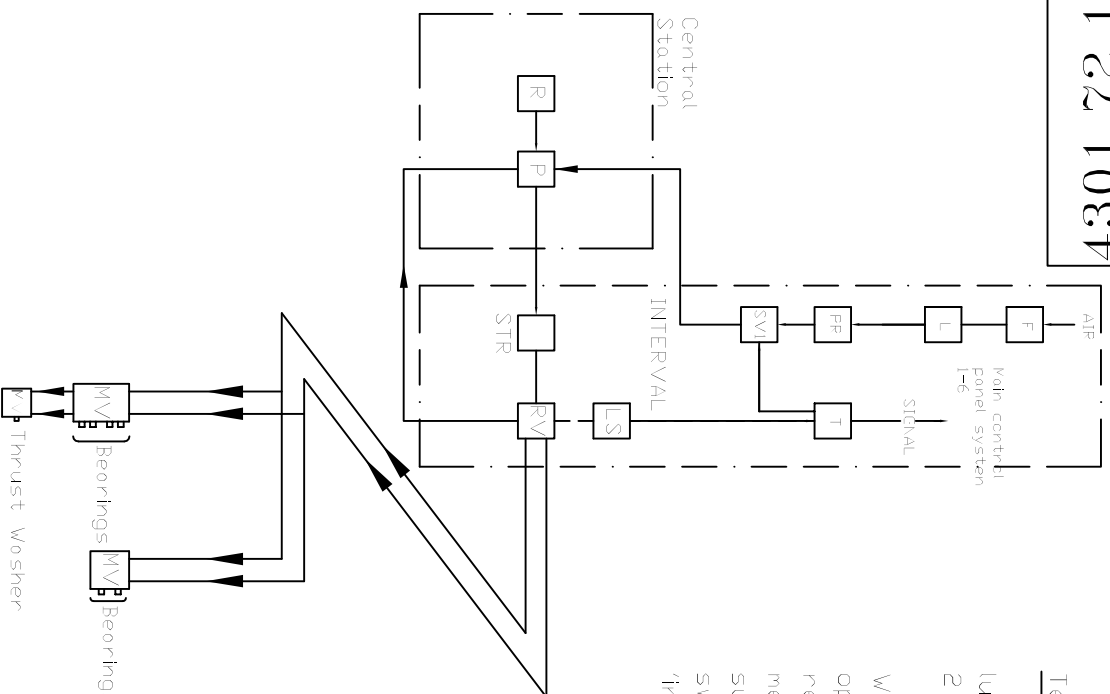
4301.72.100

MATERIAL-

SCALE-1:5 WEIGHT IN KG.-

BUREAU-CHIEF	R.B.Bhagat	SCALE-1:5	WEIGHT IN KG.-	H.M.B.	Sep'09
GROUP LEADER	R.B.Bhagat				
DESIGNER	A.P.Toppo			HEC LTD., RANCHI	Rev-1
DRAWN BY	A.P.Toppo				
REF.DR.GND.					

4301.72.105



Technical Instruction

System 2 is an automatic dual line,PLC controlled, grease lubrication system which serves a total 5 points at the boom head and 2 points at the hoist rope support pulley.

The PLC comprises an 'interval' timers, and a 'signal' timer. When the 'interval' timer expires,air pump solenoid valve SV opens,the 'signal' timer starts running and the 'interval' timer resets.Pumping continues through the reversing valve,until the reversing valves have operated and the back pressure has increased sufficiently to operate the reversing valve.Operation of the limit switch and reset signal timer closes SV stops the pump and restarts the 'interval' timer.

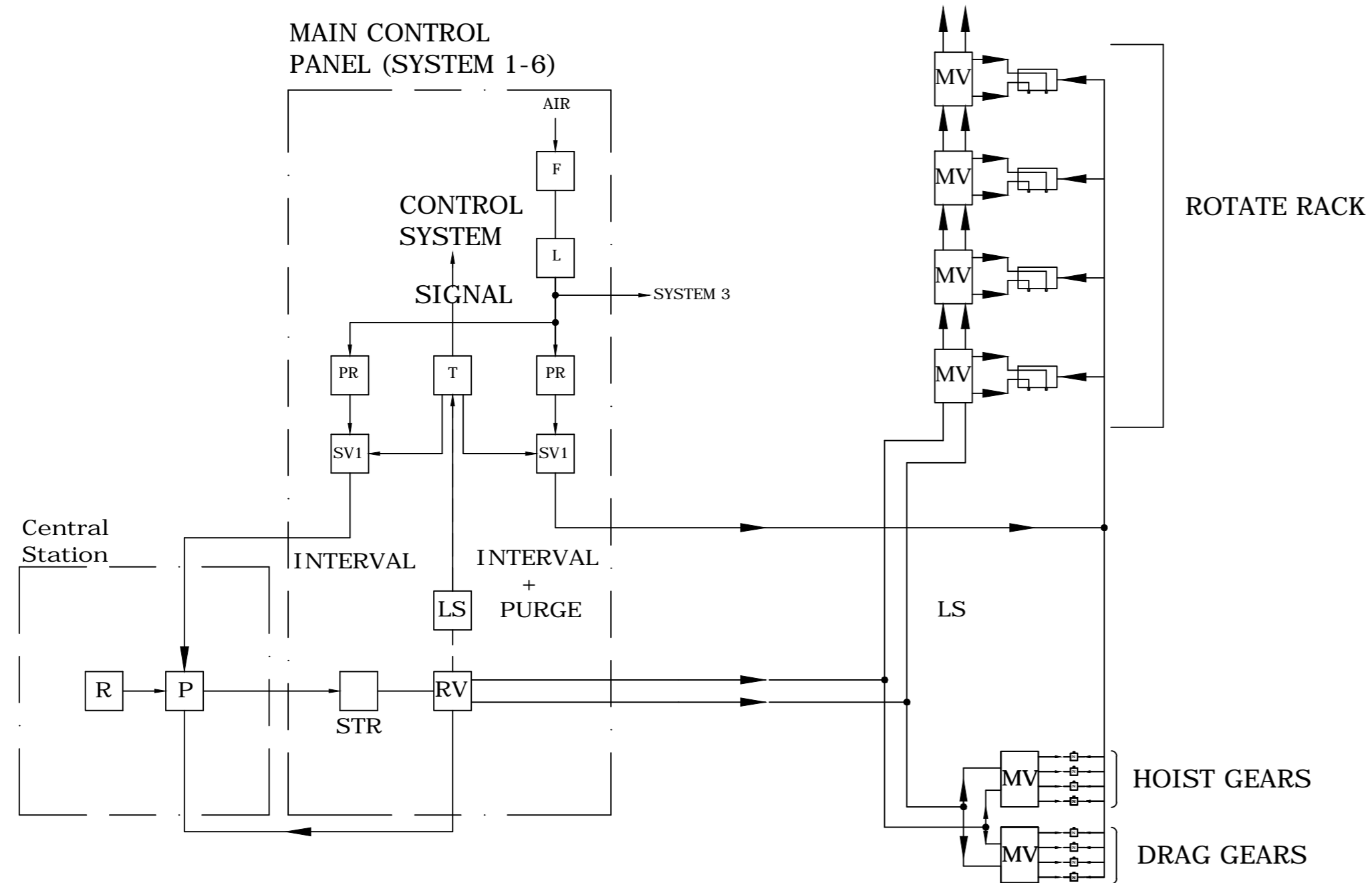


Block Diagram for Grease Lub.
System-2 (Boom Head) of Walking
Drayline

4301.72.105
MATERIAL-

REF. DRG. NO.	DESIGNER	DRAWN BY	SCALE-1:5	WEIGHT IN KG.-	HEC LTD.,RANCHI	Aug'09
	R.B.Bhagat	A.P.Toppo				Rev-0
	R.B.Bhagat	A.P.Toppo				
	GROUP LEADER					
	DESIGNER					
	DRAWN BY					

4301.72.115



Technical Instruction

System 4 is a PLC controlled,grease spray lubricant system to apply lubricant to the hoist and drag gears and the swing pinions.Spray nozzle purging is used to prevent the nozzles blocking with dried lubricant.

The operation of this system is the same as System 3



एच.ई.सी.

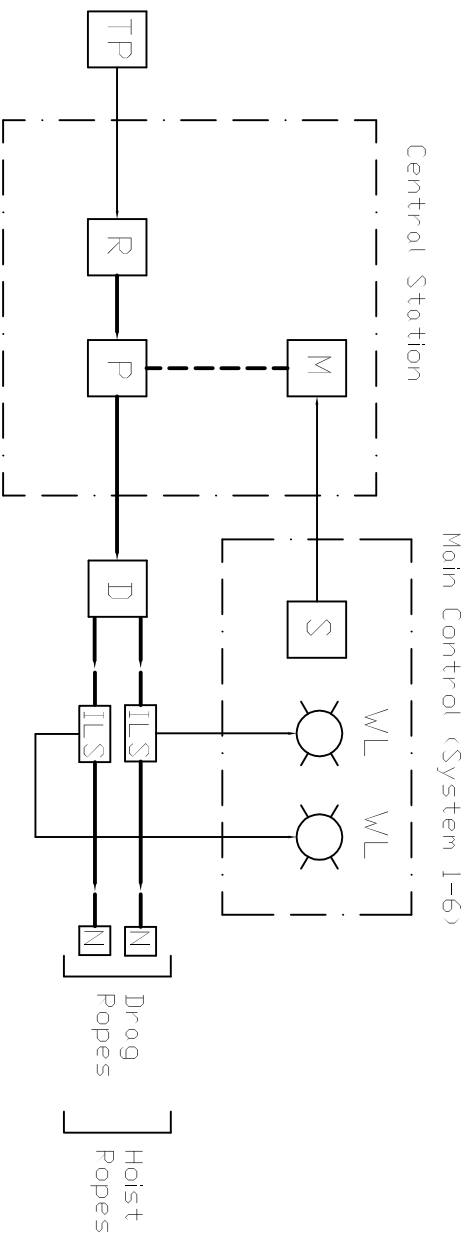
Block Diagram for Cardium Lub. System-4 (Swing, Hoist & Drag Gears) of Walking Dragline

4301.72.115

MATERIAL-

BUREAU-CHIEF	R.B.Bhagat	SCALE-1:5	WEIGHT IN KG.-
GROUP LEADER	R.B.Bhagat		
DESIGNER	R.B.Bhagat	H.M.B. HEC LTD.,RANCHI	Sep'09
DRAWN BY	A.P.Toppo		Rev-0
REF.DRG.NO.			

4301.72.120



Technical Instruction
System 5 and 6 consists of identical single line manually controlled oil spray lubrication systems; one for the hoist ropes and one for the drag ropes.

Each system is manually controlled since the ropes must be lubricated over their entire length of travel. The pump motors are controlled by HOLD-TO-RUN pushbuttons at the lubrication main control. Oil is pumped through a single line to a divider, which in turn, delivers lubricant to each rope via a spray nozzle. Warning lamps on the main control panel would indicate high pressure conditions due to blockages in the delivery lines or spray nozzles.



एच.एम.बी.

Block Diagram for Oil Lub.
System-5 & 6 (Hoist & Drag
Ropes) of Walking Dragline

4301.72.120

MATERIAL-

SCALE-1:5

WEIGHT IN KG-

BUREAU-CHIEF R.B.Bhagat
GROUP LEADER R.B.Bhagat
DESIGNER A.P.Toppo
DRAWN BY A.P.Toppo

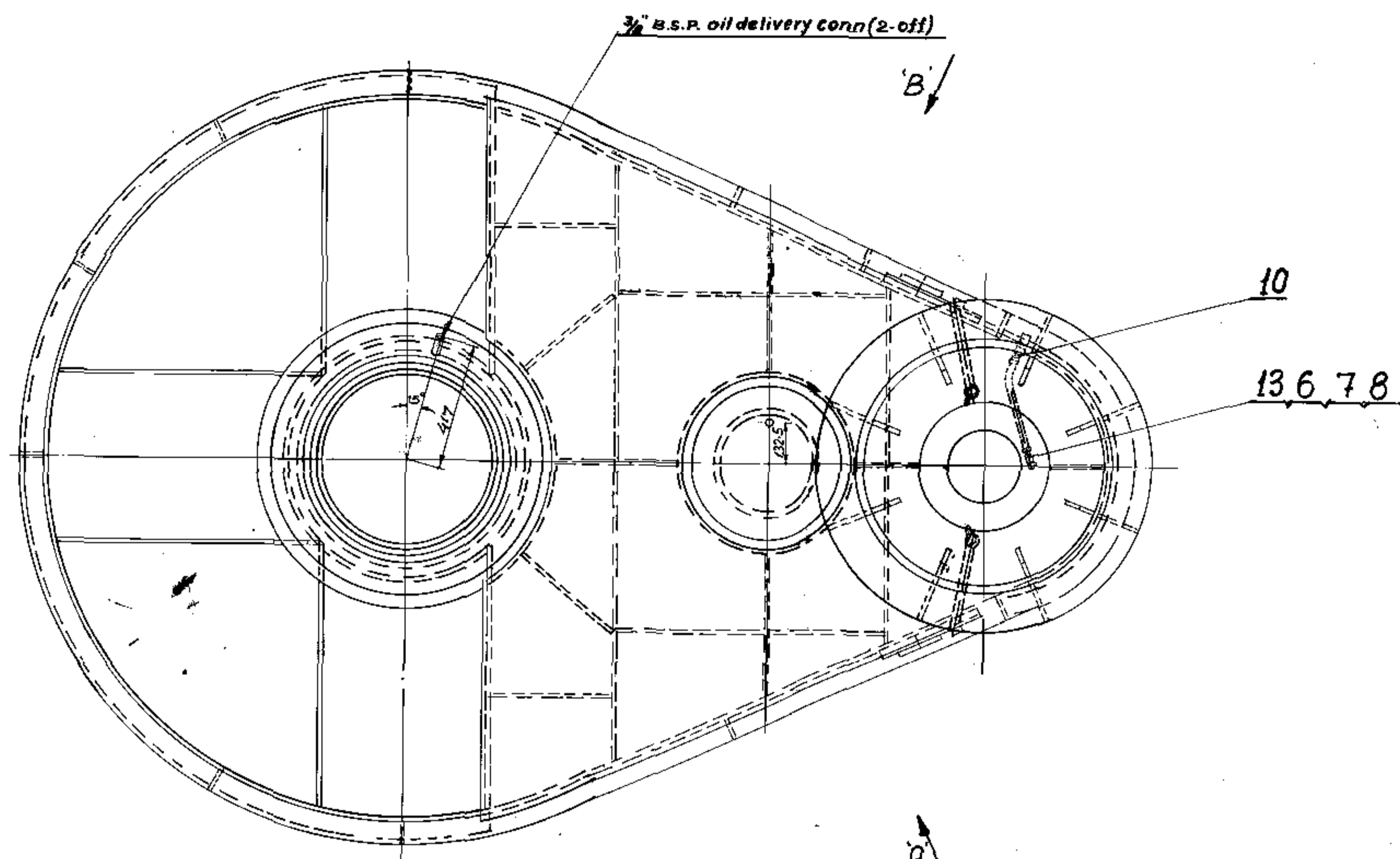
H.M.B.

Sep'09

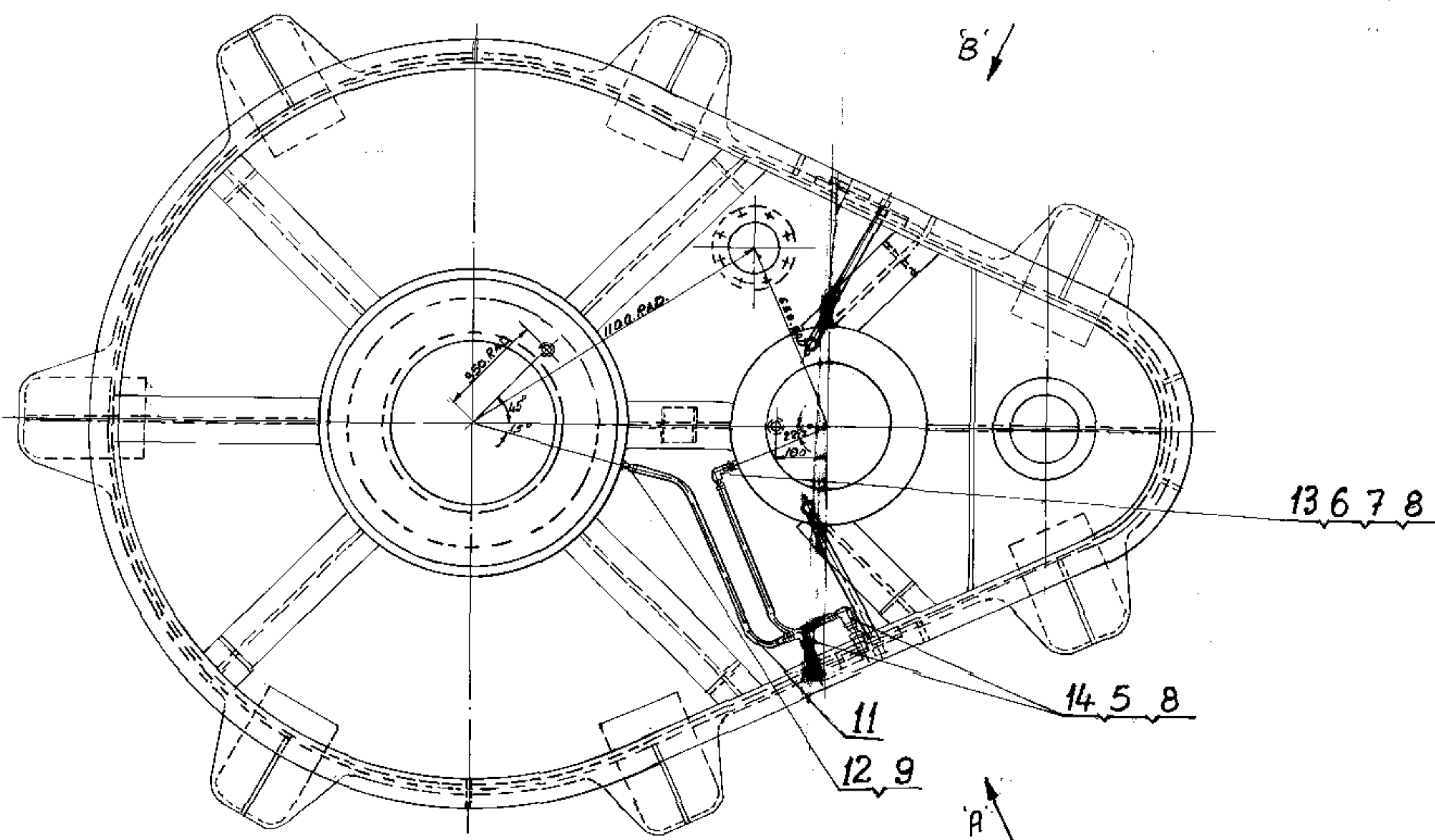
REF:JRGND.

