

CLIENT : TEC / PT. PUPUK KALIMANTAN TIMUR
 PROJECT : KALTIM-5 PROJECT
 JOB NO. : 10107 / BA096300 / 11-018-01
 ITEM NO. : 103-J
 SERVICE : SYNTHESIS GAS COMPRESSOR
 DOC. NO. : K5-E3-103J-DW-119 Rev.3

COMPRESSOR ASSEMBLY DRAWINGS (103-J [LP])

CLIENT PT PUPUK KALIMANTAN TIMUR 	
CONTRACTOR CONSORTIUM IKPT & TOYO 	
2500 MTPD AMMONIA - 3500 MTPD UREA KALTIM-5 PROJECT	
REQ. NO.	AXGB002
PO. NO.	BA096321-AXGB002
EQUIP. NO.	103-J

**MITSUBISHI HEAVY INDUSTRIES
COMPRESSOR CORPORATION**

A1 × 5 Sheets (A3 長尺縮小にて印刷)
 A2 × 1 Sheets (A3 長尺縮小にて印刷)
 A3 × - Sheets
 A4 × 3 Sheets Total 9 Sheets (Including Cover)

FINAL

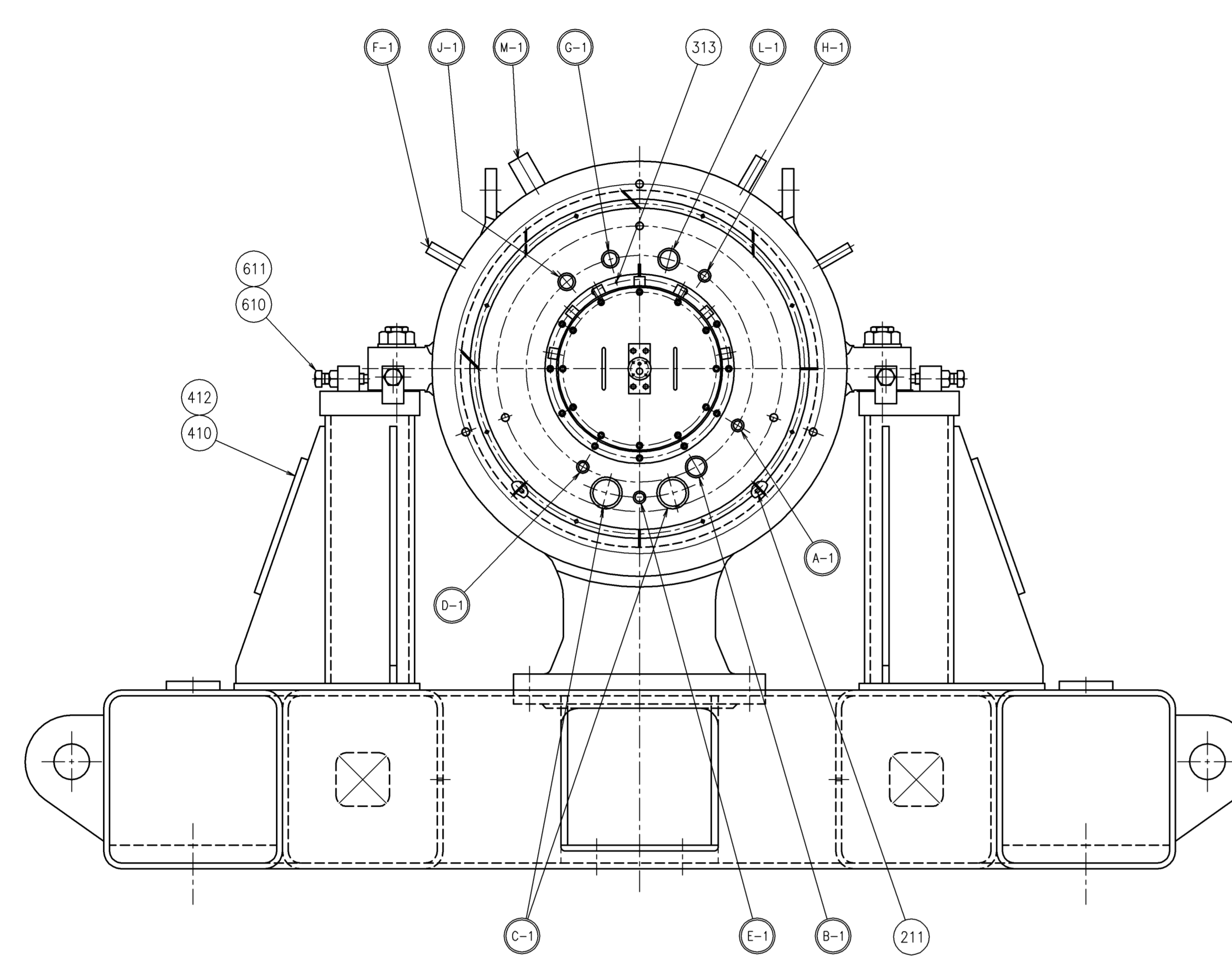
PLAN RECORD Please refer to next page.		ENGINEERING & DESIGN DIVISION ENG. DEPARTMENT COMP. & TURBINE ENGINEERING SECTION				
		PM	<i>H. Fukui</i>			
		Approved	<i>K. Shimizu</i>			
		Checked	<i>S. Iwamoto</i>			
Copy to C U S T . E		Specified No.		Order	Item	Date Drawn
		HBI-D01		353N71	MCW311	Dec. 11, 2012
		Rev. B		Drawing No.		
両面北 両面北		790-44016				

CONTENTS

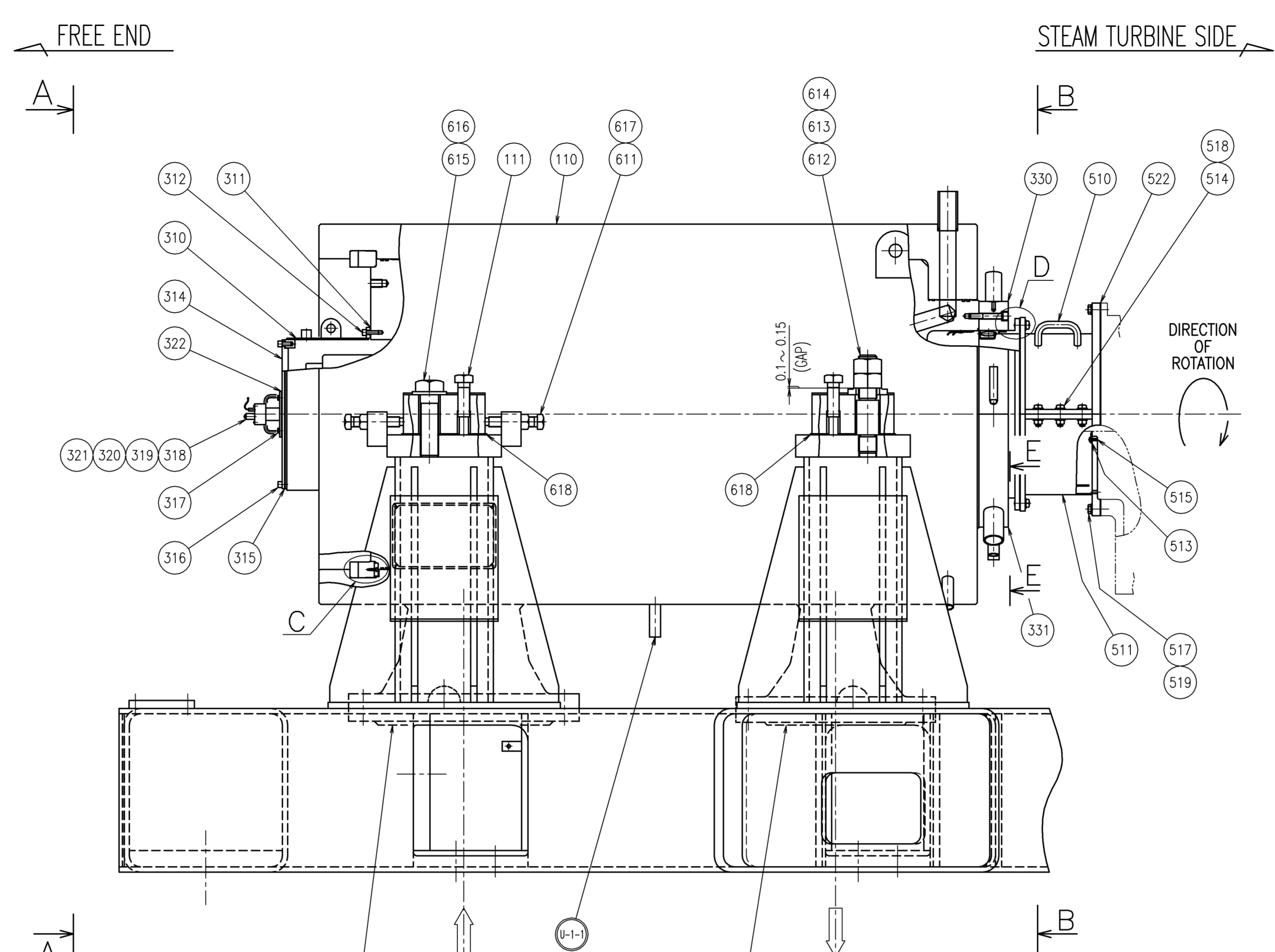
	<u>VENDOR DOC. No.</u>
(1) OUTLINE ASSEMBLY DRAWING	790-19510
(2) INTERNAL ASSEMBLY DRAWING	790-19505
(3) BEARING AND SEAL ASSEMBLY DRAWING (1/2)	790-19506
(4) BEARING AND SEAL ASSEMBLY DRAWING (2/2)	790-19507
(5) ROTOR ASSEMBLY DRAWING	790-28419
(6) PIPING ASSEMBLY AROUND COMPRESSOR	790-19509

THIRD ANGLE PROJECTION	HYDRAULIC TEST PRESS	PLAN RECORD
THIS DRAWING REFERENCED TO		
ORDER	ITEM	DRAWING NO.

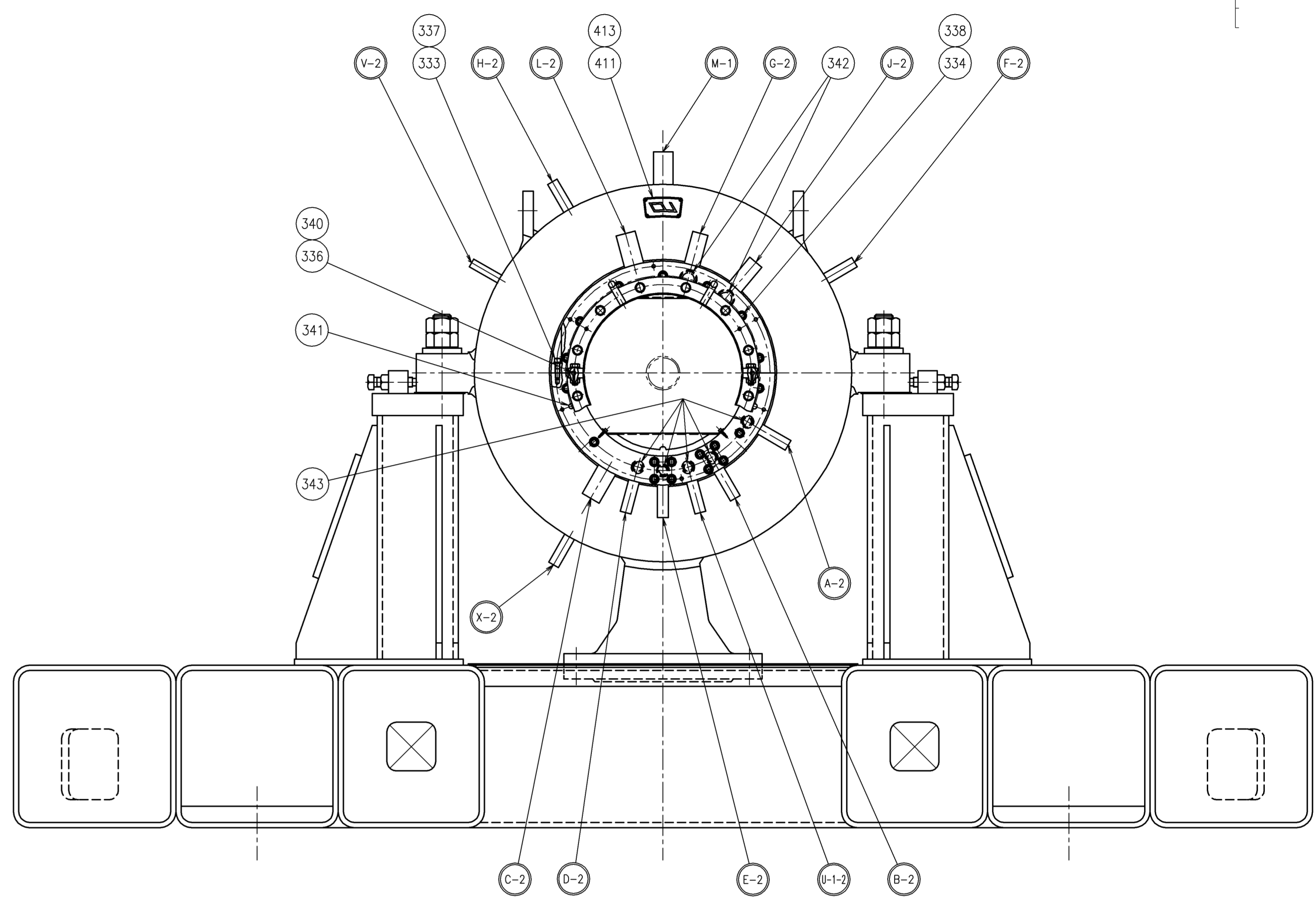
ITEM	PARTS NAME	QUANT	PER PIECE	TOTAL	PARTS NUMBER	REMARKS
618	SHIM T=6.6	4	1.4	5.6	1122-67	
617	ADJ.BOLT M30*160	4	1.3	5.2	1122-54	
616	WASHER M56	4	0.4	1.6	1122-49	
615	HEX BOLT M56*200	4	5.6	22.4	1122-48	
614	HEX NUT -1 M56	8	1.3	10.4	1122-47	
613	WASHER M56	4	1.1	4.4	1122-46	
612	TAP BOLT M56*300	4	6.8	27.2	1122-45	
611	HEX NUT -1 M50	8	0.4	3.2	1122-44	
610	ADJ.BOLT M30*130	4	1.0	4.0	1122-43	
522	PACKING	1	---	---	1451-84	
521	PACKING A=585 B=492 P=545	1	---	---	1451-83	
520	O-RING 05.3*481(0)	2	---	---	1451-81	
519	PLAIN WASHER 16	21	0.2	1451-76		
518	PLAIN WASHER 16	24	0.2	1451-75		
517	HEX BOLT M16*50	21	2.0	1451-62		
516	HEX BOLT M16*35	12	1.0	1451-61		
515	+PAN HEAD SCREW M6*20	10	0.1	1451-55		
514	BOLT & NUT M16*35L	6	1.0	1451-51		
513	BUFFLE PLATE	1	---	---	1451-21	
512	SLEEVE	1	15.0	1451-14		
511	GUARD BOTTOM	1	13.0	1451-13		
510	GUARD TOP	1	13.0	1451-11		
413	DRIVE SCREW 3*8	4	---	---	1371-75	
412	DRIVE SCREW 3*8	4	---	---	1371-71	
411	DIRECTION PLATE	1	---	---	1371-31	
410	NAME PLATE	1	---	---	1371-11	
343	O-RING G35	5	---	---	1345-72	
342	O-RING G50	2	---	---	1345-71	
341	STRAIGHT PIN 1ST 16X25	2	0.1	1345-62		
340	SET PIN 13X14	2	---	---	1345-61	
339	SPRING WASHER NO.2 6	4	---	---	1345-53	
336	LOCK WASHER NO.2 16	19	---	---	1345-52	
337	LOCK WASHER NO.2 12	2	---	---	1345-51	
336	SCREW +CON M4X0.7X20	2	---	---	1345-45	
335	BOLT HEX SOCK M6X14	4	---	---	1345-43	
334	BOLT-HEX SOCK M16X100	19	0.2	3.8	1345-42	
333	BOLT HEX SOCK M12X50	2	0.1	1345-41		
332	DNV PLATE	1	0.4	1345-22		
331	END FLANGE (BOTT)	1	62.6	1345-20		
330	END FLANGE (TOP)	1	62.4	1345-10		
322	GASKET (EARTH BRUSH)	1	---	---	1341-84	
321	BRUSH INSERT SCREW	2	---	---	1341-83	
320	BRUSH INSERT REPLACABLE	1	---	---	1341-82	
319	FLANGE	1	---	---	1341-81	
318	EARTH BRUSH	1	---	---	1341-80	
317	BOLT HEX SOCK M8X16	4	0.1	1341-68		
316	BOLT HEX SOCK M12X25	12	0.5	1341-67		
315	GASKET (BLIND COVER)	1	---	---	1341-66	
314	END COVER BLIND	1	23.7	1341-65		
313	SPRING PIN 5*10	1	---	---	1341-63	
312	BOLT HEX SOCK M12X35	12	0.6	1341-62		
311	GASKET (END COVER)	1	---	---	1341-61	
310	END COVER	1	27.0	1341-60		
217	SCREWSQHD M12X70	4	0.1	1331-23		
216	BOLT-HEX SOCK M8X35	8	0.2	1331-22		
215	RETAIN RING	1	27.0	1331-21		
214	BOLT-HEX SOCK M6X16	1	---	---	1331-16	
213	KEY	1	0.1	1331-15		
212	SCREWSQHD M12X70	4	0.1	1331-13		
211	SPRING PIN 10X18	2	---	---	1331-12	
210	SHEAR RING	1	61.5	1331-11		
111	JACK BOLT M36X160	4	1.5	6.0	1111-43	
110	CASING	1	---	---	6538.5	1111-00



