

29-002-5010  
12-29  
Westrose ~~9-6~~  
Compressor-  
403-517-1300

# ENERGY INDUSTRIES INC.

4307 11th St N E, Calgary, Alberta, Canada T2E 6K4

Fax 403/517-1323

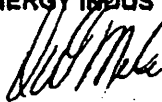
## FAX TRANSMITTAL

DATE:	November 13, 2002	NO. OF PAGES:	
TO:	Henry Zimmermann HZ Projects	PHONE NO:	(403) 234-8844
		FAX NO:	(403) 234-8854
CC:		PHONE NO:	
		FAX NO:	
FROM:	Dan Meek Technical Sales	PHONE NO:	(403) 517-1310
		FAX NO:	(403) 517-1323
SUBJECT:	E.I. Unit # 705		

Henry  
Please find attached performance runs as we discussed. These runs utilize the existing cylinders with the conditions we discussed.

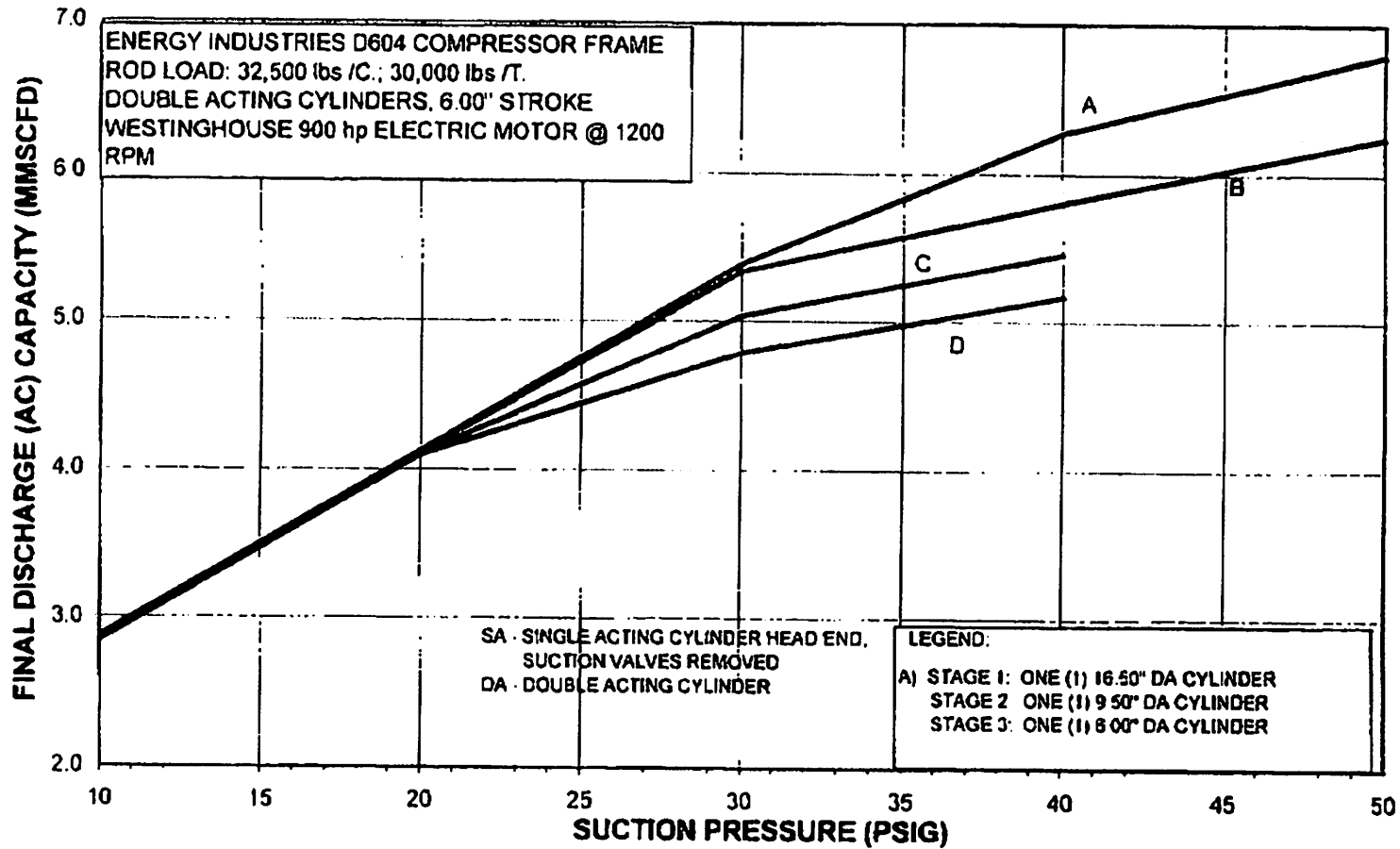
Please let me know if you require anything further.

Sincerely  
ENERGY INDUSTRIES INC.



Dan Meek  
Technical Sales

CROSSFIELD GAS  
 WESTEROSE 12-29 BATTERY  
 E.I. Unit #705



A - DISCHARGE PRESSURE 400 PSIG  
 B - DISCHARGE PRESSURE 500 PSIG  
 C - DISCHARGE PRESSURE 600 PSIG  
 D - DISCHARGE PRESSURE 700 PSIG

T-228 P 002/020 F-610

Nov-13-2002 05:57pm From

# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>	<b>QUOTE #:</b>
KEY #/Version : 0 / 8.1	Unit ID.: 705
<b>LOCATION:</b>	DATE: 11-13-2002
ELEVATION (FT): 2500	ATMOS. PR. (PSIA): 13.404
Tc (DEG R): 358.2	AMB. TEMP (DEG F): 100
	Pc (PSIA): 672.5
	PISTON SPEED (FPM): 1200
<b>DRIVER:</b> Westinghouse	<b>COMPRESSOR:</b> GEMINI
<b>MODEL:</b>	<b>MODEL:</b> D604
MAX BHP: 900	MAX BHP: 2400.0
MAX RPM: 1200	MAX RPM: 1200
DRIVER LOAD (%): 63.3	DESIGN RPM: 1200
	STROKE (IN): 6.000
	ROD DIA (IN): 2.000
	R/L TENSION: 30000
	R/L COMPR.: 32500
	R/L COMB.: 62500

CYLINDER DATA			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION . (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

PRESSURES AND TEMPERATURES			
INLET PRES.... (PSIG)	10.0	60.5	173.0
DISCH. PRES... (PSIG)	62.4	178.3	400.0
COMP. RATIO . (Pd/Ps)	3.3	2.6	2.2
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	204	245	225
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

FLOW CONDITIONS AND HORSEPOWER			
CAP. PER CYL. (MMSCFD)	2.88	2.88	2.88
STAGE CAP... (MMSCFD)	2.88	2.88	2.88
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
ZS.....	.996	.992	.980
ZD.....	.995	.991	.977
CYL. IHP .. (PER/CYL)	209	182	147
CYL. BHP .... (TOTAL)	571		
TOTAL UNIT BHP .....	571	+ (ADK. HP) = 571	

CLEARANCE DATA			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	.0	.0	.0
PKT. TRAVEL.... (IN/%)	.00/	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	14.27	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	71.56	75.10	76.90
C.E. VOL. EFF.... (%)	72.49	76.59	76.71
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

ROD LOADS AND REVERSALS			
ROD LOAD TENS... (LB)	11006	7742	5222
ROD LOAD COMPR.. (LB)	11317	8576	7120
ROD LOAD... (COMBINED)	22323	16318	12342
REVERSAL.... (YES/NO)	YES	YES	YES

Notes: Results which are Out of Limits are Highlighted

GEMINI GAS COMPRESSORS, its owners, affiliates, authorized distributor's, or agents assume no liability for any consequences, damages or loss of production as a result of use or misuse of the information or calculations contained in this program.

