DRAWING No.	ISSUE
GA-270959-1	**H**

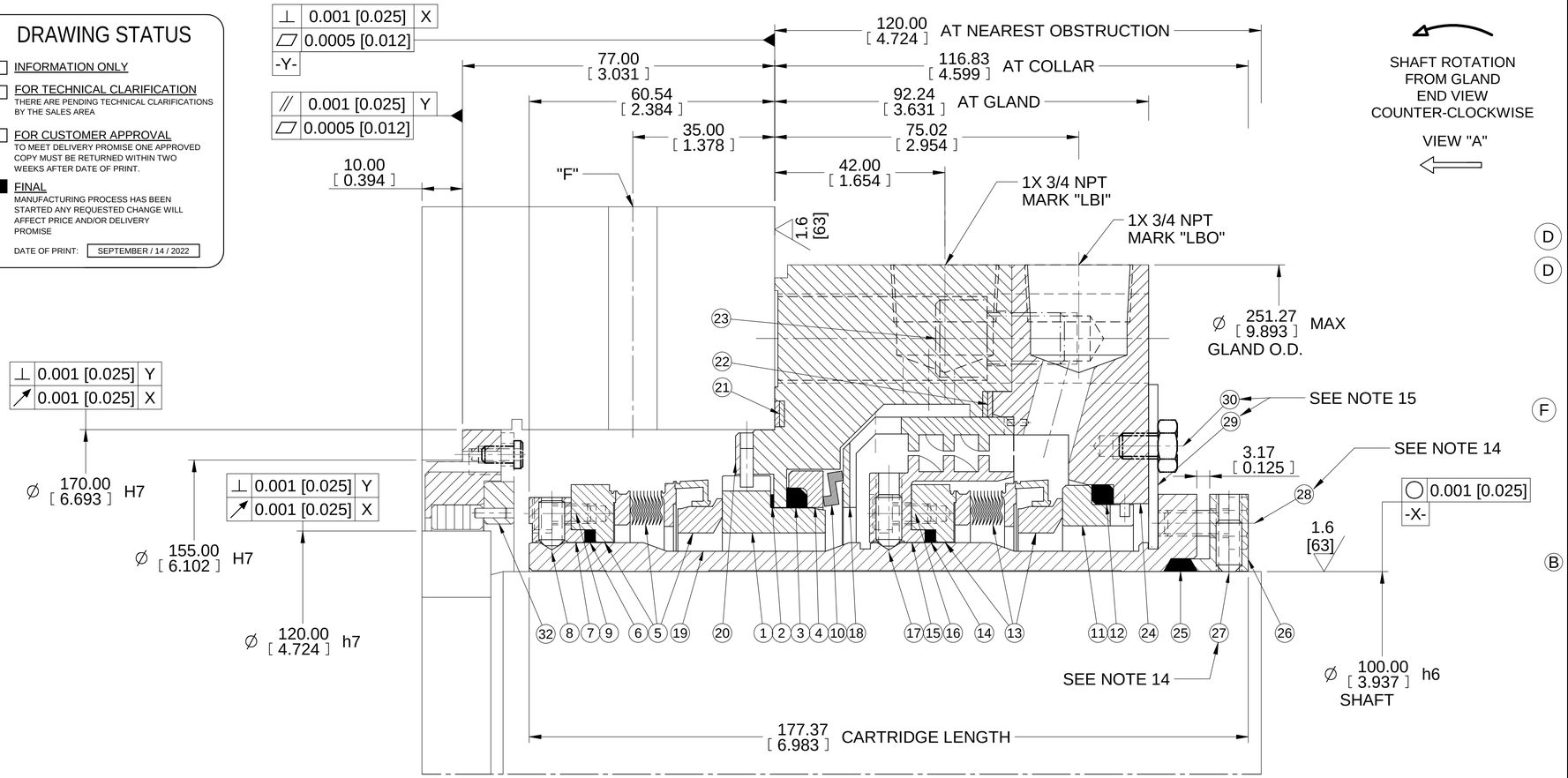
REVISIONS: -A- ORIGINAL ISSUE B.- COMMENTS ADDED -NCV- 080822 C.- FINAL -NCV- 09/14/22 D.- CHANGED PART NUMBERS -SRJ-11/10/22 E.- COMMENTS ADDED -NCV- 12/05/22 F.- * ADDED TO GLAND PLATE MATERIAL -NCV- 12/21/22 G.- NOTES UPDATED -NCV- 03/28/23 H.- COMMENTS ADDED -NCV- 04/19/23

