

7/06/05

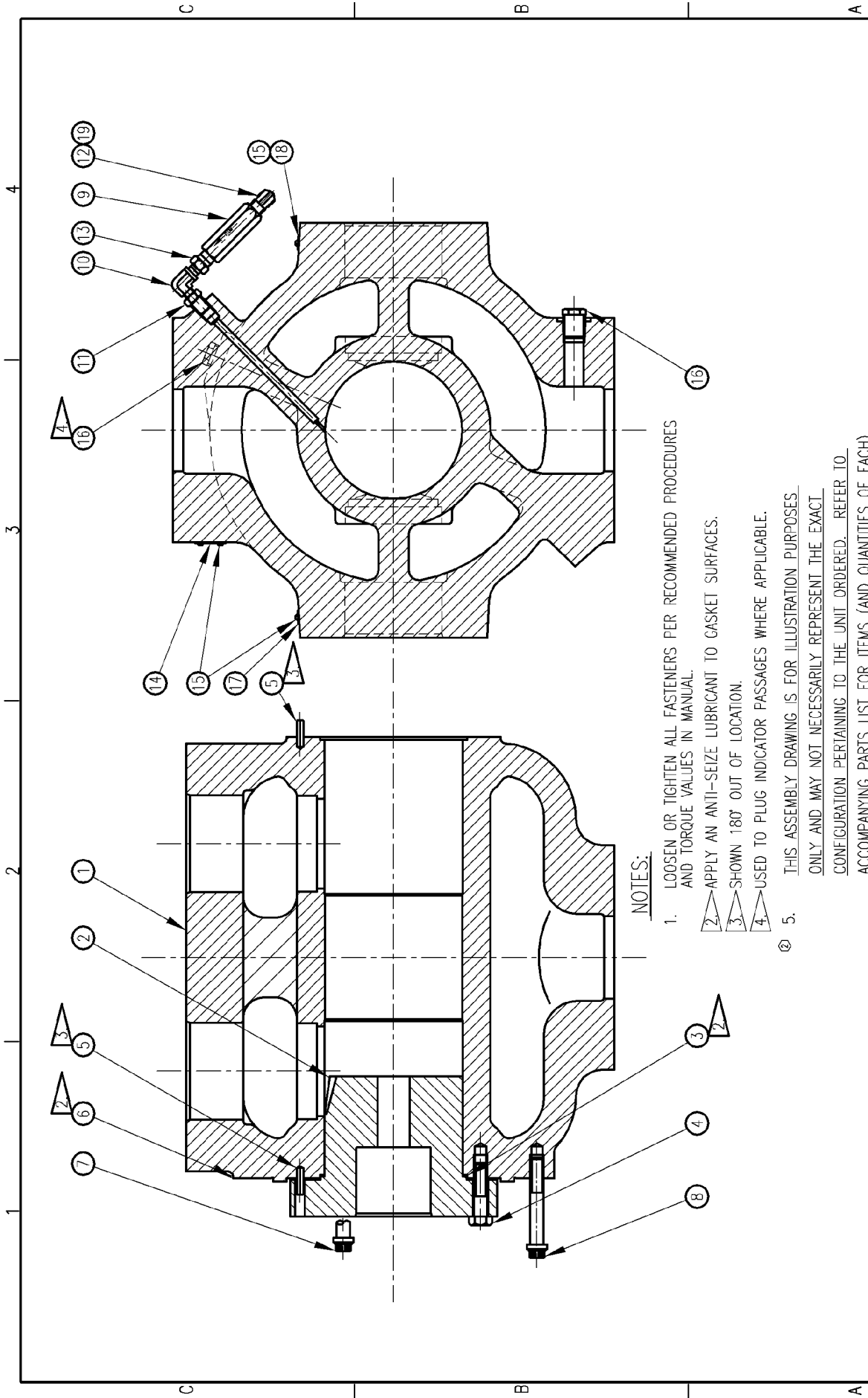
ARIEL CORP. - BLACKJACK DIV. C/N: 001
SALES ORDER COVER SHEET

RHCOVP02

SERIAL NUMBER: C-71172

PART: 5-1/8JG CLASS DESCRIPTION: 5-1/8" JG CYLINDER CLASS

PART NUMBER	QUANTITY	DESCRIPTION	DRAWING NO.
G-4076	1	CYL ASSY, 4-3/4JG 865	A-1904
G-4114	1	SHIP LOOSE CYL.STD LUBE,STL	N.A.
G-10057	2	SUC VLV ASSY, 5-1/8JG:CE	D-0093
G-10052	2	DIS VLV ASSY, 5-1/8JG:CE	D-0094
G-6711	1	PIST. 4-3/4JGA,STD	A-4538
B-3395-S	2	SUC VLV, 79RX ,NY	A-9207
B-3396-DD	2	DIS VLV, 79RX ,MT	A-9223



NOTES:

1. LOOSEN OR TIGHTEN ALL FASTENERS PER RECOMMENDED PROCEDURES AND TORQUE VALUES IN MANUAL.
 2. ▲ APPLY AN ANTI-SEIZE LUBRICANT TO GASKET SURFACES.
 3. ▲ SHOWN 180° OUT OF LOCATION.
 4. ▲ USED TO PLUG INDICATOR PASSAGES WHERE APPLICABLE.
- ⑤ THIS ASSEMBLY DRAWING IS FOR ILLUSTRATION PURPOSES ONLY AND MAY NOT NECESSARILY REPRESENT THE EXACT CONFIGURATION PERTAINING TO THE UNIT ORDERED. REFER TO ACCOMPANYING PARTS LIST FOR ITEMS (AND QUANTITIES OF EACH) REQUIRED FOR THIS PARTICULAR ASSEMBLY.