# GEMINI GAS COMPRESSOR

<b>CUSTOMER:</b>		<b>QUOTE #:</b>
KEY #/Version : 0 / 8.1		Unit ID.: 705
<b>LOCATION:</b>		<b>DATE:</b> 11-13-2002
ELEVATION (FT): 2500	ATMOS. PR. (PSIA): 13.404	AMB. TEMP (DEG F): 100
Tc (DEG R): 358.2	Pc (PSIA): 672.5	PISTON SPEED (FPM): 1200
<b>DRIVER:</b> Westinghouse	<b>COMPRESSOR:</b> GEMINI	<b>STROKE (IN):</b> 6.000
<b>MODEL:</b>	<b>MODEL:</b> D604	<b>ROD DIA (IN):</b> 2.000
<b>MAX BHP:</b> 900	<b>MAX BHP:</b> 2400.0	<b>R/L TENSION:</b> 30000
<b>MAX RPM:</b> 1200	<b>MAX RPM:</b> 1200	<b>R/L COMPR.:</b> 32500
<b>DRIVER LOAD (%):</b> 79.6	<b>DESIGN RPM:</b> 1200	<b>R/L COMB.:</b> 62500

CYLINDER DATA			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION .. (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

PRESSURES AND TEMPERATURES			
INLET PRES.... (PSIG)	20.0	89.7	227.8
DISCH. PRES... (PSIG)	92.4	234.7	400.0
COMP. RATIO .. (Pd/Ps)	3.2	2.4	1.7
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	201	235	189
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

FLOW CONDITIONS AND HORSEPOWER			
CAP. PER CYL. (MMSCFD)	4.13	4.13	4.13
STAGE CAP... (MMSCFD)	4.13	4.13	4.13
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
ZS.....	.995	.989	.974
ZD.....	.993	.987	.972
CYL. IHP .. (PER/CYL)	296	241	147
CYL. BHP .... (TOTAL)	716		
TOTAL UNIT BHP .....	716	† (AUX. HP) = 716	

CLEARANCE DATA			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	.0	.0	.0
PKT. TRAVEL.... (IN/%)	.00/	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	14.27	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	72.21	77.33	84.36
C.E. VOL. EFF.... (%)	73.12	78.66	84.25
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

ROD LOADS AND REVERSALS			
ROD LOAD TENS... (LB)	15219	9496	3674
ROD LOAD COMPR.. (LB)	15656	10599	5744
ROD LOAD... (COMBINED)	30875	20095	9418
REVERSAL.... (YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

**CUSTOMER:**

KEY #/Version : 0 / 8.1

**QUOTE #:**

Unit ID.: 705

**LOCATION:**

DATE: 11-13-2002

ELEVATION (FT): 2500

ATMOS. PR. (PSIA): 13.404

AMB. TEMP (DEG F): 100

Tc (DEG R): 358.2

Pc (PSIA): 672.5

PISTON SPEED (FPM): 1200

DRIVER: Westinghouse

COMPRESSOR: GEMINI

STROKE (IN): 6.000

MODEL:

MODEL: D604

ROD DIA (IN): 2.000

MAX BHP: 900

MAX BHP: 2400.0

R/L TENSION: 30000

MAX RPM: 1200

MAX RPM: 1200

R/L COMPR.: 32500

DRIVER LOAD (%): 93.8

DESIGN RPM: 1200

R/L COMB.: 62500

**CYLINDER DATA**

CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION . (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

**PRESSURES AND TEMPERATURES**

INLET PRES.... (PSIG)	30.0	118.7	281.6
DISCH. PRES... (PSIG)	122.3	290.1	400.0
COMP. RATIO . (Pd/Ps)	3.2	2.3	1.4
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	199	228	163
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

**FLOW CONDITIONS AND HORSEPOWER**

CAP. PER CYL. (MMSCFD)	5.39	5.39	5.39
STAGE CAP... (MMSCFD)	5.39	5.39	5.39
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
Zs.....	.993	.986	.968
Zd.....	.991	.984	.966
CYL. IHP .. (PER/CYL)	382	299	131
CYL. BHP .... (TOTAL)	844		
TOTAL UNIT BHP .....	844 + (AUX. HP) = 844		

**CLEARANCE DATA**

H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	.0	.0	.0
PKT. TRAVEL.... (IN/%)	.00/	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	14.27	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	72.59	78.64	89.30
C.E. VOL. EFF.... (%)	73.48	79.89	89.23
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

**ROD LOADS AND REVERSALS**

ROD LOAD TENS... (LB)	19399	11196	2152
ROD LOAD COMPR.. (LB)	19960	12565	4391
ROD LOAD.. (COMBINED)	39359	23761	6543
REVERSAL.... (YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>	<b>QUOTE #:</b>
KEY #/Version : 0 / 8.1	Unit ID.: 705
<b>LOCATION:</b>	<b>DATE: 11-13-2002</b>
ELEVATION (FT): 2500	ATMOS. PR. (PSIA): 13.404
Tc (DEG R): 358.2	Pc (PSIA): 672.5
	AMB. TEMP (DEG F): 100
	PISTON SPEED (FPM): 1200
<b>DRIVER: Westinghouse</b>	<b>COMPRESSOR: GEMINI</b>
<b>MODEL:</b>	<b>MODEL: D604</b>
MAX BHP: 900	MAX BHP: 2400.0
MAX RPM: 1200	MAX RPM: 1200
DRIVER LOAD (%): 100.0	DESIGN RPM: 1200
	STROKE (IN): 6.000
	ROD DIA (IN): 2.000
	R/L TENSION: 30000
	R/L COMPR.: 32500
	R/L COMB.: 62500

CYLINDER DATA			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

PRESSURES AND TEMPERATURES			
INLET PRES.... (PSIG)	40.0	138.6	318.1
DISCH. PRES... (PSIG)	142.7	327.8	400.0
COMP. RATIO (Pd/Ps)	3.0	2.2	1.3
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	190	225	148
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

FLOW CONDITIONS AND HORSEPOWER			
CAP. PER CYL. (MMSCFD)	6.28	6.28	6.28
STAGE CAP... (MMSCFD)	6.28	6.28	6.28
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
ZS.....	.991	.983	.964
ZD.....	.989	.981	.963
CYL. IHP .. (PER/CYL)	418	337	113
CYL. BHP .... (TOTAL)	900		
TOTAL UNIT BHP .....	900	+ (AUX. HP) = 900	

