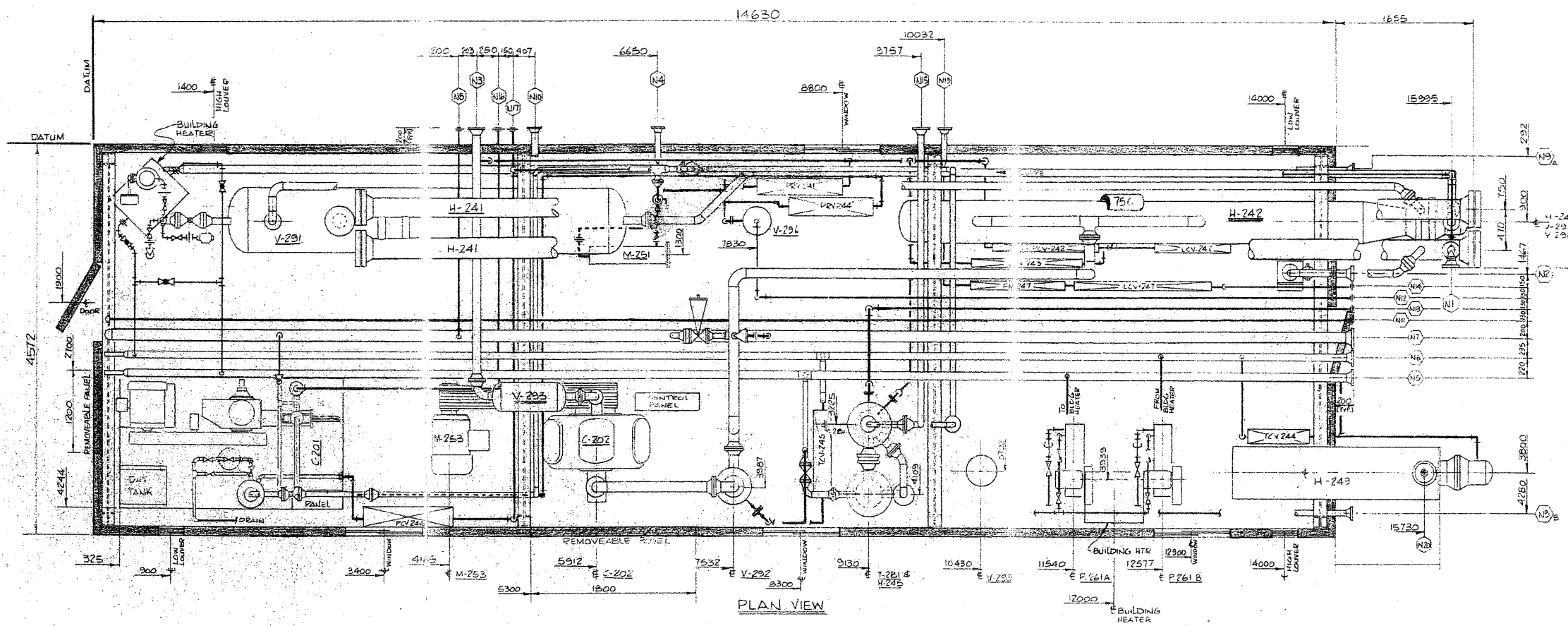
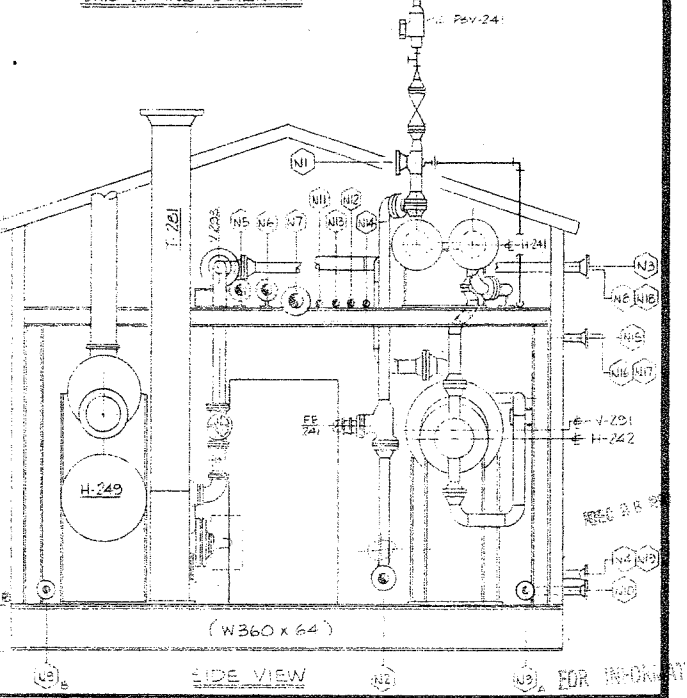
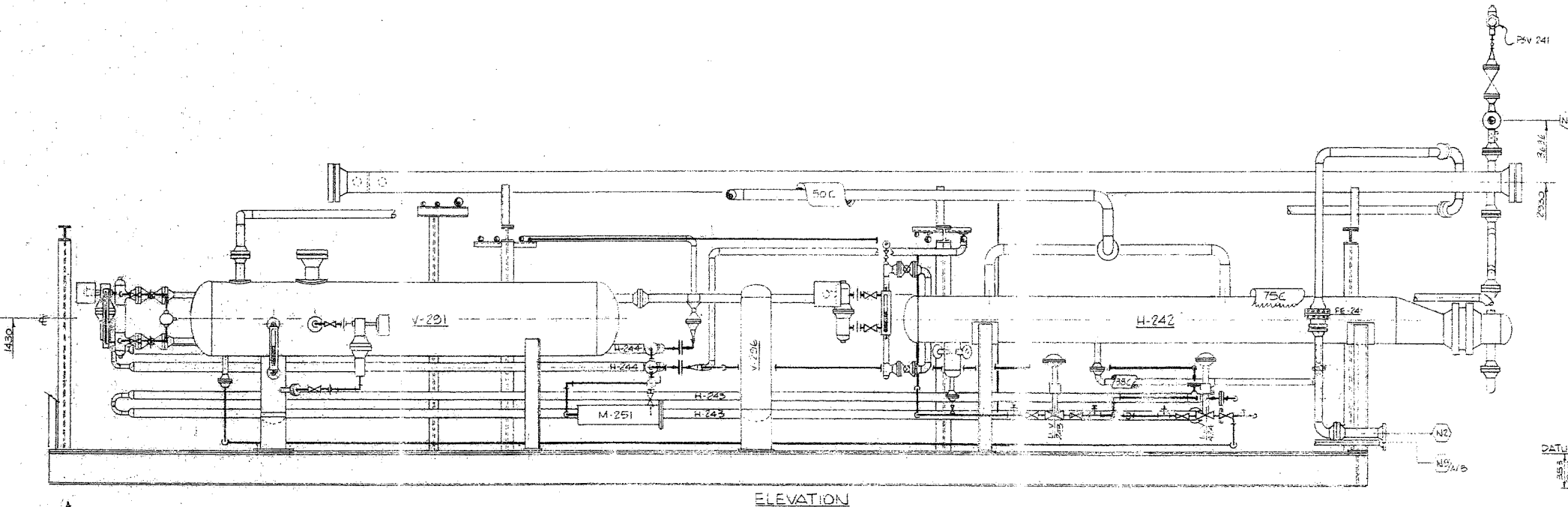
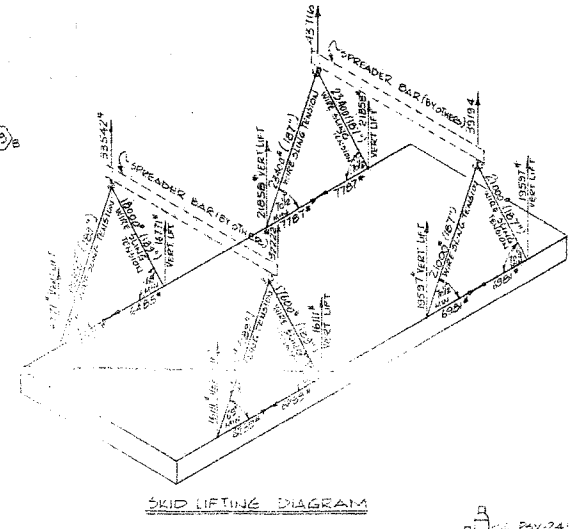


