



2.5 Posidyne Blender Drive INSTALLATION MANUAL



This **2.5 Posidyne Blender Drive** is used in asphalt shingle mills. They drive a set of fluted rolls, which distributes granules on the hot asphalt coated material. The granules are distributed in such a way as to achieve a specific pattern on the shingles. (See Figure 1)

DESCRIPTION

In the **2.5 Posidyne Clutch/Brake**, the friction surfaces consist of alternate carbon steel plates and advanced friction material on steel discs. The oil control grooves are molded into the friction material disc surfaces. The discs have internal teeth which mate with a spline on the output shaft for both clutch and brake applications. The steel plates are keyed to the input shaft in the clutch and to the housing for the brake when used. The splined sections of the *Posidyne* output shaft contain centrifugal impellers to maintain a positive flow of oil between the discs and plates.

As noted in Specifications, this **2.5 Posidyne** unit is equipped with a clutch and a brake. Both the Clutch and Brake is pressure operated. The drive units are "P" Logic, which means that there are no springs to overcome so the actuation time is very fast.

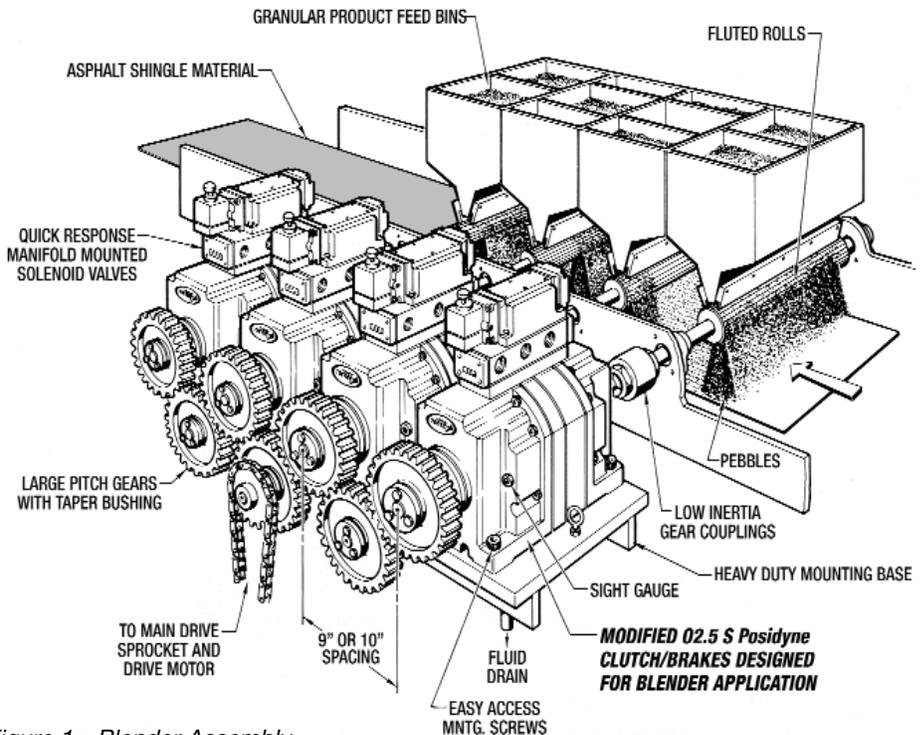


Figure 1 - Blender Assembly

OPERATION

The **2.5 Posidyne cross-section** (Figure 2) shows the drive with the Brake engaged. This is the normal position, which is controlled by an external manifold mounted control valve.

In the Brake Stack the Drive Plates are keyed to the Output Housing and the Friction Discs are splined to the Output Shaft. The Output Shaft is not able to rotate in this Brake Position.

The Clutch is engaged when the air pressure is exhausted from the Brake Port and applied to the Clutch Port. The piston moves to compress the Clutch Stack on the Input Shaft. The Drive Plates are keyed to the Input Shaft and the Friction Discs are splined to the Output Shaft. This allows both shafts to rotate at the same speed.

