

PUMP DATA SHEET

|                                     |                    |
|-------------------------------------|--------------------|
| PURCHASER                           | Flu-Con/Bibb       |
| LOCATION                            |                    |
| INGERSOLL-RAND ORDER                | 002-35778          |
| SERIAL NUMBERS                      | 0889013/4/5        |
| PUMP APPLICATION                    | Boiler Feed        |
| LIQUID PUMPED                       | 330°F water        |
| SPECIFIC GRAVITY                    | .902               |
| PUMP SIZE                           | 4X11DA12           |
| DRIVER                              | 1500-hp motor      |
| PUMP RATING                         | 887 gpm @ 3560 rpm |
| NET POSITIVE SUCTION HEAD REQUIRED  | 18 ft              |
| NET POSITIVE SUCTION HEAD AVAILABLE | 80 ft              |
| TOTAL HEAD                          | 5225 ft            |
| SUCTION PRESSURE                    | 80 psi             |
| DISCHARGE PRESSURE                  | 2120 psi           |
| PUMP EFFICIENCY                     | 77.9%              |
| PUMP ROTATION                       | CCW(HI)            |
| HYDROTEST PRESSURE                  | 3800 psi           |
| BEARING LUBRICATION                 | force feed         |
| PUMP HOLD-DOWN TORQUE VALUE         | 185-215 ft-lb      |

APPROXIMATE WEIGHTS

|          |          |
|----------|----------|
| PUMP     | 5750 lbs |
| DRIVER   | 5640 lbs |
| BEDPLATE | 3175 lbs |





## ORDERING INSTRUCTIONS

Mail your order to the nearest Ingersoll-Rand Office.

Refer to your Assembly Drawings which have every part numbered to correspond with the Engineering Parts Lists furnished.

The following should be included when ordering any parts for your pump.

INGERSOLL-RAND ORDER ..... 002-35778  
PUMP SERIAL NUMBER ..... 0889013/4/5  
PUMP SIZE ..... 4X11DA12

### EXAMPLE

NAME OF PART ..... SHAFT  
PART NUMBER ..... 62346408  
QUANTITY ..... 1

### EXAMPLE

NAME OF PART ..... IMPELLER RING  
PART NUMBER ..... FRONT RING FOR IMPELLER 62388293  
QUANTITY ..... 1

CURVE NO. 63749  
DATE 80C90

CURVES ARE APPROXIMATE. PUMP GUARANTEED FOR ONE SET OF CONDITIONS. CAPACITY, HEAD AND EFFICIENCY GUARANTEES ARE BASED ON SHOP TEST AND WHEN HANDLING CLEAR, COLD, FRESH WATER AT A TEMPERATURE OF NOT OVER 85°F AND NOT OVER 10 FOOT SUCTION LIFT.

IMPELLER EYE AREA = 21 SQ. IN.

IMPELLER PATT. NO. 4X11DA3A/D/E DIA

11.03" MAX

DIFFUSOR PATT. NO.

10.94"

8.88" MIN

BHP - SP. GR. = 1.00

BHP - SP. GR. = .902

NPSHR (TYPICAL)

EFFICIENCY

TOTAL HEAD

This will certify that curve 63749 is based on a performance test on the pump with serial no. 0889013 on Ingersoll-Rand order 002-35778

*W. Williams* 80C90

CUSTOMER - FRU CON  
CUST. ORD. - 708490.01-000016  
CUST. IT. - P-BF-1A  
SERVICE - BOILER FEED

CHARACTERISTIC CURVE

NO. 4X11

TYPE DA-12

PUMP

3560 R.P.M.

PUMP NO.

0889013

ORDER NO.

002-35778

INGERSOLL-RAND

PUMPS

DATE 80C90

CURVE 63749

GALLONS PER MINUTE

TOTAL HEAD IN FEET

152906

PERCENT EFFICIENCY

NPSH - FT.