②	AT A2 - ADDED NOTE #5. UPDATED TO CURRENT ARIEL DRAFTING STANDARDS.	ALH 04/30/02
REV	DESCRIPTION	INIT/DATE

THIS DOCUMENT AND CONTENTS THEREIN ARE PROPRIETARY TO ARIEL CORPORATION. ONLY BY WRITTEN CONSENT AND AGREED TERMS BY ARIEL CORPORATION CAN THIS DOCUMENT BE REPRODUCED OR USED IN WHOLE OR IN PART OR IN ANY MANNER WITHOUT THE WRITTEN INFORMATION CONTAINED IN THIS DOCUMENT.

		ARIEL CORPORATION 35 BLACKJACK ROAD MOUNT VERNON, OHIO 43050	
2	10717	APPROVED:	DWG. NO.
1	8756	11/21/98	A-1904
0	7587	WRB	ASSEMBLY
ECN	REV	CHECKED:	SCALE:
		NONE	

7/06/05

PARTS LIST

GROUP NO. G-4076

4-3/4" JG CYLINDER ASSEMBLY
RDP 786#, MAWP 865#
REF. DRWG. A-1904

ITEM NUMBER	PART NUMBER	QUANTITY	DESCRIPTION	
001	D-1829	0	CYL, 4-3/4JG:A	865
002	C-0050	0	CE HEAD, 4-3/4JG:A:M	
003	A-0093	1	STL GASKET, 5.480 X 5.230 X 60	
004	FC0100GK	8	HEX HD CAP, 1/2-13 X 2	G9
005	FP0505FG	2	ROLL PIN, 1/4 X 1"	
006	A-0065	1	GSKT,RND,12, X 1/64	
007	FC0120GO	4	12 PT, 1/2-13 X 3	G8
008	FC0120GP	8	12 PT, 1/2-13 X 3-1/4	G8
009	A-3780	1	CHK.VLV,DOU.BALL SOFT SEAT SS	
010	A-0804	1	STREET ELBOW,STL, 1/8P, 90	
011	A-0811	1	HEX RED BUSH,STL,1/4M X 1/8F	
012	PT0200CB	27.	" SS TUBING, 1/4 OD X .035 WALL	
013	A-2114	1	HEX PIPE NIPPLE,STL,1/4 X 1/8	
014	A-0465	1	DATA PLATE,CYLINDER SPEC	STD
015	FR0570CC	8	DRIVE SCREW, #6 X 1/4 U-TYPE	
016	PP0810GB	1	PIPE PLUG, 1/2NPT,HEX HD,STL	
017	A-0640-A	1	INFO PLATE,SUCTION	
018	A-0640-B	1	INFO PLATE,DISCHARGE	
019	A-0800	1	MALE ELBOW,STL, 1/4T X 1/4P	
100	HD-1829	1	CYL ASSY, 4-3/4JG	

WHEN A ZERO APPEARS IN THE QUANTITY COLUMN IT
DOES NOT REPRESENT THE QUANTITY REQUIRED.

7/06/05

PARTS LIST

GROUP NO. G-4114

CYLINDER TO BE SHIPPED LOOSE
WITH STANDARD LUBE
AND STANDARD TUBING AND FITTINGS
REF. DRWG. N.A.

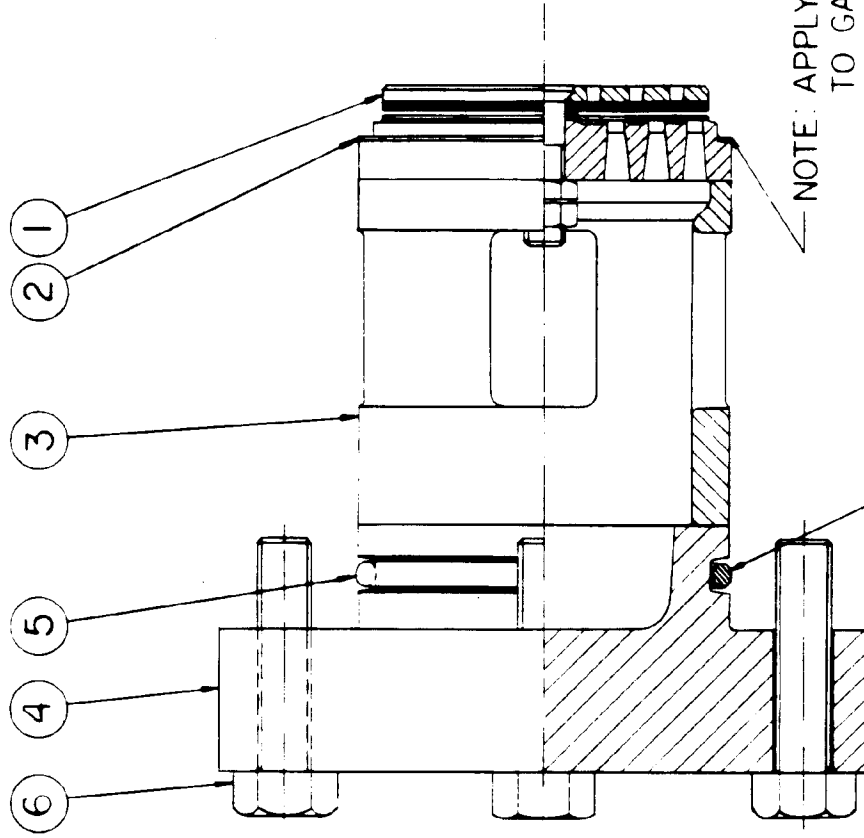
ITEM

NUMBER	PART NUMBER	QUANTITY	DESCRIPTION
001	A-0886	1	BULK.UNION,STL, 1/4T X 1/4T
002	A-0815	2	MALE ELBOW,STL, 1/4T X 1/8P

WHEN A ZERO APPEARS IN THE QUANTITY COLUMN IT
DOES NOT REPRESENT THE QUANTITY REQUIRED.

