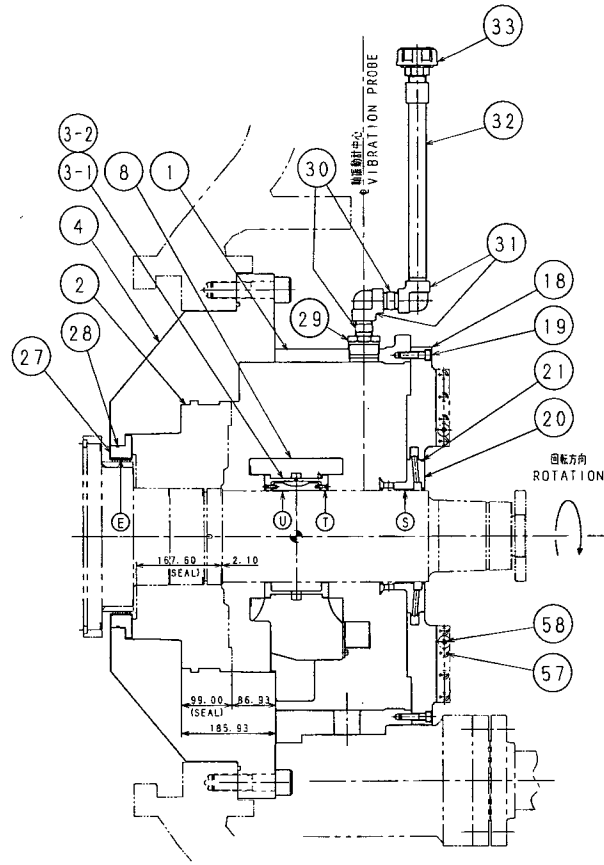
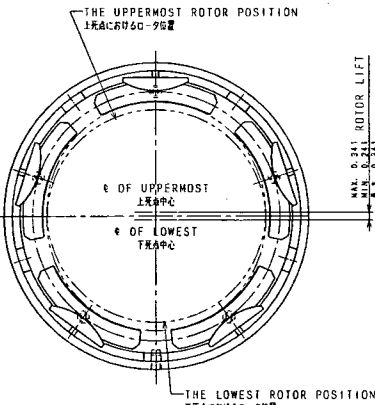


No.	REVISIONS		
	DESCRIPTION	DATE	BY APP.
	REFER TO SHEET 1/2.		

[図面管理番号表]



