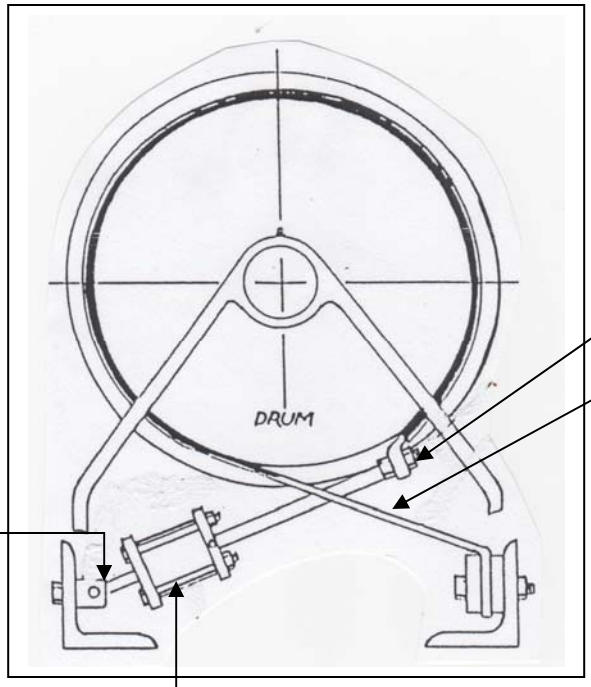
WT-64-M & WT-64-M-6
Brake Control Kit



Adjustable nuts

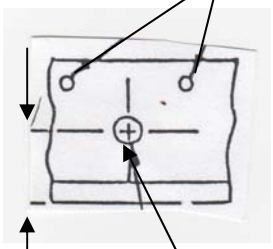
Brake Band

Clevis

¾" Thick Block

Use C-6039 for WT-64-M-6 or
Use C-5039 for WT-64-M

Existing Holes



1-7/8

17/32 Drill Thru
for mounting clevis-centered
between existing holes

Air Power Systems Co., Inc
P.O. Box 470948
Tulsa, OK 74147
(918)622-5600

WT-64-M & WT-64-M-6_.DOC
Date: 6-16-05
Status: Approved
Responsible: Ken Thompson

WT-64-M & WT-64-M-6 Installation Instructions
Brake and Clutch Control Kit
For Tulsa Winch Model 64

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 is disengaged, so that wire rope can be free spooled under control of 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 pipe tapped hole for the air line must be left open 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.

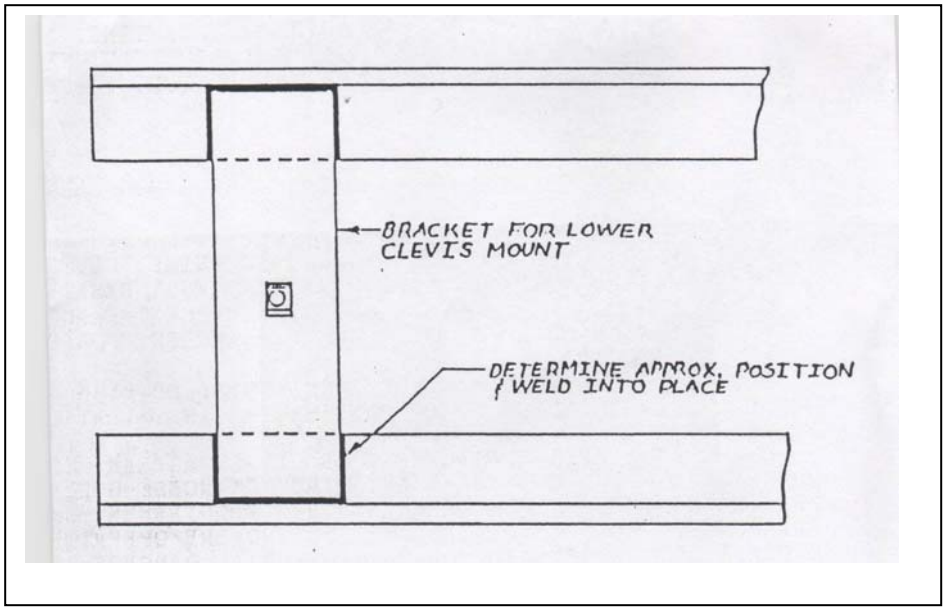
1. Winch preparation:
   Remove all control linkage parts for clutch and drum brake except clutch yoke. Retain any safety locking devices, since these must be in place as manufactured when installation is complete.

