



Roots 832 RCS-VJ

Part Number – call 816-741-0282



Patented WHISPAIR™ Water Sealed Vacuum Exhausters have an inlet spray nozzle and seal water flow meter for water injection. It is designed to handle a limited quantity of liquid without damage. This permits introduction of sealing water at the blower inlet to improve operating efficiency and reduce internal temperature rise.

WHISPAIR blowers reduce noise and power loss by utilizing an exclusive wrap-around plenum and proprietary WHISPAIR jet to control pressure equalization-feeding backflow in the direction of impeller movement, thereby aiding rotation. This design results in longer bearing life, lower vibration, and reduces noise up to 5 dBA pressure or vacuum.

- Heavy-duty unit with integral-shaft ductile iron impellers with an involute profile
- Rigid one-piece casing, headplates, and end covers are grey iron
- Carburized and ground alloy steel spur timing gears
- Cylindrical roller bearings
- Piston rings reduce air leakage
- Lip type oil seals prevent lubrication from entering the air chamber.
- Hydrodynamic seal on the drive shaft prevent oil leaks
- Splash oil lubricated gears on drive and gear ends
- Horizontal and vertical configurations available



816-741-0282

Quick Specs

| | |
|---|-----------------|
| Maximum Recommended Sealing Water Flow Rate – Includes injected and process water (single or two stage operation) | 8 Gallons/Min |
| Flow Range | to 4079 CFM |
| Max ΔVacuum | 16" Hg |
| Maximum RPM | 1800 |
| Minimum RPM | 850 |
| Max ΔT | 160°F |
| Inlet Connection Size | 14" Flange |
| Discharge Connection Size | 12" Flange |
| Shaft Dia. | 2.75" |
| Min Sheave Dia. | 13.2" |
| Drive End Lubrication | Oil |
| Gear End Lubrication | Oil |
| Oil Sump Horiz Config | ~3 Gallons |
| Oil Sump Vert Config | ~40 oz |
| Bare Unit Weight | 2325 lbs |
| Container | Wood Skid |
| Skid Size (L x W x H) | 54" x 32" x 36" |
| Shipping Weight on Skid | ~2375 lbs |
| Recommended to Ship Via | Truck |





816-741-0282

| Item # | Part Name | Qty. |
|--------|---|------|
| 1 | Headplate | 2 |
| 3 | Gearbox | 1 |
| 4 | Gear | 2 |
| 5 | Drive End Cover | 1 |
| 7 | Gasket | 2 |
| 8 | Nameplate | 1 |
| 9 | Lubrication Label | 2 |
| 10 | Shim | 4 |
| 11 | Cylinder | 1 |
| 12 | Impeller & Shaft Drive | 1 |
| 13 | Impeller & Shaft Driven | 1 |
| 14 | Bearing | 4 |
| 16 | Pin, Dowel | 4 |
| 17 | Spring Pin | 2 |
| 19 | Key | 1 |
| 20 | Drive Screw | 10 |
| 21 | Breather-Filler Plug | 2 |
| 22 | Drain Plug | 4 |
| 23 | Capscrew | 44 |
| 27 | Seal-Lip, Headplate | 4 |
| 28 | Seal Ring | 4 |
| 29 | Washer, Wavy Spring | 2 |
| 30 | Washer-Gear Mounting | 2 |
| 31 | Capscrew | 2 |
| 32 | Capscrew | 16 |
| 33 | Seal, Lip D. E. Cover | 1 |
| 34 | Clamp Plate, Drive End | 2 |
| 36 | Lockwasher | 1 |
| 37 | Oil Level Gauge | 2 |
| 38 | Sleeve | 4 |
| 40 | Slinger - D.E. | 1 |
| 42 | Rotation Arrow | 1 |
| 44 | Label, Whispair | 2 |
| 45 | Pipe Plug | 2 |
| 46 | Slinger - G.E. | 1 |
| 48 | Washer | 2 |
| 49 | Capscrew-Butt. Hd. | 2 |
| 54 | Clamp Plate, Gear End | 2 |
| 56 | Oil Leader, G.E. & D.E. Left Side Driven Impeller | 2 |
| 57 | Oil Leader, G.E. & D.E. Right Side Driven Impeller | 2 |
| 58 | Oil Leader, G.E. & D.E. Right Side Drive Impeller | 2 |
| 59 | Oil Leader, G.E. & D.E. Left Side Drive Impeller | 2 |
| 62 | Capscrew | 1 |
| 63 | Eyebolt | 2 |
| 64 | Pipe Plug | 4 |
| 69 | Washer | 6 |
| 74 | Spring Pin | 1 |

Repair Kits

Repair kits are bundled with the parts you need to complete a standard repair. It is more cost effective to buy a repair kit than to purchase individual parts. However, if you need parts not listed in the kit, it is recommended that you call Pathfinder Systems for parts pricing.