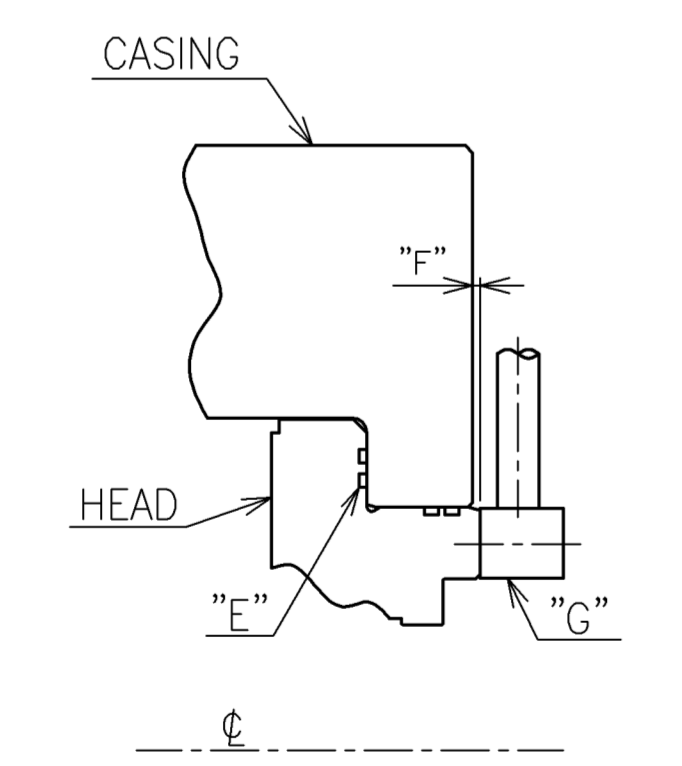
VIEW A A



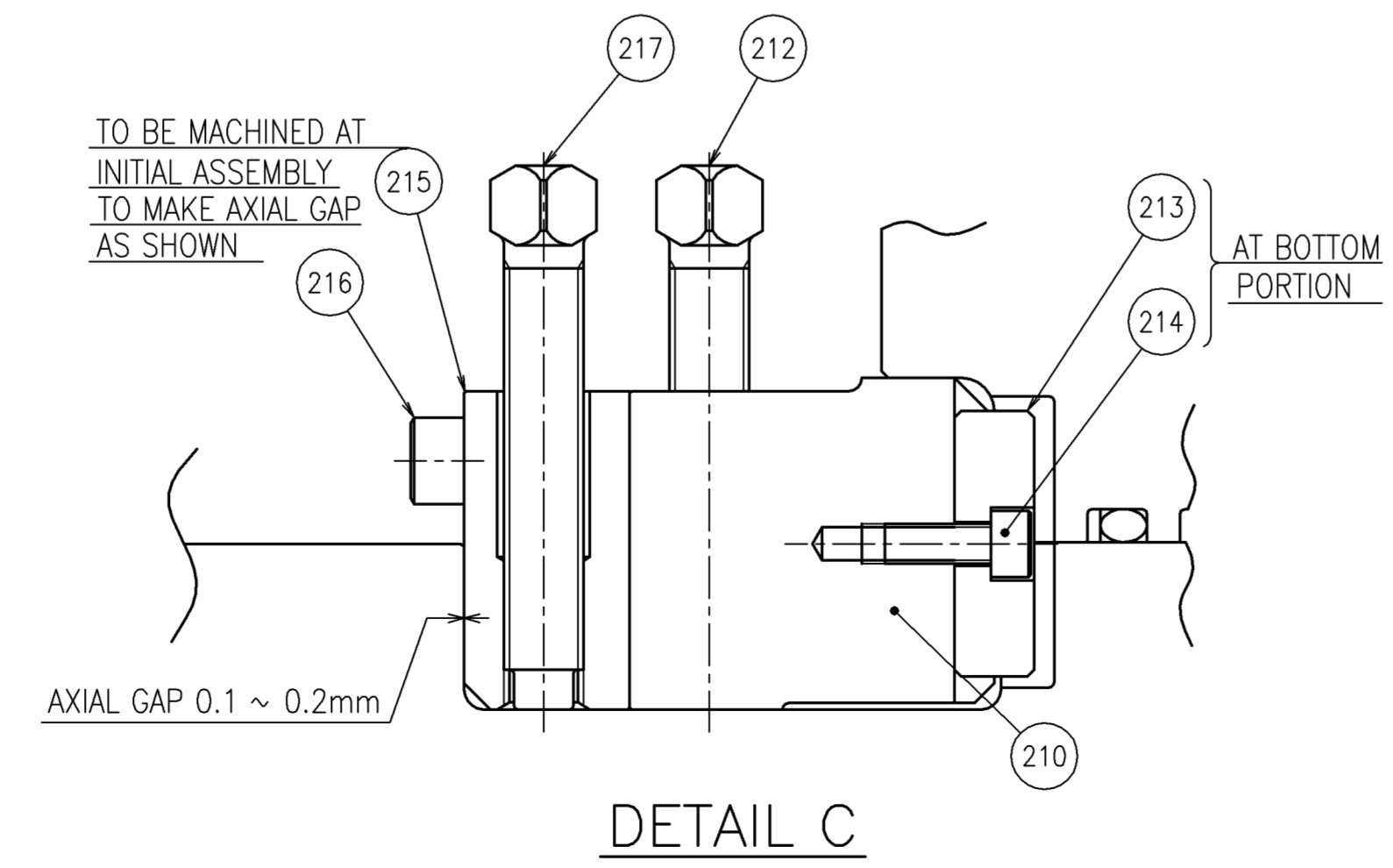
SECTION B B



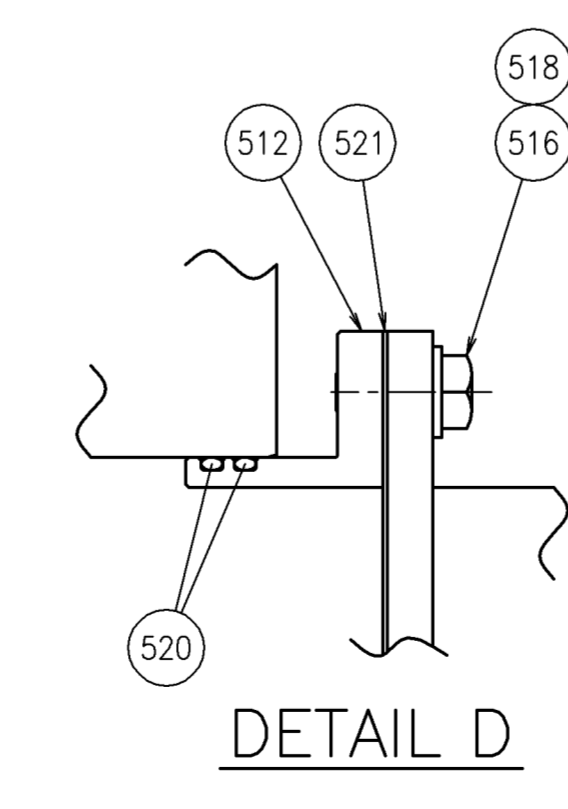
SECTION B B



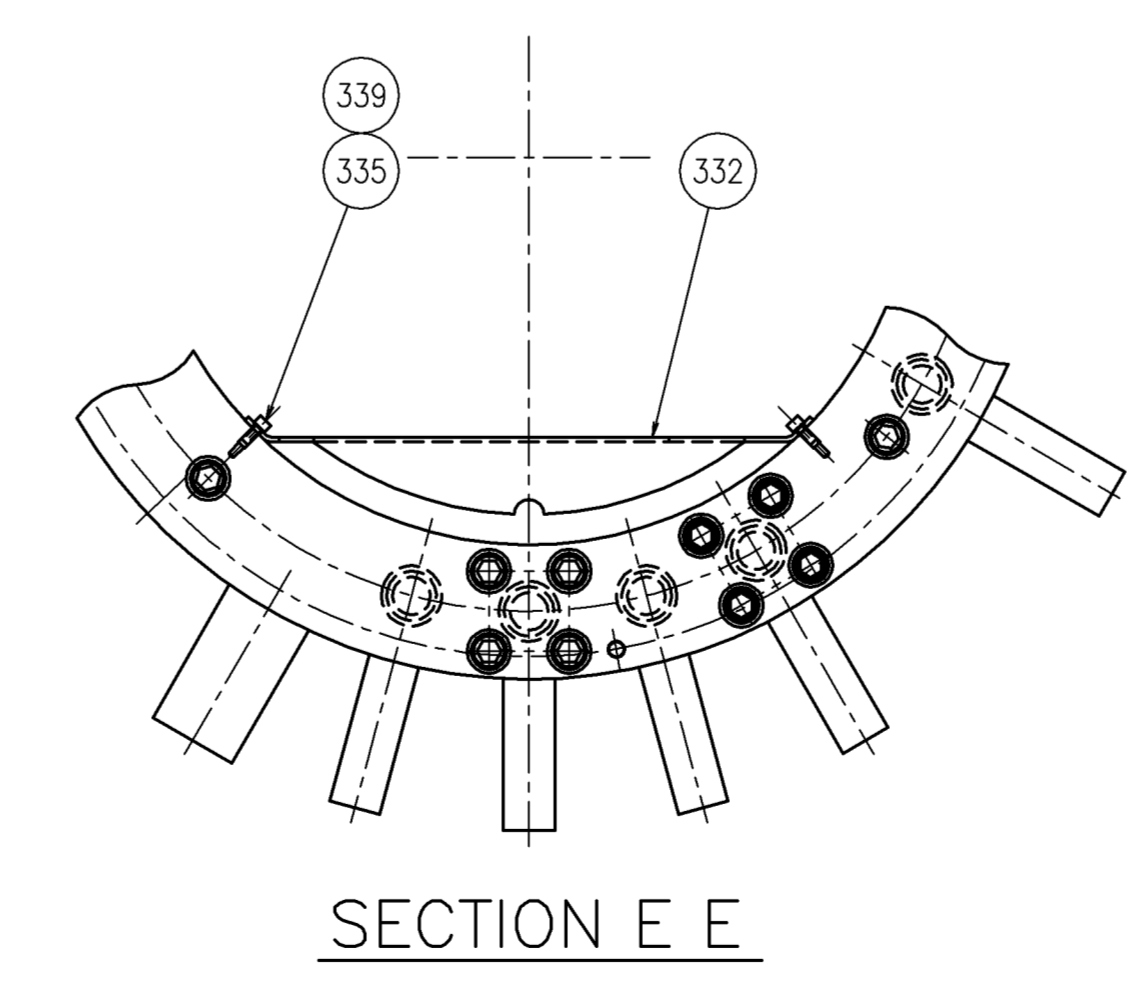
INTERNAL ASS'Y PROCEDURE
 1. PRE-ASS'Y OF NON-THRUST HEAD INTO CASING WITHOUT "O"-RING OF PORTION "E" AND MEASURE DIMENSION "E" (4POINTS) AND RECORD ONTO PORTION "G". (MEASURING ACCURACY TO BE WITHIN ± 0.05mm).
 2. ASSEMBLY NON-THRUST HEAD WITH "O"-RING OF PORTION "E" AND INTERNAL ASS'Y INTO CASING BY HEAD PULLERS. MEASURE DIMENSION "E" WHICH IS AS SAME AS ABOVE 1.
 3. CONFIRM THE AXIAL GAP SHOWN ON DETAIL "C".
 4. AFTER ASSEMBLY OF ITEM 215, HEAD PULLER SHOULD BE FREE.