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DRAWING STATUS

- ☐ INFORMATION ONLY
- ☐ FOR TECHNICAL CLARIFICATION — THERE ARE PENDING TECHNICAL CLARIFICATIONS BY THE SALES AREA
- ☐ FOR CUSTOMER APPROVAL — TO MEET DELIVERY PROMISE ONE APPROVED COPY MUST BE RETURNED WITHIN TWO WEEKS AFTER DATE OF PRINT.
- ■ FINAL — MANUFACTURING PROCESS HAS BEEN STARTED ANY REQUESTED CHANGE WILL AFFECT PRICE AND/OR DELIVERY PROMISE

DATE OF PRINT: SEPTEMBER / 14 / 2022



ITEM	DRAWING No.	MAT'L CODE	DESCRIPTION	MATERIAL	SPARES QTY	
1	TAB-1304-4750	1903	MATING RING	SILICON CARBIDE	1	X
2	TAB-1305-4750	7772	PACKING	FLEXIBLE GRAPHITE	1	X
3	TAB-1306-4750	7776	PACKING	FLEXIBLE GRAPHITE	1	X
4	TAB-1307-4750	9225	COMPRESSION RING	SILICON CARBIDE	1	X
5	TAB-1238-4500	2265	609 HTC SEAL HEAD	SILICON CARBIDE / A-718 / 316L	1	X
6	557397-76	7776	PACKING	FLEXIBLE GRAPHITE	1	X
7	816638-72-S20	0550	COMPRESSION RING	316 S.S.	1	
8	11252007000	0550	SET SCREW	316 S.S.	8	X
9	21102406000	0550	CAP SCREW	316 S.S.	8	X
10	TAB-1308-4750	0847	Z SPRING	ALLOY 718 UNS N07718	1	X
11	CS-1903-76	1903	MATING RING	SILICON CARBIDE	1	X
12	557400-76	7776	PACKING	FLEXIBLE GRAPHITE	1	X
13	TAB-1238-4500	2265	609 HTC SEAL HEAD	SILICON CARBIDE / A-718 / 316L	1	X
14	557397-76	7776	PACKING	FLEXIBLE GRAPHITE	1	X
15	TAB-2946-4500	0550	PUMPING RING	316 S.S.	1	
16	21102406000	0550	CAP SCREW	316 S.S.	8	X
17	11252008000	0550	SET SCREW	316 S.S.	8	X
18	TAB-3320-4750	0550	FLOW GUIDE	316 S.S.	1	
19	H-4750-2877	0654	SLEEVE	316 S.S.*	1	
20	H-4750-2878	0654	GLAND ADAPTER	316 S.S.*	1	
21	TAB-1751-798	8589	GASKET	SPIRAL WOUND GASKET	1	X
22	TAB-1751-807	8589	GASKET	SPIRAL WOUND GASKET	1	X
23	21501312000	1759	CAP SCREW	316 SS SAE193 B8M	4	X
24	H-4250-3334	0654	GLAND PLATE	316 S.S.*	1	
25	557397-67	7776	PACKING	FLEXIBLE GRAPHITE	2	X
26	H-1000M-5744	0550	COLLAR	316 S.S.	1	
27	17252008000	0236	SET SCREW	HARD ALLOY STEEL	6	X
28	22252010000	0550	CAP SCREW	316 S.S.	6	X
29	H-0000-246	0500	SPACER	18-8 S.S.	3	X
30	22252006000	0550	CAP SCREW	316 S.S.	3	X
31	569752	0200	EYE BOLT	CARBON STEEL	2	
32	H-4750-2879	9415	BUSHING ASSY	316 S.S./CARBON	1	X
33	TAB-1081-0190	0550	3/4 NPT PLUG (NOT SHOWN)	316 S.S.	3	

*MATERIAL WITH CMTR & PMI

Ⓑ Ⓓ Ⓗ

SERVICE:	PRODUCT FRACTIONATOR REBOILER CIRCULATION PUMP
PURCHASER:	AIR PRODUCT MANUFACTURING LLC
P.O. NO.:	4505610423
JOB/PROJECT:	WORLD ENERGY RENEWABLES PROJECT
END USER:	WORLD ENERGY PARAMOUNT
INSTALLATION:	PARAMOUNT, CA.
PUMP TAG NO.:	18-P-356A/B
SULZER ORDER NO.:	100462910-0050/51
SULZER SERIAL NO.:	650961/962

