

peterson

SERIES II PIPE VALVE

INTRODUCTION

Thank you for selecting **Peterson Series II Pipe Valves**. These all-electric valves are engineered to give uncompromised speech characteristics and high efficiency regardless of the size or class of pipes they are used with. The keys to their superior design are the precision to which the travel of moving parts can be factory adjusted and the efficient design of the magnetic circuit, or path.

Peterson Series II Pipe Valves are designed for convenient, easy mounting using a single number six screw. The return spring holder is even offset to allow unobstructed access to the screw with a screwdriver or hex-driver. For a neat, easy connection to the rectifier return wire, we recommend using our "**Chassis Common Mounting Kit**", Part Number 403334. This kit includes an eight foot length of special adhesive backed, conductive foil and a connector ideal for attaching the foil to a return wire from the chest to the rectifier. Since one terminal of each pipe valve coil is connected to the frame, the valves may be mounted on top of this strip to make the return connection with no individual wires.

In order to take full advantage of all design features, please read the following instructions before mounting your pipe valves.

INSTALLATION INSTRUCTIONS

Lay out your toe hole arrangement on the chest. Check any close spacings by setting the pipe valves in place to see how they will fit together. Drill and countersink all toe holes.

If you are using Peterson Chassis Common Mounting Kits, remove the paper backing from the adhesive on the strips, and press the strips into place so the nearer edge of the strip passes at about 1-1/16 inch from the center of each toe hole. (See **Figure 1**). The foil may be cut with a scissors and soldered together at the seams to make an appropriate path.

Position each pipe valve so that the frame is on top of the chassis common strip (if applicable) and the pallet is centered over the toe hole. We recommend the use of pallets at least 1/8" larger in diameter than the toe hole to assure proper valve seating. A **Pipe Valve Locating Fixture** is available to make locating of the pipe valves go much more quickly. This is Peterson Part Number 502001.

With the pipe valve held in position, start a #6 x 3/4" slotted hex washer head sheet metal screw (SHWHSMS), available from Peterson as Part #160043), or a screw of your choice so that it is about 5/32" into the slot (see **Figure 1**). As you tighten the screw, the two points on the corners of the frame will penetrate the foil and "dig into" the wood of the toe board. For proper valve operation the points must dig in until the frame is flat against the mounting surface.

The felt and leather pallet may have been distorted during packaging and other handling, so that the surface is not flat. After mounting, form the edges of each pallet so that the valve seats firmly.

Check to be sure that each armature has the appropriate range of travel. With the valve closed, the tip of the armature should cover between 1/2 of the pole piece end for 5/8 inch valves, and about 1/8 of the pole piece end for 1-1/4 inch or larger valves. (See **Figure 2**). The armature tip must never cover more than about 1/2, nor less than 1/16, of the pole piece end when the valve is seated. If the adjustment is out of this range, check the flatness of the frame against the mounting surface. If necessary, turn the pallet firmly and squarely on the threaded brass pin to raise or lower the armature. Bend the brass pin gently with a long nosed pliers so that it is perpendicular to the toe board with the valve closed.

If the chassis common is not used for the return connection, connect all of the terminals that are tied to the frame (Terminal #1 in Figure 1) to each other with wire. If the chassis common method is used, screw the supplied terminal to the toe board so that it is on top of (touching) the foil (See **Figure 1**). Heat the terminal and apply a small amount of solder to connect the terminal to the foil and prevent the terminal from moving. Connect a wire of suitable size between this terminal and the rectifier. See **Table #1** for recommended wire sizes.

Wire the remaining terminal (Terminal #2 in **Figure 1**) to the keying wire for each note. Be sure the relay or key contact and wire used are rated for the current that they will carry. See **Table #2**. "Flyback diodes" (Peterson Part Number 150052) protect electronic components or delicate contacts by preventing a high reverse voltage from developing when the keying circuit is broken. Flyback diodes are built into Peterson relays. If an electronic relay without built-in flyback protection is used, flyback diodes may be added as shown in **Figure 3**. If no relay is used and the common return is broken to turn off the stop, a series diode (1 Amp, Peterson Part Number 150052) should be used with each pipe valve. See **Figure 3** for the appropriate configuration.

PETERSON ELECTRO-MUSICAL PRODUCTS, INC.

