

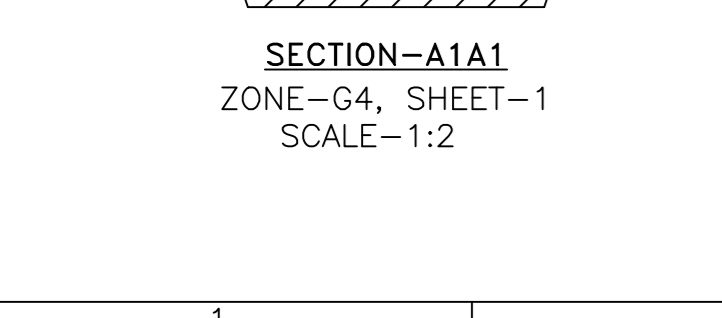
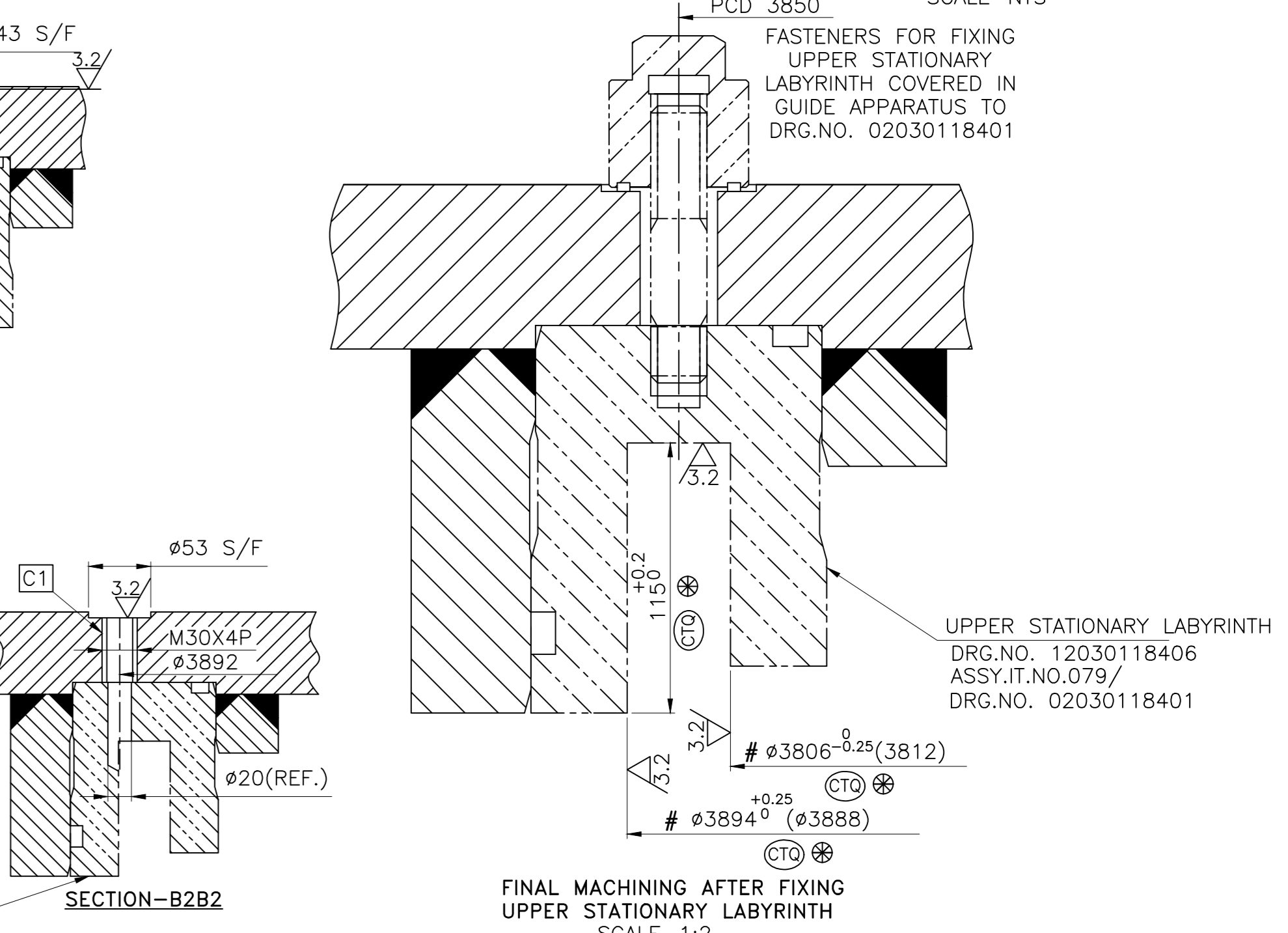
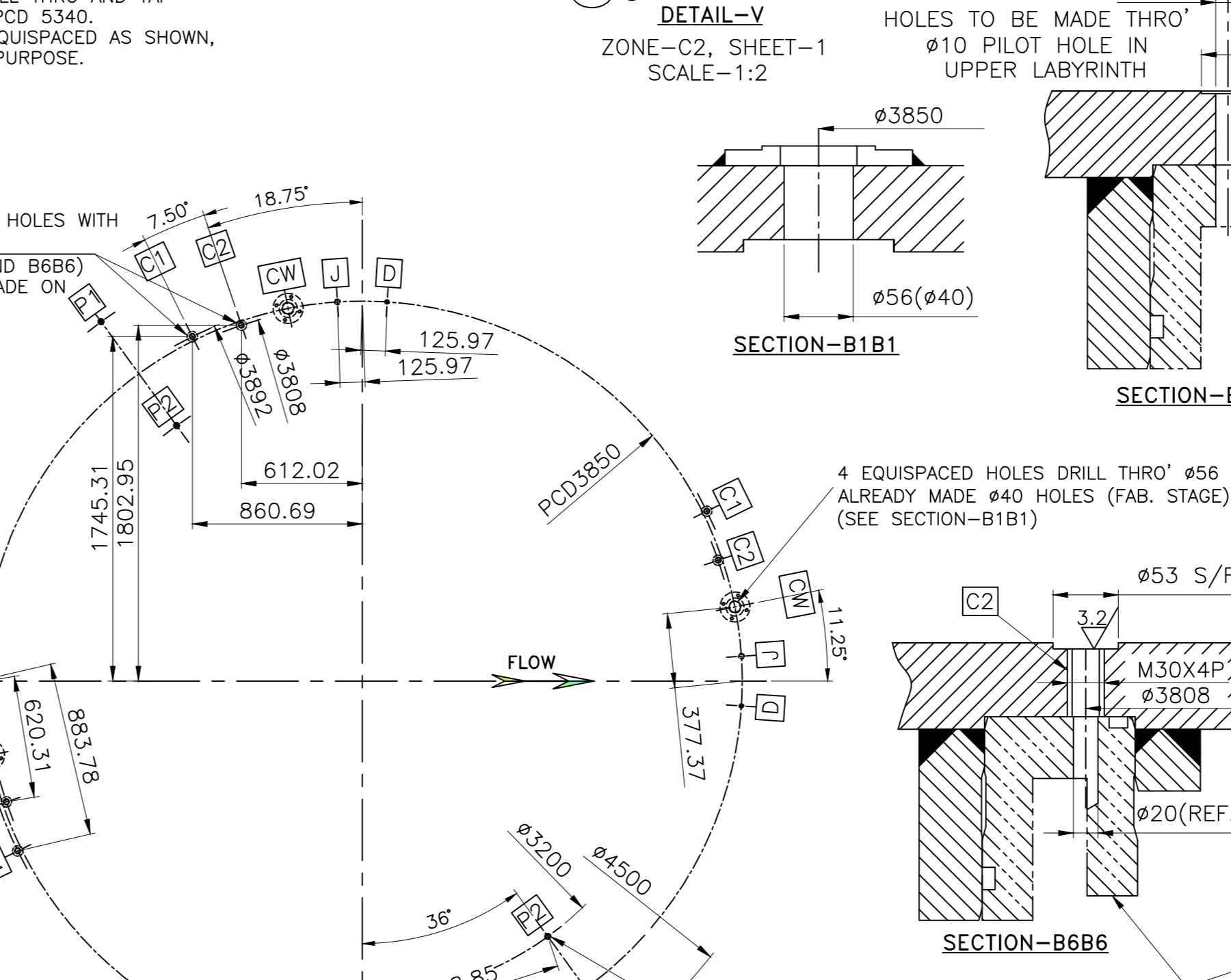
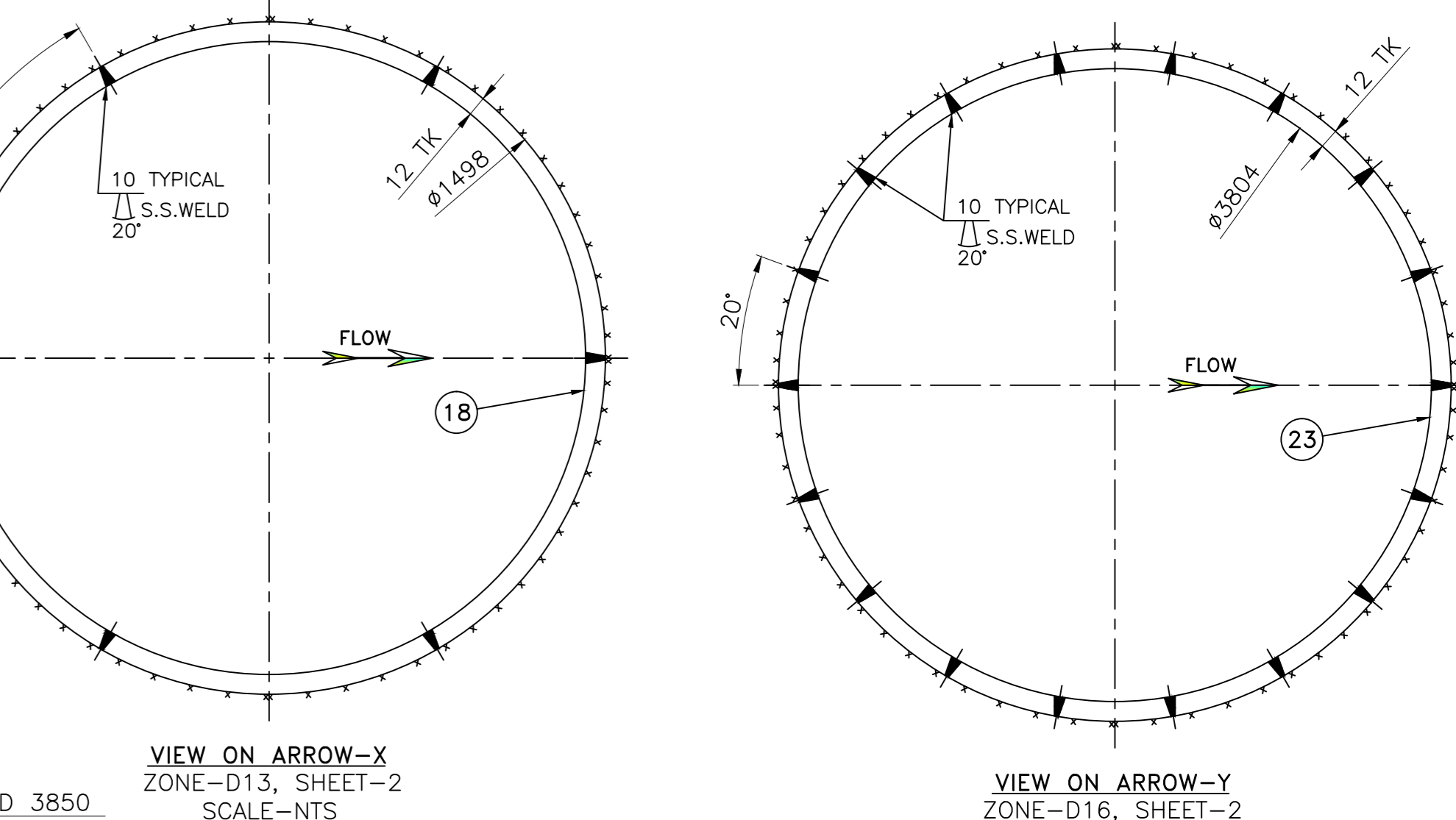
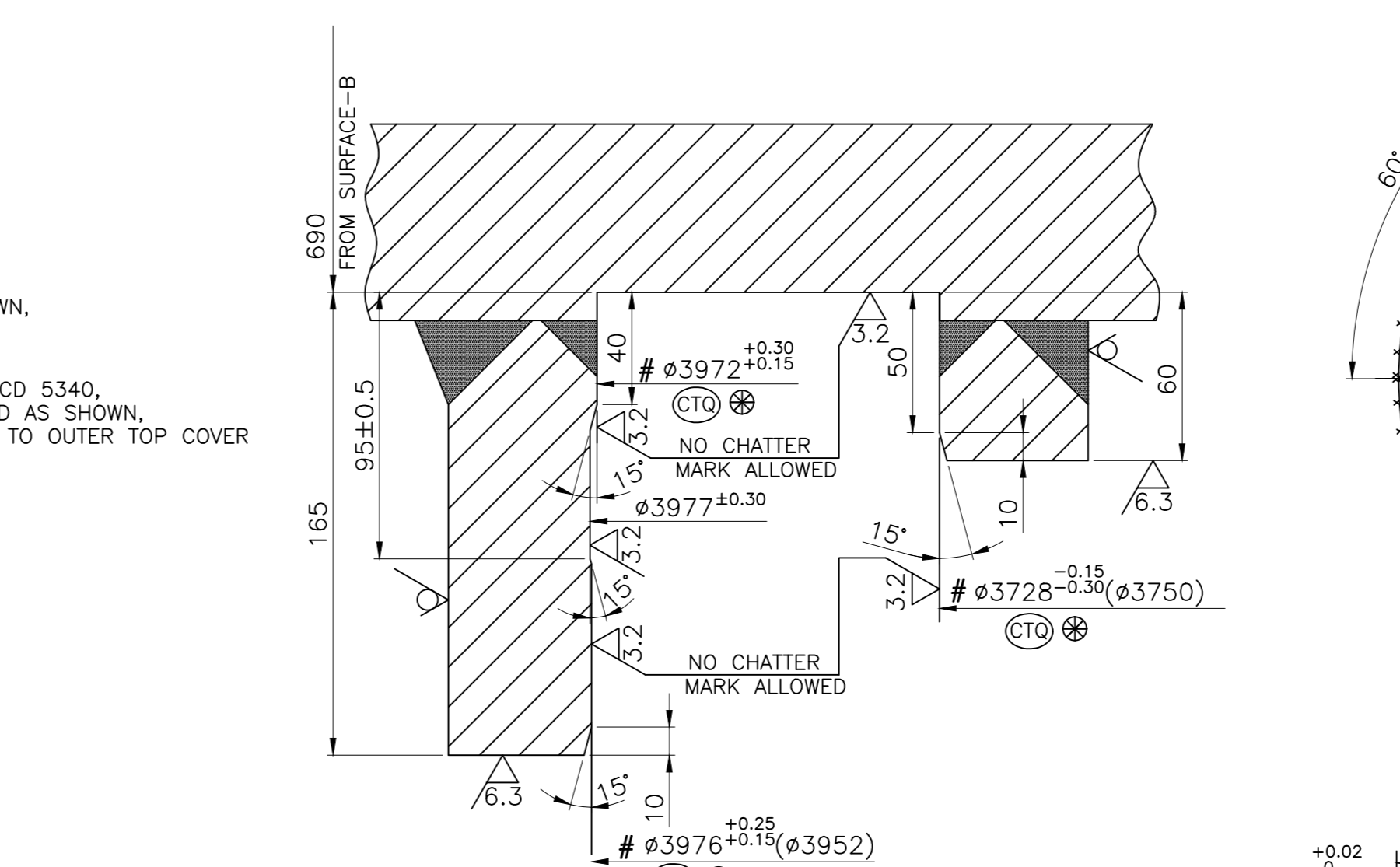
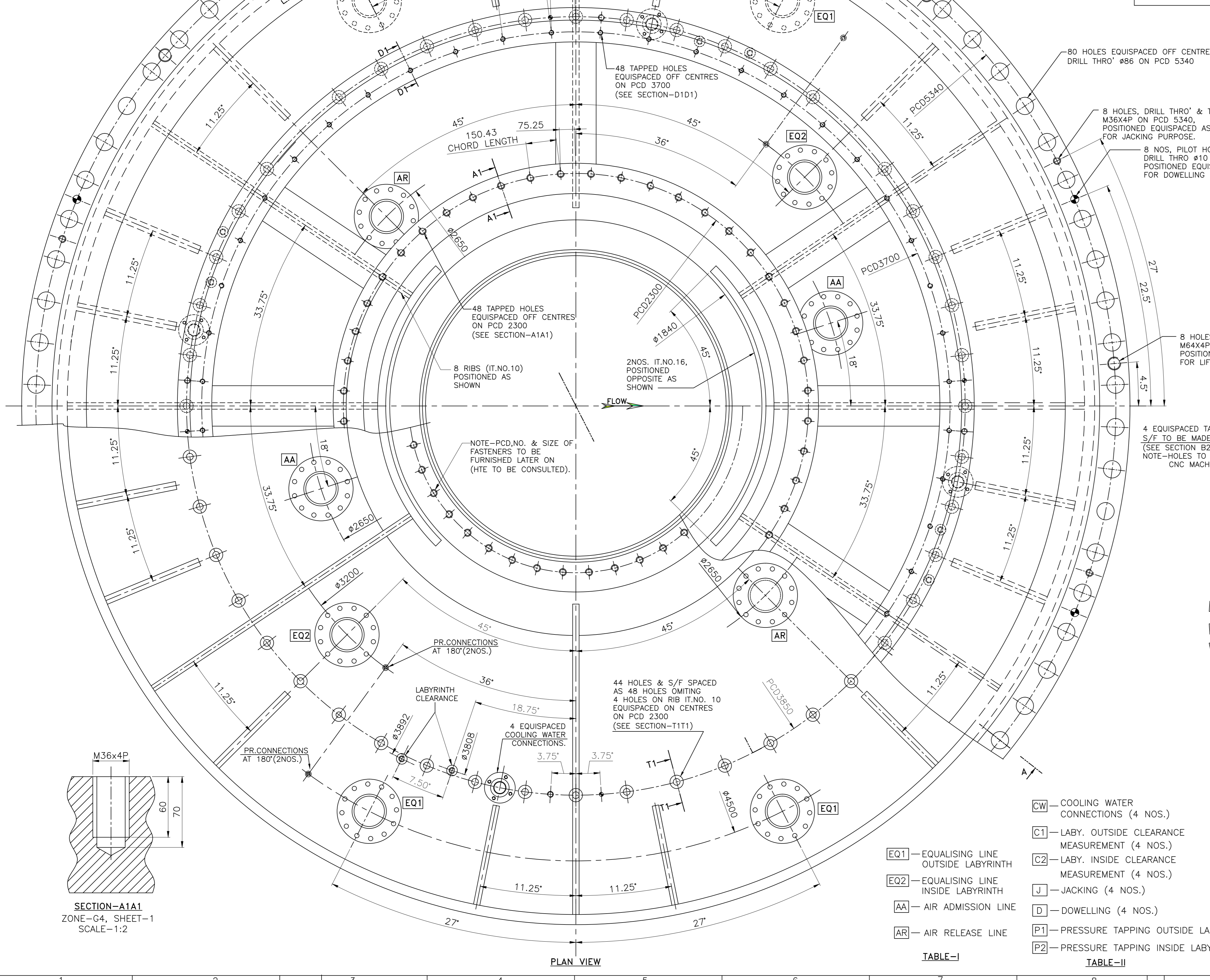
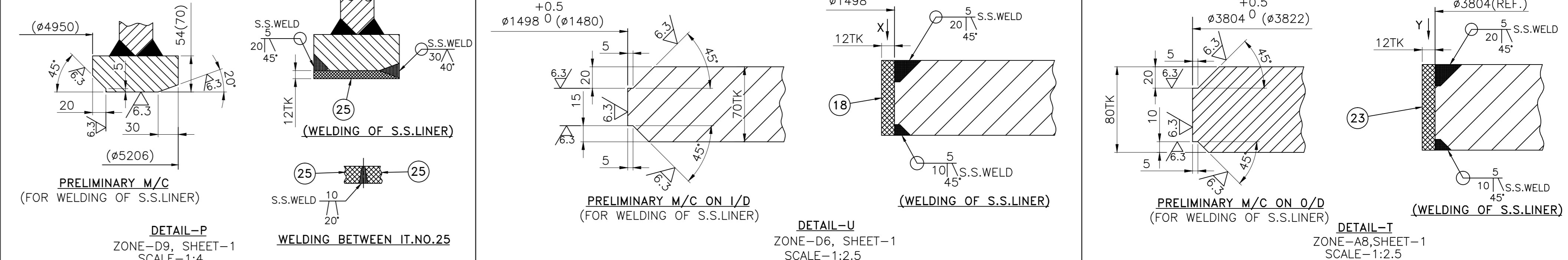
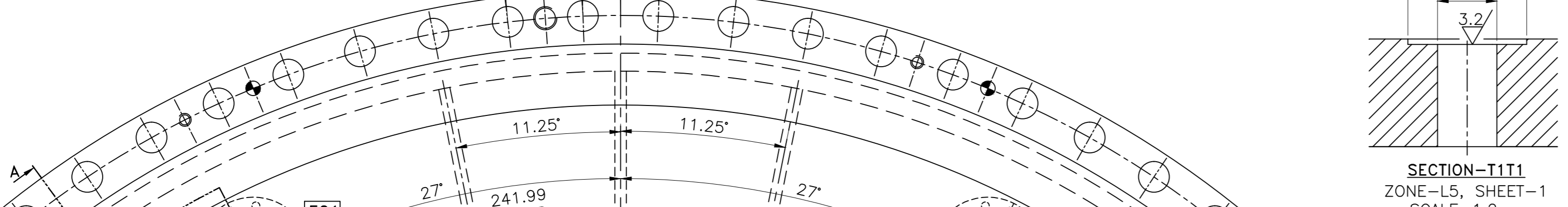