FLOW DIRECTION

MAX. ALLOWABLE DYNAMIC PRESSURE: 340 PSI
MAX. ALLOWABLE STATIC PRESSURE: 380 PSI

ADDITIONAL NOTES: Ⓓ Ⓖ

13.- DO NOT REMOVE SOCKET HEAD CAP SCREWS (ITEM #23) FOR ASSEMBLY ONLY.
14.- HEX HEAD CAP SCREWS (ITEM #28) ARE TO BE DRAWN UP TIGHT BEFORE TIGHTENING SET SCREWS (ITEMS #27) TO SHAFT.

HEX HEAD CAP SCREW (ITEM #28) TIGHTENING TORQUE: 6 - 8 FT-LBS
SET SCREW (ITEM #27) TIGHTENING TORQUE: 4 - 6 FT-LBS

NO METAL TO METAL CONTACT SHOULD OCCUR BETWEEN THE SLEEVE (ITEM #19) AND THE COLLAR (ITEM #26) ONCE THE HEX HEAD CAP SCREW (ITEM #28) HAVE BEEN TORQUED TO THEIR FINAL VALUE.

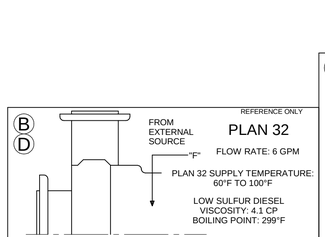
15.- REMOVE HEX HEAD CAP SCREWS (ITEM #30) AND SPACERS (ITEM #29) BEFORE STARTING PUMP.

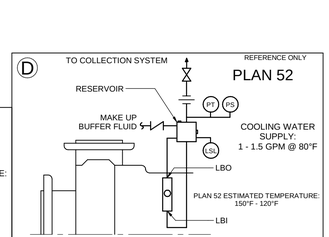
16.- PRESSURE IN PLAN 32 MUST BE 30% GREATER THAN SEAL CHAMBER PRESSURE ALWAYS.

17.- PUT COLLAR ASSY (ITEM #32) AT END OF PUMP BORE, TIGHTEN THE SET SCREW (1/4-20 UNC) INCLUDED IN COLLAR ASSY TO ALLOW THE INTERFERENCE BETWEEN COLLAR ASSY AND PUMP BORE, THE COLLAR ASSY MUST NOT MOVE WHEN THE SET SCREW WAS TIGHTEN.

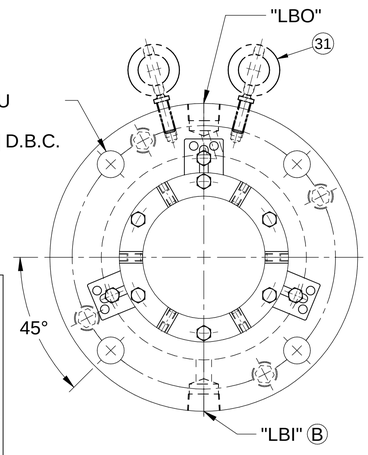
18.- PLAN 32 MUST BE WORKING DURING PUMP WARM-UP TO AVOID THERMAL SHOCK IN BUSHING ASSY OR MECHANICAL SEAL FACES.

19. PLAN 32 MUST BE ALWAYS USED IN OPERATION TO LUBRICATE THE SEAL FACES.





Ø22.00 [0.866] THRU
4X 90° C.C.
ON A 215.00 [8.464] D.B.C.



GLAND PLATE
END VIEW "A"
SCALE: NONE

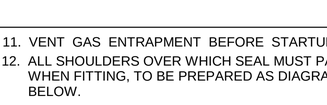
SEAL ASS'Y NO.		BILL OF MATERIALS NUMBER	
IN :	ASSEMBLY		
	SEAL HEAD		
OUT:	SPARES KIT		
	DESCRIPTION	ITEMS	NUMBER