CLEARANCE DATA			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	8.8	.0	.0
PKT. TRAVEL.... (IN/%)	1.60/16	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	23.10	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	63.36	79.29	91.84
C.E. VOL. EFF.... (%)	75.38	80.48	91.79
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

ROD LOADS AND REVERSALS			
ROD LOAD TENS... (LB)	21591	12339	1120
ROD LOAD COMPR.. (LB)	22248	13889	3473
ROD LOAD.. (COMBINED)	43839	26228	4593
REVERSAL.... (YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>	<b>QUOTE #:</b>
<b>KEY #/Version : 0 / B.1</b>	<b>Unit ID.: 705</b>
<b>LOCATION:</b>	<b>DATE: 11-13-2002</b>
<b>ELEVATION (FT): 2500</b>	<b>ATMOS. PR. (PSIA): 13.404</b>
<b>Tc (DEG R): 358.2</b>	<b>AMB. TEMP (DEG F): 100</b>
	<b>PISTON SPEED (FPM): 1200</b>
<b>DRIVER: Westinghouse</b>	<b>COMPRESSOR: GEMINI</b>
<b>MODEL:</b>	<b>MODEL: D604</b>
<b>MAX BHP: 900</b>	<b>MAX BHP: 2400.0</b>
<b>MAX RPM: 1200</b>	<b>MAX RPM: 1200</b>
<b>DRIVER LOAD (%): 100.0</b>	<b>DESIGN RPM: 1200</b>
	<b>STROKE (IN): 6.000</b>
	<b>ROD DIA (IN): 2.000</b>
	<b>R/L TENSION: 30000</b>
	<b>R/L COMPR.: 32500</b>
	<b>R/L COMB.: 62500</b>

CYLINDER DATA			
<b>CYLINDER TYPE.....</b>	95	95	95
<b>STAGE #.....</b>	1	2	3
<b>CYL. BORE..... (IN)</b>	16.500	9.500	6.000
<b>M.A.W.P..... (PSIG)</b>	635	1500	2200
<b>CYL. ACTION .. (DA/SA)</b>	DA	DA	DA
<b>PISTON DISPL... (CFM)</b>	1768.8	577.6	222.5

PRESSURES AND TEMPERATURES			
<b>INLET PRES.... (PSIG)</b>	50.0	149.8	338.7
<b>DISCH. PRES.... (PSIG)</b>	154.3	349.0	400.0
<b>COMP. RATIO .. (Pd/Ps)</b>	2.7	2.2	1.2
<b>Ts..... (DEG-F)</b>	60	120	120
<b>Td (ADIAB)... (DEG-F)</b>	176	223	140
<b>Td (INTERNAL) (DEG-F)</b>	N/A	N/A	N/A

FLOW CONDITIONS AND HORSEPOWER			
<b>CAP. PER CYL. (MMSCFD)</b>	6.80	6.80	6.80
<b>STAGE CAP... (MMSCFD)</b>	6.80	6.80	6.80
<b>SP. GRAVITY.. (Air=1)</b>	.599	.599	.599
<b>K VALUE .. (Cp/Cv)</b>	1.260	1.260	1.260
<b>ZS.....</b>	.990	.982	.962
<b>ZD.....</b>	.987	.980	.961
<b>CYL. IHP .. (PER/CYL)</b>	409	359	100
<b>CYL. BHP .... (TOTAL)</b>	900		
<b>TOTAL UNIT BHP .....</b>	900	+ (AUX. HP) = 900	

CLEARANCE DATA			
<b>H.E. BASE CLR.... (%)</b>	14.27	17.21	20.10
<b>C.E. BASE CLR.... (%)</b>	13.62	15.80	20.32
<b>ADDED CLR H.E.... (%)</b>	25.3	.0	.0
<b>PKT. TRAVEL.... (IN/%)</b>	4.59/45	.00/	.00/
<b>H.E. VSPCS USED/AVAIL</b>	0/0	0/0	0/0
<b>H.E. TOTAL CLR... (%)</b>	39.59	17.21	20.10
<b>ADDED CLR C.E.... (%)</b>	.0	.0	.0
<b>C.E. VSPCS USED/AVAIL</b>	0/0	0/0	0/0
<b>C.E. TOTAL CLR... (%)</b>	13.62	15.80	20.32
<b>H.E. VOL. EFF.... (%)</b>	49.32	79.59	93.06
<b>C.E. VOL. EFF.... (%)</b>	78.06	80.76	93.03
<b>VLV. VEL. INLET (FPM)</b>	7737	7730	6676
<b>VLV. VEL. DISCH. (FPM)</b>	7737	7730	6676

ROD LOADS AND REVERSALS			
<b>ROD LOAD TENS... (LB)</b>	21920	12982	537
<b>ROD LOAD COMPR.. (LB)</b>	22644	14634	2955
<b>ROD LOAD.. (COMBINED)</b>	44564	27616	3492
<b>REVERSAL.... (YES/NO)</b>	YES	YES	YES

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# GEMINI GAS COMPRESSORS

**CUSTOMER:**  
**KEY #/Version : 0 / 8.1**

**QUOTE #:**  
**Unit ID.: 705**

**LOCATION:**  
**ELEVATION (FT): 2500**      **ATMOS. PR. (PSIA): 13.404**      **AMB. TEMP (DEG F): 100**  
**Tc (DEG R): 358.2**      **Pc (PSIA): 672.5**      **PISTON SPEED (FPM): 1200**

<b>DRIVER: Westinghouse</b>	<b>COMPRESSOR: GEMINI</b>	<b>STROKE (IN): 6.000</b>
<b>MODEL:</b>	<b>MODEL: D604</b>	<b>ROD DIA (IN): 2.000</b>
<b>MAX BHP: 900</b>	<b>MAX BHP: 2400.0</b>	<b>R/L TENSION: 30000</b>
<b>MAX RPM: 1200</b>	<b>MAX RPM: 1200</b>	<b>R/L COMPR.: 32500</b>
<b>DRIVER LOAD (%): 67.6</b>	<b>DESIGN RPM: 1200</b>	<b>R/L COMB.: 62500</b>

CYLINDER DATA			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION . (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

PRESSURES AND TEMPERATURES			
INLET PRES.... (PSIG)	10.0	61.7	186.2
DISCH. PRES... (PSIG)	63.6	191.8	500.0
COMP. RATIO . (Pd/Ps)	3.3	2.7	2.6
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	206	253	246
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

FLOW CONDITIONS AND HORSEPOWER			
CAP. PER CYL. (MMSCFD)	2.87	2.87	2.87
STAGE CAP... (MMSCFD)	2.87	2.87	2.87
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
Z8.....	.996	.992	.978
ZD.....	.995	.990	.976
CYL. IHP .. (PER/CYL)	211	191	174
CYL. BHP .... (TOTAL)	608		
TOTAL UNIT BHP .....	608 + (AUX. HP) = 608		

CLEARANCE DATA			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	.0	.0	.0
PKT. TRAVEL.... (IN/%)	.00/	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	14.27	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	71.05	73.46	71.92
C.E. VOL. EFF.... (%)	72.01	75.07	71.69
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