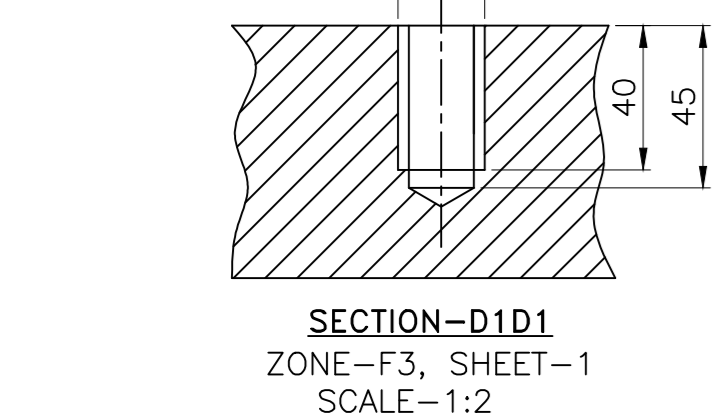
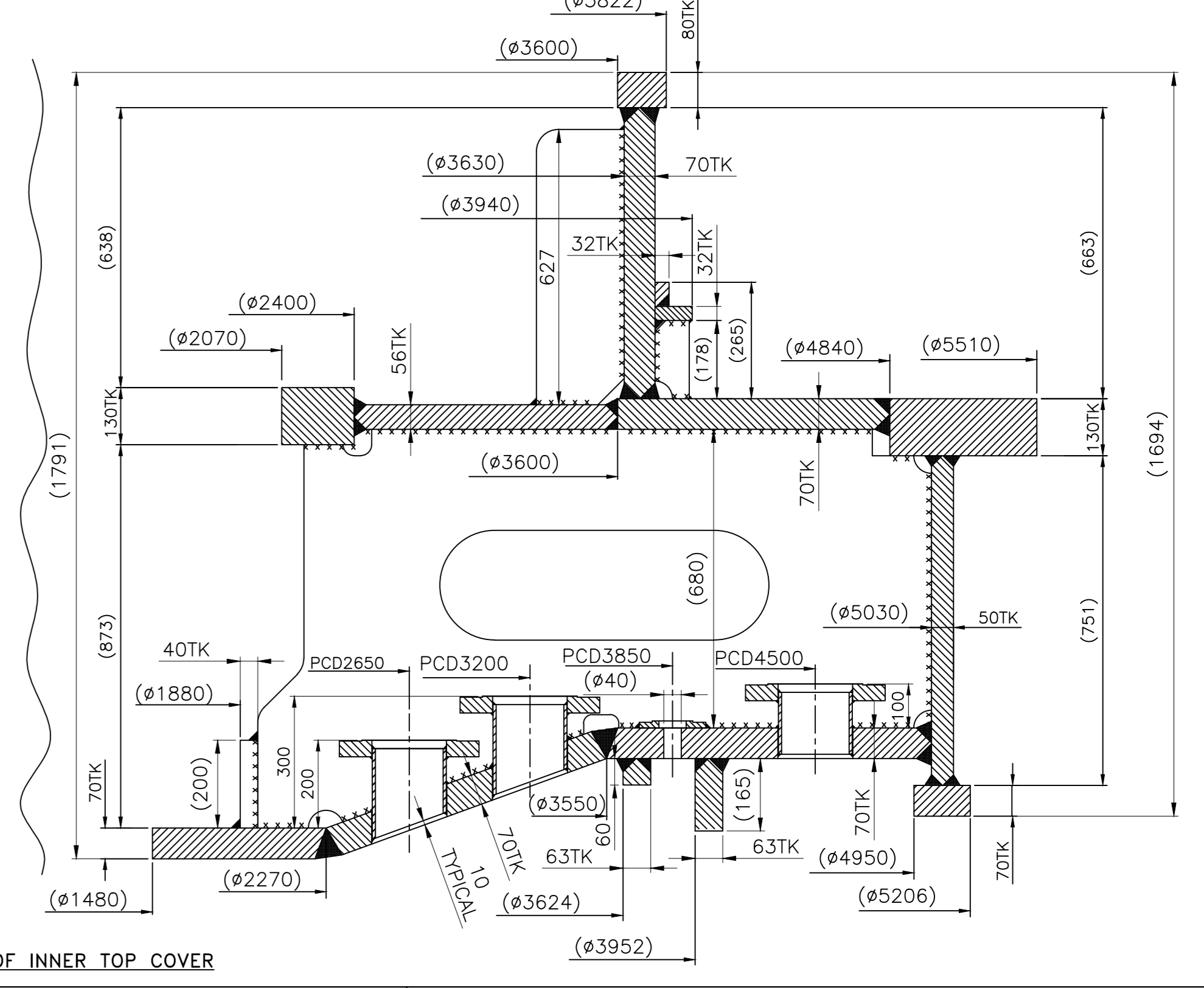
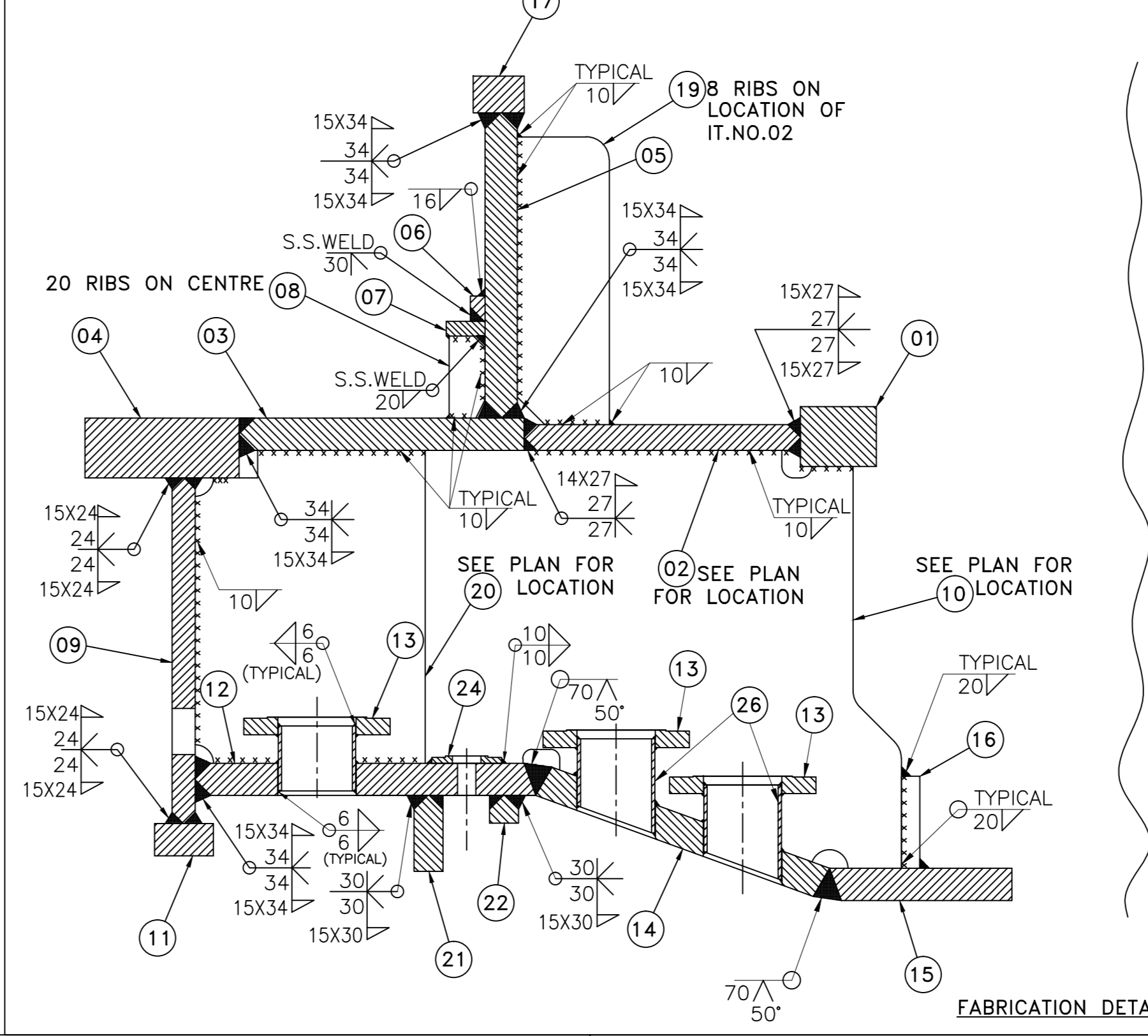
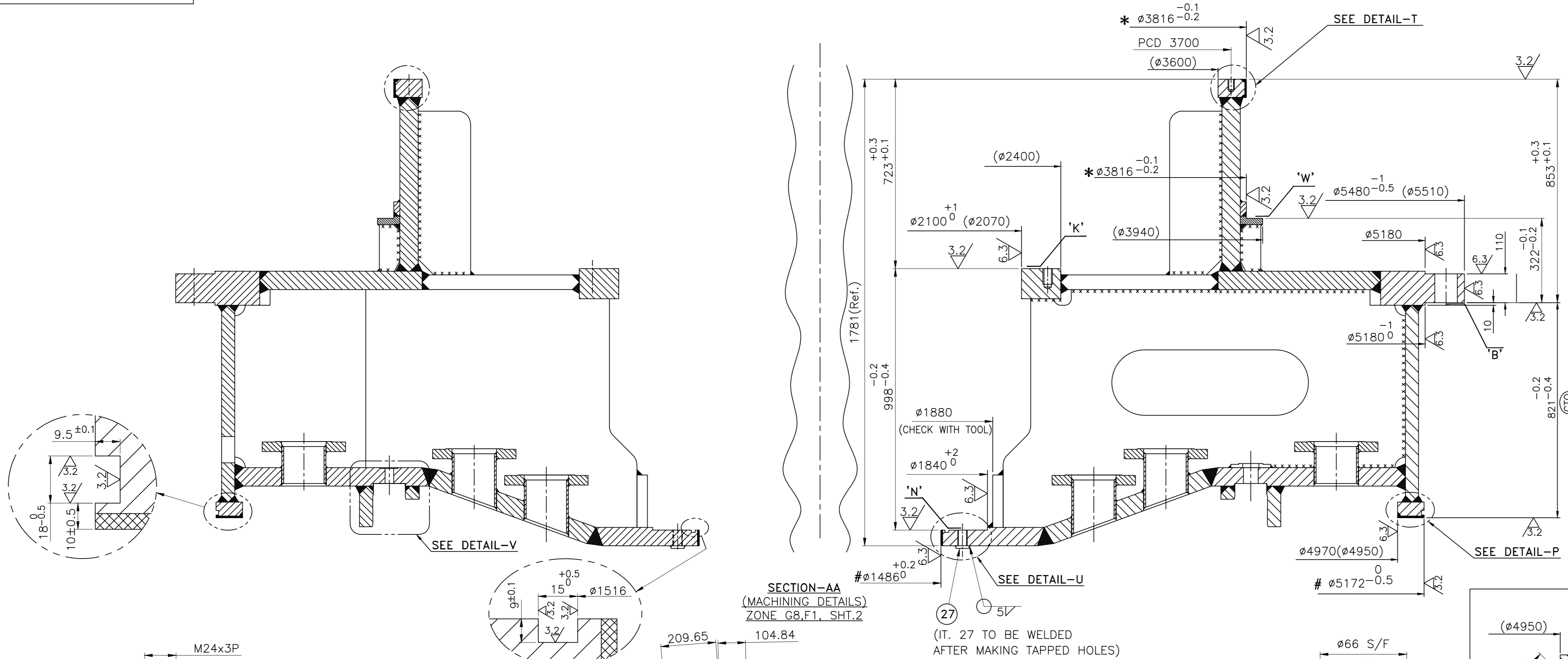
INVENTORY NO. SIGN & DATE REF. DRG NO. COMMENTS AND CONSENTS THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY, WITHOUT THE WRITTEN PERMISSION OF THE COMPANY.