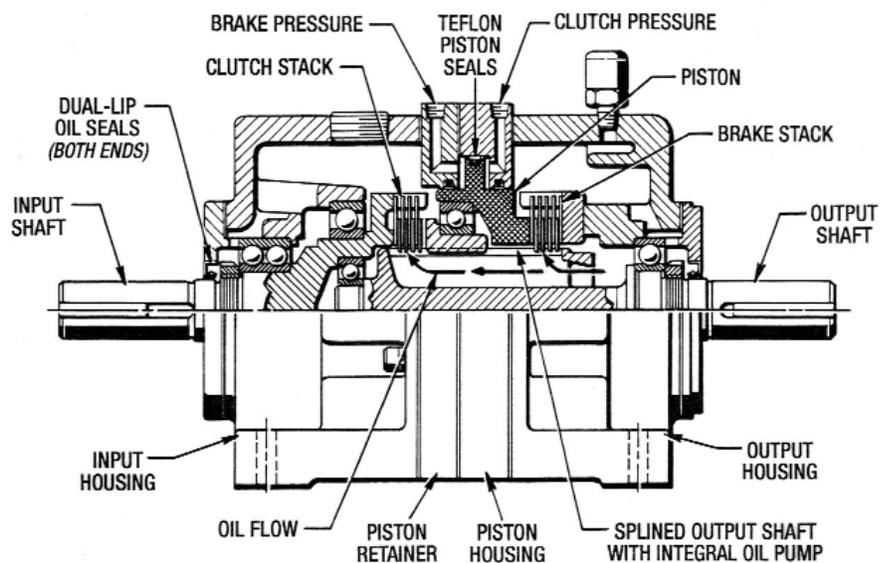


Figure 2 - 2.5 Posidyne

INSTALLATION

A. RECEIVING THE BLENDER DRIVE

Check the Blender Drive for shortage or damage immediately after arrival. Prompt reporting to the carrier's agent, with notations made on the freight bill, will expedite satisfactory adjustment by the carrier. When unloading or handling the Blender Drive, keep it upright. All Blender Drives are filled with oil, ready to run, when shipped. However, before placing the Blender Drives in service or storage, check the oil level in each of the *Posidyne* Clutch/Brakes to make sure none has spilled out in transit. Add oil if necessary (Refer to Lubrication Section on Page 4). Remove the **Red Plastic Plug** located in the top of the output housing of each *Posidyne* and install the Air Breather (#45).

WARNING - Failure to install the Air Breather (#45) as directed may cause serious damage to the Drive Unit and void the warranty.

If the Blender Drive is not to be installed and operated soon after arrival, store it in a clean, dry place having slow, moderate change in ambient temperature.

B. MOUNTING THE BLENDER DRIVE

• Drive Coupling Installation

(See Figure 3)

The Coupling Hub (#16) and the Locking Assembly (#15) is factory installed on each *Posidyne* output shaft but the other Coupling Hub (#26) and Locking Bushing (#30) will have to be installed on your Blender Roll Shafts.

1. The Blender Roll Shaft and Coupling Hub bore must be within to .003" and have a surface finish of 32-125 Ra (roughness average). If the surface finish is outside these specified values, consult Force Control.
2. The Blender Roll Shaft, Coupling Hub (#28) and Locking Bushing (#30) must be completely free of paint, grease, oil and dirt. If necessary, clean the surfaces with a non-petroleum based solvent, such as isopropyl alcohol.

WARNING - Do not lubricate any contact surfaces of the Shaft, Locking Bushing (#30) or Coupling Hub (#28) with any lubricant.

3. Insert the Locking Bushing (#30) into the Coupling Hub (#28), making sure the mating hub is flush against the shoulder at the hex flats.
4. Take the loose Split Coupling (#29) apart and remove the remaining sealing ring. Place it on the Coupling Hub (#28) as shown in Figure 3.
5. Position the assembly approx. at the desired location on the shaft and hand tighten the nut (clockwise) until the assembly becomes fairly snug on the shaft. (See Figure 3).

WARNING - Do not hammer or use any type of impact to force the Locking Bushing on to the shaft. The shaft must fully engage the gripping area of the Locking Bushing as shown in Figure 3.