断面AA
SECTION AA



BRG. ASS'Y CLEARANCE MEASUREMENT
PER ROTOR LIFTING METHOD

0-9/174による軸受クリアランス測定

THE UPPERMOST ROTOR POSITION
上死点位置

MIN. D. 0.241 D-9/174
MAX. D. 0.311 D-9/174

THE LOWEST ROTOR POSITION
下死点位置

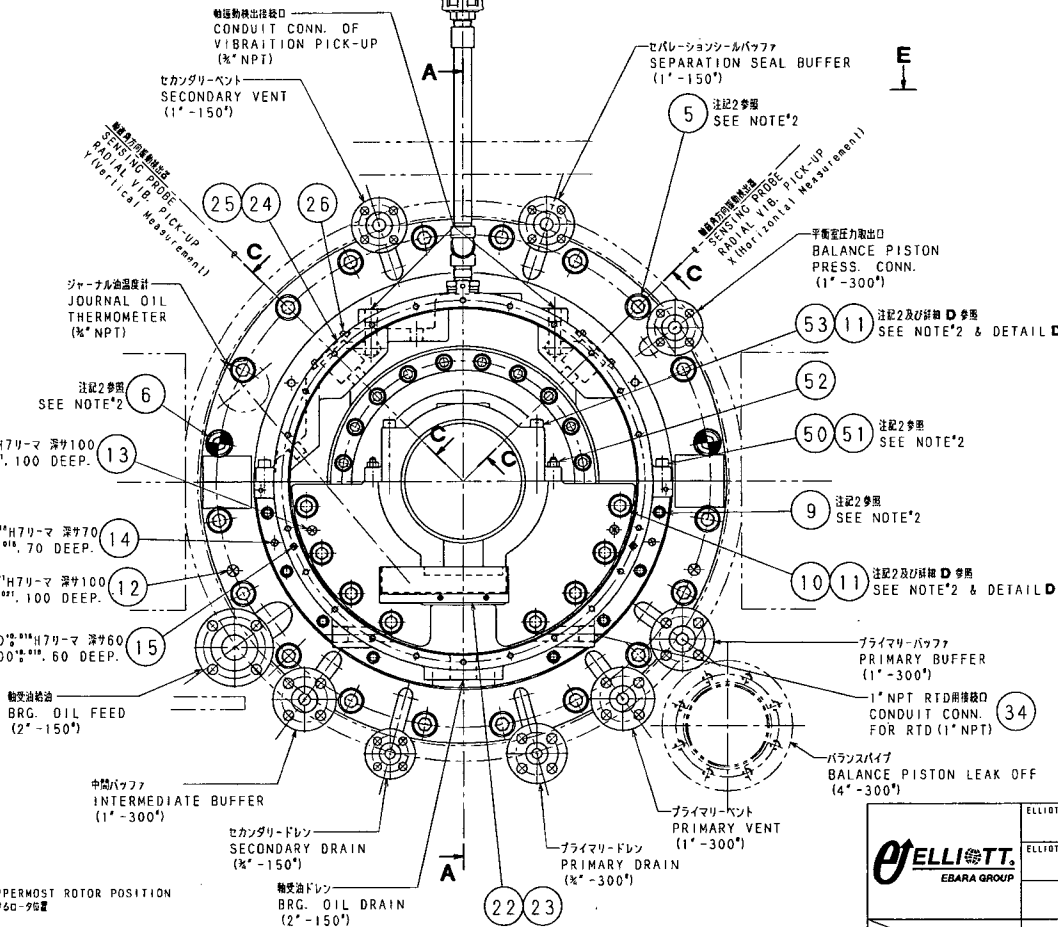
BRG. 軸受

2Xφ20.000^{±0.011}H7リマ 深サ100
2H-φ20.000^{±0.011}.100 DEEP.

2Xφ16.000^{±0.011}H7リマ 深サ70
2H-φ16.000^{±0.011}.70 DEEP.

2Xφ24.000^{±0.011}H7リマ 深サ100
2H-φ24.000^{±0.011}.100 DEEP.

2Xφ12.000^{±0.011}H7リマ 深サ60
2H-φ12.000^{±0.011}.60 DEEP.



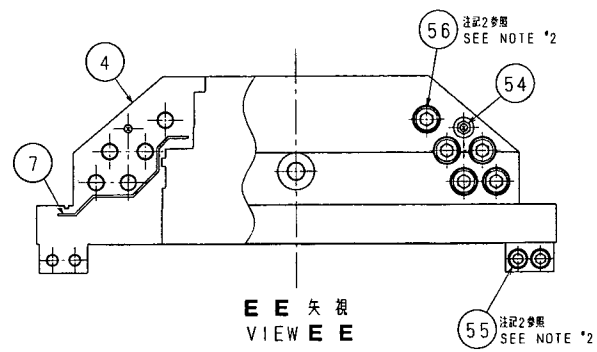
組立隙間 ASSEMBLY CLEARANCE		半径隙間/直径隙間 RADIAL CLEARANCE / DIAMETER CLEARANCE		直径隙間 DIAMETER CLEARANCE	
E		S T		U	
バッファシール BUFFER SEAL		軸受グランド SHAFT END SEAL		ジャーナル軸受 JOURNAL BEARING	
最小半径隙間 (mm)	0.16	最小半径隙間 (mm)	0.20	最小半径隙間 (mm)	0.216
MIN. RADIAL		MIN. RADIAL		MIN. DIA.	
最大半径隙間 (mm)	0.53	最大半径隙間 (mm)	0.440	最大半径隙間 (mm)	0.305
MAX. RADIAL		MAX. RADIAL		MAX. DIA.	
最小直径隙間 (mm)	0.63	最小直径隙間 (mm)	0.22	最小直径隙間 (mm)	0.465
MIN. DIA.		MIN. DIA.		MIN. DIA.	
最大直径隙間 (mm)	0.74	最大直径隙間 (mm)	0.45	最大直径隙間 (mm)	0.930
MAX. DIA.		MAX. DIA.		MAX. DIA.	

