



Air Power Systems Co., Inc.
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WT-70-M Brake Control Kit Installation Instructions

Rev:)A, 03/26/13
 Approved By: Ken Thompson
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General Information: Air Operated Brake

Drum brakes on winches are understood to be the type designed to prevent wire rope from “bird caging” (free spooling, allowing the tangling of wraps or layers) when the drum clutch is disengaged, so that wire rope can be free spooled under control off the drum with no load on the winch.

The drum brake is not designed to hold a load.

The brake band becomes energized around the drum when the brake rod is pulled with a “bell crank rod” and lever mechanically. This lever can be replaced with an air cylinder. A spring extended cylinder is preferred with air retraction. A double acting cylinder can be used, which is intended to assist the spring in releasing the brake. If the double acting feature is not used, then the tapped hole for the air line must have a breather installed to allow for exhaust action of the single acting cylinder.

Air cylinders are not to be used in applications where persons are lifted or moved under or between loads or forces.

Stage 1: Prepare Winch for Installation

1. Remove all control linkage parts for Clutch and Drum Brake except Clutch Yoke. Retain any safety locking devices since these must be in place as manufactured when installation is complete.

Stage 2: Installation of Drum Brake Control

1. Locate and drill 1/2” hole for mounting Clevis as shown in Figure 1.
2. Bolt 1/2” Clevis to Winch Angle. Tighten Bolt to Clevis securely. **Note: Clevis Pin should be horizontal when inserted so Cylinder may move freely in vertical direction.**
3. Remove Brake Band Anchor Bolts. Move Brake Band to inside of Angle. Install 3/4” Block on inside and outside of Brake Band as shown in Figure 1. Bolt in place using two (2) 1/2” Cap Screws with Lock Washers and Nuts. Tighten Securely.

Note: This change is only required to allow proper clearance for the Piston Rod through the Brake Band. It may not be necessary for all applications.

4. Install Cylinder by sliding Piston Rod through Brake Band slot. Connect Cylinder to Clevis. Thread two (2) Nuts onto Piston Rod. Insert Piston Rod through mounting hole in Brake Band. Thread two (2) more Nuts onto Piston Rod and adjust both Nuts such that the Brake Band does not grip Drum until Cylinder is activated. Lock Nuts in place.

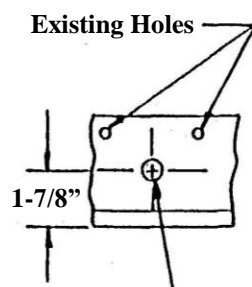
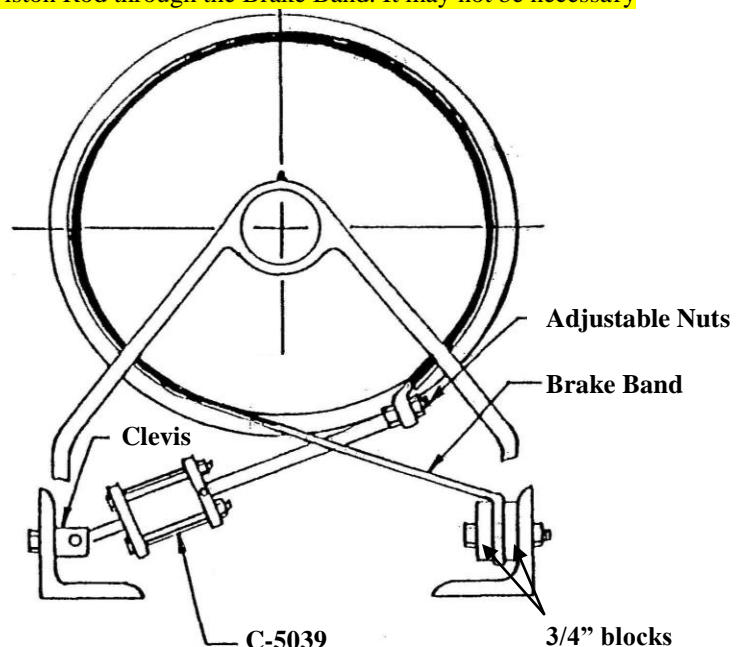