6. Attach lifting hooks to the eye bolts on the ends of the base

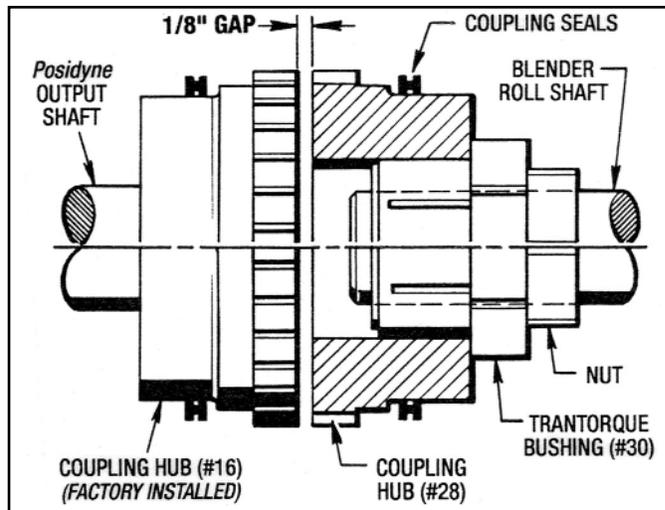


Figure 3 - Coupling Hub Installation

and lift the whole Blender Drive Assembly into place. Use (4) 5/8"-11 x 2" Lg. SAE Grade 5 Hex Hd. Cap Screws and Lockwashers to bolt the drive securely into place. Torque these mounting bolts to 120 Lb. Ft.

7. Loosen the Locking Bushing (#30) and position the Hub (#28) 1/8" from the face of the other Coupling Hub (#16) as shown in Figure 3.

IMPORTANT - Move the Blender Roll Shaft only for alignment. Do not move the Posidyne. Also the Blender Roll Shafts must be aligned with each other.

8. Apply 60 PS I air pressure to the brake to tighten the Locking Bushing (#30).
9. Using a torque wrench, tighten the nut to the proper installation torque. See the following Table for the correct torque value.

Locking Bushing Req'd. Torque

SHAFT SIZE (Inches)	TORQUE (In. Lbs)
5/8 - 3/4	1200
13/16 - 1	1500
1-1/16 - 1-1/4	2000
1-5/16 - 1-1/2	2300
1-9/16 - 1-3/4	2800
1-13/16 - 2	4900

NOTE - At full installation torque, the assembly will have moved approx. 1/16" axially along the shaft away from the nut. If axial position is critical, it may be necessary to loosen the nut and reposition the assembly.

WARNING - Over-tightening the nut could damage the Locking Bushing and/or mounted equipment.

- Place the Coupling (#29) grid over the coupling hubs and into the grid slots. Place the Split Coupling Cover (#29) over the hubs and grid. Make sure the (2) gaskets and both sealing rings are in place. (See Figure 4) Also see the Falk Steelflex Type T10 Installation Instructions sheets .

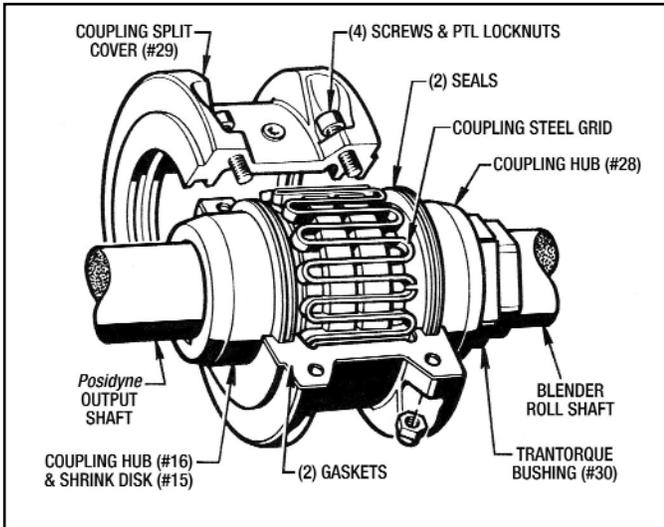


Figure 4 - Coupling Assembly

Attach the coupling halves with the (4) screws and (4) PTL locknuts as shown in Figure 5.

