Mountain High Transfillers

This device is intended solely for the transfilling (transfer) of compressed oxygen between cylinders with compatible connections (CGA-540S and/or DIN-477-9S) at pressures up to 3000 psig (207 Bar).

Mountain High Transfillers support most common combinations of CGA-540 and DIN-477-9 Euro connections. See the table below for an overview of available MH Transfiller configurations.

MH Transfiller features:

- High-pressure braided stainless steel ***flex hose*** for ease of handling
- O-ring seals on both ***Supply*** and ***Refill*** ends for a positive, air-tight connection
- Manual ***Transfer*** valve with ***Bleed*** port
- TR-95 Transfiller includes a ***gauge*** at the Supply end
- TR-105 Transfiller has ***gauges*** at both the Supply and Refill ends

The flex hose comes in 2-ft (0.6m) length increments. "-xx" in the part number indicates the hose length: e.g., p/n 00GSE-1100-04 is a TR-75c Transfiller with a standard 4-foot (1.2m) hose. Call for availability or to request a custom length.

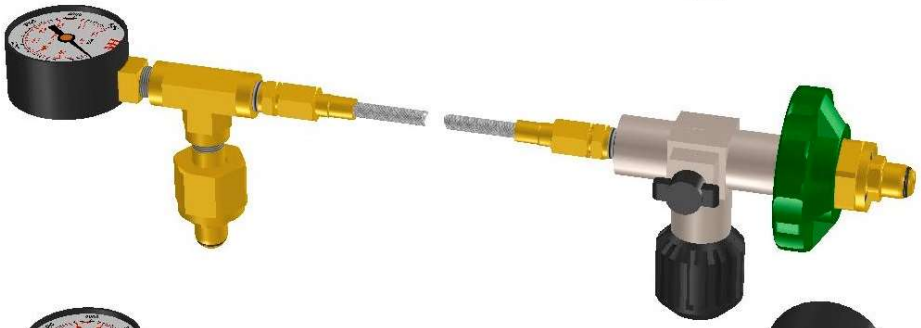
MH Transfiller Family			
Type	**MH p/n**	**Supply Fitting**	**Refill Fitting**
TR-75c	00GSE-1100-xx	◻ CGA-540N	◻ CGA-540N
	00GSE-1101-xx	◆ DIN-477-9N	◻ CGA-540N
	00GSE-1102-xx	◆ DIN-477-9N	◆ DIN-477-9N
TR-95c	00GSE-1104-xx	◻ CGA-540N	◻ CGA-540N
	00GSE-1105-xx	◆ DIN-477-9N	◻ CGA-540N
	00GSE-1106-xx	◆ DIN-477-9N	◆ DIN-477-9N
TR-105c	00GSE-1108-xx	◻ CGA-540N	◻ CGA-540N
	00GSE-1109-xx	◆ DIN-477-9N	◻ CGA-540N

Replacement O-rings	
Fitting	**MH p/n**
◻ CGA-540N	09001-0011-90
◆ DIN-477-9N	09001-3113-70

A spare O-ring is included for each fitting. Additional replacements are available from Mountain High E&S Co.

TR-75c
(No Gauge)

TR-95c
(Supply Gauge)