ROD LOADS AND REVERSALS			
ROD LOAD TENS... (LB)	11267	8573	7389
ROD LOAD COMPR.. (LB)	11581	9453	9645
ROD LOAD.. (COMBINED)	22848	18026	17034
REVERSAL.... (YES/NO)	YES	YES	YES

**Notes: Results which are Out of Limits are Highlighted**

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# GEMINI GAS COMPRESSORS

**CUSTOMER:**  
**KEY #/Version :** 0 / 8.1

**QUOTE #:**  
**Unit ID.:** 705

**LOCATION:** **DATE:** 11-13-2002  
**ELEVATION (FT):** 2500 **ATMOS. PR. (PSIA):** 13.404 **AMB. TEMP (DEG F):** 100  
**Tc (DEG R):** 358.2 **Pc (PSIA):** 672.5 **PISTON SPEED (FPM):** 1200

<b>DRIVER:</b> Westinghouse	<b>COMPRESSOR:</b> GEMINI	<b>STROKE (IN):</b> 6.000
<b>MODEL:</b>	<b>MODEL:</b> D604	<b>ROD DIA (IN):</b> 2.000
<b>MAX BHP:</b> 900	<b>MAX BHP:</b> 2400.0	<b>R/L TENSION:</b> 30000
<b>MAX RPM:</b> 1200	<b>MAX RPM:</b> 1200	<b>R/L COMPR.:</b> 32500
<b>DRIVER LOAD (%):</b> 85.1	<b>DESIGN RPM:</b> 1200	<b>R/L COMB.:</b> 62500

**CYLINDER DATA**

<b>CYLINDER TYPE.....</b>	95	95	95
<b>STAGE #.....</b>	1	2	3
<b>CYL. BORE..... (IN)</b>	16.500	9.500	6.000
<b>M.A.W.P. .... (PSIG)</b>	635	1500	2200
<b>CYL. ACTION . (DA/SA)</b>	DA	DA	DA
<b>PISTON DISPL... (CFM)</b>	1768.8	577.6	222.5

**PRESSURES AND TEMPERATURES**

<b>INLET PRES.... (PSIG)</b>	20.0	90.9	241.3
<b>DISCH. PRES... (PSIG)</b>	93.7	248.6	500.0
<b>COMP. RATIO . (Pd/Ps)</b>	3.2	2.5	2.0
<b>Ts..... (DEG-F)</b>	60	120	120
<b>Td (ADIAB)... (DEG-F)</b>	202	241	211
<b>Td (INTERNAL) (DEG-F)</b>	N/A	N/A	N/A

**FLOW CONDITIONS AND HORSEPOWER**

<b>CAP. PER CYL. (MMSCFD)</b>	4.12	4.12	4.12
<b>STAGE CAP... (MMSCFD)</b>	4.12	4.12	4.12
<b>SP. GRAVITY.. (Air=1)</b>	.599	.599	.599
<b>K VALUE ..... (Cp/Cv)</b>	1.260	1.260	1.260
<b>ZS.....</b>	.995	.989	.972
<b>ZD.....</b>	.993	.987	.970
<b>CYL. IHP .. (PER/CYL)</b>	297	252	186
<b>CYL. BHP .... (TOTAL)</b>	767		
<b>TOTAL UNIT BHP .....</b>	767	+ (AUX. HP) = 767	

**CLEARANCE DATA**

<b>H.E. BASE CLR.... (%)</b>	14.27	17.21	20.10
<b>C.E. BASE CLR.... (%)</b>	13.62	15.80	20.32
<b>ADDED CLR H.E.... (%)</b>	.0	.0	.0
<b>PKT. TRAVEL.... (IN/%)</b>	.00/	.00/	.00/
<b>H.E. VSPCS USED/AVAIL</b>	0/0	0/0	0/0
<b>H.E. TOTAL CLR... (%)</b>	14.27	17.21	20.10
<b>ADDED CLR C.E.... (%)</b>	.0	.0	.0
<b>C.E. VSPCS USED/AVAIL</b>	0/0	0/0	0/0
<b>C.E. TOTAL CLR... (%)</b>	13.62	15.80	20.32
<b>H.E. VOL. EFF.... (%)</b>	71.83	76.06	79.82
<b>C.E. VOL. EFF.... (%)</b>	72.76	77.48	79.67
<b>VLV. VEL. INLET. (FPM)</b>	7737	7730	6676
<b>VLV. VEL. DISCH. (FPM)</b>	7737	7730	6676

**ROD LOADS AND REVERSALS**

<b>ROD LOAD TENS... (LB)</b>	15490	10350	5831
<b>ROD LOAD COMPR. (LB)</b>	15930	11501	8260
<b>ROD LOAD... (COMBINED)</b>	31420	21851	14091
<b>REVERSAL.... (YES/NO)</b>	YES	YES	YES

**Notes: Results which are Out of Limits are Highlighted**

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>	<b>QUOTE #:</b>
<b>KEY #/Version : 0 / 8.1</b>	<b>Unit ID.: 705</b>
<b>LOCATION:</b>	<b>DATE: 11-13-2002</b>
<b>ELEVATION (FT): 2500</b>	<b>ATMOS. PR. (PSIA): 13.404</b>
<b>Tc (DEG R): 358.2</b>	<b>AMB. TEMP (DEG F): 100</b>
	<b>Pc (PSIA): 672.5</b>
	<b>PISTON SPEED (FPM): 1200</b>
<b>DRIVER: Westinghouse</b>	<b>COMPRESSOR: GEMINI</b>
<b>MODEL:</b>	<b>MODEL: D604</b>
<b>MAX BHP: 900</b>	<b>MAX BHP: 2400.0</b>
<b>MAX RPM: 1200</b>	<b>MAX RPM: 1200</b>
<b>DRIVER LOAD (%): 100.0</b>	<b>DESIGN RPM: 1200</b>
	<b>STROKE (IN): 6.000</b>
	<b>ROD DIA (IN): 2.000</b>
	<b>R/L TENSION: 30000</b>
	<b>R/L COMPR.: 32500</b>
	<b>R/L COMB.: 62500</b>