Top, Left, or Right Drive Shaft (Bottom Shaft order P/N 571793RK)

P/N 571792RK Kit for 800 RCS-J/VJ

| Item | Qty | Kit Description | P/N |
|------|-----|--------------------------------------|----------|
| 7 | 2 | Gasket Headplate | 57178021 |
| 10 | 1 | Shim Set | 64095010 |
| 14 | 4 | Bearing, Roller | 10222041 |
| 27 | 2 | Hydrodynamic Seal, (PTFE) CW | 13309023 |
| 27A | 2 | Hydrodynamic Seal, (PTFE) CCW | 13309024 |
| 28 | 4 | Piston, Ring Seal | 12283005 |
| 29 | 2 | Washer, Spring, Wavy | 10135019 |
| 31 | 2 | Hex Cap Screw 7/8 | 12467017 |
| 33 | 1 | Hydrodynamic Seal, (PTFE) | 13440004 |
| 37 | 1 | Sight Plug Oil Level ¾ | 12066001 |
| 38 | 4 | Sleeve, GE & OGE 800 RCS-J | 57161020 |
| 40 | 1 | Slinger DE | 67884012 |
| 46 | 1 | Slinger GE | 66996012 |
| 48 | 2 | Washer, Plain Flat | 10181013 |
| 49 | 2 | Screw Cap 3/8-16 | 10219003 |
| 62 | 1 | Screw Cap Hex Head 7/8-9 | 10342001 |
| 69 | 2 | Washer, HDN | 12750003 |
| 74 | 1 | Pin, Spring 3/16x1 | 10068054 |
| 83 | 2 | Sleeve Seal Install 8" Inboard | 13365023 |
| 84 | 1 | Sleeve Seal Install 8" DSft Outboard | 13365012 |



816-741-0282

Table 2 - Recommended Oil Grades

| Ambient* Temperature °F (°C) | ISO Viscosity No. |
|---------------------------------|----------------------|
| Above 90° (32°) | 320 |
| 32° to 90° (0° to 32°) | 220 |
| 0° to 32° (-18° to 0°) | 150 |
| Below 0° (-18°) | 100 |

*Ambient temperature is defined as the temperature of the space in which the blower and drive are located.

Use a good grade of **industrial type** non-detergent, rust inhibiting, anti-foaming oil and of correct viscosity per Table 2. Roots synthetic oil (Roots P/N 813-106-) is **specified and recommended**. Roots does not recommend automotive type lubricants, as they are not formulated with the properties mentioned above.

Due to sludge build-up and seal leakage problems, Roots recommendation is DO NOT USE Mobil SHC synthetic oils in ROOTS blowers.

Table 4 - Approximate Oil Fill Amounts

| Frame Series | Gearbox | | Drive End | |
|--------------|---------|----------|-----------|----------|
| | Pints | (Liters) | Pints | (Liters) |
| 800 JH | 16.0 | 7.6 | 7.5 | 3.5 |
| 800 JV | 2.0 | 0.95 | 0.5 | 0.24 |

These capacities are provided to assist stocking the correct amount of oil. Exact sump capacity may differ slightly. See "Lubrication" section for proper filling instructions.

| ROOTS® Synthetic Oil: ISO-VG-320 Grade | |
|--|-------------|
| | Part Number |
| Quart | 13106004 |
| Gallon | 13106005 |
| Case (12 qts) | 13106007 |
| ROOTS® Synthetic Oil: ISO-VG-220 Grade | |
| | Part Number |
| Quart | 13106001 |
| Gallon | 13106002 |
| Case (12 qts) | 13106008 |
| ROOTS® Synthetic Oil: ISO-VG-150 Grade | |
| | Part Number |
| Quart | 13106020 |
| Gallon | 13106021 |
| Case (12 qts) | 13106023 |
| 5 Gallon Pail | 13106022 |
| 55 Gallon Drum | 13106025 |
| ROOTS® Synthetic Oil: ISO-VG-100 Grade | |
| | Part Number |
| Quart | 13106011 |
| Gallon | 13106012 |
| Case (12 qts) | 13106014 |
| 5 Gallon Pail | 13106013 |
| 55 Gallon Drum | 13106016 |