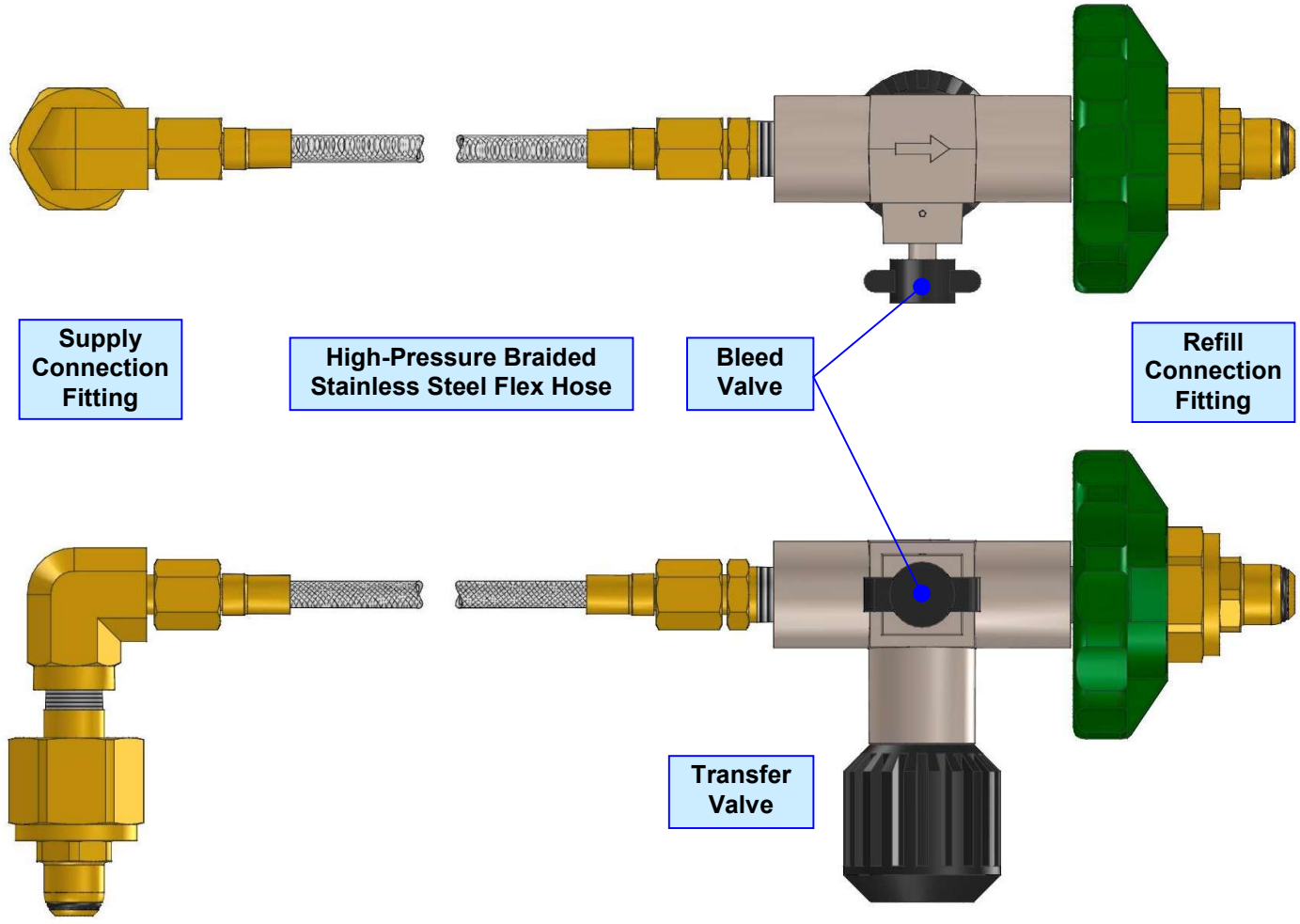


TR-105c
(Supply/Refill Gauges)

