AR		IPH11812	1" ARMAFIX CLAMPS W/ 1/2" INSERT	COOPER B-LINE			76	
AR			1-1/4" UNISTRUT SUPPORTS AND HARDWARE			NOTE 7	75	
4.0		IDU04040						
AR		IPHSIOIU	3 ARWARA GLAWPS W/ I INSERTS	COOPER B-LINE		CFEQI (NOTE 7)	/4	
AR		IPH25810	2-1/2" ARMAFIX CLAMPS W/ 1" INSERTS	COOPER B-LINE		NOTE 7	73	
AR		IPH21810	2" ARMAFIX CLAMPS W/ 1" INSERTS	COOPER B-LINE		NOTE 7	72	
7.5	in		2-1/2* RSPT X 2-1/2* NPT NIPPL F		STEEL	NOTE 7	71	
1.0						0554		
2	Each		3" FLANGE GASKET CLASS 150		VITON	CFE&I	70	1
2	Each		2" FLANGE GASKET CLASS 150		VITON	CFE	69	
1	Each		2-1/2" BALL VALVE	ALBA (EFFEBI)	STAINLESS STEEL		68	
	E. A	500-040		. ,	OTEC	05501		
1	Each	580s012	PUMP MOUNI BRACKET		SIEEL	CFE&I	67	
1	ft	580s016	Z-SYSTEM VENT TANK ASSY			CFE&I	66	
10.8	ft	50285K28	1" TYGON-PVC TUBING/WIRE REINFORCED	MCMASTER-CARR	TYGON-PVC	CFE	65	
2.0	4				CORRER	OFFRI	64	1
3.0	п		3 ASIM DOO LUDE - LIFE N		COPPER	GFEQI	04	
113.9	ft		2-1/2" ASTM B88 TUBE - TYPE K		COPPER		63	
19.4	ft		2" ASTM B88 TUBE - TYPE K		COPPER		62	
140	4				CORRER		61	
149	"		I ASIM BOOTUBE - TIFE K		COFFER			
3.9	ft		2-1/2" ASME B36.10 PIPE - SCH 40		STEEL		60	1
7.0	ft		2" ASME B36.10 PIPE - SCH 40		STEEL		59	
8	Each		1/2" ASME B18 21 1 HEAVY LOCK WASHED		Steel Mild		58	1
0	Laon				Steel, Mild			1
4	Each		1/2-13 UNC - 2 ANSI B18.2.1 HEAVY HEX BOLT		Steel, Mild		57	1
4	Each		1/2UNC-13 ANSI B18.2.1 HEAVY HEX BOLT		Steel, Mild		56	
2	Fach		3" x 2 1/2" ASME B16 22 90 DEG REDUCING ELBOW		Wrought Copper		55	
-	-							
1	Each		2" BALL VALVE	ALBA (EFFEBI)	Default		54	i i
2	Each		3" ASME B16.24 CLASS 150 FLANGE SOLDER CONN.		BRONZE	CFE&I	53	i i
4	Each		5/8-11 UNC X 4.5 ANSI B18.2.1 HEAVY HEX BOLT		Steel, Mild		52	i i
0	East				Stool Mild			1
8	⊨ach		5/8-11 X 2.5 ANSI B18.2.1 HEAVY HEX BOLT		Sieel, Mild		51	1
56	Each		5/8" WASHER ANSI B18.22.1		Steel, Mild		50	1
28	Each		5/8-11 HEAVY HEX NUT ANSI B18.2.2		Steel, Mild		49	i i
2	Each		2" x 1/2" x 2" AGME P46 2 DEDUCING TEE CLASS 450		STEEL		40	l l
2	Each		2 X 1/2 X 2 ASME D10.3 REDUCING TEE CLASS-150		SIEEL		40	
2	Each		1/2" x 1/4" ASME B16.15 BUSHING		Cast Bronze		47	1
2	Each		2-1/2" ASME B16.11 HEX HEAD PLUG		Steel		46	
2	Each		2" ASME B16 11 00 DEC EL BOW - CLASS 150		Steel		45	
2	Lauri		2 ASIME BIOLITING DEG ELBOWY - CLASS TOU		31861		+5	
2	Each		1* ASME B16.11HEX HEAD PLUG		Steel		44	
1	Each		MOTORIZED BUTTERFLY VALVE BOA-X-S DN + AUMA SG5.2			CFE	43	
1	Fach		2" ASME B16 11 45 DEG ELBOW - CLASS 150		Steel		42	
	= .				0.007			
2	Each		1" ASME B16.22 UNION SOLDER ENDS		COPPER		41	1
1	Each		2 1/2" x 2" ASME B16.22 REDUCING COUPLING		Wrought Copper		40	
2	Each		1" ASME B16.22 COUPLING		Wrought Copper		39	
-	E				Wester Orange			
12	Each		i Asme bio.22 90 beg elbow		wrought copper		30	
8	Each		2-1/2" ASME B16.22 90 DEG ELBOW		Wrought Copper		37	
2	Each		2-1/2" ASME B16.24 150 BRONZE FLANGE SOLDER CONN.		Copper Alloy	CFE	36	