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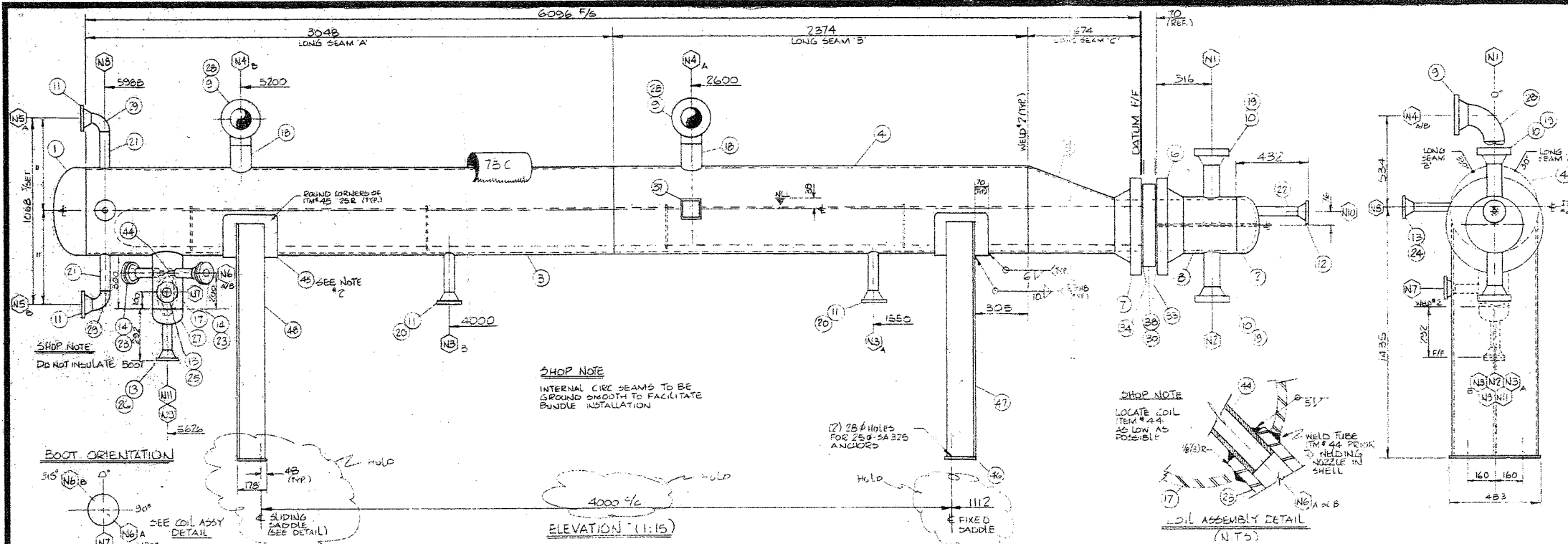


NOZZLE SCHEDULE					
NO.	SIZE	RATING	FACE	DESCRIPTION	ELEVATION
N1	3" (80)	600*	RFWN	RICH GAS INLET	3689 ±
N2	3" (80)	600*	RFWN	SALES GAS OUTLET	200 ±
N3	3" (80)	300*	RFWN	REFR VAPOUR TO H-24B	2714 ±
N4	2" (60)	150*	RFWN	REFR LIQUID FROM V-294 TO M-251	250 ±
N5	3" (80)	150*	RFWN	HEAT MEDIUM SUPPLY	2545 ±
N6	3" (80)	150*	RFWN	HEAT MEDIUM RETURN	2545 ±
N7	4" (104)	150*	RFWN	FLARE HEADER	2457 ±
N8	1 1/2" (48)	3000*	UNION	FLARE FROM V-294	2693 ±
N9	2" (60)	150*	RFWN	H.C. DRAIN HEADER	100 ±
N10	2" (60)	150*	RFWN	H.C. DRAIN FROM V-294	100 ±
N11	1 1/2" (48)	3000*	UNION	INSTRUMENT AIR	2424 ±
N12	1 1/2" (48)	3000*	UNION	FUEL GAS OUT	2424 ±
N13	1" (33)	3000*	UNION	LIQUID IN TO T-261	2417 ±
N14	1" (33)	3000*	UNION	LPG TO STORAGE	2417 ±
N15	2" (60)	300*	RFWN	PROPANE TO H-247	2247 ±
N16	1 1/2" (48)	3000*	UNION	GAS TO H-246	2272 ±
N17	1 1/2" (48)	3000*	UNION	GAS FROM H-246	2272 ±
N18	2" (60)	300*	RFWN	LPG FROM H-247 TO FM 247	750 ±
N20	2" (60)	3000*	CPLG	STEAM OUT	3841 #1/16