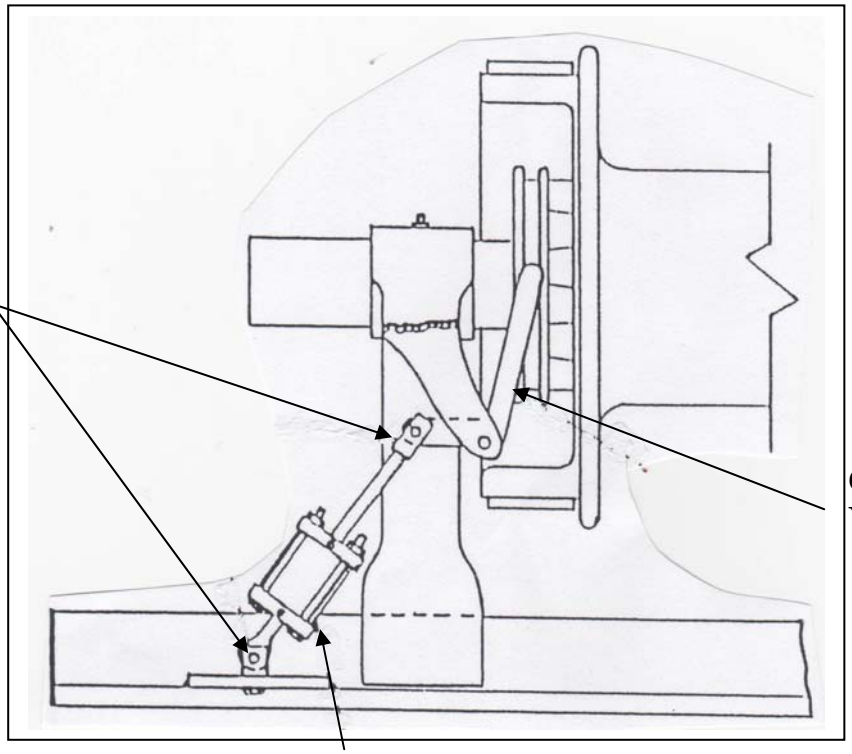
2. Installation of drum brake control:
   A. Locate and drill 17/32" hole for mounting clevis. (SEE SKETCH)
   B. Bolt ½" clevis to winch angle. Clevis pin should be horizontal when inserted so cylinder may move freely in vertical direction (SEE SKETCH). Tighten bolts to clevis securely.
   C. Remove brake band anchor bolts, move brake band to inside of angle, install ¾" block on inside of brake band (SEE SKETCH). Bolt in place using two ½" capscrews 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)
   D. Install cylinder by sliding the piston rod through the brake band slot. Connect the cylinder to the clevis. Place one nut onto the piston rod. Insert rod through mounting hole in the brake band, place the other nut on the rod. Adjust the nuts so the brake band does not grip the brake drum until the cylinder is activated.

Air Power Systems Co., Inc
P.O. Box 470948
Tulsa, OK 74147
(918)622-5600

WT-64-M & WT-64-M-6_.DOC
Date: 6-16-05
Status: Approved
Responsible: Ken Thompson

WT-64-M-6
Clutch Control Kit





Air Power Systems Co., Inc
P.O. Box 470948
Tulsa, OK 74147
(918)622-5600

WT-64-M & WT-64-M-6_.DOC
Date: 6-16-05
Status: Approved
Responsible: Ken Thompson

WT-64-M-6 Installation Instructions
Brake and Clutch Control Kit
For Tulsa Winch Model 64

General Information: Air Operated Clutch

Winch manufacturers design drum clutches to be fully engaged or disengaged before operating the winch. Any device to assure this feature must not be overridden, or tampered with by the addition of an air shifting device. Air cylinders, both double acting or spring return, are for complete clutch travel each way. Partial engagement or disengagement must not occur. Locking devices must remain in place and operatable 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 manufacturer.

3. Installation of drum control:
   A. Make sure clutch is engaged, pin the piston rod clevis to the clutch yoke (SEE SKETCH).
   B. Install lower clevis to the bracket provided. Pin the opposite end of the cylinder to the lower clevis. The clutch should be fully engaged, however the yoke should not exert any force on the clutch dog when the clutch is engaged. Next, place the lower clevis bracket on the two large angles positioning it flat and square. Weld into place.
   NOTE: Any safety locking devices installed by manufacturer must not be removed or overridden by the installation of the air cylinder.
   Caution: Partial engagement or disengagement of the drum clutch must not occur under any circumstances. Only operators experienced enough to understand this requirement should operate this equipment. Those assisting the operator must be informed by the operator of the potential dangers of partial engagement. Additionally, no person should be in or near a moving load or hook.