| 10 b | 10P | 5 P | 4 P | 40FILL | 55A | 45A | 40A | 20A | 35 b | 20 b | 12 b | 10 b | 40P | 25P | 12P | 10P | 6 P | 5 P | 3 P | SIZE & SYMBOL OF WELD SEAM LENGTH IN M. | GRADE OF UNTOL. DIM.- | GRADE OF UNTOL. DIM.- | | | | | | | | | | | | | | | | | | | |
|------|------|------|------|--------|------|------|-------|-------|-------|-------|-------|------|------|-------|-------|------|------|------|------|---|---|-------------------------|--|-------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 0.79 | 0.79 | 8.72 | 0.67 | 1.88 | 1.04 | 19.6 | 16.20 | 21.64 | 1.88 | 15.16 | 17.14 | 2.76 | 7.84 | 16.25 | 20.03 | 7.04 | 0.05 | 0.72 | 0.14 | M/CC- $\gamma/\beta/\eta/\theta$ AA 0230208 | M/CC- $\gamma/\beta/\eta/\theta$ AA 0230208 | | | | | | | | | | | | | | | | | | | | |
| 0.57 | 0.43 | 1.16 | 0.06 | 13.40 | 10.9 | 90.3 | 95.3 | 29.87 | 14.76 | 33.5 | 14.57 | 1.99 | 56.3 | 42.08 | 14.92 | 3.81 | 0.10 | 0.10 | 0.01 | WELDING-A/ $\beta/\theta/\beta$ -AA621104 | WELDING-A/ $\beta/\theta/\beta$ -AA621104 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | TYPE OF ELECTRODE | | GAS CUTTING-T3AA0621101 | | GAS CUTTING-T3AA0621101 | | | | | | | | | | | | | | | | | |

