SEC. 7 VACUUM/BLOWER ASSEMBLY AND MAINTENANCE

7.1. General

Periodically, the vacuum/blower will require cleaning and flushing, especially after long periods of continuous use. Deposits of mud particles and other foreign substances may adhere to the internal surfaces of the vacuum/blower. If not removed, this could significantly weaken the vacuum/blower's performance and may cause the vacuum/blower impeller to bind against the housing.

Since this type of vacuum-producing equipment utilizes close, internal clearances and high rpm to achieve vacuum, periodic cleaning and flushing will extend the life of the vacuum/blower.

Generally, water or solvent will remove any deposits of mud particles which have accumulated in the vacuum/blower parts.

Remove the 1-1/2 in. pipe plugs in the vacuum/blower and flush with fresh water or solvent compatible with mud.

DO NOT insert any foreign objects (fingers, screwdrivers, etc.) into the vacuum/blower openings.

7.2. To Test Blower for Vacuum

- Connect motor to proper 3-phase controls and power supply.

7.2. To Test Blower for Vacuum (Contd.)

CAUTION

This should be done by a qualified electrician familiar with local codes and regulations.

- Momentarily, **START** (job) the motor to check rotation. Motor should rotate in a clockwise direction when viewed from the top of the motor.

- Attach a vacuum gauge or mercury (Hg) filled manometer to the vacuum port on the lower blower housing.

- **START** the motor and let it run for at least 30 minutes.

- Record the vacuum.
  Satisfactory vacuum range: 8 to 10 in. (200 to 254 mm. of Hg [mercury]).

NOTE:

Be sure the discharge port on the upper blower housing is not plugged or obstructed in any way.

The two (2) ports on the blower housings, located vertically in line with each other, must be plugged while testing the blower vacuum.

7.3. Vacuum/Blower Assembly

7.3.1. Vacuum/Blower Installation

Gas Inlet Port | Flushout Ports | Gas Discharge Port | Gas Inlet Port | Flushout Ports | Gas Discharge Port

Figure 1: Vacuum/Blower & Motor Assembly

USA NEMA/UL Motor
C Face Mount

European IEC Motor
D-Flange Mount

7.3.1.1. Housing Alignment

Figure 2: D-Flange on European, IEC, metric motors to mount upper housing

NOTE:
All the fasteners used on the Burgess Magna-Vac Degasser® Vacuum/Blower Assembly are 316 or 316 L Stainless Steel.

7.3.1.1. **Housing Alignment** (Contd.)

