0/C

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-124 Rev.3**

COMPRESSOR ASSEMBLY DRAWINGS（103-J [HP]）

CLIENT
PT PUPUK KALIMANTAN TIMUR
PUPUK KALTIM

CONTRACTOR
CONSORTIUM IKPT & TOYO
KT Global Toyo IKPT CONSORTIUM

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	*H. Fukui*
Approved	*K. Shimizu*
Checked	*S. Iwamoto*
Prepared	*H. Higuchi*

Copy to CUST. / E
広品証 組立 品証T コタ計 PJ

Specified No. HBI-D01

Order	Item	Date Drawn
353N72	MCW321	Dec. 11, 2012

Drawing No.
790-44019

Rev. B 両面ｺﾋﾟｰ

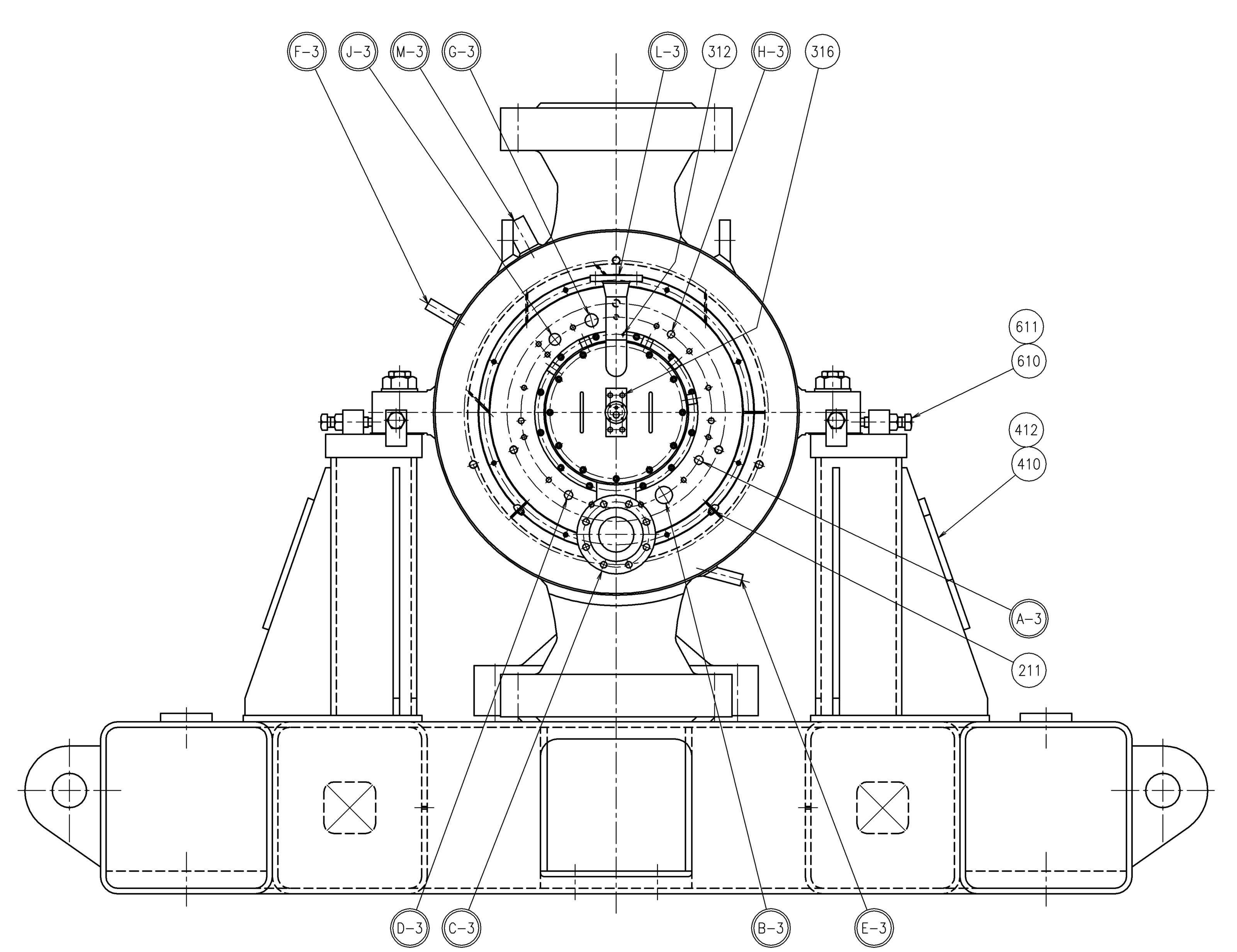
Date Issued C63A

REVISION RECORD SHEET

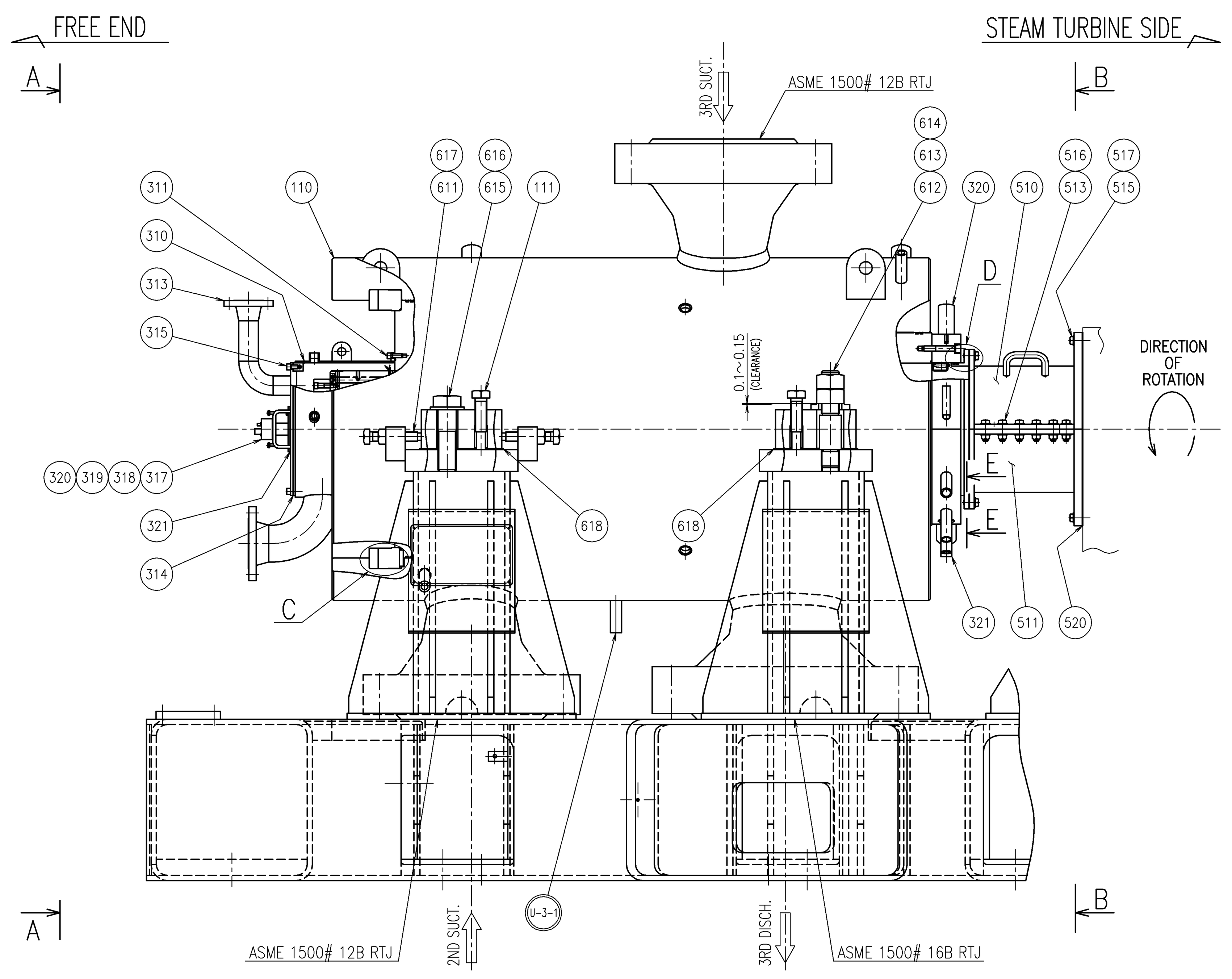
Rev.	Date	Prepared	Checked	Approved	PM	Sheet	Revision Record
0	Dec.11,2012	-	-	-	-	All	Original Issue.
A	Jun.25,2013	H.H	S.I	K.S	H.F	P0-2,1	Added outline assembly drawing.
B	Jan.17,2014	H.H	S.I	K.S	-	Cover	Issued as final.