G-49 | G-49

NOTE: LOOSEN OR TIGHTEN ALL BOLTS PER RECOMMENDED PROCEDURES AND TORQUE VALUES



NOTE: APPLY AN ANTI-SEIZE LUBRICANT TO GASKET (BOTH SIDES)

NOTE: OIL O-RING BEFORE INSTALLING

ASSY. DWG. NO.

D-93

①

7/06/05

PARTS LIST

GROUP NO. G-10057

SUCTION VALVE, RETAINER AND CAP
5-1/8" CLASS CYLINDER
JG, JGW, JGT
REF. DRWG. D-0093

ITEM

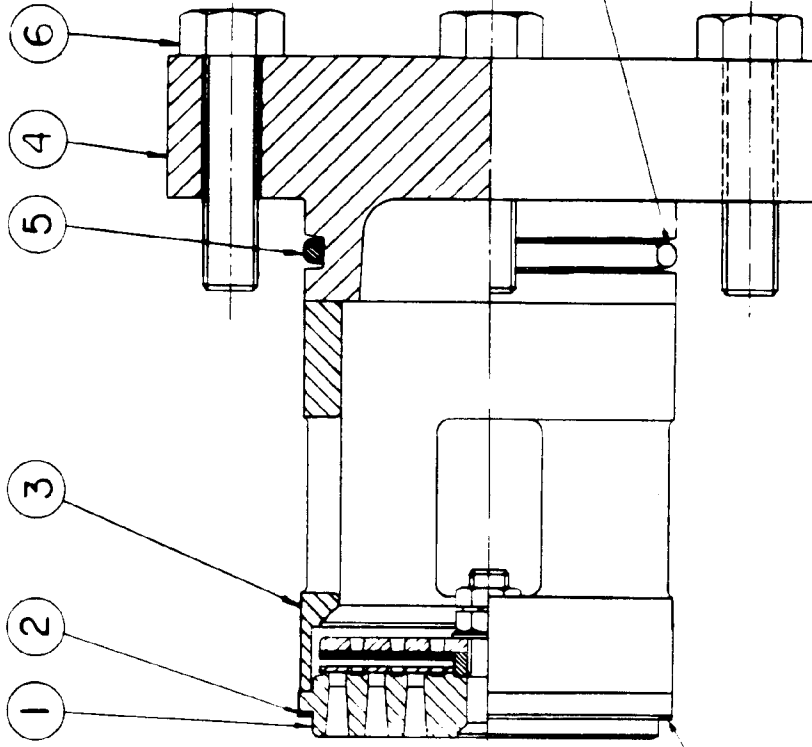
NUMBER	PART NUMBER	QUANTITY	DESCRIPTION
001	SUCTION VALVE	0	FOR PART NO. SEE COVER SHEET
002	A-0103	1	STL GASKET, 3.575 X 3.355 X 30
003	B-3380	1	VLV RET,SUC, 5-1/8JG:W
004	B-0040	0	VLV CAP, 5-1/8JG:W:J CL
005	A-0013	1	O-RING,VT, 3.500 O.D. X .210
006	FC0171CFD	4	12 PT,1/2-13 X 2-1/4 X 9/16 G8

WHEN A ZERO APPEARS IN THE QUANTITY COLUMN IT
DOES NOT REPRESENT THE QUANTITY REQUIRED.

G-50

G-50-1

NOTE: LOOSEN OR TIGHTEN ALL BOLTS PER RECOMMENDED PROCEDURES AND TORQUE VALUES



NOTE: OIL O-RING BEFORE INSTALLING

NOTE: APPLY AN ANTI-SEIZE LUBRICANT TO GASKET (BOTH SIDES)

ASSY. DWG. NO.

