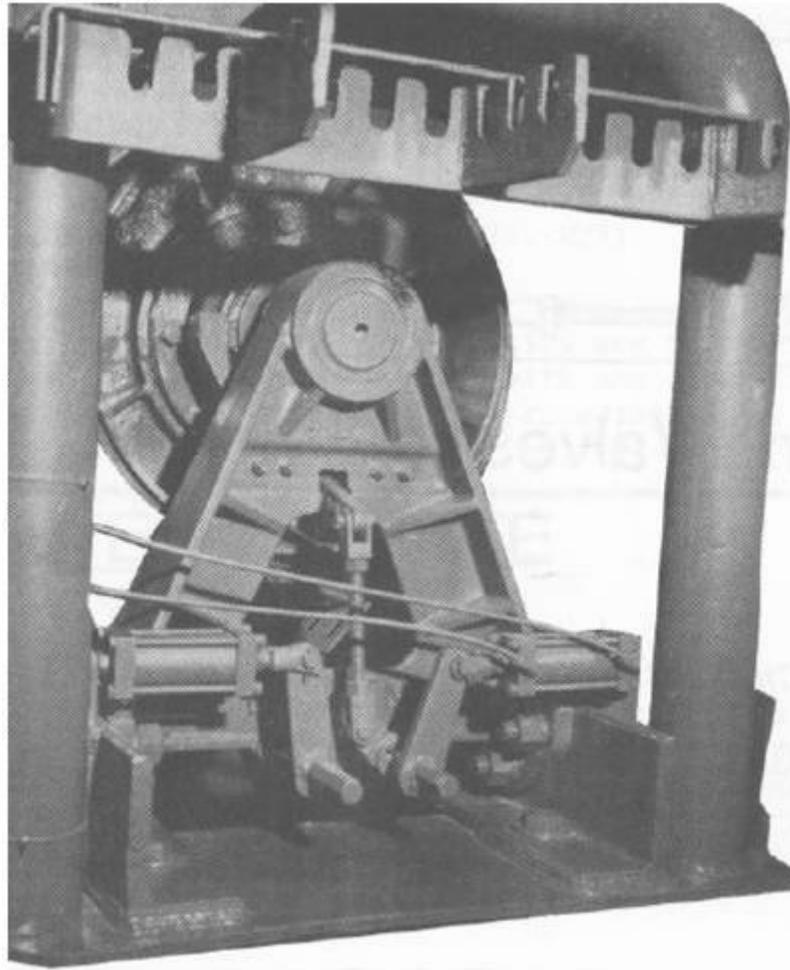




## INSTALLATION INSTRUCTIONS

### AIR POWER SYSTEM CO., INC.

8178 East 44th St., Tulsa, OK 74145  
P.O. Box 470948, Tulsa, OK 74147  
(918) 622-5600 • FAX (918) 622-5469  
[www.apscotulsa.com](http://www.apscotulsa.com)



### UNIVERSAL WINCH AIR CONTROLS

Installation Instructions for the following APSCO kits

W1 Clutch only

W2 Clutch (Heavy duty)

W3 Clutch (Short cylinder)

W4 Drum brake

W7 Drum brake (Heavy duty)

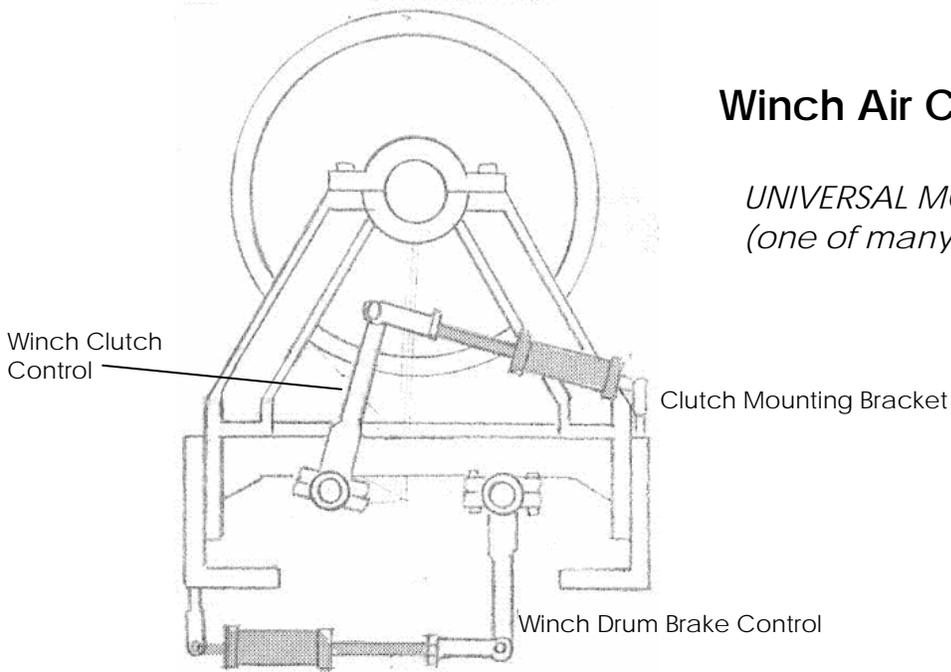
W14 Clutch and drum brake

W27 Clutch and drum brake (Heavy duty)