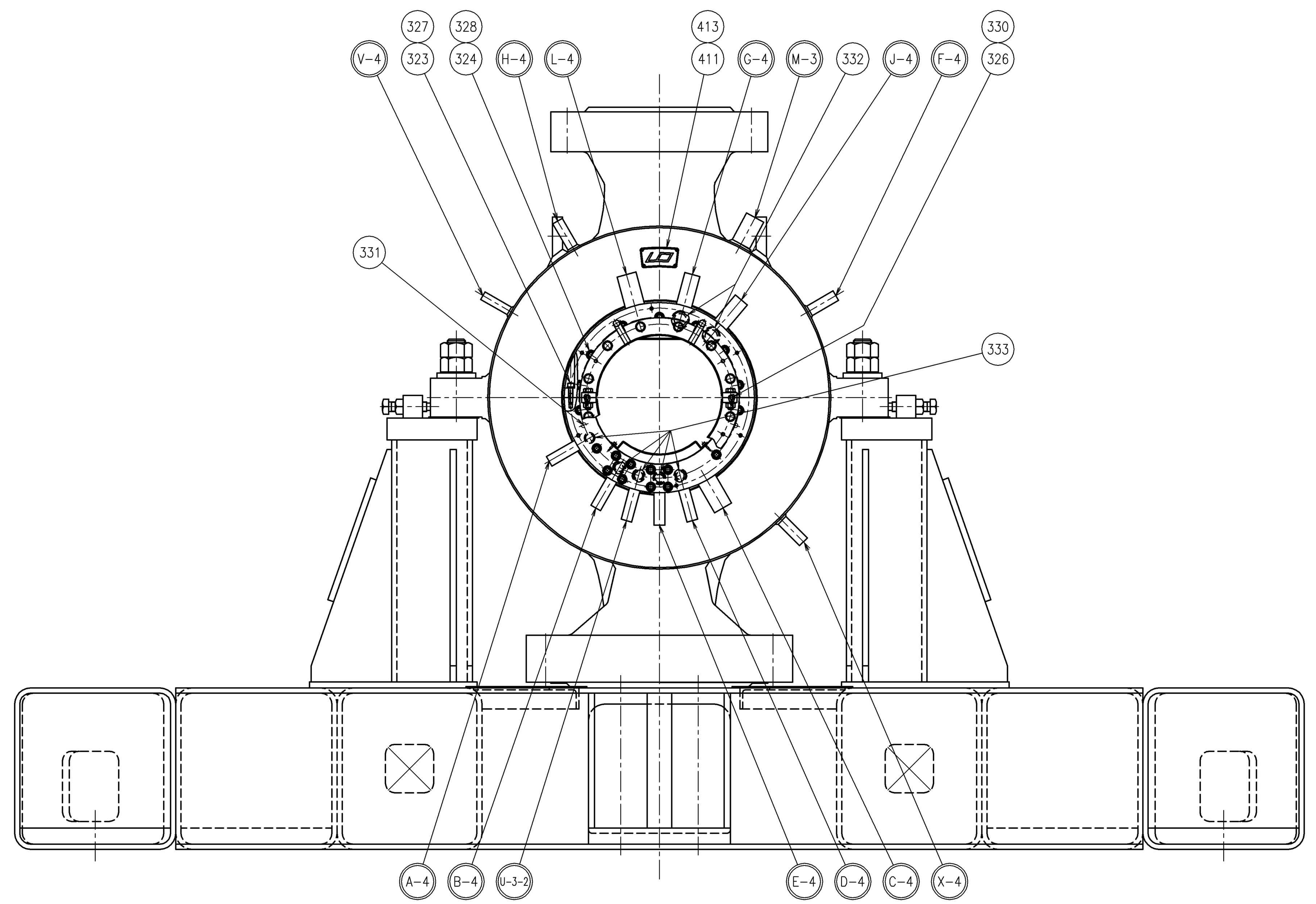
CONTENTS

THIRD ANGLE PROJECTION



VIEW A A



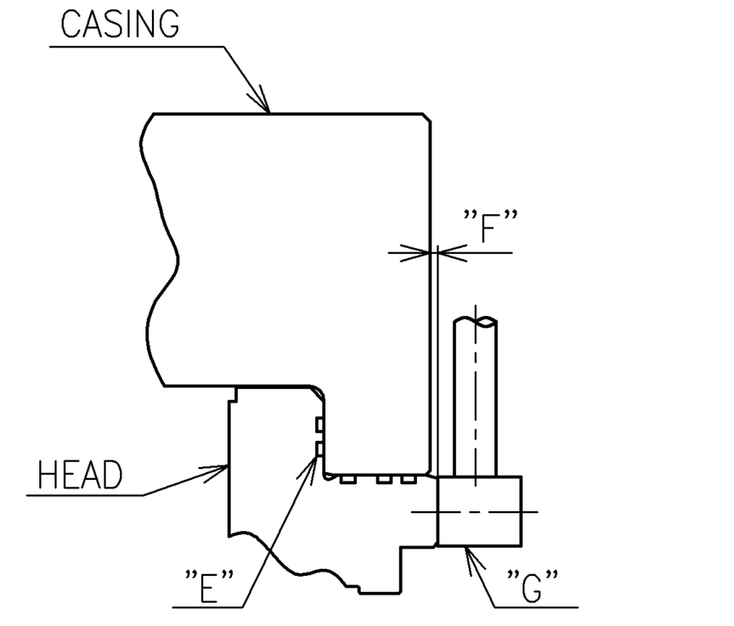


SECTION B B

ITEM	PARTS NAME	QUANTITY	WEIGHT (Kg) PER PIECE	WEIGHT (Kg) TOTAL	PARTS NUMBER	REMARKS
618	SHIM T=6.6	4	1.4	5.6	1122-67	PROVIDED BY ORDER 353N77
617	ADJ.BOLT M30*160	4	1.3	5.2	1122-54	
616	WASHER M56	2	0.4	0.8	1122-49	
615	HEX BOLT M56*200	2	5.6	11.2	1122-48	
614	HEX NUT -1 M56	4	1.3	5.2	1122-47	
613	WASHER M56	2	1.1	2.2	1122-46	
612	TAP BOLT M56*300	2	6.8	13.6	1122-45	
611	HEX NUT -1 M30	8	0.2	1.6	1122-44	
610	ADJ.BOLT M30*130	4	1.0	4.0	1122-43	
520	PACKING A=600 B=500 P=550	1		—	1451-84	
519	PACKING A=495 B=392 P=455	1		—	1451-83	
518	"O"RING D5.3*380(ID)	2		—	1451-81	
517	PLAIN WASHER 16	16		0.2	1451-76	
516	PLAIN WASHER 16	36		1.0	1451-75	
515	HEX BOLT M16*50	16		4.0	1451-62	
514	HEX BOLT M16*35	12		1.0	1451-61	
513	BOLT & NUT M16*55L	12		2.0	1451-51	
512	SLEEVE	1		12.0	1451-14	
511	GUARD BOTTOM	1		9.0	1451-13	
510	GUARD TOP	1		9.0	1451-11	
413	DRIVE SCREW 3*8	4		—	1371-75	
412	DRIVE SCREW 3*8	4		—	1371-71	
411	DIRECTION PLATE	1		—	1371-32	
410	NAME PLATE	1		—	1371-11	
333	O"RING G35	5		—	1345-72	
332	O"RING G50	2		—	1345-71	
331	STRAIGHT PIN 1ST 16X25	2		0.1	1345-62	
330	SET PIN 13X14	2		—	1345-61	
329	SPRING WASHER NO.2 6	4		—	1345-53	
328	LOCK WASHER NO.2 16	19		0.2	1345-52	
327	LOCK WASHER NO.2 12	2		—	1345-51	
326	SCREW +CON M4X0.7X20	2		—	1345-45	
325	BOLT HEX SOCK M6X14	4		—	1345-43	
324	BOLT-HEX SOCK M16X100	19	0.2	3.8	1345-42	
323	BOLT HEX SOCK M12X50	2		0.1	1345-41	
322	DIV.PLATE	1		0.3	1345-22	
321	END FLANGE (BOTT)	1		52.3	1345-20	
320	END FLANGE (TOP)	1		52.3	1345-10	
321	GASKET (EARTH BRUSH)	1		—	1341-84	
320	BRUSH INSERT SCREW	2		—	1341-83	
319	BRUSH INSERT,REPLACEABLE	1		—	1341-82	
318	FLANGE	1		—	1341-81	
317	EARTH BRUSH	1		—	1341-80	
316	BOLT HEX SOCK M8X16	4		0.1	1341-68	
315	BOLT HEX SOCK M12X25	12		0.5	1341-67	
314	GASKET (BLIND COVER)	1		—	1341-66	
313	END COVER BLIND	1		24.0	1341-65	
312	SPRING PIN 5*10	1		—	1341-63	
311	BOLT HEX SOCK M12X35	12		0.6	1341-62	
310	END COVER	1		41.0	1341-60	
217	SCREWSQHD M12X80	4	0.1	0.4	1331-23	
216	BOLT-HEX SOCK M8X40	8		0.2	1331-22	
215	RETAIN. RING	1		36.0	1331-21	
214	BOLT-HEX SOCK M6X16	1		—	1331-16	
213	KEY	1		0.1	1331-15	
212	SCREWSQHD M12X80	4	0.1	0.4	1331-13	
211	SPRING PIN 10X18	2		—	1331-12	
210	SHEAR RING	1		90.0	1331-11	
111	JACK BOLT M36X160	4	1.5	6.0	1111-41	
110	CASING	1		7201.5	1111-00	

A1 広製共98(2)

124-4/



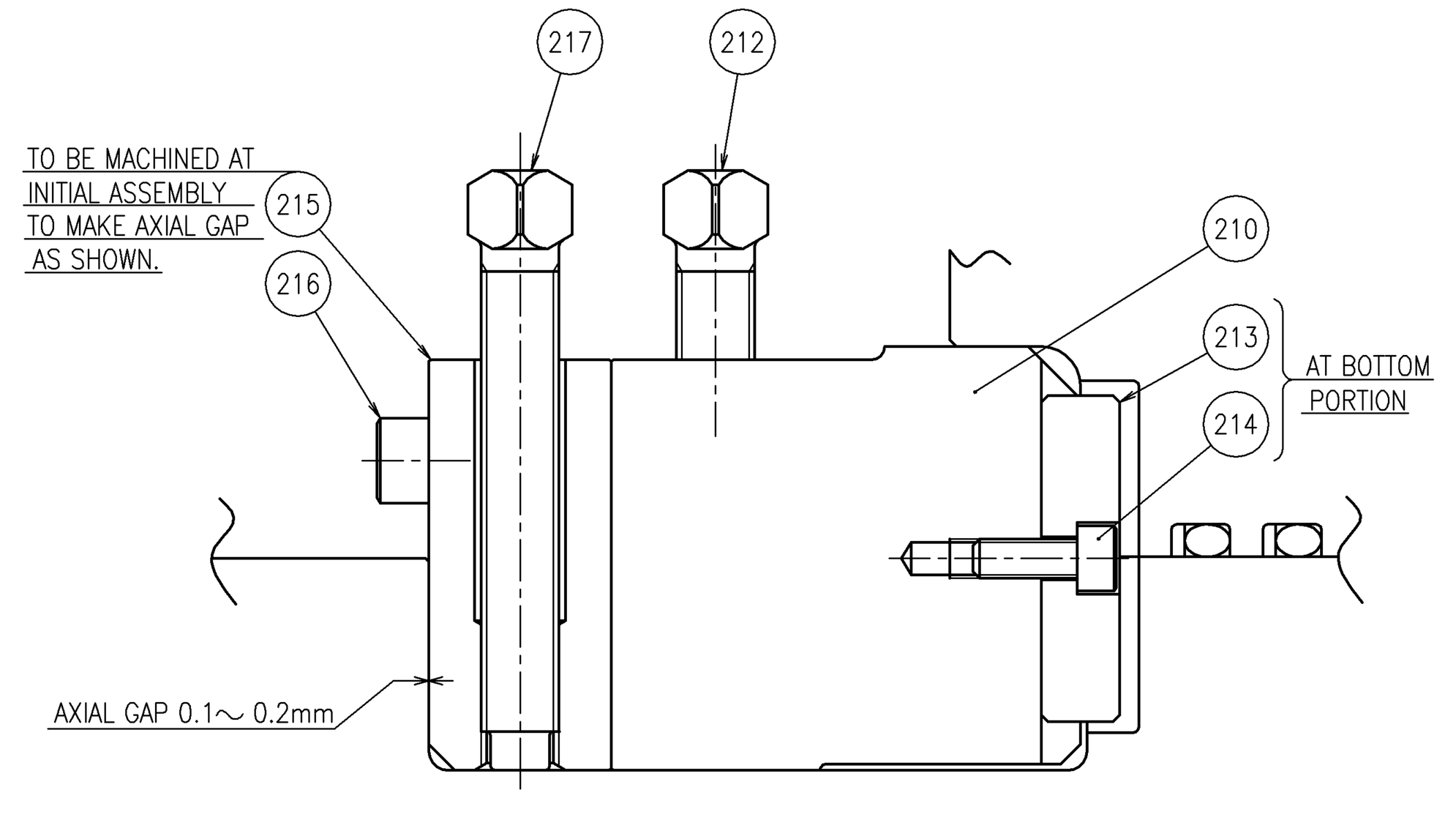
INTERNAL ASS'Y PROCEDURE

1.PRE-ASS'Y OF NON-THRUST HEAD INTO CASING WITHOUT "O"-RING OF PORTION "E" AND MEASURE DIMENSION "F"(4POINTS) AND RECORD ONTO PORTION "G". (MEASURING ACCURACY TO BE WITHIN ±0.05mm)

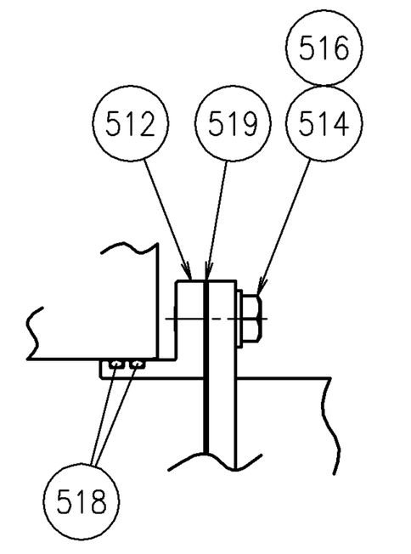
2.ASSEMBLY NON-THRUST HEAD WITH"O"-RING OF PORTION "E" AND INTERNAL ASS'Y INTO CASING BY HEAD PULLERS. MEASURE DIMENSION "F" WHICH IS AS SAME AS ABOVE 1.

3.CONFIRM THE AXIAL GAP SHOWN ON DETAIL "C".

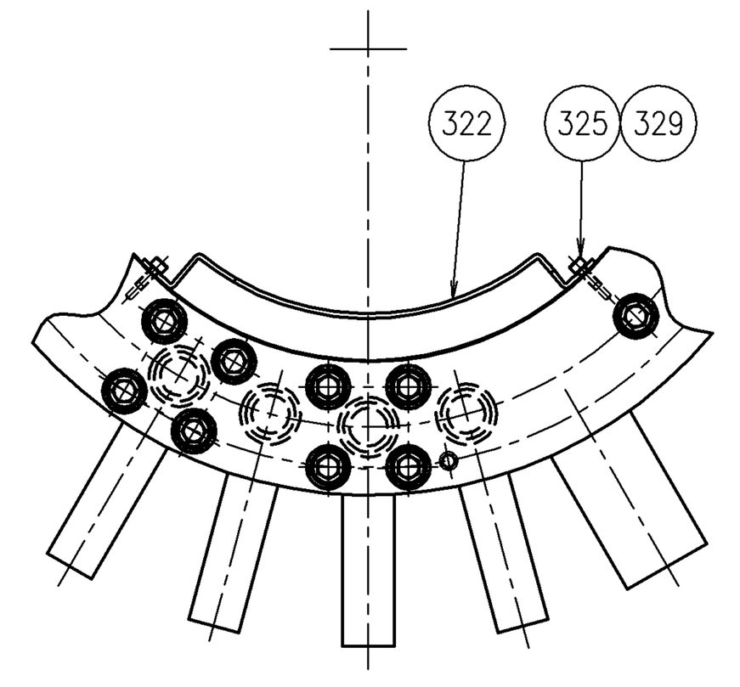
4.AFTER ASSEMBLY OF ITEM 215,HEAD PULLER SHOULD BE FREE.



DETAIL C



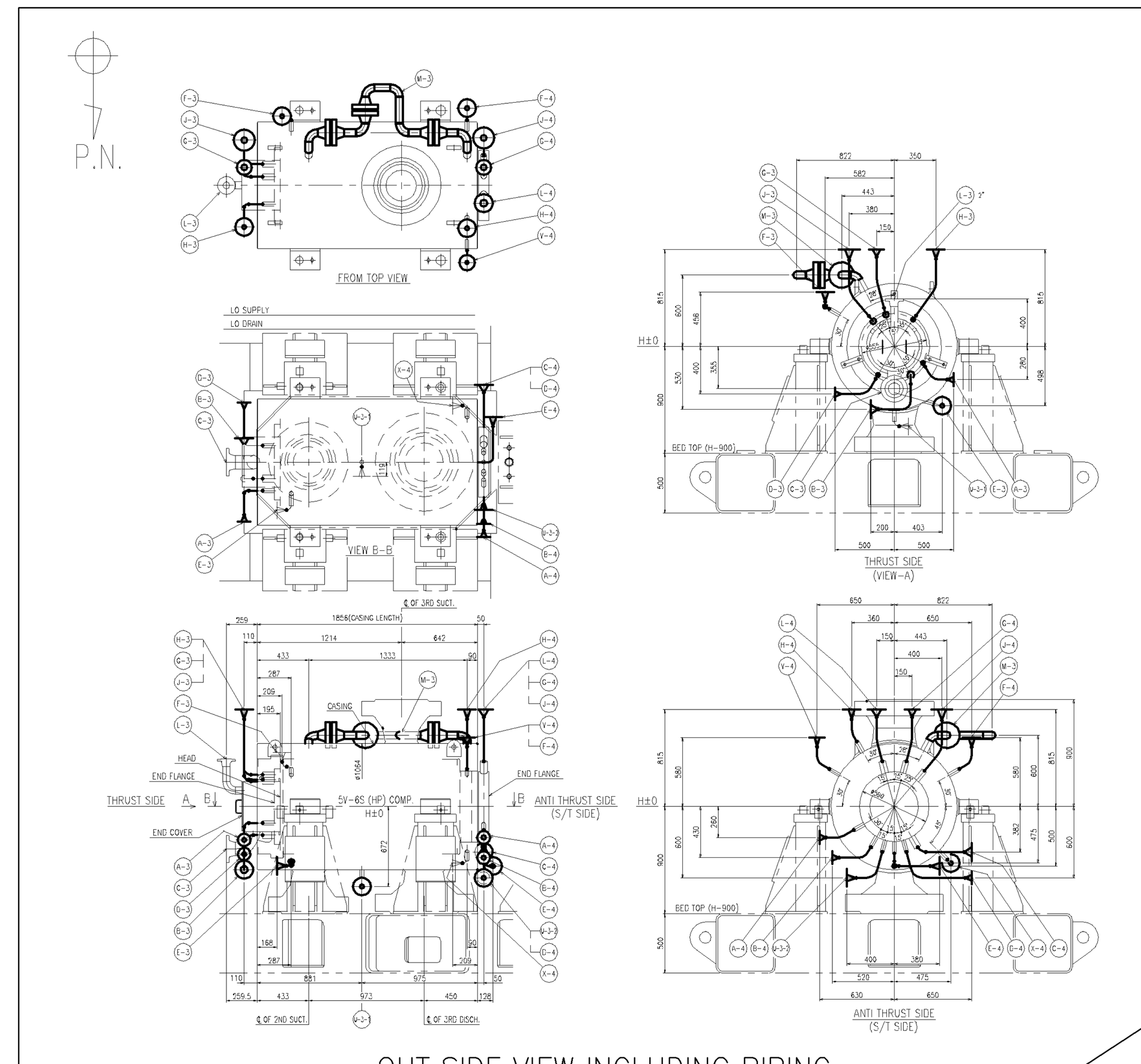
DETAIL D



SECTION E E

PIPING

PIPE NO. TH. SIDE	PIPE NO. ATH. SIDE	PIPE NAME	REMARKS
A-3	A-4	SEPARATION GAS SUPPLY	
B-3		L.O. SUPPLY	
	B-4		
C-3		L.O. DRAIN	
	C-4		
D-3	D-4	SECONDARY SEAL GAS DRAIN	
E-3	E-4	PRIMARY SEAL GAS DRAIN	
F-3	F-4	PRIMARY SEAL GAS SUPPLY	
G-3	G-4	SECONDARY SEAL GAS VENT	
H-3	H-4	SECONDARY SEAL GAS SUPPLY	
J-3	J-4	PRIMARY SEAL GAS VENT	
L-3	L-4	BEARING VENT	
M-3		BALANCE CONNECTOR	
U-3		CASING DRAIN	
	V-4	PRESSURE DETECTION	
	X-4	SEAL GAS EXTRACTION	