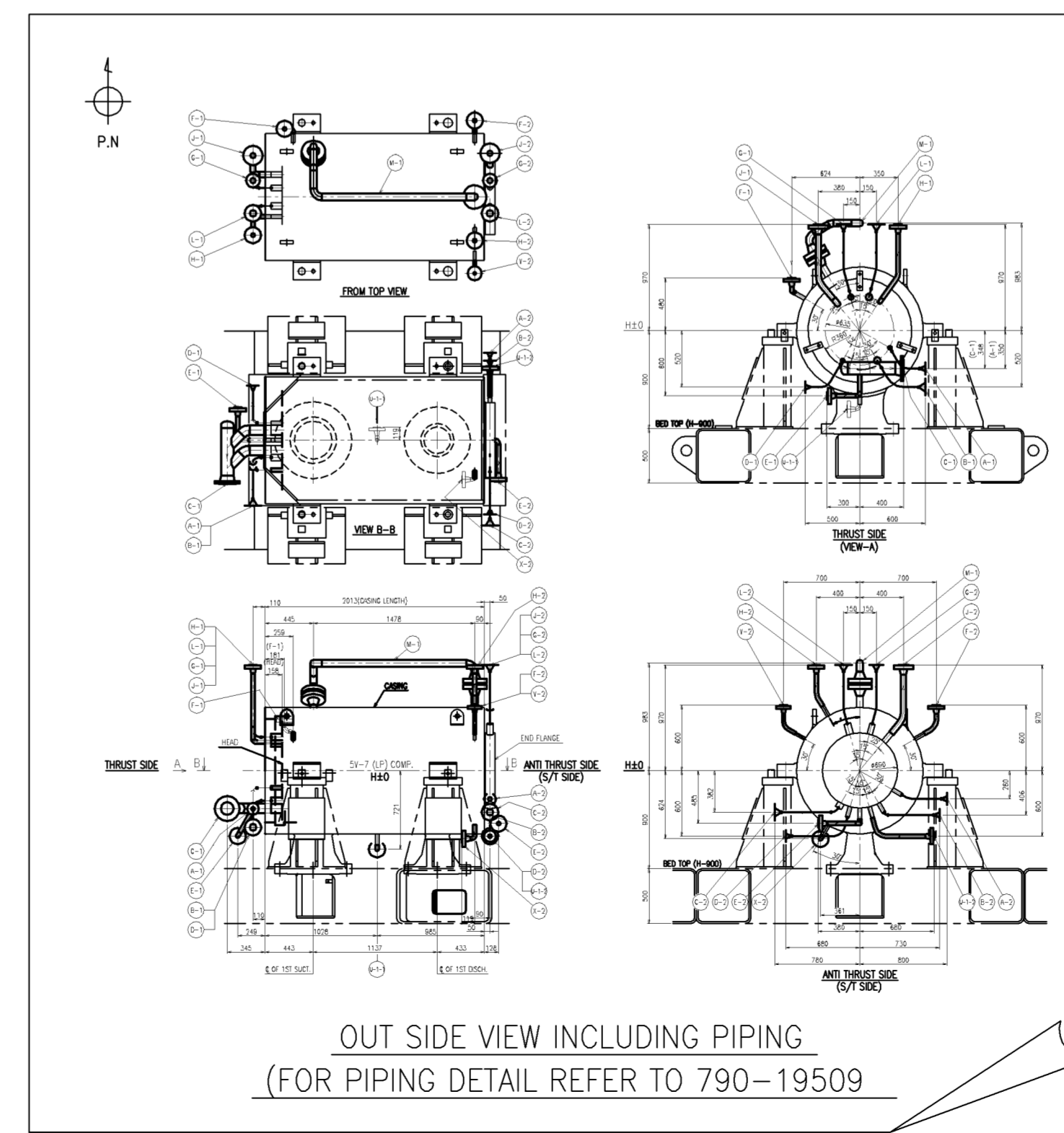
DETAIL C



DETAIL D



SECTION E E



OUT SIDE VIEW INCLUDING PIPING (FOR PIPING DETAIL REFER TO 790-19509)

TH. SIDE	ATH. SIDE	PIPE NAME	REMARKS
A-1	A-2	SEPARATION GAS SUPPLY	
B-1		L.O. SUPPLY	
	B-2	L.O. DRAIN	
C-1			
	C-2		
D-1	D-2	SECONDARY SEAL GAS DRAIN	
E-1	E-2	PRIMARY SEAL GAS DRAIN	
F-1	F-2	PRIMARY SEAL GAS SUPPLY	
G-1	G-2	SECONDARY SEAL GAS VENT	
H-1	H-2	SECONDARY SEAL GAS SUPPLY	
J-1	J-2	PRIMARY SEAL GAS VENT	
L-1	L-2	BEARING VENT	
M-1		BALANCE CONNECTOR	
U-1		CASING DRAIN	
V-2		PRESSURE DETECTION	
X-2		SEAL GAS EXTRACTION	

INTERNAL ASSEMBLY	790-19505
ROTOR ASSEMBLY	790-28419
BEARING & SEAL ASSEMBLY(1/2)	790-19506
BEARING & SEAL ASSEMBLY(2/2)	790-19507
COUPLING ASSEMBLY	790-44018
PIPING ASS'Y DWG. AROUND 5V-7 COMP.	790-19509

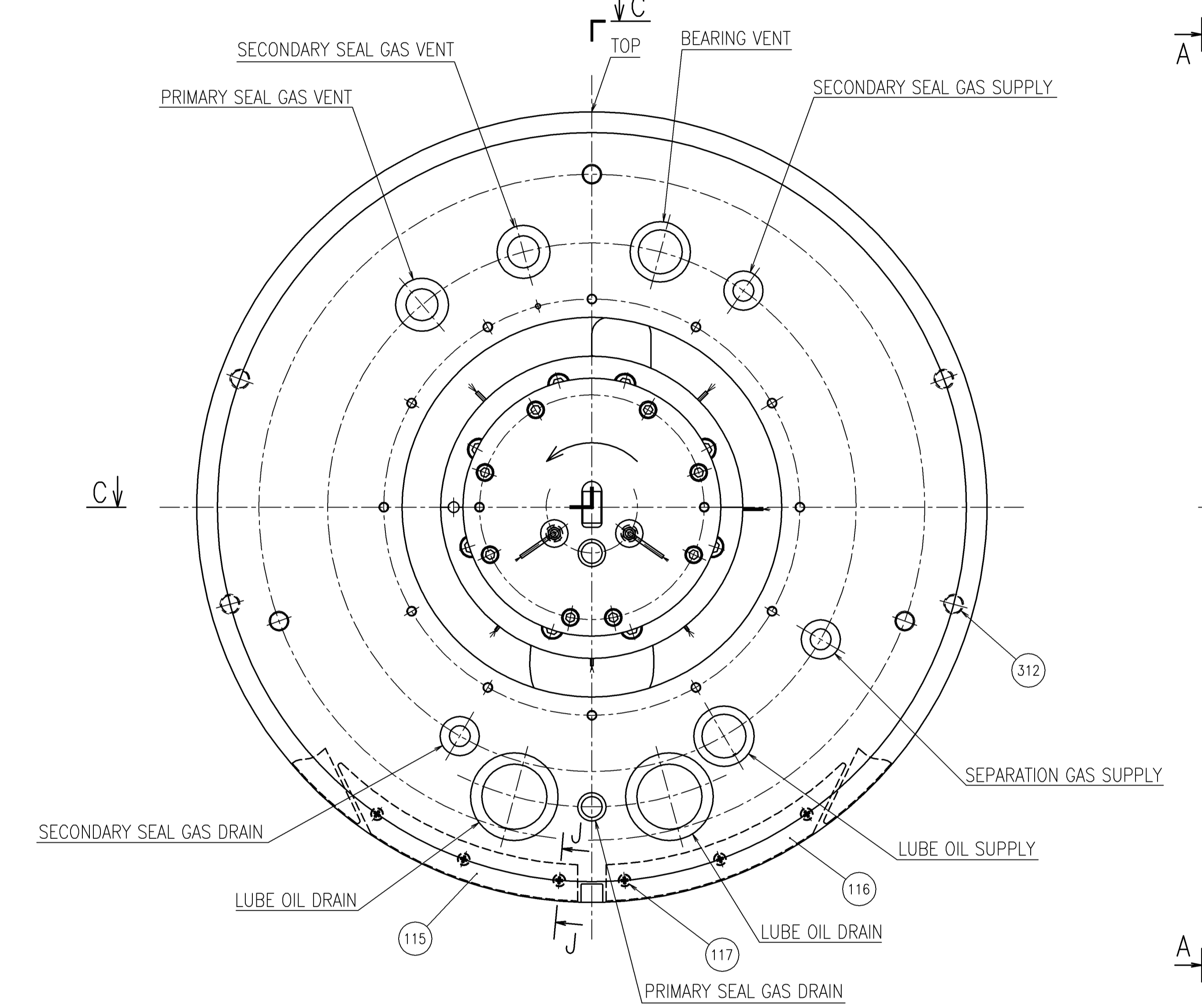
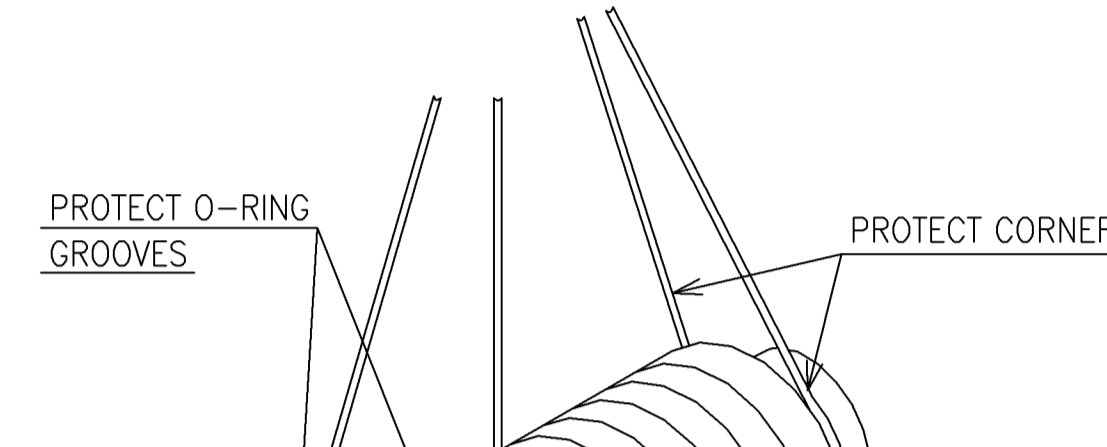
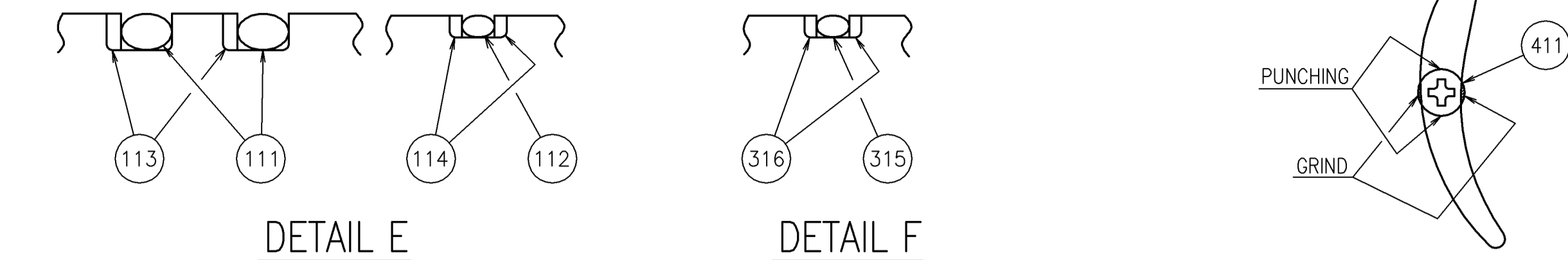
DATE	13.1.12	SCALE	1/10	SPECIFIED NO.	9000	DRAWING NO.	790-19510
TEC/MIM-5	363N71	APPROVED	O. Isumi	103-J SYNTHESIS GAS COMPRESSOR 5V-7 (LP) OUTLINE ASSEMBLY DRAWING			
TEC/MIM-5	363N71	CHECKED	Y. KIHNO	MITSUBISHI HEAVY INDUSTRIES COMPRESSOR CORPORATION			
TEC/MIM-5	363N71	PREPARED	T. OHTA	MITSUBISHI HEAVY INDUSTRIES COMPRESSOR CORPORATION			
TEC/MIM-5	363N71	DRAWN		MITSUBISHI HEAVY INDUSTRIES COMPRESSOR CORPORATION			

DRAWING NO. 790-19510

Auto CAD

THIRD ANGLE PROJECTION	PLANNED PROJECT	PLAN RECORD
	THIS DRAWING REFERENCED TO ORDER NO. _____	DRAWING NO. _____

NOTE FOR LIFTING
 (1) WHOLE INTERNAL ASSY SHALL BE LIFTED BY LIFTING WIRE AS SHOWN BELOW. (DO NOT USE EYE BOLTS.)
 (2) UPPER / LOWER HALF ASSY (HOR. FACE DOWN) SHALL BE LIFTED BY 5 POINTS AS SHOWN BELOW. (DO NOT LIFT BY 2 POINTS FOR AVOIDING OVER LOADING.)
 (3) UPPER / LOWER HALF ASSY (HOR. FACE UP) SHALL BE LIFTED WITH SPECIAL TOOL AS SHOWN BELOW.