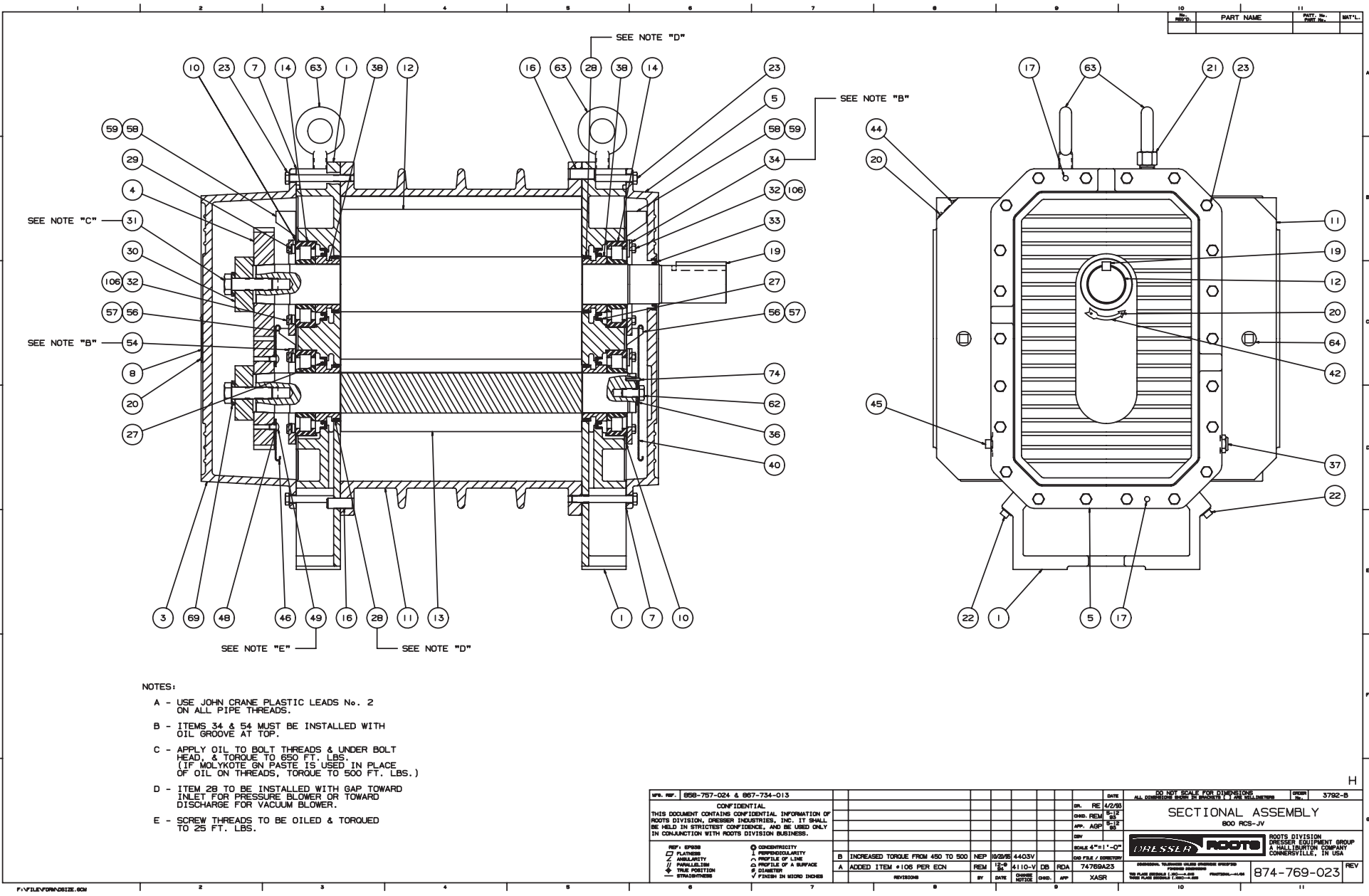
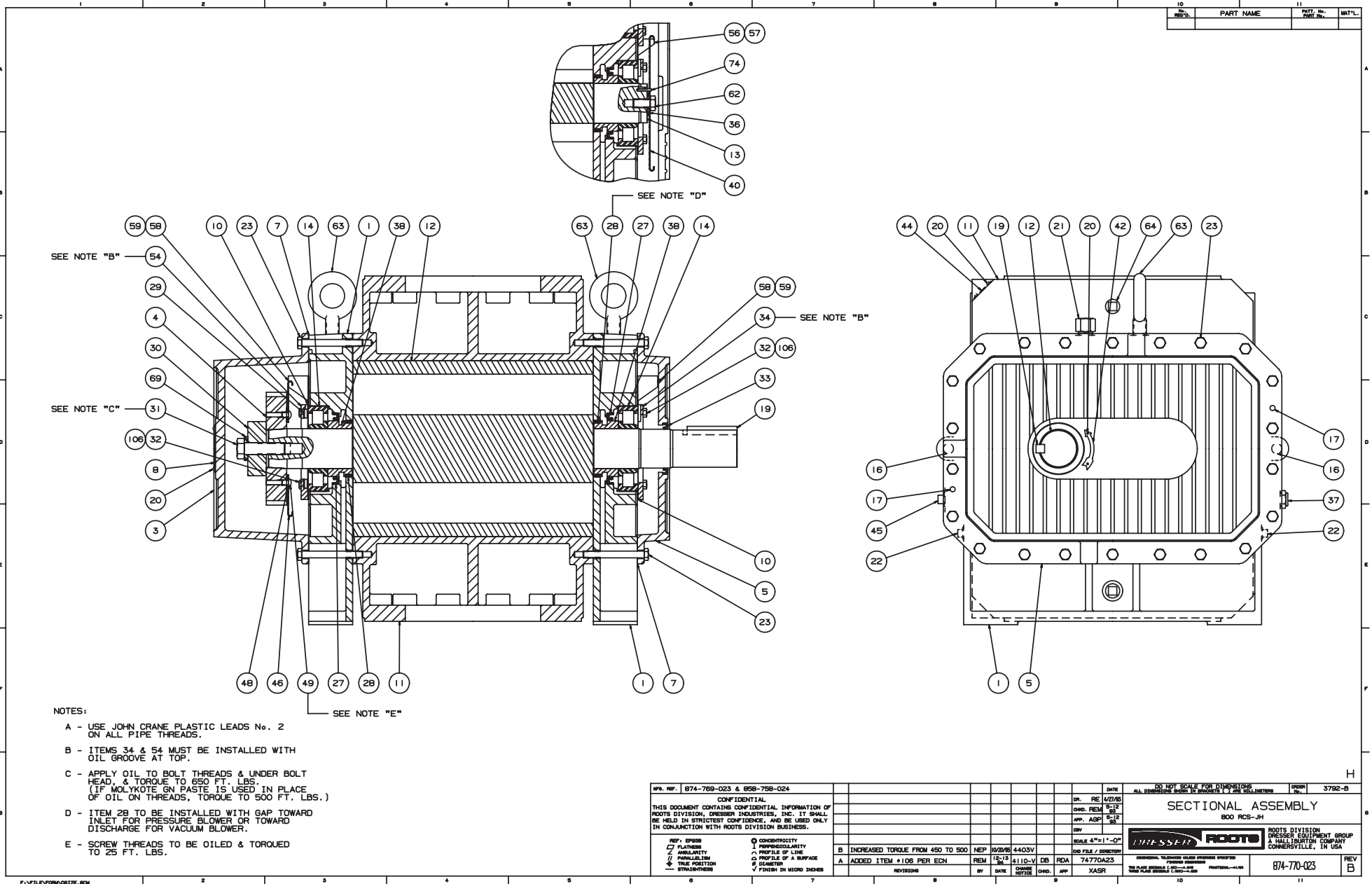