BRAKE HORSE POWER



INGERSOLL-RAND CO.  
CAMERON DIVISION  
PHILLIPSBURG PLANT

(CCMS)

PARENT  
PART NO. 62308418

REV D  
LVL A

PT SIZE  
AY 4X11-12

SYMBOL  
CODE DA-B

NOUN  
CODE 500

BOILER FEED PUMP PUMP ASSEMBLY I

PLANT CODE 1000

REPORT NO. 02990  
RUN 03 SEP 89  
SHEET 2 OF 4

RELEASE  
DATE

-----DRAWING NUMBER-----><MAIL SPEC><LIST #>

| FND CLASS D | NO. SPARE A | QUANTITY | UM | COMP        | PART NO. | PT SIZE   | SYMBOL<br>CCODE | NOUN<br>CODE | PL | MATL SPEC | DESCRIPTION       | CASING MACH FINAL | IN-OUT<br>ST DATE | ECN<br>NO. | REV<br>LVL |
|-------------|-------------|----------|----|-------------|----------|-----------|-----------------|--------------|----|-----------|-------------------|-------------------|-------------------|------------|------------|
| 001         | Y           | 1        | PC | 62308251    | MO       | 4X11-12   | DA-B            | 183          | HA | 831       | CASING MACH FINAL |                   |                   |            |            |
| 002         | 3 Y         | 1        | PC | 62308285    | AY       | 4X11-12   | DA-B            | 184          |    |           | ROTOR ASSEMBLY    |                   |                   |            |            |
| 003         | 2 3 Y       | 1        | PC | 62274287    | MP       | 725       | D               | 006          |    | 655       | CASING RING       | !                 |                   |            |            |
| 004         | 2 3 Y       | 1        | PC | 62274295    | MP       | 624       | D               | 006          |    | 655       | CASING RING       | !                 |                   |            |            |
| 005         | 2 3 Y       | 10       | PC | 62299110    | MO       | 4X11      | DA              | 060          | BA | 913       | CHANNEL RING      |                   |                   |            |            |
| 006         | 2 3 C       | 1        | PC | 62418017    | MP       | 4X11      | DA              | 407          | B  | 913       | CENTER BUSHING    |                   |                   |            |            |
| 007         | 2 3 Y       | 1        | PC | 62389129    | MP       | 4X11      | DA              | 441          | A  | 905       | THROTTLING BUSH   |                   |                   |            |            |
| 008         | 2 3 C       | 2        | PC | 62046883    | MP       | 319       | D               | 088          |    | 20        | STUFF BOX BUSH    | !                 |                   |            |            |
| 012         | 2 3 Y       | 26       | PC | 62189816    | PP       | 12X.38    | TYPE H          | 029          |    | AISI 316  | GROOVE PIN        |                   |                   |            |            |
| 013         | 3 Y         | 2        | PC | 62120712    | PP       | CFSP95994 | 881             | 429          |    | XF511DI   | JOHN CRANE        |                   |                   |            |            |
| 018         |             | 8        | PC | 62A34394    |          |           |                 | 314          |    |           | STUD .62X3.50     |                   |                   |            |            |
| 020         |             | 8        | PC | 12A5C8      |          |           |                 | STEEL        |    |           | WASHERS 5/8"      |                   |                   |            |            |
| 021         |             | 8        | PC | 38A4K7      |          |           |                 | 377          |    |           | NUT .62           |                   |                   |            |            |
| 022         | 3 X         | 1        | PC | 18VFL164X3A |          |           |                 | 9            |    |           | COUPLING NUT      | !                 |                   |            |            |
| 023         | 3           | 2        | PC | 109A2A46    |          |           |                 | 318          |    |           | SET SCR .38X.50   |                   |                   |            |            |
| 024         | 3 X         | 1        | PC | 11A9-C-347  |          |           |                 | 266          |    |           | KEY .75X3.00      |                   |                   |            |            |
| 025         |             | 9        | PC | 30A7S3      |          |           |                 | STEEL        |    |           | PLUG .25          |                   |                   |            |            |
| 026         |             | 9        | PC | 30A7S5      |          |           |                 | STEEL        |    |           | PLUG .50          |                   |                   |            |            |
| 027         |             | 8        | PC | 30A7S6      |          |           |                 | STEEL        |    |           | PLUG .75          |                   |                   |            |            |
| 035         | C           | 1        | PC | 62218755    | MP       | 350       | B               | 199          |    | 204       | RAD BRG BODY/CAP  |                   |                   |            |            |