NOTE:
REFRIGERANT ACCUMULATOR - TAG# V-294 LOCATED OFF SKID
APPROXIMATE SHIPPING WEIGHT - 114,000 LBS (51,710 KG)

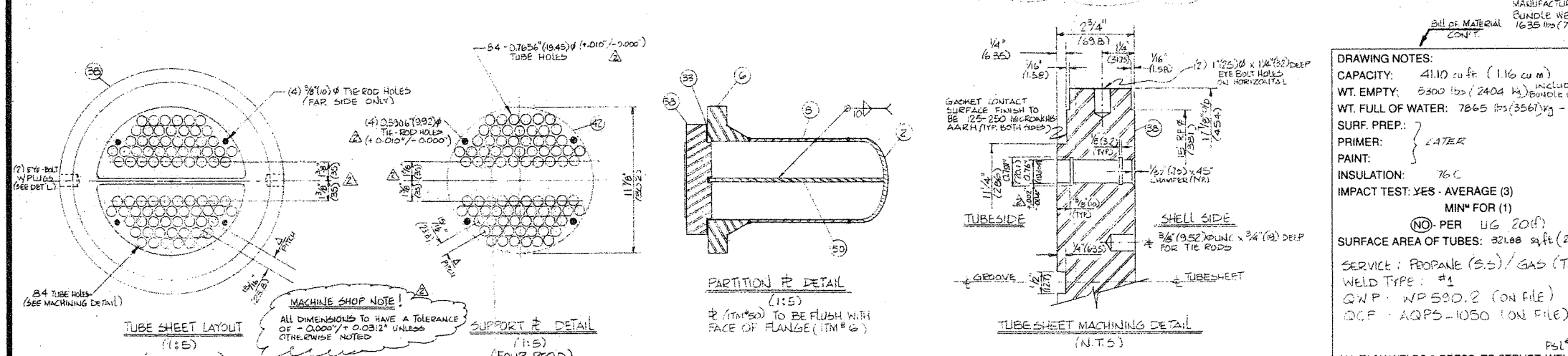
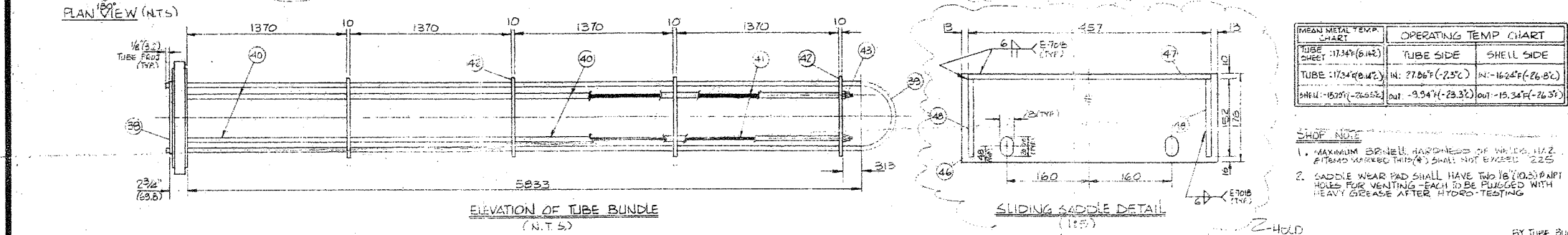


GENERAL NOTES		REFERENCE DRAWINGS		NO.	REVISION	BY	DATE	CHKD	ENG	PREPARED BY		AMOCO CANADA PETROLEUM COMPANY LTD.	
		NUMBER	TITLE							PROPAK SYSTEMS LTD.		NORTHWEST ALBERTA GAS PLANT	
				4	NIS REMOVED, LIFTING DIAGRAM ADDED	M.A.	10/12			ENGINEERING DESIGN FABRICATION CONSTRUCTION		REFRIGERATION PLANT	
				3	BUILDING INFO ADDED	M.A.	10/12			AIRDRIE ALBERTA CANADA		PILING ARRANGEMENT	
				2	ISSUED FOR CONSTRUCTION	M.A.	11/23			DRAWN CHECKED APPROVED DATE		SCALE	
				1	REISSUED FOR INFORMATION	M.A.	11/18			BY M. ALIEMAL		DRAWING NUMBER E - ASY-90163-252	
				0	ISSUED FOR APPROVAL	M.A.				1-10-2000		REV. 4	
										ISSUE No. DATE BY			



NOZZLE SCHEDULE									
MK	SIZE	RATING	FACING	SCH	DESCRIPTION	PROJ	WELD		
N1	3" (80)	600	RFWN	XXH	TUBESIDE - RICH GAS INLET	280	9/14		
N2	3" (80)	600	RFWN	XXH	TUBESIDE - RICH GAS OUTLET	280	9/14		
N3	2" (60)	150	RFWN	160	SHELLSIDE - PROPANE IN	280	10/14		
N4	4" (114)	150	RFWN	160	SHELLSIDE - PROPANE OUT	280	10/14		
N5	2" (60)	150	RFWN	160	SHELLSIDE - BEIDLE	280	10/14		
N6	1/2" (40)	150	RFWN	XXH	COIL - BOOT	280	10/14		
N7	1/2" (40)	150	RFWN	60	T.I. - BOOT	280	10/14		
N8	1/2" (40)	150	RFWN	160	T.I. - SHELLSIDE	280	10/14		
N9	1/2" (40)	150	RFWN	160	DRAIN - BOOT	280	10/14		
N10	1/2" (40)	600	RFWN	160	COIL - INJECTION	280	10/14		
N11	6" (160)	600	RFWN	60	COIL - BOOT	280	10/14		