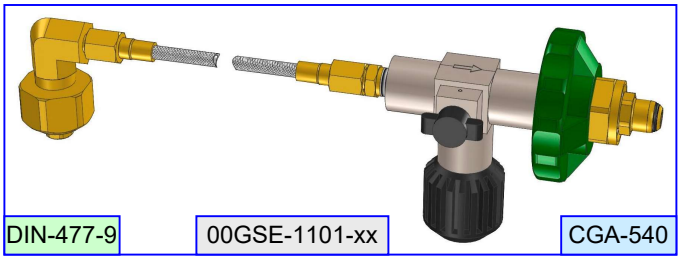
TR-75c Transfiller

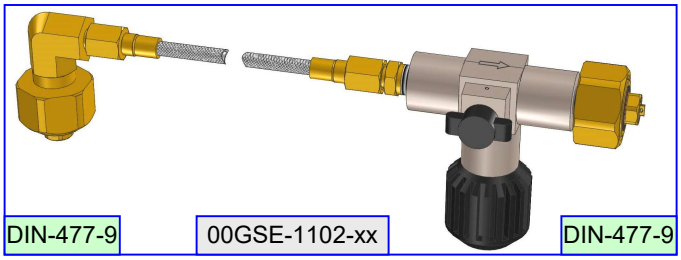
The TR-75 is our most popular personal Transfiller. It provides a convenient way to transfer oxygen from one cylinder to another, and supports most common combinations of CGA-540 and DIN-477-9 connections for cylinders with working pressures up to 3000 psi (207 Bar). Refer to the table on the front page for an overview of MH Transfiller configurations.

The ***Supply*** end of the TR-75 is connected to the high-pressure Supply cylinder via a convenient right-angle fitting. The ***Refill*** end is connected to the cylinder to be filled (Refill cylinder) and includes a manual ***Transfer*** valve with ***Bleed*** port. The Bleed valve allows the Refill connection to be relieved so that the Refill fitting may be removed without damaging the O-ring. The Transfer valve is used to control the fill-rate, and also to bleed the Supply end of the Transfiller so that the Supply fitting may be removed.