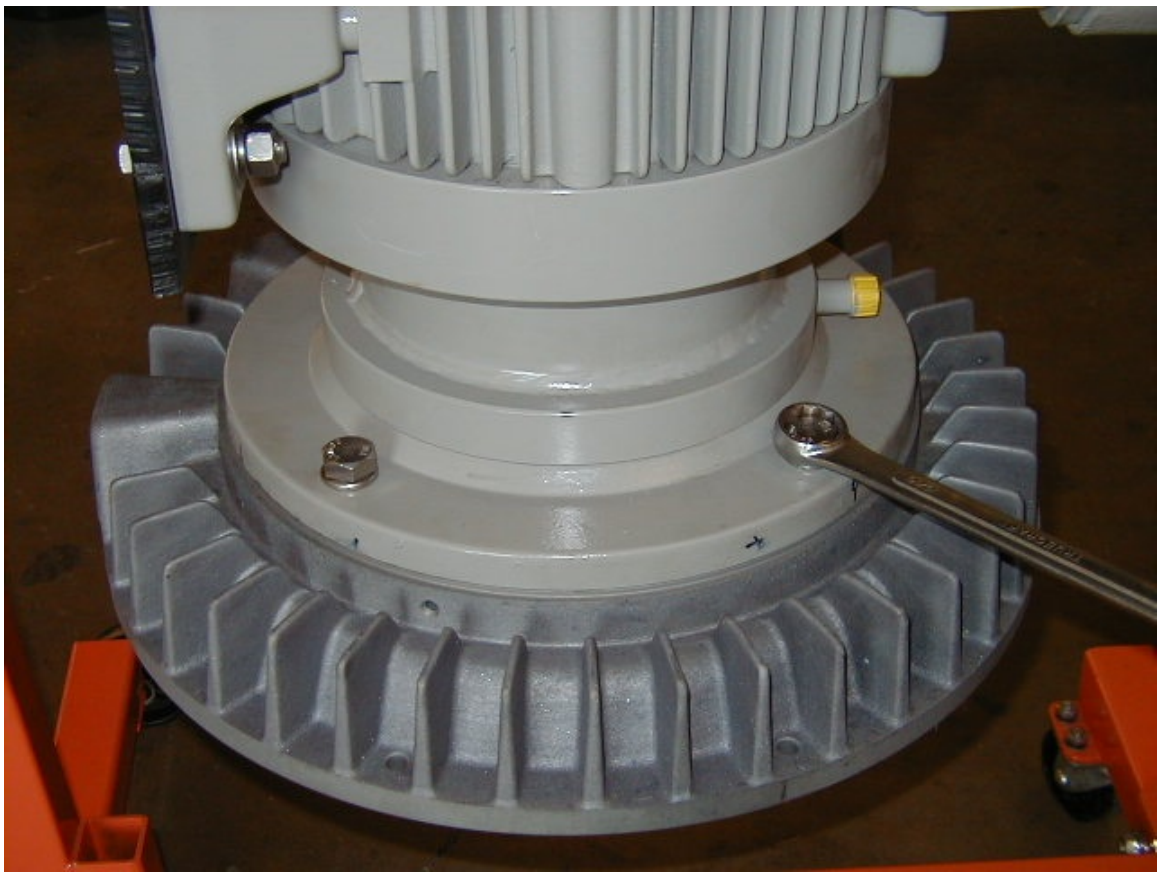

Figure 3:

Mount the blower housing with gas discharge port straight across from motor feet and wash out port 135 degrees to the right of the motor feet, looking down on the shaft.

Install four (4) 5/8 in. - 11 cap screws with flat washers and lock washers through the motor flange into the vacuum/blower housing, and tighten securely.

NOTE:
Alignment of ports shown in Figure 1 on Page 3

7.3.1.2. Housing Port Alignment

Figure 4: USA motor NEMA/UL C-Face mounted vacuum/blower

Mount the blower housing with gas discharge port straight across from motor feet and wash out port 135 degrees to the right of the motor feet looking down on the shaft.

NOTE:
Align ports as shown in Figure 1 on Page 3.

7.3.1.2. **Housing Port Alignment** (Contd.)

Figure 5:

Attach the upper housing to the motor with a C-Face with four (4) ½ in. - 13 NC cap screws, part #10269, and four (4) ½ in. lock washers, part #10265, as shown in Figure 5.

The C-Face must be smooth without hammer marks and other irregularities.

All axial play of the motor shaft must be pushed towards the blower housing.

7.3.1.2. **Housing Port Alignment** (Contd.)

Figure 6:

Attach a dial indicator assembly to the motor shaft and take readings of the inner lip around the perimeter of the housing while rotating the shaft. Maintain the axial play in the motor shaft towards the blower housings.

Adjust the housing to achieve an indicator run out of +/-.001 in. on the blower housing.