OUT SIDE VIEW INCLUDING PIPING
(FOR PIPING DETAIL REFER TO 790-19518)

REFERENCE DWG. NO.	
INTERNAL ASSEMBLY	790-19514
ROTOR ASSEMBLY	790-28421
BEARING & SEAL ASSEMBLY(1/2)	790-19515
BEARING & SEAL ASSEMBLY(2/2)	790-19516
COUPLING ASSEMBLY	790-44021
PIPNG ASS'Y DWG. AROUND 5V-6S COMP.	790-19518

Auto CAD

配布先	部数
CUST	
組 立	2
鋳 鍛	1
機生管	1
広品証	1
Pサ部	A3 RHx1 左とじ 折
コタ設	A3 RHx1 左とじ 折
控	
出 図 先	

SPARE	WORKING	MARK	DESCRIPTION	MATERIAL	TEST PIECE	QUANTITY PER SET WORKING	QUANTITY PER SET SPARE	WORKS	WEIGHT(kg) PER PIECE	WEIGHT(kg) TOTAL	REMARKS
1 SET											

ENGINEERING DEPARTMENT
COMPRESSOR & TURBINE ENGINEERING SECTION

ORDER: 353N72 ITEM: MCW321
CUSTOMER: TEC/KALTIM-5 APPROVED: O.I CHECKED: Y.K
PREPARED: T.O DATE: '13.1.19 TEL 4512

PM
APPROVED O.Isumi
CHECKED Y.KOHNO
PREPARED T.OUTA
DRAWN K.OKANO
SCALE 1/10
▽▽▽▽0.8S ▽▽▽6.3S ▽▽25S ▽100S

TEC/KALTIM-5

103-J SYNTHESIS GAS COMPRESSOR
5V-6S (HP)
OUTLINE ASSEMBLY DRAWING

SPECIFIED NO. 9000
DRAWING NO. 790-19519

MITSUBISHI HEAVY INDUSTRIES COMPRESSOR CORPORATION

製図日付	'13.01.17	マイクロ	初 回	改正回次	図種コード	
出図日付		日 付			類別コード	1. 2. 3. 4. 5.

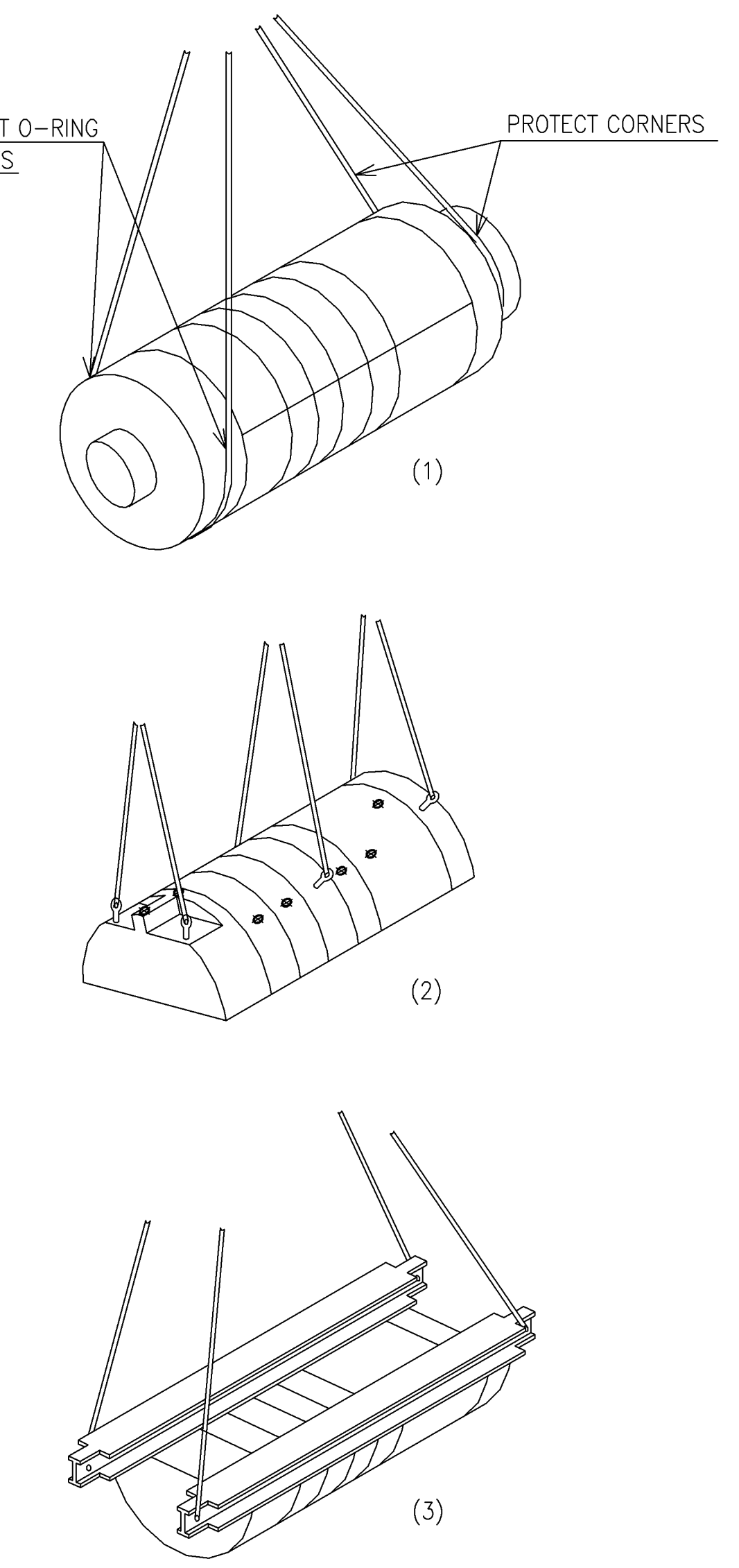
職制コード
要求 NO.

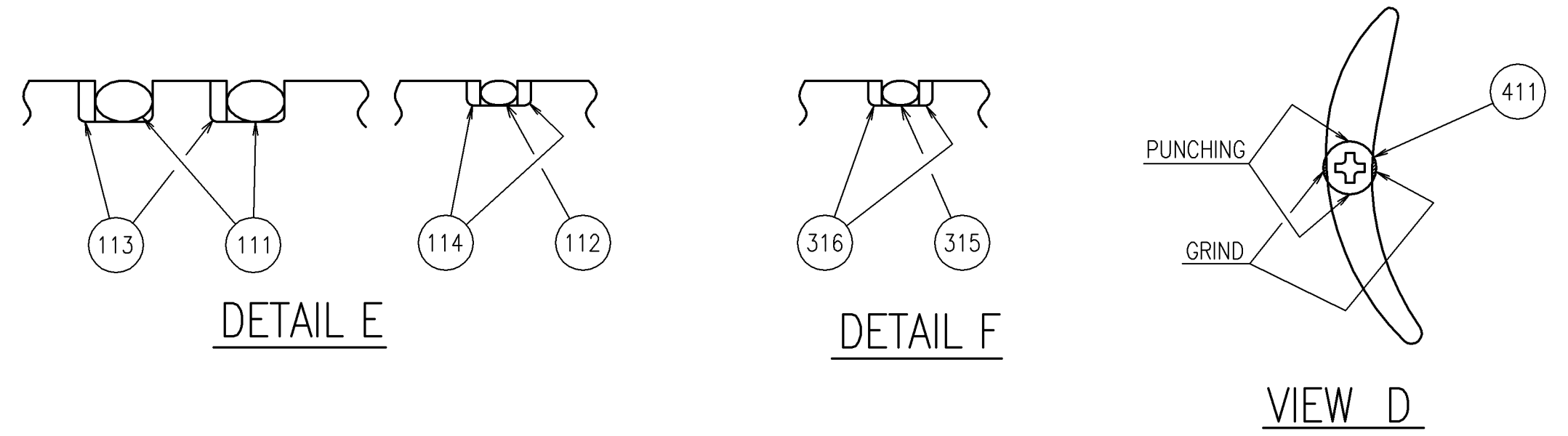
DRAWING NO. 790-19519

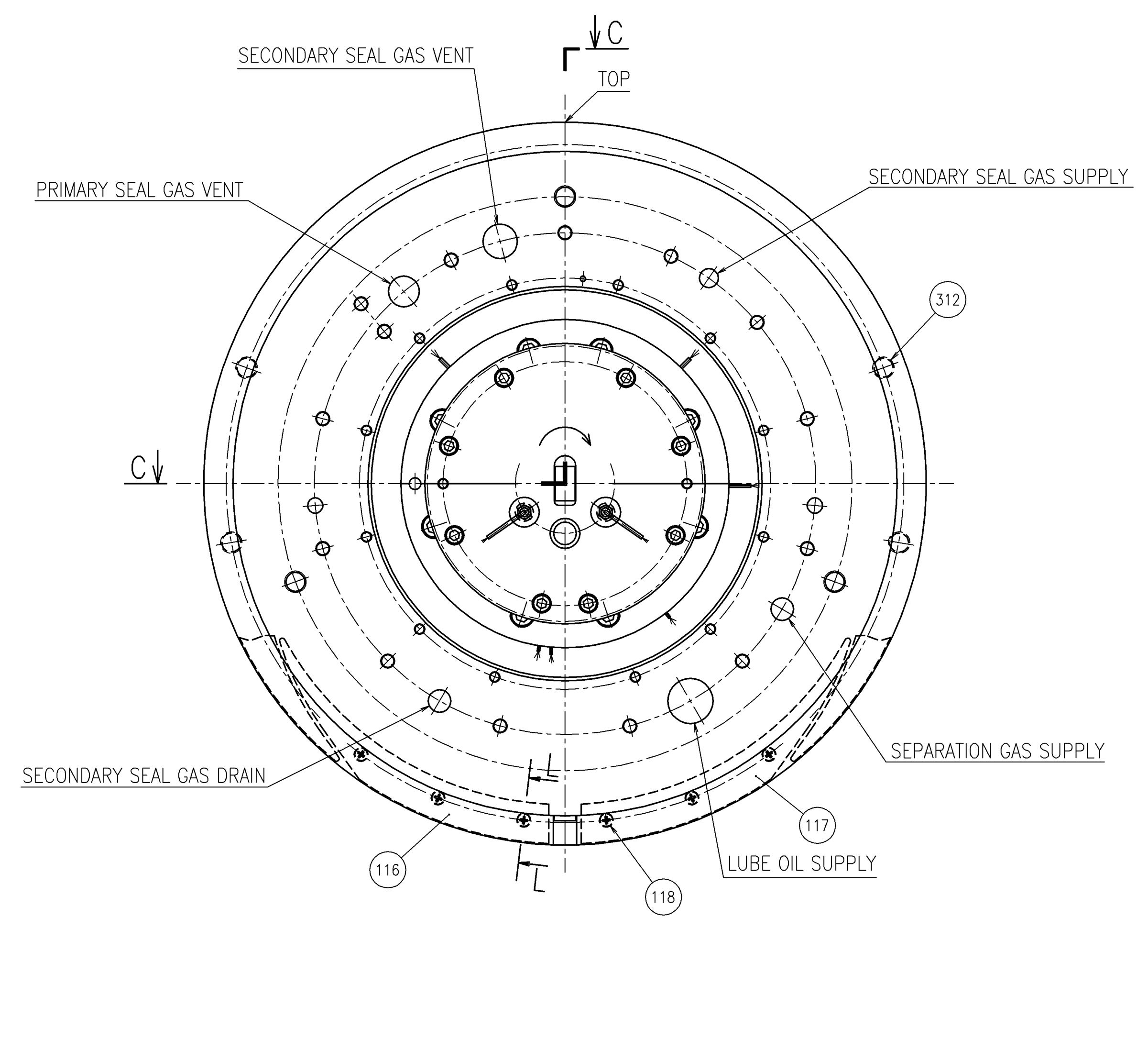
ITEM	PARTS NAME	QUANTITY	WEIGHT (Kg) PER PIECE	WEIGHT (Kg) TOTAL	PARTS NUMBER	REMARKS
530	BALANCE PISTON LABY.	1			2461-11	
520	LABY.-IMP. STG.6	1			2411-36	
519	LABY.-IMP. STG.5	1			2411-35	
518	LABY.-IMP. STG.4	1			2411-34	
517	LABY.-IMP. STG.3	1			2411-33	
516	LABY.-IMP. STG.2	1			2411-32	
515	LABY.-IMP. STG.1	1			2411-31	
514	LABY.-SHAFT STG.5-6	1			2411-15	
513	LABY.-SHAFT STG.4-5	1			2411-14	
512	LABY.-SHAFT STG.3-4	1			2411-13	
511	LABY.-SHAFT STG.2-3	1			2411-12	
510	LABY.-SHAFT STG.1-2	1			2411-11	
432	SPRING PIN 5X10	1			2351-13	
431	BOLT HEX SOCK M6X15	12			2351-12	
430	DIVISION PLATE	1		5.0	2351-11	
421	INLET GUIDE (2S) BOTTOM	1		40.0	2312-20	
420	INLET GUIDE (2S) TOP	1		40.0	2312-10	
411	SCREW +CSKH.MSCR M6*60	6			2311-61	
410	INLET GUIDE (1S)	1		20.0	2311-00	
347	O"RING CORD 4C 3.5*L450	2			2221-83	
346	SPR. LOCK WASHER NO.2 24	2			2221-75	
345	LOCKING SCREW HM M8	1			2221-61	
344	HEXSKT HD BLT M16*230/S44	2			2221-53	
343	HEX SKT HEAD BOLT M24*120	1			2221-52	
342	HEX SKT HEAD BOLT M24*160	1			2221-51	
341	DISCHARGE WALL (BOTTOM)	1		145.0	2221-20	
340	DISCHARGE WALL (TOP)	1		135.0	2221-10	
328	O"RING CORD 4C 3.5*L230	2			2212-84	
327	O"RING CORD 4C 3.5*L260	2			2212-83	
326	BUCK UP RING	2			2212-82	
325	O"RING CORD 4C 3.5*D769	1			2212-81	
324	SPR.LOCK WASHER NO.2 12	2			2212-75	
323	LOCKING SCREW M10*18	2			2212-61	
322	HEX SKT HEAD BOLT M12*50	2			2212-51	
321	INLET WALL ASSY. (BOTTOM)	1		295.0	2212-20	
320	INLET WALL ASSY. (TOP)	1		270.0	2212-10	
317	O"RING CORD 4C 3.5*L300	2			2211-83	
316	BUCK UP RING	2			2211-82	
315	O"RING CORD 4C 3.5*D769	1			2211-81	
314	SPR.LOCK WASHER NO.2 12	2			2211-75	
313	HEX SKT HEAD BOLT M12*50	2			2211-52	
312	HEX SKT HEAD BOLT M24*70	4			2211-51	
311	INLET WALL (1S) BOTTOM	1		125.0	2211-20	
310	INLET WALL (1S) TOP	1		190.0	2211-10	
245	O"RING CORD 4C D3.5*190L	2			2114-82	
244	O"RING CORD 4C D3.5*275L	2			2114-81	
243	SPR.LK.WSHR NO.2.16	2			2114-75	
242	HEX.BOLT SOC M16*55	2			2114-51	
241	DIAPHRAGM 4-5 (BOTTOM	1		174.0	2114-20	
240	DIAPHRAGM 4-5 (TOP)	1		174.0	2114-10	
235	O"RING CORD 4C D3.5*190L	2			2113-82	
234	O"RING CORD 4C D3.5*275L	2			2113-81	
231	DIAPHRAGM 3-4 (BOTTOM)	1		175.0	2113-20	
230	DIAPHRAGM 3-4 (TOP)	1		175.0	2113-10	
225	O"RING CORD 4C D3.5*190L	2			2112-82	
224	O"RING CORD 4C D3.5*275L	2			2112-81	
223	SPR.LK.WSHR NO.2.16	2			2112-75	
222	HEX.BOLT SOC M16*55	2			2112-51	
221	DIAPHRAGM 2-3 (BOTTOM)	1		175.0	2112-20	
220	DIAPHRAGM 2-3 (TOP)	1		175.0	2112-10	
215	O"RING CORD 4C D3.5*190L	2			2111-82	
214	O"RING CORD 4C D3.5*280L	2			2111-81	
211	DIAPHRAGM 1-2 (BOTTOM)	1		175.0	2111-20	
210	DIAPHRAGM 1-2 (TOP)	1		175.0	2111-10	
128	BOLT-HEX SOCK M16*380	2			1312-37	
127	BOLT-HEX SOCK M24*145	12			1312-36	
126	O-RING G35	5			1312-32	
125	O-RING D3.1*D414	1			1312-31	
124	BACK UP RING	2			1312-26	
123	BACK UP RING	2			1312-25	
122	O-RING D3.5*D577	1			1312-22	
121	O-RING D5.7*D572	2			1312-21	
120	HEAD (DISCH.)	1		724.0	1312-11	
118	SCREW +PAN M8*25	6			1311-43	
117	DUMMY PIECE	1		2.0	1311-42	
116	DUMMY PIECE	1		2.0	1311-41	
115	O-RING D3.1*D414	1			1311-35	
114	BACK UP RING	2			1311-34	
113	BACK UP RING	2			1311-33	
112	O-RING D3.5*D769	1			1311-32	
111	O-RING D5.7*D766	2			1311-31	
110	HEAD (SUCT.)	1		611.0	1311-11	

