

Instruction & Safety Manual

Step by step transfilling instructions.
for the
TR-55

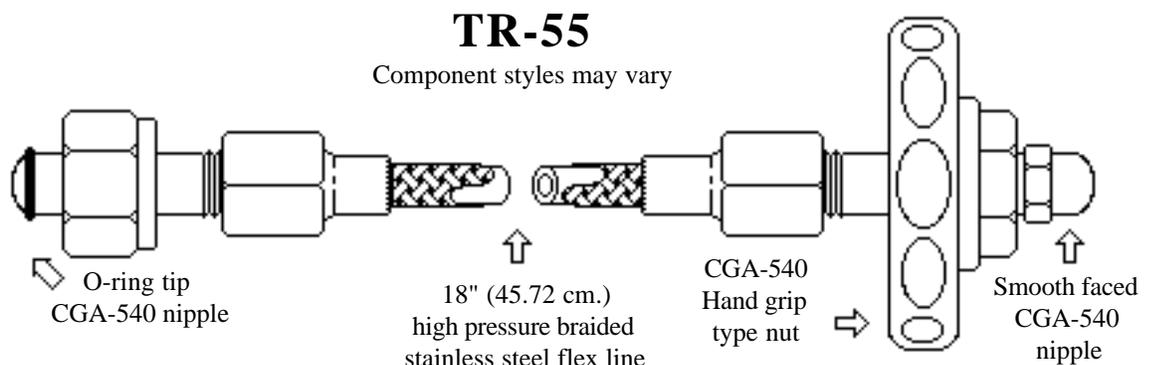


SEE REVERSE SIDE FOR SAFETY PRECAUTIONS

This device is intended to allow transfilling of compressed oxygen from CGA-540 to CGA-540 (USA norm) cylinders at pressures up to 3,000 psig. (207 bar).

1. Make sure that the cylinder fittings are of the proper CGA type and are in good shape and completely free of any oil, grease or dirt.
2. Check that the hydro-test date has not expired on the cylinder you are about to refill. This includes checking for DOT type rated for refilling for proper pressure.
3. If the cylinder is completely empty and the valve has been left open or is in question, check to make sure the cylinder has not been internally contaminated with any combustible materials such as oils, fluids or gases. If you can not assure the cylinder is safe. . . **DO NOT FILL IT!**
4. **TR-55** will help make a proper seal to any chrome-plated valve-heads during oxygen transfer. Securely mount (hand tight) the O-ring end of the **TR-55** to the cylinder if it has a chrome-plated valve-head. Connect the hand-grip nut side to the cylinder with the brass valve head. If both cylinders have a chrome-plated valve-head the fitting without the o-ring may leak a bit during oxygen transferring if not tightly secured. If both cylinders have chrome valve heads and you can't get a tight seal on the side of the **TR-55** without the O-ring, try using the **TR-75** or **TR-95** that have o-rings on both ends and a bleed valve.
5. Once connected to both cylinders and making sure that the bleed valve is closed tightly (clock-wise), **SLOWLY** open the valve from the master cylinder first. You should hear oxygen pass from the master cylinder filling the transfiller line. Next, **SLOWLY** open the valve on the empty cylinder to start transfilling. You should hear the oxygen transfer through the line and into the empty cylinder. Once the sound of gas transferring has subsided or stopped the two cylinders are at the same pressure.
6. Fill the cylinder at about 50-75 liters/min. For cylinders over 300 liters, you may want to fill them in segments pausing for about a minute between segments transfers. This will help to keep the cylinder cooler and help you to detect any problems such as leakage.
7. After the cylinder has been filled, shut both valves off then, **SLOWLY** crack open (counter clock-wise) the side that has the hand-grip knob without the o-ring nipple to bleed the line. You may need a wrench to do this. **DO NOT** attempt to unscrew the O-ring nipple end while the line is under pressure. This will damage the O-ring.

Spare
#011
O-ring



Hazards of high pressure oxygen and Transfilling

Transfilling of gaseous oxygen from one cylinder to another involves hazards associated with the handling of oxygen under pressure. A hazardous condition does exist if high pressure oxygen equipment becomes contaminated with hydrocarbons such as oil, grease or other combustible materials which may include oil from a persons hands or contaminated tools.

A cylinder will heat as it is filled from a high pressure source. The more rapidly the cylinder is filled, the higher the temperature rise in the cylinder resulting from the heat of compression of the gas. Excessive temperature may result in the ignition of any combustible materials that may be present in the system. Refill the cylinder at a flow rate that reduces heating of the cylinder. Use only equipment designed for refilling and transfilling.

Although oxygen itself is nonflammable, materials which burn in air will burn much more vigorously and at higher temperatures in an oxygen enriched atmosphere. If ignited, some combustible materials such as oil will burn in oxygen with explosive violence. Many other materials which do not burn in air will burn vigorously in oxygen-enriched atmospheres. Ignition temperatures are reduced in oxygen-enriched atmospheres. Compressed oxygen presents a hazard in the form of stored energy.

Open the cylinder valve slowly. The rapid release of high pressure oxygen through orifices, control valves, etc. in the presence of foreign particles can cause friction or impact resulting in temperatures which may be sufficient to ignite combustible materials present in the system..

Cleaning the adapter, service line and valve of oil and greases

If any part of the system should become contaminated or you suspect so, you can clean it by hot water and detergent. Do not use the system if it has become contaminated with oil or grease. If the contamination is mild a liquid form of automatic dishwasher detergent or the cleaning product "Formula 409" has shown to work best for this purpose. This type of detergent is able to cut and remove almost all types of oils or greases and will rinse off without any detectable residue.

To test for contamination take a clean cotton swab "Q-Tip" and wipe the suspected area with it. Next place the tip of the cotton swab into the surface of a plane of CLEAN water while you are observing a clear reflection of light that shows the waters surface. You should not detect any oil what so ever bleed from the cotton tip fanning out over the waters surface. This is an accepted method for oil contamination detection. An oil clean surface will pass this test without any doubt.

If the service line should become contaminated internally by oil or grease it can be cleaned by soaking the entire line in a vat of hot water and a liquid form of automatic dishwasher detergent. Rinse the line in hot water and inspect. If contaminates are still present repeat soaking. Dry the line by hanging it vertically in a hot air or direct sunlight environment. However, if the contamination is more so or severe you may have to perform the cleaning process several times or use a solvent such as "111 trichloroethane".