7.3.1.3. Impeller to Upper Housing Clearance

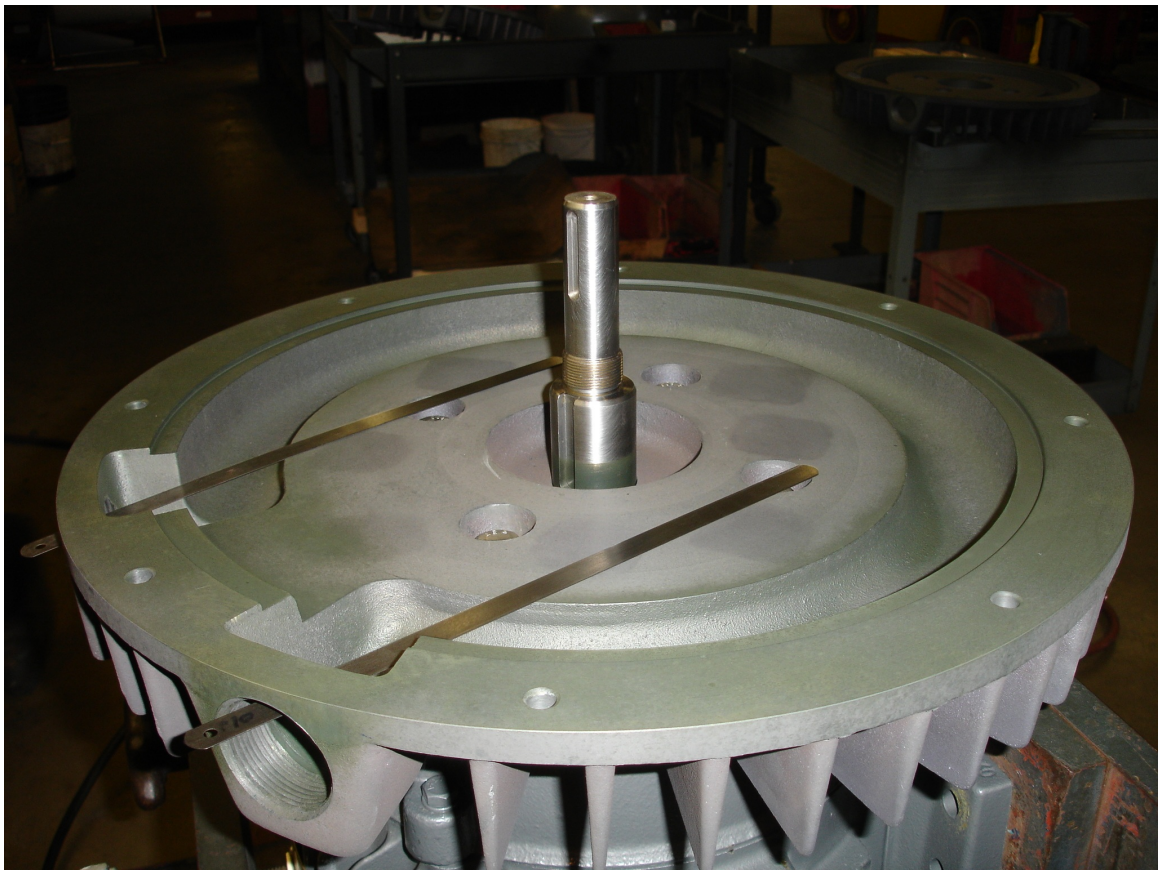

Figure 7:

Install two (2) .014 in. thickness feeler gauges, part #12006014, through the ports to set the impeller to housing clearance.

Heat the impeller to 200 degrees F (80 degrees C) and slide over shaft until it bottoms on the feeler gauges.

Align the keyways and install the 3/8 in. x 1 in. key, part #10156.

7.3.1.3. Impeller to Upper Housing Clearance (Contd.)

Figure 8:

Use a depth indicator to measure from the shaft end to determine the distance from the shaft shoulder and the distance to the face of the impeller.

7.3.1.4. Impeller to Lower Housing Clearance

Figure 9:

Install appropriate thickness of shims from the shim set, part #10146, to match the distance measured from the shoulder of the shaft to the impeller face, as shown in Figure 8.

7.3.1.4. Impeller to Lower Housing Clearance (Contd.)

Figure 10:

Install the retainer, part #10150, with six (6) 1/4 in. - 20 x 1 in. cap screws, part #10822, and six (6) 1/4 in. lock washers, part #10822, to align the impeller with the shoulder and shim set on the shaft.

Tighten the fasteners in sequence while observing the readings on the indicator, as shown in Figure 12, located on Page 14.