| REV. | DATE | ALTERED | CHECKED | REV. | DATE | ALTERED | CHECKED | REV. | DATE | ALTERED | CHECKED | REV. | DATE | ALTERED | CHECKED | REV. | DATE | ALTERED | CHECKED | | | |
|------|------|---------|---------|------|------|---------|---------|------|------|---------|---------|------|------|---------|---------|------|------|---------|---------|--|--|--|
| | | | | | | | | | | | | | | | | | | | | | | |

| | | | |
|---|---------------|-----------------------------------|---|
| CBOM NO. 01603570041 | STATUS PDR | DATE 29.5.15 | TYPE OF PRODUCT OR NAME OF CUSTOMER/ PROJECT 800 MW WANAKBORI |
| APPROVED BY NAME BL MEENA | SIGN SD/- | DATE 29.5.15 | |
| BHARAT HEAVY ELECTRICALS LTD. HARDWAR | | DRN T.BANSAL | NAME Sd. 06.05.15 |
| | | CHD R.BANSAL | DATE 06.05.15 |
| | | APD S.KANT | DATE 30.05.15 |
| DEPT. HXE | SCALE 1:20 | WEIGHT(Kg.) SEE TABLE | REF. TO ASSY. DRG. --- |
| CODE 4222 | | | |
| TITLE REAR WATER BOX (TUR.SIDE) | | DRAWING NO. 01603570041 | NO. OF SHEETS 01 |

5091 10 202 0 'ON' 980



CW - COOLING WATER CONNECTIONS (4 NOS.)
 C1 - LABY. OUTSIDE CLEARANCE MEASUREMENT (4 NOS.)
 C2 - LABY. INSIDE CLEARANCE MEASUREMENT (4 NOS.)
 J - JACKING (4 NOS.)
 AA - AIR ADMISSION LINE
 AR - AIR RELEASE LINE
 D1 - DOWELLING (4 NOS.)
 P1 - PRESSURE TAPPING OUTSIDE LABYRINTH
 P2 - PRESSURE TAPPING INSIDE LABYRINTH

PLAN VIEW
 NOTE-VIEW FROM BOTTOM
 (HOLES AS PER TABLE II TO BE MADE
 KEEPING INNER TOP COVER WITH
 UPPER LABYRINTH ON TOP SIDE)

REV. DATE ALTERED CHECKED APPR. ZONE
 02 3.5.16 APPR. SK
 SEE SECTION-B2B2 AND B6B6.

| NO. | VAR. NO. | REMARKS | DATE | BY | CHKD. | APPD. | DESCRIPTION | DRAWING NO. | SCALE | WEIGHT(Kg) | REF. TO ASSY.DRG. | NO. OF SHEET |
|-----|----------|---------|----------|----|-------|-------|-------------|-------------|-------|------------|-------------------|--------------|
| 01 | | | 06.01.16 | | | | | | | | | |
| 02 | | | 06.01.16 | | | | | | | | | |

ADDITIONAL INFORMATION
 STATUS OF DRAWING 'U'
 DISTRIBUTION OF PRINTS
 HTF-2, WTM(P)-1, WTM(S)-4
 FGM - 7, THX - 1
 ZONE
 SEE SECTION-B2B2 AND B6B6.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT
 PRANAHITA-VI LIS
 (6x124.4 MW)
 BHARAT HEAVY ELECTRICALS LTD.
 BHOPAL