CGA-540	00GSE-1100-xx	CGA-540



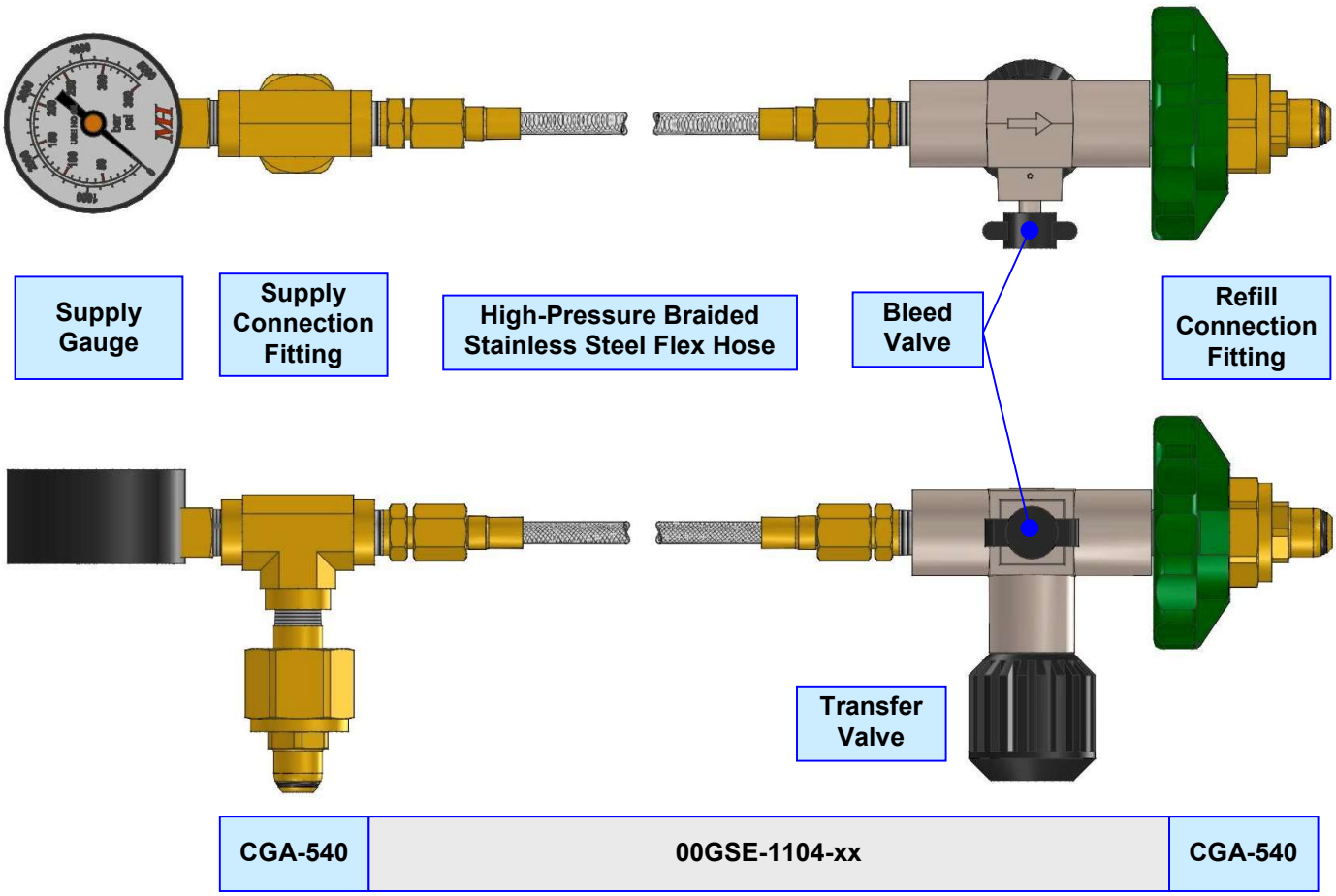


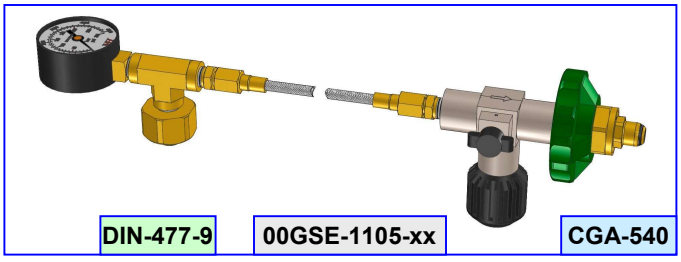
TR-95c Transfiller

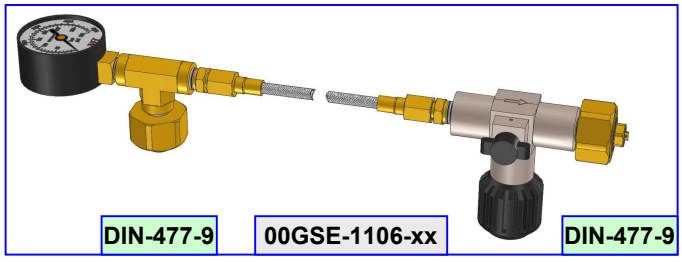
The TR-95 is an economical Transfiller system for soaring and flying clubs where many cylinders are serviced frequently. It provides a convenient way to transfer oxygen from one cylinder to another, and supports most common combinations of CGA-540 and DIN-477-9 connections for cylinders with working pressures up to 3000 psi (207 Bar). Refer to the table on the front page for an overview of MH Transfiller configurations.

The ***Supply*** end of the TR-95 is connected to the high-pressure Supply cylinder via a convenient right-angle Tee fitting. A pressure gauge displays the Supply pressure, which indicates how much oxygen remains in the master Supply (rental) cylinder. The gauge may also be used to verify the fill pressure.

The ***Refill*** end is connected to the cylinder to be filled (Refill cylinder) and includes a manual ***Transfer*** valve with ***Bleed*** port. The Bleed valve allows the Refill connection to be relieved so that the Refill fitting may be removed without damaging the O-ring. The Transfer valve is used to control the fill-rate, and also to bleed the Supply end of the Transfiller so that the Supply fitting may be removed.