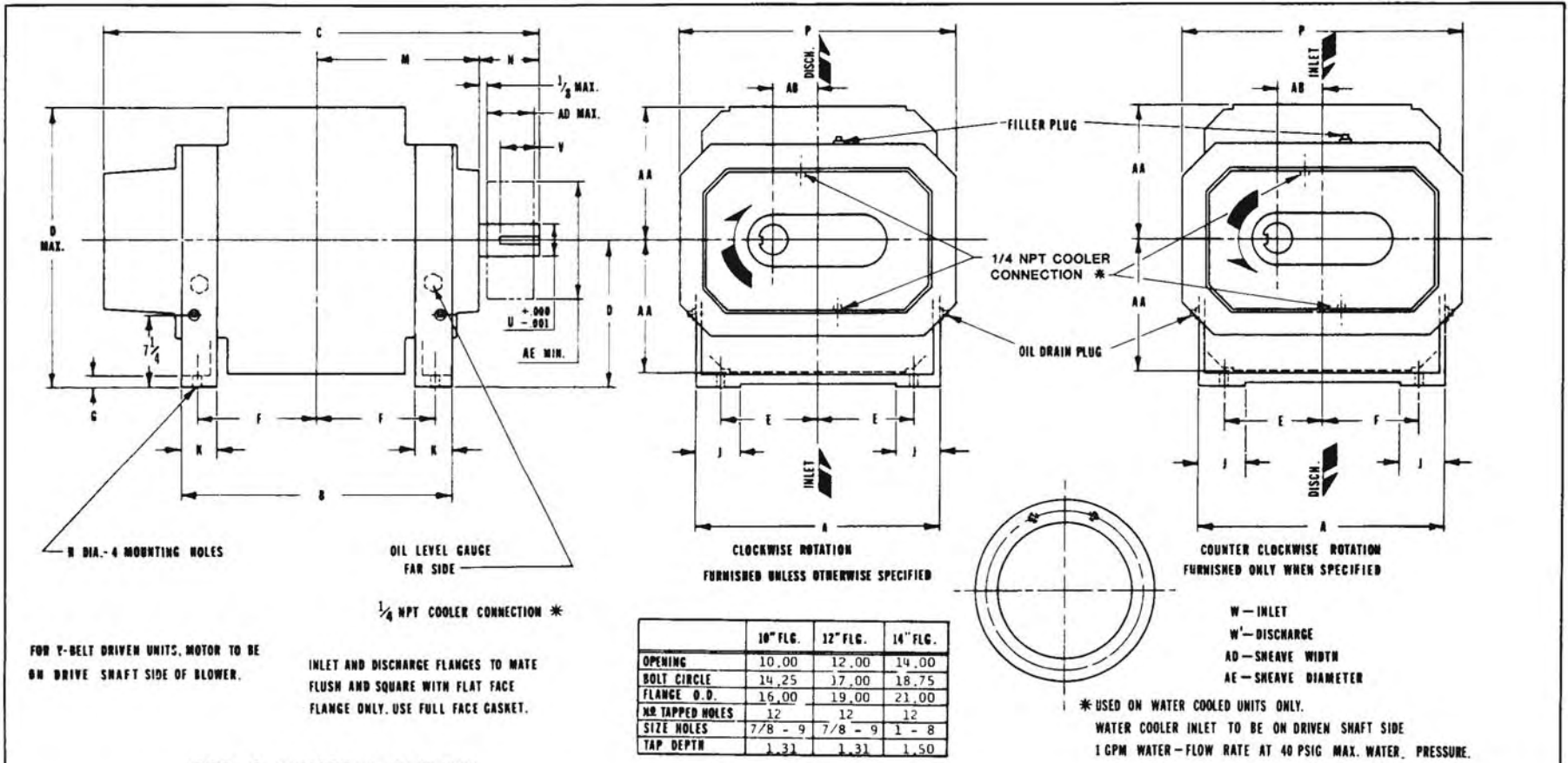
Figure 6 - Assembly of RCS-J WHISPAIR Vertical Style Blowers



- NOTES:
- A - USE JOHN CRANE PLASTIC LEADS No. 2 ON ALL PIPE THREADS.
 - B - ITEMS 34 & 54 MUST BE INSTALLED WITH OIL GROOVE AT TOP.
 - C - APPLY OIL TO BOLT THREADS & UNDER BOLT HEAD, & TORQUE TO 650 FT. LBS. (IF MOLYKOTE GN PASTE IS USED IN PLACE OF OIL ON THREADS, TORQUE TO 500 FT. LBS.)
 - D - ITEM 28 TO BE INSTALLED WITH GAP TOWARD INLET FOR PRESSURE BLOWER OR TOWARD DISCHARGE FOR VACUUM BLOWER.
 - E - SCREW THREADS TO BE OILED & TORQUED TO 25 FT. LBS.