HEC LTD,RANCHI

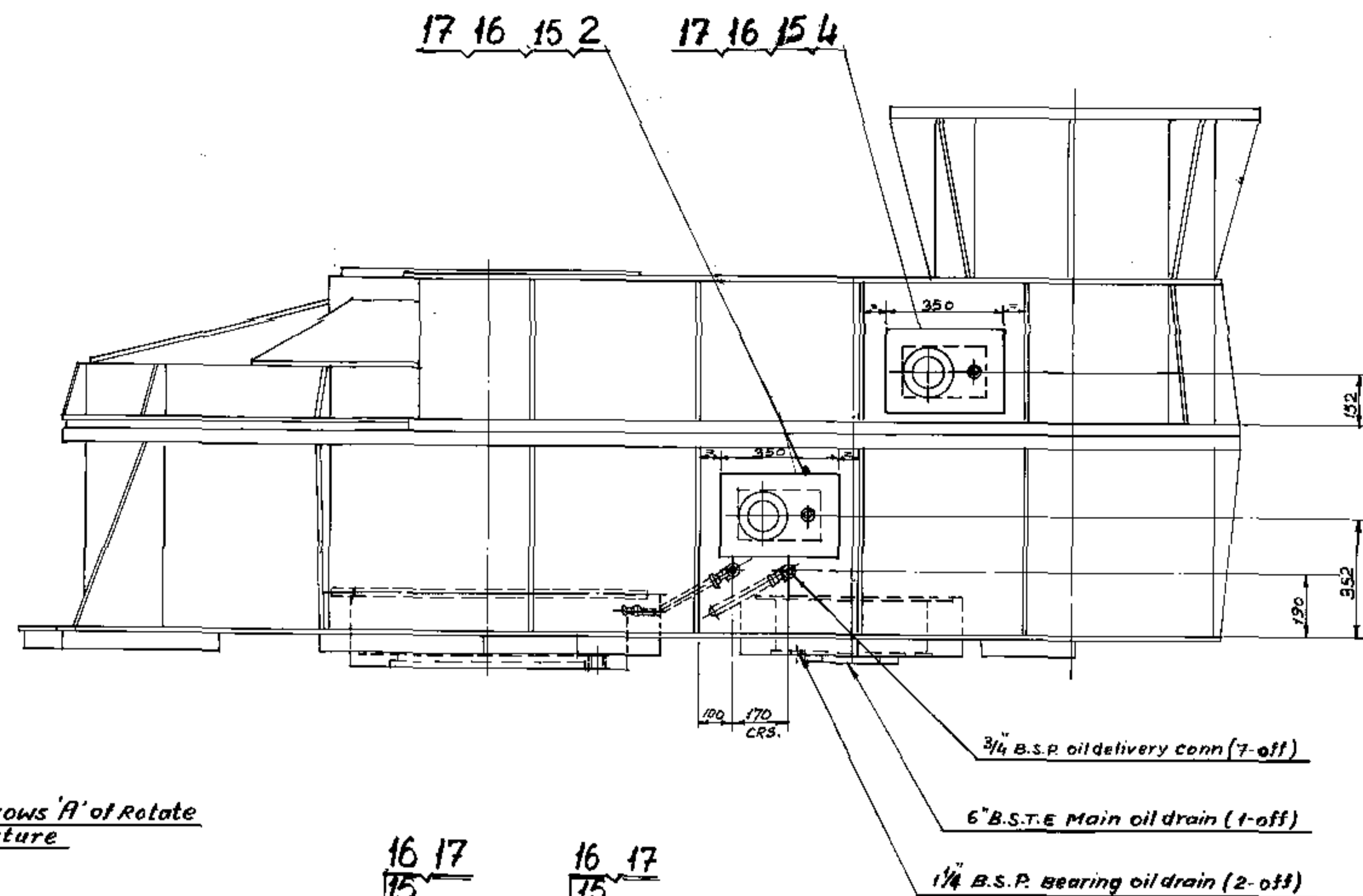
Rev-0



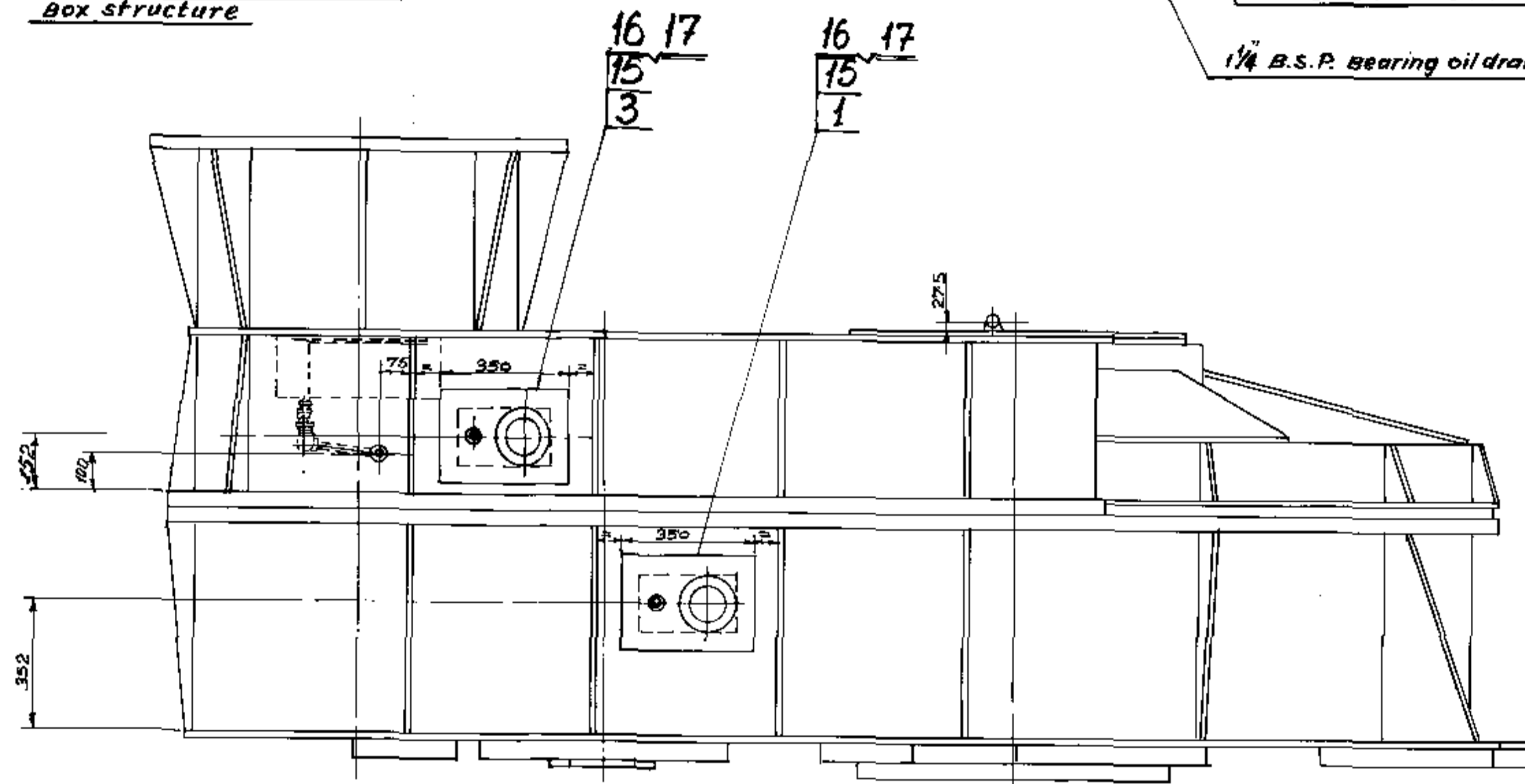
Plan view of Rotate Box structure (top)



Plan view of Rotate Box structure (Bottom)



View on arrows A' of Rotate Box structure



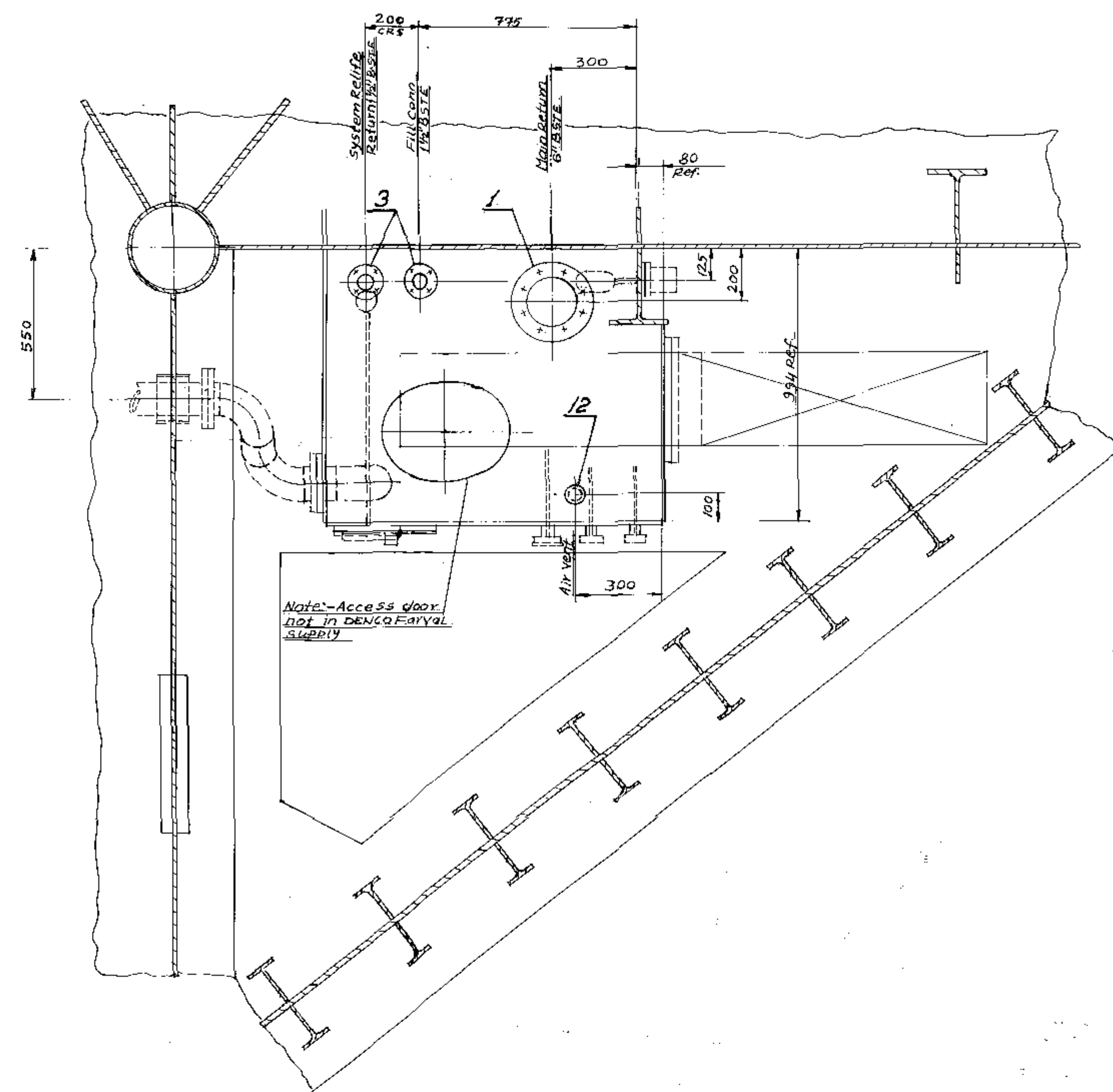
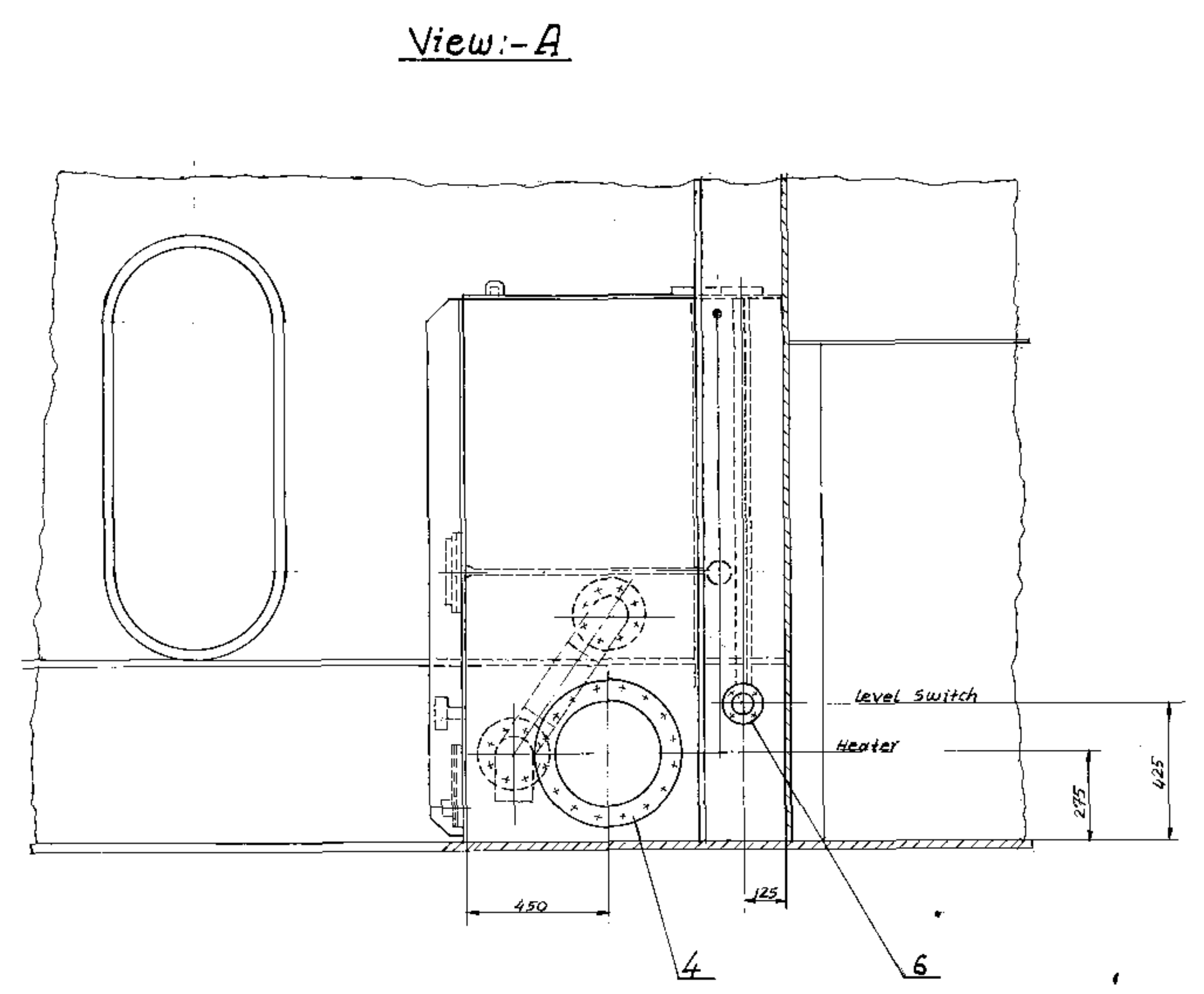
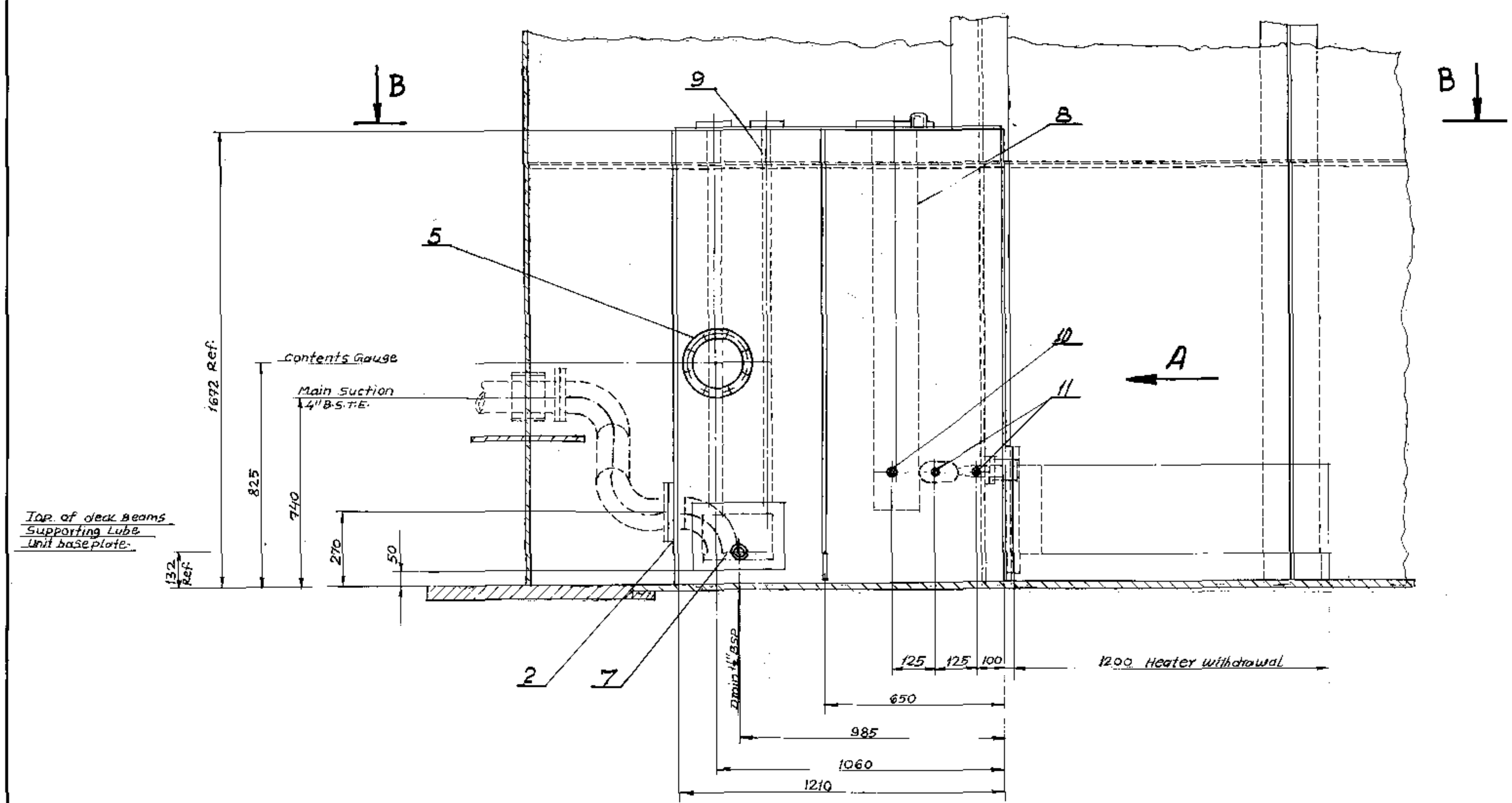
View on arrows B' of Rotate Box structure

17	Plain washer #12	40				
16	Self screw nuts 1/2" dia. Long	40				
15	Gasket	4				
14	Bonded seal O' Ring 3/4" B.S.P.	2				
13	Bonded seal O' Ring 3/8" B.S.P.	2				
12	Hex Nipple 3/4" B.S.P. x 3/8" B.S.P.	1				
11	Steel Tube 3/4" O.D. x 1/4" W.T. Length - 3 Meter	3M				
10	Male stud Coupling 1/4" O.D. x 3/4" B.S.P.	1				
9	Female stud Coupling 1/4" O.D. x 3/4" B.S.P.	1				
8	Equal Elbow 3/4" O.D.	4				
7	Stand pipe adaptor 1/2" O.D. x 3/4" O.D.	2				
6	stud standpipe adaptor 3/8" B.S.P. x 1/2" O.D.	2				
5	stud standpipe adaptor 3/8" B.S.P. x 3/4" O.D.	2				
4	oil spray assembly impeller shaft & 1st reduction gear L.H.	1				
3	oil spray assembly impeller shaft & 1st reduction gear R.H.	1				
2	oil spray assembly 2nd reduction pinion & intermediate gear I.H.	1				
1	oil spray assembly 2nd reduction pinion & intermediate gear R.H.	1				
Item No.	Qty.	Description	Material	No. off	1 Piece Total	Remarks