CYLINDER DATA			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION . (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5
PRESSURES AND TEMPERATURES			
INLET PRES.... (PSIG)	30.0	119.0	293.6
DISCH. PRES... (PSIG)	122.6	302.5	500.0
COMP. RATIO . (Pd/Ps)	3.2	2.4	1.7
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	199	233	186
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A
FLOW CONDITIONS AND HORSEPOWER			
CAP. PER CYL. (MMSCFD)	5.34	5.34	5.34
STAGE CAP... (MMSCFD)	5.34	5.34	5.34
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
Zs.....	.993	.985	.967
ZD.....	.991	.984	.965
CYL. IHP .. (PER/CYL)	378	308	182
CYL. BHP .... (TOTAL)	900		
TOTAL UNIT BHP .....	900 + (AUX. HP) = 900		
CLEARANCE DATA			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	1.0	.0	.0
PKT. TRAVEL.... (IN/%)	.19/2	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	15.31	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	71.07	77.56	85.01
C.E. VOL. EFF.... (%)	73.41	78.88	84.90
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676
ROD LOADS AND REVERSALS			
ROD LOAD TENS... (LB)	19470	12014	4350
ROD LOAD COMPR.. (LB)	20032	13423	6944
ROD LOAD.. (COMBINED)	39502	25437	11294
REVERSAL.... (YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>		<b>QUOTE #:</b>	
KEY #/Version : 0 / 8.1		Unit ID.: 705	
<b>LOCATION:</b>		DATE: 11-13-2002	
ELEVATION (FT): 2500	ATMOS. PR. (PSIA): 13.404	AMB. TEMP (DEG F): 100	
Tc (DEG R): 358.2	Pc (PSIA): 672.5	PISTON SPEED (FPM): 1200	
<b>DRIVER:</b> Westinghouse	<b>COMPRESSOR:</b> GEMINI	<b>STROKE (IN):</b> 6.000	
<b>MODEL:</b>	<b>MODEL:</b> D604	<b>ROD DIA (IN):</b> 2.000	
<b>MAX BHP:</b> 900	<b>MAX BHP:</b> 2400.0	<b>R/L TENSION:</b> 30000	
<b>MAX RPM:</b> 1200	<b>MAX RPM:</b> 1200	<b>R/L COMPR.:</b> 32500	
<b>DRIVER LOAD (%):</b> 100.0	<b>DESIGN RPM:</b> 1200	<b>R/L COMB.:</b> 62500	

CYLINDER DATA			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION . (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

PRESSURES AND TEMPERATURES			
INLET PRES.... (PSIG)	40.0	129.2	312.5
DISCH. PRES... (PSIG)	133.1	322.0	500.0
COMP. RATIO . (Pd/Ps)	2.8	2.4	1.6
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	181	231	178
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

FLOW CONDITIONS AND HORSEPOWER			
CAP. PER CYL. (MMSCFD)	5.81	5.81	5.81
STAGE CAP... (MMSCFD)	5.81	5.81	5.81
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
ZS.....	.991	.984	.965
ZD.....	.989	.982	.963
CYL. IHP .. (PER/CYL)	363	328	177
CYL. BHP .... (TOTAL)	900		
TOTAL UNIT BHP .....	900 + (AUX. HP) = 900		

CLEARANCE DATA			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	21.0	.0	.0
PKT. TRAVEL.... (IN/%)	3.80/37	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	35.27	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	51.92	77.98	86.52
C.E. VOL. EFF.... (%)	77.11	79.27	86.43
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

ROD LOADS AND REVERSALS			
ROD LOAD TENS... (LB)	19570	12611	3816
ROD LOAD COMPR.. (LB)	20196	14113	6469
ROD LOAD... (COMBINED)	39766	26724	10285
REVERSAL.... (YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>		<b>QUOTE #:</b>	
KEY #/Version : 0 / 8.1		Unit ID.: 705	
<b>LOCATION:</b>		DATE: 11-13-2002	
ELEVATION (FT): 2500	ATMOS. PR. (PSIA): 13.404	AMB. TEMP (DEG F): 100	
Tc (DEG R): 358.2	Pc (PSIA): 672.5	PISTON SPEED (FPM): 1200	
DRIVER: Westinghouse	COMPRESSOR: GEMINI	STROKE (IN): 6.000	
MODEL:	MODEL: D604	ROD DIA (IN): 2.000	
MAX BHP: 900	MAX BHP: 2400.0	R/L TENSION: 30000	
MAX RPM: 1200	MAX RPM: 1200	R/L COMPR.: 32500	
DRIVER LOAD (%): 100.0	DESIGN RPM: 1200	R/L COMB.: 62500	

CYLINDER DATA			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION . (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

PRESSURES AND TEMPERATURES			
INLET PRES.... (PSIG)	50.0	138.5	329.7
DISCH. PRES... (PSIG)	142.7	339.8	500.0
COMP. RATIO . (Pd/Ps)	2.5	2.3	1.5
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	167	230	171
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

FLOW CONDITIONS AND HORSEPOWER			
CAP. PER CYL. (MMSCFD)	6.25	6.25	6.25
STAGE CAP... (MMSCFD)	6.25	6.25	6.25
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
Zs.....	.990	.983	.963
Zd.....	.987	.981	.961
CYL. IHP .. (PER/CYL)	349	347	172
CYL. BHP .... (TOTAL)	899		
TOTAL UNIT BHP .....	899	+ (ADJ. HP) = 899	

CLEARANCE DATA			
H.E. BASE CLR... (%)	14.27	17.21	20.10
C.E. BASE CLR... (%)	13.62	15.80	20.32
ADDED CLR H.E... (%)	41.6	.0	.0
PKT. TRAVEL... (IN/%)	7.53/73	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	55.83	17.21	20.10
ADDED CLR C.E... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	37.78	78.31	87.77
C.E. VOL. EFF.... (%)	79.88	79.58	87.69
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

ROD LOADS AND REVERSALS			
ROD LOAD TENS... (LB)	19477	13152	3330
ROD LOAD COMPR.. (LB)	20164	14739	6037
ROD LOAD.. (COMBINED)	39641	27891	9367
REVERSAL.... (YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

**CUSTOMER:**

KEY #/Version : 0 / 8.1

**QUOTE #:**

Unit ID.: 705

**LOCATION:**

ELEVATION(FT):2500

ATMOS. PR.(PSIA):13.404

DATE: 11-13-2002

Tc(DEG R):358.2

Pc(PSIA):672.5

AMB.TEMP(DEG F):100

PISTON SPEED (FPM): 1200

DRIVER: Westinghouse

COMPRESSOR: GEMINI

STROKE (IN): 6.000

MODEL:

MODEL: D604

ROD DIA (IN): 2.000

MAX BHP: 900

MAX BHP: 2400.0

R/L TENSION: 30000

MAX RPM: 1200

MAX RPM: 1200

R/L COMPR.: 32500

DRIVER LOAD(%): 71.0

DESIGN RPM: 1200

R/L COMB.: 62500

		CYLINDER DATA		
CYLINDER TYPE.....	95	95	95	
STAGE #.....	1	2	3	
CYL. BORE.....(IN)	16.500	9.500	6.000	
M.A.W.P. ....(PSIG)	635	1500	2200	
CYL. ACTION .(DA/SA)	DA	DA	DA	
PISTON DISPL...(CFM)	1768.8	577.6	222.5	

PRESSURES AND TEMPERATURES			
INLET PRES....(PSIG)	10.0	62.9	199.1
DISCH. PRES...(PSIG)	64.8	205.1	600.0
COMP. RATIO .(Pd/Ps)	3.4	2.9	2.9
Ts.....(DEG-F)	60	120	120
Td (ADIAB)...(DEG-F)	208	260	263
Td (INTERNAL)(DEG-F)	N/A	N/A	N/A