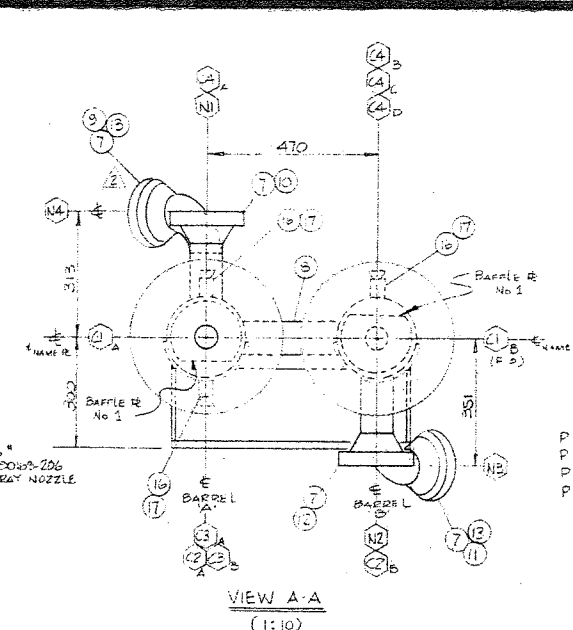
BILL OF MATERIAL									
ITEM	QTY	DESCRIPTION	UNIT	SA	WELD				
1	1	PIPE CAP: 20" (508.9) x 0.375 (9.52) WT - BW	SM15	2A 234	WPE				
2	1	PIPE CAP: 12" (304.8) x 0.687 (17.45) WT - BW	SM15	2A 234	WPE				
3	1	SHELL P: 0.375 (9.52) THK x 10'-0" (304.8) LG - ROLL TO 20" (508.9) LG	SA 516-70	2A 516-70					
4	1	SHELL P: 0.375 (9.52) THK x 7'-9 1/2" (237.4) LG - ROLL TO 20" (508.9) LG	SA 516-70	2A 516-70					
5	1	SCF FAB CONE: 20" (508.9) x 12" (304.8) x 20" (508.9) LG	SA 516-70	2A 516-70					
6	1	FLANGE: 12" (304.8) - 600# RFWN SCH 80 BORE	SA 105	2A 105					
7	1	FLANGE: 12" (304.8) - 600# RFWN SCH 40 BORE	SA 105	2A 105					
8	1	PIPE: 12" (304.8) x 0.687 (17.45) WT x 205 LG	SM15	2A 105 B					
9	2	FLANGE: 4" (101.6) - 150# RFWN SCH 160 BORE	SA 105	2A 105					
10	2	FLANGE: 3" (76.2) - 150# RFWN SCH 160 BORE	SA 105	2A 105					
11	4	FLANGE: 2" (50.8) - 150# RFWN SCH 160 BORE	SA 105	2A 105					
12	1	FLANGE: 1/2" (12.7) - 600# RFWN SCH 160 BORE	SA 105	2A 105					
13	3	FLANGE: 1/2" (12.7) - 150# RFWN SCH 160 BORE	SA 105	2A 105					
14	2	FLANGE: 1/2" (12.7) - 150# RFWN SCH XXH BORE	SA 105	2A 105					

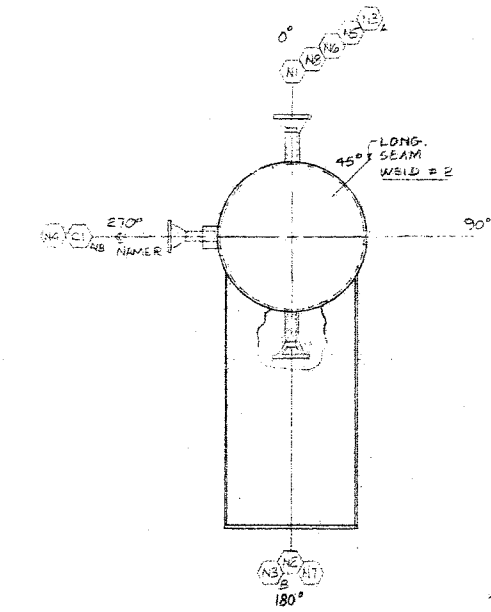
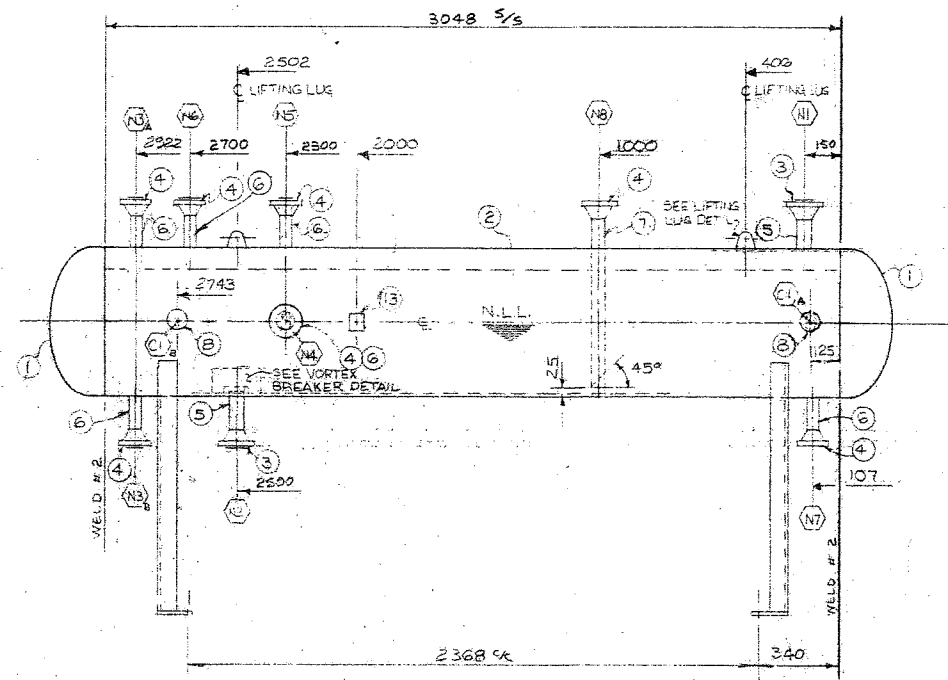