5.30	BALANCE PISTON LABY.	1		2461-11	
5.22	LABY-IMP. STG.7	1		2411-37	
5.21	LABY-IMP. STG.6	1		2411-36	
5.20	LABY-IMP. STG.5	1		2411-35	
5.19	LABY-IMP. STG.4	1		2411-34	
5.18	LABY-IMP. STG.3	1		2411-33	
5.17	LABY-IMP. STG.2	1		2411-32	
5.16	LABY-IMP. STG.1	1		2411-31	
5.15	LABY-SHAFT STG.6-7	1		2411-16	
5.14	LABY-SHAFT STG.5-6	1		2411-15	
5.13	LABY-SHAFT STG.4-5	1		2411-14	
5.12	LABY-SHAFT STG.3-4	1		2411-13	
5.11	LABY-SHAFT STG.2-3	1		2411-12	
5.10	LABY-SHAFT STG.1-2	1		2411-11	

4.32	SPRING PIN 5X10	1		2351-13	
4.31	BOLT HEX SOCK M6X15	12		2351-12	
4.30	DIVISION PLATE	1	5.9	2351-11	
4.11	SCREW +CSKH M5CR M6*85	6		2311-61	
4.10	INLET GUIDE (1S)	1	30.0	2311-00	

3.57	O-RING CORD 4C D3.5*1440	2		2221-83	
3.56	SPR. LOCK WASHER NO.2 24	2		2221-75	
3.55	LOCKING SCREW HH M8	1		2221-61	
3.54	HEX SKT HD BOLT M16*215/S44	2		2221-53	
3.53	HEX SKT HD BOLT M24*210	1		2221-52	
3.52	HEX SKT HD BOLT M24*240	1		2221-51	
3.51	DISCHARGE WALL (BOTTOM)	1	210.0	2221-20	
3.50	DISCHARGE WALL (TOP)	1	205.0	2221-10	

2.64	O-RING CORD 4C D3.5*330L	2		2116-81	
2.63	SPR.LK.WASHER NO.2 16	2		2116-75	
2.62	HEX.BOLT SOC M16*55	2		2116-51	
2.61	DIAPHRAGM 6-7 (BOTTOM)	1	303.0	2116-20	
2.60	DIAPHRAGM 6-7 (TOP)	1	309.0	2116-10	

2.54	O-RING CORD 4C D3.5*330L	2		2115-81	
2.53	DIAPHRAGM 5-6 (BOTTOM)	1	280.0	2115-20	
2.52	DIAPHRAGM 5-6 (TOP)	1	280.0	2115-10	

2.44	O-RING CORD 4C D3.5*330L	2		2114-81	
2.43	SPR.LK.WASHER NO.2 16	2		2114-75	
2.42	HEX.BOLT SOC M16*55	2		2114-51	
2.41	DIAPHRAGM 4-5 (BOTTOM)	1	286.0	2114-20	
2.40	DIAPHRAGM 4-5 (TOP)	1	284.0	2114-10	

2.24	O-RING CORD 4C D3.5*310L	2		2112-81	
2.23	SPR.LK.WASHER NO.2 16	2		2112-75	
2.22	HEX.BOLT SOC M16*55	2		2112-51	
2.21	DIAPHRAGM 2-3 (BOTTOM)	1	251.0	2112-20	
2.20	DIAPHRAGM 2-3 (TOP)	1	250.0	2112-10	

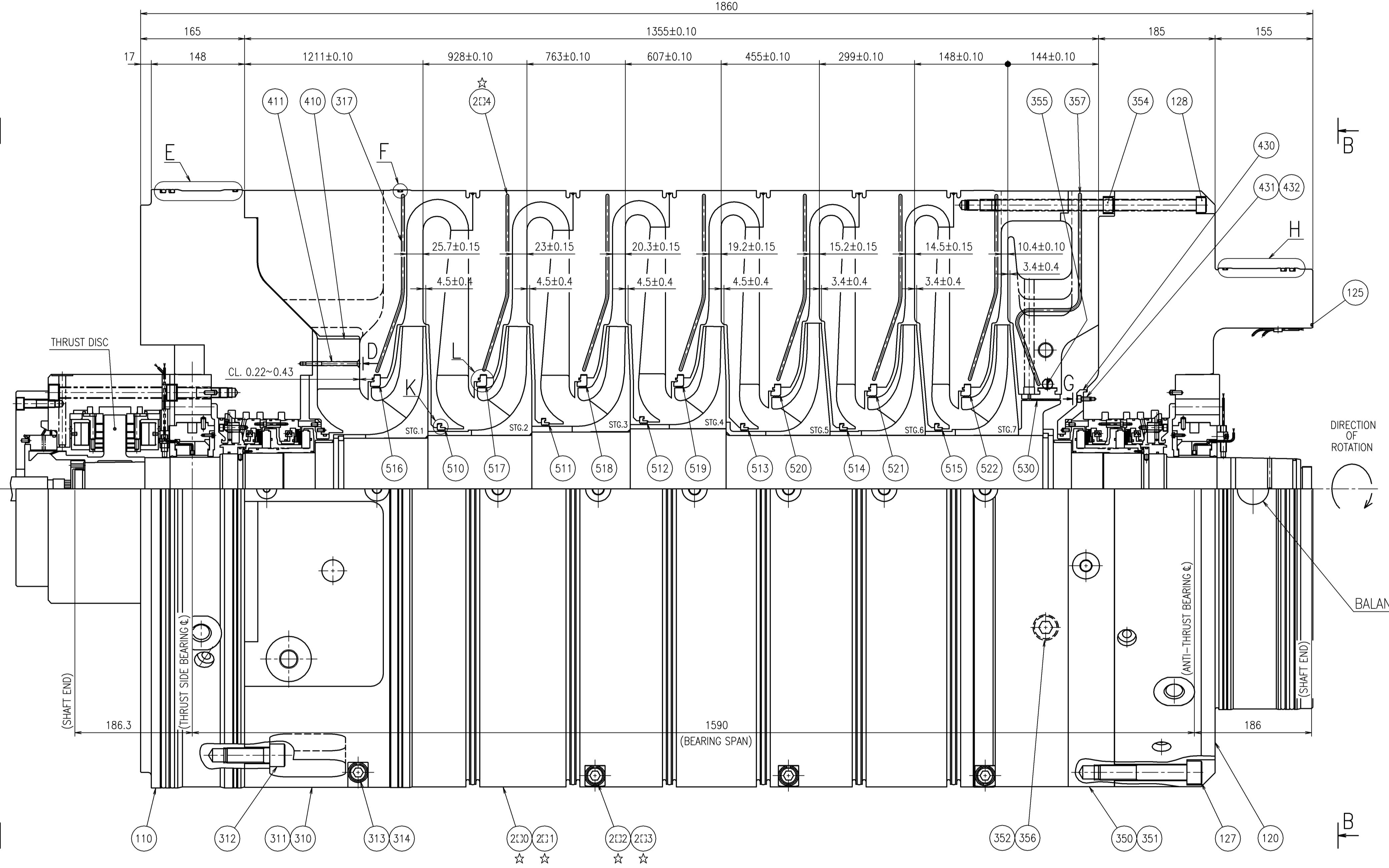
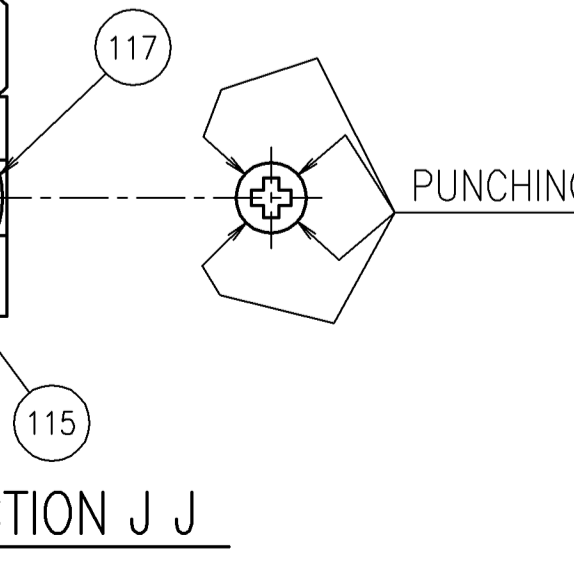
2.14	O-RING CORD 4C D3.5*310L	2		2111-81	
2.11	DIAPHRAGM 1-2 (BOTTOM)	1	263.0	2111-20	
2.10	DIAPHRAGM 1-2 (TOP)	1	263.0	2111-10	

1.28	BOLT-HEX SOCK M16*385	2		1312-37	
1.27	BOLT-HEX SOCK M24*140	12		1312-36	
1.26	O-RING C35	5		1312-32	
1.25	O-RING D3.1*514	1		1312-31	
1.24	BACK UP RING	2		1312-26	
1.23	BACK UP RING	2		1312-25	
1.22	O-RING D3.5*4671	1		1312-22	
1.21	O-RING D5.7*4669	2		1312-21	
1.20	HEAD (DISCH.)	1	1079.0	1312-11	

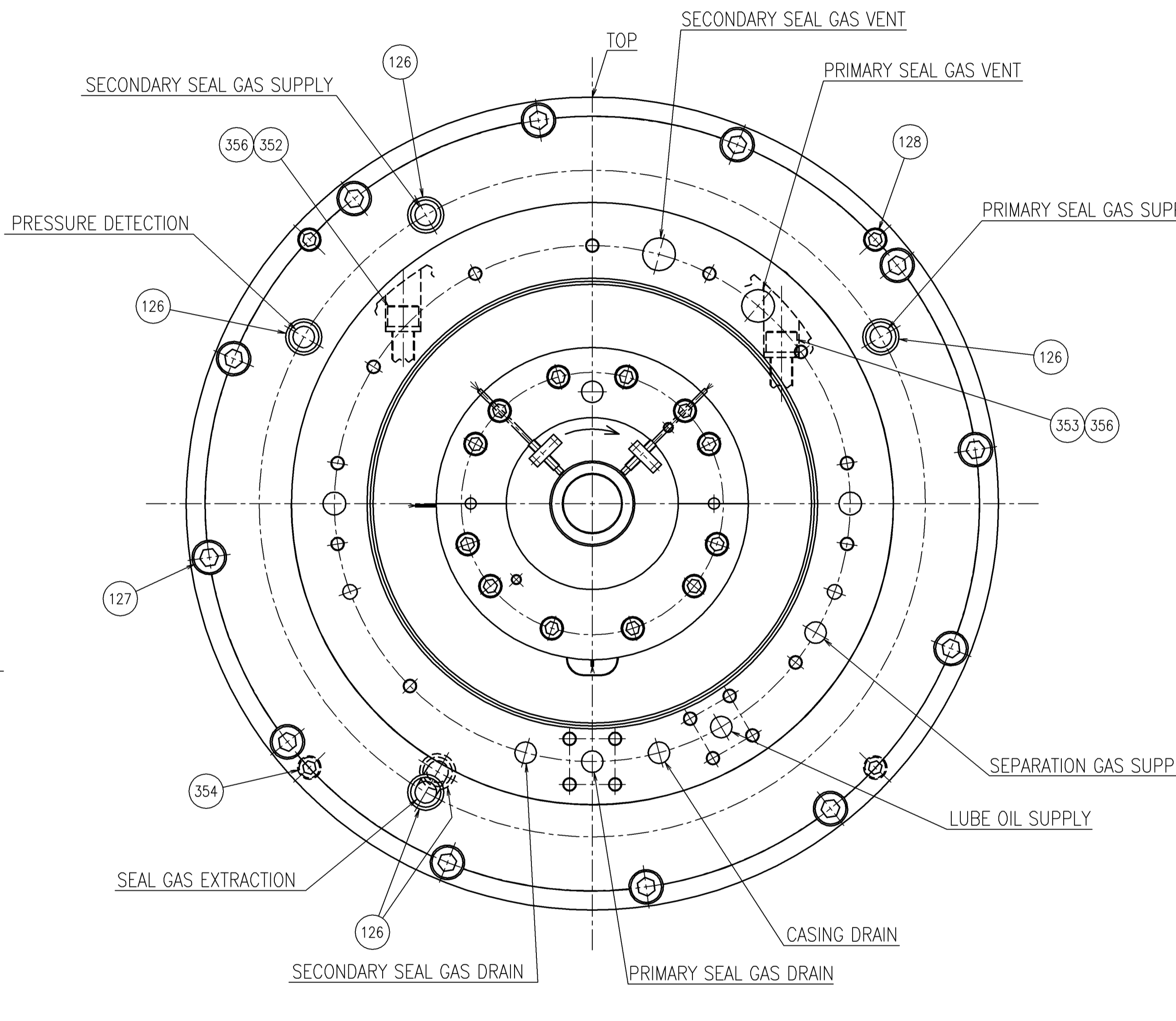
1.17	SCREW +PAN M8*25	6		1311-43	
1.16	DUMMY PIECE	1	2.0	1311-42	
1.15	DUMMY PIECE	1	2.0	1311-41	
1.14	BACK UP RING	2		1311-34	
1.13	BACK UP RING	2		1311-33	
1.12	O-RING D3.5*4914	1		1311-32	
1.11	O-RING D6.7*4912	2		1311-31	
1.10	HEAD (SUCTION)	1	967.0	1311-11	

ITEM	PARTS NAME	QUANT	PER PIECE	TOTAL	PARTS	REMARKS
-BY	WEIGHT (Kg)			NUMBER		

NOTE FOR LABYRINTH ASSEMBLY
 CHAMFER OF 1mm AT ASSEMBLY
 TO BE PUNCHED ON DIAPHRAGM (REFER TO DWG.No.767-92056)
 CHAMFER OF 2mm AT ASSEMBLY
 TO BE PUNCHED ON DIAPHRAGM (REFER TO DWG.No.767-92056)



NOTE: ☆ REFER TO ITEM NO. SHOWN ON PARTS LIST. EXAMPLE: 210 REFERS TO ITEM NO. 210,220,230...



THIS COMP. IS SHOWN
 (LP) (HP)

NOTE:
 1. ALL CLEARANCES ARE MEASURED ON THE HORIZONTAL SPLIT SURFACE.
 2. AXIAL DIMENSIONS ARE MEASURED WHEN THE THRUST DISC IS IN THE MIDDLE OF THE THRUST BEARING CLEARANCE.
 3. LOCKING SCREWS ARE SET ON THE HORIZONTAL SPLIT SURFACE OF DISCHARGE WALL.
 4. O-RING CORDS ARE SET ON THE HORIZONTAL SPLIT SURFACE OF LOWER DIAPHRAGM, INLET WALL AND DISCHARGE WALL.