CUST. P.O. #708490.01-000016  
I.R. ORD. #002-35778-00

D  
A = DRAWING AVAILABILITY

PT = PART TYPE

PL = PATTERN LETTERS

ECN  
NO. = ENGR CHANGE NOTICE

ST = STATUS

INGERSOLL RAND CO.  
CAMEROON DIVISION  
PHILIPSBURG PLANT

(CCMS)

ENGINEERING PARTS LIST

BOILER FEEDPUMP PUMP ASSEMBLY

PARENT REV B PT SIZE SYMBOL NOUN CODE PL MATL SPEC  
PART NO. LVL A  
62380418 DA Y AY 4X11-12 DA-B 500

REPORT NO. 02990  
RUN 03 SEP 89  
SHEET 3 OF 4

RELEASE  
DATE

<-----DRAWING NUMBER-----><NAIL SPEC><LIST #>

| FND CLASS | Q       | QUANTITY | UM | COMP              | PART NO. | PT SIZE   | SYMBCL  | NOUN  | PL          | HATL | SPEC | DESCRIPTION       | IN-OUT | ECN  | REV |     |
|-----------|---------|----------|----|-------------------|----------|-----------|---------|-------|-------------|------|------|-------------------|--------|------|-----|-----|
| NO.       | SPARE   | A        |    |                   |          |           | CODE    | CODE  |             |      |      |                   | ST     | DATE | NO. | LVL |
| 036       | C       | 1        | PC | 62156872          | MP       | 350       | B       | 200   | 204         |      |      | THR BRG BODY/CAP  |        |      |     |     |
| 037       | C       | 3        | PC | 62119144          | PP       | 350       | B       | 157   | 673         |      |      | FLINGER           |        |      |     |     |
| 038       | 3       | 9        | PC | 109A2A7           |          |           |         | 318   |             |      |      | SET SCR .25X.75   |        |      |     |     |
| 039       | 2 3 Y   | 2        | PC | 62340062          | PP       | 350       | B       | 191   | STL/BABBITT |      |      | BEARING LINING    |        |      |     |     |
| 040       | X       | 2        | PC | 25A13-C-322       |          |           |         | STEEL |             |      |      | ROLL PIN          |        |      |     |     |
| 042       |         | 12       | PC | 35A2C479          |          |           |         | 175   |             |      |      | SCREW 1.00X2.50   |        |      |     |     |
| 043       |         | 8        | PC | 112A2A90          |          |           |         | 318   |             |      |      | SET SCR           |        |      |     |     |
| 044       | X       | 4        | PC | 13A13-C-110       |          |           |         | STEEL |             |      |      | #9X3.00 TAPER PIN |        |      |     |     |
| 045       |         | 4        | PC | 38A4C5            |          |           |         | 175   |             |      |      | NUT .50           |        |      |     |     |
| 046       | 3 X     | 1        | PC | 30-5-13-B         |          |           |         |       |             |      |      | KTR-JJ(6X6)       |        |      |     |     |
| 047       | 3       | 2        | PC | 225D308CX1        |          |           |         | 673   |             |      |      | SEALING RING      | +      | \$   |     |     |
| 048       | 3 X     | 1        | PC | 300B28KX1         |          |           |         | 17    |             |      |      | THRUST COLLAR     | !      |      |     |     |
| 049       | 3 X     | 1        | PC | 11A9-C-2125       |          |           |         | 266   |             |      |      | KEY .38X.62       |        |      |     |     |
| 050       | 1 2 3 X | 1        | PC | 91A11-S-149-E-216 |          |           |         | 669   |             |      |      | SHIM              |        |      |     |     |
| 051       | 1 2 3 X | 1        | PC | 91A11-S-149-H-216 |          |           |         | 669   |             |      |      | SHIM              |        |      |     |     |
| 052       | 1 2 3   | 1        | PC | 91A11-S-149-K-216 |          |           |         | 669   |             |      |      | SHIM              |        |      |     |     |
| 053       | 1 2 3   | 1        | PC | 91A11-S-149-L-216 |          |           |         | 669   |             |      |      | SHIM              |        |      |     |     |
| 054       | 1 2 3 Y | 1        | PC | 62130448          | PP       | 1.76X2.25 | .06 THK | 257   | 669         |      |      | SHIM              |        |      |     |     |
| 055       | 3 X     | 1        | PC | 175D128BX1        |          |           |         | 17    |             |      |      | LOCK NUT          |        |      | \$  |     |
| 056       | 3       | 3        | PC | 109A2A2           |          |           |         | 318   |             |      |      | SET SCR .25X.31   |        |      |     |     |