D-94

①

7/06/05

PARTS LIST

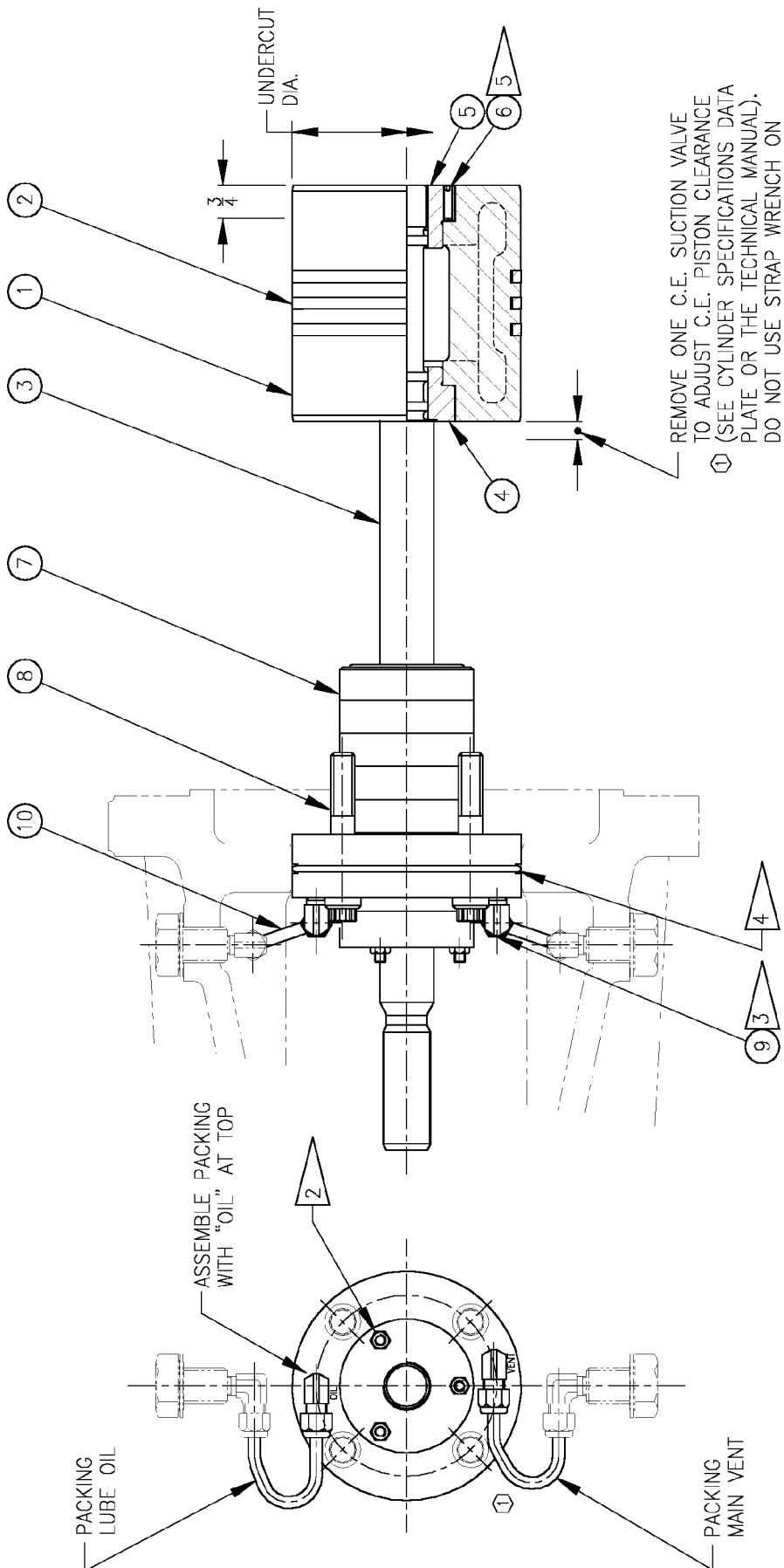
GROUP NO. G-10052

DISCHARGE VALVE, RETAINER AND CAP
5-1/8" CLASS CYLINDER
JG, JGW, JGA
REF. DRWG. D-0094

ITEM

NUMBER	PART NUMBER	QUANTITY	DESCRIPTION
001	DISCHARGE VALV	0	FOR PART NO. SEE COVER SHEET
002	A-0103	1	STL GASKET, 3.575 X 3.355 X 30
003	B-3379	1	VLV RET,DIS, 5-1/8JG:W
004	B-0040	0	VLV CAP, 5-1/8JG:W:J CL
005	A-0013	1	O-RING,VT, 3.500 O.D. X .210
006	FC0171CFD	4	12 PT,1/2-13 X 2-1/4 X 9/16 G8

WHEN A ZERO APPEARS IN THE QUANTITY COLUMN IT
DOES NOT REPRESENT THE QUANTITY REQUIRED.




REMOVE ONE C.E. SUCTION VALVE TO ADJUST C.E. PISTON CLEARANCE (SEE CYLINDER SPECIFICATIONS DATA PLATE OR THE TECHNICAL MANUAL). DO NOT USE STRAP WRENCH ON PISTON ROD - USE TURNING TOOL WHICH FITS TURNING HOLES IN PISTON NUT.

NOTES:

1. LOOSEN OR TIGHTEN ALL FASTENERS PER RECOMMENDED PROCEDURES AND TORQUE VALUES IN MANUAL.
2. RETIGHTEN TIE STUD NUTS AFTER CASE (ITEM 7) IS BOLTED INTO CYLINDER.
3. ASSEMBLY FITTINGS (ITEM 9) BEFORE INSTALLING PACKING.
4. OIL O-RING BEFORE INSTALLING.
5. PRICK PUNCH TO RETAIN SET SCREWS (ITEM 6).

1	REVISED VENT TUBE TO PACKING TO PROVIDE ACCESS TO MTG SCREWS - PISTON CLEARANCE WAS ".040/.044"
REV	DESCRIPTION

THIS DOCUMENT AND CONTENTS HEREIN ARE PROPRIETARY TO ARIEL CORPORATION. ONLY BY WRITTEN CONSENT AND AGREED TERMS BY ARIEL CORPORATION, GIVES THE RIGHT TO MANUFACTURE, BUT DOES NOT GRANT THE RIGHT TO DISCLOSE OR USE IN PART OR IN WHOLE INFORMATION CONTAINED IN DOCUMENT.