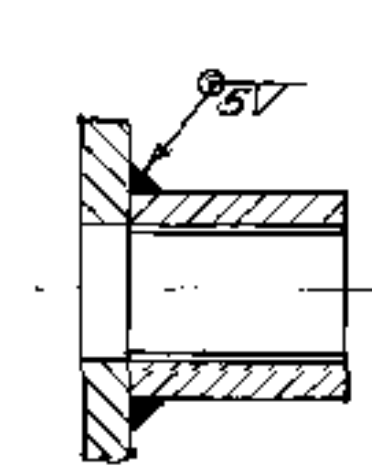
Rotate Box Internal Lubrication Pipe Work		1070-25470
As Per Denco Drg. SC 104047		45
Headed by: B.R.S. Roy	Checked by: S. Sharma	SCALE: 1:100
Drawn by: S. Sharma	Approved by: R. Sharma	HMB Nov. 57
H.E.C. P. RANCHI		

REVALIDATED

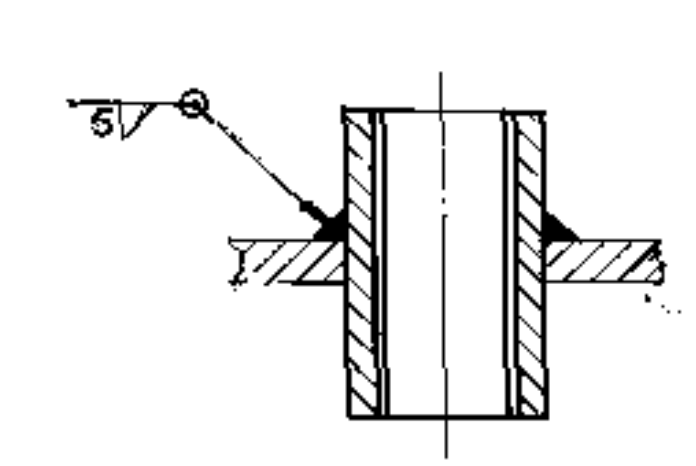
Rev. No.	Revision	Signature	Date



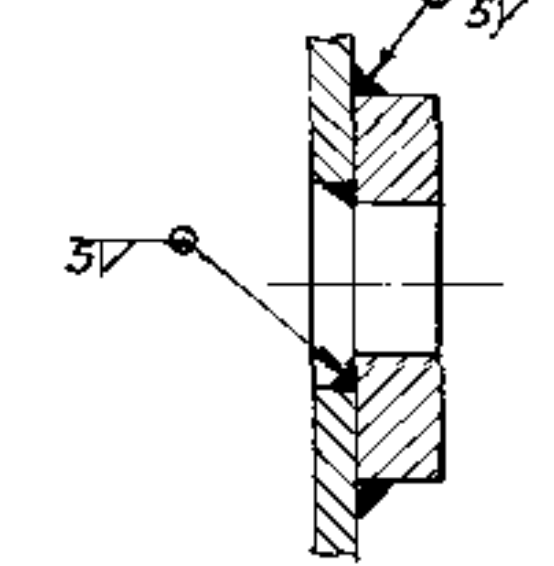
Socket on front



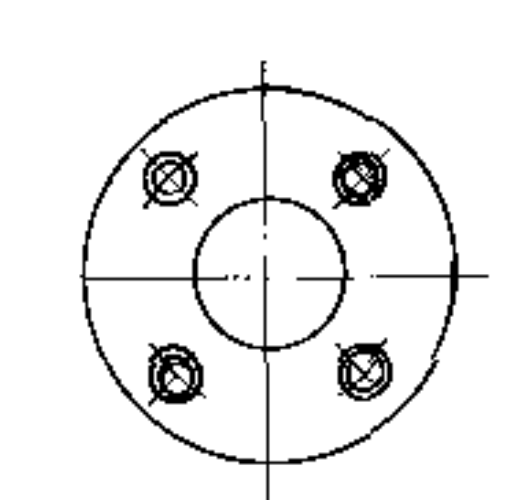
Socket on top



Pad



Flange



Note: All the items are to be sent loose to site.
2 items are for L.H. 1 No. and R.H. - 1 No.

NB:- For Rear Rotate Box ref. Dwg. 1070-25-490, item No-13

Item No	Dwg. No	Description	Material	M	R	Weight	Remarks
13	1070-25-490	Detail of Rear Rotate Box		1	128	13	
12	1070-25-493	1 1/2" PL. 40x10x1.5	St 304	2	4.7	0.34	No. Dwg.
11	-	SOCKET 1 1/2" B.S.P.	Steel	4	2.1	0.4	
10	-	SOCKET 2" B.S.P.	Steel	2	0.15	0.3	
9	1070-25-482	Tube 40x4, 15' 1333	M.S.	4	4.7	9.4	No. Dwg.
8	1070-25-491	Tube 1/2" B.S.P. 12' 1333	M.S.	2	20.4	40.2	No. Dwg.
7	1070-25-487	Suction Pipe	Alum.	2	23.5	47	
6	1070-25-486	Pad for level switch	St 304	2	2.3	5.8	
5	1070-25-485	Pad for contents gauge	"	2	5.5	11	
4	1070-25-484	Pad for heater	"	2	20	40	
3	1070-25-483	Flange-40	"	4	1.8	7.2	
2	1070-25-482	Flange-100	"	2	4	8	
1	1070-25-481	Flange-150	"	2	6.1	12.2	

REVALIDATED

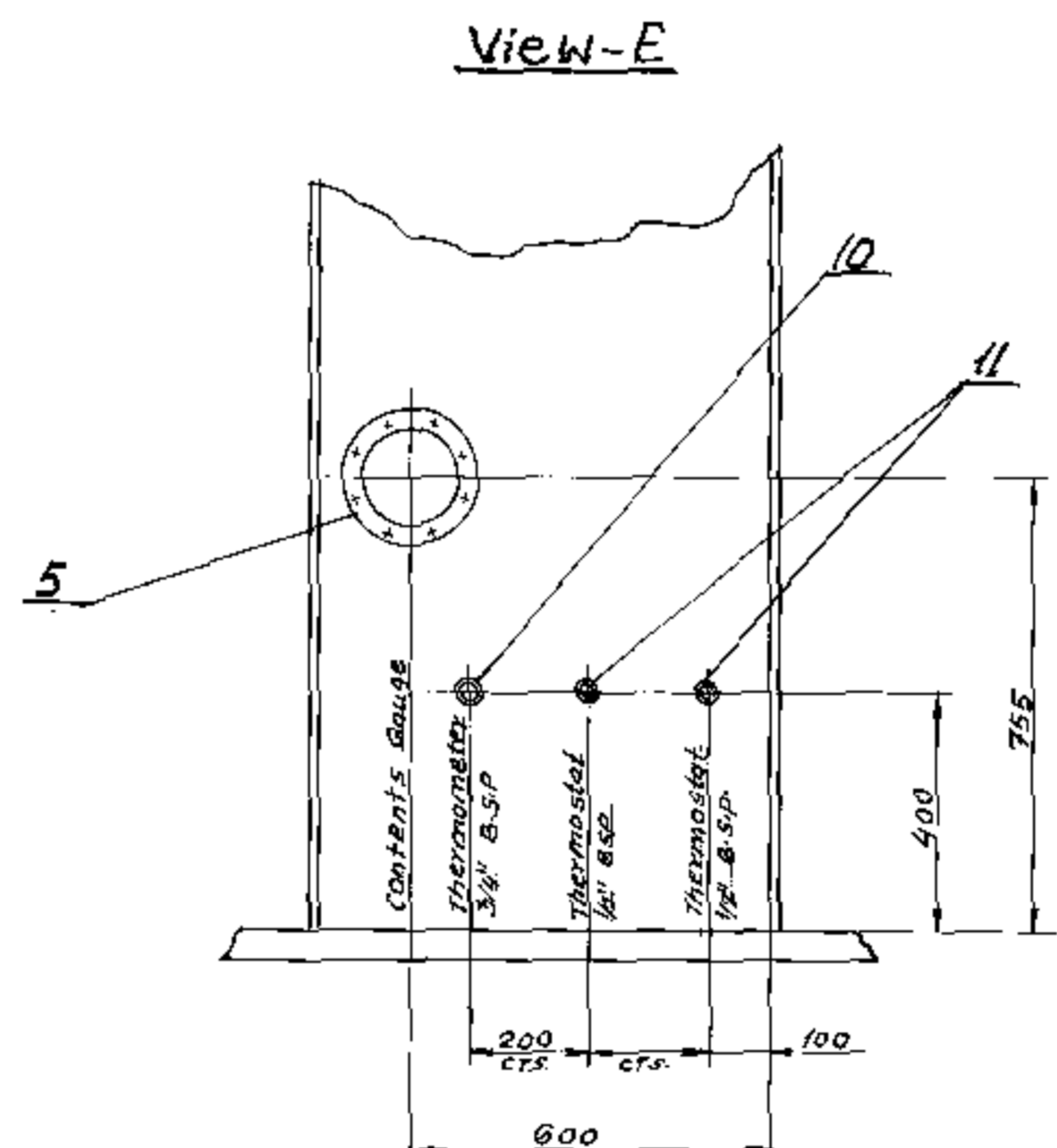
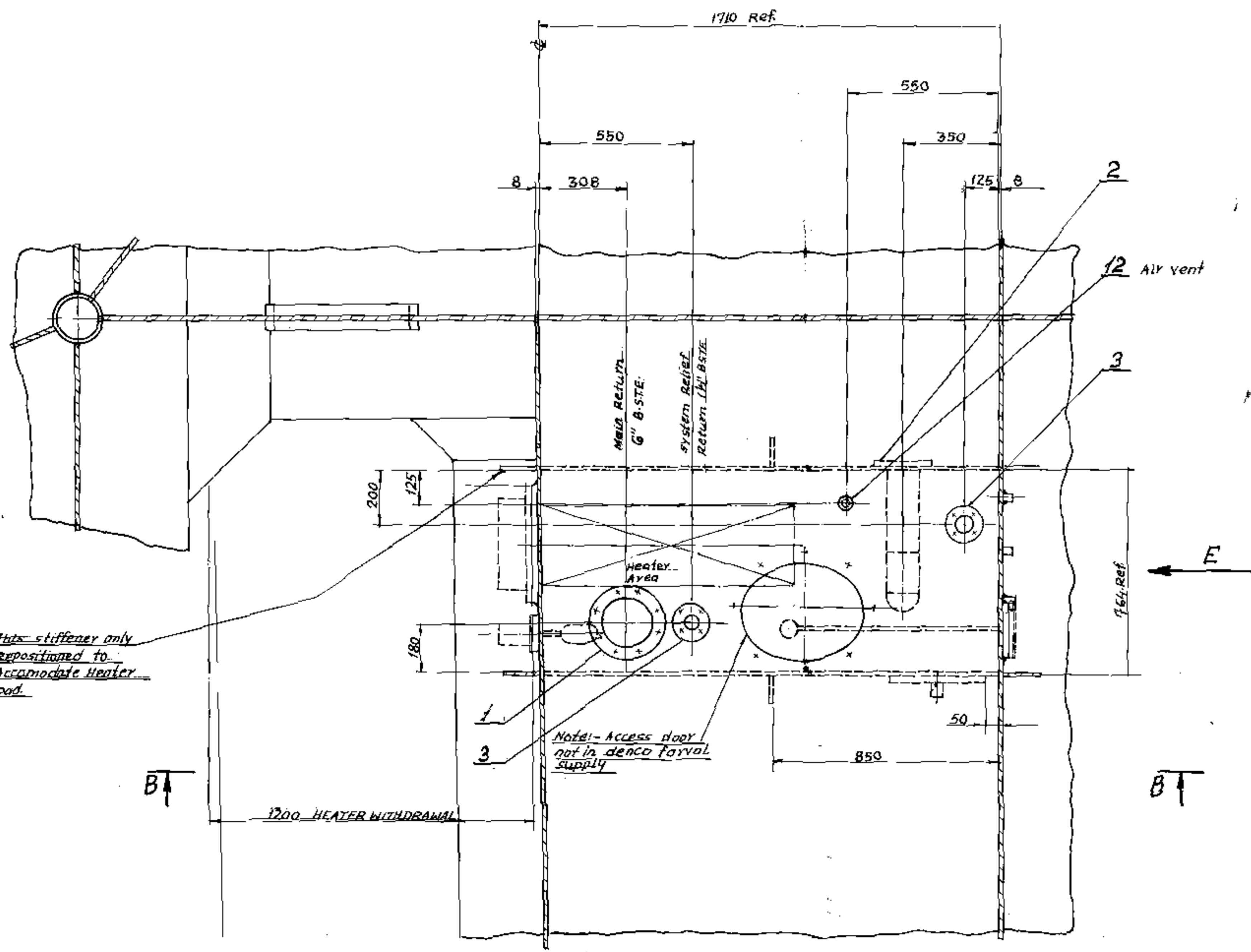
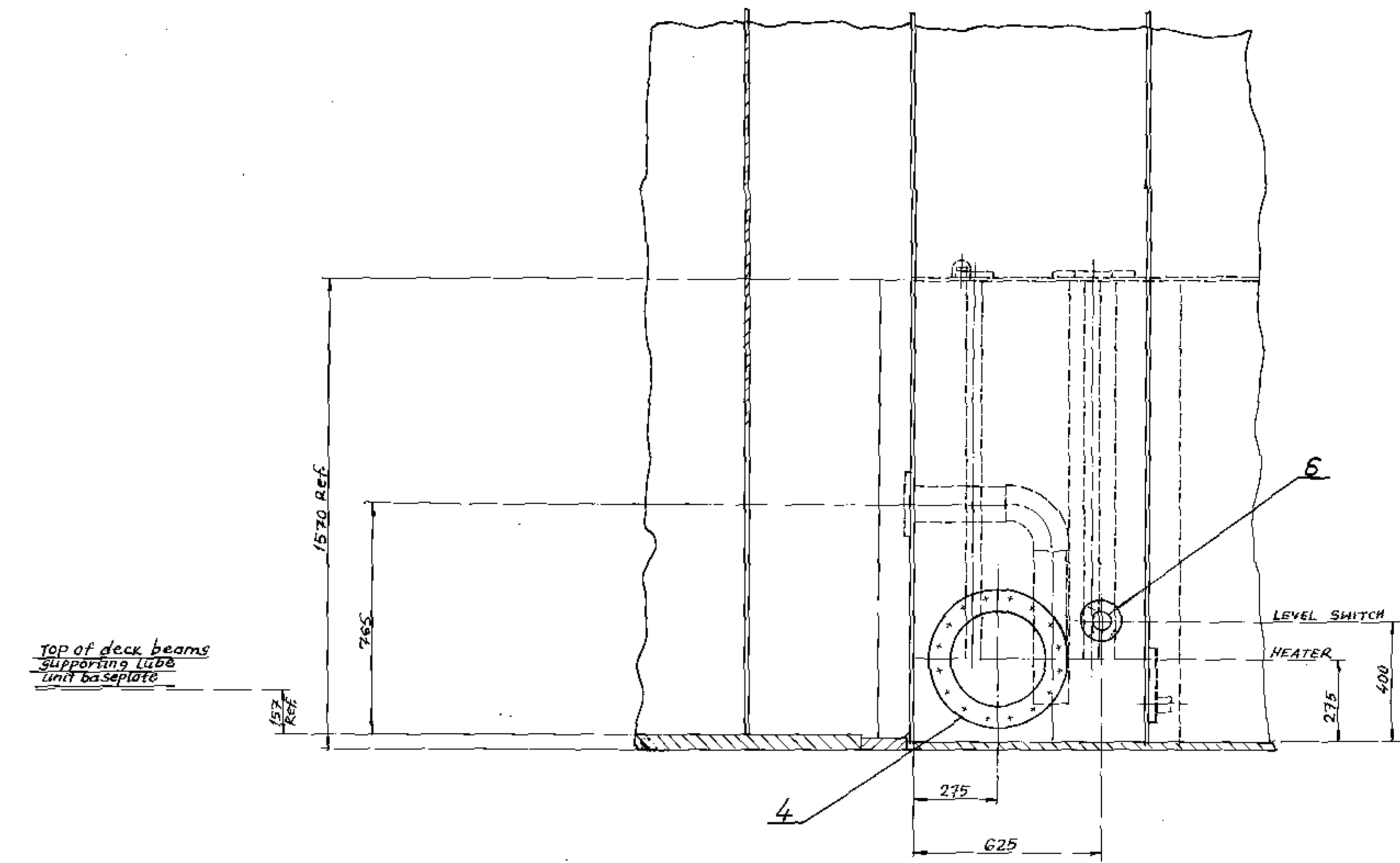
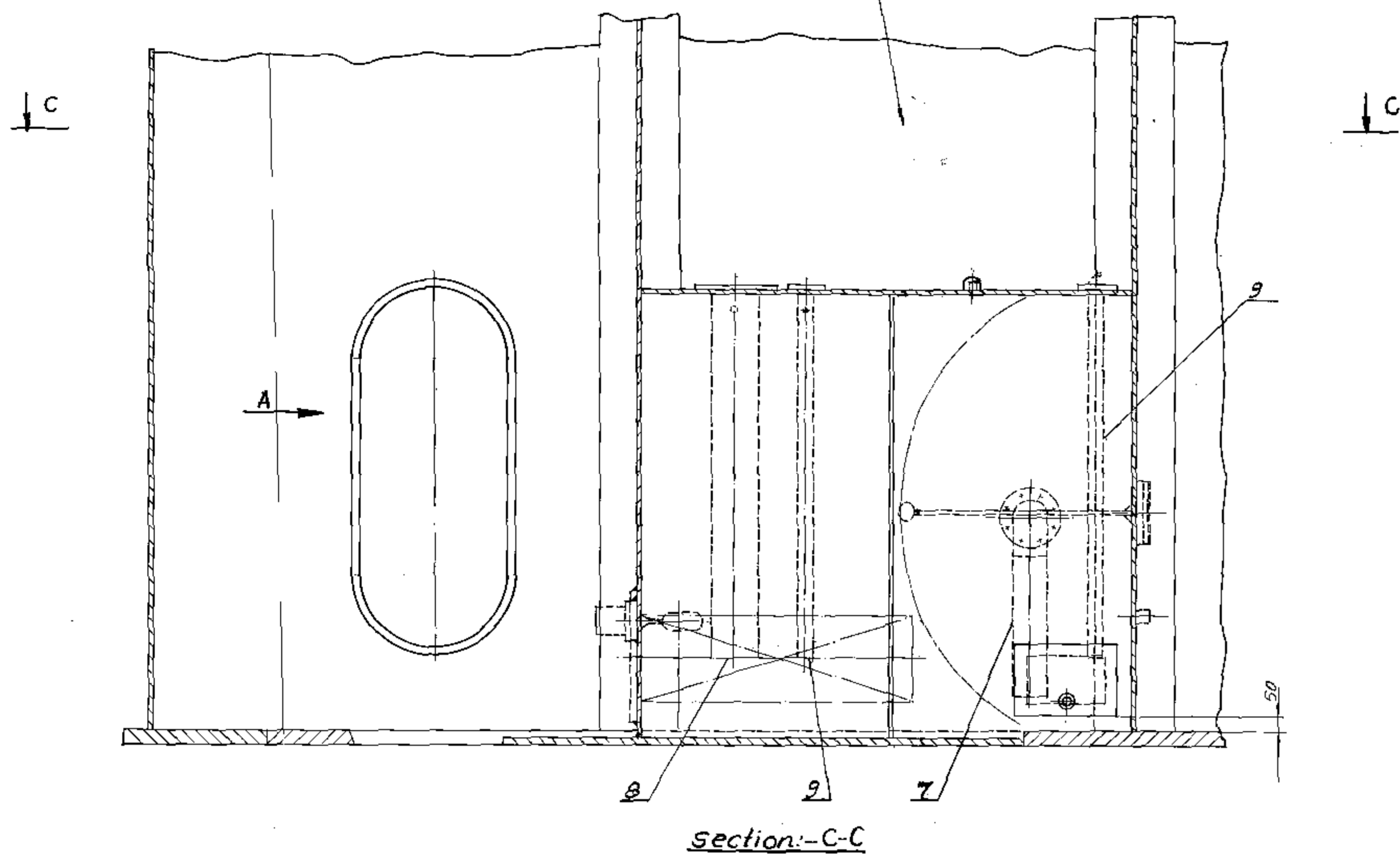
Detail Items of Lub. Reser- 1070-25-480
Noir serving front and rear.
Rotate Box ref. N.E. Weight in kgs. 330
SCALE: 1:10
HMB
MAY 88
HEC LTD. BANCHI-4