7.3.1.4. Impeller to Lower Housing Clearance (Contd.)

Figure 11:

Tighten the retainer nut, part #10152, with striking wrench, part #12033.

7.3.1.4. Impeller to Lower Housing Clearance (Contd.)

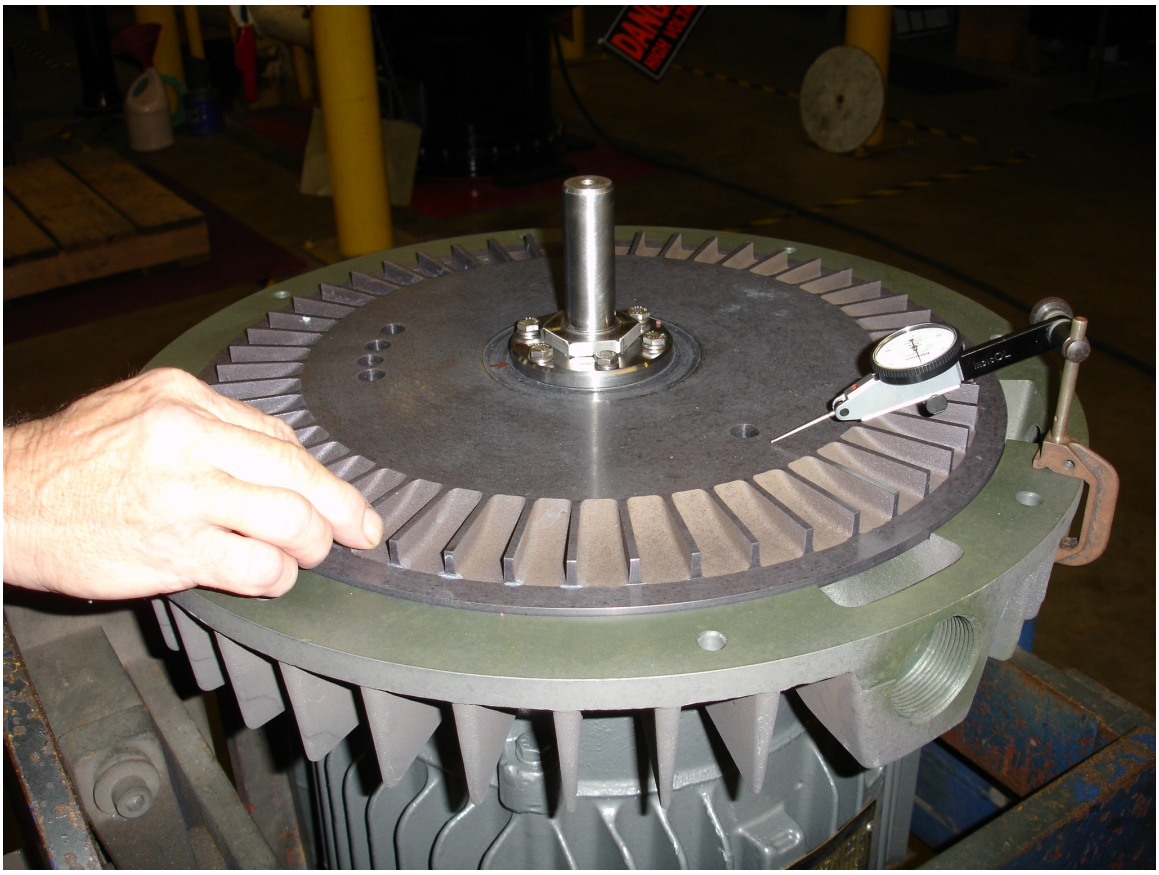

Figure 12:

Remove the two (2) feeler gauges from between the impeller and the housing.

Check the impeller run out with a dial indicator while rotating the shaft.

The run out should not exceed +/-.001 in. (.025 mm).

7.3.1.4. Impeller to Lower Housing Clearance (Contd.)

Figure 13:

Install the lower vacuum housing, part #10149, and align the parts as shown in Figure 1, located on Page 3.