 ARIEL CORPORATION 35 BLACKJACK ROAD MOUNT VERNON, OHIO 43050		APPROVED: 07-06-94	ASSEMBLY DWG. NO. A-4538
		DRAWN: WRB 06-01-94	
1	7839	RECEIVED: 06-17-94	SCALE: NONE
0	5146	ECN	

7/06/05

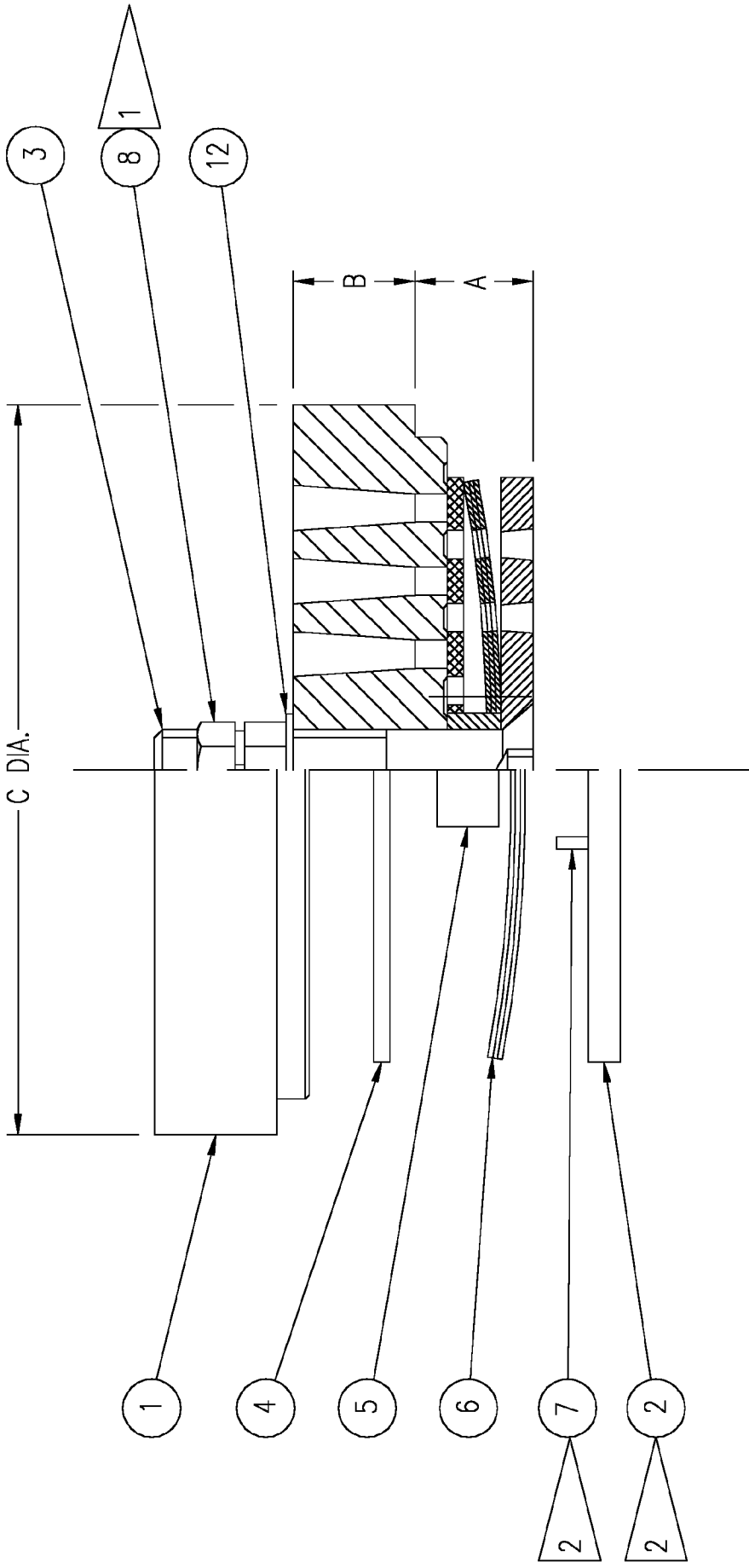
PARTS LIST

GROUP NO. G-6711

4-3/4" JG:M PISTON, TFE RINGS, BTR
PACKING. 3" STROKE
REF. DRWG. A-4538

ITEM NUMBER	PART NUMBER	QUANTITY	DESCRIPTION
001	C-0111	1	PIST, 4-3/4JGA:M0
002	A-0213	3	PISTON RING, 4-3/4JG:A:W:M:P:J
003	C-0028	1	P ROD, 3.00STK/20.305LG
004	A-0057	1	PISTON COLLAR, 2-1/2=8JG:MP
005	B-0019	1	PISTON NUT, 2-1/4"THRU 8"JG:MP
006	FS0405BE	2	CUP PT.SET-SCREW, #10-32 X 3/4
007	B-2648	1	PKG,1.125,2550,STD
008	FC0120GO	4	12 PT,1/2-13 X 3 G8
009	A-0815	0	MALE ELBOW,STL, 1/4T X 1/8P
010	PT0200CB	12.	" SS TUBING, 1/4 OD X .035 WALL
099	B-2647-K	0	RBLD KIT,PIST ROD PKG,1.125

WHEN A ZERO APPEARS IN THE QUANTITY COLUMN IT
DOES NOT REPRESENT THE QUANTITY REQUIRED.



NOTES:

1. SEE MANUAL FOR TORQUE VALUES (ITEM #8).
2. VALVE GUARD ASSEMBLY (ITEM #2) CONSISTS OF VALVE GUARD AND SPIROL PIN (ITEM #7).

ARIEL CORPORATION
 35 BLACKJACK ROAD
 MOUNT VERNON, OHIO 43050

TITLE	SUCTION VALVE, RX
MATERIAL	PROCURED
DRAWN	IG 9/21/99
CHECKED	ED 10/1/99
SCALE	NONE
DWG. No.	A-9207

REV	ECN	REV	ECN
0	7799		

THIS DOCUMENT AND CONTENTS THEREIN ARE PROPRIETARY TO ARIEL CORPORATION. ONLY BY WRITTEN CONSENT AND AGREED TERMS BY ARIEL CORPORATION GIVES THE RIGHT TO MANUFACTURE, BUT DOES NOT GRANT THE RIGHT TO DISCLOSE OR USE IN PART OR IN WHOLE INFORMATION CONTAINED IN DOCUMENT.
 DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.
 ----- DO NOT SCALE DRAWING -----
 DIMENSIONING AND TOLERANCING PER ARIEL SPECIFICATION ER-17.0.1 UNLESS OTHERWISE SPECIFIED.