Rev. No.	Revision	Signature	Date

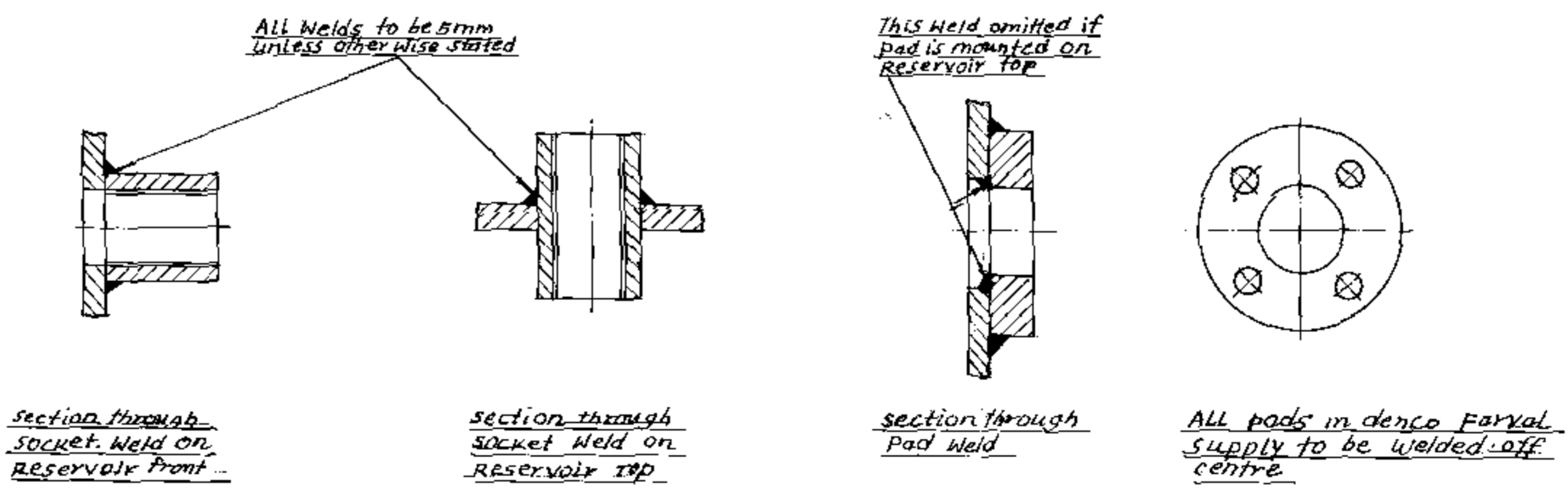
If in Doubt refer to D.O
First angle projection

Access Required
to Tank Top
Section--B-B

View-A



Note: - All the items are to be sent lease to site.

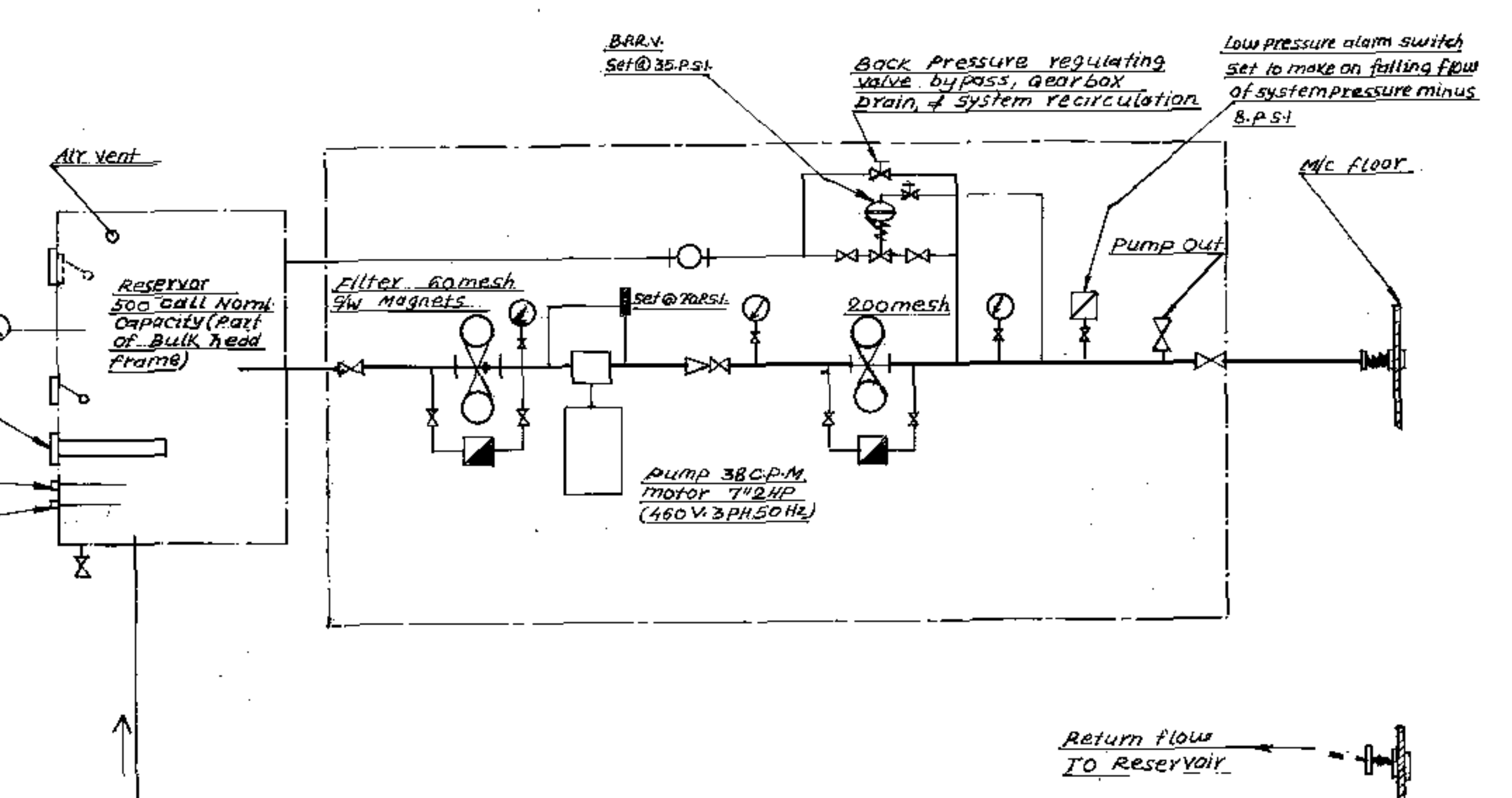
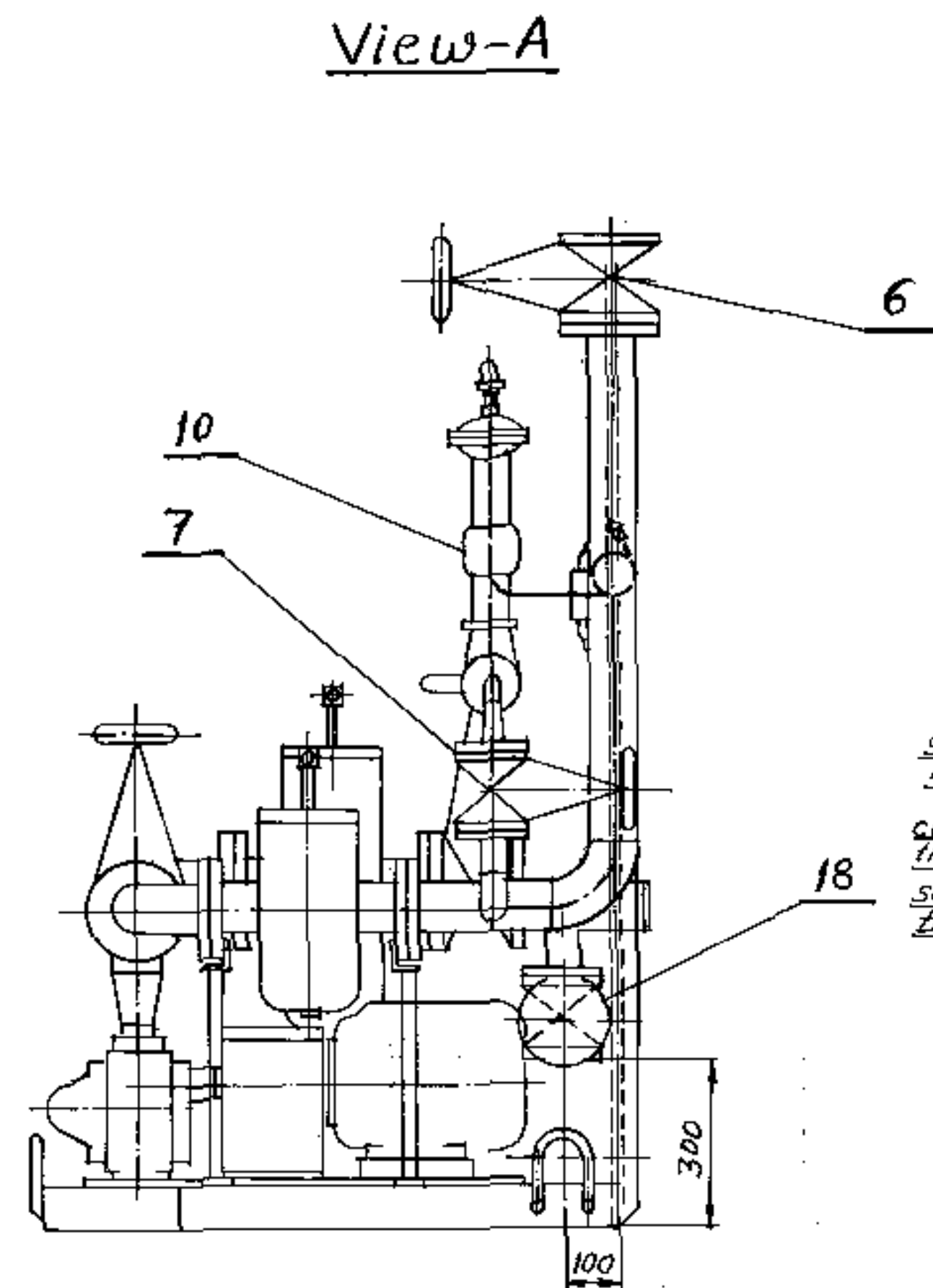
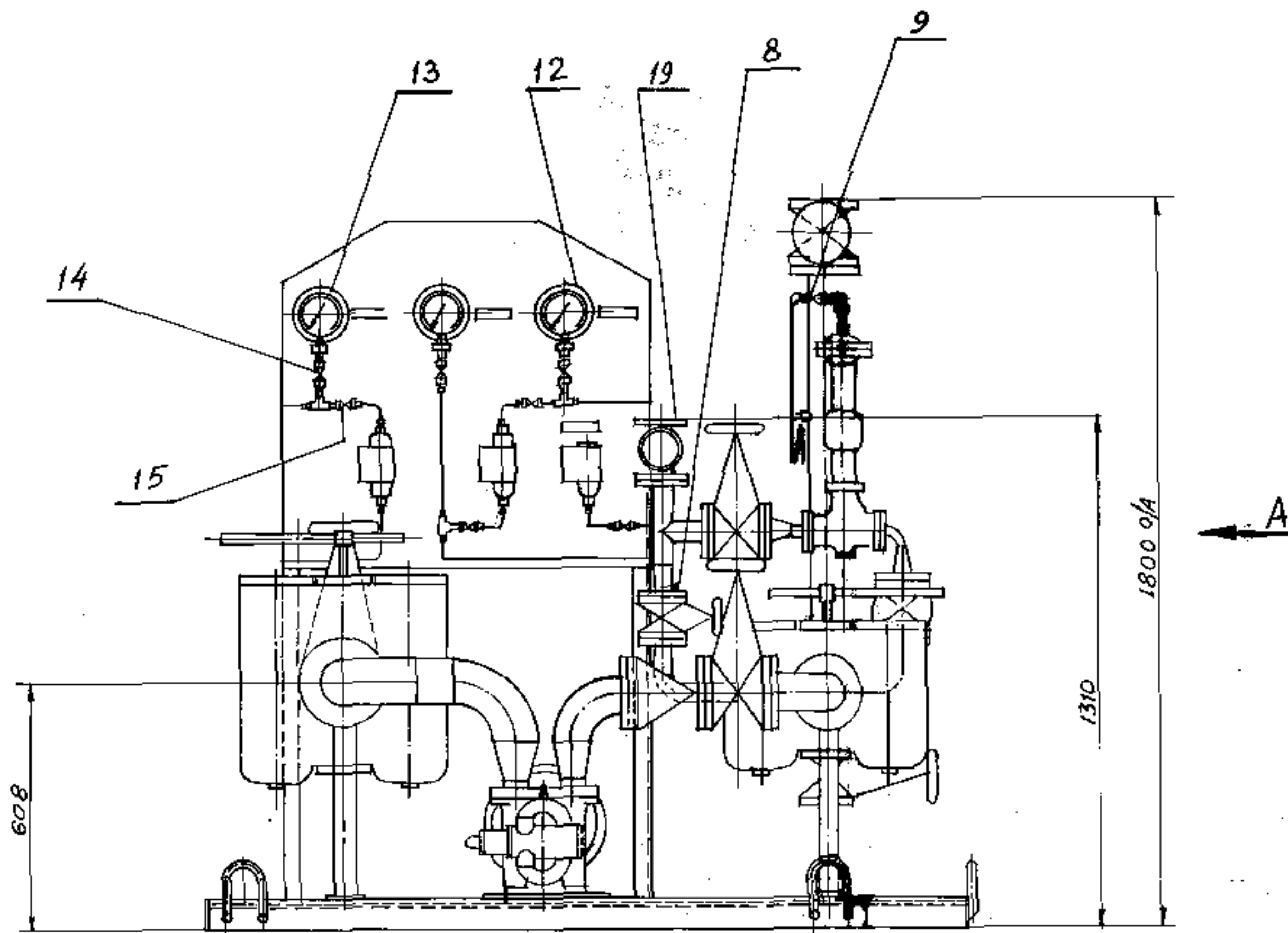


REVALIDATED
Sgt. J. H. [Signature]

No	Qty. No	Description	Material	No. of Pcs	Total	Remarks
12	1070-25-493	16 PL of 60/30 x 10	SA 40C	1	0.17	0.17
11	-	SOCKET 25, 1/2 B.S.P.	SA 40C	2	0.1	0.2
10	-	SOCKET 25, 3/4 B.S.P.	SA 40C	1	0.15	0.15
9	1070-25-492	Tube 40M, 1 1/2 x 1200, Lx1800	MS	2	4.7	9.4
8	1070-25-491	Tube 150 H. 1 1/2 x 1800, Lx1800	MS	1	28.6	28.6
7	1070-25-487	Suction Pipe	MS	1	4.7	4.7
6	1070-25-486	Pad for Level Switch	SA 40C	1	2.9	2.9
5	1070-25-485	Pad for Contents Gauge	SA 40C	1	5.5	5.5
4	1070-25-484	Pad for Heater	SA 40C	1	2.8	2.8
3	1070-25-483	Flange - 60	SA 40C	2	1.8	3.6
2	1070-25-482	Flange - 100	SA 40C	2	1.4	2.8
1	1070-25-481	Flange - 150	SA 40C	1	6.1	6.1
Total						