1	Each	38545K17	DESSLIPE GAGE 1/4"NDT 0"HG - 2000SI	McMASTER-CARR	STAINI ESS STEEL		35	
1	Eduli	36343K17	PRESSURE GAGE 1/4 NPT 0 THS - 200731	MCMASTER-CARR	STAINEESS STEEL			
1	Each	38545K16	PRESSURE GAGE 1/4"NPT 0"HG - 200PSI	McMASTER-CARR	STAINLESS STEEL		34	1
1	Each	44125K49	2-1/2" Y STRAINER SOLDER ENDS (200 MESH SCREEN)	McMASTER-CARR	BRONZE	CFE	33	
4	Fach	4412T11	100 psi BURST DISC	McMASTER-CARR	Default	CEE	32	
	-					012		1
6	Each	4464K176	2-1/2" BSPT X 2" NPT BUSHING		STEEL		31	1
4	Each	4464K191	2*x1/4" BUSHING	McMASTER-CARR	STEEL		30	
2	Fach	4629K58	2" BALL VALVE SOLDER ENDS	McMASTER-CARR	BRONZE		29	
	E.u.	10001/01			DDON/75			1
5	⊑aCN	4629881	2-1/2" BALL VALVE SULUER ENUS	WICHASTER-CARR	DRUNZE		28	1
7	Each	5001T16	1-1/2" HOSE CLAMP	McMASTER-CARR	STAINLESS STEEL	CFE&I	27	i i
9	Each	5346K71	1" HOSE BARB - 1" NPT BRASS FITTING	McMASTER-CARR	Brass, Soft Yellow	CFE	26	1
2		106v015	±7.ΤΔΝΙΚ		STAINI ESS STEEL	CEE&I	25	i i
4	┟╴╴┥	CT UXUD	TL*1 / NNN		STAINEE00 DIEEL		20	i i
1	Each	580s008	RIGHT -Z-TANK		Stainless Steel	CFE&I	24	1
1	I _1	580s007	LEFT -Z-TANK			CFE&I	23	i i
8	Each		5/8-11 x 2-1/4" ANSI B18.2.1 HEAVY HEX BOI TS		Steel, Mild		22	1
					0	05501		i i
32	Each		//8-9UNC x 3 ANSI B18.2.1 HEAVY HEX BOLT		Steel, Mild	CFE&I	21	i i
32	Each		7/8-9UNC ANSI B18.2.2 HEAVY NUT		Steel, Mild	CFE&I	20	1
64	Each		7/8" ANSI B18.22.1 WASHER		Steel, Mild	CFE&I	19	i i
	<u> </u>	590/011	7 TANK 024052			CEE %1	40	1
8		580s011	-2- I ANK SPACER			UFE&I	18	i i
1	Each	44125K48	2" STRAINER SOLDER ENDS (200 MESH SCREEN)	McMASTER-CARR	Cast Bronze	I	17	l l
1	Each		2-1/2" ASME B16.11 45 DEG ELBOW - CLASS 150		Steel		16	1
0	East				Steel			i i
Z	⊑aCN		2-1/2 ASME B10.11 90 DEG ELBOW- Glass 150		0.6681		15	1
4	Each		2" ASME B16.22 90 DEG ELBOW		Wrought Copper		14	i i
3	Each		1" SOLDER END x 1" FEMALE NPT ASME B16.22 ADAPTER		Wrought Copper		13	i i
3	Fach		1" SOI DER END Y 1" RORT MALE ADARTER		Wrought Copper		12	1
ن			1 SOLDER END AT BOPT MALE ADAPTER		точун соррен		12	i i
3	Each		2-1/2 ASME B16.22 COUPLING		Wrought Copper		11	1
2	Each		3 x 2 1/2 ASME B16.22 REDUCING COUPLING		Wrought Copper		10	i i
1	Fach		2 1/2 x 2 1/2 x 2 ASME B16 22 DEDLICING TEE		Wrought Copper			i i
	LaU1				ougin oupper		3	1
1	Each		2 x 2 x 2 1/2 ASME B16.22 REDUCING TEE		Wrought Copper		8	i i
2	Each		2" ASME B16.22 RETURN BEND		Wrought Copper		7	i i
2	Fach		3" AGME R16 22 DETLIDN REND		Wrought Copper		6	1
~	-							i
2	Each		2" ASME B16.5 FLANGE FLAT FACE - CLASS 150		Steel	CFE	5	1
1	Each		CMB-K1A3/CT-C12A01D FLOWMETER	FCI	STAINLESS STEEL	CFE&I	4	i i
4	Fach		2" DIFLECTRIC LINION STEEL TO RPASS		Stainless Steel		3	l l
-								1
2	Each		2-1/2" DIELECTRIC UNION STEEL TO BRASS		Stainless Steel		2	l l
1	Each		V60-2 ST4BS/R 3.1/MC404;480V-60HZ+BP PUMP	VARISCO		CFE&I	1	i i
QTY	UNIT	PART NUMBER	DESCRIPTION	VENDOR	MATERIAI	COMMENTS	ITEM	i i
					-			1