NAME
 AB
 ND
 SK

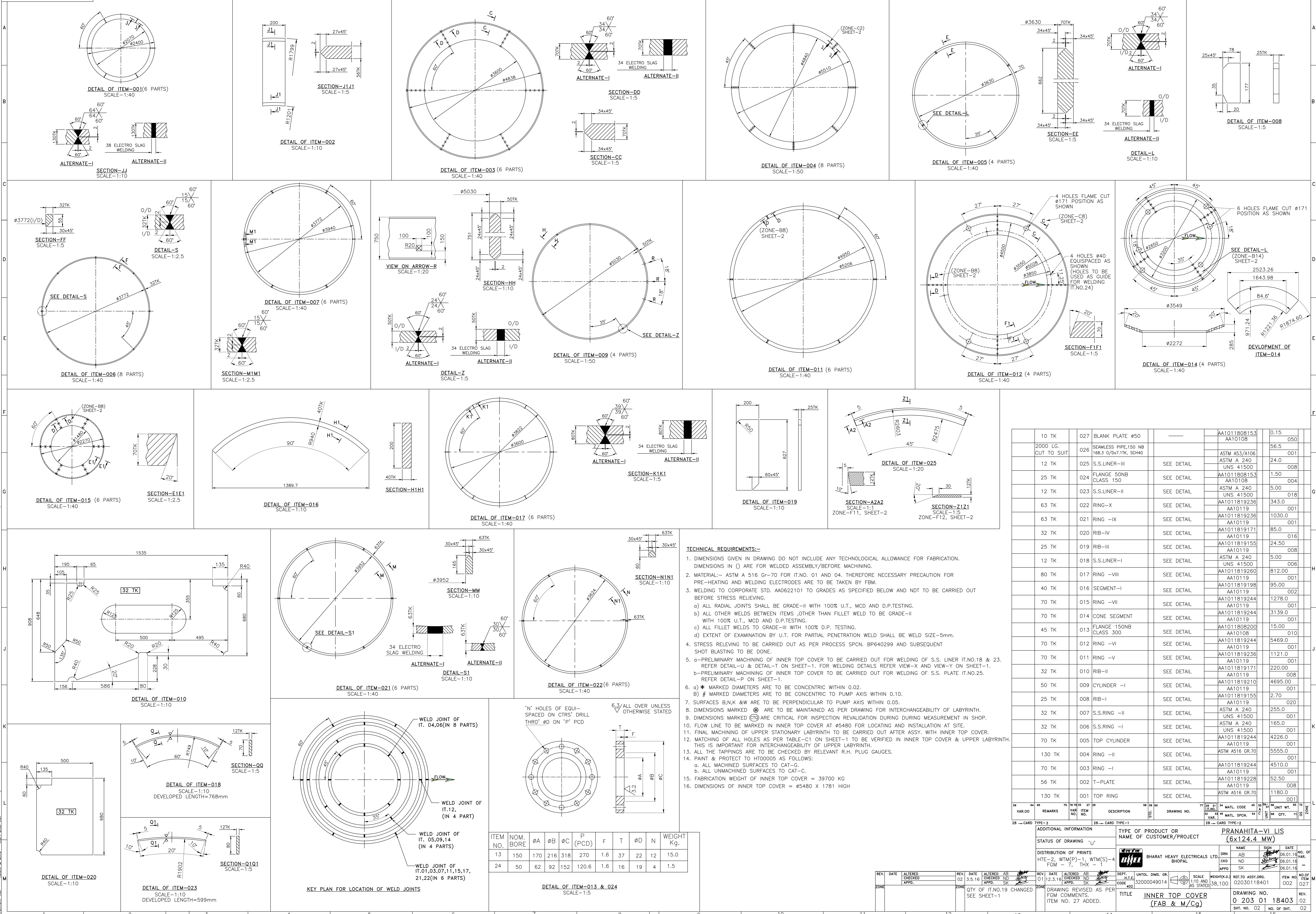
DATE
 06.01.16
 06.01.16
 06.01.16

NO. OF SHEET
 02

DRAWING NO.
 0 203 01 18403

REV.
 02

00P81 01 203 0 '08



TECHNICAL REQUIREMENTS:-

- DIMENSIONS GIVEN IN DRAWING DO NOT INCLUDE ANY TECHNOLOGICAL ALLOWANCE FOR FABRICATION. DIMENSIONS IN () ARE FOR WELDED ASSEMBLY/BEFORE MACHINING.
- MATERIAL:- ASTM A 516 Gr-70 FOR IT.NO. 01 AND 04. THEREFORE NECESSARY PRECAUTION FOR PRE-HEATING AND WELDING ELECTRODES ARE TO BE TAKEN BY FBM.
- WELDING TO CORPORATE STD. AAD622101 TO GRADES AS SPECIFIED BELOW AND NOT TO BE CARRIED OUT BEFORE STRESS RELIEVING.
 - ALL RADIAL JOINTS SHALL BE GRADE-II WITH 100% U.T., MCD AND D.P. TESTING.
 - ALL OTHER WELDS BETWEEN ITEMS ,OTHER THAN FILLET WELD TO BE GRADE-II WITH 100% U.T., MCD AND D.P. TESTING.
 - ALL FILLET WELDS TO GRADE-III WITH 100% D.P. TESTING.
 - EXTENT OF EXAMINATION BY U.T. FOR PARTIAL PENETRATION WELD SHALL BE WELD SIZE-5mm.
- STRESS RELIEVING TO BE CARRIED OUT AS PER PROCESS SPCN. BP640299 AND SUBSEQUENT SHOT BLASTING TO BE DONE.
- PRELIMINARY MACHINING OF INNER TOP COVER TO BE CARRIED OUT FOR WELDING OF S.S. LINER IT.NO.18 & 23. REFER DETAIL-U & DETAIL-T ON SHEET-1. FOR WELDING DETAILS REFER VIEW-X AND VIEW-Y ON SHEET-1.
 - PRELIMINARY MACHINING OF INNER TOP COVER TO BE CARRIED OUT FOR WELDING OF S.S. PLATE IT.NO.25. REFER DETAIL-P ON SHEET-1.
- MARKED DIAMETERS ARE TO BE CONCENTRIC WITHIN 0.02.
- MARKED DIAMETERS ARE TO BE CONCENTRIC TO PUMP AXIS WITHIN 0.10.
- SURFACES B,N,K & W ARE TO BE PERPENDICULAR TO PUMP AXIS WITHIN 0.05.
- DIMENSIONS MARKED ϕ ARE TO BE MAINTAINED AS PER DRAWING FOR INTERCHANGEABILITY OF LABYRINTH.
- DIMENSIONS MARKED ϕ ARE CRITICAL FOR INSPECTION REVALIDATION DURING MEASUREMENT IN SHOP.
- FLOW LINE TO BE MARKED IN INNER TOP COVER AT ϕ 5480 FOR LOCATING AND INSTALLATION AT SITE.
- FINAL MACHINING OF UPPER STATIONARY LABYRINTH TO BE CARRIED OUT AFTER ASSY. WITH INNER TOP COVER.
- MATCHING OF ALL HOLES AS PER TABLE-C1 ON SHEET-1 TO BE VERIFIED IN INNER TOP COVER & UPPER LABYRINTH. THIS IS IMPORTANT FOR INTERCHANGEABILITY OF UPPER LABYRINTH.
- ALL THE TAPPINGS ARE TO BE CHECKED BY RELEVANT R.H. PLUG GAUGES.
- PAINT & PROTECT TO HT0005 AS FOLLOWS:
 - ALL MACHINED SURFACES TO CAT-G.
 - ALL UNMACHINED SURFACES TO CAT-C.
- FABRICATION WEIGHT OF INNER TOP COVER = 39700 KG
- DIMENSIONS OF INNER TOP COVER = ϕ 5480 X 1781 HIGH

| ITEM NO. | NOM. BORE | ØA | ØB | ØC | P (PCD) | F | T | ØD | N | WEIGHT Kg. |
|----------|-----------|-----|-----|-----|---------|-----|----|----|----|------------|
| 13 | 150 | 170 | 216 | 318 | 270 | 1.6 | 37 | 22 | 12 | 15.0 |
| 24 | 50 | 62 | 92 | 152 | 120.6 | 1.6 | 16 | 19 | 4 | 1.5 |

| ITEM NO. | DESCRIPTION | MATERIAL | UNIT WT. | NO. OF |
|----------------------|---|----------------------|----------|--------|
| 10 TK | 027 BLANK PLATE ϕ 50 | AA1011808153 | 0.15 | 050 |
| 2000 LG. CUT TO SUIT | 026 SEAMLESS PIPE,150 NB 168.3 ϕ /Dx7.1TK, SCH40 | AA10108 | 56.5 | 001 |
| 12 TK | 025 S.S.LINER-III | ASTM A 240 UNS 41500 | 24.0 | 008 |
| 25 TK | 024 FLANGE 50NB CLASS 150 | AA1011808153 AA10108 | 1.50 | 004 |
| 12 TK | 023 S.S.LINER-II | ASTM A 240 UNS 41500 | 5.00 | 018 |
| 63 TK | 022 RING-X | AA1011819236 AA10119 | 343.0 | 001 |
| 63 TK | 021 RING -IX | AA1011819236 AA10119 | 1030.0 | 001 |
| 32 TK | 020 RIB-IV | AA1011819171 AA10119 | 85.0 | 016 |
| 25 TK | 019 RIB-III | AA1011819155 AA10119 | 24.50 | 008 |
| 12 TK | 018 S.S.LINER-I | UNS 41500 | 0.06 | 006 |
| 80 TK | 017 RING -VIII | AA1011819260 AA10119 | 812.00 | 001 |
| 40 TK | 016 SEGMENT-I | AA1011819198 AA10119 | 95.00 | 002 |
| 70 TK | 015 RING -VII | AA1011819244 AA10119 | 1278.0 | 001 |
| 70 TK | 014 CONE SEGMENT | AA1011819244 AA10119 | 3139.0 | 001 |
| 45 TK | 013 FLANGE 150NB CLASS 300 | AA1011808200 AA10108 | 15.00 | 010 |
| 70 TK | 012 RING -VI | AA1011819244 AA10119 | 5469.0 | 001 |
| 70 TK | 011 RING -V | AA1011819236 AA10119 | 1121.0 | 001 |
| 32 TK | 010 RIB-II | AA1011819171 AA10119 | 220.00 | 008 |
| 50 TK | 009 CYLINDER -I | AA1011819210 AA10119 | 4695.00 | 001 |
| 25 TK | 008 RIB-I | AA1011819155 AA10119 | 2.70 | 020 |
| 32 TK | 007 S.S.RING -II | ASTM A 240 UNS 41500 | 255.0 | 001 |
| 32 TK | 006 S.S.RING -I | ASTM A 240 UNS 41500 | 165.0 | 001 |
| 70 TK | 005 TOP CYLINDER | AA1011819244 AA10119 | 4226.0 | 001 |
| 130 TK | 004 RING -II | ASTM A516 GR.70 | 5555.0 | 001 |
| 70 TK | 003 RING -I | AA1011819244 AA10119 | 4510.0 | 001 |
| 56 TK | 002 T-PLATE | AA1011819228 AA10119 | 52.50 | 008 |
| 130 TK | 001 TOP RING | ASTM A516 GR.70 | 1180.0 | 001 |

ADDITIONAL INFORMATION: STATUS OF DRAWING 'U'

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT: PRANAHTA-VI LIS (6x124.4 MW)