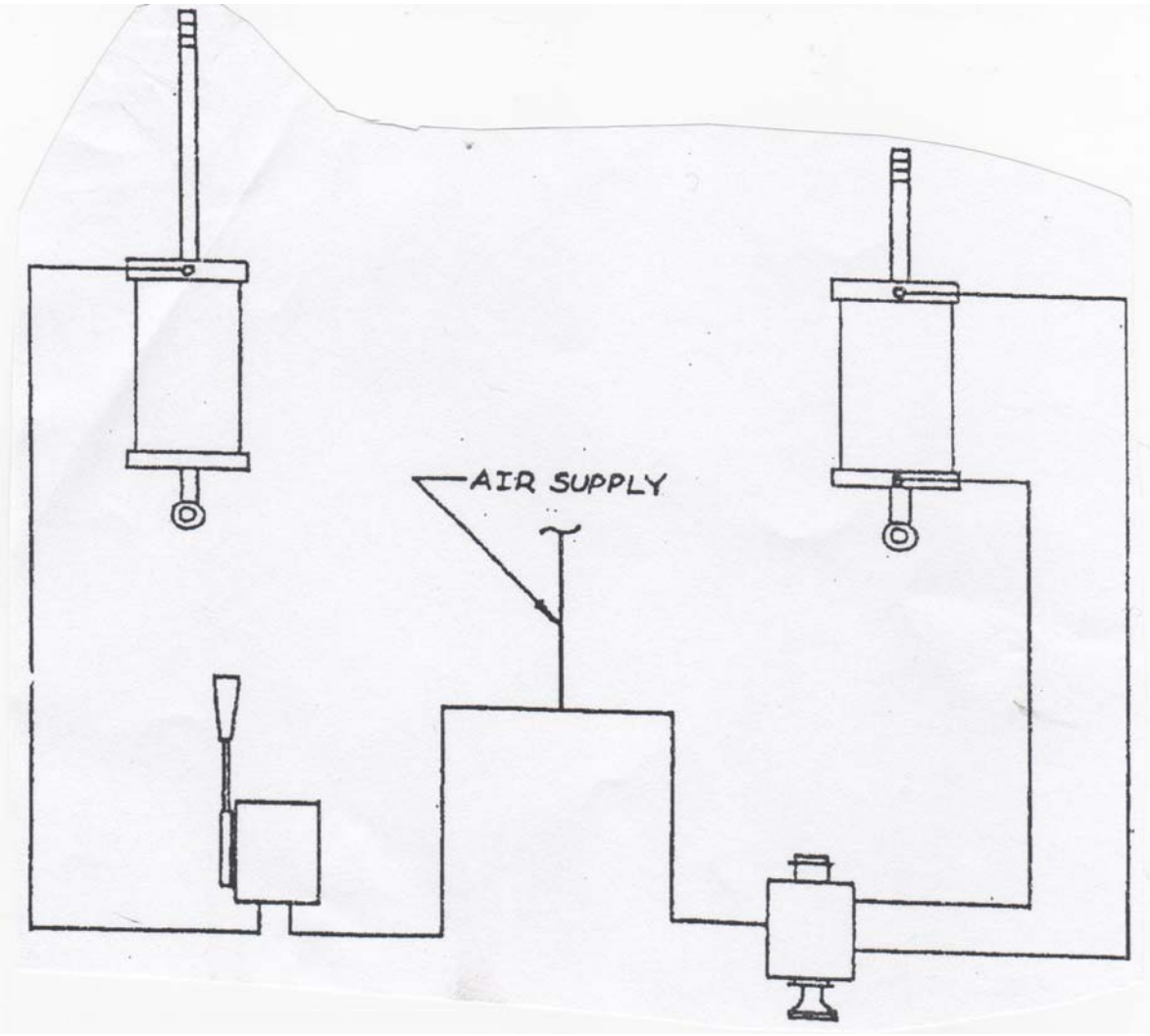
4. Install control valve in desired position using two ¼" capscrews. Route tubing and connect power supply. Test for proper operation.
   NOTE: Clutch should disengage firmly and completely when air pressure is applied and spring back to the engaged position without force being exerted on the clutch dog by the yoke when pressure is released. Air pressure is applied to aid the spring in engaging the clutch. Minor adjustments can be made with clevis on cylinder piston rod.

apsco MORE POWER TO YOU

Air Power Systems Co., Inc
P.O. Box 470948
Tulsa, OK 74147
(918)622-5600

WT-64-M & WT-64-M-6_.DOC
Date: 6-16-05
Status: Approved
Responsible: Ken Thompson

WT-64-M Control Kit
System Diagram



VM-2-A V-8

Air Power Systems Co., Inc
P.O. Box 470948
Tulsa, OK 74147
(918)622-5600

WT-64-M & WT-64-M-6_.DOC
Date: 6-16-05
Status: Approved
Responsible: Ken Thompson