# INSTALLATION INSTRUCTIONS

## Winch Air Controls

*UNIVERSAL MOUNTING  
(one of many possible hook-ups)*



## CONNECTING VALVES TO CYLINDERS

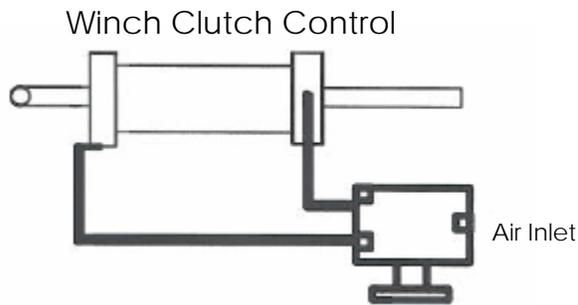


Figure 1. V8 Valve

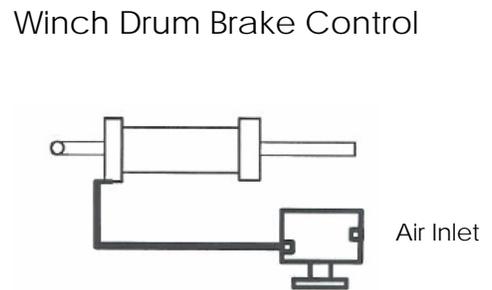


Figure 2. V5 Valve

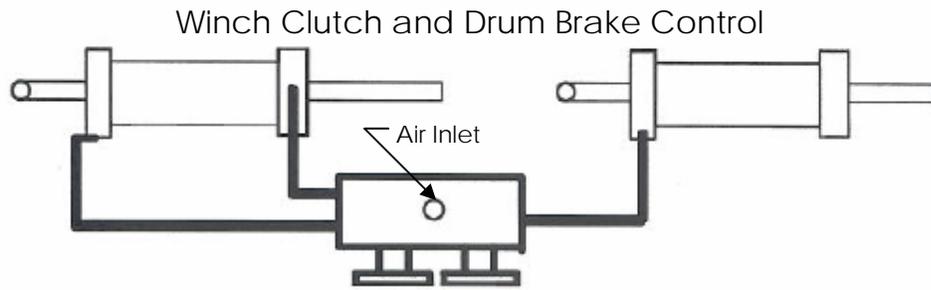


Figure 3. V85 Valve

**IMPORTANT:** Apply thread sealant to all fittings.

## WINCH CLUTCH AIR SHIFT KITS (W1, W2, and W3 APSCO KITS)

Winch clutches are engaged most of the time. Therefore, to prevent unnecessary wear and possible bending of the clutch yoke, it is advisable to mount the cylinder so that no force is exerted on the clutch yoke while in the engaged position. This can be accomplished by locating the mounting bracket so that the piston will "bottom out" in the cylinder or by limiting the travel of the winch clutch arm (external weldment). See Figure 1 for plumbing instructions.

## WINCH BRAKE AIR CONTROL KITS (W4 and W7)

APSCO winch brake air shift kits are complete with single-acting, spring-return cylinder and model V5 valve with special air restricting ports. The brake band is controlled by moving the valve spool in and out. See Figure 2. A metering valve is available as an option.

## WINCH CLUTCH AND BRAKE AIR CONTROL KITS (W14 and W27)

APSCO winch clutch and brake air control kits are combinations of the above kits. The V85 valve is a "double spool valve" with one spool for the brake and the other for the clutch. See Figure 3.

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## HOW VALVES OPERATE

### CLUTCH CONTROL

When knob is "out", front outlet of valve delivers air to cylinder while rear valve outlet is exhausting cylinder air. When knob is pushed "in", rear outlet of valve delivers air to the cylinder and the front valve outlet exhausts out the front of the valve at the knob. Ports are  $\frac{1}{8}$ " NPT.

### DRUM BRAKE CONTROL

The single outlet of the valve contains several restricting holes. Knob pulled to "full out" position delivers full air pressure to the cylinder and applies maximum pressure to winch drum brake. Knob "in" blocks pressure to the cylinder; the internal spring in the cylinder retracts the piston rod and drum brake tension is released. Air from the cylinder exhausts out the front of the valve body at the knob. Ports are  $\frac{1}{4}$ " NPT.

### COMBINATION CLUTCH AND DRUM BRAKE CONTROL

Usually preferred when both winch clutch and drum brake are to be controlled because one inlet port serves both sections of the valve resulting in quicker installation than for the two single valves. Ports are both  $\frac{1}{4}$ " and  $\frac{1}{8}$ " NPT.

## BILLS OF MATERIAL – UNIVERSAL WINCH AIR CONTROL KITS

<u>APSCO KIT #</u>	<u>BRAKE CYL</u>	<u>CLUTCH CYL</u>	<u>VALVE</u>	<u>TUBING &amp; FITTING KIT</u>
W1	-	C-4060	V-8	TF-13
W2	-	C-5060	V-8	TF-9
W3	-	C-4260	V-8	TF-13
W4	C-4050	-	V-5	TF-26
W7	C-5050	-	V-5	TF-26
W14	C-4050	C-4060	V-85	TF-5
W27	C-5050	C-5060	V-85	TF-7