7.3.1.4. Impeller to Lower Housing Clearance (Contd.)

Figure 14:

Center the bore in the lower housing on the motor shaft with centering gauge, part #11865.

Attach the lower housing to upper housing with eight (8) 5/16 in. - 18 UNC x 1-1/2 in. cap screws, part #10154, eight (8) 5/16 in. - 16 UNC nuts, part #10284, and eight (8) 5/16 in. lock washers, part #10283, in the housing and remove the center gauge.

7.3.1.4. Impeller to Lower Housing Clearance (Contd.)

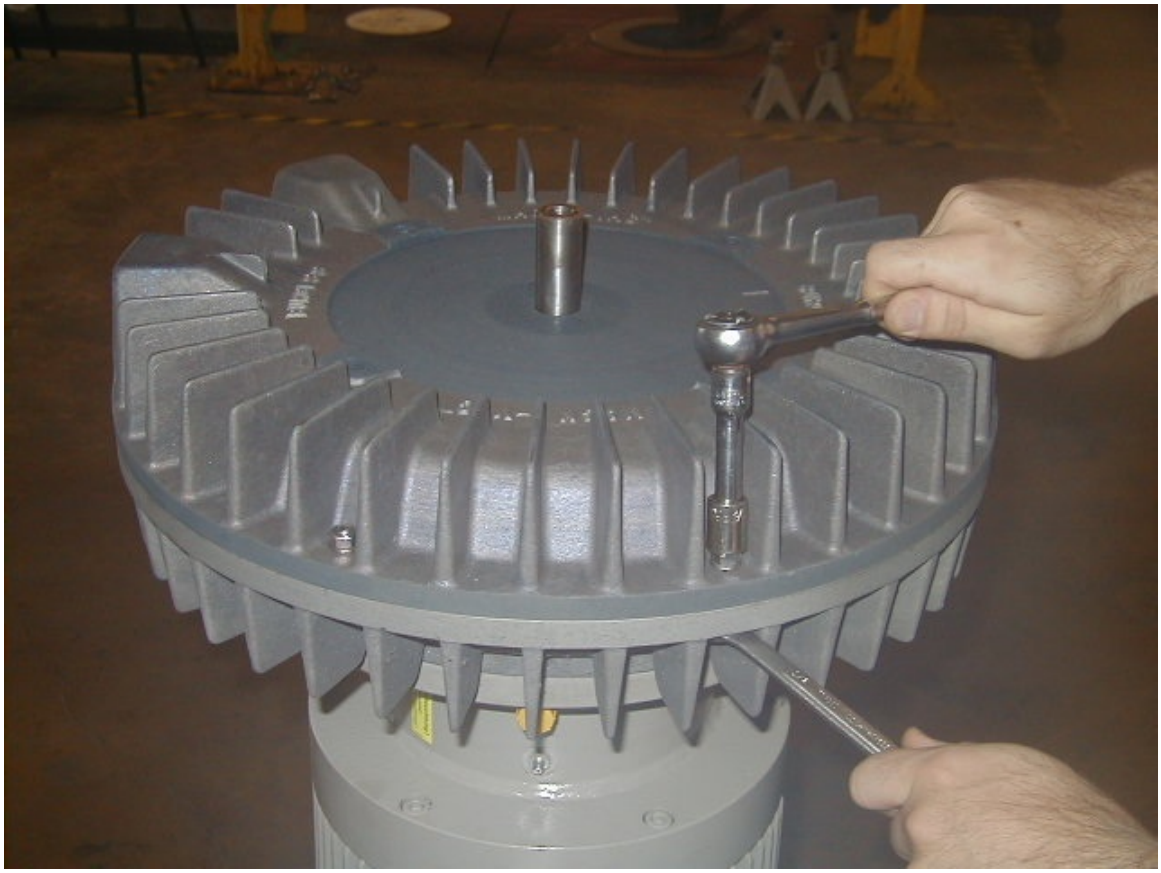

Figure 15:

Tighten the eight (8) nuts and lock washers on the 5/16 in. - 18 UNC x 1-1/2 in. cap screws.