FOR APPROVAL AND DELAY TO MAINWAY SHIPPING PROVIDE ONE APPROVED PRINT MUST BE RETURNED BY	FOR RECORD ANY REDUCTION OF THIS EQUIPMENT WILL BE AT CUSTOMER'S PRICE ADJUSTMENT. EXCEEDING SHIPPING PROMISE WILL BE CONSIDERED AS AN MANUFACTURING PROCESS.		
BY _____ DATE _____	BY _____ DATE _____		

P.O. No. 2260-PD-PH-3-0-0012-0	JOB/PROJECT NAME SHARAND AKAR REFINERY EXPANSION AND UPGRADING PROJECT IN IRAN
JOB No. 2260	CUSTOMER SINOPEC ENGINEERING INCORPORATION
ITEM No. C-1581	USER NATIONAL IRANIAN OIL ENGINEERING AND CONSTRUCTION COMPANY
SER. No. R07T007502	SERVICE WET GAS COMPRESSOR
APP'D BY S. TOMIYAMA	DATE JUN 18 '99
MODEL 70M71	
TITLE φ7.0" X3.68" JNL.	
CHK'D BY H. MATSUMOTO	DATE JUN 18 '99
CUSTOMER'S SER. No. PH-3-0-0012-0-DW-152	
Elliott Ebara	

【図面管理番号】

REVISIONS				
NO.	DESCRIPTION	DATE	BY	APP.
1	REVISED PARTS NO.			



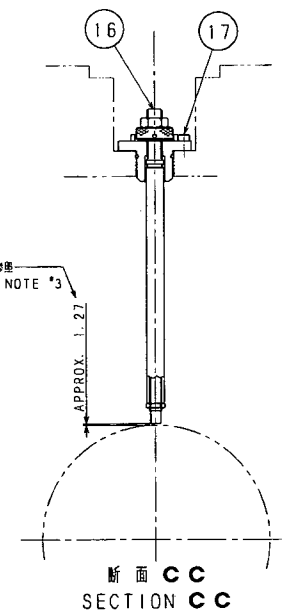
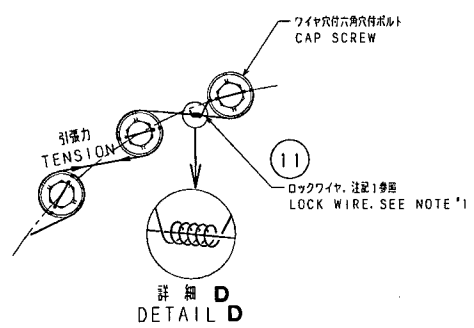
- 注記
- ロックワイヤ(11)にて回り止め履行のこと。
 - ボルト締付トルク:
 グランド胴体取付用 (M33) : 1666N・m
 グランド胴体合せ面 (M24) : 620N・m
 グランド胴体合せ面 (M33) : 1666N・m
 軸受リテーナ取付用 (M30) : 1024N・m
 軸受リテーナ合せ面 (M16) : 138N・m
 軸受ケーシング取付用 (M16) : 138N・m
 軸受ケーシング合せ面 (M16) : 138N・m
 - 振動計のキャップ調整法については軸振動計組立図 (ES/9890013) を参照のこと。
 - 全ての寸法はミリメートルで示す。

- NOTES
- USE LOCKWIRE TO RETAIN CAP SCREWS. (ITEM #11)
 - BOLTING TO BE PULLED DOWN WITH A TORQUE OF AS FOLLOWS:
 ENDWALL VERT. SPLIT (M33) : 1666N・m
 ENDWALL HORI. SPLIT (M24) : 620N・m
 ENDWALL HORI. SPLIT (M33) : 1666N・m
 BRG. RET. VERT. SPLIT (M30) : 1024N・m
 BRG. RET. HORI. SPLIT (M16) : 138N・m
 BRG. HSG. VERT. SPLIT (M16) : 138N・m
 BRG. HSG. HORI. SPLIT (M16) : 138N・m
 - REFER TO SENSING PROBE ASS'Y DWG. (ES/9890013) FOR GAP SETTING.
 - ALL DIMENSIONS ARE IN MILLIMETERS.

58	テーパバック	TAPER DOWEL PIN	2	BST-E10025	φ10×25
57	六角穴付ボルト	CAP SCREW (SOCKET HEAD)	8	BSH-H10030	M10×30
56	六角穴付ボルト	CAP SCREW (SOCKET HEAD)	10	BSH-HM33160	M33×160
55	六角穴付ボルト	CAP SCREW (SOCKET HEAD)	4	BSH-HN24080	M24×80
54	テーパバック	TAPER DOWEL PIN	2	BSTV-E15130	φ16×130
53	ワイヤ穴付六角穴付ボルト	CAP SCREW (SOCKET HEAD)	4	BSHW-H15130	M16×130
52	テーパバック	TAPER DOWEL PIN	2	BST-E13055	φ13×55
51	六角穴付ボルト	CAP SCREW (SOCKET HEAD)	6	BSH-H16050	M16×50
50	テーパバック	TAPER DOWEL PIN	2	BST-E13038	φ13×38

