

CONSIDERATIONS FOR CONSTRUCTION OF LNA / RELAY COMBINATIONS

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ALL ABOUT THE TRANSCO-Y. These relays were designed prior to 1960, but are still fairly common. They have very low loss and high isolation, and can handle 1500watts on 144 MHz. They are rated at 500 watts at 1 GHz, so their power rating at 432 MHz is probably 800 to 1000 watts.

Other specifications: typically 0.05dB insertion loss and greater than 60dB isolation at 432 MHz and below. Since most of the Transco-Y's in existence are used or new old stock, they need to be checked before using. One thing I have noticed is that the dc resistance of the contacts seems to be directly related to insertion loss, so initial checks can be done with an Ohm meter. DC resistance for a closed contact should be less than 0.2 Ohms. Some of my best relays measure 0.10 Ohms.

If you notice intermittent connectivity or resistance much greater than a 2 tenths of an ohm the relay needs servicing. If you are fortunate enough to have a relay whose connectors have flat surfaces accommodating a wrench, you can remove the connectors and clean the contacts. I recommend cleaning with solvent and very fine steel wool. For reassembly of units with normally closed contacts, you should energize the coil while assembling. This gets the contacts out of the way so they will not be damaged. With the connector removed, you may have to "help" the solenoid to get started.

If the connectors do not accommodate a wrench, you can take an old N or PL-259 connector and saw off the threaded shell (See Figure 2) and use it as a "grip" so the connector threads won't be damaged. The connector can then be removed with a vice grip.

If you need to remove or replace the coils, they are NOT THREADED, but a close fit held by a set screw and glue. First you must back out the set screw, which is a .050 Allen screw. And if you try to back it out it will break your wrench unless you heat it first to break the lock-tite. I use a pencil tip torch to heat it first. Often you have to heat it up pretty good since the relay body is quite a heat sink.

Once the set screw is backed out, I have used my old boy scout knife and a small hammer and carefully tap around the edges of the coil to break it loose.

Do you have an open coil that you plan to replace? (otherwise, there is not much reason to disassemble).

Reassembly is pretty much straightforward. Make sure you have it aligned the same way it came out so the contact is aligned properly. Replacing the glue is possibly not necessary, just re-tighten the set screw. If used in damp environment you may want to seal the coil base with silicone.

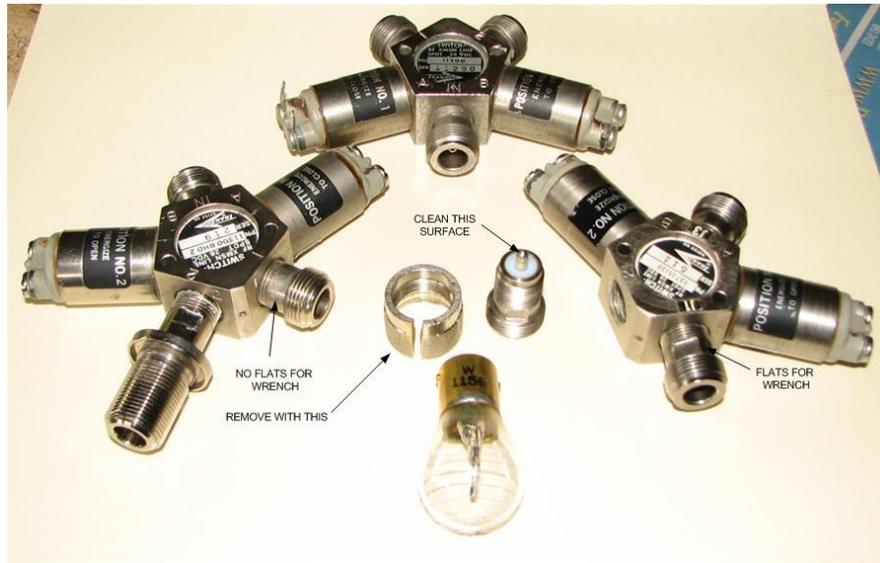


FIGURE 2. ASSORTED TRANSCO-Y AND OTHER ITEMS

Another means of servicing without removing the connectors is to “electrically burnish” the contacts. This can be done by using a 12vac transformer and an automotive light bulb as shown in Figure 3.

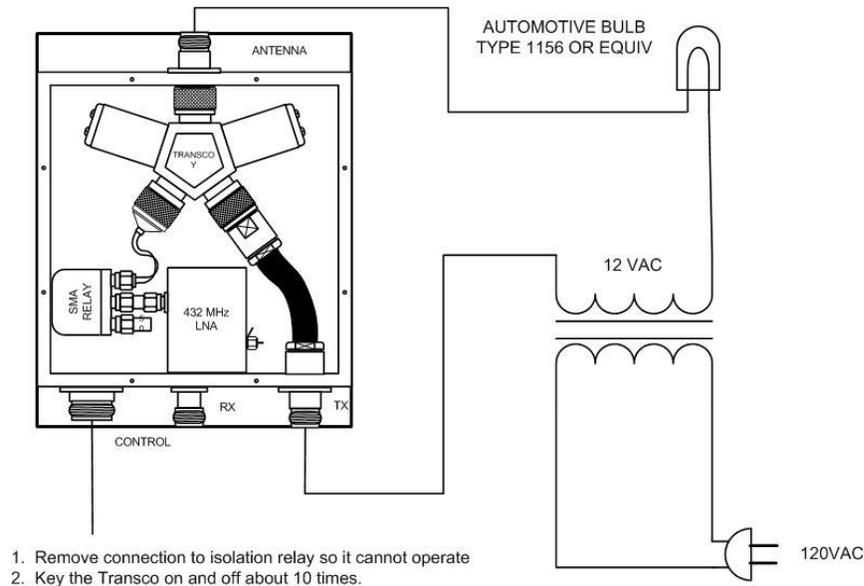


FIGURE 3. ELECTRIC BURNISHING TECHNIQUE

The Transco-Y is usually available for less than \$50. Shop around, I have found them for much less. The bottom line is that the Transco is an economical and effective relay to get you on the moon while you continue to search for the perfect solution.