IMPELLER SHAFT AND BALANCE PISTON LABYRINTH CLEARANCES DETAIL (SEE TABLE).

IMP.LABY. STG.	IN. CLEARANCE (mm)	SHAFT LABY. STG.	IN. CLEARANCE (mm)
1	1-2	1-2	0.5 ^{1/2}
2	2-3	2-3	0.6 ^{1/2}
3	3-4	3-4	0.6 ^{1/2}
4	4-5	4-5	0.5 ^{1/2}
5	5-6	5-6	0.5 ^{1/2}
6	6-7	6-7	0.5 ^{1/2}
BALANCE PISTON	0.5 ^{1/2}		

NOTE:
 AFTER SHOP MECHANICAL RUNNING TEST, CLEARANCES REPLACED ^{1/2}" TO THE ABOVE VALUES ARE ACCEPTABLE.

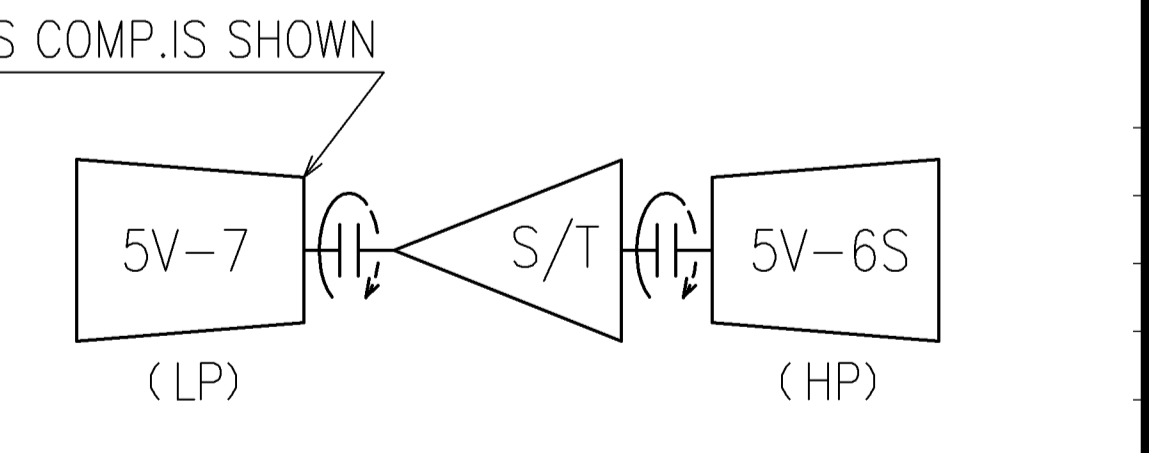
REFERENCE DRAWING NO.

ROTOR ASSEMBLY	790-28419
BEARING & SEAL ASSEMBLY DWG. (1/2)	790-19506
BEARING & SEAL ASSEMBLY DWG. (2/2)	790-19507
COUPLING ASSEMBLY	790-44018
COMP. OUTLINE ASSEMBLY	790-19510

TIGHTEN THE BOLT (ITEM 354) WITH FOLLOWING TORQUE.

ITEM	TORQUE (kgf·m)
354	2.5 (kgf·m)

ITEM	TORQUE (kgf·m)
354	2.5 (kgf·m)



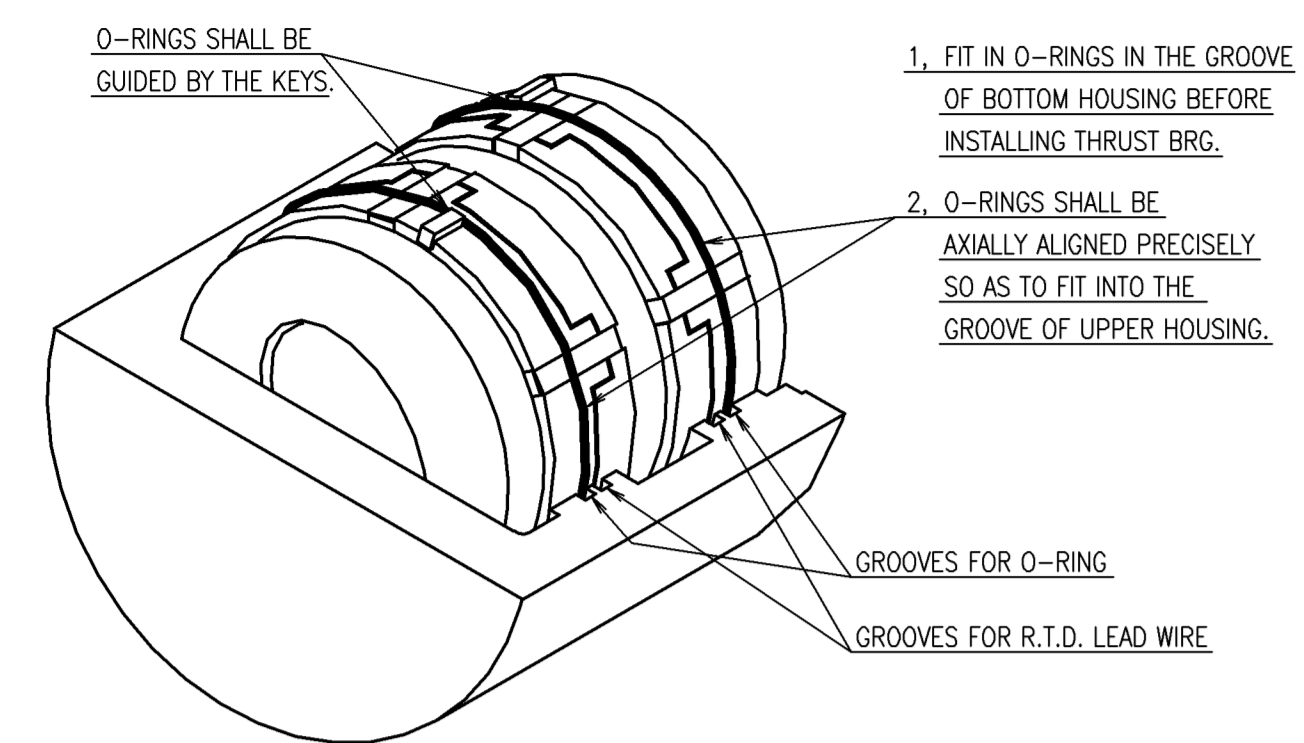
DATE	1.21.20	MARK	1.21.20	DESCRIPTION	103-J SYNTHESIS GAS COMPRESSOR 5V-7(LP) INTERNAL ASSEMBLY DRAWING	MATERIAL	SCALP 1.74	TEST	1.74	WORKS	1.74	TOTAL	1.74	REMARKS	
APPROVED		CHECKED		PREPARED		SCALE		DRAWN		SPECIFIED NO.		DRAWING NO.			
2000		790-19505													