CUST. P.O. #708490.01-000016  
I.R. ORD. #002-35778-00

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IMPERIAL-KAND CO.  
CAMERON DIVISION  
PHILLIPSBURG PLANT

(CCMS)

PARENT  
PART NO. LVL A

62388418 UA Y

REV D

PT SIZE

AY 4X11-12

DA-B

500

# BOILER FEEDPUMP PUMP ASSEMBLY I

SYMBOL NOUN  
CODE PL MATL SPEC

DRAWING NUMBER-----><MAIL SPEC><LIST #>

| END CLASS D | QUANTITY | UM | COMP                | PT SIZE | SYMBOL<br>CODE | NOUN<br>CODE | PL | MATL SPEC  | DESCRIPTION       | IN-OUT<br>ST | ECN<br>NO. | REV<br>LVL |
|-------------|----------|----|---------------------|---------|----------------|--------------|----|------------|-------------------|--------------|------------|------------|
| 057 1 2 3   | 1        | PC | 2810257HX1          |         | 669            |              |    |            | SHIM              |              |            |            |
| 058 1 2 3   | 1        | PC | 2810257HX2          |         | 669            |              |    |            | SHIM              |              |            |            |
| 059 1 2 3   | 1        | PC | 2810257HX3          |         | 669            |              |    |            | SHIM              |              |            |            |
| 060 1 2 3   | 1        | PC | 2810257HX4          |         | 669            |              |    |            | SHIM              |              |            |            |
| 061 1 2 3   | 1        | PC | 2810257HX5          |         | 669            |              |    |            | SHIM              |              |            |            |
| 062 X       | 1        | PC | 275B172JX3          |         | 204            |              |    |            | SUPPORT HO        |              |            |            |
| 063 Y       | 1        | PC | 62189550 PP .25X.50 |         | 029            |              |    | AISI B1112 | GROOVE PIN        |              |            |            |
| 064         | 8        | PC | 35A2C221            |         | 175            |              |    |            | SCREW .50X1.50    |              |            |            |
| 065         | 4        | PC | 62A3C66             |         | 175            |              |    |            | STUD .31X2.25     |              |            |            |
| 066         | 4        | PC | 38A4C2              |         | 175            |              |    |            | NUT .31           |              |            |            |
| 067         | 1        | PC | APLO75LJ33-1        |         | ALUM           |              |    |            | LOVEJOY CPLG      |              |            |            |
| 068         | 1        | PC | ASLO75LJ439-1       |         | ALUM           |              |    |            | COUPLING SPIDER   |              |            |            |
| 069         | 1        | PC | ADLO75LJ34-10       |         | ALUM           |              |    |            | LOVEJOY CPLG      |              |            |            |
| 070 Y       | 1        | PC | 62059191 PP INF-D-1 |         | TUTHILL 702    |              |    |            | OIL PUMP/BRZ BUSH |              |            |            |
| 071 Y       | 2        | PC | 62009477 PP .50NPT  |         | B19929GC 750   |              |    | STEEL      | AIR-MAZE BREATHER |              |            |            |
| 072         | 2        | PC | 30A7S7              |         | STEEL          |              |    |            | PLUG 1.00         |              |            |            |
| 100 1 2 3   | 1        | PC | 251A11X1X2800X7300  |         | G107           |              |    |            | GASKET            |              |            |            |