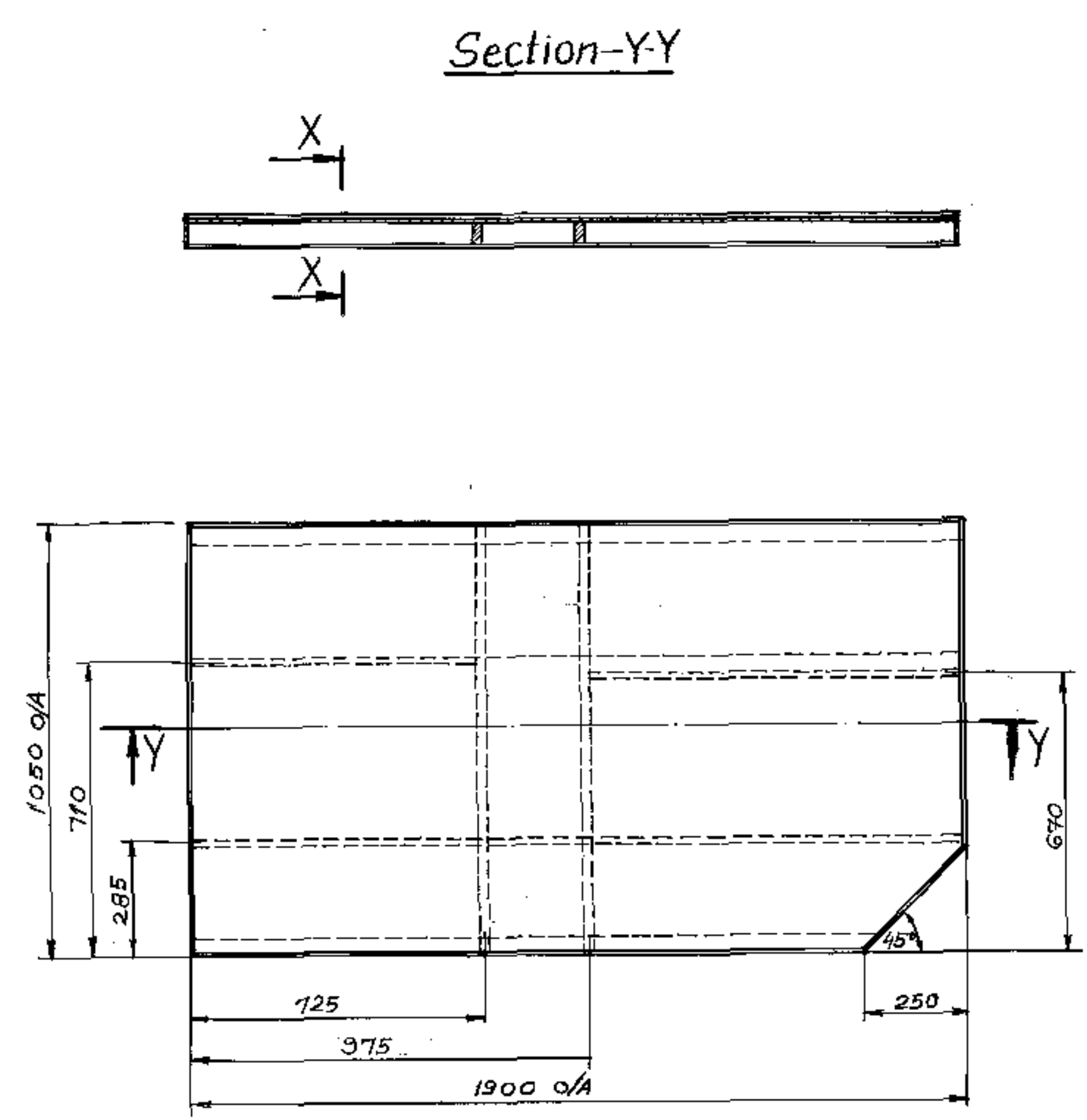
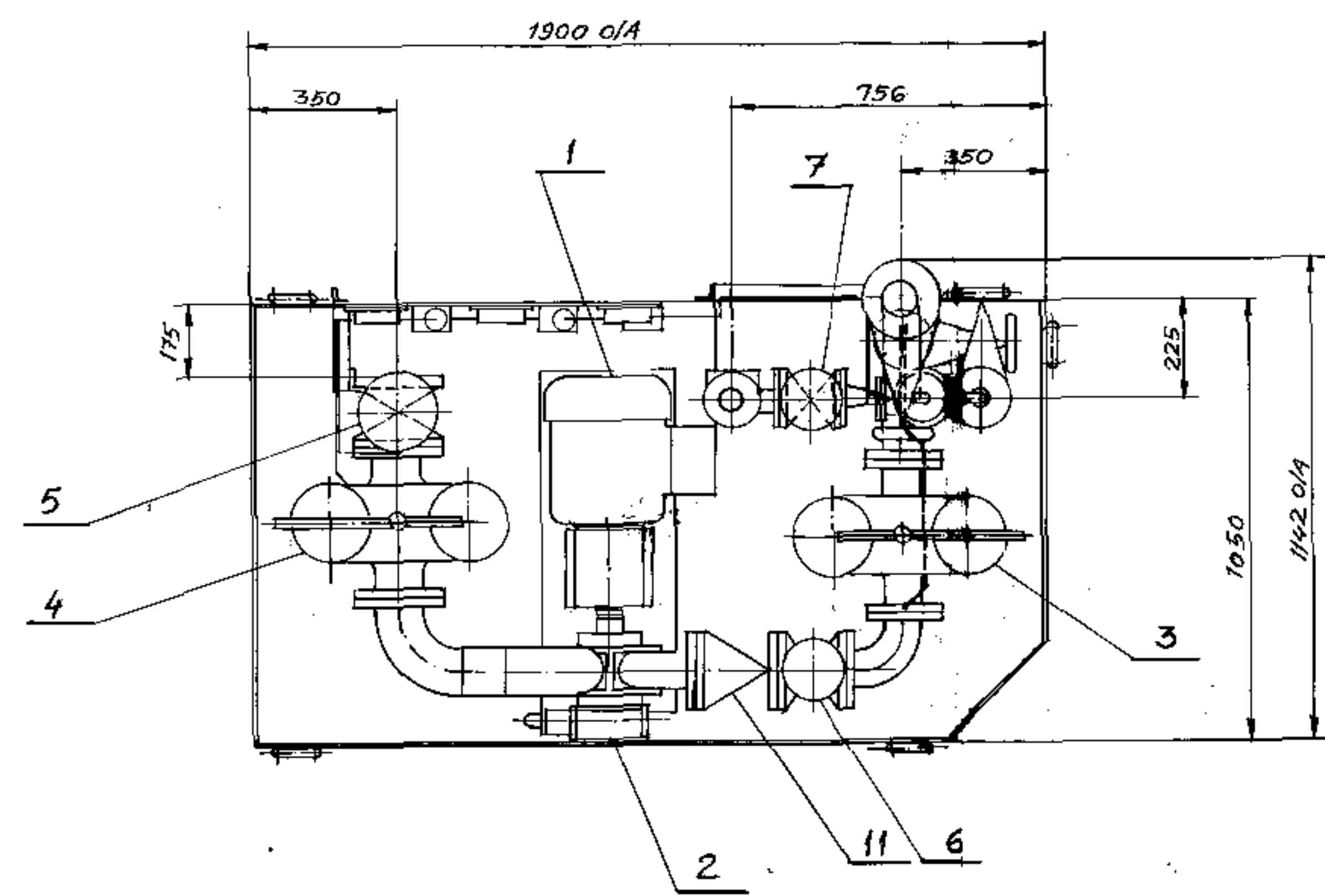
Detail Items of Lub. Reser-
voir serving Rear Rotate Box.
1070-25-490
all in kg = 128
SCALE - 1/10
H.M.B. April-89

No	Revision	Remarks



Technical Instruction

- All surfaces to be cleaned and painted.
 External surfaces - Two coats of universal primer plus one grey top coat.
 Internal surfaces - (a) Tank - Oil resistant red paint.
 (b) Pipe work - Pickled and oiled.
 All connections to be sealed.
- Electrics - (a) Pump Motors - 380V, 3 PH, 50HZ
 (b) Instruments - 240V, 1 PH, 50HZ

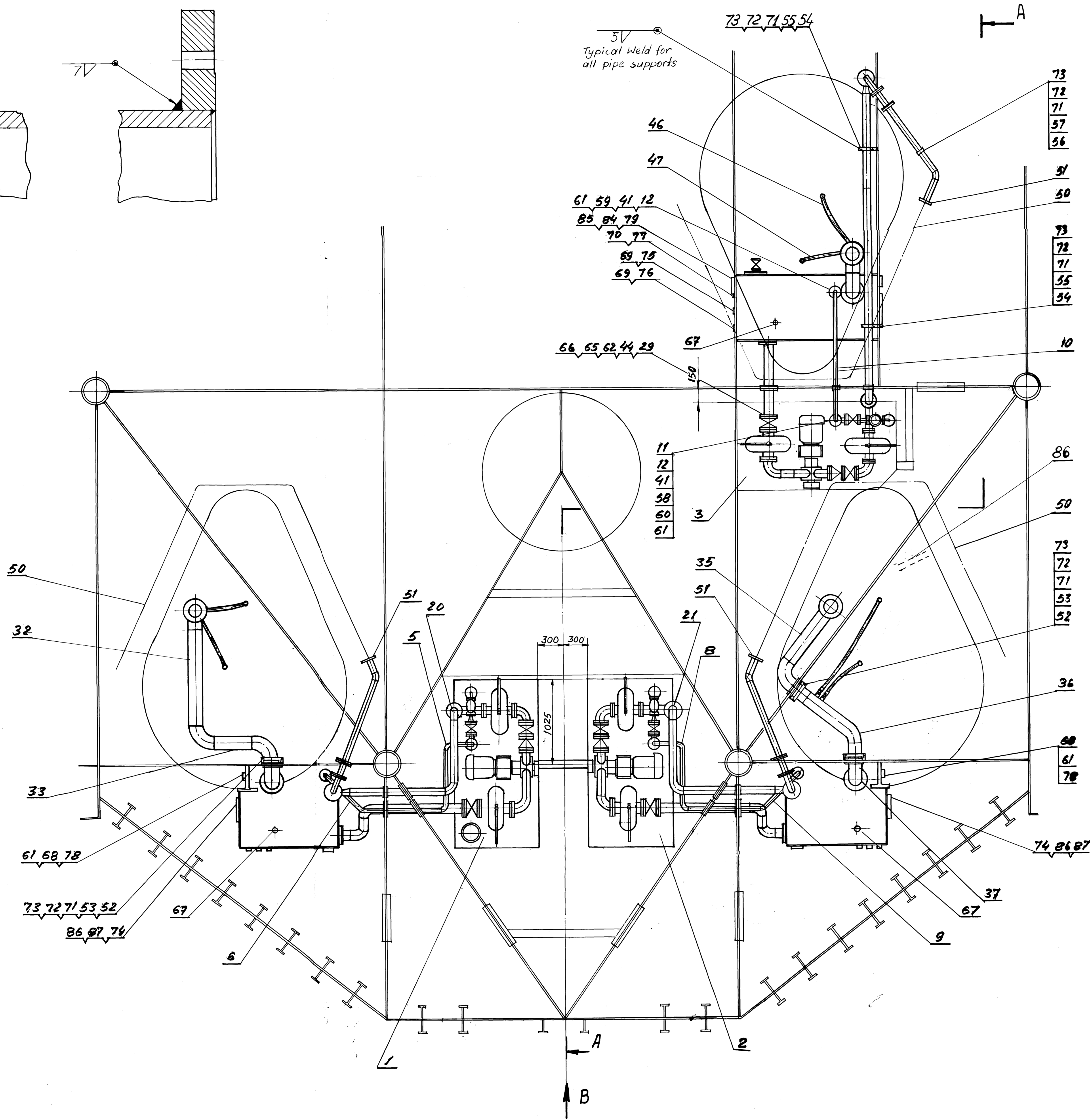
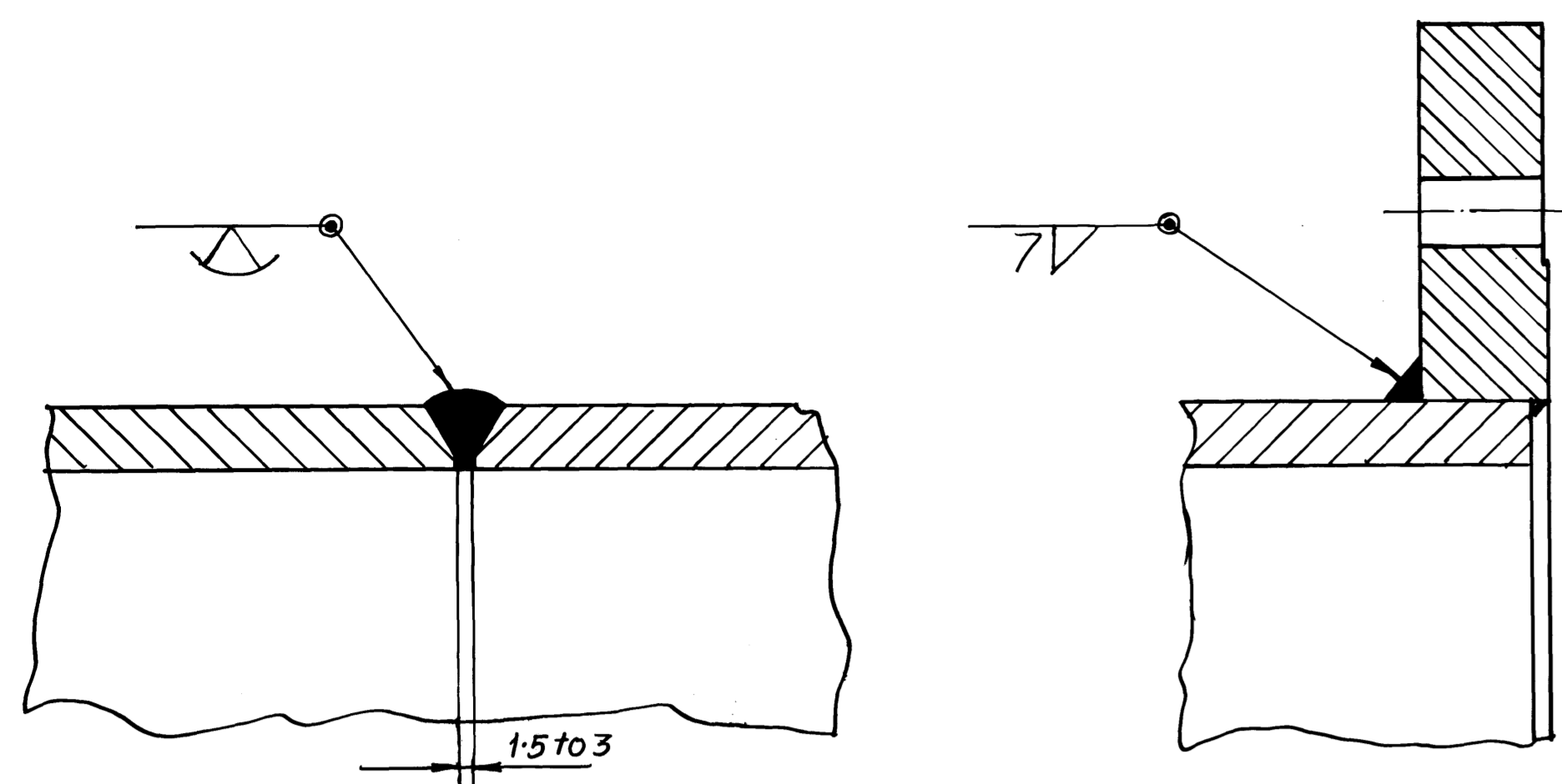


Item No.	Qty	Description	Material	NO. of	P.C.	Total	Remarks
19	-	Flow Indicator 1 1/2"		1			
18	-	Gate valve 2"		1			
17	-	Pressure Switch Range 1 to 75 PSI		1			
16	-	Differential Pressure Switch Range 0-20 PSI differential		2			
15	-	Gland Cock 1/2" BSP		5			
14	-	Gauge cock 3/8" BSP		3			
13	-	Pressure Gauge 4" Dial Range 50" to 150" Hg 3/8" BSP direct mounting		1			
12	-	Pressure Gauge 4" Dial Range 0-100 PSI 3/8" BSP direct mounting		2			
11	-	Check Valve 3"		1			
10	-	Pressure Relief Valve 3/2"		1			
9	-	Globe Valve 3/8"		1			
8	-	Globe Valve 1/4"		1			
7	-	Gate Valve 1 1/2"		2			
6	-	Gate Valve 3"		2			
5	-	Gate Valve 4"		1			
4	-	Duplex Filter 3" 200 Mesh		1			
3	-	Duplex Filter 4" 60 Mesh		1			
2	-	Pump 38 GPM at 100 PSI FARVAL 50PK101		1			
1	-	MOTOR 7.5 HP 1450 RPM TEPC 380V 3PH 50HZ FARVALDASST OF EGY.		1			

REVALIDATED

Lube Unit Serving Rear Rotate Box
 as per Denco Farval No. SC1040/51
 1070.25.510
 HMB OCT 89

NO.	REVISION	Signature	Date



86	1070 25 470	Roller Box Inter. Lube Pipe Work	3			
85		Lock washer M10	24			
84		screw M10x30 Lg	24			
83		1 1/2" BSP Gate Valve	3			
82		1/8" BSP Nipple	3			
81		Door Gasket	3			
80		Clean out door	3			
79		Contents Gauge	3			
78		Level switch	3			
77		Thermometer	3			
76		Safety Thermostat	3			
75		Control Thermostat	3			
74		Electric Heater	3			
73		Lock washer M10	12			
72		Nut M8	12			
71		Screw M8x25 Lg	12			
70		Dowty seal	3			
69		Dowty seal	6			
68		Screw M12x30 Lg	42			
67		Air Breather	3			
66		Lock washer M16	180			
65		Nut M16	108			
64		Screw M16x45 Lg	72			
63		Bolt M16x110 Lg	12			
62		Bolt M16x70 Lg	96			
61		Lock washer M12	114			
60		Nut M12	12			
59		Bolt M12x40 Lg	12			
58		Bolt M12x60 Lg	60			
57		pipe clamp	1			
56		pipe support	1			
55		pipe clamp	2			
54		pipe support	2			
53		pipe clamp	3			
52		pipe support	3			
51		Flange for 2 1/2" NB pipe	3			
50	1070 25 530	Roller Box Ext. Pipe Work	3			
49		Hose Assy 1/4" NB x 4' Lg	1			
48		Hose Assy 1 1/8" NB x 6' Lg	1			
47		Hose Assy 1 1/2" NB x 3' Lg	2			
46		Hose Assy 1 1/2" NB x 3' Lg	2			
45		Gasket for 6" BSP	9			
44		Gasket for 4" BSP	6			
43		Gasket for 3" BSP	3			
42		Gasket for 2 1/2" BSP	15			
41		Gasket for 1 1/2" BSP	6			
40		6" NB flexible pipe	3			
39		Flange for 6" NB pipe	3			
38		6" NB pipe weldment	1			
37		6" NB pipe weldment	1			
36		6" NB pipe weldment	1			
35		6" NB pipe weldment	1			
34		6" NB pipe weldment	1			
33		6" NB pipe weldment	1			
32		6" NB pipe weldment	1			
31		6" NB pipe weldment	2			
30		Flang for 4" NB pipe	1			
29		4" NB pipe weldment	1			
28		4" NB pipe weldment	2			
27		4" NB pipe weldment	2			
26		4" NB pipe weldment	2			
25		Flange for 3" NB pipe	1			
24		3" NB pipe	1			
23		3" NB pipe weldment	1			
22		pipe weldment	3			
21		3" NB pipe weldment	1			
20		3" NB pipe weldment	1			
19		3" NB pipe weldment	2			
18		2 1/2" NB pipe weldment	6			
17		2 1/2" NB pipe weldment	1			
16		2 1/2" NB pipe weldment	1			
15		2 1/2" NB pipe weldment	2			
14		2 1/2" NB pipe weldment	3			
13		2 1/2" NB pipe weldment	2			
12		Flange for 1 1/2" NB pipe	2			
11		1 1/2" NB pipe weldment	1			
10		1 1/2" NB pipe weldment	1			
9		1 1/2" NB pipe weldment	1			
8		1 1/2" NB pipe weldment	1			
7		1 1/2" NB pipe weldment	2			
6		1 1/2" NB pipe weldment	1			
5		1 1/2" NB pipe weldment	1			
4		1 1/2" NB pipe weldment	2			
3	1070 25 510	Lub unit serving Rear RB	1			
2	1070 25 530	Lub unit serving Front RB Var II	1			
1	1070 25 530	Lub unit serving Front RB Var I	1			
Item No.	Qty	Descriptions	Material	No. off	T.P.C. Total	Remark
					HT-INKS	