11601 SOUTH MAYFIELD AVENUE

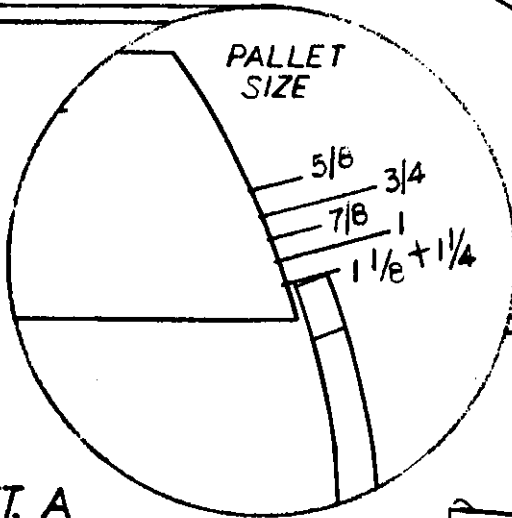
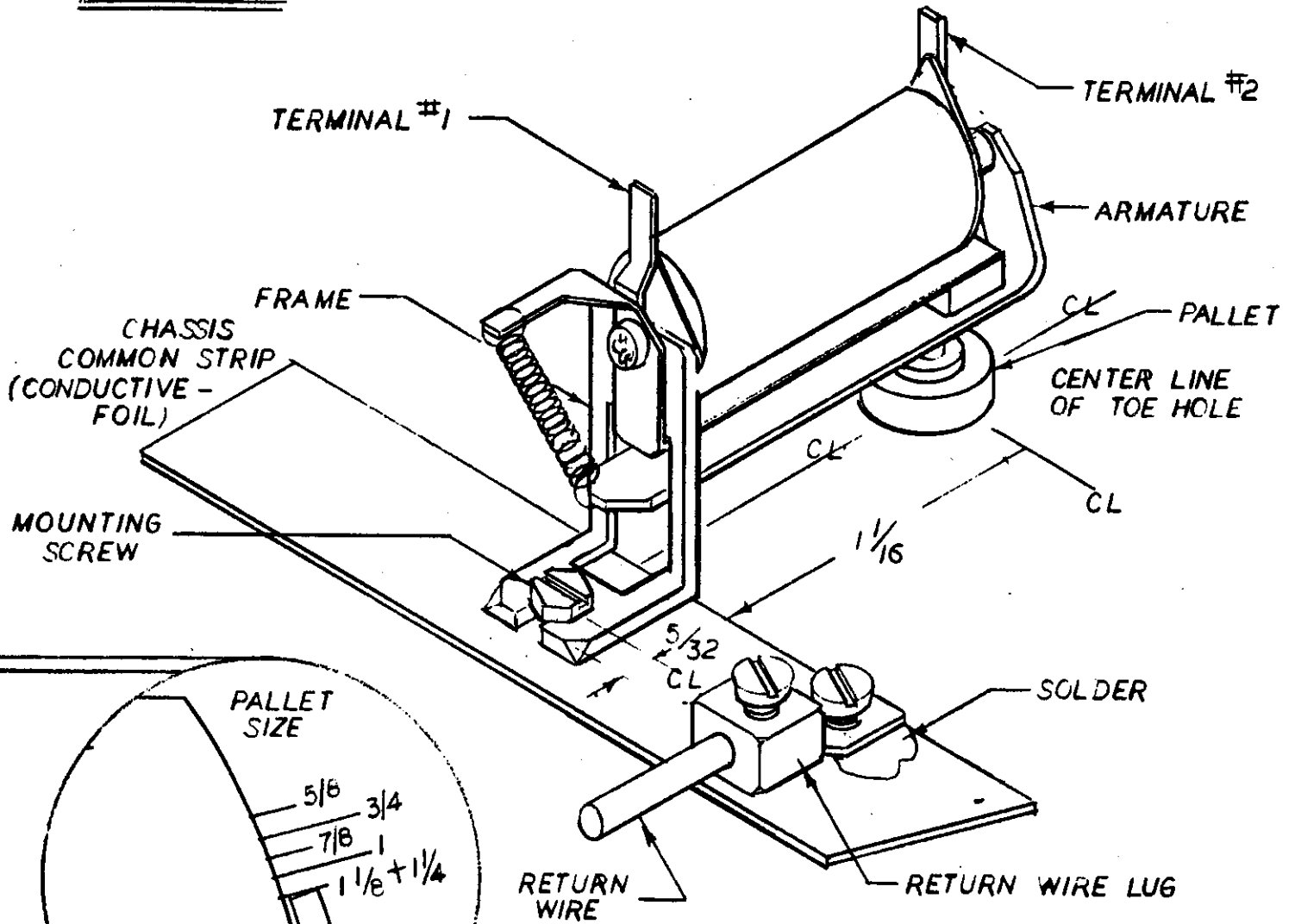
ALSIP, IL 60803-2476

1(708)388-3311

1(800)341-3311

(TOLL FREE NUMBER)