DRAWING NO. 790-19505

Auto CAD

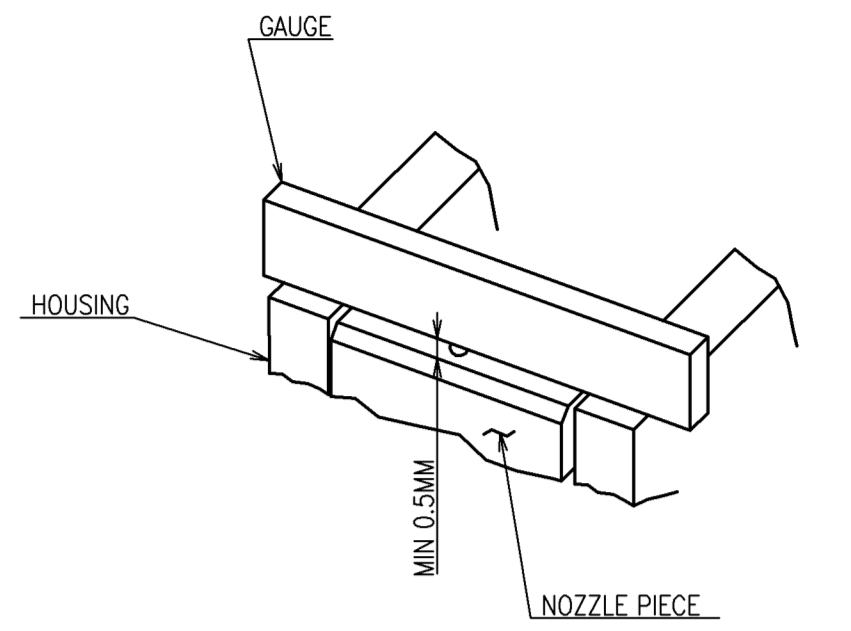
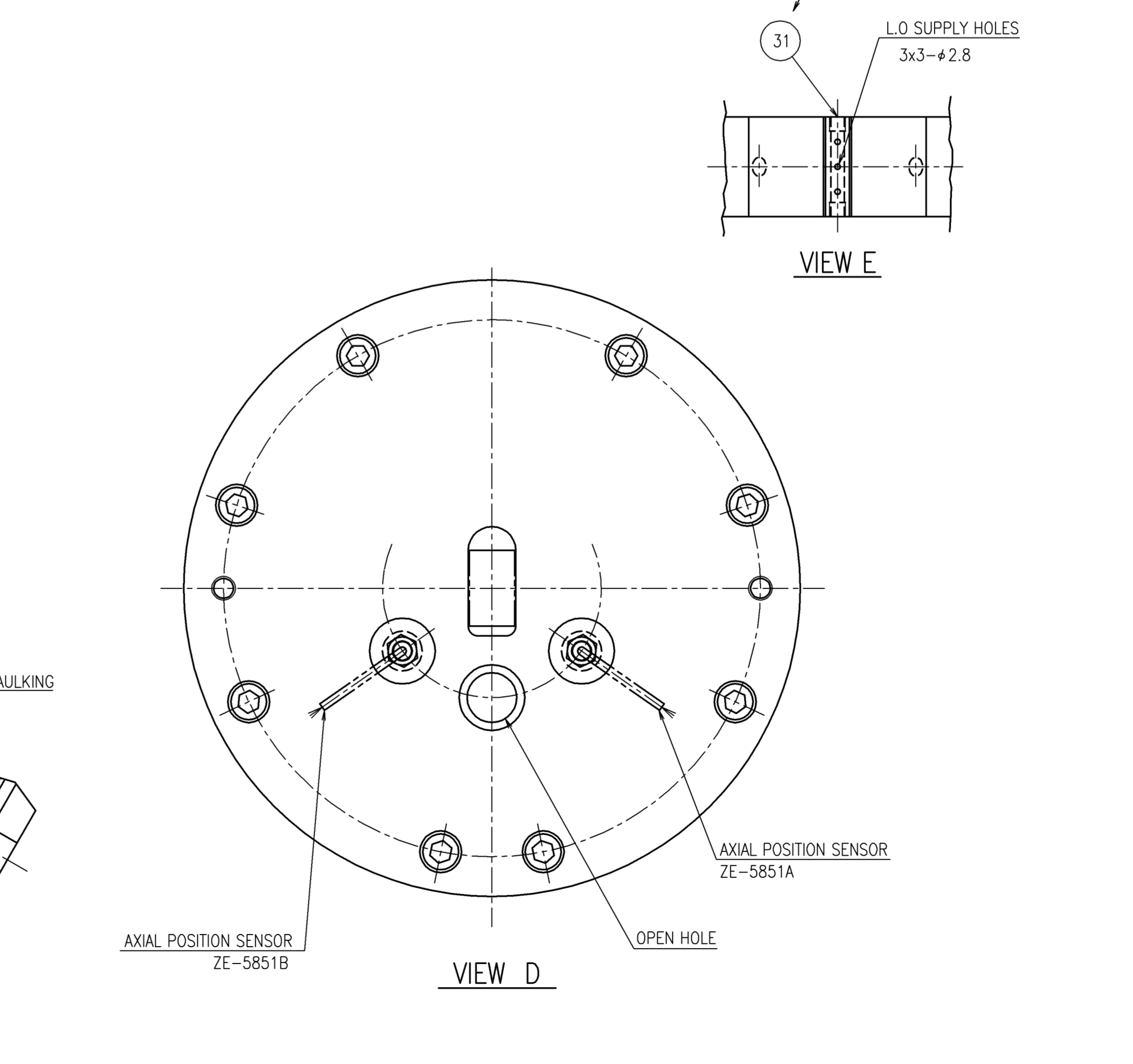
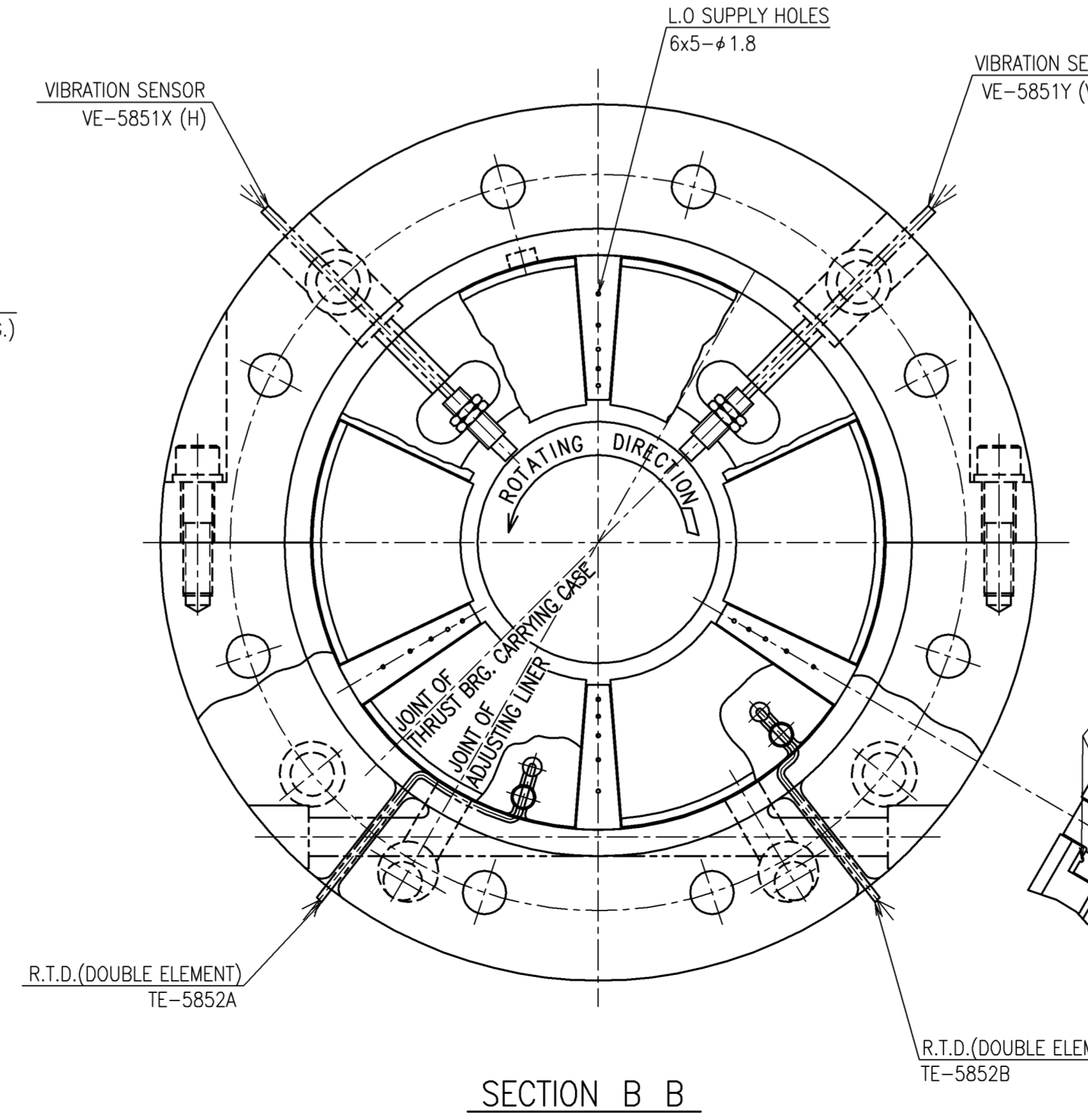
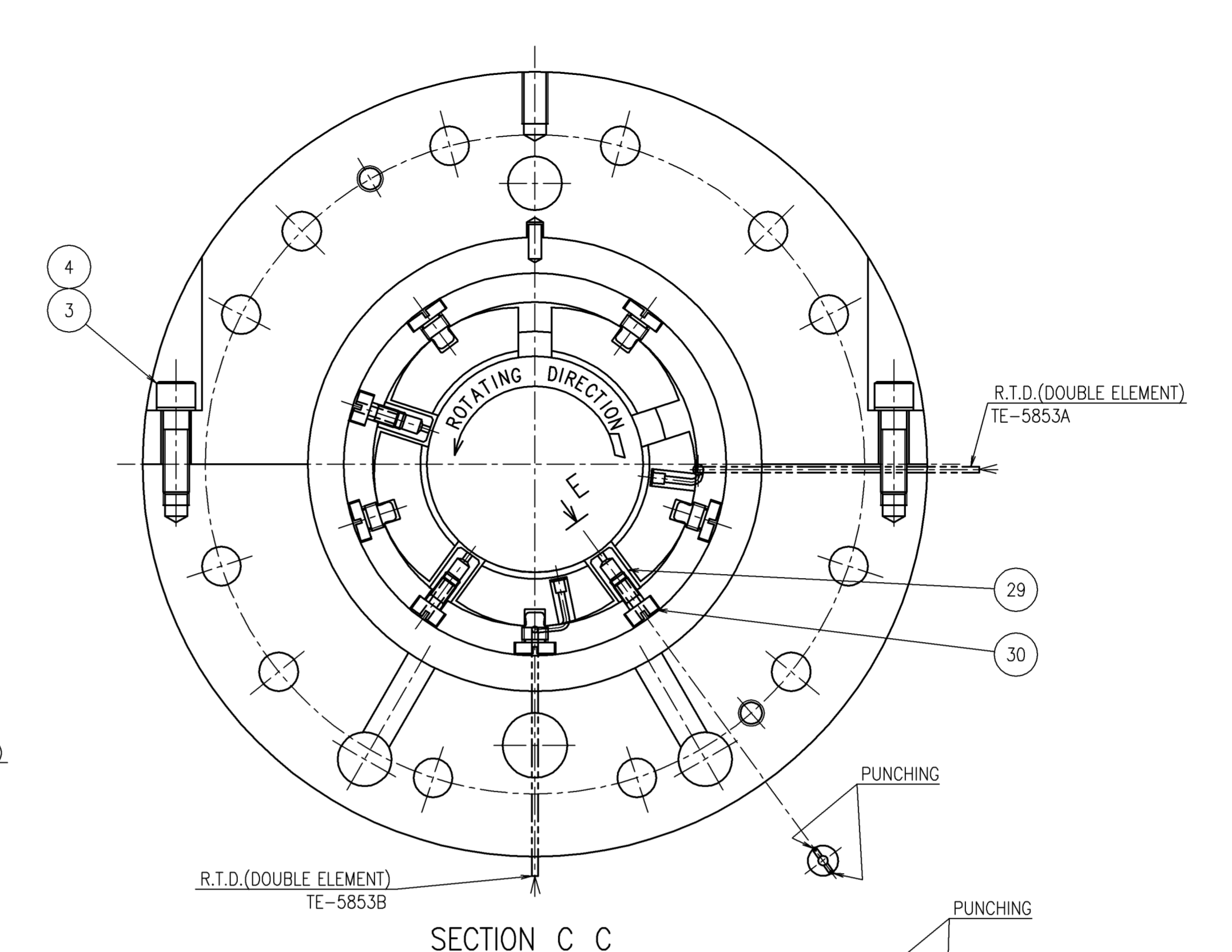
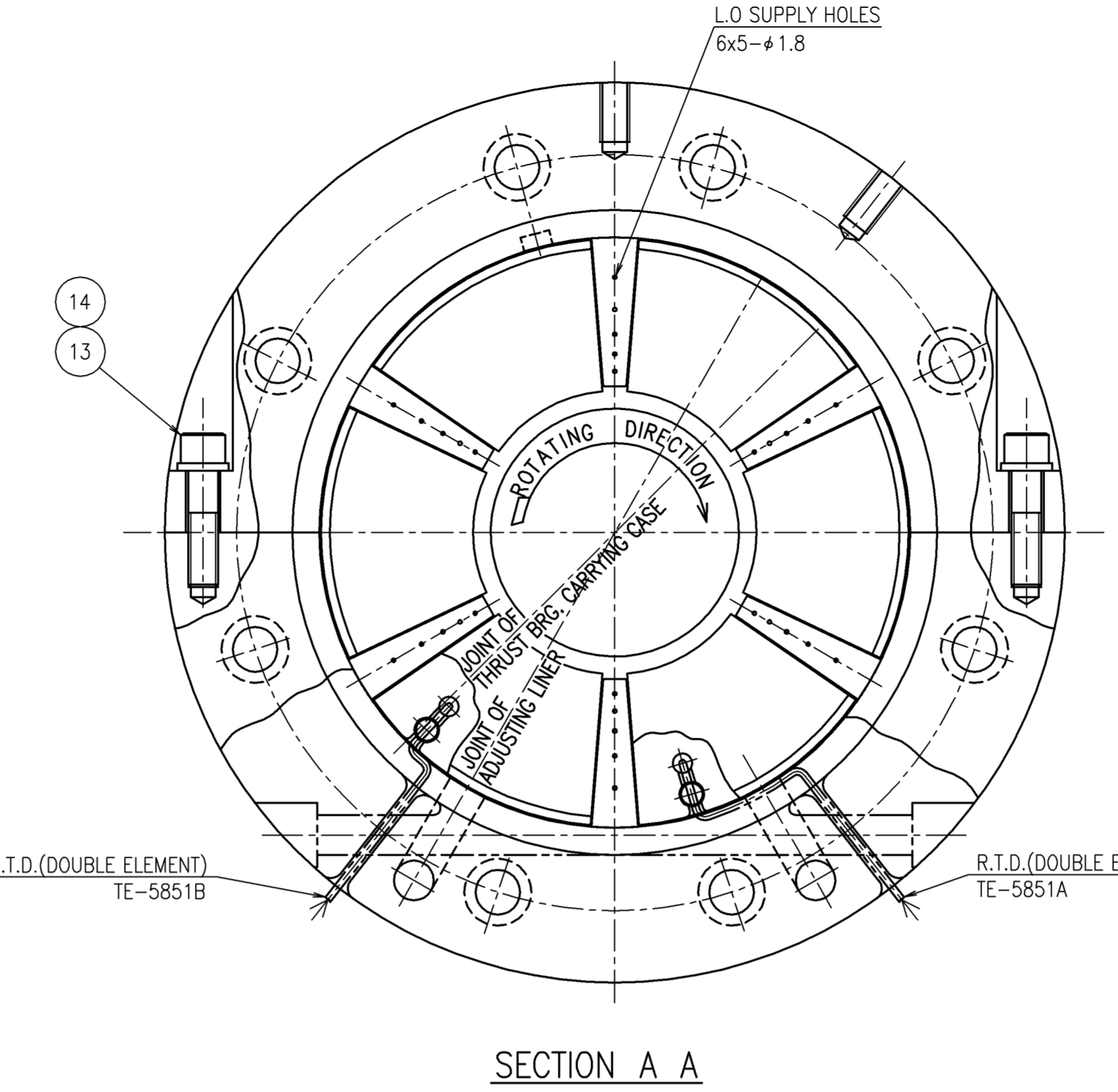
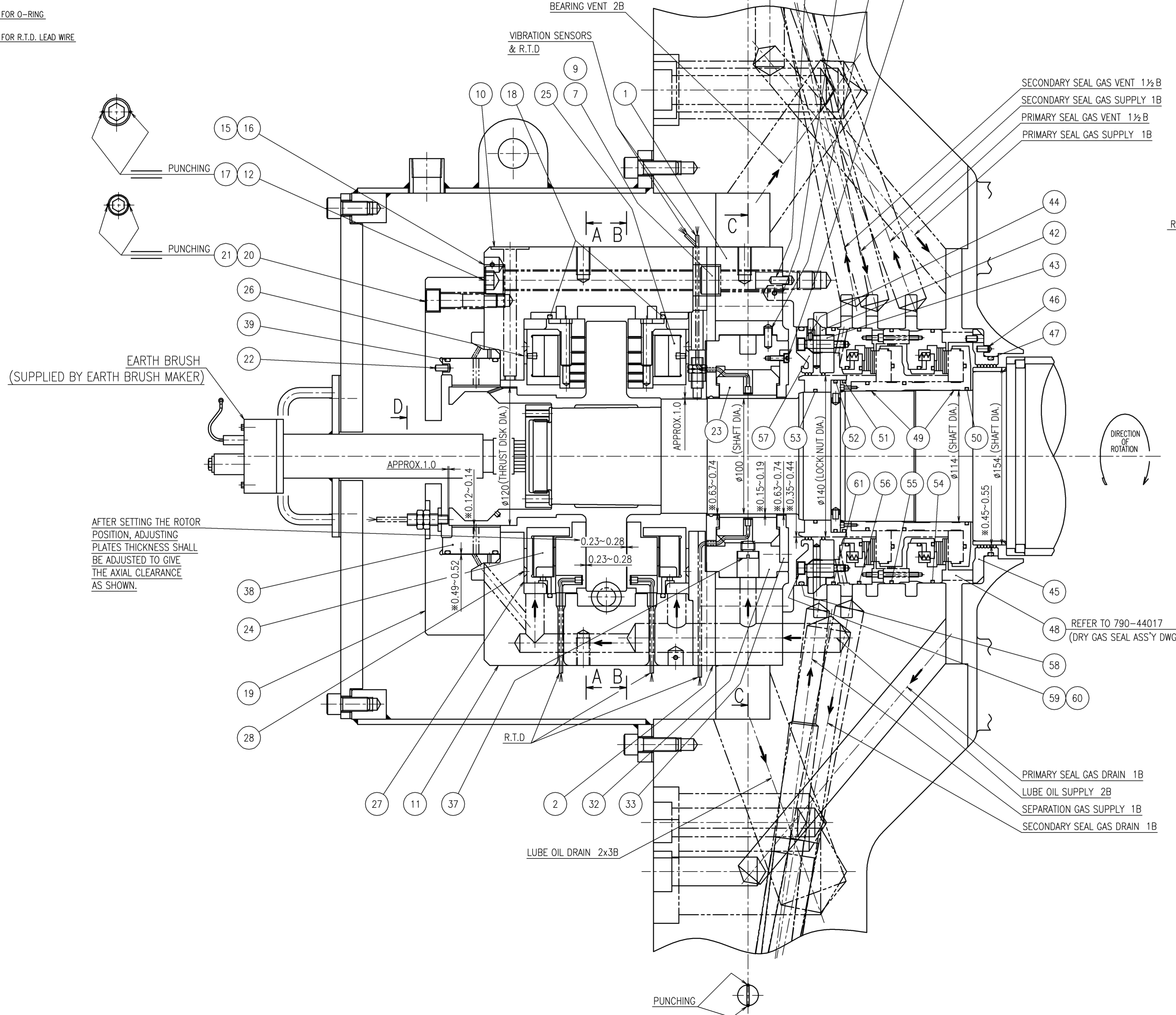
REV	NO	DATE	DESCRIPTION
REV	1		
REV	2		

INSTALLATION PROCEDURE OF O-RINGS FOR THRUST BEARING

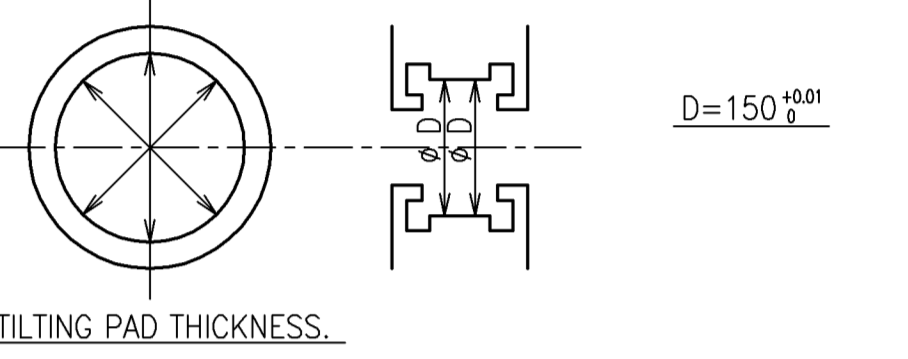


1. FIT IN O-RINGS IN THE GROOVE OF BOTTOM HOUSING BEFORE INSTALLING THRUST BRG.
2. O-RINGS SHALL BE AXIALLY ALIGNED PRECISELY SO AS TO FIT INTO THE GROOVE OF UPPER HOUSING.