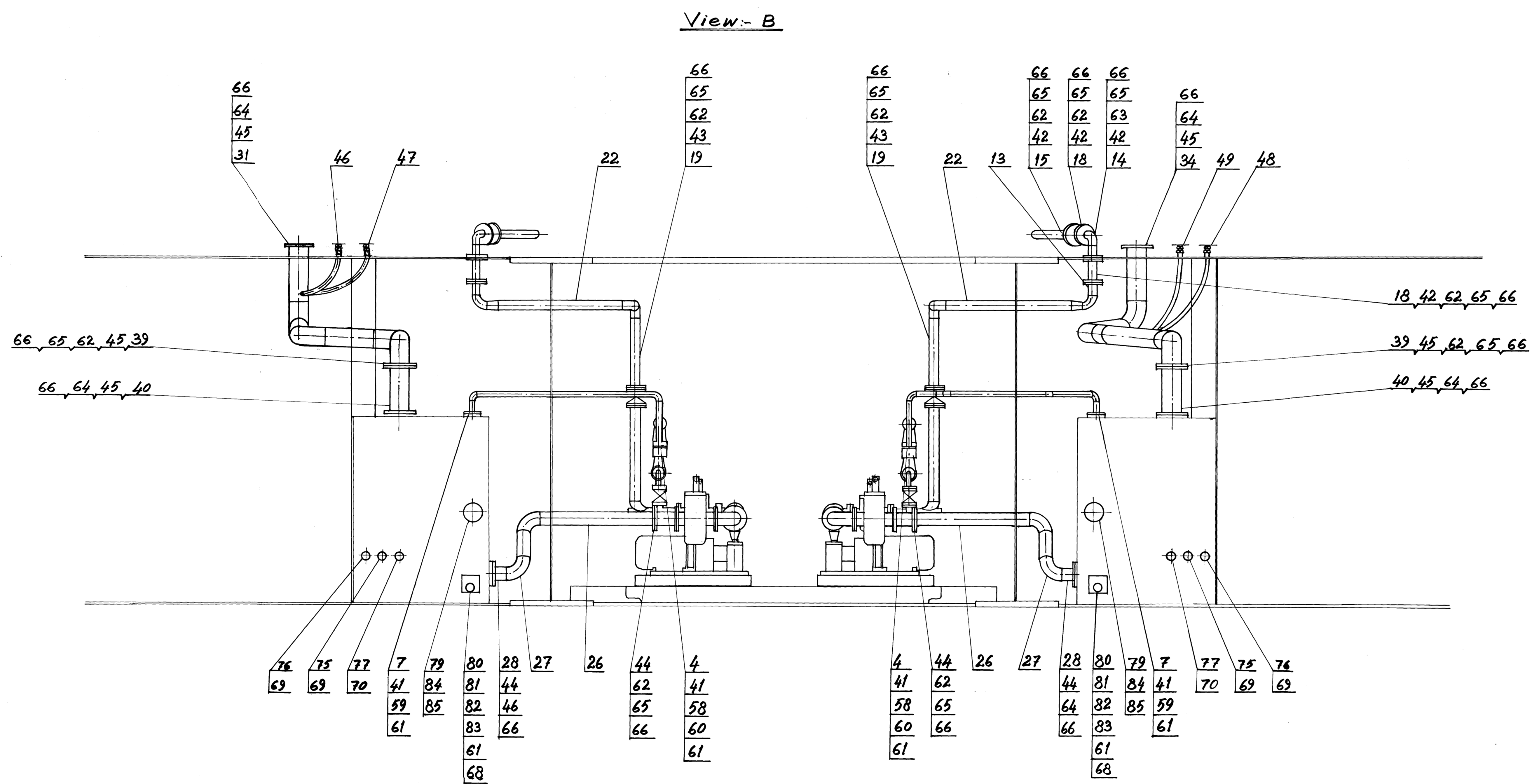
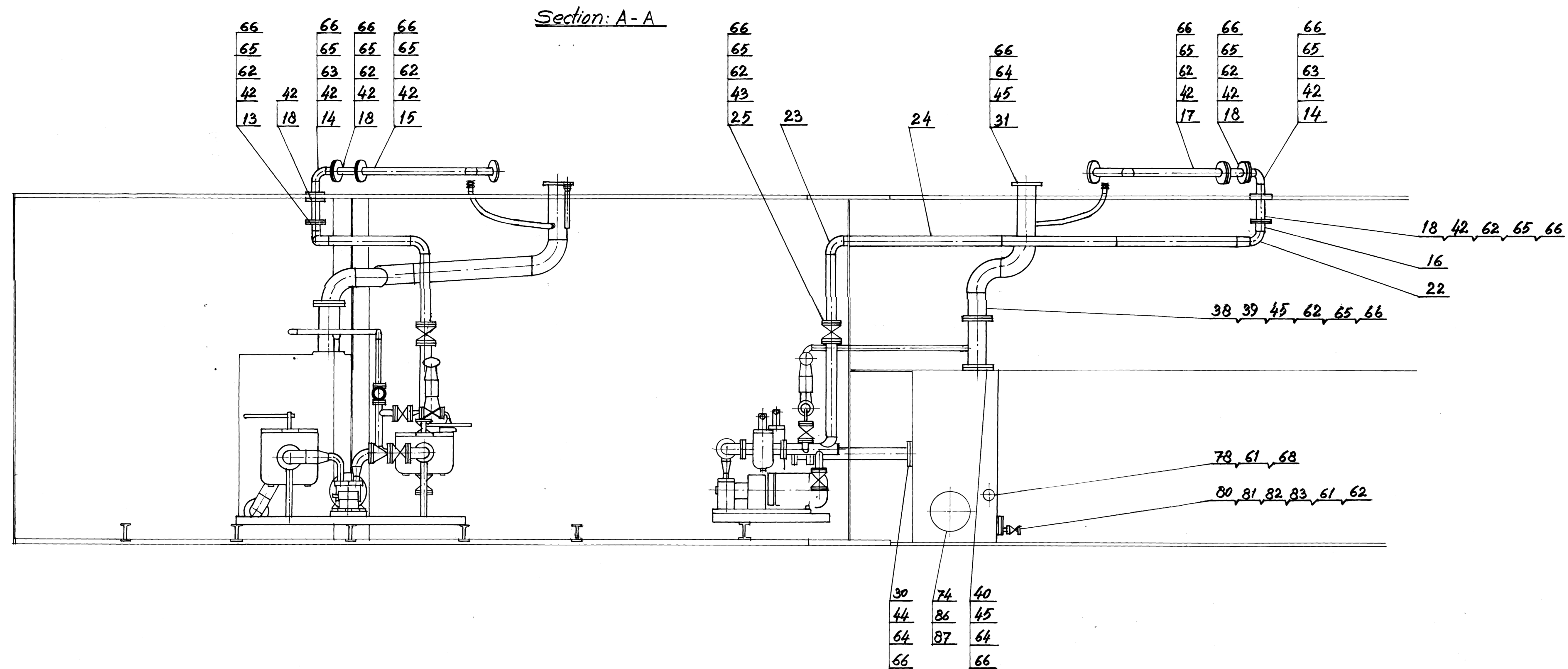
REVALIDATED
 B Resu L.H.
 Sig & Date: 10/1/51

1070 25 530
 Lub unit serving Front RB Var II
 1070 25 530
 Lub unit serving Front RB Var I
 1070 25 510
 Lub unit serving Rear RB

As per Denco Form No. 1070-25-530
 Wt in kgs 3800

Scale: 1:10
 HMB
 H.E.C.L.D. RANCH-4
 REY-1

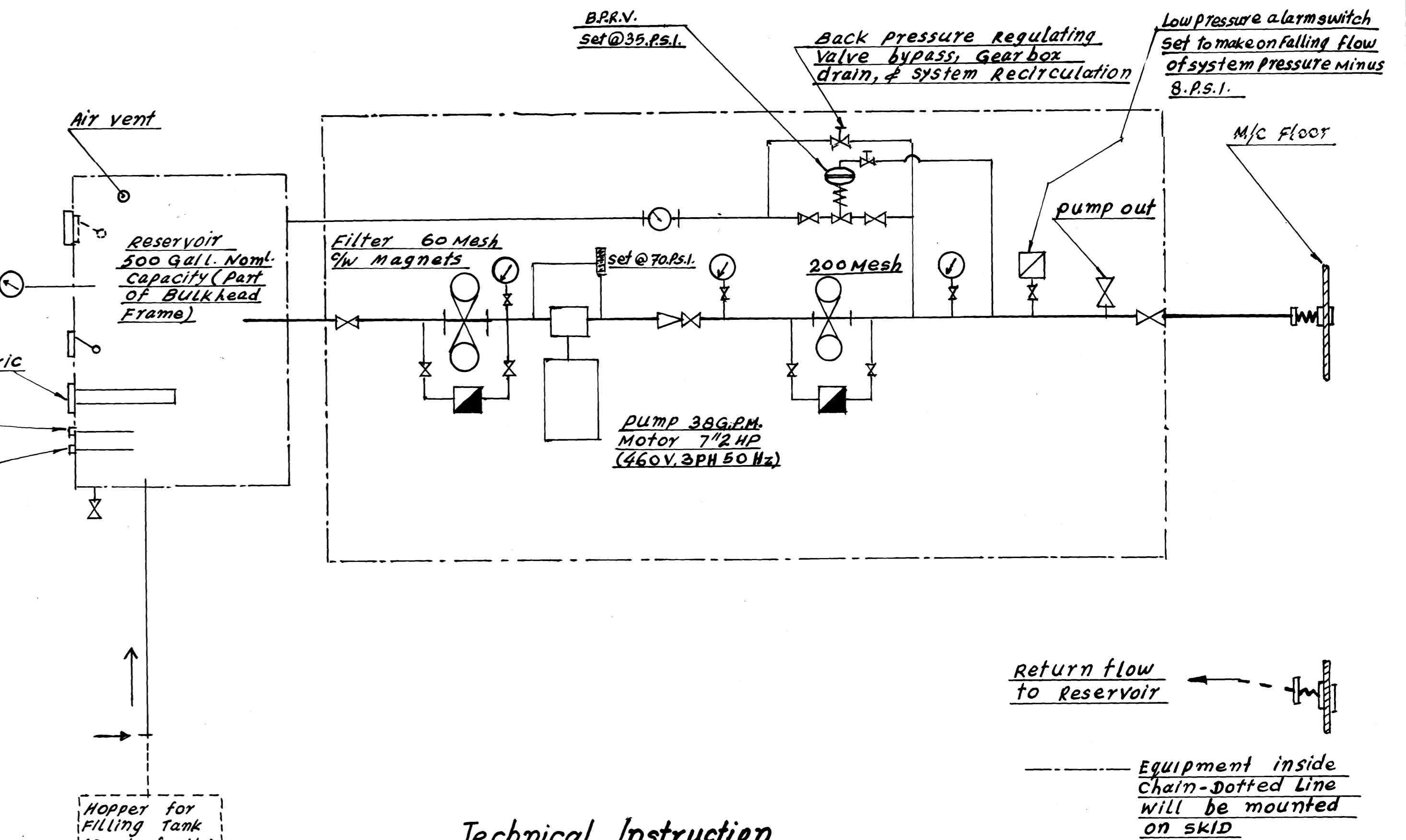
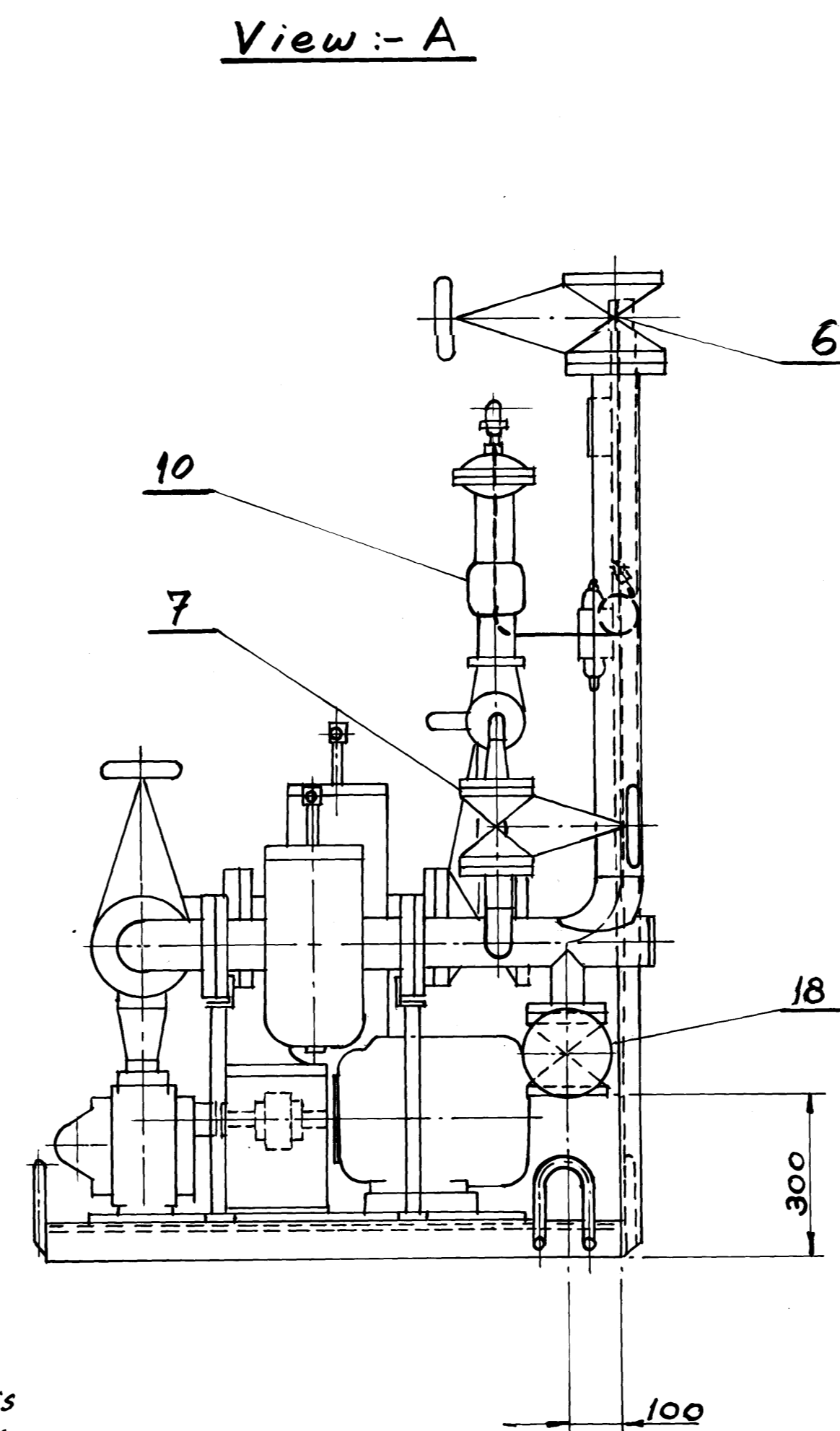
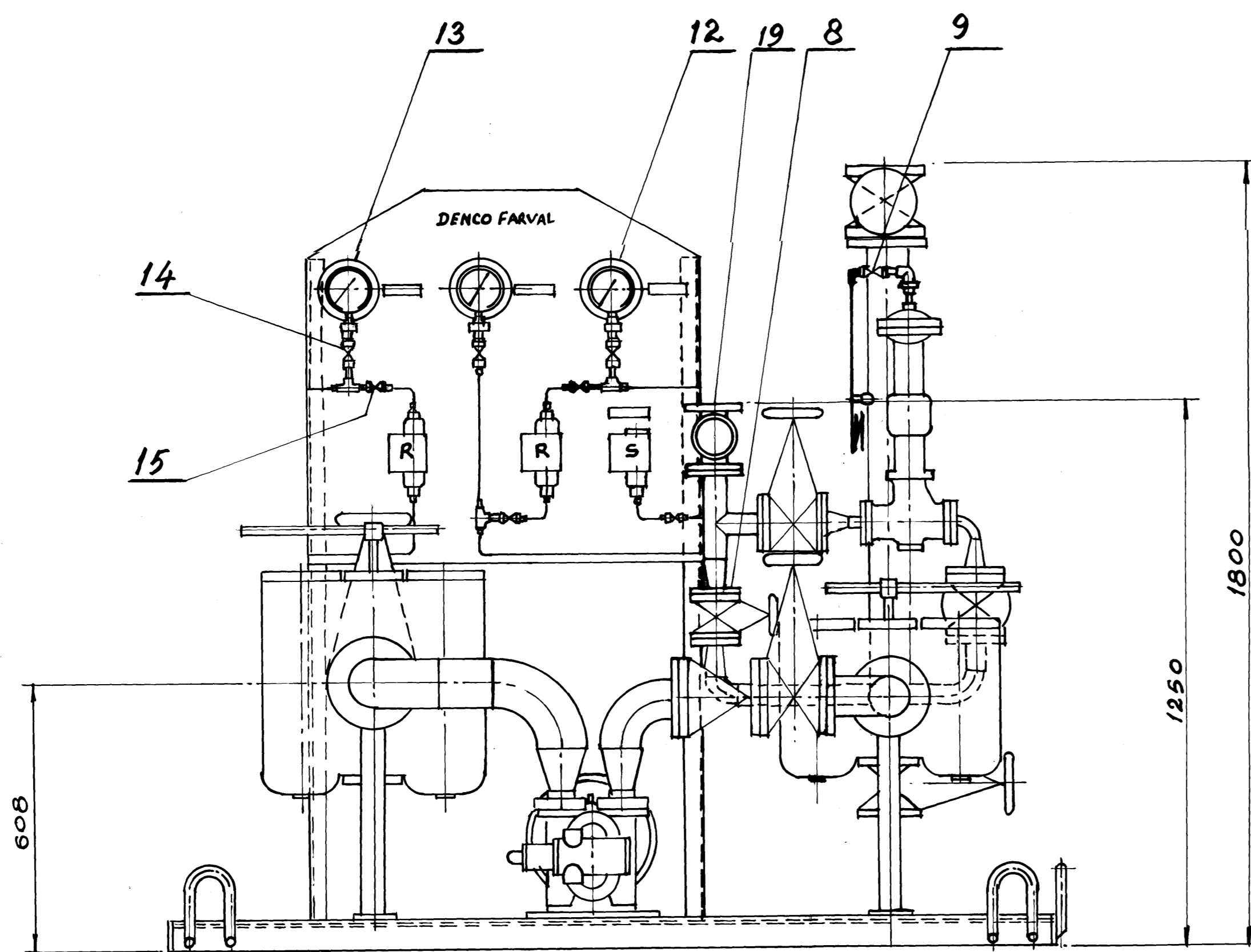
Rev. No.	Revision	Signature	Date



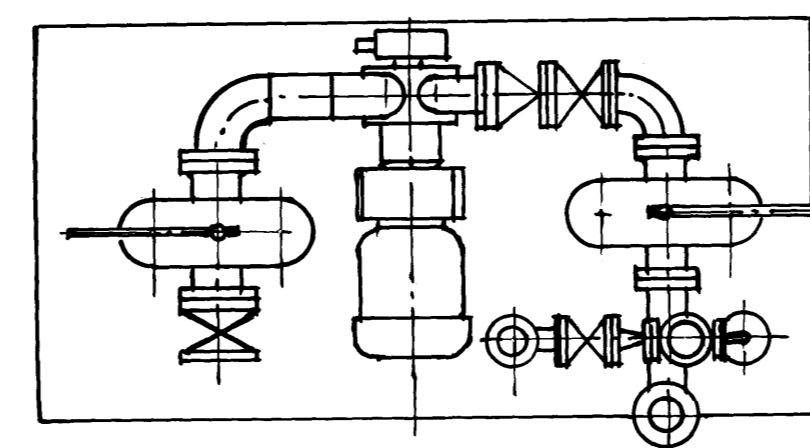
Order No.	Revision	Signature	Date

REVALIDATED
 Sig. Dt. *[Signature]* *[Date]*

Layout of Lubrication, Equip. 1070 25 530		sheet 2 of 2	
Lipment Serving Rotate Boxes		as per Denco Feroval Discs 1070 25 530	
Head of Dept. <i>[Signature]</i>	Checked by <i>[Signature]</i>	Scale: 1:20	NOV 87
Bureau Chief <i>[Signature]</i>	Group Leader <i>[Signature]</i>	HMB	
Designer <i>[Signature]</i>	Drawn by <i>[Signature]</i>		
HEC LTD. RANCHI		HEC LTD. RANCHI	