FIGURE #1



DET. A

FIGURE #2

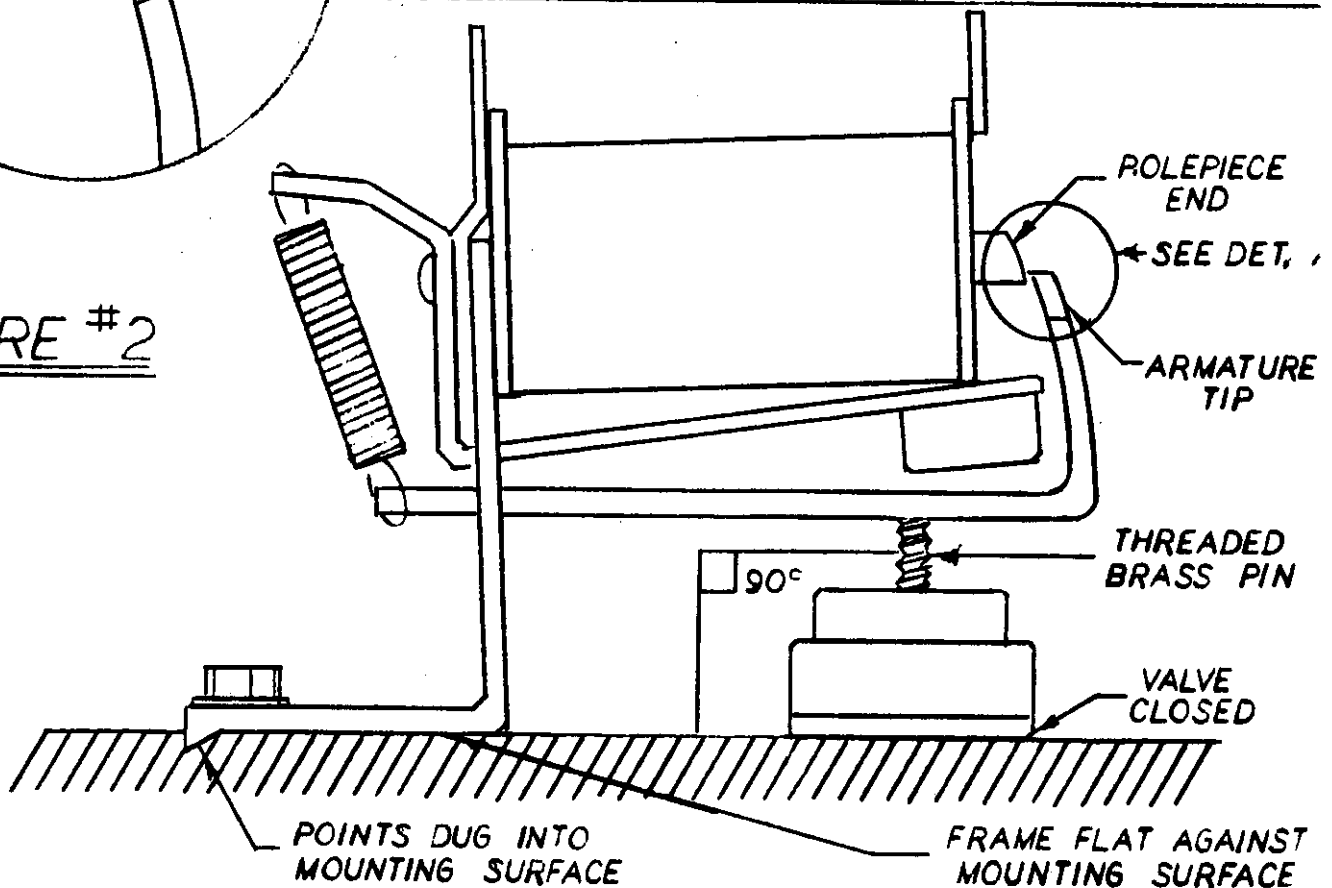


TABLE #1
VOLTAGE DROP PER 100 FEET OF VARIOUS SIZE COPPER WIRE

		WIRE SIZE (AWG)							
		18	20	22	24	26	28	30	32
M C I R R E A M T P S	200	.12	.20	.32	.52	.82	1.32	2.10	3.34
	400	.24	.40	.64	1.04	1.64	2.64	4.20	
	600	.36	.60	.96	1.56	2.46	3.96		
	800	.48	.80	1.28	2.08	3.28			
	1000	.60	1.00	1.60	2.60				

(VOLTS)

IMPORTANT FORMULAS

CURRENT THROUGH COIL = VOLTAGE ACROSS COIL DIVIDED BY COIL RESISTANCE.