DISTRIBUTION OF PRINTS: HTE-2, WTM(P)-1, WTM(S)-4, FGM - 7, THX

DEPT. H.T.E. 01/12.3.16, APPR. SK

UNITS DMS. GR. 32000049014

SCALE: 38,100

WEIGHT(Kg.) 38,100

REF. TO ASSY.DWG. 02030118401

ITEM NO. 002

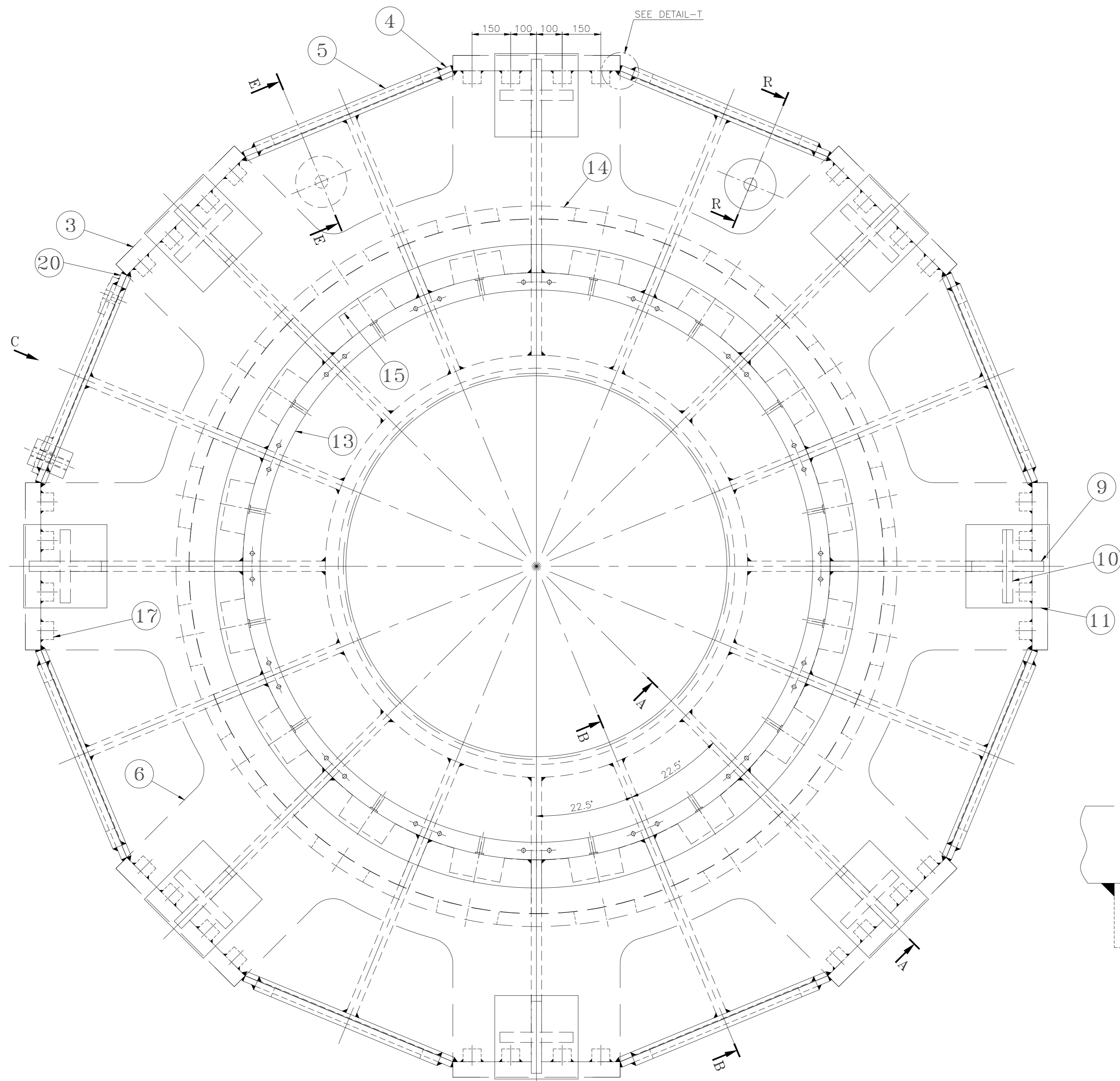
TITLE: INNER TOP COVER (FAB & M/Cg)