A1 広製共98(2)

NOTE FOR LIFTING
(1) WHOLE INTERNAL ASS'Y SHALL BE LIFTED BY LIFTING WIRE AS SHOWN BELOW. (DO NOT USE EYE BOLTS.)
(2) UPPER/LOWER HALF ASS'Y (HOR. FACE DOWN) SHALL BE LIFTED BY 6 POINTS AS SHOWN BELOW. (DO NOT LIFT BY 2 POINTS FOR AVOIDING OVER LOADING.)
(3) UPPER/LOWER HALF ASS'Y (HOR. FACE UP) SHALL BE LIFTED WITH SPECIAL TOOL AS SHOWN BELOW.







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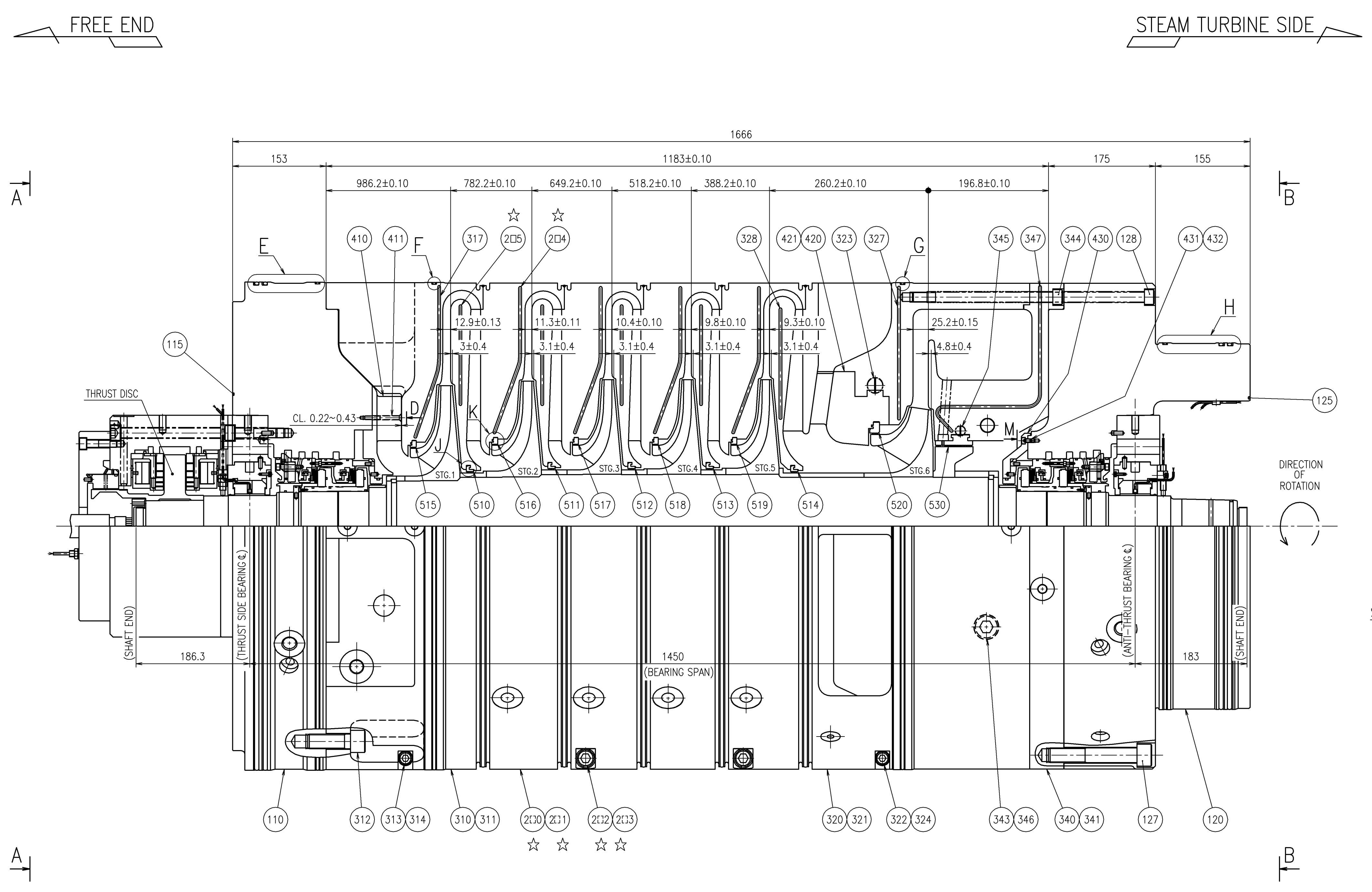
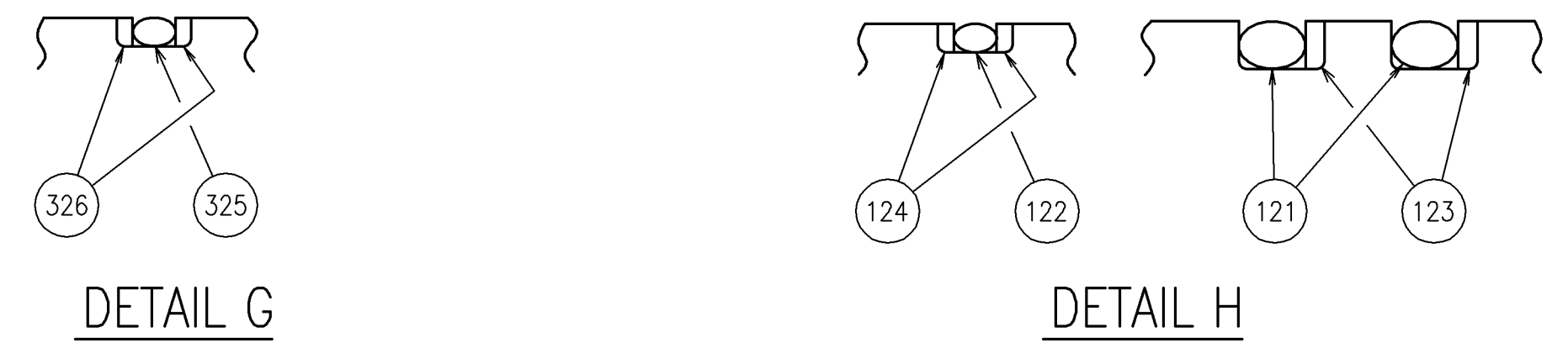
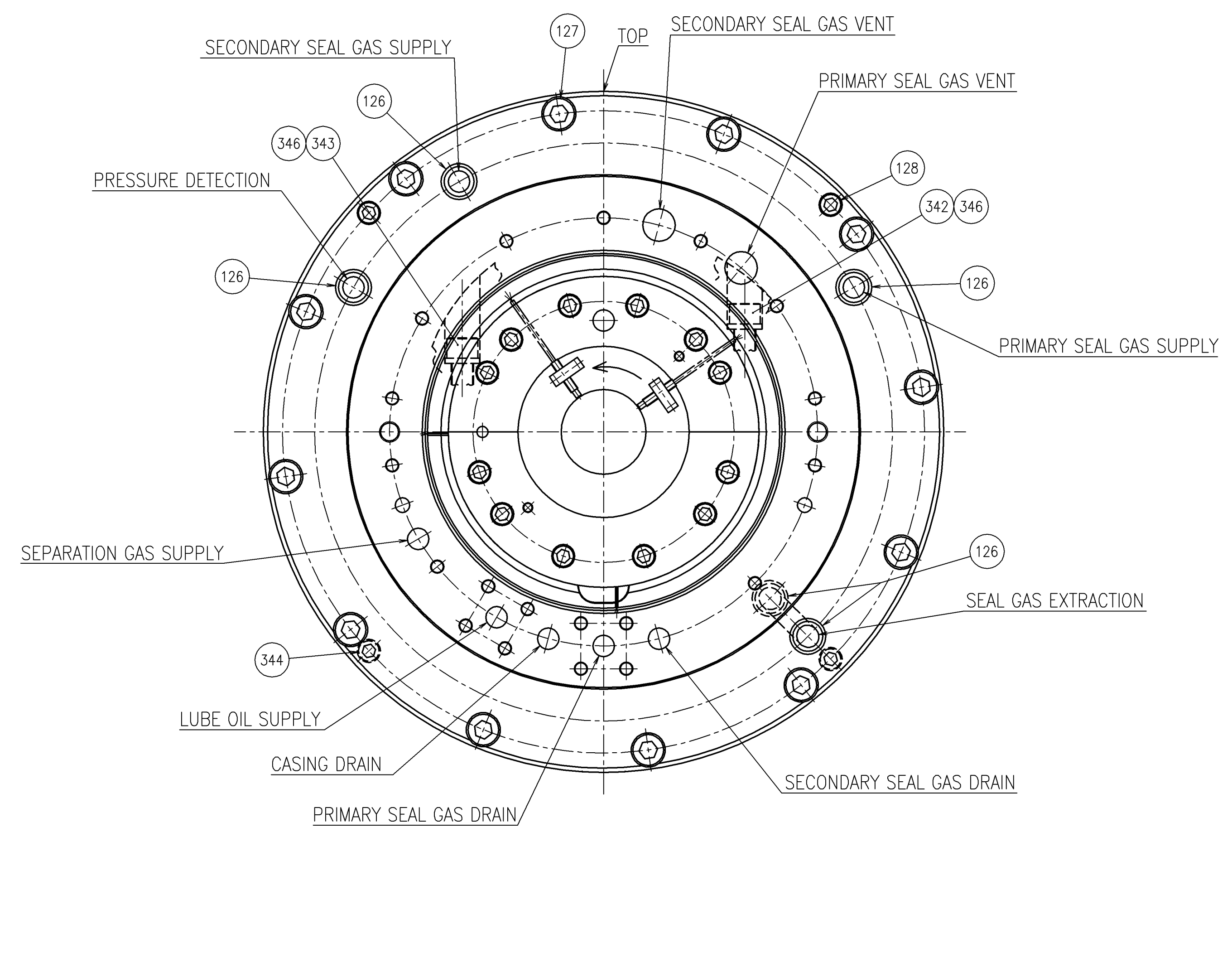