40	組立	ASSEMBLY		ER07T007501952GR1	
39					
38					
37					
36					
35					

34	RTD配線検察器	DETECTOR ARR' T	1SET	ER07T007502391GR1	
33	エアブレス	AIR BRESHER	1	APMB-08	R1"
32	デミスター	DEMISTAR	1	E9830301-5	1"NPTxRc1"
31	90° エルボ	ELBOW	2	ELN90-EA08NS	1"NPT
30	ニップル	NIPPLE	2	E9830818-13	1"NPT
29	アダプタ	ADAPTER	1	GBUN-G016008	2"NPTx1"NPT
28	O-リング	O-RING	1	OAS-RD279	
27	ラビリンスシール	LABYRINTH SEAL	1	E9860874-10	
26	六角穴付ボルト	CAP SCREW (SOCKET HEAD)	8	BSH-H05020	M6×20
25	ガスケット	GASKET	2	E9833020-3	
24	軸受カバー	COVER VIB. PROBE	2	B849840-1	
23	六角穴付ボルト	CAP SCREW (SOCKET HEAD)	2	BSH-H06012	M6×12
22	油溜	OIL TROUGH	1	A861325-5	
21	O-リング	O-RING	1	OAS-RD277	
20	軸受グランド	SHAFT END SEAL	1	E9830428-7	
19	六角穴付ボルト	CAP SCREW (SOCKET HEAD)	10	BSH-H12050	M12×50
18	エンドカバー	END COVER	1	B959007-8	
17	六角穴付ボルト	CAP SCREW (SOCKET HEAD)	4	BSH-H05010	M5×10
16	軸振動計組立	SENSING PROBE ASS'Y	2SET	ER07T007502390GR	