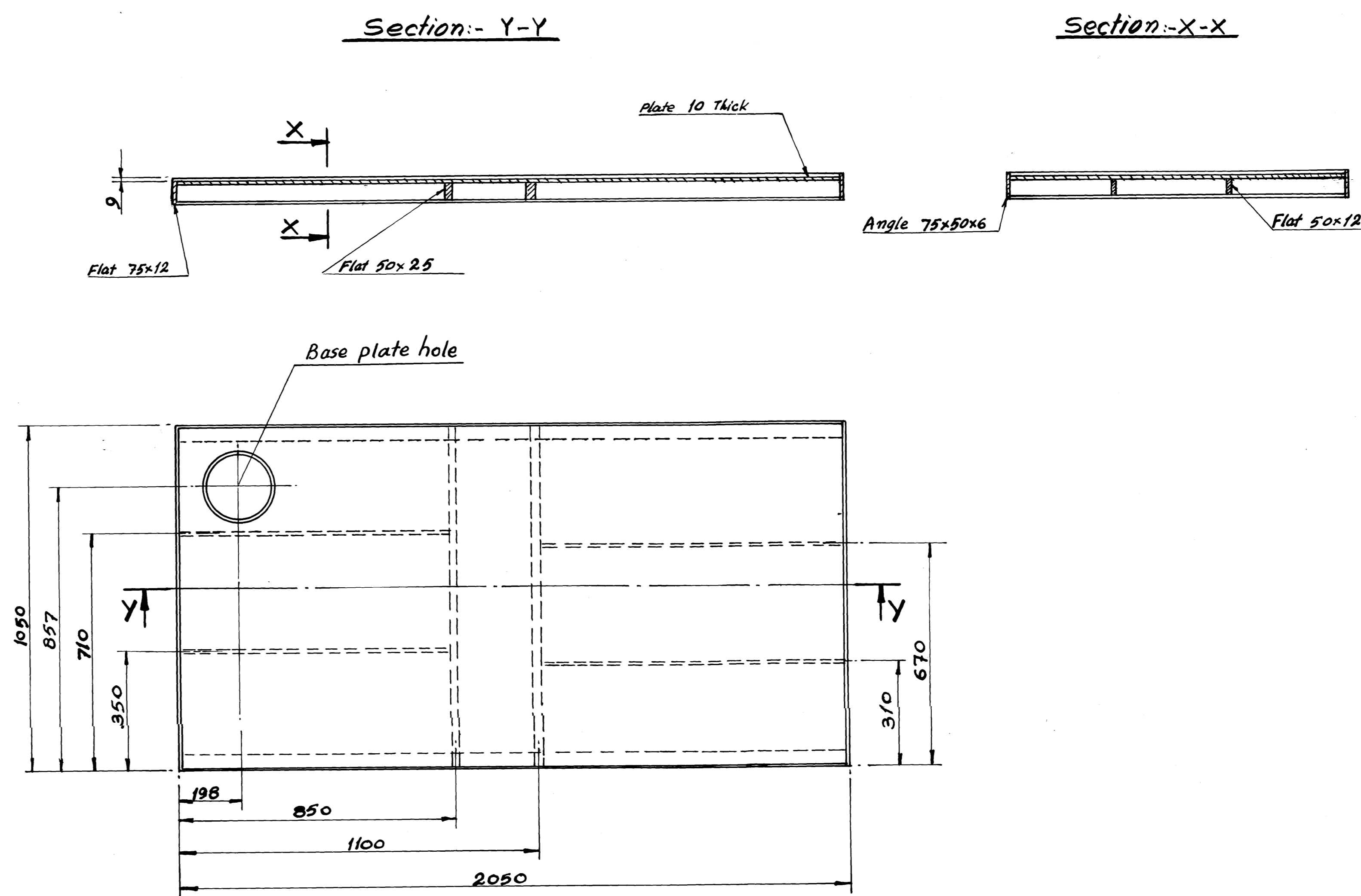
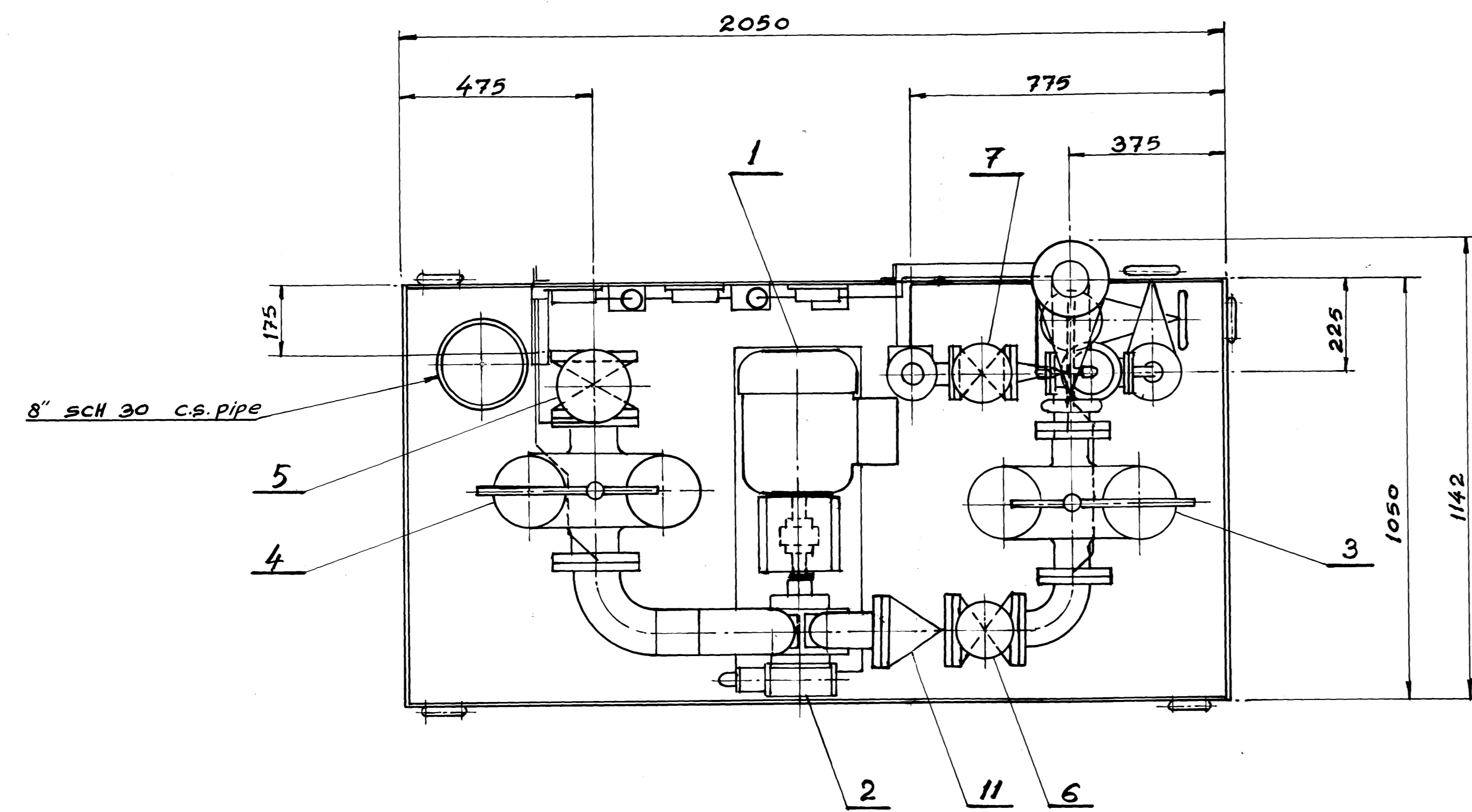


Var II
 Note:- Sketch for the second unit, which is symmetrically opposite to the first unit. Base plate hole not to be made in this.



Technical Instruction

- All surfaces to be cleaned and painted.
 External surfaces:- Two coats of universal primer plus one green top coat.
 Internal surfaces:- (a) Tank- oil resistant red paint.
 (b) Pipe work- pickled and oiled.
 All connections to be sealed.
- Electrics:- (a) Pump motors- 380V. 3 PH. 50 HZ
 (b) Instruments - 240V. 1 PH. 50 HZ

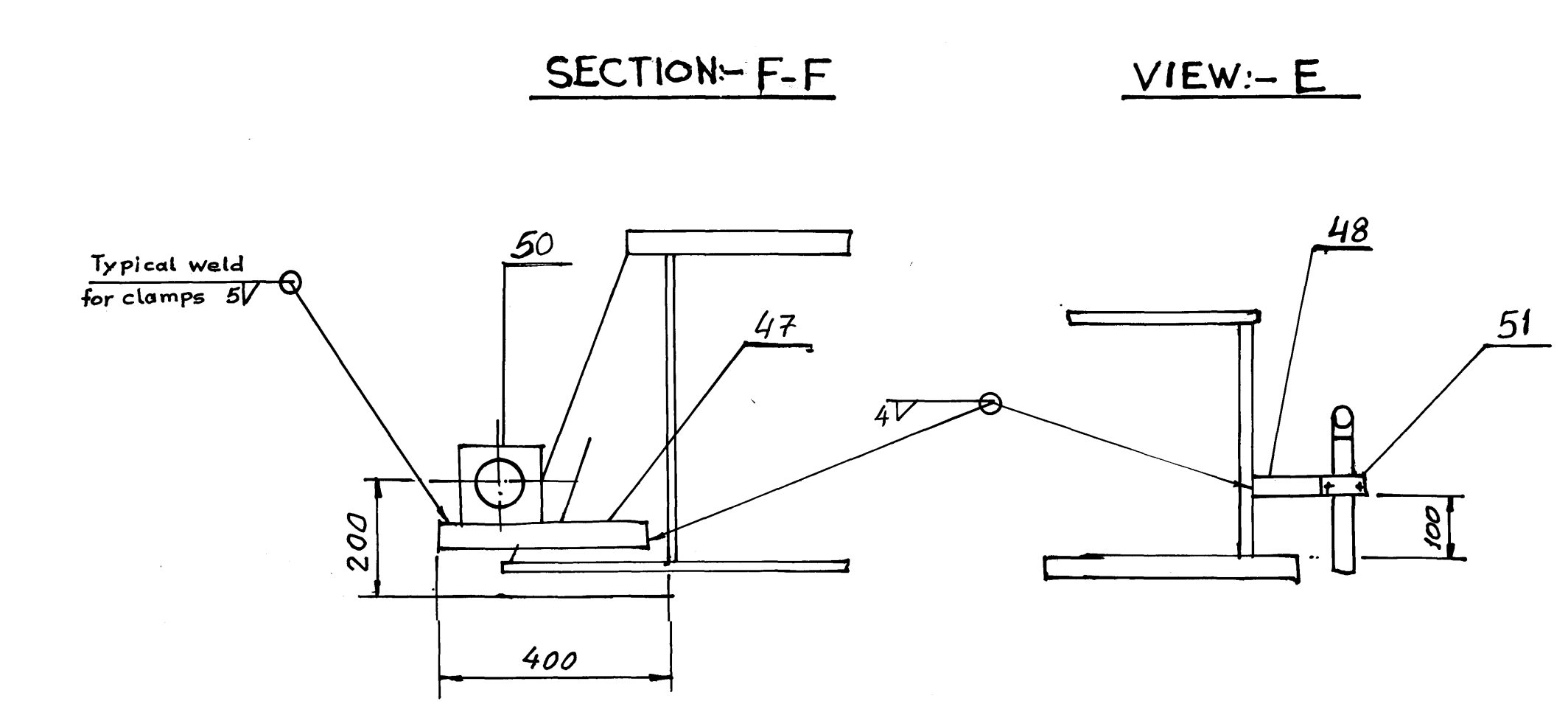
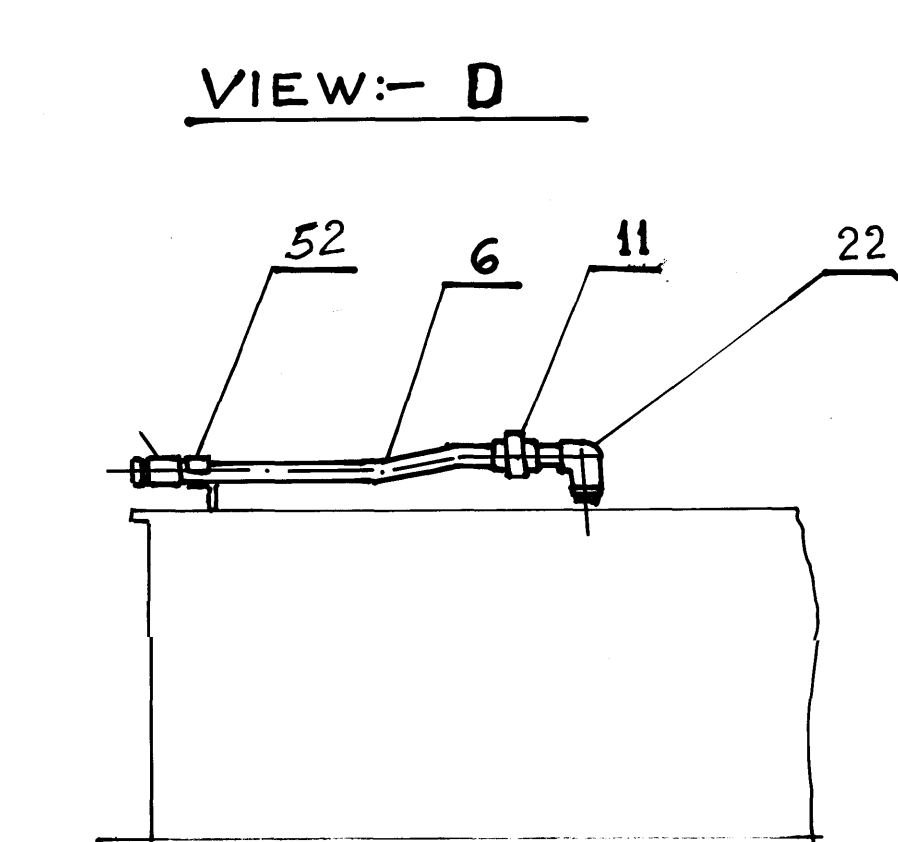
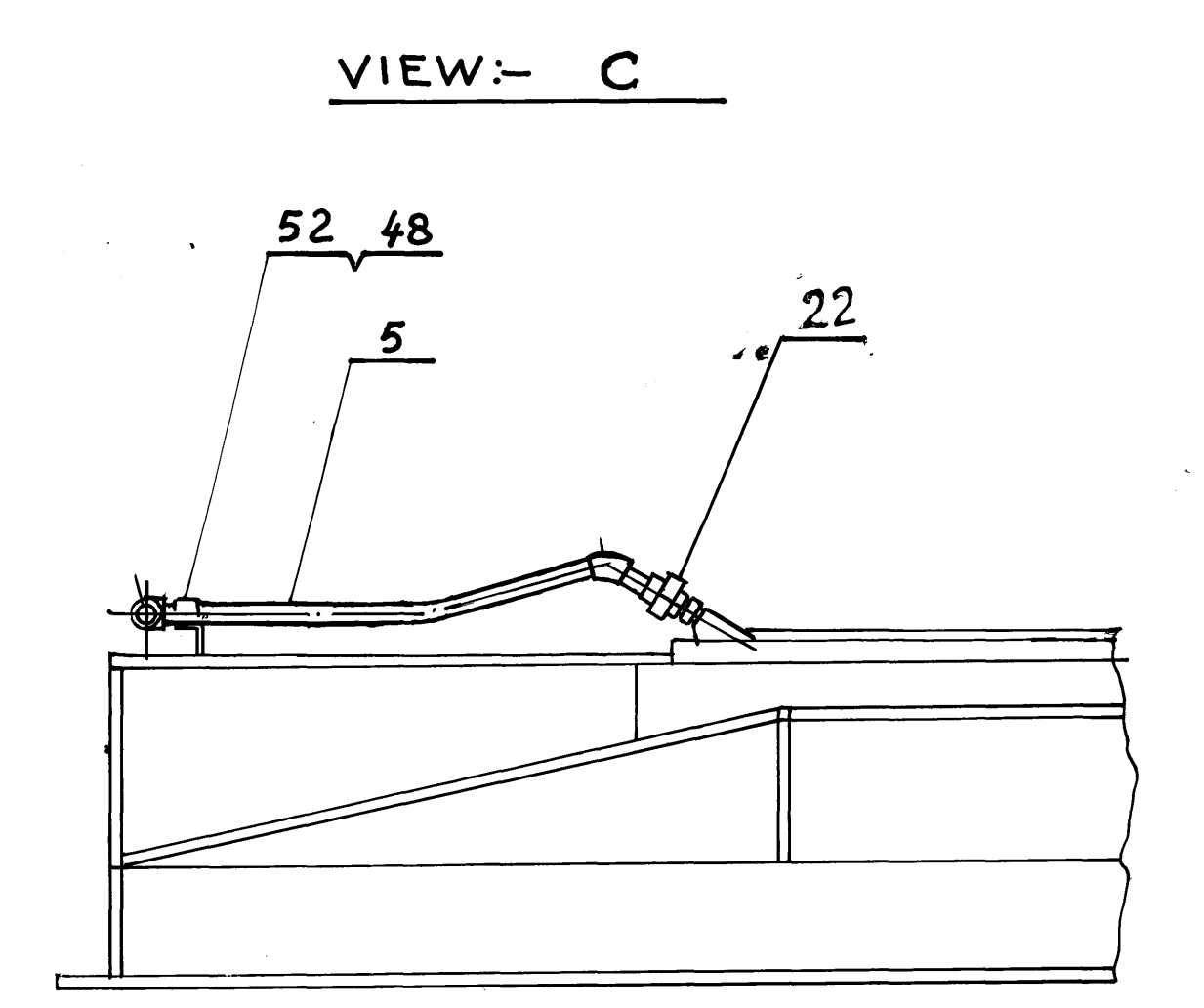
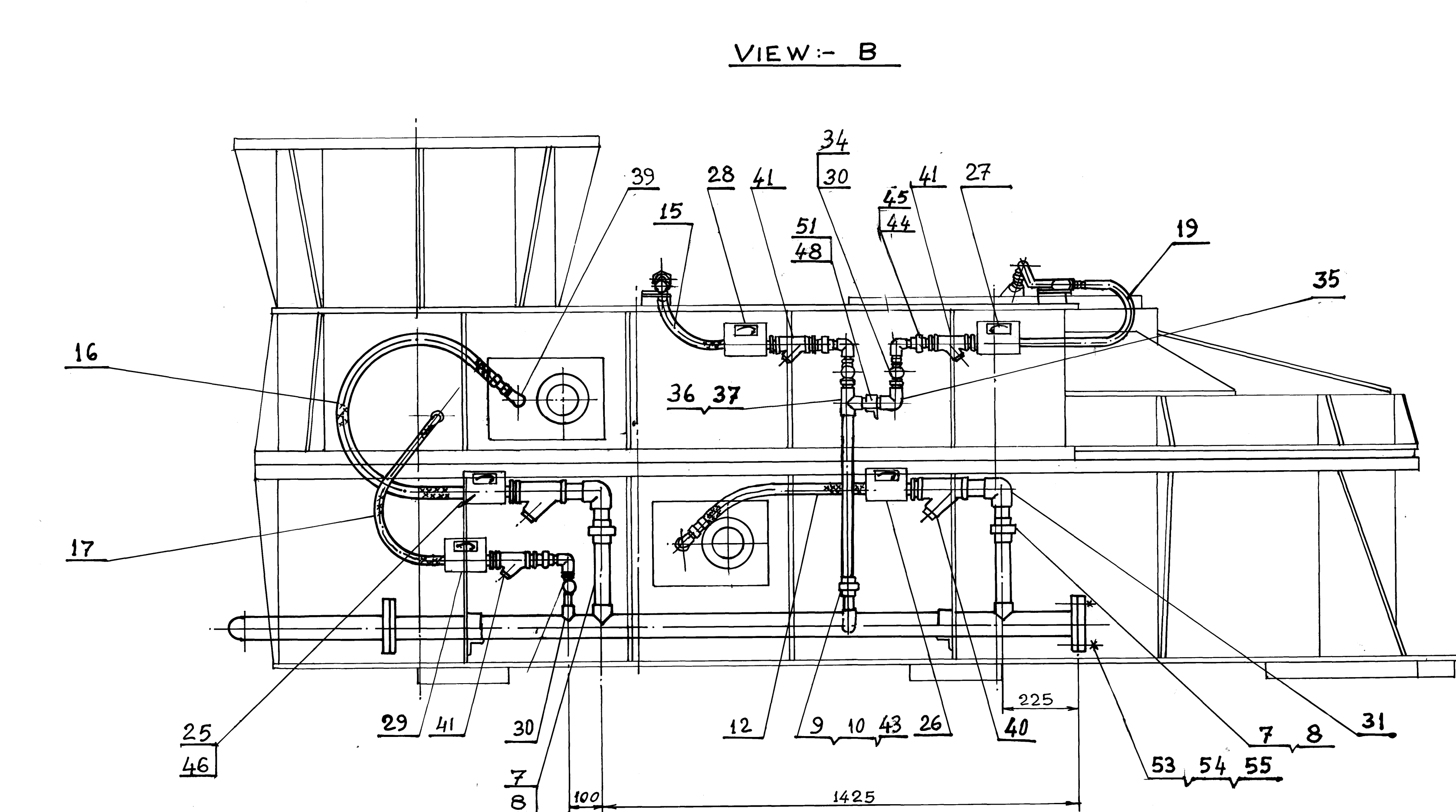
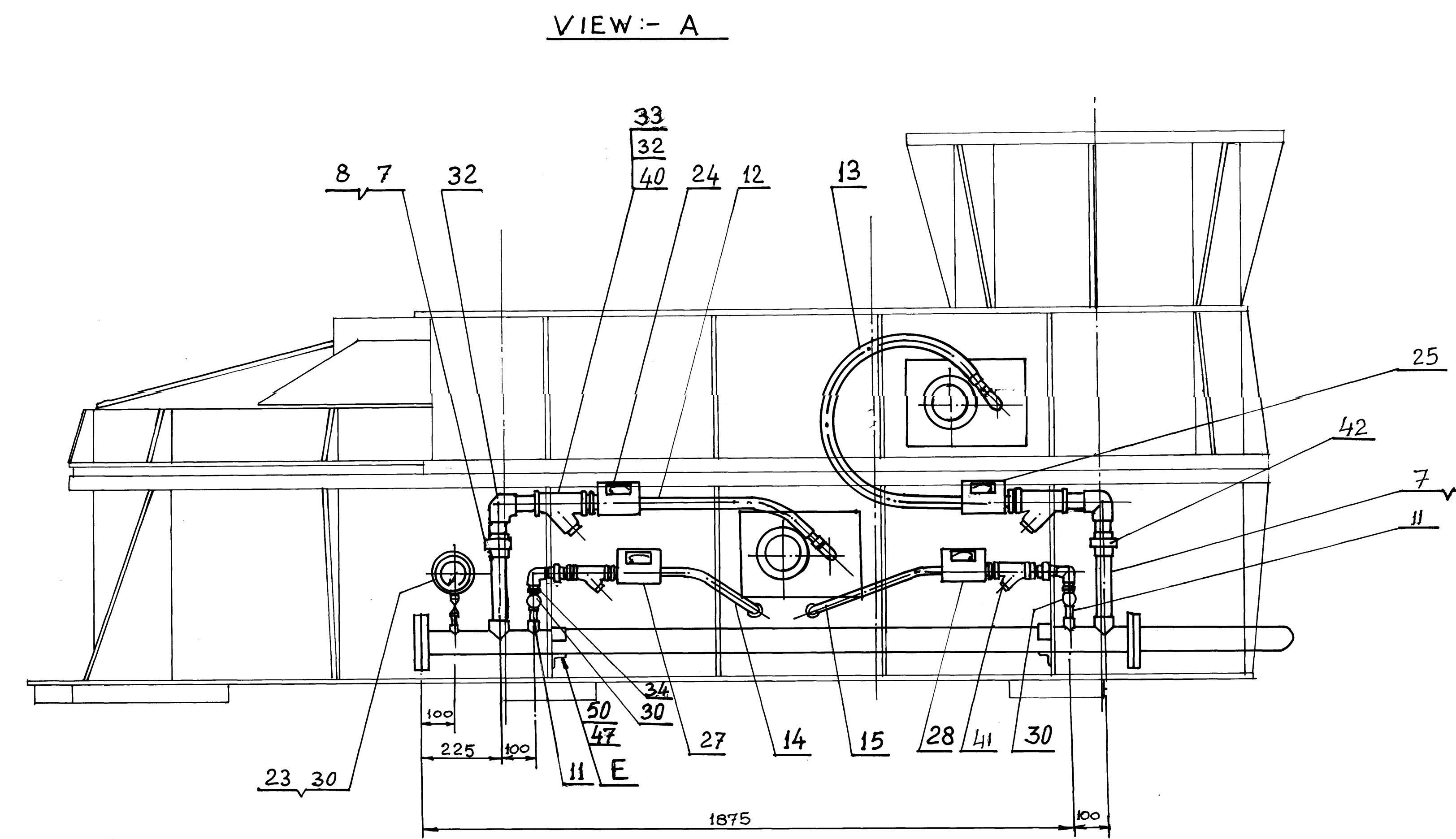
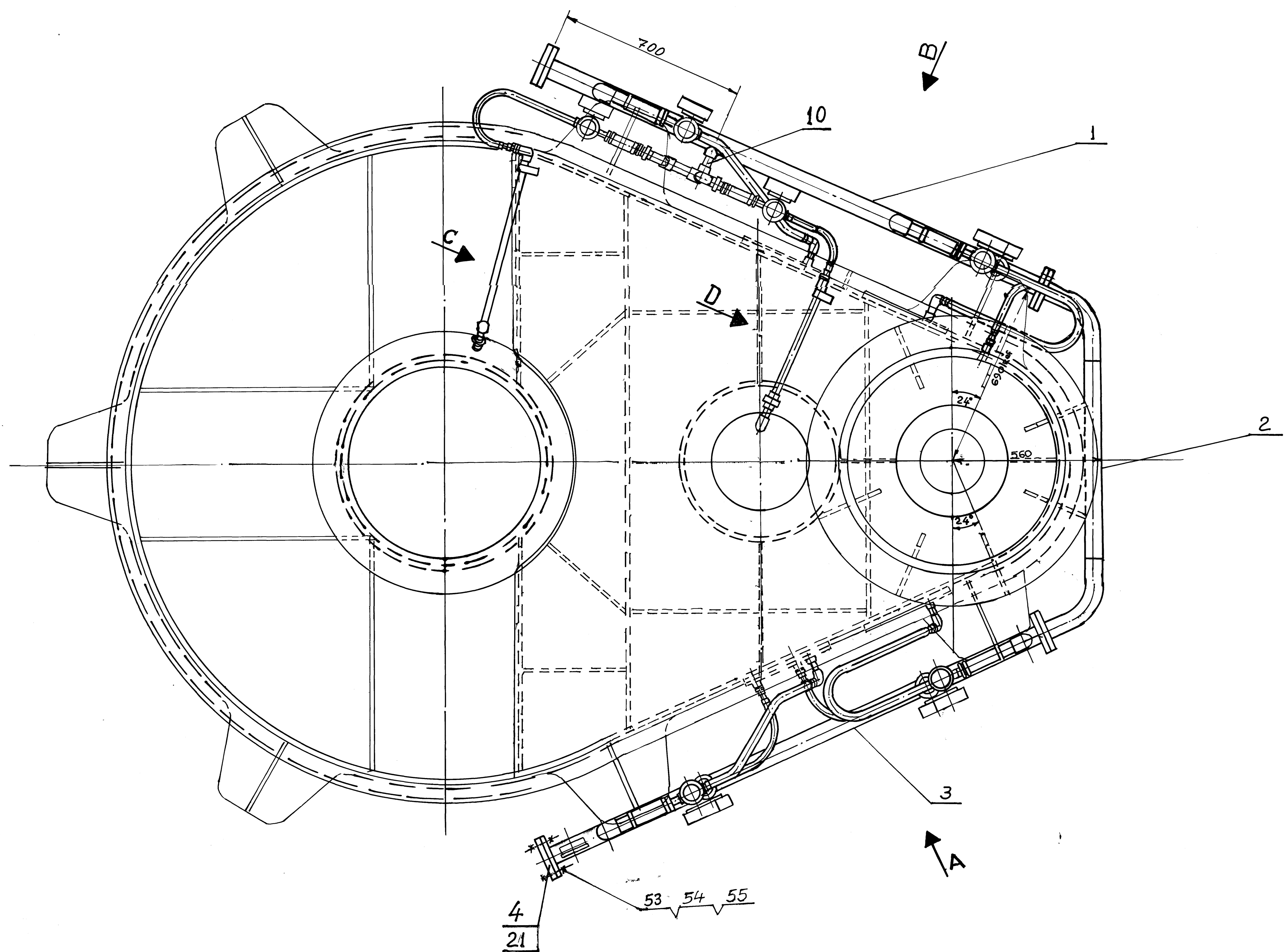