NOTE ※ : REFER TO ITEM NO. SHOWN ON PARTS LIST. EXAMPLE : 2OO REFERS TO ITEM NO. 210,220,230…

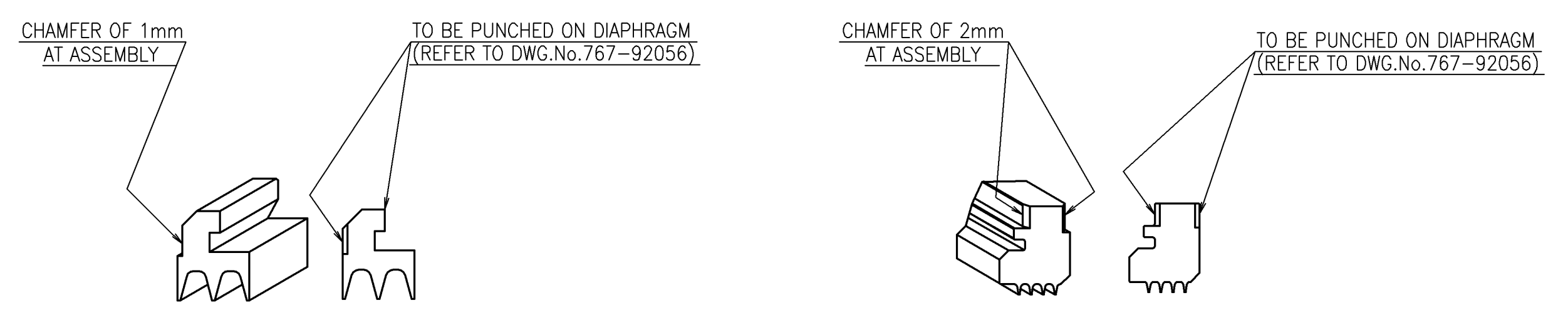
SECTION C C





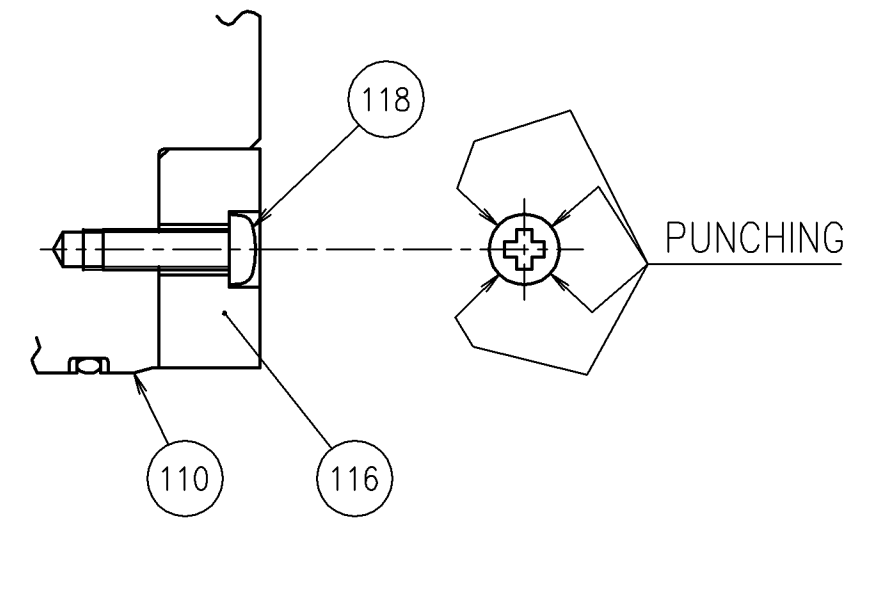
VIEW B B

NOTE FOR LABYRINTH ASSEMBLY

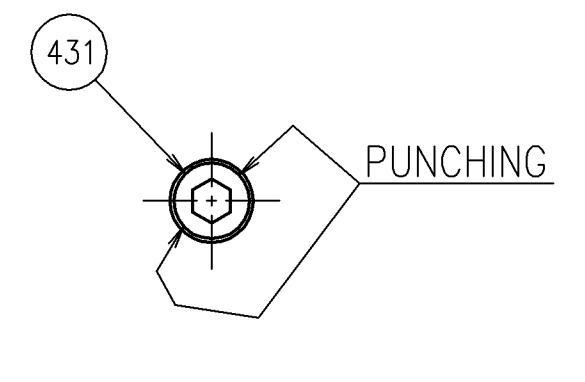


DETAIL J (DETAIL OF PUNCHING FOR LABYRINTH ASSEMBLY)

DETAIL K (DETAIL OF PUNCHING FOR LABYRINTH ASSEMBLY)



SECTION L L



VIEW M

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 INLET WALL, DISCHARGE WALL.
O-RING CORDS ARE SET ON THE HORIZONTAL SPLIT SURFACE OF LOWER DIAPHRAGMS, INLET WALL, DISCHARGE WALL.

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

CLEARANCE TABLE FOR INITIAL ASSEMBLY

IMP.LABY. STG.	DIA. CLEARANCE (mm)	SHAFT.LABY. STG.	DIA. CLEARANCE (mm)
1	$0.5^{+0.2}_{0}$	1-2	$0.5^{+0.2}_{0}$
2		2-3	
3		3-4	
4		4-5	
5		5-6	
6	$0.6^{+0.2}_{0}$		
BALANCE PISTON	$0.5^{+0.2}_{0}$		

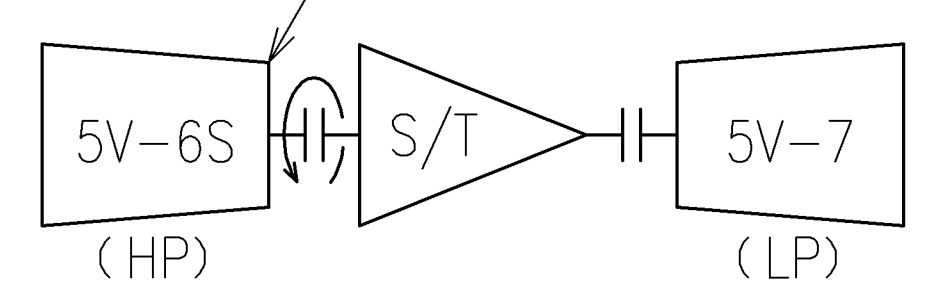
NOTE
AFTER SHOP MECHANICAL RUNNING TEST CLEARANCES REPLACED $^{+0.4}_{0}$ TO THE ABOVE VALUES ARE ACCEPTABLE.

REFERENCE DRAWING NO.	
ROTOR ASSEMBLY	790-28421
BEARING & SEAL ASSEMBLY DWG. (1/2)	790-19515
BEARING & SEAL ASSEMBLY DWG. (2/2)	790-19516
COUPLING ASSEMBLY	790-44021
COMP. OUTLINE ASSEMBLY	790-19519

TIGHTEN THE BOLT (ITEM 344) WITH FOLLOWING TORQUE.

ITEM	TORQUE (kgf・m)
344	2.5 (kgf・m)

THIS COMP. IS SHOWN



DRAWING NO. 790-19514

SPARE	WORKING	MARK	DESCRIPTION	MATERIAL	TEST PIECE	QUANTITY PER WORKING	QUANTITY PER SET SPARE	WORKS	WEIGHT(kg) PER PIECE	WEIGHT(kg) TOTAL	REMARKS
1 SET											

ENGINEERING DEPARTMENT
COMPRESSOR & TURBINE ENGINEERING SECTION

ORDER: 353N72 — ITEM: MCW321
CUSTOMER: TEC/KALTIM-5 — APPROVED: O.I — CHECKED: Y.K
DATE: '12.12.5 — PREPARED: T.O — TEL 4512

PM
APPROVED O.Isumi
CHECKED Y.KOHNO
PREPARED T.OUTA
DRAWN K.OKANO
SCALE 1/4
▽▽▽▽0.8S ▽▽▽6.3S ▽▽25S ▽100S

TEC/KALTIM-5

103-J SYNTHESIS GAS COMPRESSOR 5V-6S (HP) INTERNAL ASSEMBLY DRAWING

SPECIFIED NO. 2000
DRAWING NO. 790-19514

MITSUBISHI HEAVY INDUSTRIES COMPRESSOR CORPORATION

配布先	部数
CUST	
組立	2
鋳鍛	1
機生管	1
広品証	1
Pサ部	A3 RHx1 左とじ 折
コタ設	A3 RHx1 左とじ 折
控	

出図先

職制コード

要求 NO.

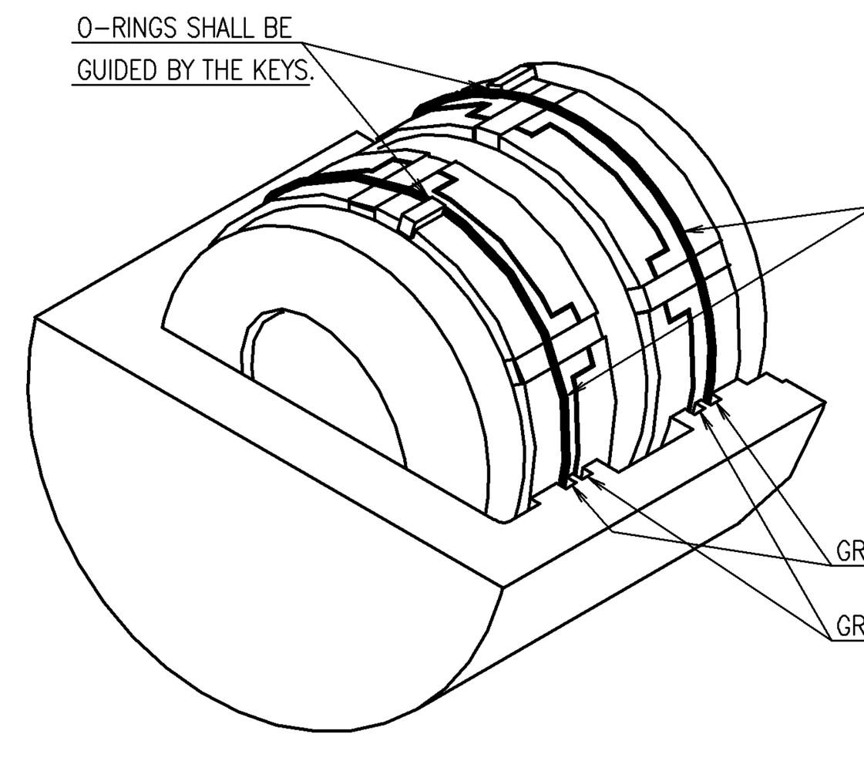
製図日付	'12.12.05	マイクロ	初 回	改正回次	図種コード	
出図日付		日 付			類別コード	1. 2. 3. 4. 5.

Auto CAD

124-5/

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

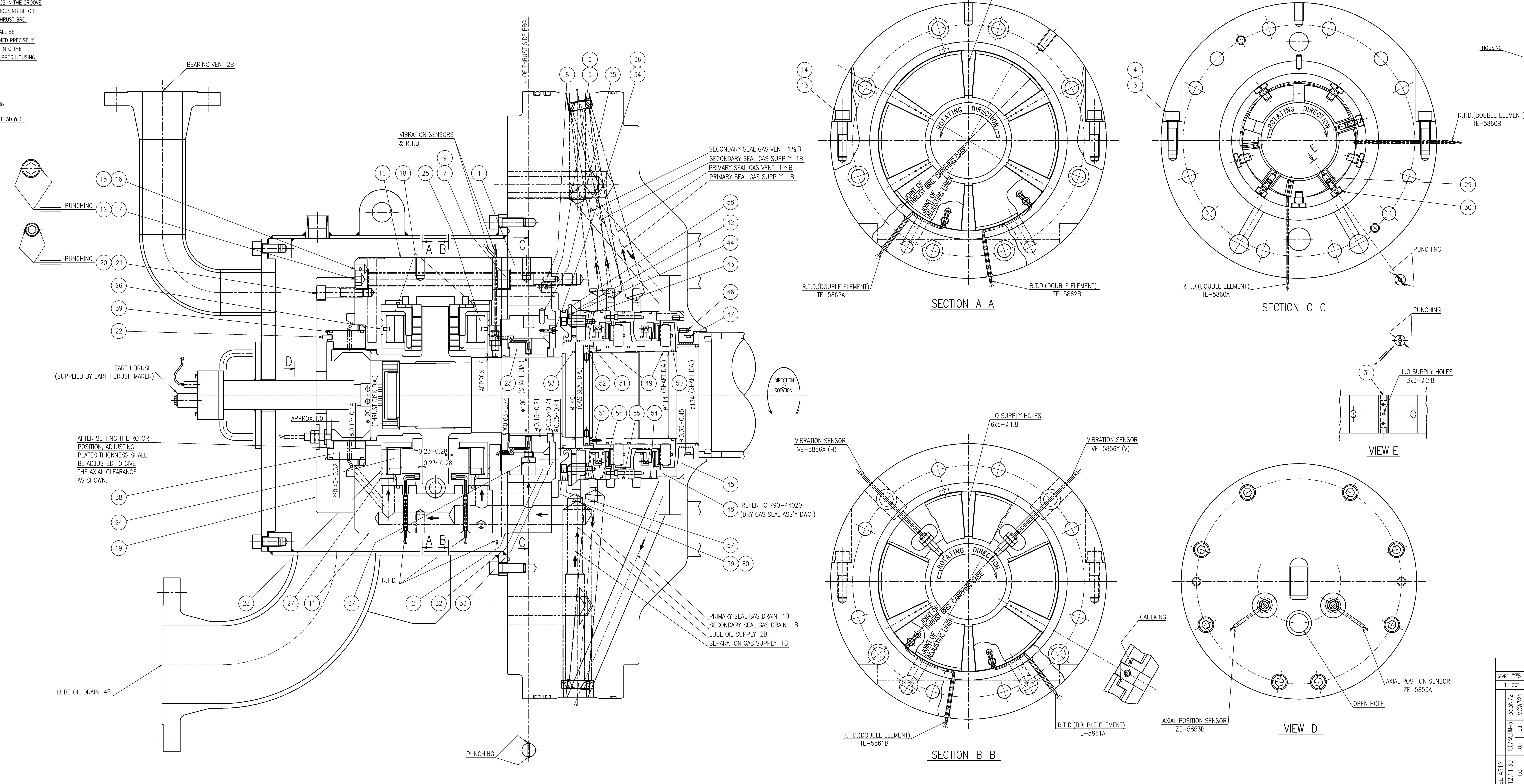
INSTALLATION PROCEDURE OF O-RINGS FOR THRUST BEARING

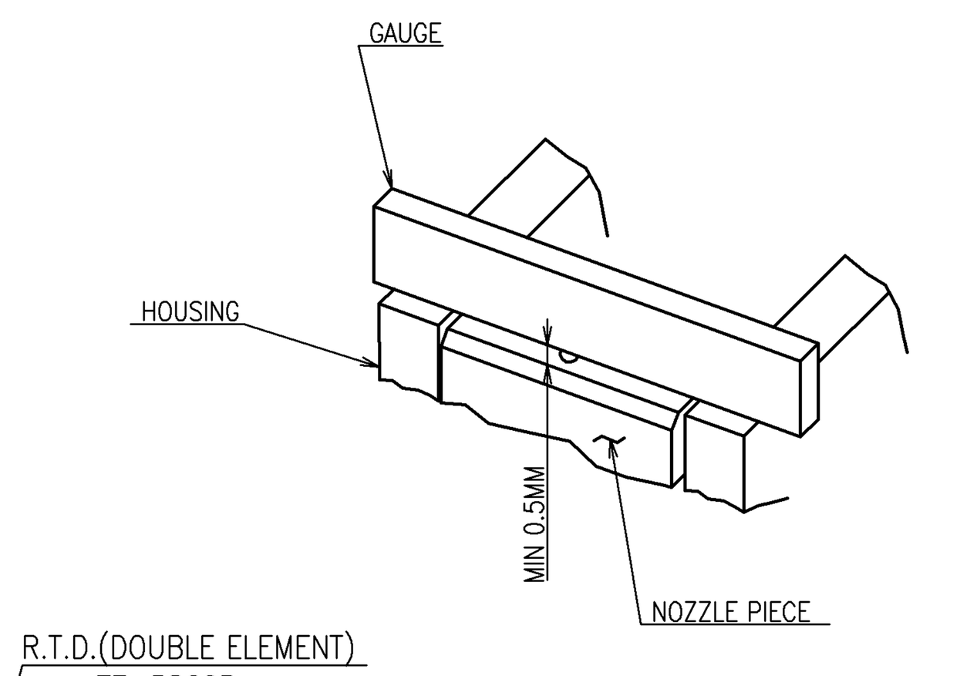


1. FIT IN O-RINGS IN THE GROOVE OF BOTTOM HOUSING BEFORE INSTALLING THRUST BRG.
2. O-RINGS SHALL BE AXIALLY ALIGNED PRECISELY SO AS TO FIT INTO THE GROOVE OF UPPER HOUSING.