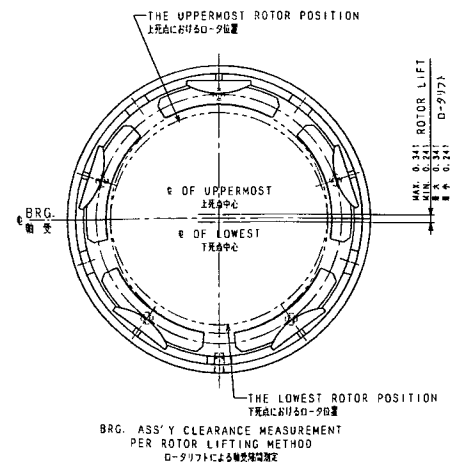
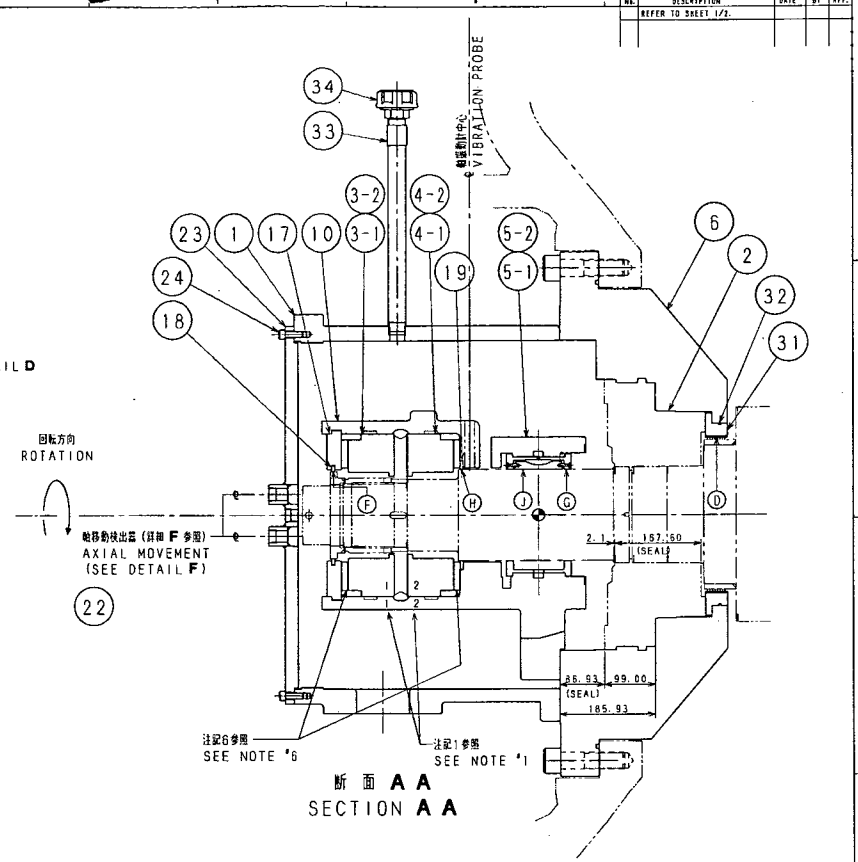
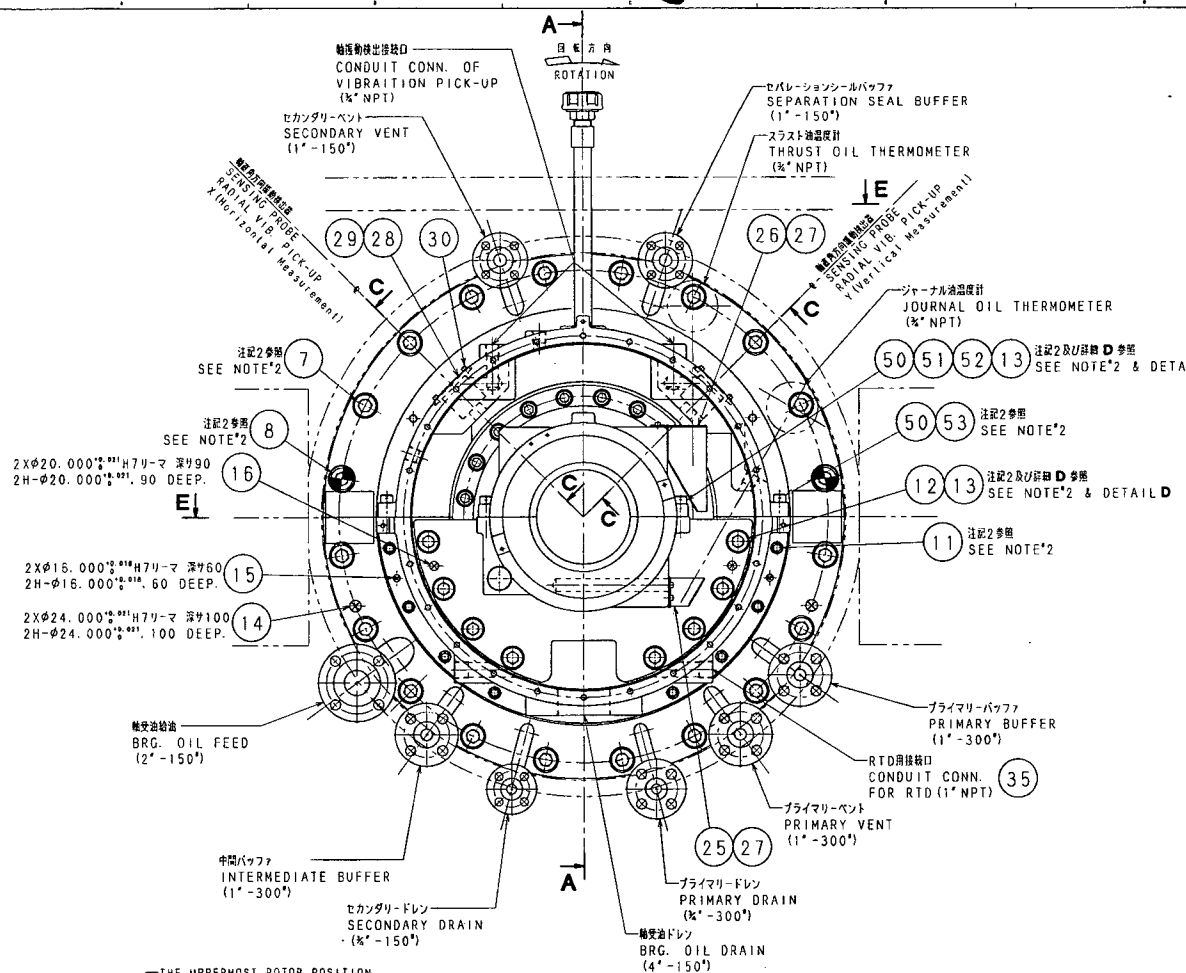