Figure 1

1/2” drill through for mounting Clevis –
 Centered between existing holes





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General Information: Air Operated Clutches

Winch manufacturers design Drum Clutches to be fully-engaged or disengaged before operating the Winch. Any device to insure this feature must not be overridden or tampered with by the addition of an air shifting device. Air Cylinders, both double-acting and spring return single-acting, are for complete clutch travel each way. Partial engagement or disengagement must not occur. Locking devices must remain in place and operational at all times. Springs used in Air Cylinders to engage or disengage Drum Clutches are in addition to, and must be designed to comply with, forces designated by the Winch manufacturers.

Stage 3: Installation of Drum Clutch Control

1. Insure Clutch is engaged. Pin Piston Rod Clevis to Clutch Yoke as shown in Figure 2.

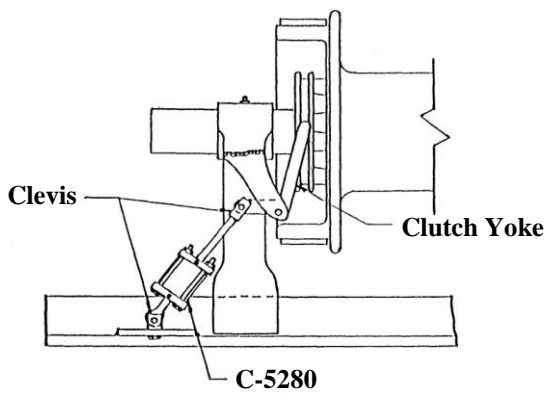


Figure 2

Note: Any Safety Locking Devices installed by manufacturer must not be removed or overridden by installation of Air Cylinder.

2. Install lower Clevis to the Bracket provided. Pin opposite end of Cylinder to lower Clevis. Clutch should be fully-engaged, but Yoke should not exert any force on Clutch Dog when Clutch is engaged. Place lower Clevis Bracket on two large Angles, positioning Clevis Bracket such that it is flat and square. Weld Clevis Bracket in place against Angles.

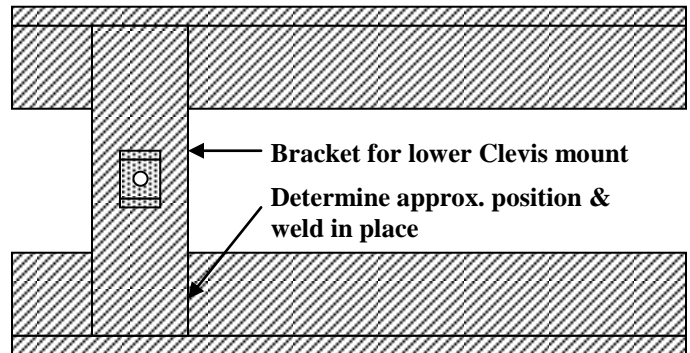


Figure 3

Caution: Partial engagement or disengagement of Drum Clutch must not occur under any circumstances. Only operators experienced enough to understand this requirement should operate this equipment. Anyone assisting operator must be informed by operator of the potential dangers of partial engagement. In addition, no person(s) should be in or near moving loads or hooks.

3. Install VM-2-X and V-8 Control Valve in desired locations using two (2) 1/4-20 Cap Screws to mount each Valve. Route Tubing and connect Power Supply. Test for proper operation.

Note: Clutch should disengage firmly and completely when air pressure is applied and spring back to engaged position without force being exerted on Clutch Dog by Yoke when pressure is released. Air pressure is applied to aid Spring in engaging Clutch. Minor adjustments may be made with Clevis on Cylinder Piston end. The VM-2-X Valve allows pressure on Brake Band to be controlled by operator.

System Control Diagram