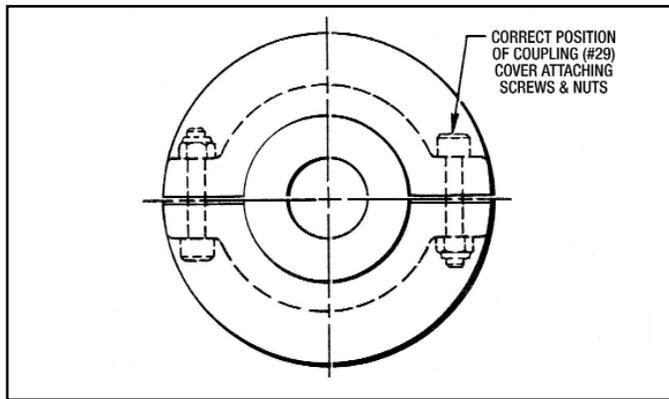


Figure 5 - Attaching Coupling Split Cover

- Fill with coupling grease as specified in **Lubrication Section**.

• Installing Drive Sprocket or Pulley

- If the Drive is to be driven by a belt or chain drive, locate the sprocket or sheave as close as possible to the gear on the Jackshaft to minimize overhung loads. Make sure that the sheave or sprocket is in line and that the shafts are parallel.
- After the machinery has been in operation for a few hours make sure that all mounting bolts are tight and recheck the alignment of all components.
- After machinery has been in operation for 40 hours check the mounting bolts and tighten if necessary.

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C. COMPRESSED AIR CONNECTIONS

Figure 6 illustrates a typical compressed air system for the Posidyne Blender Drives.

See Pneumatic Control Valves Service Manual for additional information on pneumatic control valves.

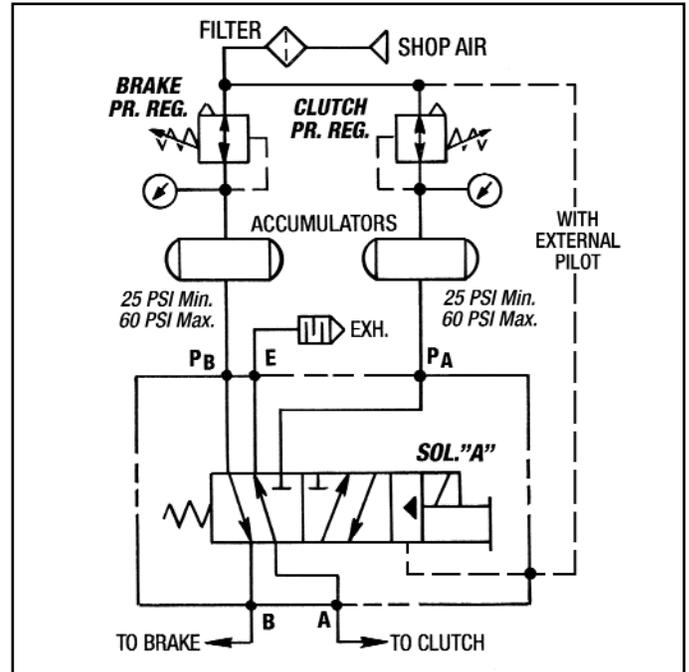


Figure 6 - Typical Pneumatic Diagram With 2PI-3/8 Control Valve ("P" Logic Air operated Clutch & Brake, No springs)

Note the following when planning and installing the pneumatic system:

- Use direct acting solenoid air valves or pilot operated valves to give the response speed required. Locate the valves as close as possible to the air inlet on each Posidyne. All control valves furnished with the Blender Drives are manifold mounted.