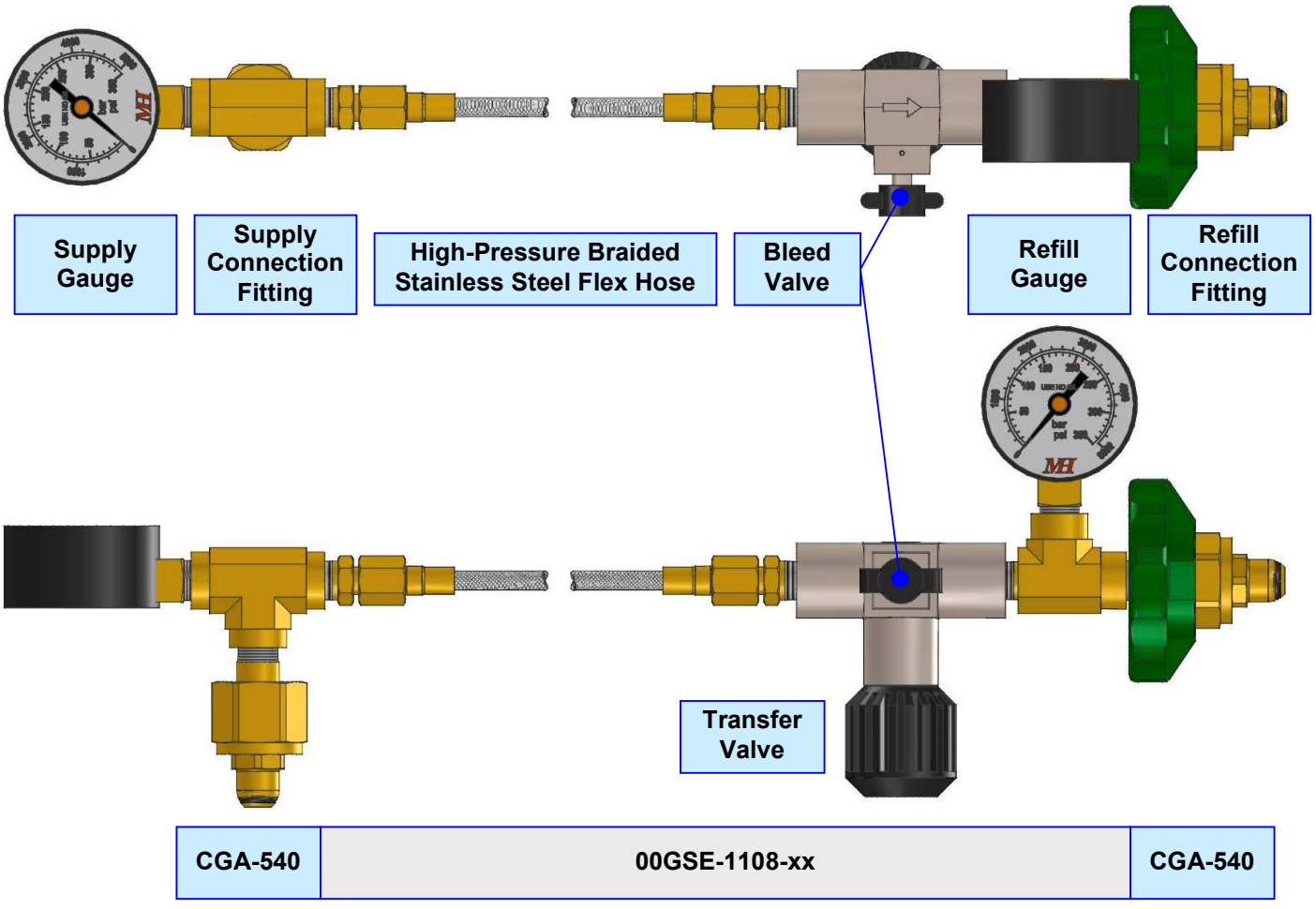


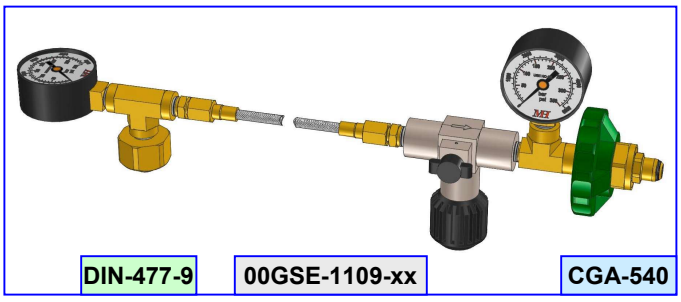
TR-105c Transfiller

The TR-105 Transfiller is a dual-gauge version of the TR-95. It provides a convenient way to transfer oxygen from one cylinder to another, and supports common combinations of CGA-540 and DIN-477-9 connections for cylinders with working pressures up to 3000 psi (207 Bar). Refer to the table on the front page for an overview of MH Transfiller configurations.