REVISION HISTORY							
REV	DESCRIPTION	DATE	REVISED BY	APPROVED			
А	INITIAL RELEASE	05/21/07	V. GASHO	V. GASHO			
В	UPDATED PARTS LIST	06/12/07	V. GASHO	V. GASHO			

NOTES:

1) ITEMS IDENTIFIED AS **CFE** IN PARTS LIST ARE CUSTOMER FURNISHED EQUIPMENT AND CONTRACTOR INSTALLED.

2) ITEMS IDENTIFIED AS CFE & I IN PARTS LIST ARE CUSTOMER FURNISHED AND INSTALLED EQUIPMENT. 3) PIPE DRAWINGS ARE FOR REFERENCE USE ONLY AND ACTUAL PIPING ROUTE WILL BE DETERMINED IN THE FIELD BY THE CONTRACTOR WITH APPROVAL FROM THE CUSTOMER. 4) BEFORE ASSEMBLING FLANGES BE SURE THEY ARE CLEAN AND FREE FROM DEBRIS OR DEEP SCRATCHES. 4) TORQUES FOR ALL FLANGE BOLTS ARE 45 FT-LBS.

A) PASS 1 - TORQUE BOLTS IN CROSS PATTERN TO 15 FT- LBS B) PASS 2 - TORQUE BOLTS IN CROSS PATTERN TO 30 FT- LBS C) PASS 3 - BRING BOLTS TO FINAL TORQUE OF 45 FT-LBS IN CROSS PATTERN

5) TORQUE PROCEDURE FOR FLANGE BOLTS ARE THE FOLLOWING: 6) ATMOSPHERIC VENT LINE NOT SHOWN. CONTRACTOR WILL RUN 1" COPPER LINE FROM VENT TANK TO TELESCOPE ELEVATION DRAPE. THE RUN IS APPROXIMATELY 100 FT. 7) PIPE WILL BE SUPPORTED SUFFICIENTLY TO PREVENT UNWANTED VIBRATIONS OR MOVEMENT. SUPPORT WILL BE PROVIDED WITH ARMAFIX CLAMPS AND UNISTRUT AT BENDS AND AT LOCATIONS SPECIFIED IN DRAWING 580s051.

DO NOT SCALE DRAWING	THIS DRAWING CREATED IN:			DESIGNED BY:	DATE:	I ARGE BINOCUI AR TELESCOPE			
INTERPRET DIMENSIONS AND	ACAD MEC	H IDEAS	INV	V. GASHO	05/17/07	LBT Project Office/USA LBT Project Office/USA LBT Project Office/USA LBT Project Office/USA			
WITH ASME Y14.5M-94				DRAWN BY:	DATE:	Tucson, AZ 65721-0065 USA Ph. 1 520 626-5231 Fax: 1 520 626-9333 Ph. 39 055 2752290 Fax: 39 055 275290 Fax: 3			
				V. GASHO	05/17/07				
UNLESS OTHERWISE SPECIFIED		_		LST REV BY:	DATE:	TELESCOPE AUXILIARIES			
LINEAR ANGULAR						580 BALANCING SYSTEM			
$X = \pm .1 \pm 1^{\circ}$				CHECKED BY:	DATE:				
$.XX = \pm .03$		_		J. NOENICKX	05/21/07	DYNAMIC BALANCING			
.XXX = ± .010				ACCEPT BY:	DATE:				
DIAMETRICAL: SEE SPEC S-002 DIMENSIONS ARE IN INCHES / DIMENSIONS IN [] ARE METRIC				V. GASHO	05/21/07				
MATERIAL:				RELEASE BY:	DATE:	T Z-PIPING SYSTEM ASSY			
	TBD	LB	т	J. BRYNNEL	05/21/07				
	NEXT ASS	LISE		APPROVED:	DATE:	CAN NO: REVISION:			
	NEXT AGGI GGED ON								
FINISH:	ASSEMBLY APPLICATION		APPROVED:	DATE:					







ED BY: ASHO	DATE: 05/17/07	LARGE BINOCULAR	TELESC	
	DATE: 05/17/07	Steward Observatory, University of Anzona Tucson, A2: B5721-0065: USA Ph. 1 520 626-5231 Fax: 1 520 626-9333	Osservatorio As Largo Enrico Fermi, 5, 501 Ph. 39 055 2752290 Fa	strofisico di Arcetri, 125 Firenze, ITALY 1x. 39 055 2752292
BY:	DATE:	TELESCOPE AUXILIARIE	S	
B B)/	0.475	580 BALANCING SYSTEI	M	
DENICKX	05/21/07	DYNAMIC BALANCING		
BY:	DATE:			
ASHU	05/21/07	7 DIDING SVSTEM ASSN	/	
	05/21/07	2-FIFING STSTEM ASST		
ED:	DATE:	CAN NO:		REVISION:
ED:	DATE:	580s050	SHEET 3 OF 4	В