CUST. P.O. #708490.01-000016  
I.R. ORD. #002-35778-00

D  
A = DRAWING AVAILABILITY

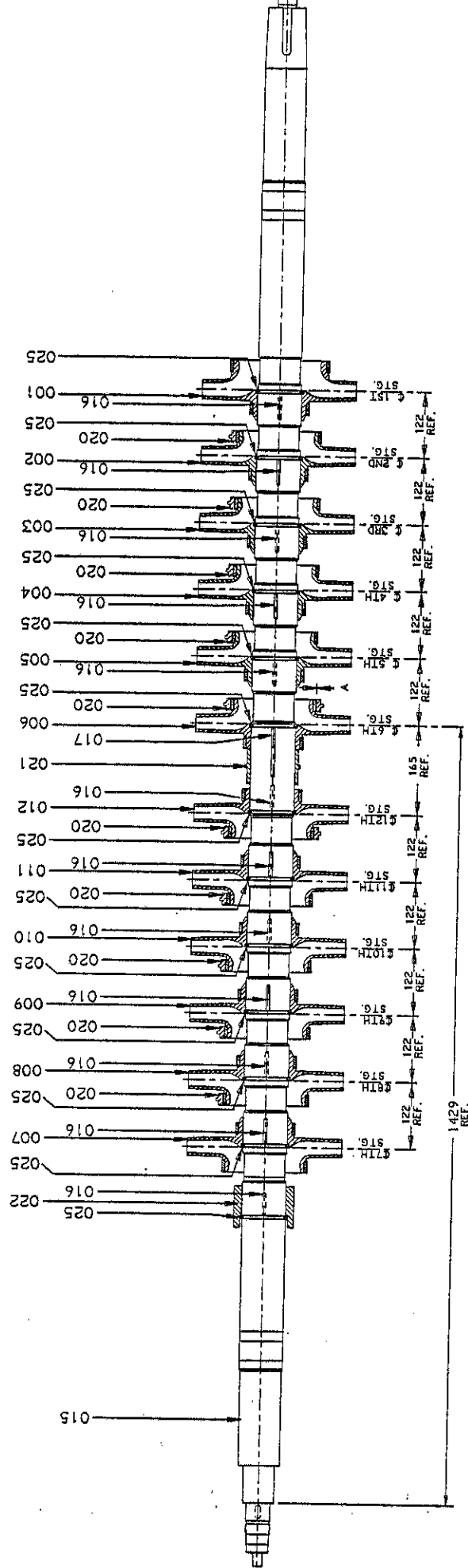
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REPORT NO. 02990  
RUN 03 SEP 89  
SHEET 4 OF 4  
RELEASE  
DATE



INTERFERENCE FIT BETWEEN IMPELLER AND SHAFT 0.034MM TO 0.09MM MAX.  
PREFIT SPLIT RINGS IN SHAFT TO FIT SNUG IN GROOVE

INSTALL 6TH STAGE IMPELLER FIRST THEN CENTER SLEEVE MUST BE SHRUNK ON SHAFT AND POSITIONED AGAINST BACK HUB OF THE 6TH STAGE IMPELLER.

FINAL IMPELLER DIA TO BE CUT PER B/M  
HEAD SHEET.

350 SLV. RADIAL/SLV-KTB-THRUST  
MECHANICAL SEAL

USE ON 4X11-12 DA OVERSIZE.

CQCM PLAN 11-2000 APPLIES

UNLESS OTHERWISE SPECIFIED  
ALL DIMENSIONS ARE IN MILLIMETERS

CQCM PLAN 11-2000 APPLIES

|                              |            |
|------------------------------|------------|
| WEAR RING DIA'S — REF. ONLY— |            |
| 1ST STG IMP. RING            | 183.85 —08 |
| INT. STG IMP. RINGS          | 158.29 —08 |
| IMP. BUSHING RINGS           | 110.00 —10 |

NOTE:  
DIMENSIONS ARE AFTER IMPELLERS ARE  
ASSEMBLED ON SHAFT (DO NOT RE-MACHINE)