15	平行ピン	STRAIGHT DOWEL PIN	2	BPNT-JP12050	φ12×60
14	平行ピン	STRAIGHT DOWEL PIN	2	BPNT-JP16070	φ16×70
13	平行ピン	STRAIGHT DOWEL PIN	2	E9870559-6	φ20×100
12	平行ピン	STRAIGHT DOWEL PIN	2	E9870559-13	φ24×100
11	ロックワイヤ	LOCK WIRE	1	WAR-B1010	φ1.0×10m
10	ワイヤ穴付六角穴付ボルト	CAP SCREW (SOCKET HEAD)	8	BSHW-H30105	M30×105
9	六角穴付ボルト	CAP SCREW (SOCKET HEAD)	8	BSH-H16055	M16×55
8	軸受リテーナ	BRG. RETAINER	1SET	B964839-10	
7	ω66O-リング	SEALING STRIP	2	SLSP-RD3530040	
6	六角穴付ボルト	CAP SCREW (SOCKET HEAD)	2	BSH-HN33100X3	M33×100×P3
5	六角穴付ボルト	CAP SCREW (SOCKET HEAD)	18	BSH-HN33125X3	M33×125×P3
4	グランド胴体	ENDWALL SEAL HOUSING	1	E9860654-32	
3-2	ジャーナル軸受パッド組立	JOURNAL BRG. PAD ASS'Y	1SET	E9831007-31	(for Spare Parts Deliv.)
3-1	ジャーナル軸受	JOURNAL BRG. ASS'Y	1SET	E9831007-17	
2	ドライガスケーシング組立	DRY-GAS SEAL ARR' T	1SET	ER07T0075-01-955	M1-28-2752
1	軸受ケーシング	BRG. HOUSING	1SET	B858763-9	

	ELLIOTT G.O. No.	DISTRIBUTION SET CUSTOMER ECH
	ELLIOTT S.O. No.	EETC281-1 EETC813 1C EETC821-1 1C
<input type="checkbox"/> FOR APPROVAL ADDN DELAY TO MAINTAIN SHIPPING PROMISE. ONE APPROVED PRINT MUST BE RETURNED BY:	<input checked="" type="checkbox"/> FOR RECORD ANY REQUESTED CHANGE OF THIS EQUIPMENT WILL RESULT IN: 1. CONTRACT PRICE ADJUSTMENT. 2. EXTENDED SHIPPING PERIOD AS THIS CONTRACT IS IN MANUFACTURING PROCESS.	BY: _____ DATE: _____ BY: K.E. DATE: Mar. 22, 99

P.O. No. 2260-P0-PW-3-0-0012-0	JOB/PROJECT NAME SHALAND ARRAK REFINERY EXPANSION AND UPGRADING PROJECT IN IRAN
JOB No. 2260	CUSTOMER SINOPEC ENGINEERING INCORPORATION
ITEM No. C-1561	USES NATIONAL IRANIAN OIL ENGINEERING AND CONSTRUCTION COMPANY
SER. No. R07T007502	SERVICE WET GAS COMPRESSOR
APP'D BY S. TOMIYASU	DATE Jul. 14 '99
S. TOMIYASU	70M71
H. NISHIKAWA	φ7.0" X 3.68" JNL
K. ISHIGAWA	軸受及びジャーナル組立図 (ジャーナル部) (1/2)
M. MATSUMOTO	BRG. & SEAL ARR' T (JNL. ENK)
M. NISHIKAWA	PROJ. NO. ER07T007501952/1
M. NISHIKAWA	REV. NO. 1
CUSTOMER'S ORG. No. PH-3-0-0012-0-DW-152	FILE 1-INTS
	Elliott Ebara

REVISIONS			
NO.	DISCREPANCY	DATE	BY



組立クリアランス ASSEMBLY CLEARANCE		半径クリアランス/直径クリアランス RADIAL CLEARANCE / DIAMETER CLEARANCE			直径クリアランス DIAMETER CLEARANCE	
項目	D	F G H			J	J
		シーリング SEAL RING	ベースリング BASE RING	シーリング SEAL RING		
最小クリアランス (mm)	0.16	0.050	0.440	0.071	0.216	0.305
最大クリアランス (mm)	0.53	0.075	0.465	0.087	0.216	0.305
最大クリアランス (mm)	0.63	0.150	0.930	0.174	0.216	0.305
最大クリアランス (mm)	0.74	0.150	0.930	0.174	0.216	0.305

ELLIOTT
EBARA GROUP

FOR APPROVAL
AVOID DELAY TO MAINTAIN SHIPPING PROMISE. ONE APPROVED PRINT MUST BE RETURNED BY: _____

FOR RECORD
ANY REQUESTED CHANGE OF THIS EQUIPMENT WILL RESULT IN CONTRACT PRICE ADJUSTMENT. ENTERED SHIPPING PROMISE TO BE MAINTAINED THROUGHOUT MANUFACTURING PROCESS. RETURNED BY: _____