| | | | | | | | |
|--|-----------------|----------------------|-------|-----------------------------|---------------------|--|--|
| W.P. REF. 874-769-023 & 858-758-024 | | DATE | | DO NOT SCALE FOR DIMENSIONS | | DWN 3792-B | |
| CONFIDENTIAL | | | | | | | |
| THIS DOCUMENT CONTAINS CONFIDENTIAL INFORMATION OF ROOTS DIVISION, DRESSER INDUSTRIES, INC. IT SHALL BE HELD IN STRICTEST CONFIDENCE, AND BE USED ONLY IN CONNECTION WITH ROOTS DIVISION BUSINESS. | | | | | | | |
| REF. 874-769-023 | CONFIDENTIALITY | PROFILING | DATE | SCALE | APP. FILE / CORRECT | ROOTS DIVISION DRESSER EQUIPMENT GROUP A HALLIBURTON COMPANY CONOVERVILLE, IN USA | |
| PLASTIC | AMALGAMITY | PROFILE OF LINE | 12-13 | 4" x 1" - 0" | 74-770A23 | REV B | |
| PARTIALITY | PARALLELISM | PROFILE OF A SURFACE | DATE | APP | XASR | 874-770-023 | |
| TRUE POSITION | STRAGHTNESS | DIAMETER | REV | DATE | APP | REV B | |
| FORMER IN MICRO INCHES | | PERCENT | REV | DATE | APP | REV B | |

Figure 7 - Assembly of RCS-J WHISPAIR Horizontal Style Blowers



RCS-J WHISPAIR BLOWER

| FRAME SIZE | A | B | C | D | E | F | G | H | J | K | M | N | O | P | U | V | KEYWAY | W | W ¹ | AA | AB | AD | AE | OIL CAPACITY | | APPROX. WEIGHT |
|------------|-------|-------|-------|-------|------|-------|------|------|------|------|-------|------|-------|-------|------|------|-------------|---------|----------------|-------|------|------|------|--------------|-----------|----------------|
| | | | | | | | | | | | | | | | | | | | | | | | | G.E. | D.E. | |
| 817JW | 22.00 | 24.25 | 38.63 | 13.00 | 8.75 | 10.75 | 1.00 | 1.00 | 4.00 | 3.25 | 14.50 | 5.00 | 25.75 | 25.00 | 2.75 | 4.00 | .625 x .313 | 10" FLG | 10" FLG | 12.75 | 4.00 | 7.19 | 13.2 | 256FL.OZ. | 120FL.OZ. | 1620 LBS. |
| 821JW | " | 27.88 | 42.25 | " | " | 12.56 | " | " | " | " | 16.31 | " | " | " | " | " | " | 12" FLG | 10" FLG | " | " | " | " | " | " | 1800 LBS. |
| 826JW | " | 33.13 | 47.50 | " | " | 15.19 | " | " | " | " | 18.94 | " | " | " | " | " | " | 12" FLG | 12" FLG | " | " | " | " | " | " | 2075 LBS. |
| 832JW | " | 38.50 | 52.88 | " | " | 17.88 | " | " | " | " | 21.63 | " | " | " | " | " | " | 14" FLG | 12" FLG | " | " | " | " | " | " | 2325 LBS. |

CERTIFIED CORRECT FOR

CUSTOMER ORDER NO. _____

ROOTS ORD:R NO. _____

DATE _____

V-BELT DRIVE DATA

BELTS _____

DRIVE SHEAVE _____

DRIVEN SHEAVE _____

CENTER DISTANCE _____

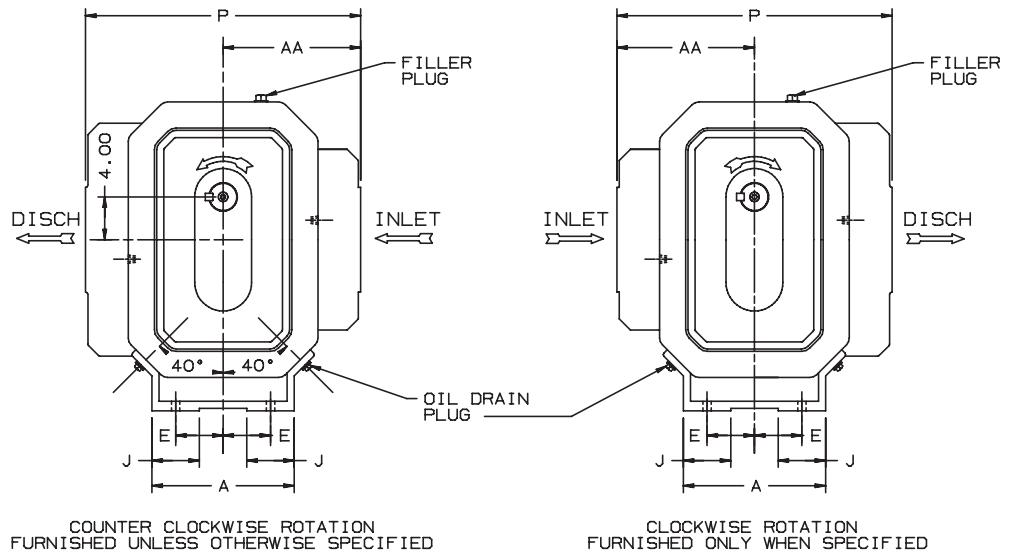
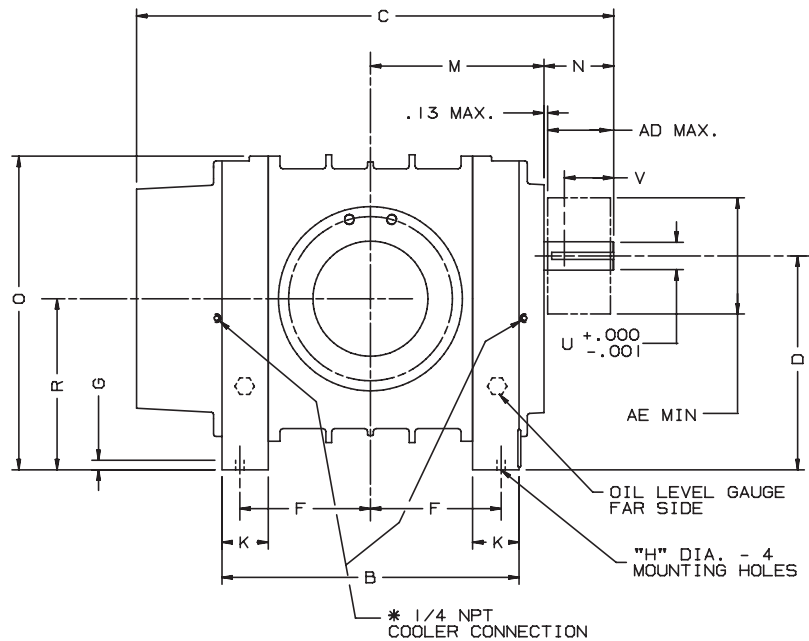
DOW 9/24/79