DRAWING NO. 0 203 01 18403

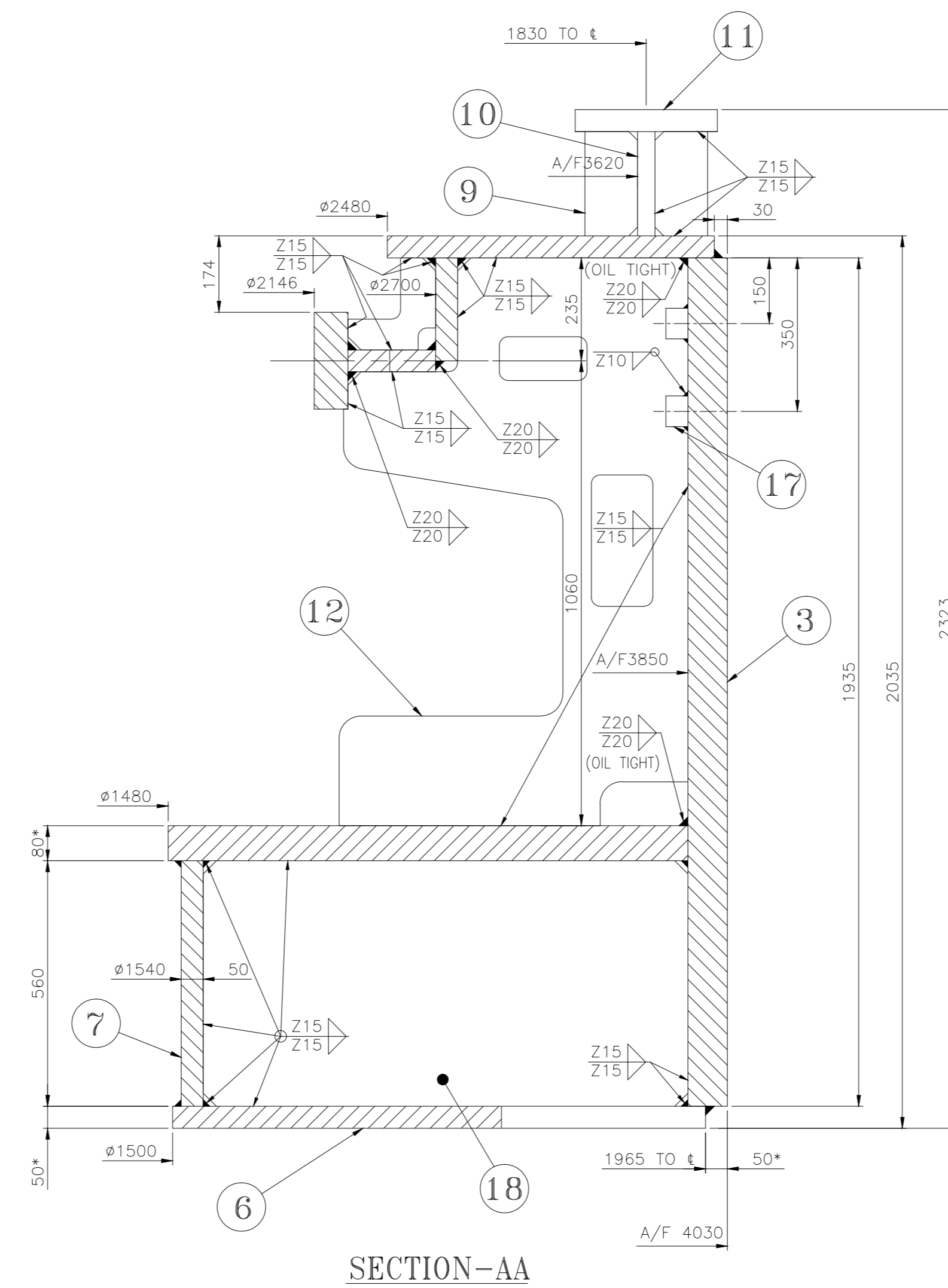
REV. 02

SHT. NO. 02

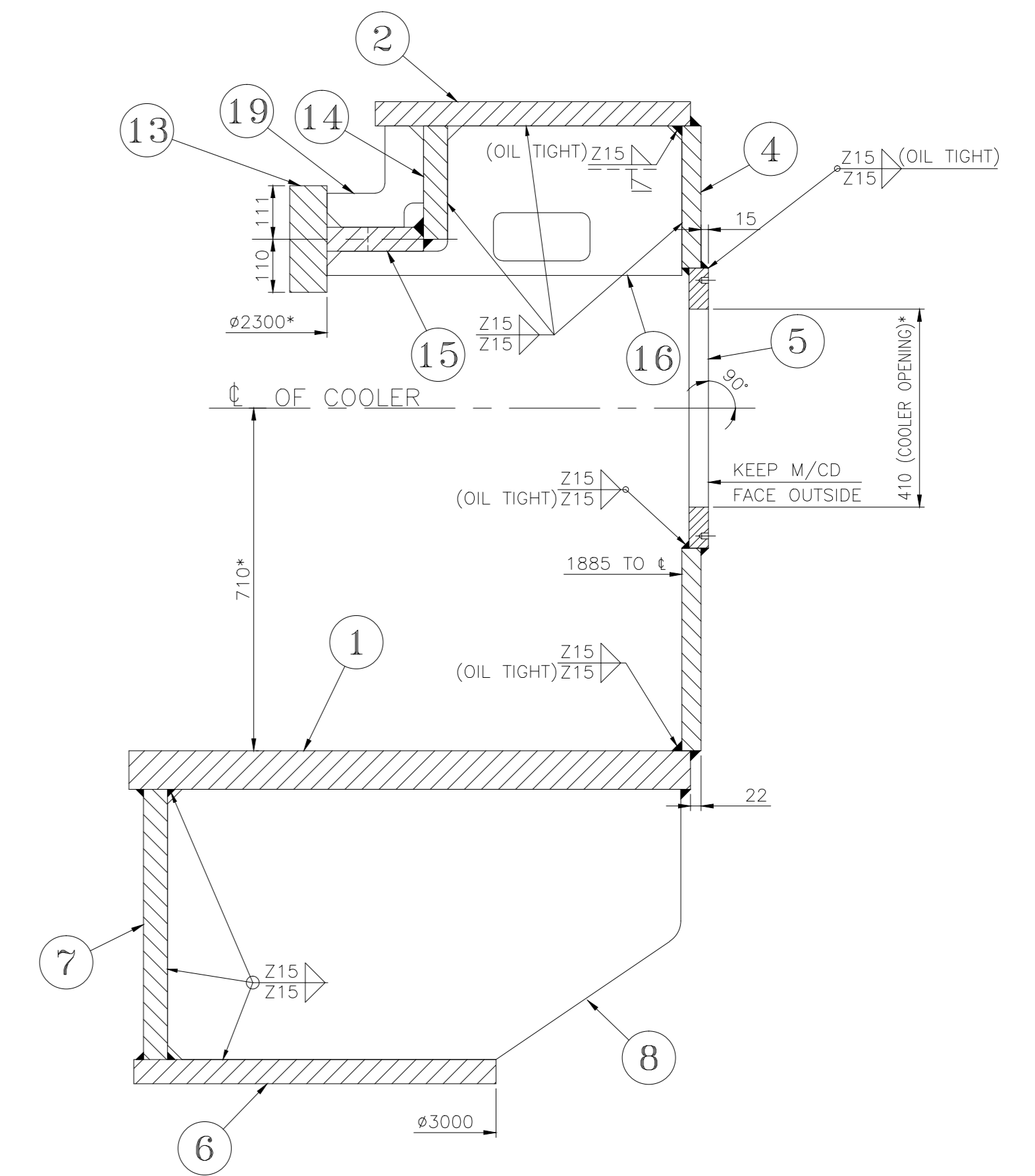
NO. OF SHT. 02



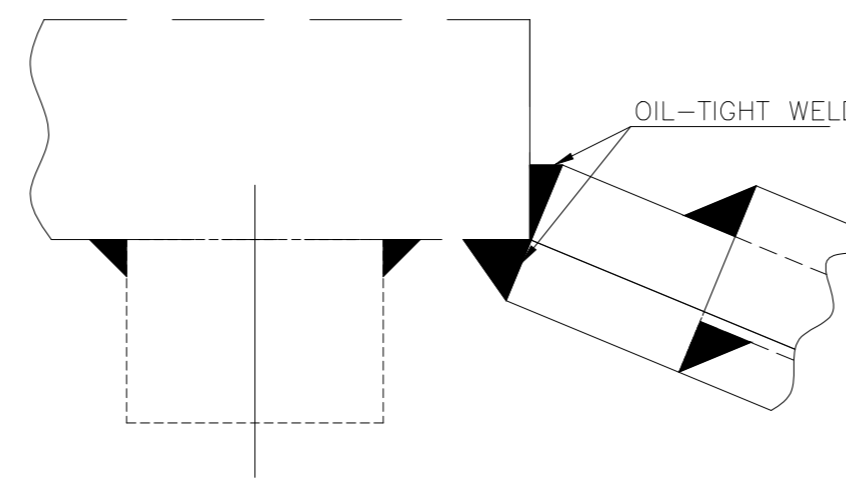
SUCTION END ASSEMBLY



SECTION-AA



SECTION-BB

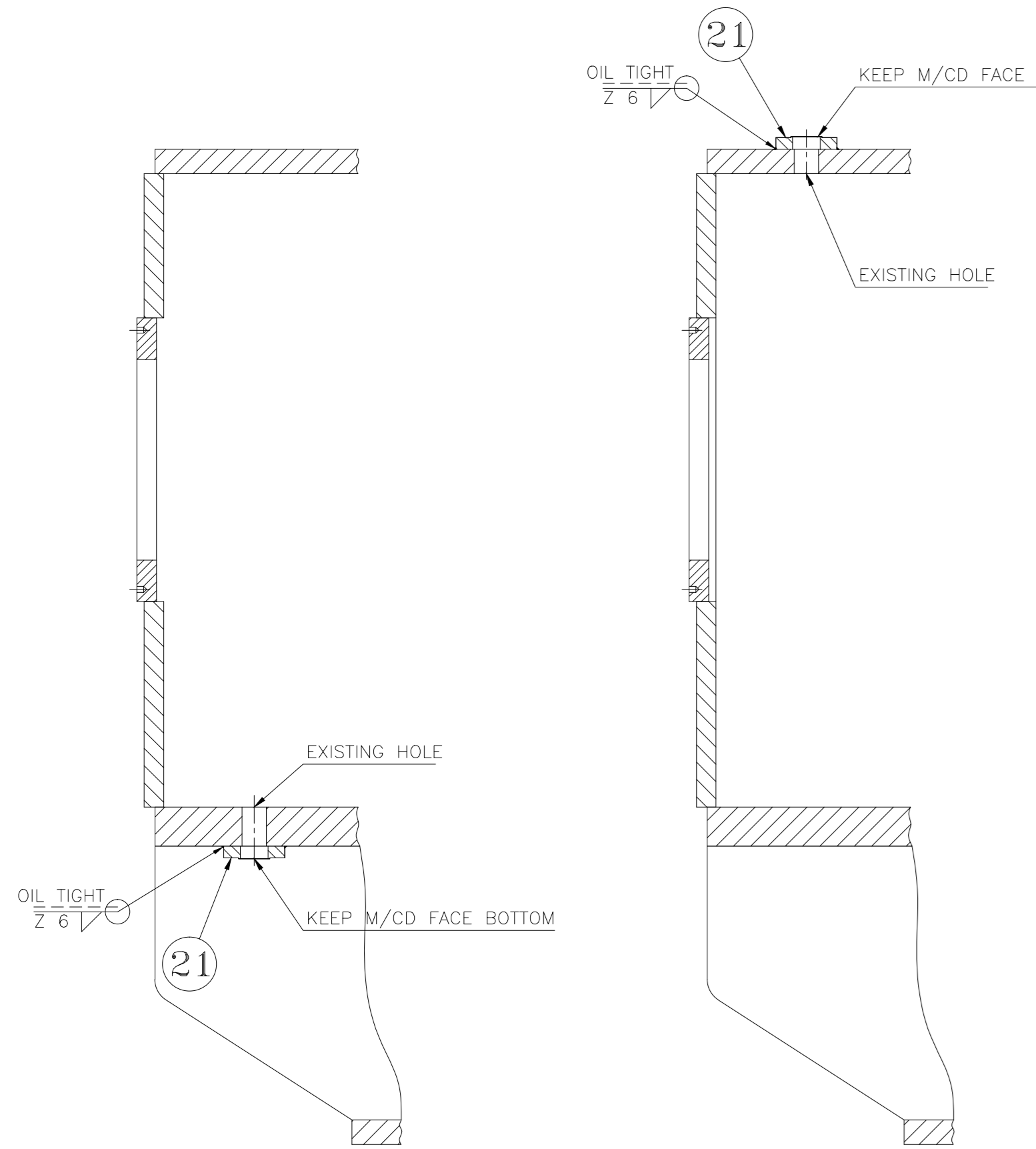


ENLARGED DETAIL-T

FABRICATION WEIGHT INCLUDING WELDING = 30950 KG

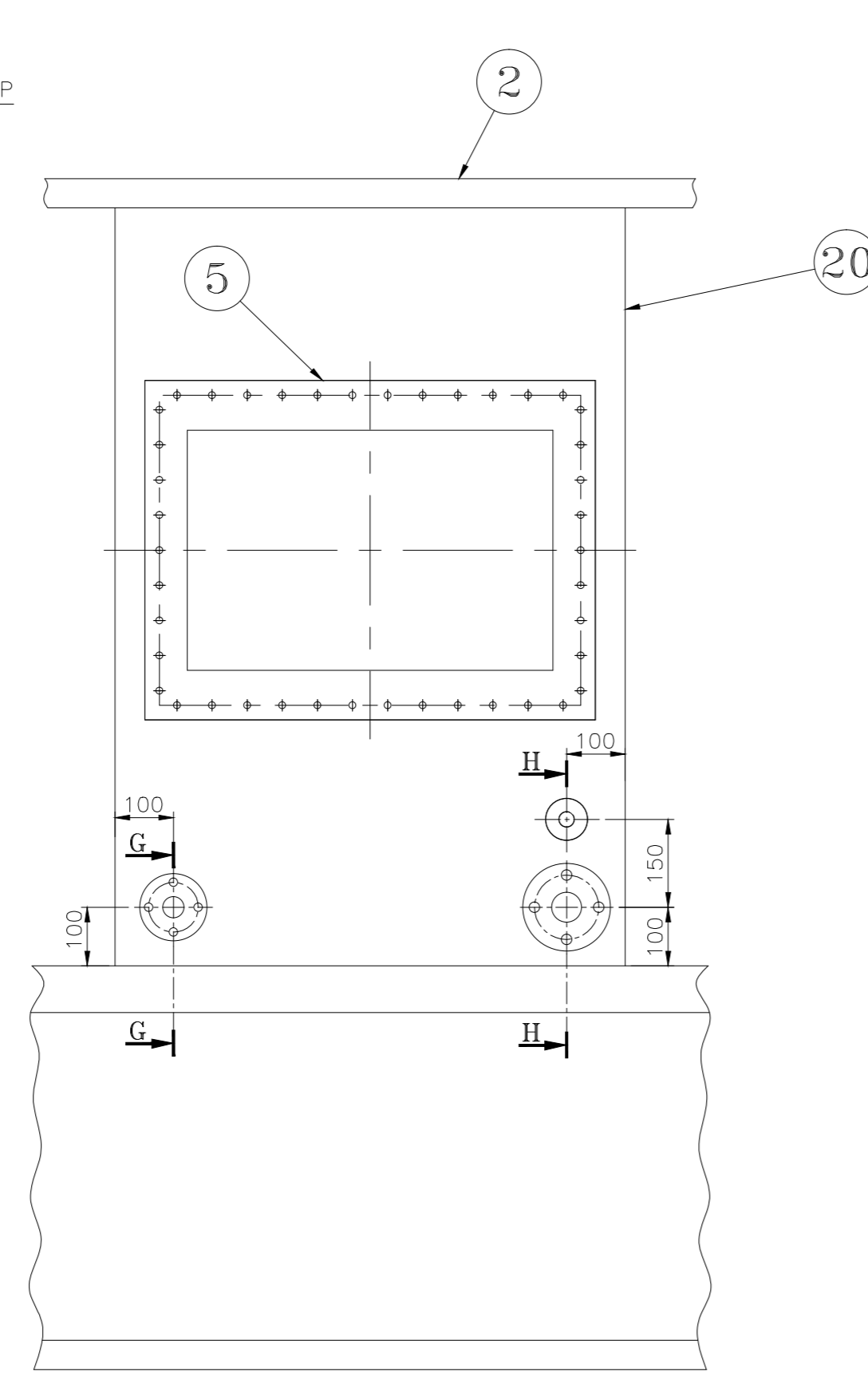
TECHNICAL REQUIREMENTS:

- ALL WELDS ARE CONTINUOUS AND 15 MM FILLET UNLESS OTHERWISE STATED.
- ALL WELDS SHALL BE AS PER GR-III OF AA0622101 UNLESS OTHERWISE STATED.
- ALL OIL-TIGHT WELDS SHALL UNDERGO D.P. TESTING AS PER BP0850199 AFTER FIRST ROOT RUN AND AFTER COMPLETE WELDING. THE OIL-TIGHT WELDS SHALL BE PROTECTED WITH TRP BHARAT TC PF 4 AS PER BP55188. THE OIL-TIGHT WELDS SHALL BE PAINTED ONLY AFTER THE COMPLETION OF GRAVITY TESTING AS PER BP0850095.
- WATER REQUIRED FOR GRAVITY TEST = 14900 LITRES (APPROX.)
- THE MACHINED FACES OF ITEM 5 ARE TO BE KEPT PARALLEL TO THE BRACKET AXIS DURING WELDING (VERTICALLY WITHIN 2 MM).
- THE PRE-MACHINED FACES OF ITEM 13 ARE TO BE LEVELLED USING A WATER LEVEL AND TACK WELDS. RE-CHECK THE LEVELLING BEFORE FINAL WELDING.
- AFTER WELDING ITEMS 5, 21, 22, 23, & 24, STRESS RELIEVE THE ASSEMBLY AS PER BP0640299. ALL TAPPED HOLES AND MACHINED SURFACES ARE TO BE PROTECTED DURING STRESS RELIEVING.
- AFTER STRESS RELIEVING, RE-APPLY TRP ON MACHINED SURFACES TO BP0690084.
- DIMENSIONS MARK THUS * ARE FOR D.O. REFERENCE ONLY.
- APPLY TRP ON MACHINED SURFACES TO BP 0690084.
- PAINTING NOTE FOR OUTER SURFACES:-** SURFACES OF ASSY. ARE TO BE PREPARED PRIOR TO PAINTING TO AA 0674101. AFTER PREPARATION APPLY 2 COAT OF ANTI CORROSIVE PRIMING PAINT TO AA56101 AND 2 COAT OF HIGH QUALITY FULL GLOSSY OUT DOOR FINISHING PAINT TO AA56126 COLOUR LIGHT GREY TO SHADE NO. ISC: 631 OF IS: 5.
- PAINTING NOTE FOR INNER SURFACES:-** INNER SURFACES OF OIL CHAMBER TO BE PREPARED PRIOR TO PAINTING TO AA0674101. APPLY 2-COAT OF OIL RESISTANT, AIR DRYING, SYNTHETIC ENAMEL TO AA56132 COLOUR SHADE JASMINE YELLOW.
- ALL PLATES (40 MM AND ABOVE) TO BE ULTRASONICALLY TESTED TO AA0850120 BEFORE WELDING.

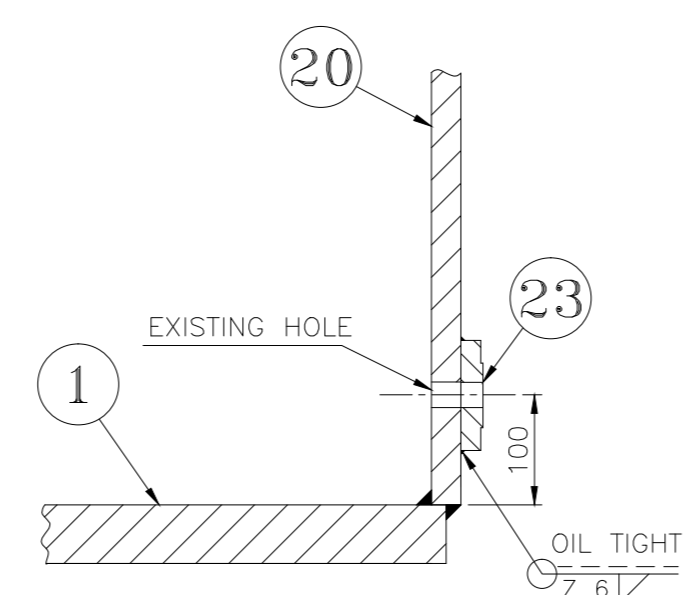


SECTION-EE (FOR OIL DRAIN)

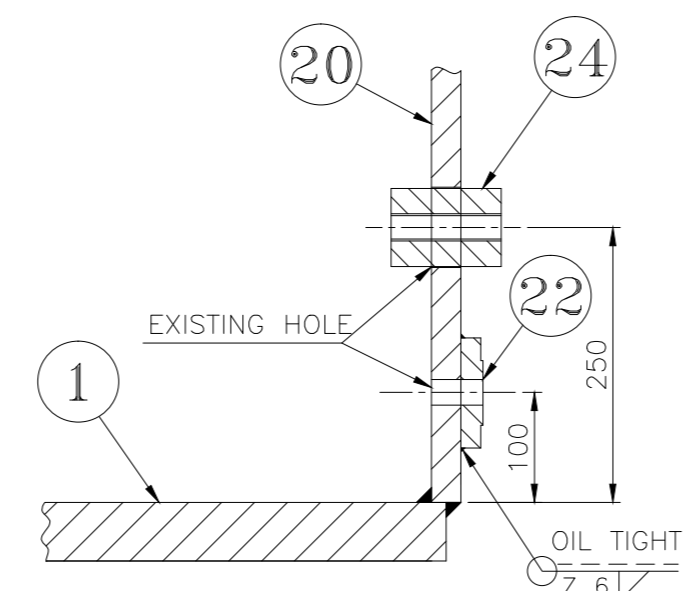
SECTION-RR (FOR OIL FILLING)



VIEW AS ARROW-C



SECTION-GG (FOR OIL LEVEL INDICATOR)



SECTION-HH (FOR H.S. LUB.)

| NO. | QTY | DESCRIPTION | UNIT | WGT. | VAL. | NO. | QTY | DESCRIPTION | UNIT | WGT. | VAL. |
|-----|----------|--|------|----------------|--------------|-----|-----|-------------|------|---------|------|
| 001 | SEE TR-7 | 024 INSERT | | 1 257 01 88602 | 012 | | | | | 2.40 | |
| 001 | SEE TR-7 | 023 FLANGE 25 NB | | 3 299 88 01008 | 001 | | | | | 2.02 | |
| 001 | SEE TR-7 | 022 FLANGE 40 NB | | 3 299 88 01008 | 003 | | | | | 4.33 | |
| 002 | SEE TR-7 | 021 FLANGE 50 NB | | 3 299 88 01008 | 004 | | | | | 4.97 | |
| 001 | | 020 SIDE PLATE | | 1 257 01 88602 | 009 | | | | | 212.38 | |
| 016 | | 019 RIB | | 1 257 01 88602 | 005 | | | | | 7.03 | |
| 008 | | 018 STIFFENER | | 1 257 01 88602 | 004 | | | | | 193.70 | |
| 064 | | 017 BOSS | | 1 257 01 88602 | 011 | | | | | 1.97 | |
| 008 | | 016 STIFFENER | | 1 257 01 88602 | 003 | | | | | 44.64 | |
| 001 | | 015 FLANGE | | 1 257 01 88601 | 003 | | | | | 494.97 | |
| 001 | | 014 TOP RING | | 1 257 01 88601 | 004 | | | | | 639.87 | |
| 001 | | 013 GUIDE BEARING SUPPORT RING | | 2 257 01 88601 | 001 | | | | | 882 | |
| 008 | | 012 RIB | | 1 257 01 88602 | 001 | | | | | 189.67 | |
| 008 | | 011 PLATE 507Kx324x324 LG. STEEL PLATE | | | AA1011808218 | | | | | 41.20 | |
| 008 | | 010 PLATE 407Kx284x238 LG. STEEL PLATE | | | AA1011808196 | | | | | 21.22 | |
| 016 | | 009 STIFFNER | | 1 257 01 88602 | 006 | | | | | 8.96 | |
| 008 | | 008 STIFFENER | | 1 257 01 88602 | 002 | | | | | 1.71 | |
| 001 | | 007 CYLINDER | | 1 257 01 88602 | 008 | | | | | 1097.93 | |
| 001 | | 006 BOTTOM PLATE | | 1 257 01 88601 | 005 | | | | | 3061.18 | |
| 008 | SEE TR-7 | 005 COOLER SUPPORT PLATE | | 1 257 01 88602 | 007 | | | | | 59.02 | |
| 007 | | 004 SIDE PLATE | | 1 257 01 88602 | 010 | | | | | 214.35 | |
| 008 | | 003 JOINT PLATE 907Kx650x1935 LG. S.S.S.G. PLATE | | | AA10108 | | | | | 888.60 | |
| 001 | | 002 TOP PLATE | | 1 257 01 88601 | 002 | | | | | 2798.43 | |
| 001 | | 001 INTERMEDIATE PLATE | | 1 257 01 88601 | 001 | | | | | 6234.74 | |

ADDITIONAL INFORMATION
 W.O. - 39008 TO 12 A 23157
 STATUS OF DRAWING: U
 DISTRIBUTION OF PRINTS: HGE - 2 TEX - 1, HGM - 2 FWM - 2

HMS-795/150-28K MEIL/PRANHITA-VIII LIS MOTOR

BHARAT HEAVY ELECTRICALS LTD. BHOPAL

SUB - VENDOR LOGO / NAME

0257 01 84601

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

INVENTORY NO. REF. DRC. NO. SIGN. & DATE

| REV. | DATE | ALTERED | CHECKED | APPROVED | REV. | DATE | ALTERED | CHECKED | APPROVED | REV. | DATE | ALTERED | CHECKED | APPROVED | REV. | DATE | ALTERED | CHECKED | APPROVED |
|------|------|---------|---------|----------|------|------|---------|---------|----------|------|------|---------|---------|----------|------|------|---------|---------|----------|
| | | | | | | | | | | | | | | | | | | | |

AT ZONE 0-10 DIMENSION 1985 WAS 1985 AND DIMENSION 50 WAS 50. ITEM 9, 10 & 11 UPDATED. WEIGHT OF ITEM 6, 8, 9, 10, 11 & TOTAL WEIGHT UPDATED.