P.O. No. 2260-PD-PM-3-0-0012-0
JOB No. 2260
ITEM No. C-1561
SER. No. R07T007502

JOB/PROJECT NAME: SHAZLU ABAR REFINERY EXPANSION AND UPGRADING PROJECT IN IRAN
CUSTOMER: SINOPEC ENGINEERING INCORPORATION
USER: NATIONAL IRANIAN OIL ENGINEERING AND CONSTRUCTION COMPANY

APP'D BY: S. TOMATSU DATE: Feb. 18, '98
DATE: Feb. 18, '98
SERVICE: WET GAS COMPRESSOR
MODEL: 70M71 SET: 1

TITLE: 47.0" X 58.5" JNL. 72.050-IN. THR.
DWN'D BY: K. ISUGAKA DATE: Feb. 18, '98
CHK'D BY: N. MATSUKI DATE: Feb. 18, '98
DRW'N BY: K. HIRANO DATE: Feb. 18, '98

CUSTOMER'S ENG. No. PH-3-0-0012-0-DW-153
Elliott Ebara

SPARE PARTS LIST AND INTERCHANGEABILITY

Equipment Class. / کلاس دستگاه		SPARE PARTS LIST AND INTERCHANGERABILITY RECORD																SPARE PARTS شماره سفارش: Order No. (قطعات یدکی)	
1		<p>NOTES: (توضیحات)</p> <p>1) All equipment having interchangeable items to be stated on same form. کلیه دستگاههاییکه برای اقدام مشابه هستند باید در فرم یکسان درج گردند.</p> <p>2) Quota In column 10 part numbers showing interchangeability within equipment manufacturer's organization. در ستون 10 شماره قطعاتی که با سایر دستگاههای ماشین آلات کارخانه سازنده داشته باشند.</p> <p>3) Quota In column 20 Original Identification numbers for items of third party manufacture ("bought-out items") such as ball bearings, mechanical seals, couplings, fuses, auxiliaries. در ستون 20 شماره های قطعات سازنده فرعی (ثالث) مانند یاطاقان، آب بندهای مکانیکی، اتصالات، فیوزها و غیره درج گردند.</p> <p>4) Quota In column 11 name and type of material, e.g. bronze, cast iron, st. steel 304 Rubber, Buna Viton, etc. در ستون 11 اسم و نوع جنس کارفته در کالا ذکر گردد مانند (مراغ، چدن، فولاد درجه 304 ، لاستیک، بونا، ویتون و غیره)</p>																موضوع: Subject سازنده: Manufacturer : Ebara Elliott Turbo machinery Corporation آدرس: Address : 20-1 Nakasode, Sodegaura-shi Chiba-ken 299-0296, Japan	
2		<p>Required on site date: تاریخ مورد نیاز</p> <p>Approved for purchase by: تایید خرید توسط</p> <p>Operational spare parts قطعات مورد نیاز عملیات</p> <p>Commissioning spares قطعات یدکی در مرحله راه اندازی</p> <p>Quantity to be supplied تعداد مورد نیاز</p> <p>MESC No. شماره طبقه بندی کالا</p> <p>Classification of parts رده بندی قطعات</p> <p>Approximate unit price in قوت واحد بها به تقریب</p> <p>Approximate total price in قیمت کل به تقریب</p> <p>Remarks (see note 3 above) ملاحظات (رجوع شود به بند 3 توضیحات)</p> <p>Item No. شماره ردیف</p>																Date: تاریخ	
3		<p>REMINDER: ATTACH TO THIS FORM ALL PARTS LISTS AND DRAWINGS AS LISTED IN COLUMN 9 AND 10</p> <p>تذکره: اطلاعات مربوط به سازنده</p> <p>MANUFACTURERS DATA</p> <p>DESCRIPTION OF PARTS: شرح قطعات: شامل کلیه قطعات پیشنهادی to be kept for normal operation and slow wearing parts که بطور عادی یا بصورت تدریجی مصرف و در انبار نگهداری شود</p> <p>Drawing / Ref. No. شماره نقشه / مرجع سازنده</p> <p>Manufacturers Real part No. (see note 2 above) شماره قطعاتی کارخانه سازنده رجوع شود به بند 2 توضیحات</p> <p>Material (see note 4 above) نوع جنس قطعات</p> <p>1 Year Spare Parts پیشنهاد سازنده</p> <p>Recommended by Contractor پیشنهاد پیمانکار</p>																	
4		<p>Total number of identical parts installed: تعداد قطعات مشابه نصب شده</p> <p>6a 7 8 9 10 11 12 13 14 15 16 17 18 19 20 22</p>																	