DRESSER ROOTS

DRESSER INDUSTRIES, INC.
 ROOTS OPERATIONS
 900 WEST MOUNT STREET, CONNERSVILLE, INDIANA 47331
 TELEPHONE: 317/825-2181

858-791-021

COOLER CON., REV. 100 8021V 10 9 74 * COOLER CONNECTIONS ADDED 8/12/82 REM REV. PER ECN 2820V 4/22/82 NS



FOR V-BELT DRIVEN UNITS
MOTOR TO BE LOCATED ON
INLET SIDE OF BLOWER

INLET AND DISCHARGE FLANGES TO MATE
FLUSH AND SQUARE WITH FLAT FACE
FLANGES ONLY. USE FULL FACE GASKETS

* USED ON OIL COOLED UNITS ONLY.
WATER COOLER INLET TO BE ON DISCHARGE SIDE OF HEADPLATE.
1 GPM WATER-FLOW RATE AT 40 PSIG MAX. WATER PRESSURE.

W - INLET
W' - DISCHARGE
AD - SHEAVE WIDTH
AE - SHEAVE DIAMETER
ALL DIMENSIONS IN INCHES

| | 10"FLG | 12"FLG | 14"FLG |
|-----------------|--------|--------|--------|
| OPENING | 10.00 | 12.00 | 14.00 |
| BOLT CIRCLE | 14.25 | 17.00 | 18.75 |
| FLANGE O.D. | 16.00 | 19.00 | 21.00 |
| NO TAPPED HOLES | 12 | 12 | 12 |
| SIZE HOLES | 7/8-9 | 7/8-9 | 1 - 8 |
| TAP DEPTH | 1.31 | 1.13 | 1.50 |

| FRAME SIZE | A | B | C | D | E | F | G | H | J | K | M | N | O | P | R | U | V | KEYWAY | W | W' | AA | AD | AE | OIL CAPACITY | | APPROX WEIGHT |
|------------|-------|-------|-------|-------|------|-------|------|------|------|------|-------|------|-------|-------|------|------|------|-------------|--------|--------|-------|------|------|--------------|----------|---------------|
| | | | | | | | | | | | | | | | | | | | | | | | | G.E. | D.E. | |
| 817 | 13.75 | 24.25 | 38.63 | 21.00 | 4.63 | 10.75 | 1.00 | 1.00 | 3.50 | 3.25 | 14.50 | 5.00 | 30.00 | 25.50 | 7.00 | 2.75 | 4.00 | .625 X .313 | 10"FLG | 10"FLG | 12.75 | 7.19 | 13.2 | 144FL.OZ. | 80FL.OZ. | 1620 LBS |
| 821 | " | 27.88 | 42.25 | " | " | 12.56 | " | " | " | " | 16.31 | " | " | " | " | " | " | " | 12"FLG | 10"FLG | " | " | " | " | " | 1800 LBS |
| 826 | " | 33.13 | 47.50 | " | " | 15.19 | " | " | " | " | 18.94 | " | " | " | " | " | " | " | 12"FLG | 12"FLG | " | " | " | " | " | 2075 LBS |
| 832 | " | 38.50 | 52.00 | " | " | 17.88 | " | " | " | " | 21.63 | " | " | " | " | " | " | " | 14"FLG | 12"FLG | " | " | " | " | " | 2325 LBS |

CERTIFIED CORRECT FOR
CUSTOMER ORDER No. _____
ROOTS ORDER No. _____
DATE _____

| REVISED PER ECN | | BY | DATE | CHKD. | APP. | V-BELT DRIVE DATA |
|-----------------|--------------------|-----|---------|-------|------|-------------------|
| B | REV DIM (F) ON 832 | RDR | 7/32/3V | | | BELTS |
| A | REVISED PER ECN | MS | 2/8/20V | | | DRIVE SHEAVE |
| | | | | | | DRIVEN SHEAVE |
| | | | | | | CENTER DISTANCE |