It is recommended that 24 VDC Solenoid Valves be used, but 115 VAC Solenoid Valves are available. Be sure to use valves of at least 1.0 Cv size.
- Size the accumulators to be at least 10 times the air required per engagement. (See Specifications Chart in full manual.)
- The air pressure regulators should be sized and set to provide the required torque. (See Specifications Chart in full manual.)
- Pressure is directly proportional to torque. Use only the pressure necessary. (The clutch is not a variable speed drive Do not let it slip for extended periods.) This will give additional life to the Clutch/Brake.
- After using the drive for a few days the acceleration time may decrease. Increasing the air pressure will restore the acceleration.

LUBRICATION

A. CHECKING THE OIL LEVEL (See Figure 7)

When the drive is installed and weekly thereafter, or until experience dictates otherwise, check the oil level. Always check the oil level with the drive at room temperature and while it is not running.

The drive has an oil sight gauge located in the input end of the drive. The oil level is to be at the center of the gauge.

B. OIL CAPACITY

The Oil Capacity for the 2.5 Posidyne Blender Clutch/Brake is 3 Quarts.

C. CHANGING THE OIL (See Figure 7)

IMPORTANT

Open the disconnects to the drive motors before attempting to change the oil.

Every three months completely drain the oil from the drive unit by removing the Pipe Cap (#25) at the end of the Pipe Nipple (#24) in the bottom of the drive unit. If the oil sight gauge is dirty, it should be removed and cleaned.

Reinstall the Pipe Cap (#25) and remove the large pipe plug at the top of the drive unit and refill the drive to the center of the sight gauge with fresh oil.

CAUTION

Do not overfill the Drive Unit. Excess oil will cause the unit to overheat.

D. TYPE OF OIL

Use only Mobil Automatic Transmission Fluid A TF-21 0 (type F) or Mobil Multi-purpose Automatic Transmission Fluid for most drives. Other fluids may be specified for special applications. Always use the type of fluid specified on the Name Plate.

CAUTION

Use of the wrong type of oil will cause erratic operation, premature wear, damage to the unit and void the Warranty.

E. PILLOW BLOCK LUBRICATION

(See Figure 7)

At least once a month, or until experience dictates otherwise, give each Pillow Block (#14) a shot of high grade multi-purpose industrial grease. Each Pillow Block has an Alemite Fitting for a standard grease gun.

F. FALK COUPLING LUBRICATION

Each Falk Coupling has (2) 1/16" NPT pipe plugs in the split cover. Remove both of them and install a standard Alemite grease fitting in one of them. With a grease gun, pump Falk LTG Coupling Grease (or equivalent) into the coupling. Hold a finger over the other hole while pumping. When the grease starts to come out of the other hole, the coupling is full. Replace the (2) pipe plugs.

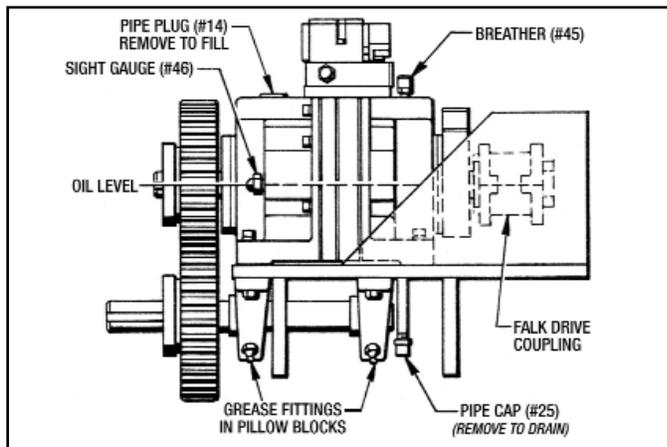


Figure 7 - Lubrication

FACTORY REBUILD SERVICE, MAINTENANCE & MANUALS

A. FACTORY REBUILD SERVICE

A Factory Rebuild Service is offered by Force Control Industries, Inc. Contact our service and sales department at Force Control for additional information.

B. MAINTENANCE & MANUALS

A complete Service Manual can be downloaded and printed off of our web site or ordered directly from Force Control.

Go to: www.forcecontrol.com

All of our Catalogs and Service Manuals on the web site are in PDF format and will require Adobe Acrobat Reader 5.0 or later to open them. This Adobe Acrobat Reader can be downloaded from our web site if you do not have it installed on your computer.



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