ITEM	PARTS NAME	PARTS NUMBER	QUANT	PER PECE	TOTAL	REMARKS
63						
62						
61	O-RING	4711-87	1	0.1		
60	CONICAL SPR.WSHR. 2ND 6	4711-85	5	0.1		
59	BOLT HEX SOCK M6X35	4711-84	5	0.1		
58	O-RING D3.5XD211.5	4711-83	1	0.1		
57	SEPARATION LABYRINTH	4711-81	1	1.5		
56	O-RING	4711-79	1	0.1		
55	O-RING	4711-78	1	0.1		
54	O-RING	4711-77	1	0.1		
53	O-RING	4711-76	1	0.1		
52	O-RING	4711-75	1	0.1		
51	O-RING	4711-74	1	0.1		
50	O-RING	4711-73	1	0.1		
49	TOLERANCE RING	4711-72	2	0.1		
48	GAS SEAL ASSEMBLY	4711-71	1	26.9		
47	O-RING D3.5XD162.0	4711-54	1	0.1		
46	SPRING PIN D5X10	4711-53	1	0.1		
45	SHAFT SEAL LABYRINTH	4711-51	1	0.5		
44	SPRING PIN D3X6	4711-13	1	0.1		
43	RETAINING RING	4711-12	1	1.6		
42	STOP RING	4711-11	1	0.9		
41						
40						
39	O-RING D3.5XD159	4111-82	2	0.1		
38	O/H DAMPER RING	4111-81	1	4.2		
37	SET BOLT M12X14	4111-77	5	0.1		
36	CONICAL SPR.WSHR. 2ND 4	4111-76	12	0.1		
35	SPRING PIN D6X16	4111-74	1	0.1		
34	BOLT HEX SOCK M4X0.7X12	4111-73	12	0.1		
33	JOURNAL HOUSING COVER	4111-72	1	1.0		
32	JOURNAL HOUSING (THRUST)	4111-71	1	12.0		
31	PG-PLUG MB	4111-63	6	0.1		
30	SUPPLY BOLT M8X13.5	4111-62	3	0.1		
29	SUPPLY OIL NOZZLE D2.8	4111-61	3	0.2		
28	SCREW +CON. M4X0.7X6	4111-53	12	0.1		
27	ADJUSTING LINER (OUT)	4111-52	1	0.2		
26	ADJUSTING LINER (IN)	4111-51	1	0.2		
25	K9C KINGSBURY ASS'Y (INN)	4111-43	1	12.2		
24	K9C KINGSBURY ASS'Y (OUT)	4111-42	1	12.2		
23	TILTING PAD (THRUST)	4111-41	1	3.9		
22	SPRING PIN D5X10	4111-34	1	0.1		
21	CONICAL SPR.WSHR. 2ND 12	4111-33	8	0.1		
20	BOLT HEX SOCK M12X50	4111-32	8	0.5		
19	O/H DAMPER HOUSING	4111-31	1	24.0		
18	O-RING D3.52XD228	4111-29	2	0.1		
17	CONICAL SPR.WSHR. 2ND 16	4111-28	8	0.1		
16	SCREW +CON. M4X0.7X20	4111-27	2	0.1		
15	SET PIN D13X14	4111-26	2	0.1		
14	SPR.LK.WSHR. NO.2 12	4111-25	4	0.1		
13	BOLT HEX SOCK M12X50	4111-24	4	0.3		
12	BOLT HEX SOCK M16X270	4111-23	8	3.9		
11	THRUST HOUSING (BTM)	4111-22	1	53.0		
10	THRUST HOUSING (TOP)	4111-21	1	53.0		
9	CONICAL SPR.WSHR. 2ND 16	4111-19	4	0.1		
8	SPRING PIN D6X16	4111-18	1	0.1		
7	BOLT HEX SOCK M16X70	4111-17	4	0.7		
6	SCREW +CON. M4X0.7X20	4111-16	2	0.1		
5	SET PIN D13X14	4111-15	2	0.1		
4	CONICAL SPR.WSHR. 2ND 12	4111-14	2	0.1		
3	BOLT HEX SOCK M12X40	4111-13	2	0.2		
2	JOURNAL HOUSING RING (BTM)	4111-12	1	23.0		
1	JOURNAL HOUSING RING (TOP)	4111-11	1	23.0		
6	ITEM	PARTS NAME	PARTS NUMBER	QUANT	PER PECE	TOTAL
					(WEIGHT (KG))	



NOTE
 1. JOURNAL BEARING CLEARANCE SHALL BE MEASURED AS FOLLOWS.
 1-1. THE INNER DIAMETER OF HOUSING SHOULD BE MEASURED AFTER ASSEMBLING THE HOUSING.



1-2. TILTING PAD THICKNESS.
 1-3. TOTAL CLEARANCE = $D_{max} - 2 \times T_{max} - \text{SHAFT DIA.} = 0.15 \sim 0.19$
 1-4. THE RESULTS OF MEASURING SHOULD BE RECORDED.
 2. MARK "mm" DIMENSIONS SHOW DIAMETRAL CLEARANCE.

REFERENCE DRAWING
 1. BEARING & SEAL ASSEMBLY DRAWING(2/2) ---- 790-19507

SPECIFICATION
 1. THRUST BEARING TYPE K-9
 2. JOURNAL BEARING DIA. $\phi 100$
 3. SEAL DIA. $\phi 114$
 4. LABYRINTH DIA. $\phi 154$

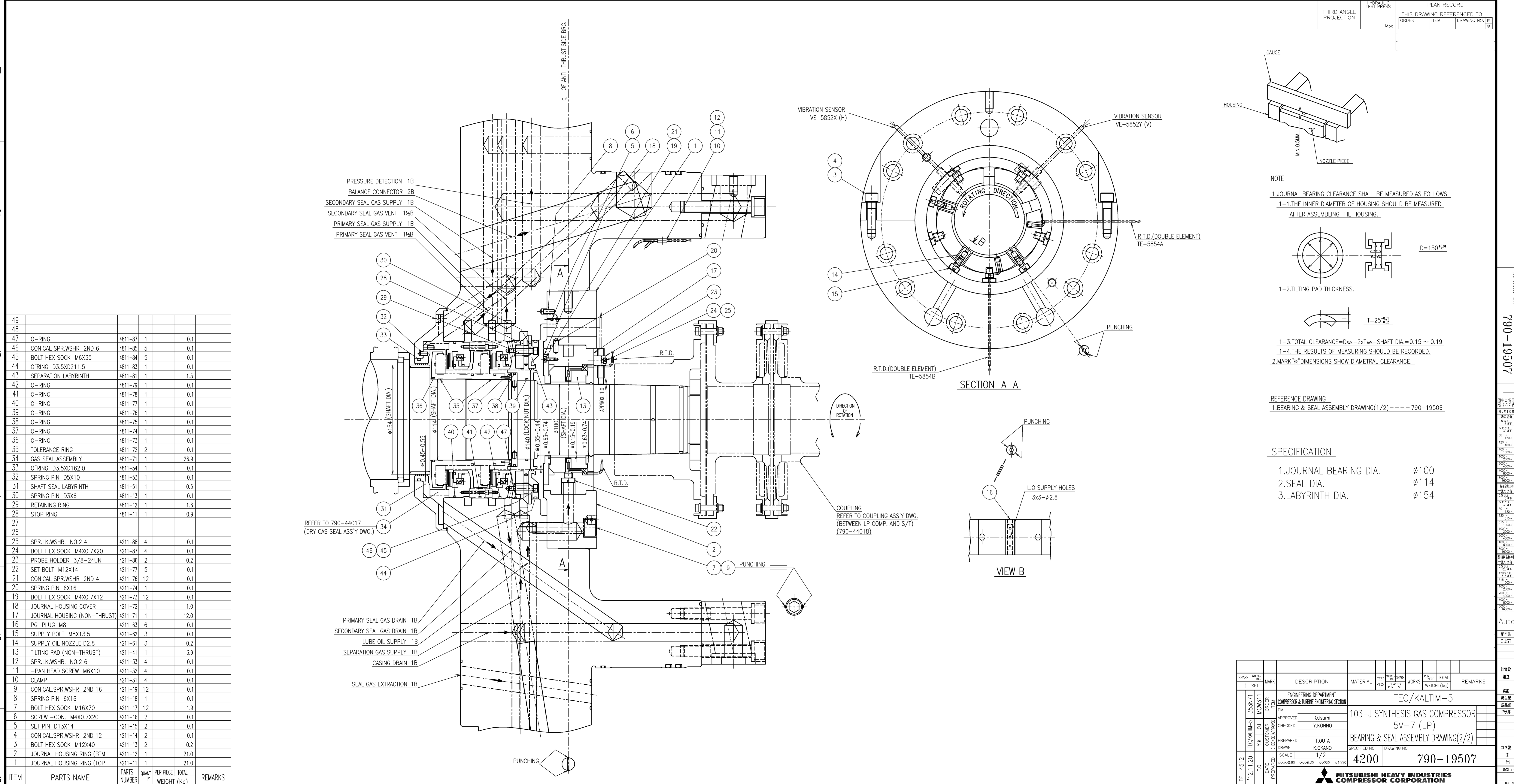
SPARE	MARK	DESCRIPTION	MATERIAL	TEST	PREP	WORKS	TREE	TOTAL	REMARKS
1	SET	TEC/KALTIM-5							
TEC/KALTIM-5 103-J SYNTHESIS GAS COMPRESSOR 5V-7 (LP) BEARING & SEAL ASSEMBLY DRAWING(1/2)									
SCALE: 1/2 4100 790-19506									

DRAWING NO. 790-19506

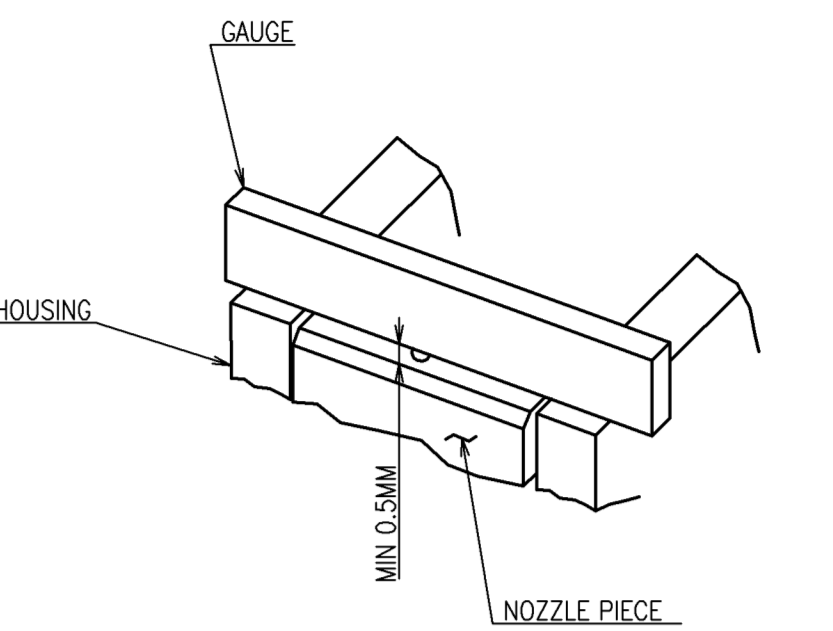
NO.	DATE	REVISION	BY	CHK
1				

NO.	DATE	REVISION	BY	CHK
1				

A B C D E F G H J K L



THIRD ANGLE PROJECTION		HYDRAULIC TEST PRESS		PLAN RECORD	
ORDER	ITEM	ORDER	ITEM	DRAWING NO.	REV.



NOTE

1. JOURNAL BEARING CLEARANCE SHALL BE MEASURED AS FOLLOWS.

1-1. THE INNER DIAMETER OF HOUSING SHOULD BE MEASURED AFTER ASSEMBLING THE HOUSING.

1-2. TILTING PAD THICKNESS.

1-3. TOTAL CLEARANCE = $D_{ave} - 2 \times T_{ave} - \text{SHAFT DIA.} = 0.15 \sim 0.19$

1-4. THE RESULTS OF MEASURING SHOULD BE RECORDED.

2. MARK * DIMENSIONS SHOW DIAMETRAL CLEARANCE.

REFERENCE DRAWING

1. BEARING & SEAL ASSEMBLY DRAWING(1/2) ---- 790-19506

SPECIFICATION

1. JOURNAL BEARING DIA. $\phi 100$

2. SEAL DIA. $\phi 114$

3. LABYRINTH DIA. $\phi 154$

ITEM	PARTS NAME	PARTS NUMBER	QUANT-ITY	PER PIECE WEIGHT (Kg)	TOTAL WEIGHT (Kg)	REMARKS
49						
48						
47	O-RING	4811-87	1	0.1		
46	CONICAL SPR.WSHR. 2ND 6	4811-85	5	0.1		
45	BOLT HEX SOCK M6X35	4811-84	5	0.1		
44	O-RING D3.5XD211.5	4811-83	1	0.1		
43	SEPARATION LABYRINTH	4811-81	1	1.5		
42	O-RING	4811-79	1	0.1		
41	O-RING	4811-78	1	0.1		
40	O-RING	4811-77	1	0.1		
39	O-RING	4811-76	1	0.1		
38	O-RING	4811-75	1	0.1		
37	O-RING	4811-74	1	0.1		
36	O-RING	4811-73	1	0.1		
35	TOLERANCE RING	4811-72	2	0.1		
34	GAS SEAL ASSEMBLY	4811-71	1	26.9		
33	O-RING D3.5XD162.0	4811-54	1	0.1		
32	SPRING PIN D5X10	4811-53	1	0.1		
31	SHAFT SEAL LABYRINTH	4811-51	1	0.5		
30	SPRING PIN D3X6	4811-13	1	0.1		
29	RETAINING RING	4811-12	1	1.6		
28	STOP RING	4811-11	1	0.9		
27						
26						
25	SPR.LK.WSHR. NO.2 4	4211-88	4	0.1		
24	BOLT HEX SOCK M4X0.7X20	4211-87	4	0.1		
23	PROBE HOLDER 3/8-24UN	4211-86	2	0.2		
22	SET BOLT M12X14	4211-77	5	0.1		
21	CONICAL SPR.WSHR. 2ND 4	4211-76	12	0.1		
20	SPRING PIN 6X16	4211-74	1	0.1		
19	BOLT HEX SOCK M4X0.7X12	4211-73	12	0.1		
18	JOURNAL HOUSING COVER	4211-72	1	1.0		
17	JOURNAL HOUSING (NON-THRUST)	4211-71	1	12.0		
16	PG-PLUG M8	4211-63	6	0.1		
15	SUPPLY BOLT M8X13.5	4211-62	3	0.1		
14	SUPPLY OIL NOZZLE D2.8	4211-61	3	0.2		
13	TILTING PAD (NON-THRUST)	4211-41	1	3.9		
12	SPR.LK.WSHR. NO.2 6	4211-33	4	0.1		
11	+PAN HEAD SCREW M6X10	4211-32	4	0.1		
10	CLAMP	4211-31	4	0.1		
9	CONICAL SPR.WSHR. 2ND 16	4211-19	12	0.1		
8	SPRING PIN 6X16	4211-18	1	0.1		
7	BOLT HEX SOCK M16X70	4211-17	12	1.9		
6	SCREW +CON. M4X0.7X20	4211-16	2	0.1		
5	SET PIN D13X14	4211-15	2	0.1		
4	CONICAL SPR.WSHR. 2ND 12	4211-14	2	0.1		
3	BOLT HEX SOCK M12X40	4211-13	2	0.2		
2	JOURNAL HOUSING RING (BTM)	4211-12	1	21.0		
1	JOURNAL HOUSING RING (TOP)	4211-11	1	21.0		