The ***Supply*** end of the TR-105 is connected to the high-pressure Supply cylinder via a convenient right-angle Tee fitting. A pressure gauge displays the Supply pressure, which indicates how much oxygen remains in the master Supply cylinder.

The ***Refill*** end is connected to the cylinder to be filled (Refill cylinder) and includes a manual ***Transfer*** valve with ***Bleed*** port and a second (Refill) gauge. The Bleed valve allows the Refill connection to be relieved so that the Refill fitting may be removed without damaging the O-ring. The Transfer valve is used to control the fill-rate, and also to bleed the Supply end of the Transfiller so that the Supply fitting may be removed. The Refill gauge is convenient for monitoring the refill pressure when connecting to aircraft fill-ports without a gauge, or where the gauge is not conveniently located. Note that the transfilling procedure below describes connecting to a Refill cylinder, but also applies generally to connecting to an aircraft fill-port with use of the proper Transfiller Adapter.





Transfiller Adapters

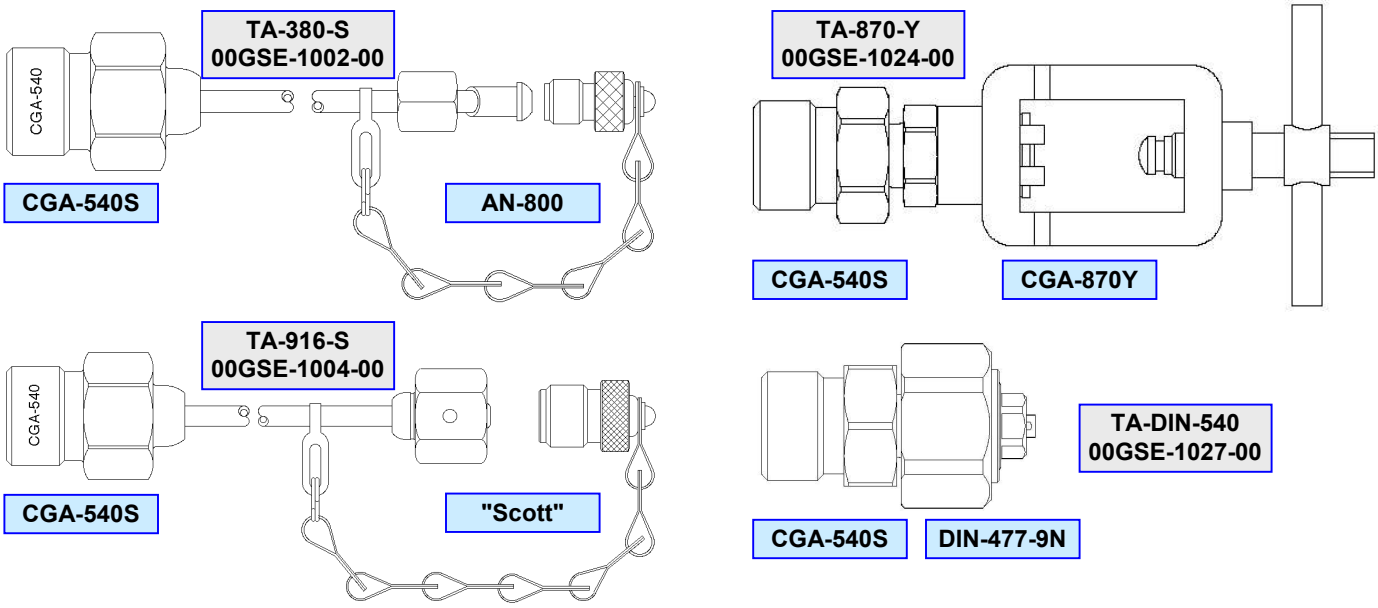
Portable oxygen cylinders typically have either a CGA-540S (socket) or DIN-477-9S (socket) connection, and both standards are supported across the range of MH Transfillers. Built-in aircraft oxygen systems found in most GA aircraft typically use one of two *other* common lighter-weight connectors commonly known as "AN-800" or "Scott". Adapters allow an MH Transfiller to be used to refill a built-in aircraft oxygen system using one of these other connection standards.