REV	DESCRIPTION

7/06/05

PARTS LIST

B-3395-S

0.4920=A
0.6610=B
3.5800=C
0.0630=LFT
REF DRWG. A-9207
ITEM

NUMBER	PART NUMBER	QUANTITY	DESCRIPTION
001	A-11464	1	SUC VLV SEAT, 79RX
002	A-1187-C	1	SUC VLV GUARD ASSY, 79RX
003	A-11463	1	CNTR BOLT, 3/8-24X2.24 STL
004	A-5434	1	VLV PLT, 79RX.118THK,NY
005	A-11466	1	GUIDE RING,79RX,.228 THK
006	A-1048	2	SPRING PLATE,79RX,.024 THK
007	A-1162	1	SPIROL PIN,.078D X .438L
008	A-1367	1	LOCKNUT, DRAKE 3/8-24
099	KB-3395-S	0	KIT,VLV, 79RX ,NY

WHEN A ZERO APPEARS IN THE QUANTITY COLUMN IT
DOES NOT REPRESENT THE QUANTITY REQUIRED.

7/06/05

PARTS LIST

B-3396-DD

0.8030=A
0.3740=B
3.5800=C
0.0630=LFT
REF DRWG. A-9223
ITEM

NUMBER	PART NUMBER	QUANTITY	DESCRIPTION
001	A-11467-A	1	DIS VLV SEAT ASSY, 79RX
002	A-2773-B	1	DIS VLV GUARD ASSY, 79RX
003	A-2442	1	CNTR STUD, 3/8-24
004	A-7524	1	VLV PLT, 79RX.118THK,MT
005	A-11484	1	GUIDE RING,79RX,.264 THK
006	A-1054	3	SPRING PLATE,79RX,.028 THK
007	A-2042	1	SPIROL PIN,.078D X .625L
008	A-1367	1	LOCKNUT, DRAKE 3/8-24
009	A-2066	1	DOWEL PIN,.094D X .125L
012	A-12172	1	VLV WASHER, 3/8
099	KB-3396-DD	0	KIT,VLV, 79RX ,MT

WHEN A ZERO APPEARS IN THE QUANTITY COLUMN IT
DOES NOT REPRESENT THE QUANTITY REQUIRED.

5-1/8 JGU
4-3/4 JGU

4

3

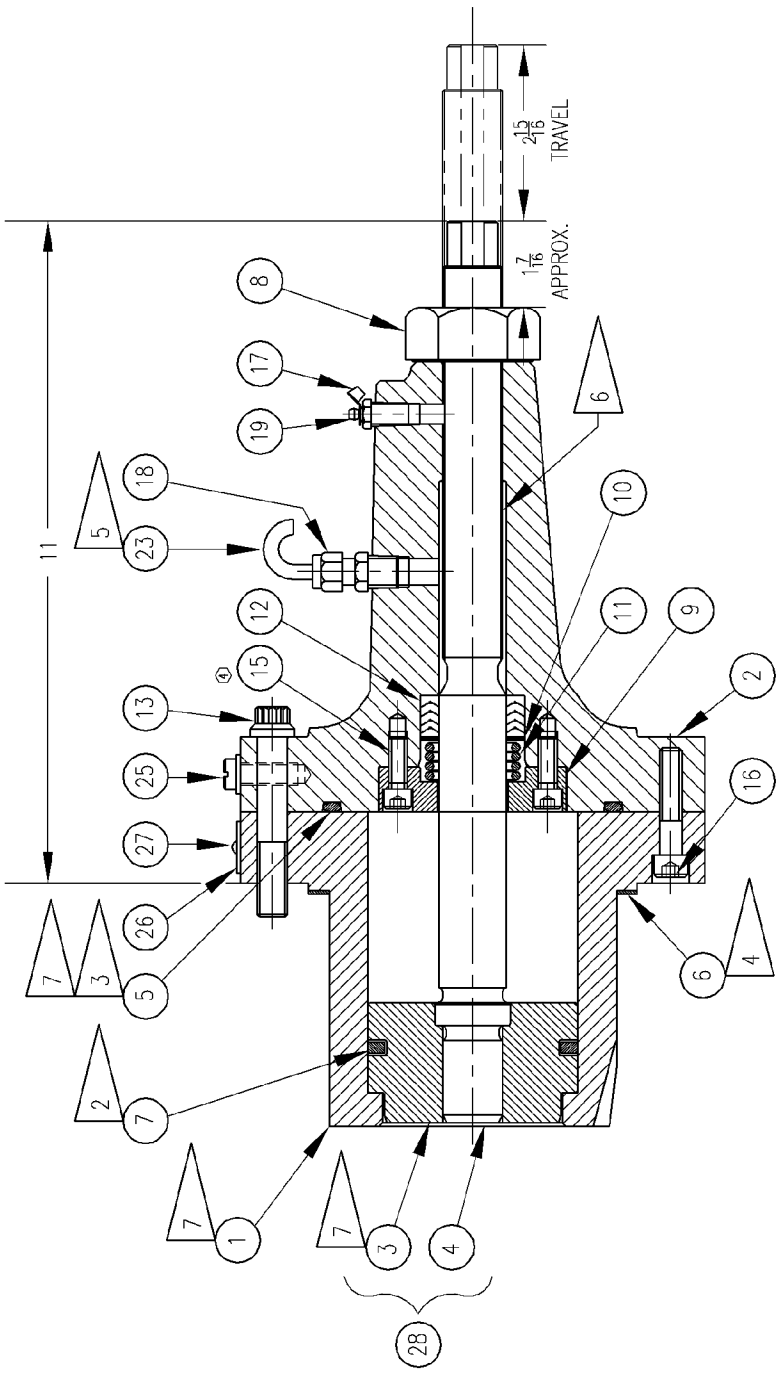
2

1

C

B

A



NOTES:

1. LOOSEN OR TIGHTEN ALL FASTENERS PER RECOMMENDED PROCEDURES AND TORQUE VALUES IN MANUAL.
 2. LIGHTLY OIL BORE AND RING BEFORE INSTALLING.
 3. OIL O-RING BEFORE INSTALLING.
 4. APPLY AN ANTI-SIEZE LUBRICANT TO GASKET SURFACES.
 5. VENT TUBE ALWAYS POINTED DOWN.
6. APPLY AN ANTI-SIEZE LUBRICANT TO STEM THREADS BEFORE ASSEMBLING.
7. CAUTION: FOR NON-LUBE APPLICATIONS REFER TO TECHNICAL MANUAL FOR SPECIAL PROCEDURES FOR THESE ITEMS.

SUPERSEDES D-0357

ARIEL CORPORATION
35 BLACKJACK ROAD
MOUNT VERNON, OHIO 43050

3 10035	3	10035	3
2 3138	2	3138	2
1 1024	1	1024	1
4 11746 0	4	11746 0	4
REV	ECN	REV	ECN

THIS DOCUMENT AND CONTENTS THEREIN ARE PROPRIETARY TO ARIEL CORPORATION. ONLY BY WRITTEN CONSENT AND AGREED TERMS BY ARIEL CORPORATION OR ITS MANUFACTURERS ARE OUTBORES, PARTS, OR EQUIPMENT TO BE REPRODUCED, COPIED, OR USED IN PART OR IN WHOLE. INFORMATION CONTAINED IN DOCUMENT.

4	© C3: MOVED ITEM "15" ARROW TO CORRECT LOCATION.	ARW 11/17/2003
REV	DESCRIPTION	INIT/DATE

ASSEMBLY
DWG. NO. **D-0356**

APPROVED:
DRAWN: CH 3/18/88
CHECKED: 3/18/88
SCALE: NONE

4

3

2

1

7/06/05

ARIEL CORP. - BLACKJACK DIV. C/N: 001
SALES ORDER COVER SHEET

RHCOVP02

SERIAL NUMBER: U-43989

PART: G-11420 DESCRIPTION: VVCP, 4-3/4G:J:M:P:W

GROUP NO. G-11420
4-3/4" JG:J:M:P:W UNLOADER ASSEMBLY.
WITH STAINLESS STEEL TUBING AND FITTINGS
ASSY. DRWG. D-0356

ITEM NUMBER	PART NUMBER	QUANTITY	DESCRIPTION
001	C-0272	1	UNL.HEAD, 4-3/4JGU:WU
002	C-0270	1	HE UNL ADPTR, 5-1/8JG:W CL
003	B-0393	0	UNL PIST, 5-1/8JG:M
004	C-3734	0	UNL.STEM,3-5/8,5-1/8JGU CL.
005	A-0015	1	O-RING,VT, 5.000 O.D. X .210
006	A-0093	1	STL GASKET, 5.480 X 5.230 X 60
007	A-0487	1	UNL.PISTON RING, 3-1/2 O.D.
008	B-0392	1	UNL HEX NUT,
009	B-0388	1	SPRING RETAINER
010	A-0519	1	BACK-UP RING, PACKING
011	A-0499	1	COMPRESSION SPRING, UNL.
012	A-0501	1	V PACKING, UNL
013	FC0120GP	8	12 PT,1/2-13 X 3-1/4 G8
015	FC0110DF	4	SOC HD CAP,5/16-18 X 7/8 G8
016	FC0110DH	3	SOC HD CAP,5/16-18 X 1-1/4 G8
017	A-0500	1	GREASE FITTING CAP, PLASTIC
018	A-0938	1	MALE CONN,SS, 1/4T X 1/4P
019	PZ0230BA	1	STRAIGHT GREASE FITTING,1/4-18
023	PT0201CD	5.	" TUBING,316 SS 1/4 OD X .065
025	A-0467	1	PUSH IN PLUG,PL, 3/8,YELLOW

7/06/05

SALES ORDER COVER SHEET

026	A-0755	1	DATA PLATE,UNLOADER SPEC
026	A-12927	1	DATA PLATE,UNLOADER POSITION
027	FR0570CC	2	DRIVE SCREW, #6 X 1/4 U-TYPE
028	AC-3735	1	UNL PIST ASSY, 5-1/8JG

VARIABLE VOLUME CLEARANCE POCKET (Headend Unloader) DATA SHEET

5-1/8JG Class Cylinder

Stroke: 3.00 in 76 mm

Bore: 4.750 in 121 mm

MAWP: 865 psig 59.6 barg 5964 kPa(g)

General Data for VVCP (independent of cylinder):

*Note: If VVCP services another cylinder, it may have a higher MAWP than the above cylinder.