DRAWING NOTES									
CAPACITY:	4110 cu ft (116 cu m)								
WT. EMPTY:	5300 lbs (2404 kg)								
WT. FULL OF WATER:	7865 lbs (3566 kg)								
SURF. PREP:	LATER								
PRIMER:	LATER								
PAINT:	LATER								
INSULATION:	76 C								
IMPACT TEST:	YES - AVERAGE (3)								
SURFACE AREA OF TUBES:	321.88 sq ft (29.9 sq m)								
SERVICE:	PROPANE (S.S.) / GAS (TS)								
WELD TYPE:	#1								
QWP:	NP 500.2 (ON FILE)								
QCP:	APPS-1050 (ON FILE)								

SERIAL NO: 20163-BG									
YEAR BUILT:	1990								
CRN:									
CODE:	ASME SECT. VIII DIV 1 ITEM 'C'								
YEAR:	1989								
DESIGN PRESS:	ADDENDA: B3								
DESIGN TEMP:	270 ps (1862 kPa)								
MIN. DESIGN METAL TEMP:	-20°F (-29°C)								
HYDROTEST PRESS:	405 ps (2793 kPa)								
HEAD MATERIAL:	SA 234 WPB (S.S.) / SA 516-70								
SHELL MATERIAL:	SA 516-70								
RADIOGRAPHY:	SPOT (W/110)								
P.W.H.T. YES/NO:	NO								
TEMP:	N/A								
CORR. ALLOW:	1/16" (1.6mm)								

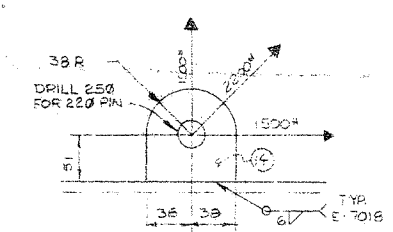
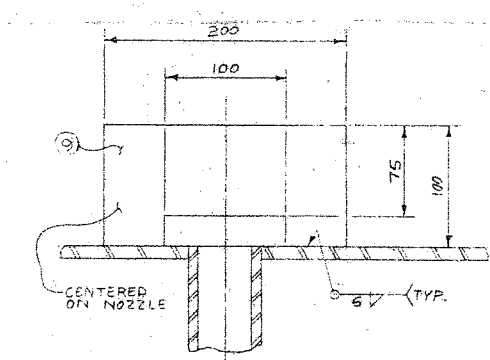
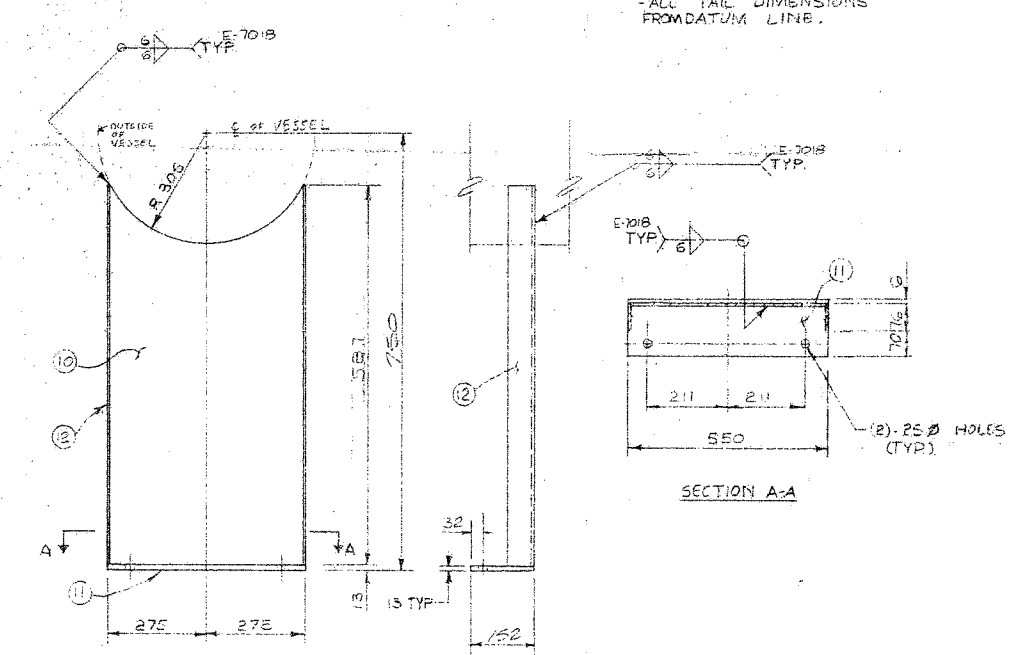
DOUBLE BUTT									
SINGLE VEE									
TUBE SHEET									
COUPLING									
SADDLED COUPLING									
THREDOLET									
NOZZLE & REPAD									
NOZZLE & REPAD									
NOZZLE FLUSH									
NOZZLE FLUSH									
NOZZLE RECESSED									
TRANSITION WELD									
PIPE TO FLANGE									
RING FLANGE									
SKIRT TO HEAD									

[illegible]



NOZZLE SCHEDULE									
MK	SIZE	RATING	FACING	SCH	DESCRIPTION	PROJ	WELD		
N1	2" (50)	150#	RFWN	160	INLET	8" (203)	13.4		
N2	2" (50)	150#	RFWN	160	OUTLET	8" (203)	13.4		
N3	1/2" (48)				LG	8" (203)	13.4		
N4	1/2" (48)				LG	8" (203)	13.4		
N5	1/2" (48)				EQUALIZER	8" (203)	13.4		
N6	1/2" (48)				P.S.V.	8" (203)	13.4		
N7	1/2" (48)				FILL/ DRAIN	8" (203)	13.4		
N8	1/2" (48)				HOT GAS BY-PASS	8" (203)	13.4		