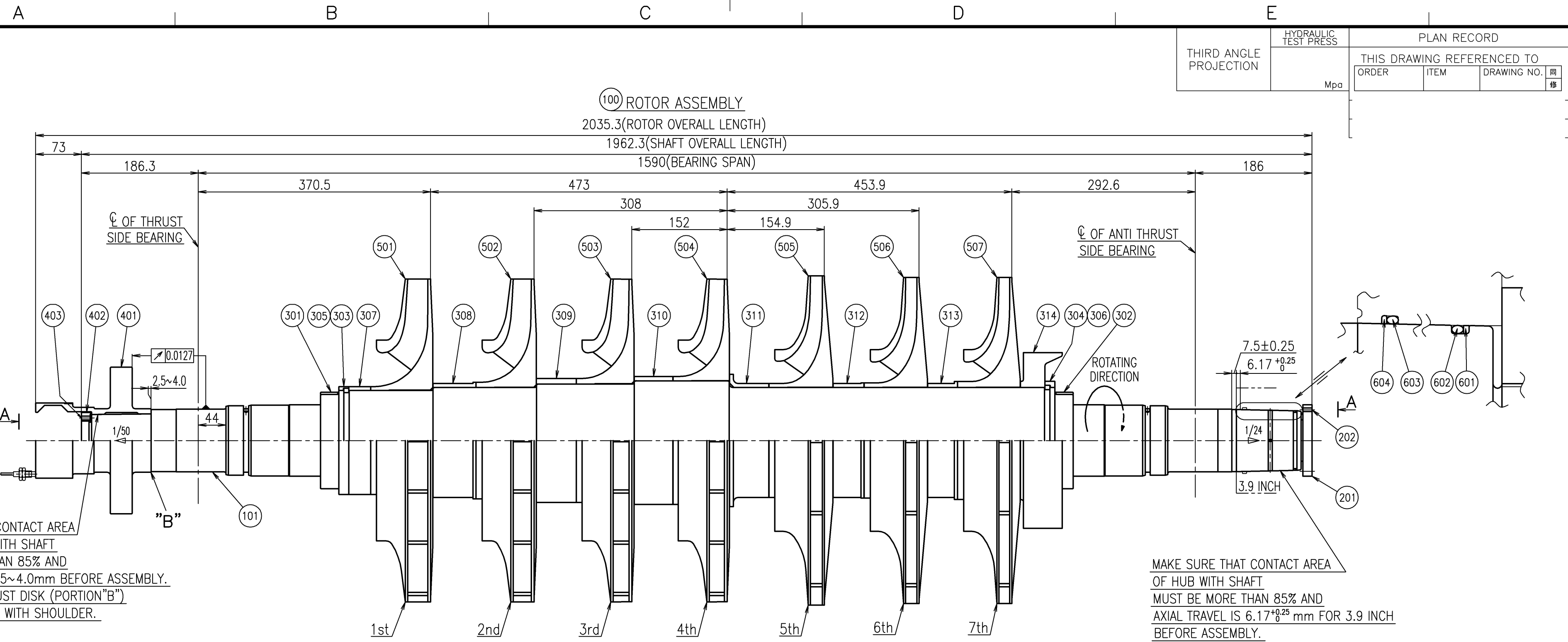
A1 1枚製共98(2)

DRAWING NO. 790-19507

品名	数量	重量
103-J SYNTHESIS GAS COMPRESSOR BEARING & SEAL ASSEMBLY DRAWING(2/2)	1	0.0

SPARE	MARK	DESCRIPTION	MATERIAL	TEST	WORKS	TOTAL	REMARKS
1 SET		ENGINEERING DEPARTMENT COMPRESSOR & TURBINE ENGINEERING SECTION					
TEC/KALTIM-5	353N71	APPROVED O.Isumi	103-J SYNTHESIS GAS COMPRESSOR BEARING & SEAL ASSEMBLY DRAWING(2/2)				
TEC/KALTIM-5	YAK OI MCV311	CHECKED Y.KOHNO	TEC/KALTIM-5 5V-7 (LP)				
TEC/KALTIM-5	YAK OI MCV311	PREPARED T. OHTA	SPECIFIED NO. DRAWING NO.				
DATE	DATE	DATE	4200 790-19507				
12.11.20	12.11.20	12.11.20	MITSUBISHI HEAVY INDUSTRIES COMPRESSOR CORPORATION				

計量	AS 100%
検査	1
品質	1
出荷	1
1.2.3.4.5.	



THIRD ANGLE PROJECTION	HYDRAULIC TEST PRESS	PLAN RECORD	
	Mpa	THIS DRAWING REFERENCED TO	ORDER ITEM DRAWING NO. 回修

DRAWING NO. 790-28419

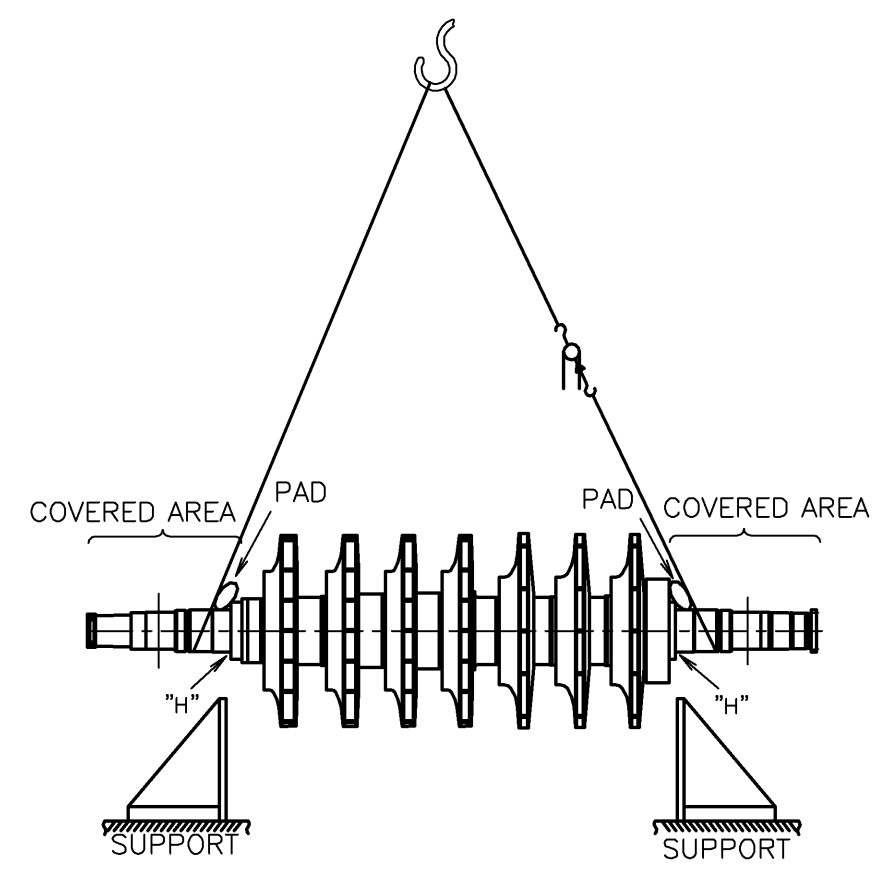
MAKE SURE THAT CONTACT AREA OF THRUST DISK WITH SHAFT MUST BE MORE THAN 85% AND AXIAL TRAVEL IS 2.5~4.0mm BEFORE ASSEMBLY. FAR FACE OF THRUST DISK (PORTION "B") MUST BE CONTACT WITH SHOULDER.

MAKE SURE THAT CONTACT AREA OF HUB WITH SHAFT MUST BE MORE THAN 85% AND AXIAL TRAVEL IS 6.17^{+0.25} mm FOR 3.9 INCH BEFORE ASSEMBLY.

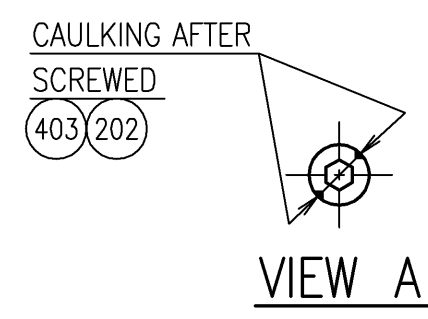
図中に指示なき場合はこの表による

寸法の区分	1級
0.5以上 6以下	±0.1
6を超え 30以下	±0.2
30 120	±0.3
120 400	±0.5
400 1000	±0.8
1000 2000	±1.2
2000 4000	±2.0
4000 8000	±2.0
8000 16000	±2.5
一般加工の普通許容差	
寸法の区分	—
0.5以上 6以下	±0.2
6を超え 30以下	±0.5
30 120	±0.8
120 315	±1.2
315 1000	±2.0
1000 2000	±3.0
2000 4000	±4.0
4000 8000	±5.0
8000 16000	±6.0
各接合部の普通許容差	
寸法の区分	—
0.5以上 120以下	±1.5
120を超え 315以下	±2.0
315 1000	±3.0
1000 2000	±5.0
2000 4000	±7.0
4000 8000	±10.0
8000 16000	±15.0

MARK	PARTS NAME	PARTS NUMBER	Q'TY	WEIGHT(kg)	REMARKS
100	ROTOR ASSEMBLY	5001-00	1SET	582.2	
101	SHAFT	5111-11	1	265.0	
201	COUPLING LOCK NUT (3.9 INCH)	5211-11	1	0.7	
202	SET SCREW (FOR COUPLING)	5211-12	2	—	
301	SLEEVE (THRUST SIDE)	5212-11	1	0.4	
302	SLEEVE (ANTI THRUST SIDE)	5212-12	1	0.4	
303	SHROUD RING (THRUST SIDE)	5212-21	1	0.3	
304	SHROUD RING (ANTI THRUST SIDE)	5212-22	1	0.6	
305	SPLIT RING (THRUST SIDE)	5212-25	1	0.2	
306	SPLIT RING (ANTI THRUST SIDE)	5212-26	1	0.2	
307	1st IMPELLER SPACER	5212-31	1	0.9	
308	1st~2nd IMPELLER SPACER	5212-32	1	1.8	
309	2nd~3rd IMPELLER SPACER	5212-33	1	2.5	
310	3rd~4th IMPELLER SPACER	5212-34	1	2.0	
311	4th~5th IMPELLER SPACER	5212-35	1	2.1	
312	5th~6th IMPELLER SPACER	5212-36	1	1.3	
313	6th~7th IMPELLER SPACER	5212-37	1	1.3	
314	BALANCE PISTON	5213-11	1	12.9	
401	THRUST DISK	5214-11	1	12.0	
402	LOCK NUT (FOR THRUST DISK)	5214-12	1	0.6	
403	SET SCREW (FOR THRUST DISK)	5214-13	2	—	
501	1st IMPELLER	5511-20	1	40.0	
502	2nd IMPELLER	5512-20	1	40.0	
503	3rd IMPELLER	5513-20	1	40.0	
504	4th IMPELLER	5514-20	1	38.0	
505	5th IMPELLER	5515-20	1	39.0	
506	6th IMPELLER	5516-20	1	40.0	
507	7th IMPELLER	5517-10	1	40.0	
601	BACKUP RING (3.9 INCH)	5711-31	1	—	
602	"O" RING (3.9 INCH)	5711-32	1	—	
603	"O" RING (3.9 INCH)	5711-33	1	—	
604	BACKUP RING (3.9 INCH)	5711-34	1	—	



NOTE FOR ROTOR SUPPORTING
 1. ROTOR WILL BE LIFTED AS INDICATED IN ABOVE SKETCH DURING ASSEMBLY OR DISASSEMBLY OF COMPRESSOR.
 2. ROTOR SHALL BE SUPPORTED AT "H" POINTS AND RUBBER SHEETS SHALL BE KEPT BETWEEN ROTOR AND SUPPORTS. (SEAL PORTION SHALL BE COVERED FOR PROTECTION).



COUNTERCLOCKWISE DIRECTION FROM THRUST SIDE VIEW.

1K	1K	100	ROTOR ASSEMBLY	1K	582.2	
SPARE	WORKING	SPARE	MARK	TEST	WORKING	SPARE
1	SET	1	SET	PIECE	QUANTITY	PER 1 SET
TEC/KALTIM-5	Y.K	O.I	MCS311	TEC/KALTIM-5	Y.K	O.I
TEL 4140	'12.07.20	AI	DATE	TEL 4140	'12.07.20	AI
CUSTOMER CHECKED APPROVED			ORDER ITEM	MITSUBISHI HEAVY INDUSTRIES COMPRESSOR CORPORATION		
DRAWN S.TSUCHIYAMA			APPROVED O.Isumi	103-J SYNTHESIS GAS COMPRESSOR 5V-7(LP) ROTOR ASSEMBLY		
SCALE 1/5			CHECKED APPROVED	SPECIFIED NO. 500A DRAWING NO. 790-28419		
TEL 4140			PREPARED	MITSUBISHI HEAVY INDUSTRIES COMPRESSOR CORPORATION		

Auto CAD

配布先	部数
CUST	
Pサ部	A3x1
出図先	
職制コード	
要求 NO.	