FLOW CONDITIONS AND HORSEPOWER			
CAP. PER CYL. (MMSCFD)	2.86	2.86	2.86
STAGE CAP... (MMSCFD)	2.86	2.86	2.86
SP. GRAVITY..(Air=1)	.599	.599	.599
K VALUE .....(Cp/Cv)	1.260	1.260	1.260
ZS.....	.996	.992	.977
ZD.....	.995	.990	.975
CYL. IHP ..(PER/CYL)	212	199	196
CYL. BHP ....(TOTAL)	639		
TOTAL UNIT BHP .....	639	+ (AUX. HP) = 639	

CLEARANCE DATA			
H.E. BASE CLR....(%)	14.27	17.21	20.10
C.E. BASE CLR....(%)	13.62	15.80	20.32
ADDED CLR H.E....(%)	.0	.0	.0
PKT. TRAVEL....(IN/%)	.00/	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	14.27	17.21	20.10
ADDED CLR C.E....(%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF....(%)	70.56	71.92	67.70
C.E. VOL. EFF....(%)	71.53	73.63	67.43
VLV. VEL. INLET.(FPM)	7737	7730	6676
VLV. VEL. DISCH.(FPM)	7737	7730	6676

ROD LOADS AND REVERSALS			
ROD LOAD TENS...(LB)	11522	9390	9563
ROD LOAD COMPR..(LB)	11840	10316	12177
ROD LOAD..(COMBINED)	23362	19706	21740
REVERSAL....(YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>		<b>QUOTE #:</b>
KEY #/Version : 0 / 8.1		Unit ID.: 705
<b>LOCATION:</b>		<b>DATE:</b> 11-13-2002
ELEVATION(FT): 2500	ATMOS. PR. (PSIA): 13.404	AMB. TEMP (DEG F): 100
Tc (DEG R): 358.2	Pc (PSIA): 672.5	PISTON SPEED (FPM): 1200
<b>DRIVER:</b> Westinghouse	<b>COMPRESSOR:</b> GEMINI	<b>STROKE (IN):</b> 6.000
<b>MODEL:</b>	<b>MODEL:</b> D604	<b>ROD DIA (IN):</b> 2.000
<b>MAX BHP:</b> 900	<b>MAX BHP:</b> 2400.0	<b>R/L TENSION:</b> 30000
<b>MAX RPM:</b> 1200	<b>MAX RPM:</b> 1200	<b>R/L COMPR.:</b> 32500
<b>DRIVER LOAD (%):</b> 89.9	<b>DESIGN RPM:</b> 1200	<b>R/L COMB.:</b> 62500

CYLINDER DATA			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION . (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

PRESSURES AND TEMPERATURES			
INLET PRES.... (PSIG)	20.0	92.2	254.5
DISCH. PRES... (PSIG)	94.9	262.2	600.0
COMP. RATIO . (Pd/Ps)	3.3	2.6	2.3
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	204	247	229
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

FLOW CONDITIONS AND HORSEPOWER			
CAP. PER CYL. (MMSCFD)	4.11	4.11	4.11
STAGE CAP... (MMSCFD)	4.11	4.11	4.11
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
Zs.....	.995	.988	.971
ZD.....	.993	.987	.969
CYL. IHP .. (PER/CYL)	299	261	217
CYL. BHP .... (TOTAL)	809		
TOTAL UNIT BHP .....	809	+ (AUX. HP) = 809	

CLEARANCE DATA			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	.0	.0	.0
PKT. TRAVEL.... (IN/%)	.00/	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	14.27	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	71.47	74.86	75.88
C.E. VOL. EFF.... (%)	72.41	76.37	75.68
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

ROD LOADS AND REVERSALS			
ROD LOAD TENS... (LB)	15753	11187	7995
ROD LOAD COMPR.. (LB)	16198	12385	10783
ROD LOAD.. (COMBINED)	31951	23572	18778
REVERSAL.... (YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>	<b>QUOTE #:</b>
KEY #/Version : 0 / 8.1	Unit ID.: 705
<b>LOCATION:</b>	<b>DATE:</b> 11-13-2002
ELEVATION (FT): 2500	ATMOS. PR. (PSIA): 13.404
Tc (DEG R): 358.2	Pc (PSIA): 672.5
	AMB. TEMP (DEG F): 100
	PISTON SPEED (FPM): 1200
DRIVER: Westinghouse	COMPRESSOR: GEMINI
MODEL:	MODEL: D604
MAX BHP: 900	MAX BHP: 2400.0
MAX RPM: 1200	MAX RPM: 1200
DRIVER LOAD (%): 100.0	DESIGN RPM: 1200
	STROKE (IN): 6.000
	ROD DIA (IN): 2.000
	R/L TENSION: 30000
	R/L COMPR.: 32500
	R/L COMB.: 62500

<b>CYLINDER DATA</b>			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION . (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

<b>PRESSURES AND TEMPERATURES</b>			
INLET PRES... (PSIG)	30.0	113.3	294.2
DISCH. PRES... (PSIG)	116.7	303.1	600.0
COMP. RATIO . (Pd/Ps)	3.0	2.5	2.0
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	193	240	210
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

<b>FLOW CONDITIONS AND HORSEPOWER</b>			
CAP. PER CYL. (MMSCFD)	5.04	5.04	5.04
STAGE CAP... (MMSCFD)	5.04	5.04	5.04
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
ZS.....	.993	.986	.967
ZD.....	.991	.984	.965
CYL. IHP .. (PER/CYL)	342	304	222
CYL. BHP .... (TOTAL)	900		
TOTAL UNIT BHP .....	900	+ (AUX. HP) = 900	

<b>CLEARANCE DATA</b>			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	9.1	.0	.0
PKT TRAVEL.... (IN/%)	1.65/16	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	23.39	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	61.89	76.21	80.15
C.E. VOL. EFF.... (%)	74.69	77.62	79.99
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

<b>ROD LOADS AND REVERSALS</b>			
ROD LOAD TENS... (LB)	18232	12457	6873
ROD LOAD COMPR.. (LB)	18776	13849	9786
ROD LOAD.. (COMBINED)	37008	26306	16659
REVERSAL.... (YES/NO)	YES	YES	YES

Notes: Results which are Out of Limits are Highlighted

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>	<b>QUOTE #:</b>
KEY #/Version : 0 / 8.1	Unit ID.: 705
<b>LOCATION:</b>	<b>DATE:</b> 11-13-2002
ELEVATION (FT): 2500	ATMOS. PR. (PSIA): 13.404
Tc (DEG R): 358.2	AMB. TEMP (DEG F): 100
	Pc (PSIA): 672.5
	PISTON SPEED (FPM): 1200
<b>DRIVER:</b> Westinghouse	<b>COMPRESSOR:</b> GEMINI
<b>MODEL:</b>	<b>MODEL:</b> D604
MAX BHP: 900	MAX BHP: 2400.0
MAX RPM: 1200	MAX RPM: 1200
DRIVER LOAD (%): 100.0	DESIGN RPM: 1200
	STROKE (IN): 6.000
	ROD DIA (IN): 2.000
	R/L TENSION: 30000
	R/L COMPR.: 32500
	R/L COMB.: 62500

CYLINDER DATA			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION . (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