BILL OF MATERIAL									
ITEM	QUA	DESCRIPTION							
1	2	HEAD: 24" (610) X .375" (9.53) NOM THK. S.F. 3125 (7.9375) SA-516-70							
2	1	SHELL: 375" (9.53) THK. 10'-0" (3048) LG. ROLL TO 24" (610) SA-516-70							
3	1	FLG: 2" (50) - 150# RFWN SCH 160 BORE SA-105							
4	1	FLG: 1/2" (48) - 150# RFWN SCH 160 BORE SA-105							
5	1	PIPE: 2" (50) X .375" (9.53) W.T. 17' (5.18) LG (CTS) SMLS SA-105							
6	1	PIPE: 1/2" (48) X .281" (7.14) W.T. 7' (2.13) LG (CTS) SMLS SA-105							
7	1	PIPE: 1/2" (48) X .281" (7.14) W.T. 28' (8.53) LG (CTS) SMLS SA-105							
8	1	CRIG: 2" (50) - 6000# FULL SCRD W/PLUG SA-105							
9	1	PLATE: 6" X 2'00" WIDE X 100" LG (CTS) SA-516-70							
10	1	PLATE: 10" X 5'00" WIDE X 587" LG (CTS) SA-516-70							
11	1	PLATE: 1/2" X 1'00" X 587" LG (CTS) SA-516-70							
12	1	NAME PLATE: W/BRACKET (CTS) 3048/24.25 SA-30							
13	1	PLATE: 1/4" X 1'00" X 587" LG (CTS) SA-30							

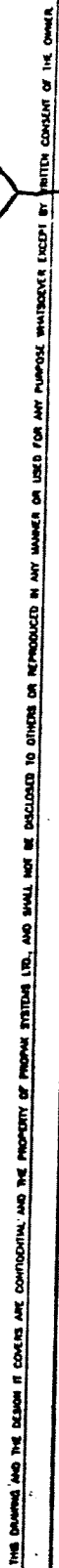


DRAWING NOTES:
 CAPACITY: 32.45 ft³ (919 m³)
 WT. EMPTY: 1500 lbs (680 kg)
 WT. FULL OF WATER: 3624 lbs (1598 kg)
 SURF. PREP: PRIMER: PAINT: INSULATION: NO
 IMPACT TEST: YES - AVERAGE (3) N/A
 MIN* FOR (1) N/A
 (NO) PER UG 20 (F)
 SURFACE AREA OF TUBES: N/A
 MANUFACTURER'S SPECS
 QUALIFIED WELD PROC. WP-500.2 ON FILE
 SERVICE: PROPANE
 LONG. + CIRC. WELDS: TYPE #1 32 REV.1
 ALL TACK WELDS & PRESS. TO STRUCT. WELD PSL#

SERIAL NO: 90163-BB
 YEAR BUILT: 1990
 CRN:
 CODE ASME SECT. VIII DIV 1
 YEAR: 83 ADDENDA: 89
 DESIGN PRESS: 270 psi (1861 kPa)
 DESIGN TEMP: 20/150°F (-29/66°C)
 MIN* DESIGN METAL TEMP: -20°F (-29°C)
 HYDROTEST PRESS: 405 psi (2792 kPa)
 HEAD MATERIAL: SA-516-70
 SHELL MATERIAL: SA-516-70
 RADIOGRAPHY: SPOT UW 11(b)
 PWHT: YES/NO
 TEMP: N/A TIME: N/A HR: N/A
 CORR ALLOW: .0625" (1.6)
 LSD: 1/16" B5-13-WELV
 TAG NO: V-294

CIRC'S & LONG.															
DOUBLE BUTT	SINGLE VEE	TUBE SHEET	COUPLING	SADDLED COUPLING	THREDOLET	NOZZLE & REPAD	NOZZLE & REPAD	NOZZLE RECESSED	NOZZLE RECESSED	NOZZLE RECESSED	TRANSITION WELD	NOZZLE FLUSH	PIPE TO FLANGE	RING FLANGE	SKIRT TO HEAD
1. PSL #	2. PSL # 31 REV.1	3. PSL #	4. PSL #	5. PSL # 32 REV.1	6. TO SUIT	7. PSL #	8. PSL #	9. PSL #	10. PSL # 32 REV.1	11. PSL #	12. PSL #	13. PSL # 32 REV.1	14. PSL # 31 REV.1	15. PSL #	16. PSL #
NO	REVISION	BY	DATE	CKD	ENG	NO	REVISION	BY	DATE	CKD	ENG	PREPARED BY			
												PROPAC SYSTEMS LTD.			
												ENGINEERING DESIGN FABRICATION CONSTRUCTION			
												AIRDRIE ALBERTA			
												AMOCO CANADA PETROLEUM COMPANY LTD.			
												NITONWEST ALBERTA GAS PLANT			
												REFRIGERANT ACCUMULATOR			
												24" (610) ØD X 10'-0" (3048) LG			
												SCALE DRAWING NUMBER E-ACC-90163-202			
												TUBE BUNDLE BY			
												BOILERS BRANCH BY			

H-243
PROPANE SUBCOOLER
60mm x 89mm O.D. x 12192mm S/S x 2 PASS
TS: 8274 kPa @ 66/-29°C, 1.6mm C.A.
SS: 1861 kPa @ 66°C/-29°C, 1.6mm C.A.