ITEM	PARTS NAME	PARTS NUMBER	QUANTITY	WEIGHT (Kg) PER PIECE	WEIGHT (Kg) 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 D3.5XD146.5	4711-54	1		0.1	
46	SPRING PIN D5X10	4711-53	1		0.1	
45	SHAFT SEAL LABYRINTH	4711-51	1		0.6	
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	OG-"O" RING D3.5XD159	4111-82	2		0.1	
38	O/H DAMPER RING	4111-81	1		4.2	
37	BL-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 M8	4111-63	6		0.1	
30	BL-SUPPLY BOLT M8X13.5	4111-62	3		0.1	
29	OR-SUPPLY OIL NOZZLE D2.8	4111-61	3		0.4	
28	SCREW +CON. M4X0.7X6	4111-53	12		0.1	
27	AL-ADJUSTING LINER (BTM)	4111-52	2		0.2	
26	AL-ADJUSTING LINER (TOP)	4111-51	2		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	OG-"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	PN-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	PN-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	

A1 広製共98(2)

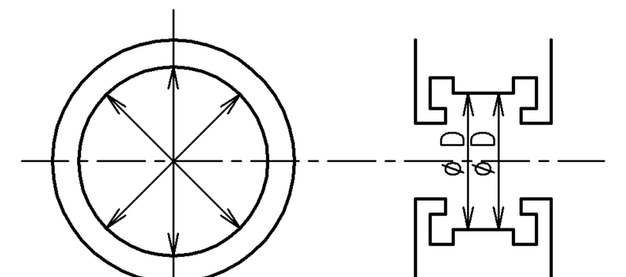




NOTE

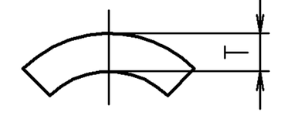
1.JOURNAL BEARING CLEARANCE SHALL BE MEASURED AS FOLLOWS.

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



$D=150^{+0.01}_{0}$

1-2.TILTING PAD THICKNESS.



$T=25^{-0.01}_{-0.03}$

1-3.TOTAL CLEARANCE=$D_{AVE.}-2xT_{AVE.}$-SHAFT DIA.=0.15 ~ 0.21

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

2.MARK"※"DIMENSIONS SHOW DIAMETRAL CLEARANCE.

REFERENCE DRAWING

1.BEARING & SEAL ASSEMBLY DRAWING(2/2)----790-19516

SPECIFICATION

1.THRUST BEARING TYPE	K-9
2.JOURNAL BEARING DIA.	ϕ100
3.SEAL DIA.	ϕ114
4.LABYRINTH DIA.	ϕ134

DRAWING NO. 790-19515

図中に指示なき場合はこの表による
削り加工の普通許容差

Auto CAD

配布先	部数
CUST	
計電設	A3 RHx1 左とじ 折
組立	2
鋳鍛	1
機生管	1
広品証	1
Pサ部	A3 RHx1 左とじ 折
コタ設	A3 RHx1 左とじ 折
控	
出 図 先	

職制コード

要求 NO.

SPARE 1 SET	WORKING	MARK	DESCRIPTION	MATERIAL	TEST PIECE	QUANTITY PER SET	WORKS	WEIGHT(kg) PER PIECE	WEIGHT(kg) TOTAL	REMARKS

ORDER: 353N72 / TEC/KALTIM-5
ITEM: MCW321
CUSTOMER APPROVED: O.I
CUSTOMER CHECKED: O.I
DATE: '12.11.30 / TEL 4512
PREPARED: T.O

ENGINEERING DEPARTMENT
COMPRESSOR & TURBINE ENGINEERING SECTION

PM	
APPROVED	O.Isumi
CHECKED	O.Isumi
PREPARED	T.OUTA
DRAWN	
SCALE	1/2

▽▽▽▽0.8S ▽▽▽6.3S ▽▽25S ▽100S

TEC/KALTIM-5

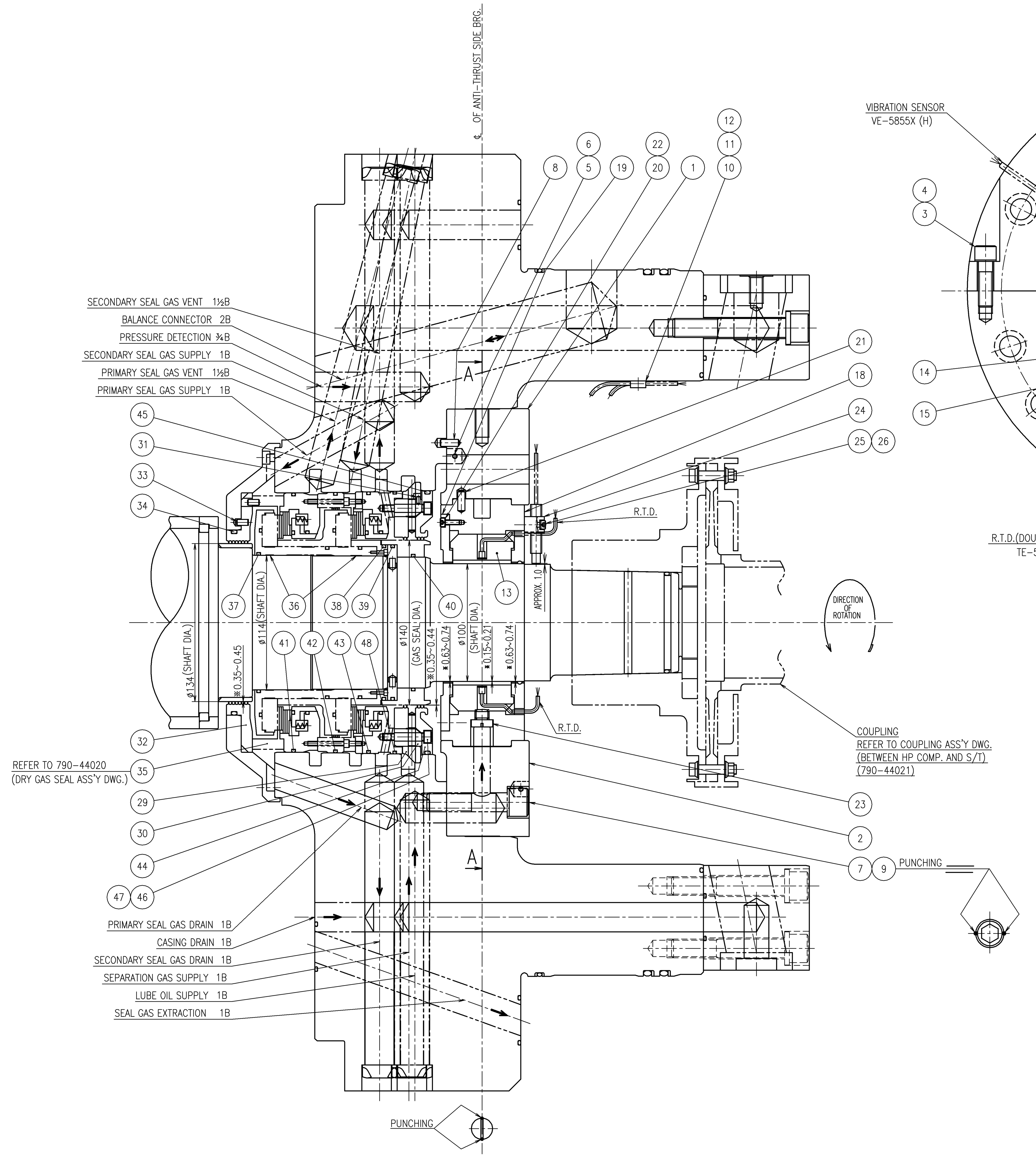
103-J SYNTHESIS GAS COMPRESSOR
5V-6S(HP)
BEARING & SEAL ASSEMBLY DRAWING(1/2)

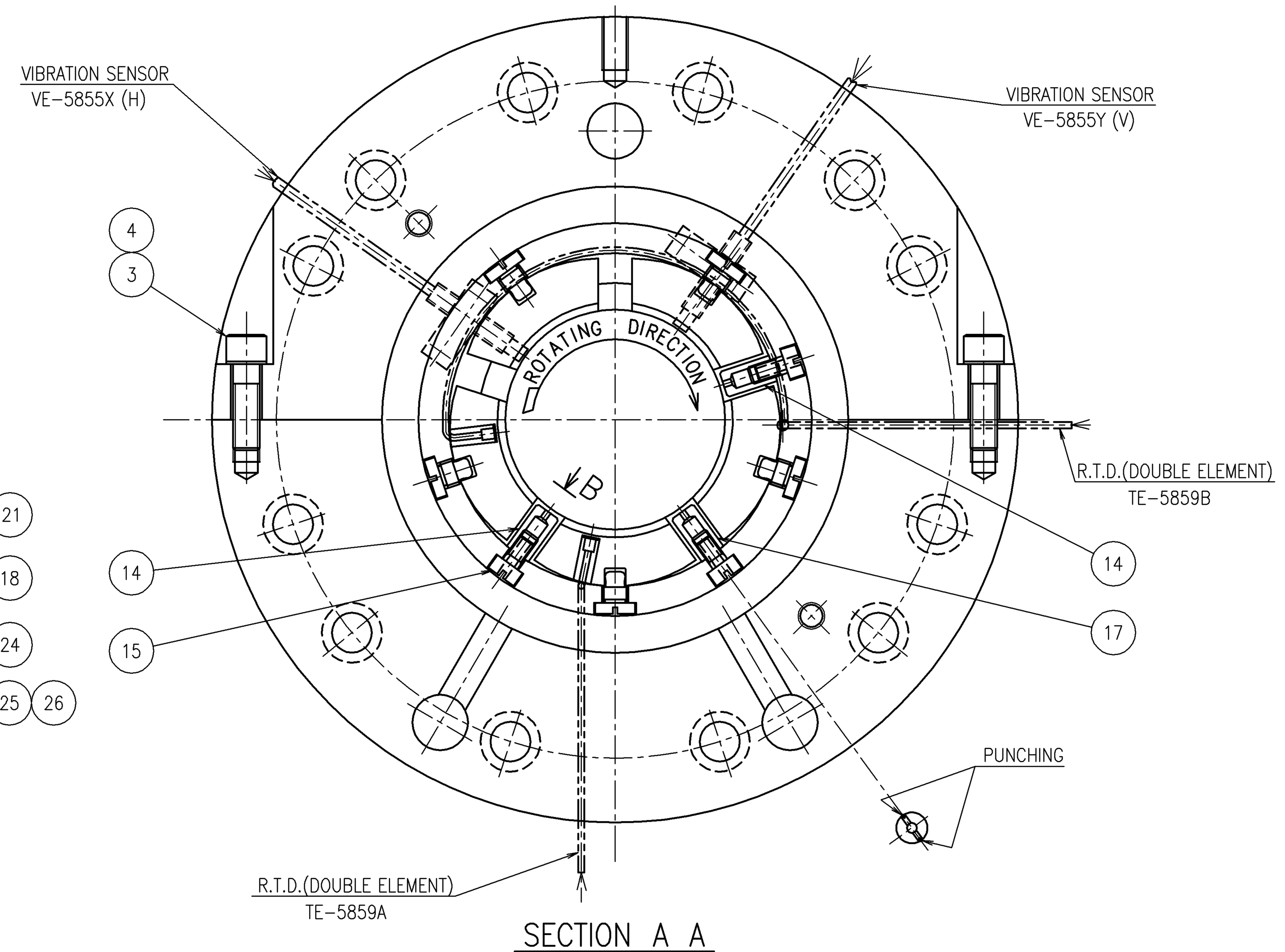
SPECIFIED NO. 4100

DRAWING NO. 790-19515

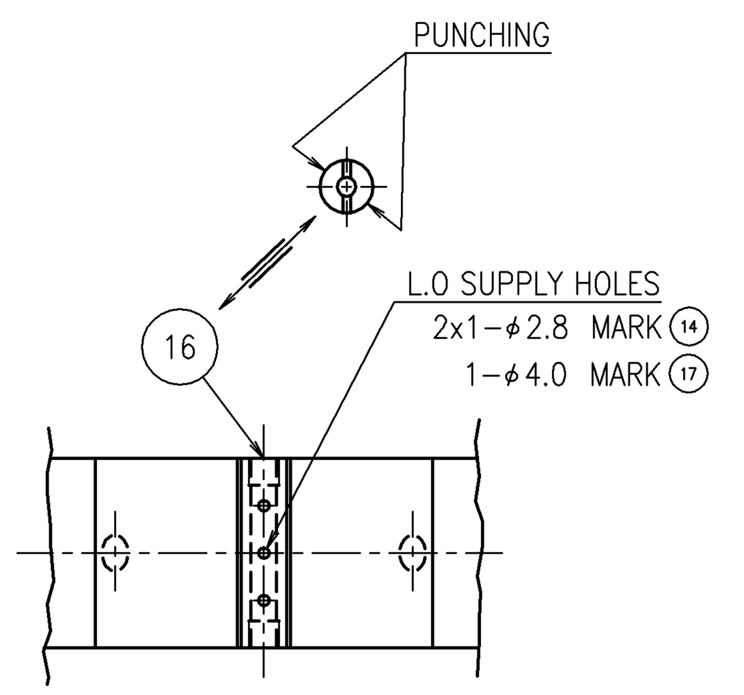
MITSUBISHI HEAVY INDUSTRIES COMPRESSOR CORPORATION

製図日付	'12.11.30	マイクロ	初 回	改正回次		図種コード	
出図日付		日 付				類別コード	1. 2. 3. 4. 5.