MAWP*:	865	59.6 barg	5964 kPa(g)
VVCP piston diameter:	3.5 in	89 mm	
Stem thread lead (pitch):	0.083333 in	2 mm	
Total travel:	2.94 in	7.5 cm	
Number of turns from closed to fully open:	35.2		
Minimum added fixed clearance:	0.6 in ³	10 cm ³	
Additional added clearance when fully open:	28.3 in ³	463 cm ³	
Total added clearance when fully open:	28.9 in ³	473 cm ³	
Clearance volume change per turn:	0.8 in ³	13.1 cm ³	
Clearance volume change per change in travel:	9.6 in ³ /in	62.1 cm ³ /cm	

Clearance Data for VVCP alone, in percent of swept volume of above cylinder:

Minimum added fixed clearance:	1.2%
Additional added clearance when fully open:	53.2%
Total added clearance when fully open:	54.3%
Head end clearance change per turn:	1.5%
Head end clearance change per change in travel:	18.1% /in 7.1% /cm

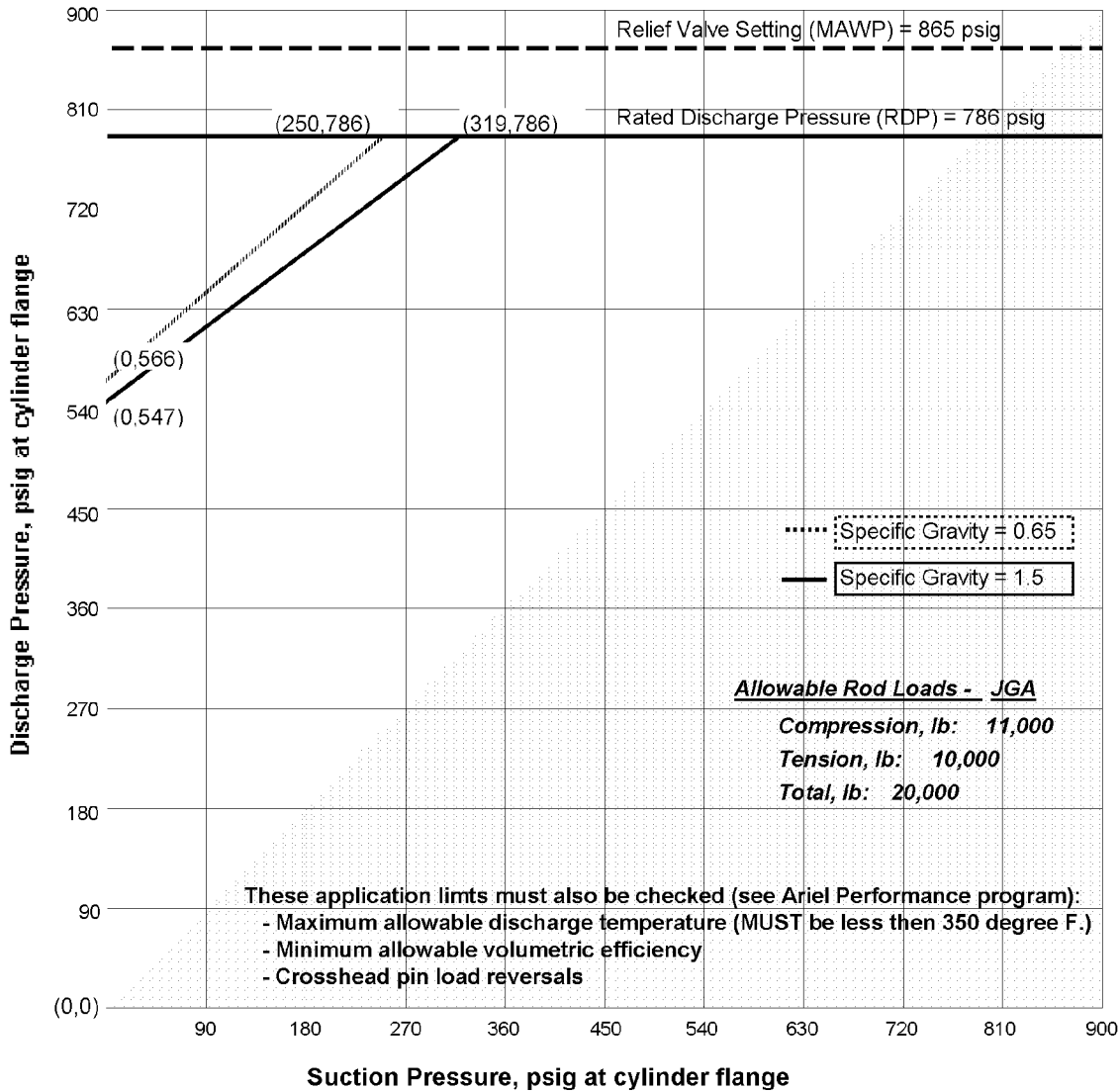
Clearance Data with VVCP installed on above cylinder with standard valves, in percent of swept volume:

Minimum fixed head end clearance:	19.9%
Total head end clearance when fully open:	73.1%

PLEASE NOTE: It is important to understand that the percent clearance figures for the variable volume clearance pocket above include the cylinder headend clearance. However, any valve spacers or other non-standard added clearances on the unit must be accounted for.

Estimated Gas Rod Load and Pressure Limits for 3 inch stroke at 1800 RPM

Cylinder Class: 5-1/8JG Bore, inches: 4.750
 Cylinder Serial Number: C-71172



This chart defines allowable operating limits for gas rod loads and standard working pressures. Pressure combinations falling above the line for the applicable Specific Gravity of the gas being compressed will exceed the Rod Load limitations of the equipment.

Calculations are based on 80 degrees Fahrenheit hydrocarbon gas at 1500 ft. elevation.