EQUIPMENT REFERENCE		SEAL DATA	
OEM: **SULZER**		API PLAN: **32/52**	API CODE: **22C-FRX-090-32/52**
EQUIPMENT TYPE: **PUMP**		INSTRUCTION MANUAL REF. **I-1604HTC/2609HTC/3069HTC**	
MODEL, FRAME / SIZE: **OHH, 6X8X26-1**		MATERIAL CODE: **O39 D107 O72 O39 D81 O72 718/718 - INB**	
SERIAL / DRAWING No. **650961/962**		**O39 D107 O72 O39 D81 O72 718/718 - OUT**	
CUSTOMER INFORMATION Ⓑ Ⓗ		SERVICE DATA Ⓑ	
CUSTOMER: **AIR PRODUCT MANUFACTURING LLC**		FLUID: **DIESEL PRODUCT**	
P.O. NUMBER: **4505610423**	PLANT ITEM NO: **18-P-356A/B**	BARRIER FLUID: **DURA CLEAR 32F**	
END USER: **WORLD ENERGY PARAMOUNT**		CHAMBER PRESSURE: **51.4 PSIG**	
LOCATION: **PARAMOUNT, CA**		SUCTION PRESSURE: **30.1 NORM / 62.9 MAX PSIG**	
SERVICE: **PRODUCT FRACTIONATOR REBOILER CIRCULATION PUMP**		DISCHARGE PRESSURE: **172.3 PSIG**	
REFERENCE DATA OV015699/OV46295 P90 /// 2-204500894 REV G		PROCESS TEMPERATURE: **624 NORM / 675 MAX °F**	
		SHAFT SPEED: **1780 RPM**	VAPOR PRESSURE: **36.9 PSIA**
IPROJECT: 468492-MX01EN		SPECIFIC GRAVITY: **0.524**	VISCOSITY: **0.133 CP**
SEAL SIZE: **Ø4.250"**			DE / NDE DRG NO:
SEAL TYPE: **2609HTC TANDEM CARTRIDGE**			

SCALE	DATE	DRAWN	CHECKED	APPROVED	DESIGN AUTH.
NONE	**05/19/22**	**NCV**	**LJM**	**JRMB**	**MX01EN**

THE FOLLOWING NOTES ARE IMPORTANT AND MUST BE OBSERVED FOR CORRECT SEAL INSTALLATION AND OPERATION

1. REMOVE ALL SHARP EDGES ON SHAFT & / OR SLEEVE BEFORE INSTALLATION OF SEAL.
2. SURFACE OF SHAFT OR SLEEVE ON WHICH SEAL IS INSTALLED MUST BE MACHINED TO 63 RA FINISH OR BETTER.
3. LUBRICATE SHAFT/SLEEVE & SEAL WEDGE RING/O-RING/BELLOW TO ASSIST INSTALLATION OF SEAL WITH LUBE OIL.
4. FOR NON-CARTRIDGE SEALS, LUBRICATE MATING RING(SEAT), SEALING MEMBER, AND HOUSING TO ASSIST INSTALLATION.
5. PROCESS FLUID MUST BE CIRCULATED AROUNG PRIMARY RING (SEAL)/THROUGH MATING RING (SEAT) (AT NOT LESS THAN XX GPM) IN ORDER TO REMOVE HEAT GENERATED, OR SEAL FAILURE MAY OCCUR.
6. WHEN SHAFT IS SLEEVED THROUGH STUFFING BOX, SLEEVE MUST BE LIQUID TIGHT THROUGH BORE.
7. SHAFT OR SLEEVE MUST BE CORROSION RESISTANT MATERIAL WITH A HARDNESS OF 125 BRINELL MINIMUM & BE MACHINED TO DIMENSIONS & TOLERANCES STATED.
8. END OF SEAL CHAMBER & AXIS OF SHAFT MUST BE AT 90° TO EACH OTHER WITHIN 0.001" F.I.M.
9. PRESSURE IN SEAL CHAMBER MUST BE 30% GREATER THAN VAPOUR PRESSURE AS MINIMUM.
10. FOR NON-CARTRIDGE SEALS, PRIOR TO COMPLETING SEAL INSTALLATION, WIPE LAPPED SURFACES OF MATING RING (SEAT) & PRIMARY RING (SEAL FACE) PERFECTLY CLEAN.
11. VENT GAS ENTRAPMENT BEFORE STARTUP.
12. ALL SHOULDERS OVER WHICH SEAL MUST PASS WHEN FITTING, TO BE PREPARED AS DIAGRAM BELOW.



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DRAWING No.	ISSUE
GA-270959-1	**H**

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