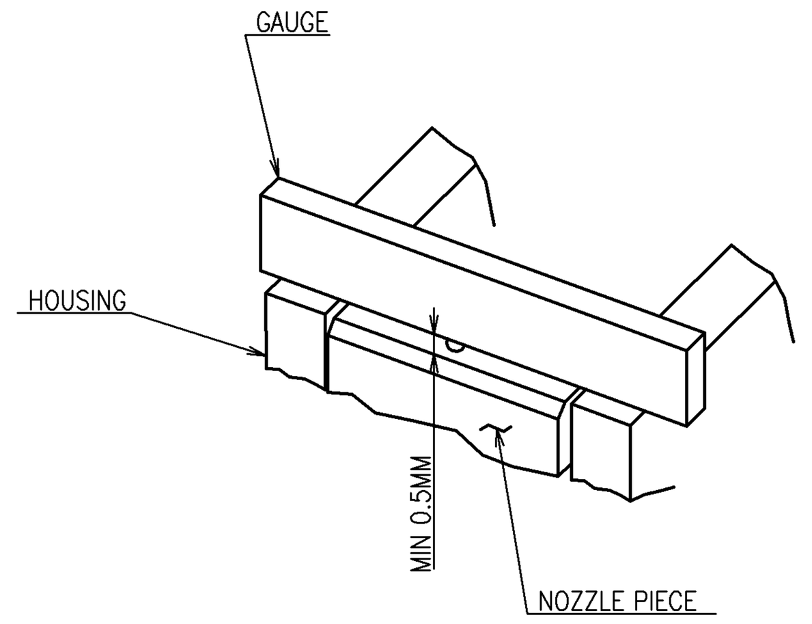




SECTION A A



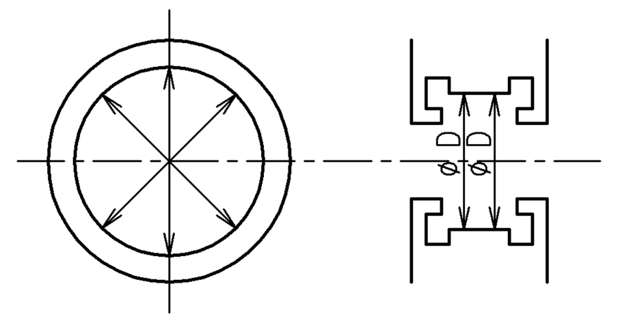
VIEW B



NOTE

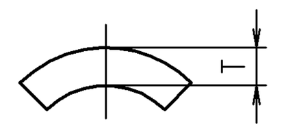
1.JOURNAL BEARING CLEARANCE SHALL BE MEASURED AS FOLLOWS.

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



$D=150^{+0.01}_{0}$

1-2.TILTING PAD THICKNESS.



$T=25^{-0.01}_{-0.03}$

1-3.TOTAL CLEARANCE=$D_{AVE.}$-2x$T_{AVE.}$-SHAFT DIA.=0.15 ~ 0.21

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

2.MARK"※"DIMENSIONS SHOW DIAMETRAL CLEARANCE.

REFERENCE DRAWING

1.BEARING & SEAL ASSEMBLY DRAWING(1/2)----790-19515

SPECIFICATION

1.JOURNAL BEARING DIA. ϕ100

2.SEAL DIA. ϕ114

3.LABYRINTH DIA. ϕ134

ITEM	PARTS NAME	PARTS NUMBER	QUANT-ITY	WEIGHT (Kg) PER PIECE	WEIGHT (Kg) TOTAL	REMARKS
50						
49						
48	O-RING	4811-87	1		0.1	
47	CONICAL SPR.WSHR 2ND 6	4811-85	5		0.1	
46	BOLT HEX SOCK M6X35	4811-84	5		0.1	
45	O"RING D3.5XD211.5	4811-83	1		0.1	
44	SEPARATION LABYRINTH	4811-81	1		1.5	
43	O-RING	4811-79	1		0.1	
42	O-RING	4811-78	1		0.1	
41	O-RING	4811-77	1		0.1	
40	O-RING	4811-76	1		0.1	
39	O-RING	4811-75	1		0.1	
38	O-RING	4811-74	1		0.1	
37	O-RING	4811-73	1		0.1	
36	TOLERANCE RING	4811-72	2		0.1	
35	GAS SEAL ASSEMBLY	4811-71	1		26.9	
34	O"RING D3.5XD146.5	4811-54	1		0.1	
33	SPRING PIN D5X10	4811-53	1		0.1	
32	SHAFT SEAL LABYRINTH	4811-51	1		0.6	
31	SPRING PIN D3X6	4811-13	1		0.1	
30	RETAINING RING	4811-12	1		1.6	
29	STOP RING	4811-11	1		0.9	
28						
27						
26	SPR.LK.WSHR. NO.2 4	4211-88	4		0.1	
25	BOLT HEX SOCK M4X0.7X20	4211-87	4		0.1	
24	AD-PROBE HOLDER 3/8-24UNF	4211-86	2		0.2	
23	BL-SET BOLT M12X14	4211-77	5		0.1	
22	CONICAL SPR.WSHR 2ND 4	4211-76	12		0.1	
21	SPRING PIN D6X16	4211-74	1		0.1	
20	BOLT HEX SOCK M4X0.7X12	4211-73	12		0.1	
19	JOURNAL HOUSING COVER	4211-72	1		1.0	
18	JOURNAL HOUSING (NON-THRUST)	4211-71	1		12.0	
17	OR-SUPPLY OIL NOZZLE D4.0	4211-64	1		0.4	
16	PG-PLUG M8	4211-63	6		0.1	
15	BL-SUPPLY BOLT M8X13.5	4211-62	3		0.1	
14	OR-SUPPLY OIL NOZZLE D2.8	4211-61	2		0.4	
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	BA-CLAMP	4211-31	4		0.1	
9	CONICAL.SPR.WSHR 2ND 16	4211-19	12		0.1	
8	SPRING PIN D6X16	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	PN-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	

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

SPARE / WORKING	MARK	DESCRIPTION	MATERIAL	TEST PIECE	QUANTITY PER SET (WORKING / SPARE)	WORKS	WEIGHT(kg) PER PIECE / TOTAL	REMARKS
1 SET								

ENGINEERING DEPARTMENT
COMPRESSOR & TURBINE ENGINEERING SECTION

ORDER: 353N72 ITEM: MCW321
CUSTOMER: TEC/KALTIM-5
APPROVED: O.I CHECKED: O.I
DATE: '12.11.30 PREPARED: T.O
TEL 4512

PM
APPROVED O.Isumi
CHECKED O.Isumi
PREPARED T.OUTA
DRAWN

SCALE 1/2
▽▽▽▽0.8S ▽▽▽6.3S ▽▽25S ▽100S

TEC/KALTIM-5

103-J SYNTHESIS GAS COMPRESSOR
5V-6S(HP)
BEARING & SEAL ASSEMBLY DRAWING(2/2)

SPECIFIED NO. 4200
DRAWING NO. 790-19516

MITSUBISHI HEAVY INDUSTRIES
COMPRESSOR CORPORATION

製図日付	'12.11.30	マイクロ	初 回	改正回次	図種コード	
出図日付		日 付			類別コード	1. 2. 3. 4. 5.

Auto CAD

配布先	部数
CUST	
計電設	A3 RHx1 左とじ 折
組立	2
鋳鍛	1
機生管	1
広品証	1
Pサ部	A3 RHx1 左とじ 折
コタ設	A3 RHx1 左とじ 折
控	
出図先	

職制コード

要求 NO.

DRAWING NO. 790-19516

A1 広製共98(2)

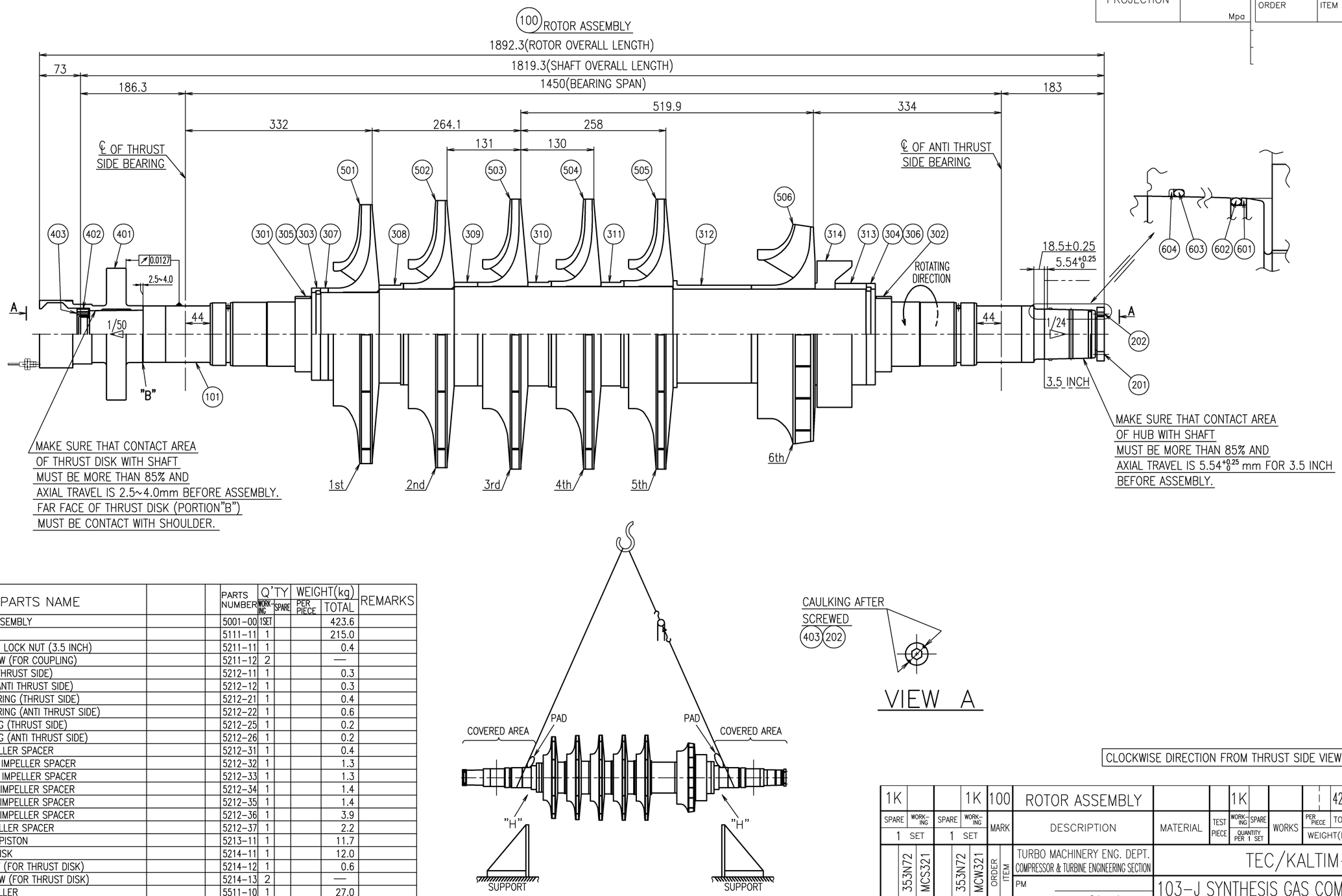
124-7/

THIRD ANGLE PROJECTION	HYDRAULIC TEST PRESS Mpa	PLAN RECORD

THIS DRAWING REFERENCED TO

ORDER	ITEM	DRAWING NO.	同 / 修

DRAWING NO. 790-28421



MARK	PARTS NAME			PARTS NUMBER	Q'TY WORKING	Q'TY SPARE	WEIGHT(kg) PER PIECE	WEIGHT(kg) TOTAL	REMARKS
100	ROTOR ASSEMBLY			5001-00	1SET			423.6	
101	SHAFT			5111-11	1			215.0	
201	COUPLING LOCK NUT (3.5 INCH)			5211-11	1			0.4	
202	SET SCREW (FOR COUPLING)			5211-12	2			—	
301	SLEEVE (THRUST SIDE)			5212-11	1			0.3	
302	SLEEVE (ANTI THRUST SIDE)			5212-12	1			0.3	
303	SHROUD RING (THRUST SIDE)			5212-21	1			0.4	
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			0.4	
308	1st~2nd IMPELLER SPACER			5212-32	1			1.3	
309	2nd~3rd IMPELLER SPACER			5212-33	1			1.3	
310	3rd~4th IMPELLER SPACER			5212-34	1			1.4	
311	4th~5th IMPELLER SPACER			5212-35	1			1.4	
312	5th~6th IMPELLER SPACER			5212-36	1			3.9	
313	6th IMPELLER SPACER			5212-37	1			2.2	
314	BALANCE PISTON			5213-11	1			11.7	
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			5511-10	1			27.0	
502	2nd IMPELLER			5512-10	1			30.0	
503	3rd IMPELLER			5513-10	1			29.0	
504	4th IMPELLER			5514-10	1			30.0	
505	5th IMPELLER			5515-10	1			30.0	
506	6th IMPELLER			5516-20	1			24.0	
601	BACKUP RING (3.5 INCH)			5711-31	1			—	
602	"O" RING (3.5 INCH)			5711-32	1			—	
603	"O" RING (3.5 INCH)			5711-33	1			—	
604	BACKUP RING (3.5 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)

VIEW A

CLOCKWISE DIRECTION FROM THRUST SIDE VIEW.