7.3.1.4. Impeller to Lower Housing Clearance (Contd.)

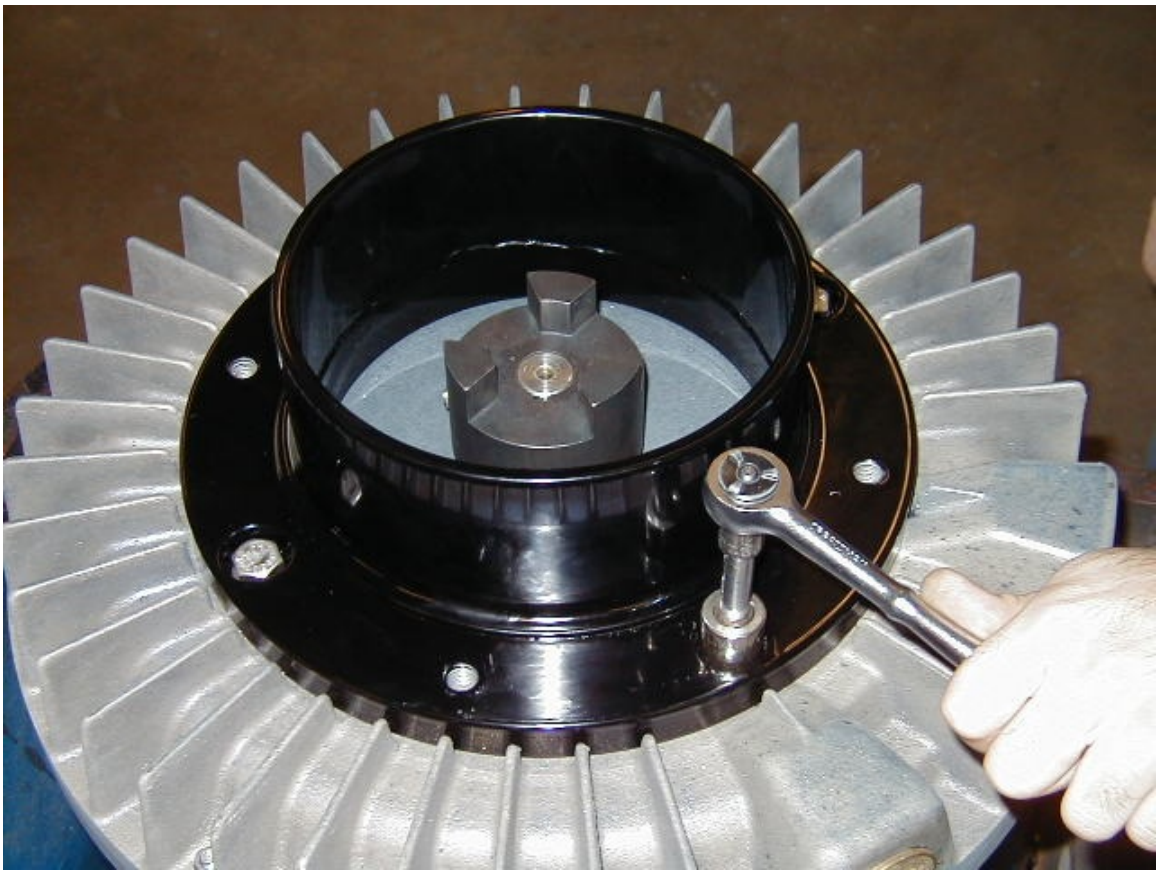

Figure 16:

Install a motor shaft protector/cover, part #10044, to the lower the vacuum housing with four (4) ½ in. - 13 UNC x 1-1/4 in. hex head cap screws, part #10268, and four (4) ½ in. lock washers, part #10265.

7.3.1.5. Three-Jaw Flex Coupling Installation

Figure 17:

Install one (1) ½ in. - 13 x ½ in. set screw, part #10277, in each hold to retain the three-jaw flex coupling, part #11218.