Both the AN-800 and Scott standards employ a Socket/Nipple type connection with threaded nut similar to the CGA-540 system, but with different thread-sizes, etc. The Socket half of the connector is installed in the aircraft as the Oxygen Fill-port and includes a check-valve that opens during transfilling. The mating Nipple half of the connector is incorporated into the respective MH Transfiller Adapter.

MH Transfiller Adapters employ a common CGA-540S (socket) fitting and are therefore able to couple directly to any MH Transfiller with a CGA-540N (nipple) Refill connection fitting (which includes all MH Transfillers covered here except p/n's 00GSE-1102-xx and 00GSE-1106-xx which have DIN-477-9N Refill connection fittings).

Another connection type that may be encountered is the CGA-870 ("Medical") standard. The MH CGA-870-Y Adapter couples directly to the CGA-540N fitting of an MH Transfiller allowing a Medical cylinder to be employed as either a Supply or Refill cylinder with a suitable MH Transfiller.

DIN-477-9 cylinders may be refilled using either the 00GSE-1102-xx or 00GSE-1106-xx Transfillers, or by using one of the other MH Transfillers together with the TA-DIN-540 Adapter which effectively converts a CGA-540N fitting to a DIN-477-9N (Euro) fitting. **Many other options are available.** Contact ***Mountain High Equipment & Supply*** (MH) for help in selecting the proper equipment for your needs.



MH Transfiller Adapters				
Standard	**AN-800**	**"Scott" Type**	**CGA-870**	**DIN-477-9**
MH Adapter MH p/n	TA-380-S 00GSE-1002-00	TA-916-S 00GSE-1004-00	TA-870-Y 00GSE-1024-00	TA-DIN-540 00GSE-1027-00
Connection	Socket/Nipple 3/8-24 UNF Thread	Socket/Nipple 9/16-18 UNF Thread	Post/Yoke	Socket/Nipple BSPP R-3/4 Thread
A.K.A.	MS22035 MS22066	Scott 26875; AS1046; AS1219; 5020-1 Airline; "Airline"	"Medical"; "USA Medical"; "Post"; "Post/Yoke"	"DIN"
Application	Aircraft Refill Port (smaller aircraft) (earliest, most common)	Aircraft Refill Port (larger aircraft)	Medical Oxygen	European Cylinders

TRANSFILLING PROCEDURE

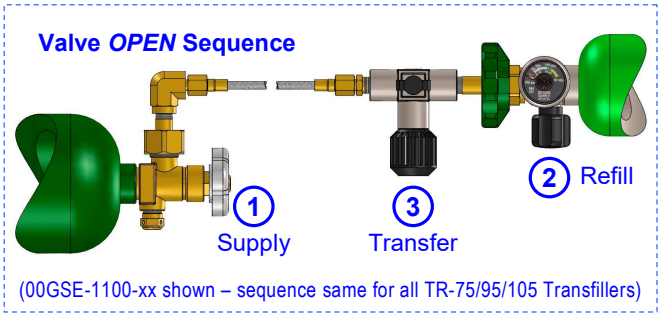
SEE OPPOSITE PAGE FOR SAFETY PRECAUTIONS

1. Verify that the ***Supply*** and ***Refill*** fittings properly match the type of the fittings (CGA-540 or DIN-477-9) of your cylinders (and vice-versa). Make sure that all fittings are in good condition and completely free of any oil, grease or dirt.
2. Verify that the hydro-test date on the cylinder you intend to refill has not expired. Also note the DOT type rating stamped on the cylinder to double-check the proper fill pressure.
3. If the cylinder is completely empty and the valve has been left open, or if there is any question about it's status, make sure that the cylinder has not been internally contaminated with oil, gases, or any other combustible materials.