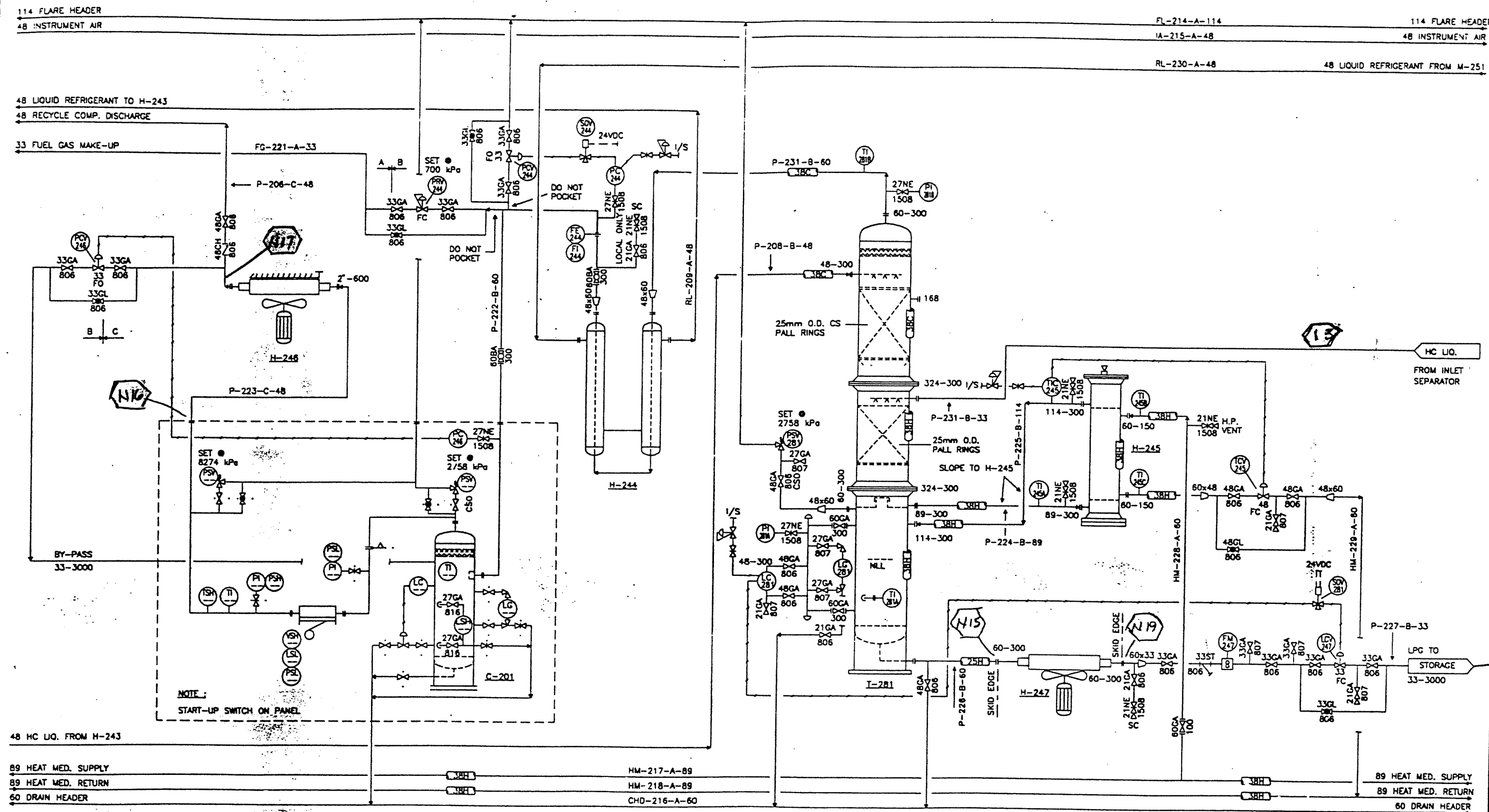
LSD: 10-16-55-13 WSM

AMOCO CANADA PETROLEUM COMPANY LTD.

MITON WEST-ALTANA GAS PLANT
(-23°C REFRIGERATION CASE)
MECHANICAL FLOWSHEET

SCALE: DWG. No.: E- WFS-90169-2001 REV 2

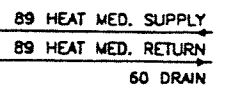
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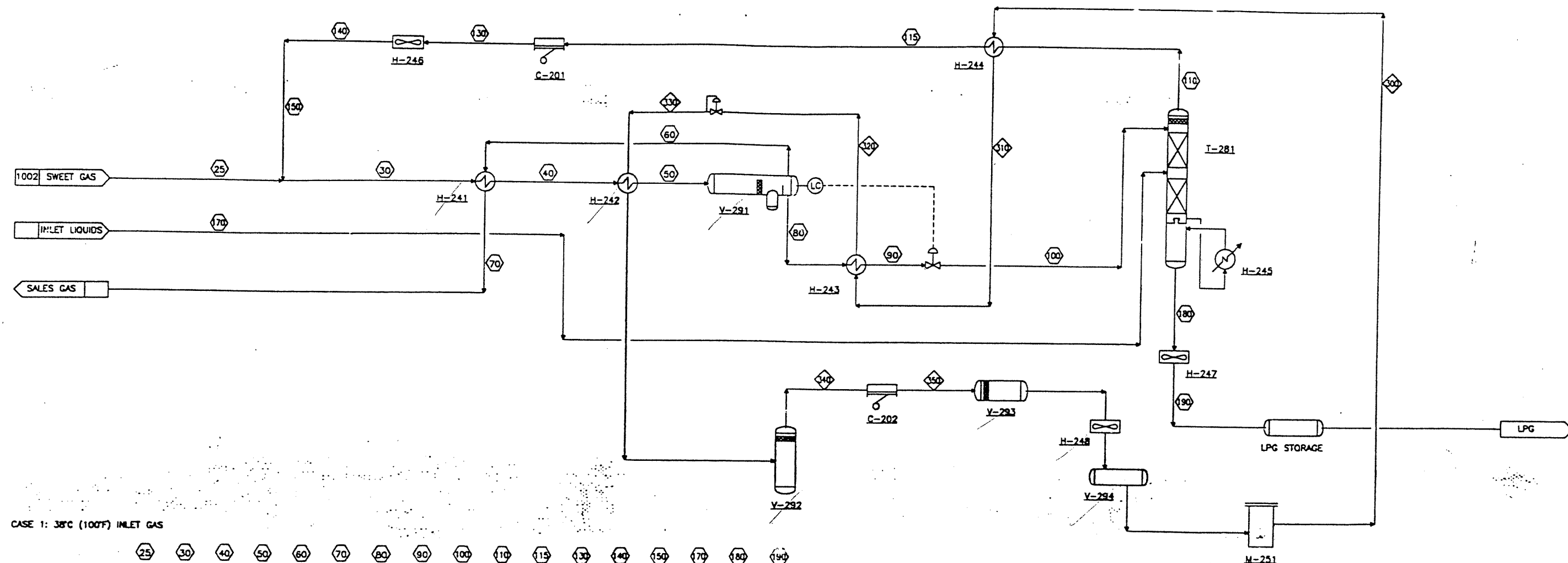
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										AMOCO CANADA PETROLEUM COMPANY LTD.									
										PROPAC SYSTEMS LTD.									
										ENGINEERING DESIGN FABRICATION CONSTRUCTION									
										AIRCHIE ALBERTA									
										DRAWN CHECKED APPROVED DATE SCALE DWG. NO. E - MFS-90169-2002									
										BY: JVA W ROUST 07/11/90									
										REV 2									

GENERAL NOTES		REFERENCE DRAWINGS		NO.		REVISION		BY DATE CHK'D ENG.	

Y-294
REFRIGERANT ACCUMULATOR
610mm O.D. x 3048mm S/S
1361 kPa @ 66°C/-29°C
1.6mm C.A.