CUSTOMER: FRU-CON CONSTRUCTION CORP.  
CUST. P.O. #708490.01-000016  
I.R. ORD. #002-35778-00

|                |         |
|----------------|---------|
| STD. CLEARANCE |         |
| A              | .33—.44 |

| MM.  | IN.   |
|------|-------|
| 1429 | 56.25 |
| 165  | 6.50  |
| 122  | 4.81  |
| 183  | 7.238 |
| 158  | 6.232 |
| 110  | 4.363 |
| 0.43 | 0.017 |
| 0.37 | 0.015 |
| 0.09 | 0.004 |
| 0.08 | 0.003 |

[illegible]



ENGINEERING PARTS LIST

BOILER FEEDPUMP ROTOR ASSEMBLY

INGERSOLL-RAND CO.  
 CAMERON DIVISION  
 PHILLIPSBURG PLANT

PARENT REV D  
 PART NO. LVL A  
 62388285 UA Y AY 4X11-12 DA-B 184

-----DRAWING NUMBER----->>MATERIAL SPEC<<LIST #>

| FND CLASS D | QUANTITY | UM | COMP      | PART NO. | PT SIZE        | SYMBOL | NOUN  | SYMBOL | NOUN    | PL | MATL | SPEC | DESCRIPTION       | IN-OUT | ECN  | REV |
|-------------|----------|----|-----------|----------|----------------|--------|-------|--------|---------|----|------|------|-------------------|--------|------|-----|
| NO. SPARE A |          |    |           |          |                | CODE   | CODE  | CODE   | CODE    |    |      |      |                   | ST     | DATE | LVL |
| 001         | 1        | Y  | PC        | 62388293 | MD 4X11        | DA     | 003   | A      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 002         | 1        | Y  | PC        | 62388301 | MD 4X11        | DA     | 003   | E      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 003         | 1        | Y  | PC        | 62388319 | MD 4X11        | DA     | 003   | E      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 004         | 1        | Y  | PC        | 62388327 | MD 4X11        | DA     | 003   | E      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 005         | 1        | Y  | PC        | 62388335 | MD 4X11        | DA     | 003   | E      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 006         | 1        | Y  | PC        | 62388343 | MD 4X11        | DA     | 003   | E      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 007         | 1        | Y  | PC        | 62388350 | MD 4X11        | DA     | 003   | D      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 008         | 1        | Y  | PC        | 62388368 | MD 4X11        | DA     | 003   | D      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 009         | 1        | Y  | PC        | 62388376 | MD 4X11        | DA     | 003   | D      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 010         | 1        | Y  | PC        | 62388384 | MD 4X11        | DA     | 003   | D      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 011         | 1        | Y  | PC        | 62388392 | MD 4X11        | DA     | 003   | D      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 012         | 1        | Y  | PC        | 62388400 | MD 4X11        | DA     | 003   | D      | 831/655 |    |      |      | IMPELLER          |        |      |     |
| 015         | 1        | C  | PC        | 62346408 | MP 4X11-12     | DA     | 010   |        | 814     |    |      |      | SHAFT             |        |      |     |
| 016         | 12       | PC | 11A9-G-81 |          |                |        | 20-CF |        |         |    |      |      | KEY .25X1.50      |        |      |     |
| 017         | 1        | PC | 11A9-G-91 |          |                |        | 20-CF |        |         |    |      |      | KEY .25X3.50      |        |      |     |
| 020         | 2        | Y  | PC        | 62274295 | MP 624         | D      | 006   |        | 655     |    |      |      | CASING RING       |        |      |     |
| 021         | 2        | C  | PC        | 62341490 | MP 4X11        | DA     | 408   |        | 655     |    |      |      | CENTER SLEEVE     |        |      |     |
| 022         | 2        | C  | PC        | 62332317 | MP 3182-4240 S |        | 440   |        | 655     |    |      |      | THROTTLING SLEEVE |        |      |     |
| 025         | 13       | C  | PC        | 62004684 | MP 300         | D      | 252   |        | 20      |    |      |      | SPLIT RING        |        |      |     |

D A = DRAWING AVAILABILITY PT = PART TYPE PL = PATTERN LETTERS ECN NO. = ENGR CHANGE NOTICE ST = STATUS

CUST. P.O. #708490.01-000016  
 I.R. ORD. #002-35778-00