RCS-J
WHISPAIR
BLOWER



Dresser ROOTS, Dresser, Inc.
Connersville, IN USA

| | | | | | |
|-----|----|------|-----|----------|--------|
| DBN | DR | CHKD | APP | 58792021 | REV. B |
|-----|----|------|-----|----------|--------|

ROOTS™ VJ WHISPAIR™
Water-sealed Vacuum Exhauster

Frames 817J, thru 832J

BASIC BLOWER DESCRIPTION

ROOTS™ WHISPAIR™ water-sealed vacuum exhausters are heavy-duty units designed with integral-shaft ductile iron impellers. WHISPAIR vacuum exhausters reduce noise and power loss by utilizing an exclusive wrap-around plenum and proprietary WHISPAIR™ jet to control pressure equalization – feeding backflow in the direction of impeller movement, thereby aiding rotation.

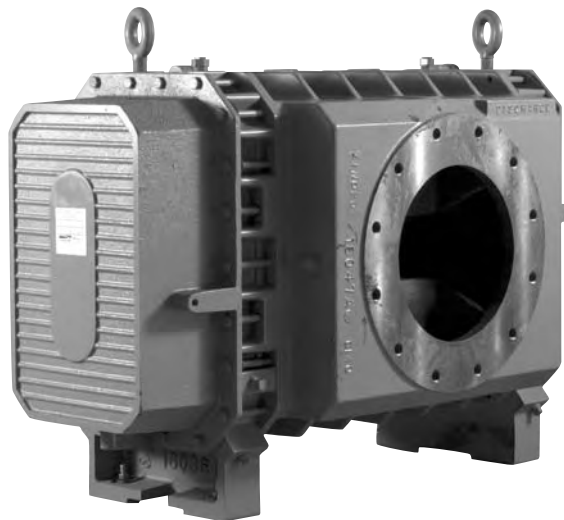
The headplates, one-piece casing and end covers are grey iron. Carburized and ground alloy steel spur timing gears are taper mounted on the shafts, secured with a locknut. Cylindrical roller bearings are used.

Piston rings reduce air leakage through the shaft openings in the headplates, and lip-type oil seals prevent lubricant from entering the air chamber. WHISPAIR™ vacuum exhausters incorporate splash oil lubrication at both ends of the units. A hydrodynamic seal on the drive shaft prevents shaft seal oil leaks.

The top shaft is extended for drive on side outlet vacuum exhausters, and the left or right shaft can be extended for drive on bottom outlet vacuum exhausters. An inlet spray nozzle and seal water flow meter are supplied for water injection.

WARRANTY PERIOD

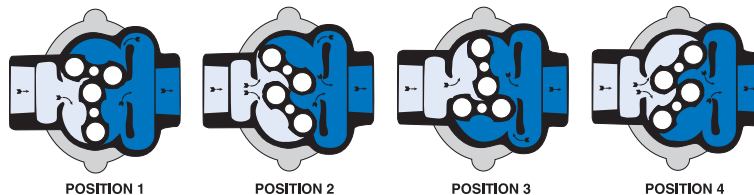
Twelve (12) months from date of original unit start-up or 18 months from date of original shipment, whichever occurs first.



DESIGN AND CONSTRUCTION FEATURES

1. Low noise level, less operating power required
2. Improved volumetric efficiency & reduced operating temperatures
3. Alloy steel timing gears
4. Cylindrical roller bearings
5. Piston ring air seals
6. Lip-type oil seals, hydrodynamic drive shaft seal
7. Splash oil lubrication
8. Horizontal and vertical configurations available

OPERATING PRINCIPLE



Incoming air is trapped by the impellers. Simultaneously, pressurized air (right) is being discharged. As the lower impeller passes wrap-around flange, Whispair jet equalizes pressure between trapped air and discharge area, aiding impeller movement and reducing power. Impellers move air into the discharge area (right). Backflow is controlled, resulting in reduction of noise relative to conventional blowers.