Item No.	Qty.	Description	Material	Unit	Total	Remarks
19	1	Flow Indicator 1 1/2"			1	
18	1	Gate valve 2"			1	
17	1	Pressure Switch Range 1 to 75 PSI			1	
16	2	Differential Pressure Switch Range 0-20 PSI differential gland cock 1/4 BSP			2	
15	5	gland cock 1/4 BSP			5	
14	3	Gauge cock 3/8 BSP			3	
13	1	Pressure Gauge 4" Dial Range 30 to 150 PSI 3/8 BSP direct mounting			1	
12	2	Pressure Gauge 4" Dial Range 0-100 PSI 3/8 BSP direct mounting			2	
11	1	check valve 3"			1	
10	1	Pressure Relief Valve 3/4"			1	
9	1	Globe Valve 3/8"			1	
8	1	Globe Valve 1 1/2"			1	
7	2	Gate Valve 1 1/2"			2	
6	2	Gate Valve 3"			2	
5	1	Gate Valve 4"			1	
4	1	Duplex Fitter 3" 200 MESH			1	
3	1	Duplex Fitter 4" 60 MESH			1	
2	1	Pump 38 GPM at 100 PSI FARVAL 50 RE 101			1	
1	1	Motor 7.5HP, 1450 RPM TEFC 380V 3PH 50Hz FARVAL D2520 or Eqv.			1	

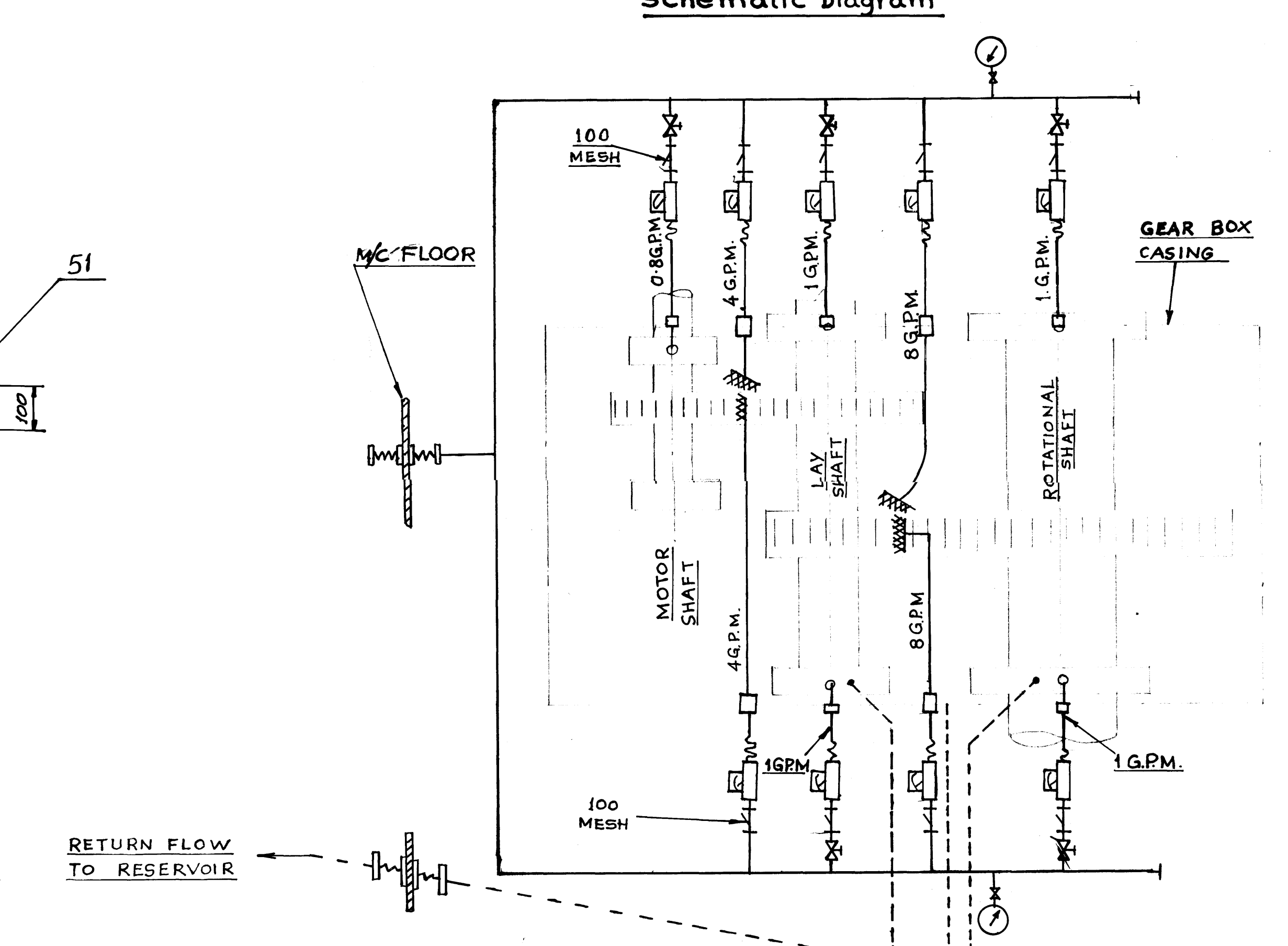
REVALIDATED

Lube Unit Serving Front Rotate Box
 as per Denco Farval Drg SC1040/50
 Wt in kgs - 750
 Scale - 1:10
HMB
 H.E.C. L.T.R. RANCH
 NOV 87

Ind. No.	Revision	Signature	Date



Schematic Diagram



55	Lock washer M16	16		
54	Nut M16	16		
53	Bolt M16 x 70	16		
52	Pipe clamp for 1 1/2\"/>			

INDEX NO.	DESCRIPTION	REV.	SIGN.	DATE

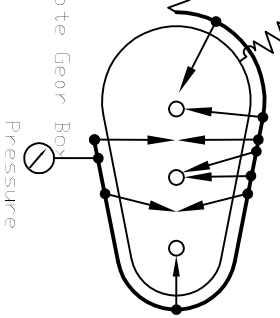
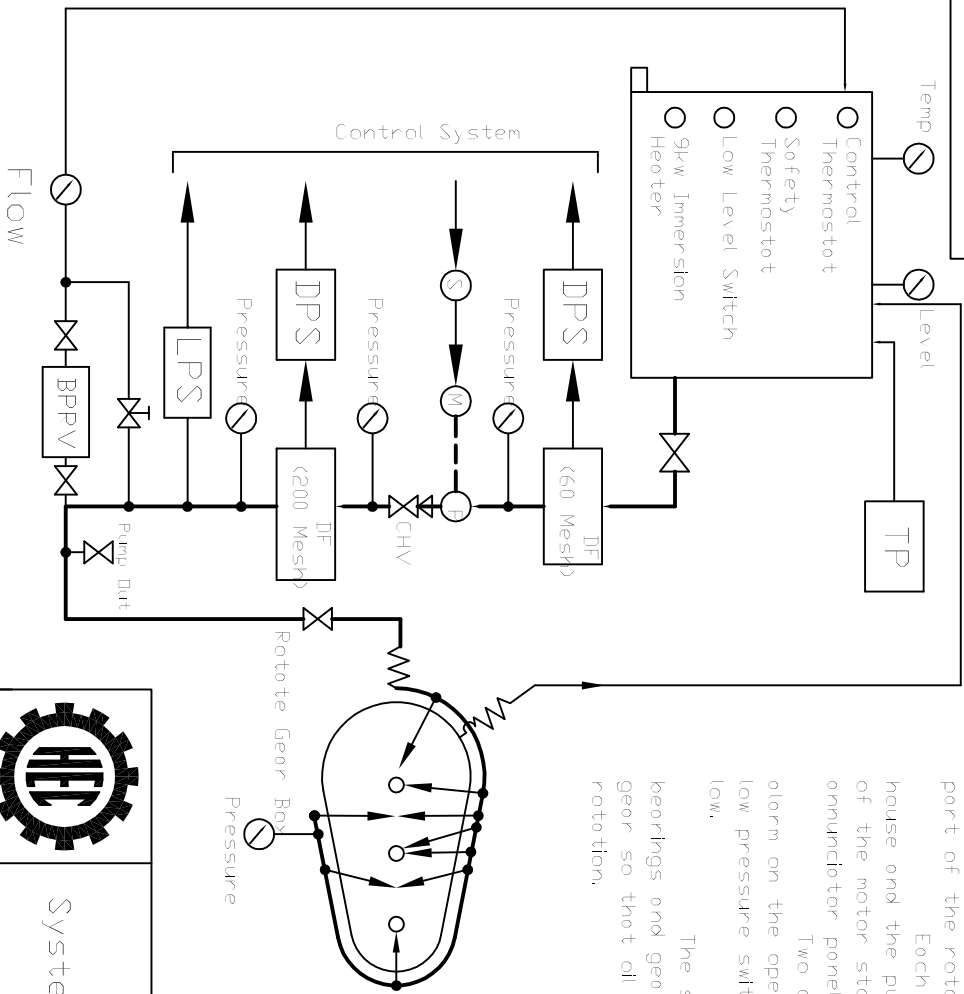
General Arrangement of Rotate Box External pipe work

1070.25.590
Wt. in kgs:- 145

MEMBER: H.N. BAH
BUREAU CHIEF: B. BHARGAVA
GROUP LEADER: A.P. YADAV
DESIGNER: A.P. YADAV
DRAWN BY: A.P. YADAV

SCALE: NTS
Sep. 09
HMB
H.E.C. LTD. RANCHI
Rev. 1

4301.72.125



Technical Instruction

System 7,8 and 9 comprises three identical separate oil spray lubrication system-one for each swing gearbox, the oil tanks are constructed as an integral part of the rotator frame.

Each system is controlled from the low voltage power control centre in the house and the pump motor run continuously whilst the machine is working. If one of the motor starters trips out, an alarm lamp will flash on the operator's annunciator panel.

Two differential pressure switches monitor the oil filters and initiate an alarm on the operator's annunciator panel if one of them becomes blocked. The low pressure switch will operate the same alarm if the system pressure falls too low.

The swing box oil delivery line contains nine outlets which feed oil to the bearings and gear meshing surfaces. Spray nozzles are fitted to both sides of each gear so that oil is applied as the gears engage irrespective of the direction of rotation.



Block Diagram for Oil Lub
System-7, 8 & 9 (Swing Gearboxes)
of Walking Dragline

BUREAU-CHIEF		R.B.Bhagat	SCALE-1:5	4301.72.125	MATERIAL-
GROUP LEADER		R.B.Bhagat	WEIGHT IN KG.-		
DESIGNER		A.P.Toppo		H.M.B.	Sep'09
DRAWN BY		A.P.Toppo			
REF.DRG.NO.			HEC LTD.,RANCHI		Rev-0