REV
2

V-292 SUCTION SCRUBBER 406mm O.D. x 1829mm S/S TS: 8274 kPa @ 66°C/-29°C, 1.6mm C.A. SS: 1861 kPa @ 66°C/-29°C, 1.6mm C.A. O.P.: 190 kPa (ABS) O.T.: -26°C	H-241 GAS/GAS EXCHANGER 219mm O.D. x 12192mm TS/TS x 2 PASS TS: 8274 kPa @ 66°C/-29°C, 1.6mm C.A. SS: 8274 kPa @ 66°C/-29°C, 1.6mm C.A. CASE 1 DUTY: 261 kW CASE 2 DUTY: 247 kW	H-242 CHILLER 324mm O.D. x 508mm O.D. x 6096mm TS/S TS: 8274 kPa @ 66°C/-29°C, 1.6mm C.A. SS: 1861 kPa @ 66°C/-29°C, 1.6mm C.A. CASE 1 DUTY: 146 kW CASE 2 DUTY: 116 kW	V-291 LOW TEMP. SEPARATOR 762mm I.D. x 4287mm S/S 8274 kPa @ 66°C/-29°C 1.6mm C.A. O.P.: 7022 kPa (ABS) O.T.: -23°C	H-243 PROPANE SUBCOOLER 60mm x 89mm O.D. x 12192mm S/S 2 PASSES TS: 8274 kPa @ 66°C/-29°C, 1.6mm C.A. SS: 1861 kPa @ 66°C/-29°C, 1.6mm C.A. CASE 1 DUTY: 40 kW CASE 2 DUTY: 27 kW	H-244 RECYCLE COMPRESSOR AFTERCOOLER ACE MODEL 120C 8274 kPa @ 76°C/-29°C 1.6mm C.A. (INTEGRAL w/H-247/H-248) MAX CAP: 38 kW @ 38°C CASE 1 DUTY: 32 kW CASE 2 DUTY: 33 kW	C-201 RECYCLE COMPRESSOR KNOX WESTERN MODEL TP-100 COMPRESSOR c/w 45 kW ELECTRIC MOTOR 460/3/60 xP ENCLOSURE WAS CAP: 16.7 x 10³ M³/D CASE 1 DUTY: 14.7 x 10³ M³/D CASE 2 CAP: 15.0 x 10³ M³/D	H-245 DEPTH O.V.H/D/C SUBCOOLER 48mm x 89mm O.D. x 6096mm 2 PASSES TS: 2758 kPa @ 176°C/-29°C, 1.6mm C.A. SS: 1861 kPa @ 66°C/-29°C, 1.6mm C.A. CASE 1 DUTY: 9 kW CASE 2 DUTY: 9 kW
C-202 REFRIGERANT COMPRESSOR WYCOM P5WB MAX. CAP.: 28.4 USTR @ -26°C (100 kW) 1200 RPM BELT DRIVE CASE 1 DUTY: 97 kW (27.8 USTR) CASE 2 DUTY: 80 kW (22.8 USTR)	H-246 REFRIGERANT CONDENSER ACE MODEL 120C 1861 kPa @ 93°C/-29°C 1.6mm C.A. (INTEGRAL w/H-246/H-247) MAX CAP: 172 kW @ 38°C CASE 1 DUTY: 160 kW CASE 2 DUTY: 131 kW	V-293 OIL SEPARATOR 324mm O.D. x 610mm S/S 1861 kPa @ 93°C/-29°C 1.6mm C.A.	V-294 REFRIGERANT ACCUMULATOR 610mm O.D. x 3048mm S/S 1861 kPa @ 66°C/-29°C 1.6mm C.A. CAP: 0.88 M³	H-251 REFRIGERATION DRYER SPORLAN MODEL C-40016-P 191mm O.D. x 875mm LG 4 CARTRIDGES (PARTS No.: RC-1009B)	H-247 LPG COOLER ACE MODEL 120C 2758 kPa @ 176°C/-29°C 1.6mm C.A. (INTEGRAL w/H-246/H-248) MAX CAP: 109 kW @ 38°C CASE 1 DUTY: 81 kW CASE 2 DUTY: 97 kW	T-281 DEETHANIZER 356mm O.D. x 14630mm S/S 2758 kPa @ 176°C/-29°C c/w TWO (2) 4572mm LONG PACKED SECTIONS O.P.: 2103 kPa (ABS)	H-248 DEETHANIZER REBOILER 324mm O.D. x 1829mm TS/TS TS: 2758 kPa @ 176°C/-29°C, 1.6mm C.A. SS: 1034 kPa @ 205°C/-29°C, 1.6mm C.A. CASE 1 DUTY: 121 kW @ 146°C CASE 2 DUTY: 154 kW @ 153°C



CASE 1: 38°C (100°F) INLET GAS

	25	30	40	50	60	70	80	90	100	110	115	130	140	150	170	180	190
FLOW [kg/hr.]	5222	5819	5819	5819	4896	4896	923	923	923	607	607	607	607	597	708	1084	1084
PRESSURE [kPa]	7119	7078	7043	7022	7022	6940	7022	7016	2193	2103	2096	7171	7136	7136	2193	2103	2068
TEMPERATURE [°C]	41	49	-1	-23	-23	41	-23	18	-5	2.1	26.7	121	49	49	28	146	49

REFRIGERANT	500	110	120	130	140	50
FLOW [kg/hr.]	1580	1580	1580	1580	1580	1580
PRESSURE [kPa]	1524	1489	1455	193	191	1551
TEMPERATURE [°C]	43	37	6	-27	-26	73

[illegible]

PREPARED BY:

PROPAK SYSTEMS LTD.

ENGINEERING DESIGN FABRICATION CONSTRUCTION

ALDRICH

	DRAWN	CHECKED	APPROVED	DATE
27.	5/2/2011			

AMOCO CANADA PETROLEUM COMPANY LTD.

MITON WEST-ALIANA GAS PLANT

REFRIGERATION UNIT

REFRIGERATION UNIT PROCESS FLOWSHEET

	DRAWN	CHECKED	APPROVED	DATE
27.	5/2/2011			

DWG. E 1155 00:50 200

No.: E - MFS-90 89-200

SHEET 1 OF 1 REV