Slide the coupling onto the motor shaft and tighten the two (2) set screws lightly.

7.3.1.6. Three-Jaw Coupling

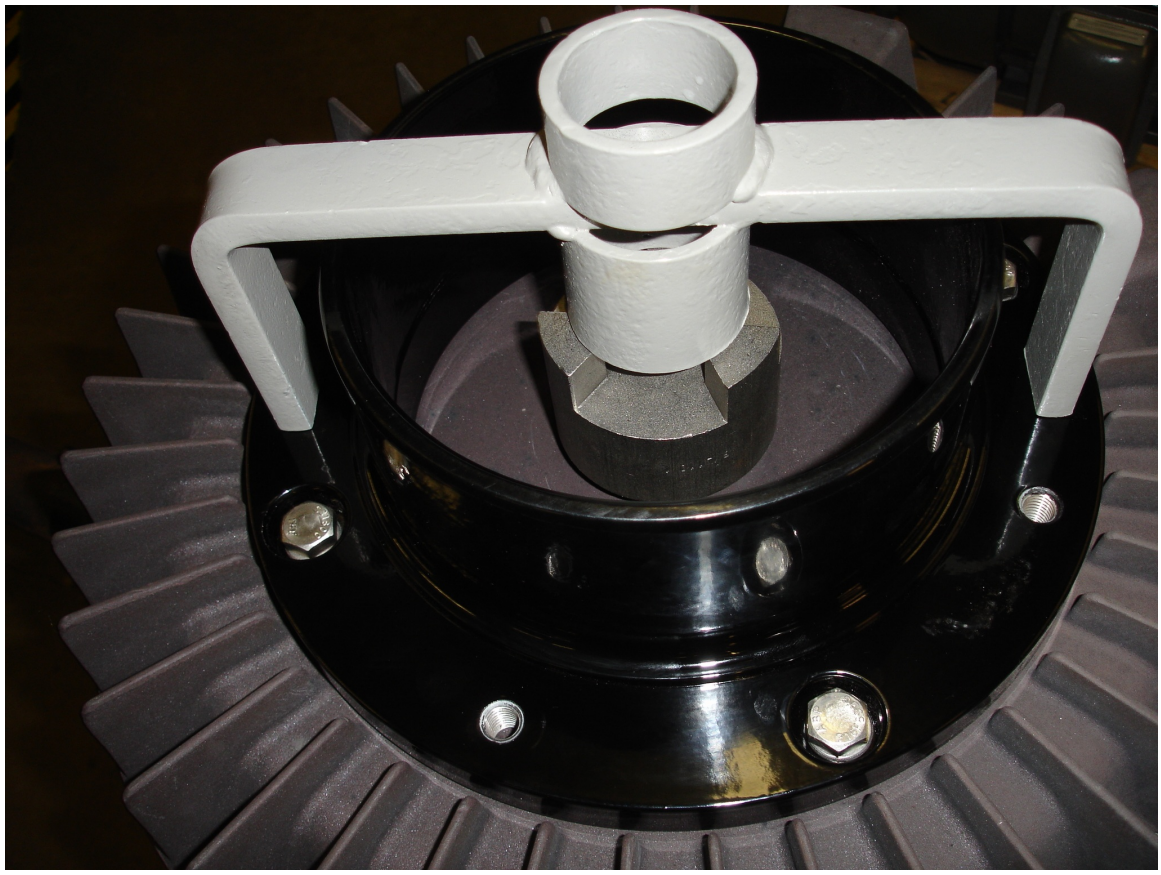

Figure 18:

Use combination coupling gauge, part #10195, to set the three-jaw flex coupling height. Place the gauge on the shaft cover, as shown in Figure 18.

Tighten two (2) set screws, each at 90 degrees apart, against the motor shaft.

Install the second jam set screw in each hole and tighten securely.

7.3.1.7. Vacuum/Blower Housing Alignment