1K			1K	100	ROTOR ASSEMBLY			1K			423.6	
SPARE 1 SET	WORKING 1 SET		SPARE 1 SET	WORKING 1 SET	MARK	DESCRIPTION	MATERIAL	TEST PIECE	WORKING QUANTITY PER 1 SET	SPARE QUANTITY PER 1 SET	WORKS PER PIECE WEIGHT(kg)	WORKS TOTAL WEIGHT(kg)	REMARKS
	353N72	MCS321		353N72	MCW321	ORDER ITEM	TURBO MACHINERY ENG. DEPT. COMPRESSOR & TURBINE ENGINEERING SECTION	TEC/KALTIM-5					
	TEC/KALTIM-5	O.I		TEC/KALTIM-5	O.I	CUSTOMER CHECKED APPROVED	PM	103-J SYNTHESIS GAS COMPRESSOR 5V-6S(HP) ROTOR ASSEMBLY					
	TEC/KALTIM-5	Y.K		TEC/KALTIM-5	Y.K		APPROVED O.Isumi						
							CHECKED Y.KOHNO						
TEL 4140	'12.9.8	A.I	TEL 4140	'12.9.8	A.I	DATE PREPARED	PREPARED A.IKENO						
							DRAWN S.TSUCHIYAMA						
							SCALE 1/5	SPECIFIED NO. 500A	DRAWING NO. 790-28421				
							▽▽▽▽0.8S ▽▽▽6.3S ▽▽25S ▽100S						

MITSUBISHI HEAVY INDUSTRIES COMPRESSOR CORPORATION

製図日付	'12.08.29	マイクロ	初 回	改正回次		図種コード	
出図日付		日 付				類別コード	1. 2. 3. 4. 5.

図中に指示なき場合はこの表による

削り加工の普通許容差	
寸法の区分	1 級
0.5 以上 6 以下	± 0.1
6 〃 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

一般鍛金加工の普通許容差	
寸法の区分	—
0.5 以上 6 以下	± 0.2
6 〃 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

溶接構造物の普通許容差	
寸法の区分	—
0.5 以上 120 以下	± 1.5
120 を こえ 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

Auto CAD

配布先	部数
CUST	

Pヤ部 A3x1

控

出図先

職制コード

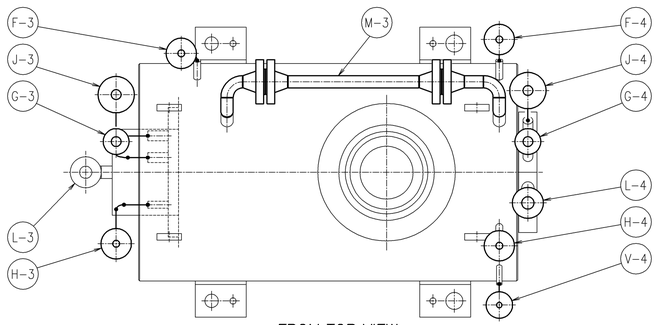
要求 NO.

A2 広製共98(3)

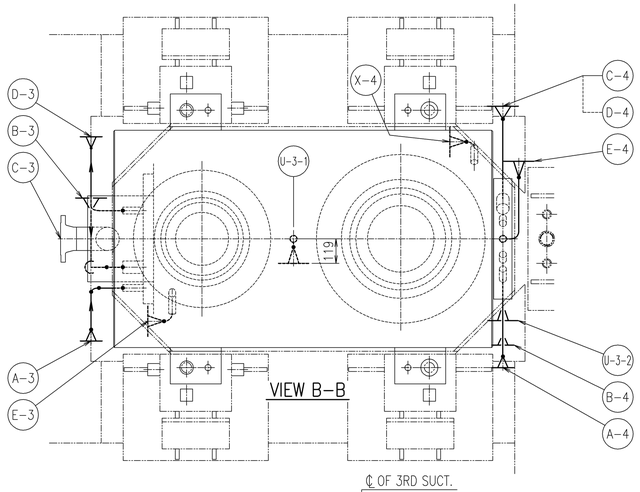
124-8/

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

PN

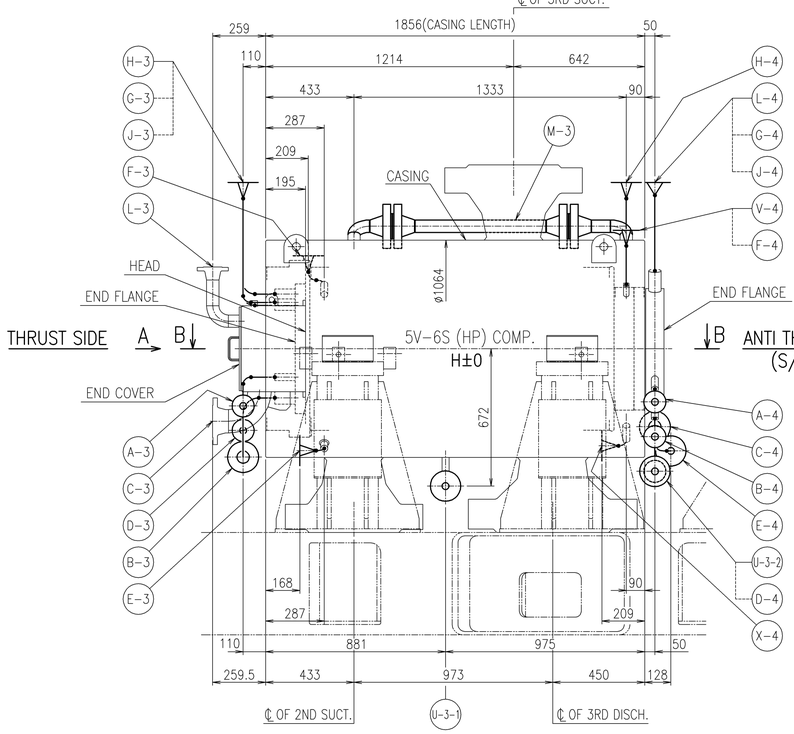


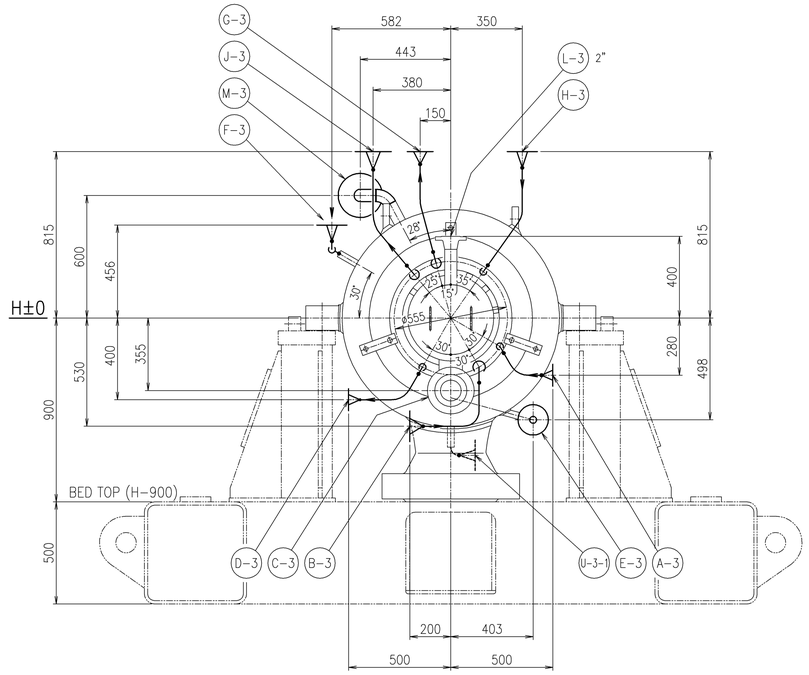
FROM TOP VIEW



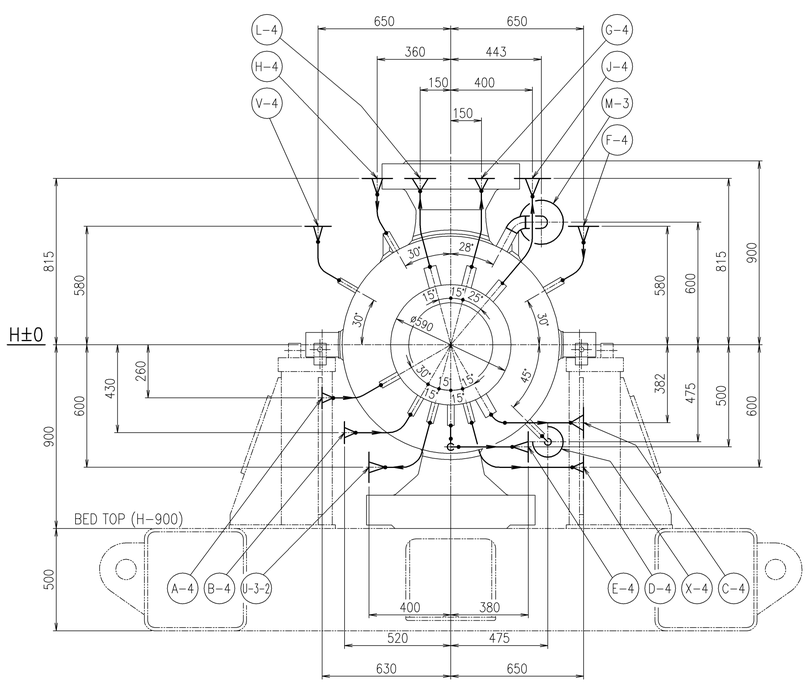
VIEW B-B

℄ OF 3RD SUCT.





THRUST SIDE
(VIEW-A)



ANTI THRUST SIDE
(S/T SIDE)

PIPING LIST

PIPE NO. TH. SIDE	PIPE NO. ATH. SIDE	PIPE NAME	SIZE & RATING
A-3	A-4	SEPARATION GAS SUPPLY	1B ASME 150# RF
B-3		L.O. SUPPLY	2B ASME 150# RF
	B-4		1B ASME 150# RF
C-3		L.O. DRAIN	4B ASME 150# RF
	C-4		2B ASME 150# RF
D-3	D-4	SECONDARY SEAL GAS DRAIN	1B ASME 150# RF
E-3	E-4	PRIMARY SEAL GAS DRAIN	1B ASME 1500# RTJ
F-3	F-4	PRIMARY SEAL GAS SUPPLY	1B ASME 1500# RTJ
G-3	G-4	SECONDARY SEAL GAS VENT	1½B ASME 150# RF
H-3	H-4	SECONDARY SEAL GAS SUPPLY	1B ASME 1500# RTJ
J-3	J-4	PRIMARY SEAL GAS VENT	1½B ASME 1500# RTJ
L-3	L-4	BEARING VENT	2B ASME 150# RF
M-3		BALANCE CONNECTOR	2B ASME 1500# RTJ
U-3		CASING DRAIN	1B ASME 1500# RTJ
	V-4	PRESSURE DETECTION	3/4B ASME 1500# RTJ
	X-4	SEAL GAS EXTRACTION	1B ASME 1500# RTJ

REF. DWG.;

1). ISOME DWG.	: 861-32379
2). 車室水圧試験要領図	: 790-28420
3). 車室 (1/4)	: 961-13525A
4). 車室 (2/4)	: 961-13526A
5). 車室 (3/4)	: 961-13527A
6). 車室 (4/4)	: 961-13528
7). 吸込側ヘッド (1/2)	: 961-14243
8). 吸込側ヘッド (2/2)	: 961-14244
9). 吐出側ヘッド (1/2)	: 961-14245
10). 吐出側ヘッド (2/2)	: 961-14246
11). 100型シアリング	: 799-20318L
12). 100型リティニングリング	: 799-20319J
13). エンドフランジ	: 799-10832C
14). エンドフランジ ケーシングドレン穴追加加工図	: 799-31565A
15). 技術連絡メモ(P&I 線図作成用コンプ廻り配管データ)	: 796-81225
16). P&ID (BASE PLATE)	: 750-18940C
17). P&ID (GAS SEAL)	: 750-18944C
18). 共通台板	: 781-16681A

DRAWING NO. 790-19518

図中に指示なき場合はこの表による

削り加工の普通許容差	
寸法の区分	1 級
0.5以上 6以下	± 0.1
6を こえ 30以下	± 0.2
30 を こえ 120 以下	± 0.3
120 を こえ 400 以下	± 0.5
400 を こえ 1000 以下	± 0.8
1000 を こえ 2000 以下	± 1.2
2000 を こえ 4000 以下	± 2.0
4000 を こえ 8000 以下	± 2.0
8000 を こえ 16000 以下	± 2.5

鋳鍛金加工の普通許容差	
寸法の区分	—
0.5以上 6以下	± 0.2
6を こえ 30以下	± 0.5
30 を こえ 120 以下	± 0.8
120 を こえ 315 以下	± 1.2
315 を こえ 1000 以下	± 2.0
1000 を こえ 2000 以下	± 3.0
2000 を こえ 4000 以下	± 4.0
4000 を こえ 8000 以下	± 5.0
8000 を こえ 16000 以下	± 6.0

溶接構造物の普通許容差	
寸法の区分	—
0.5以上 120以下	± 1.5
120 を こえ 315 以下	± 2.0
315 を こえ 1000 以下	± 3.0
1000 を こえ 2000 以下	± 5.0
2000 を こえ 4000 以下	± 7.0
4000 を こえ 8000 以下	± 10.0
8000 を こえ 16000 以下	± 15.0

Auto CAD

配布先	部数
広島証	1
組立	3
コク設	A3x1
プ装設	A3x1
控	
出図先	

識別コード 6321

要求 NO.

SPARE	WORK-ING	MARK	DESCRIPTION	MATERIAL	TEST PIECE	WORK-ING	SPARE	WORKS	PER PIECE	TOTAL WEIGHT(kg)	REMARKS
1 SET						QUANTITY PER SET					

ORDER	35JN72 / MCW321	ENGINEERING DEPARTMENT COMPRESSOR&TURBINE ENGINEERING SECTION	TEC/KALTIM-5
ITEM		PM	
CUSTOMER	TEC/KALTIM-5 / Y.K	APPROVED O.Isumi	103-J SYNTHESIS GAS COMPRESSOR PIPING ASS'Y DWG. AROUND 5V-6S(HP) COMP.
CHECKED/APPROVED	0.I / Y.KOHNO	CHECKED Y.KOHNO	
DATE	'12.9.25 / Y.O	PREPARED Y.Okamoto	
PREPARED		DRAWN T.FUJII	
TEL 4241		SCALE 1/15	SPECIFIED NO. 8100 / DRAWING NO. 790-19518

▽▽▽▽0.8S ▽▽▽6.3S ▽▽25S ▽100S

MITSUBISHI HEAVY INDUSTRIES COMPRESSOR CORPORATION

DRAWN J.SASAGUCHI '12-9/28

製図日付		マイクロ	新	旧	改正印次	図種コード
出図日付		日 付				類別コード 1. 2. 3. 4. 5.

A1 広製共98(2)

124-9/