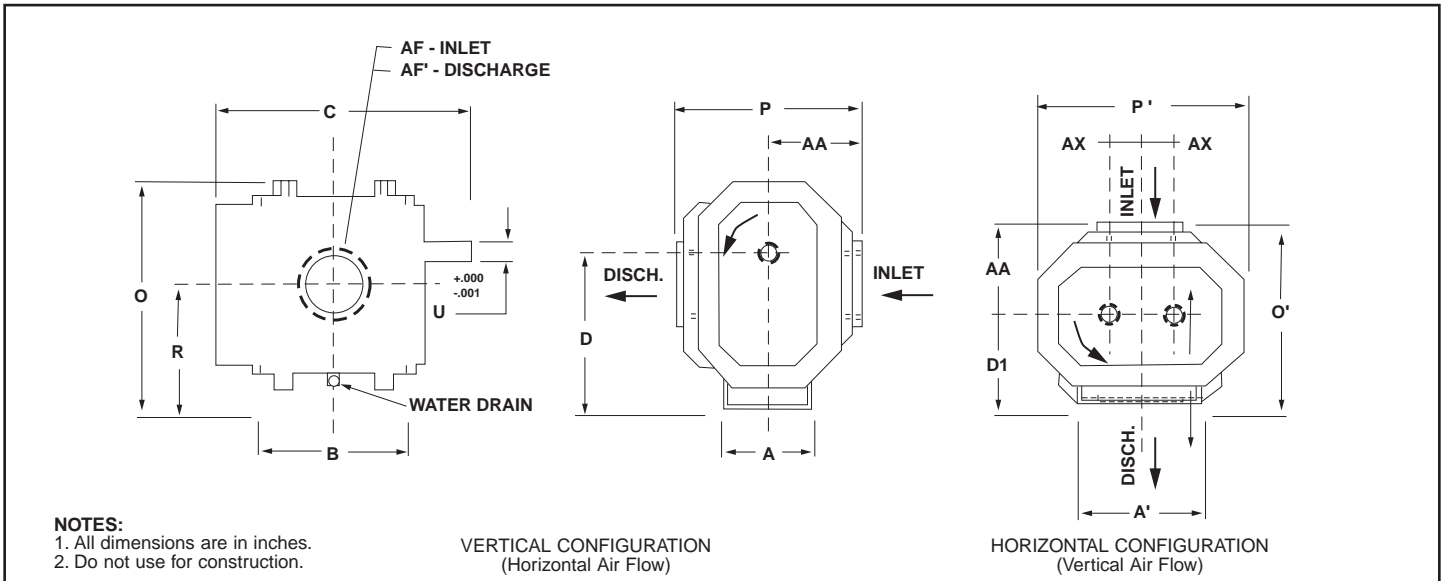
PERFORMANCE TABLE

| FRAME SIZE | SPEED RPM | 16" Hg VAC | | 20" Hg VAC | | 22" Hg VAC | | 24" Hg VAC | |
|------------|-----------|------------|-------|------------|-------|------------|-------|------------|-------|
| | | CFM | BHP | CFM | BHP | CFM | BHP | CFM | BHP |
| 817J | 850 | 948 | 47.8 | 840 | 59 | 737 | 64.5 | 564 | 70.0 |
| | 1170 | 1385 | 66.9 | 1258 | 82 | 1138 | 89.5 | 937 | 97.1 |
| | 1800 | 2265 | 105.9 | 2110 | 128 | 1962 | 139.2 | 1715 | 150.3 |
| 821J | 850 | 1138 | 56.8 | 1008 | 70.2 | 885 | 76.8 | 677 | 83.5 |
| | 1170 | 1662 | 79.3 | 1510 | 97.5 | 1366 | 106.5 | 1124 | 115.6 |
| | 1800 | 2719 | 125.2 | 2532 | 151.9 | 2355 | 165.3 | 2058 | 178.6 |
| 826J | 850 | 1423 | 70.4 | 1260 | 87.1 | | | | |
| | 1170 | 2078 | 98.2 | 1888 | 120.8 | | | | |
| | 1800 | 3400 | 154.2 | 3166 | 187.6 | | | | |
| 832J | 850 | 1707 | 84.0 | | | | | | |
| | 1170 | 2493 | 116.8 | | | | | | |
| | 1800 | 4079 | 182.9 | | | | | | |

NOTES:

1. Vacuum ratings based on inlet air at standard temperature of 68°F, discharge pressure of 30" Hg and specific gravity of 1.0.

OUTLINE DRAWING & DIMENSIONAL TABLE



NOTES:
 1. All dimensions are in inches.
 2. Do not use for construction.

| FRAME SIZE | A | A' | B | C | Drive Shaft Location | | O | O' | P | P' | R | U | Keyway | AF Inlet Diameter | AF' Discharge Diameter | AA | AX | Approx. Net Wt (lbs) |
|------------|-------|-------|-------|-------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------------|-------------------|------------------------|-------|------|----------------------|
| | | | | | D | D1 | | | | | | | | | | | | |
| 817J | 13.75 | 22.00 | 24.25 | 38.63 | 21.00 | 13.00 | 30.00 | 25.75 | 25.50 | 25.00 | 17.00 | 2.750 | .625 x .313 | 10.0 FLG | 10.0 FLG | 12.75 | 4.00 | 1620 |
| 821J | 13.75 | 22.00 | 27.88 | 42.25 | 21.00 | 13.00 | 30.00 | 25.75 | 25.50 | 25.00 | 17.00 | 2.750 | .625 x .313 | 12.0 FLG | 10.0 FLG | 12.75 | 4.00 | 1800 |
| 826J | 13.75 | 22.00 | 33.13 | 47.50 | 21.00 | 13.00 | 30.00 | 25.75 | 25.50 | 25.00 | 17.00 | 2.750 | .625 x .313 | 12.0 FLG | 12.0 FLG | 12.75 | 4.00 | 2075 |
| 832J | 13.75 | 22.00 | 38.50 | 52.88 | 21.00 | 13.00 | 30.00 | 15.75 | 25.50 | 25.00 | 17.00 | 2.750 | .625 x .313 | 14.0 FLG | 12.0 FLG | 12.75 | 4.00 | 2325 |

Dresser, Inc.



Roots

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 Houston, TX 77077
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 FX: 281-966-4309
 Toll Free: 1-877-363-ROOT(S)

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 900 West Mount Street
 Connersville, IN 47331
 PH: 765-827-9200
 FX: 765-827-9266

Dresser ROOTS - Holmes Operation
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 Off St. Andrews Rd
 Turnbridge, Huddersfield
 England HD1 6RB
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S-5597
 December 2002

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