PRESSURES AND TEMPERATURES			
INLET PRES.... (PSIG)	40.0	122.4	311.0
DISCH. PRES... (PSIG)	126.1	320.5	600.0
COMP. RATIO . (Pd/Ps)	2.6	2.5	1.9
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	175	238	202
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

FLOW CONDITIONS AND HORSEPOWER			
CAP. PER CYL. (MMSCFD)	5.46	5.46	5.46
STAGE CAP... (MMSCFD)	5.46	5.46	5.46
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
ZS.....	.991	.985	.965
ZD.....	.989	.983	.963
CYL. IHP .. (PER/CYL)	323	323	222
CYL. BHP .... (TOTAL)	900		
TOTAL UNIT BHP .....	900	+ (AUX. HP) = 900	

CLEARANCE DATA			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	31.9	.0	.0
PKT. TRAVEL.... (IN/%)	5.78/56	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	46.18	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	43.07	76.67	81.68
C.E. VOL. EFF.... (%)	78.41	78.05	81.54
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

ROD LOADS AND REVERSALS			
ROD LOAD TENS... (LB)	18076	12992	6398
ROD LOAD COMPR.. (LB)	18681	14468	9364
ROD LOAD.. (COMBINED)	36757	27460	15762
REVERSAL.... (YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>		<b>QUOTE #:</b>
KEY #/Version : 0 / 8.1		Unit ID.: 705
<b>LOCATION:</b>		<b>DATE:</b> 11-13-2002
ELEVATION(FT):2500	ATMOS. PR.(PSIA):13.404	AMB.TEMP(DEG F):100
Tc(DEG R):358.2	Pc(PSIA):672.5	PISTON SPEED (FPM): 1200
<b>DRIVER:</b> Westinghouse	<b>COMPRESSOR:</b> GEMINI	<b>STROKE (IN):</b> 6.000
<b>MODEL:</b>	<b>MODEL:</b> D604	<b>ROD DIA (IN):</b> 2.000
<b>MAX BHP:</b> 900	<b>MAX BHP:</b> 2400.0	<b>R/L TENSION:</b> 30000
<b>MAX RPM:</b> 1200	<b>MAX RPM:</b> 1200	<b>R/L COMPR.:</b> 32500
<b>DRIVER LOAD(%):</b> 74.1	<b>DESIGN RPM:</b> 1200	<b>R/L COMB.:</b> 62500

<b>CYLINDER DATA</b>			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION .(DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

<b>PRESSURES AND TEMPERATURES</b>			
INLET PRES.... (PSIG)	10.0	64.1	211.8
DISCH. PRES... (PSIG)	66.0	218.2	700.0
COMP. RATIO .(Pd/Ps)	3.4	3.0	3.2
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	210	267	277
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

<b>FLOW CONDITIONS AND HORSEPOWER</b>			
CAP. PER CYL. (MMSCFD)	2.85	2.85	2.85
STAGE CAP... (MMSCFD)	2.85	2.85	2.85
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
ZS.....	.996	.991	.976
ZD.....	.995	.990	.975
CYL. IHP .. (PER/CYL)	214	206	215
CYL. BHP .... (TOTAL)	666		
TOTAL UNIT BHP .....	666	+ (AUX. HP) = 666	

<b>CLEARANCE DATA</b>			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	.0	.0	.0
PKT. TRAVEL.... (IN/%)	.00/	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	14.27	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	70.08	70.47	64.07
C.E. VOL. EFF.... (%)	71.07	72.28	63.76
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

<b>ROD LOADS AND REVERSALS</b>			
ROD LOAD TENS... (LB)	11772	10197	11741
ROD LOAD COMPR.. (LB)	12094	11168	14712
ROD LOAD.. (COMBINED)	23866	21365	26453
REVERSAL.... (YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>		<b>QUOTE #:</b>
KEY #/Version : 0 / 8.1		Unit ID.: 705
<b>LOCATION:</b>		<b>DATE:</b> 11-13-2002
ELEVATION (FT): 2500	ATMOS. PR. (PSIA): 13.404	AMB. TEMP (DEG F): 100
Tc (DEG R): 358.2	Pc (PSIA): 672.5	PISTON SPEED (FFM): 1200
<b>DRIVER:</b> Westinghouse	<b>COMPRESSOR:</b> GEMINI	<b>STROKE (IN):</b> 6.000
<b>MODEL:</b>	<b>MODEL:</b> D604	<b>ROD DIA (IN):</b> 2.000
<b>MAX BHP:</b> 900	<b>MAX BHP:</b> 2400.0	<b>R/L TENSION:</b> 30000
<b>MAX RPM:</b> 1200	<b>MAX RPM:</b> 1200	<b>R/L COMPR.:</b> 32500
<b>DRIVER LOAD (%):</b> 94.0	<b>DESIGN RPM:</b> 1200	<b>R/L COMB.:</b> 62500

<b>CYLINDER DATA</b>			
<b>CYLINDER TYPE</b> .....	95	95	95
<b>STAGE #</b> .....	1	2	3
<b>CYL. BORE</b> ..... (IN)	16.500	9.500	6.000
<b>M.A.W.P.</b> ..... (PSIG)	635	1500	2200
<b>CYL. ACTION</b> . (DA/SA)	DA	DA	DA
<b>PISTON DISPL</b> ... (CFM)	1768.8	577.6	222.5

<b>PRESSURES AND TEMPERATURES</b>			
<b>INLET PRES</b> .... (PSIG)	20.0	93.4	267.5
<b>DISCH. PRES</b> ... (PSIG)	96.2	275.6	700.0
<b>COMP. RATIO</b> . (Pd/Ps)	3.3	2.7	2.6
<b>Ts</b> ..... (DEG-F)	60	120	120
<b>Td (ADIAB)</b> ... (DEG-F)	205	252	244
<b>Td (INTERNAL)</b> (DEG-F)	N/A	N/A	N/A

<b>FLOW CONDITIONS AND HORSEPOWER</b>			
<b>CAP. PER CYL.</b> (MMSCFD)	4.10	4.10	4.10
<b>STAGE CAP</b> ... (MMSCFD)	4.10	4.10	4.10
<b>SP. GRAVITY</b> .. (Air=1)	.599	.599	.599
<b>K VALUE</b> ..... (Cp/Cv)	1.260	1.260	1.260
<b>ZS</b> .....	.995	.988	.970
<b>ZD</b> .....	.993	.987	.968
<b>CYL. IHP</b> .. (PER/CYL)	300	270	244
<b>CYL. BHP</b> .... (TOTAL)	846		
<b>TOTAL UNIT BHP</b> .....	846	+ (AUX. HP) = 846	

<b>CLEARANCE DATA</b>			
<b>H.E. BASE CLR</b> .... (%)	14.27	17.21	20.10
<b>C.E. BASE CLR</b> .... (%)	13.62	15.80	20.32
<b>ADDED CLR H.E</b> .... (%)	.0	.0	.0
<b>PKT. TRAVEL</b> .... (IN/%)	.00/	.00/	.00/
<b>H.E. VSPCS USED/AVAIL</b>	0/0	0/0	0/0
<b>H.E. TOTAL CLR</b> ... (%)	14.27	17.21	20.10
<b>ADDED CLR C.E</b> .... (%)	.0	.0	.0
<b>C.E. VSPCS USED/AVAIL</b>	0/0	0/0	0/0
<b>C.E. TOTAL CLR</b> ... (%)	13.62	15.80	20.32
<b>H.E. VOL. EFF</b> .... (%)	71.12	73.72	72.41
<b>C.E. VOL. EFF</b> .... (%)	72.08	75.31	72.18
<b>VLV. VEL. INLET</b> (FFM)	7737	7730	6676
<b>VLV. VEL. DISCH.</b> (FFM)	7737	7730	6676