5		<p>NUMBER OF PARTS PER UNIT</p> <p>2 set 2 Journal Bearing Assembly for HP&LP Side ES/8690401(#16-1) E8646163-17 Steel</p> <p>2 set 4 Journal Bearing Assembly for HP&LP Side ES/8690406(#16-1) ES/8690409(#16-5) E8646179-17 Steel</p> <p>2 set 2 Journal Bearing Assembly for HP&LP Side ES/8690402(#16-1) E8646184-17 Steel 2</p> <p>4 set 4 Journal Bearing Assembly for HP&LP Side ES/8690405(#16-1) E8646152-17 Steel</p> <p>1 set 2 Thrust Bearing Assembly for Active Side ES/8690401(#16-2) ES/8690405(#16-3) E8646154-17 Copper Alloy</p> <p>1 set 1 Thrust Bearing Assembly for Active Side ES/8690402(#16-2) E8646165-17 Copper Alloy 1</p> <p>1 set 1 Thrust Bearing Assembly for Active Side ES/8690409(#16-2) E8646165-17 Copper Alloy</p> <p>2 set 2 Thrust Bearing Assembly for Active Side ES/8690405(#16-3) E8646155-15 Copper Alloy</p> <p>1 set 2 Thrust Bearing Assembly for Inactive Side ES/8690401(#16-3) ES/8690405(#16-5) E8646153-17 Copper Alloy</p> <p>1 set 1 Thrust Bearing Assembly for Inactive Side ES/8690402(#16-3) E8646166-17 Copper Alloy 1</p> <p>1 set 1 Thrust Bearing Assembly for Inactive Side ES/8690409(#16-3) E8646157-19 Copper Alloy</p> <p>2 set 2 Thrust Bearing Assembly for Inactive Side ES/8690405(#16-5) E8646154-17 Copper Alloy</p> <p>2 set 2 Journal Bearing Pad for HP&LP Side ES/8690401(#16-1A) E8646163-31 Copper Alloy</p> <p>4 set 4 Journal Bearing Pad for HP&LP Side ES/8690406(#16-2) ES/8690409(#16-4) E8646179-31 Steel</p> <p>2 set 2 Journal Bearing Pad for HP&LP Side ES/8690402(#16-1A) E8646184-31 Copper Alloy 2</p> <p>4 set 4 Journal Bearing Pad for HP&LP Side ES/8690405(#16-2) E8646152-31 Copper Alloy</p> <p>2 set 2 Journal Bearing Pad for HP&LP Side ES/8690416(#16-1A) E9830977-31 Copper Alloy</p> <p>1 set 2 Thrust Bearing Shoe with RTD for Active Side ES/8690401(#16-2A) ES/8690405(#16-4) E8646154-31 Copper Alloy</p> <p>1 set 1 Thrust Bearing Shoe with RTD for Active Side ES/8690402(#16-2A) E8646165-31 Copper Alloy 1</p> <p>1 set 1 Thrust Bearing Shoe with RTD for Active Side ES/8690409(#16-5) E8646158-33 Copper Alloy</p> <p>2 set 2 Thrust Bearing Shoe with RTD for Active Side ES/8690405(#16-4) E8646155-29 Copper Alloy</p> <p>1 set 1 Thrust Bearing Shoe with RTD for Active Side ES/8690416(#16-2A) E8646174-33 Copper Alloy</p> <p>1 set 2 Thrust Bearing Shoe with RTD for Inactive Side ES/8690401(#16-3A) ES/8690405(#16-5) E8646153-31 Copper Alloy</p> <p>1 set 1 Thrust Bearing Shoe with RTD for Inactive Side ES/8690402(#16-3A) E8646166-31 Copper Alloy 1</p> <p>1 set 2 Thrust Bearing Shoe with RTD for Inactive Side ES/8690409(#16-5) ES/8690416(#16-3A) E8646157-33 Copper Alloy</p> <p>2 set 2 Thrust Bearing Shoe with RTD for Inactive Side ES/8690405(#16-5) E8646154-31 Copper Alloy</p>																	
6		<p>Equipment purchase Order No. شماره سفارش خرید دستگاه</p> <p>PROJECT / PLANT : پروژه / واحد:</p> <p>CONSIGNEE : تحویل گیرنده:</p> <p>طراحی توسط: ENGINEERED BY :</p> <p>مدت زمان تحویل Delivery time</p> <p>Rev. / تاریخ Date</p> <p>Sign. / امضاء</p> <p>Sheet No. of از</p> <p>Requestion No. شماره درخواست</p>																<p>Approximate total value قیمت کل به تقریب</p>	