EQUIVALENT RESISTANCE OF TWO COILS IN PARALLEL:

(RESISTANCE OF COIL #1 x RESISTANCE OF COIL #2) DIVIDED BY
 (RESISTANCE OF COIL #1 + RESISTANCE COIL #2)

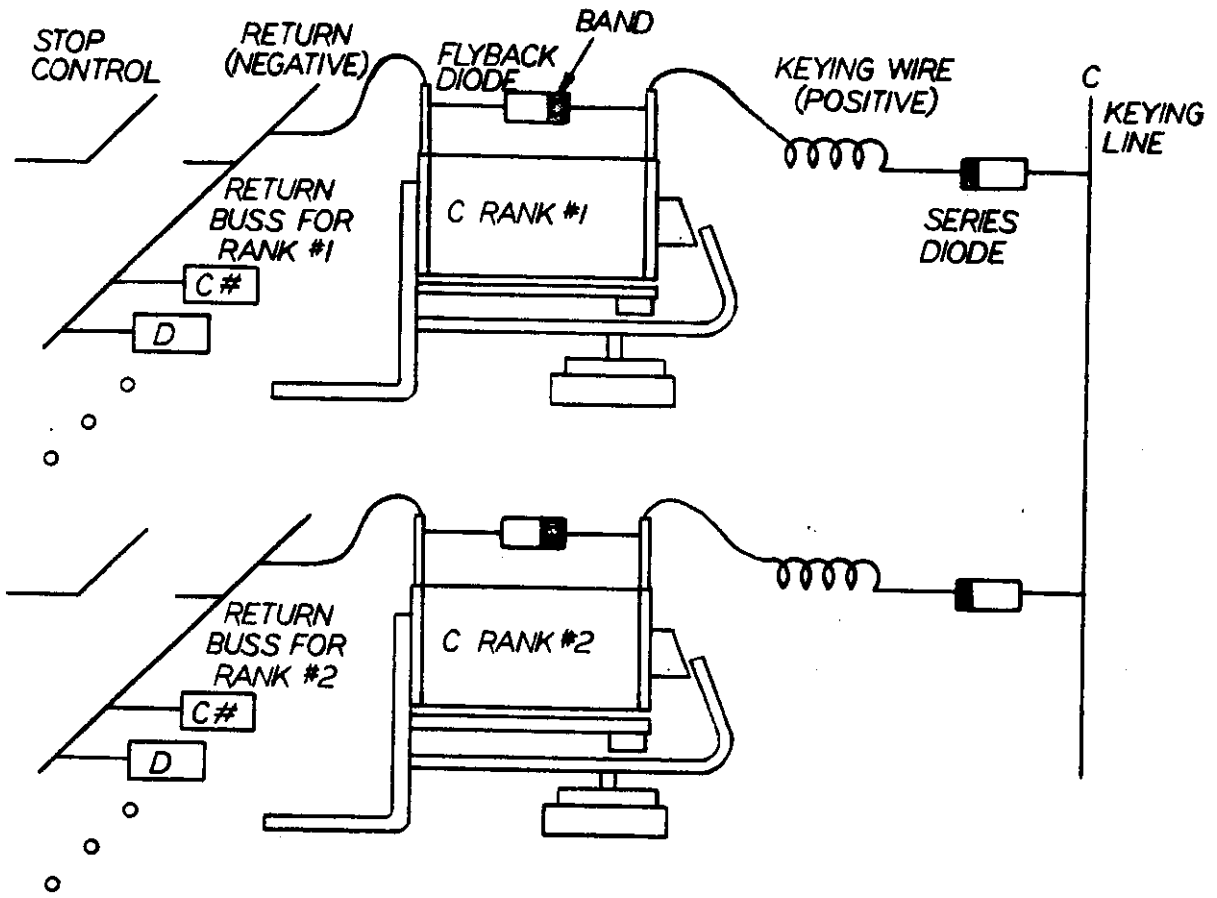
$$\frac{R_1 \times R_2}{R_1 + R_2} = \text{EQUIVALENT RESISTANCE}$$

TABLE #2
CURRENT THROUGH A COIL AT VARIOUS VOLTAGES

		COIL RESISTANCE (OHMS)					
		90	60	45	40	30	20
VOLTAGE ACROSS COIL (VOLTS)	20	222	333	444	500	666	1000
	18	200	300	400	450	600	900
	16	177	266	355	400	533	800
	14	155	233	311	350	466	700
	12	133	200	266	300	400	600
	10	111	166	222	250	333	500

(MILLIAMPS)

FIGURE 3



NOTE: WHEN USING A NEGATIVE KEYING VOLTAGE (POSITIVE RETURN), REVERSE THE POLARITIES OF SERIES DIODES AND FLYBACK DIODES.