<b>ROD LOADS AND REVERSALS</b>			
<b>ROD LOAD TENS</b> ... (LB)	16011	12011	10165
<b>ROD LOAD COMPR.</b> (LB)	16459	13255	13312
<b>ROD LOAD</b> .. (COMBINED)	32470	25266	23477
<b>REVERSAL</b> .... (YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>		<b>QUOTE #:</b>
KEY #/Version : 0 / 8.1		Unit ID.: 705
<b>LOCATION:</b>		<b>DATE:</b> 11-13-2002
ELEVATION(FT):2500	ATMOS. PR.(PSIA):13.404	AMB.TEMP(DEG F):100
Tc(DEG R):358.2	Pc(PSIA):672.5	PISTON SPEED (FPM): 1200
<b>DRIVER:</b> Westinghouse	<b>COMPRESSOR:</b> GEMINI	<b>STROKE (IN):</b> 6.000
<b>MODEL:</b>	<b>MODEL:</b> D604	<b>ROD DIA (IN):</b> 2.000
<b>MAX BHP:</b> 900	<b>MAX BHP:</b> 2400.0	<b>R/L TENSION:</b> 30000
<b>MAX RPM:</b> 1200	<b>MAX RPM:</b> 1200	<b>R/L COMPR.:</b> 32500
<b>DRIVER LOAD(%):</b> 100.0	<b>DESIGN RPM:</b> 1200	<b>R/L COMB.:</b> 62500

<b>CYLINDER DATA</b>			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION . (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

<b>PRESSURES AND TEMPERATURES</b>			
INLET PRES.... (PSIG)	30.0	108.9	296.7
DISCH. PRES... (PSIG)	112.2	305.7	700.0
COMP. RATIO . (Pd/Ps)	2.9	2.6	2.3
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	188	246	230
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

<b>FLOW CONDITIONS AND HORSEPOWER</b>			
CAP. PER CYL. (MMSCFD)	4.79	4.79	4.79
STAGE CAP... (MMSCFD)	4.79	4.79	4.79
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
Zs.....	.993	.987	.967
ZD.....	.991	.985	.965
CYL. IHP .. (PER/CYL)	313	302	253
CYL. BHP .... (TOTAL)	900		
TOTAL UNIT BHP .....	900	+ (AUX. HP) = 900	

<b>CLEARANCE DATA</b>			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	16.4	.0	.0
PKT. TRAVEL.... (IN/%)	2.98/29	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	30.71	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	54.35	74.86	75.74
C.E. VOL. EFF.... (%)	75.69	76.37	75.54
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676

<b>ROD LOADS AND REVERSALS</b>			
ROD LOAD TENS... (LB)	17265	12952	9339
ROD LOAD COMPR.. (LB)	17794	14339	12577
ROD LOAD.. (COMBINED)	35059	27291	21916
REVERSAL.... (YES/NO)	YES	YES	YES

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# GEMINI GAS COMPRESSORS

<b>CUSTOMER:</b>		<b>QUOTE #:</b>
KEY #/Version : 0 / 8.1		Unit ID.: 705
<b>LOCATION:</b>		<b>DATE:</b> 11-13-2002
ELEVATION (FT): 2500	ATMOS. PR. (PSIA): 13.404	AMB. TEMP (DEG F): 100
Tc (DEG R): 358.2	Pc (PSIA): 672.5	PISTON SPEED (FPM): 1200
DRIVER: Westinghouse	COMPRESSOR: GEMINI	STROKE (IN): 6.000
MODEL:	MODEL: D604	ROD DIA (IN): 2.000
MAX BHP: 900	MAX BHP: 2400.0	R/L TENSION: 30000
MAX RPM: 1200	MAX RPM: 1200	R/L COMPR.: 32500
DRIVER LOAD (%): 100.0	DESIGN RPM: 1200	R/L COMB.: 62500

<b>CYLINDER DATA</b>			
CYLINDER TYPE.....	95	95	95
STAGE #.....	1	2	3
CYL. BORE..... (IN)	16.500	9.500	6.000
M.A.W.P. .... (PSIG)	635	1500	2200
CYL. ACTION . (DA/SA)	DA	DA	DA
PISTON DISPL... (CFM)	1768.8	577.6	222.5

<b>PRESSURES AND TEMPERATURES</b>			
INLET PRES.... (PSIG)	40.0	117.0	312.1
DISCH. PRES... (PSIG)	120.6	321.5	700.0
COMP. RATIO . (Pd/Ps)	2.5	2.6	2.2
Ts..... (DEG-F)	60	120	120
Td (ADIAB)... (DEG-F)	170	244	223
Td (INTERNAL) (DEG-F)	N/A	N/A	N/A

<b>FLOW CONDITIONS AND HORSEPOWER</b>			
CAP. PER CYL. (MMSCFD)	5.17	5.17	5.17
STAGE CAP... (MMSCFD)	5.17	5.17	5.17
SP. GRAVITY.. (Air=1)	.599	.599	.599
K VALUE ..... (Cp/Cv)	1.260	1.260	1.260
ZS.....	.991	.986	.965
ZD.....	.989	.984	.963
CYL. IHP .. (PER/CYL)	293	319	256
CYL. BHP .... (TOTAL)	900		
TOTAL UNIT BHP .....	900	+ (AUX. HP) = 900	

<b>CLEARANCE DATA</b>			
H.E. BASE CLR.... (%)	14.27	17.21	20.10
C.E. BASE CLR.... (%)	13.62	15.80	20.32
ADDED CLR H.E.... (%)	41.8	.0	.0
PKT. TRAVEL.... (IN/%)	7.58/74	.00/	.00/
H.E. VSPCS USED/AVAIL	0/0	0/0	0/0
H.E. TOTAL CLR... (%)	56.10	17.21	20.10
ADDED CLR C.E.... (%)	.0	.0	.0
C.E. VSPCS USED/AVAIL	0/0	0/0	0/0
C.E. TOTAL CLR... (%)	13.62	15.80	20.32
H.E. VOL. EFF.... (%)	35.92	75.37	77.28
C.E. VOL. EFF.... (%)	79.43	76.84	77.10
VLV. VEL. INLET. (FPM)	7737	7730	6676
VLV. VEL. DISCH. (FPM)	7737	7730	6676
<b>ROD LOADS AND REVERSALS</b>			
ROD LOAD TENS... (LB)	16924	13443	8907
ROD LOAD COMPR.. (LB)	17511	14905	12193
ROD LOAD.. (COMBINED)	34435	28348	21100
REVERSAL.... (YES/NO)	YES	YES	YES

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D60