<u>If you cannot assure the cylinder is safe… DO NOT FILL IT!</u>

4. Securely mount the ***Supply*** end of the Transfiller to the Supply cylinder. Connect the ***Refill*** end of the Transfiller to the Refill cylinder (hand tight).
5. Once both cylinders are connected, make sure the ***Bleed and Transfer valves are closed*** then **SLOWLY** open the Supply cylinder valve first. You should hear oxygen flow into the transfiller line. Next, **SLOWLY** open the valve on the empty Refill cylinder, then **SLOWLY** open the Transfer valve to start filling. You should hear oxygen passing into the Refill cylinder.

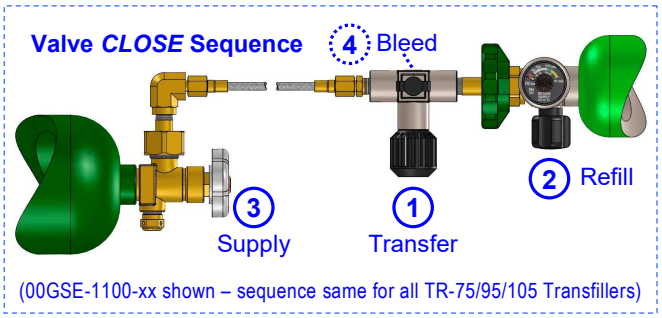
   Use the Transfer valve to control the fill rate.



6. Fill the cylinder **SLOWLY** to void excessive heating, using the Transfer valve to control the fill rate. The recommended fill-rate is ~ 50-75 liters/min, meaning an empty cylinder will require approx. 1½-2 minutes for each 100 liters of capacity. The cylinder will become warm to the touch during transfilling, but should not be allowed to get any hotter. For cylinders over 300 liters, transfilling may need to be done in segments, pausing to let the cylinders cool in between. In addition to keeping the cylinders cool, this will also help in detecting leaks or other problems. Use the gauge on the Refill cylinder to monitor the Refill cylinder pressure.

<u>DO NOT fill a cylinder past it's rated pressure</u>

7. After the Refill cylinder has been filled, first shut off the Transfer valve, then the Refill cylinder valve and Supply cylinder valve. In other words, ***close all valves***. Then, **SLOWLY** crack open (counter clock-wise) the Bleed valve to bleed the Refill fitting. **DO NOT attempt to unscrew any of the O-ring nipple ends while the line is under pressure - this will damage the O-ring**. You can now loosen the Refill fitting nut and remove the Refill cylinder.



8. If filling additional cylinders, the Supply valve may be left open. Connect the Refill fitting to the next cylinder and **SLOWLY** open the Refill valve, then **SLOWLY** open the Transfer valve to begin filling. Close and bleed as above when each cylinder is filled. When the last cylinder has been filled and removed, close the Supply valve and then **SLOWLY** open the Transfer valve to bleed the Supply line. The Supply fitting may then be removed.

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 exists if high-pressure oxygen equipment becomes contaminated with hydrocarbons such as oil, grease or other combustible materials, which may include oil from a person's hands or contaminated tools.

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

Although oxygen itself is nonflammable, materials that 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 that do not burn in air will nevertheless burn vigorously in oxygen-enriched atmospheres. Ignition temperatures are also reduced in oxygen-enriched atmospheres.

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

Compressed oxygen also presents a hazard in the form of stored energy due to the high pressure inside the cylinder. Sudden or uncontrolled release of oxygen can create an ***extreme safety hazard***. Exercise due caution in handling, transporting or storing compressed oxygen cylinders.

Cleaning the Adapter, Service Line and Valve of Oil and Grease

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

To test for contamination, wipe the suspected area with a clean cotton swab ("Q-Tip"). Next, touch the tip of the cotton swab onto the surface of a pan of CLEAN water while observing the light reflected from the water's surface. You should not detect any oil whatsoever bleed from the cotton tip fanning out over the water's surface. This is an accepted method for detection of oil contamination. 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. Repeat soaking if contaminates are still present. Dry the line by hanging it vertically in a hot air environment or direct sunlight.

If the contamination is severe, you may have to perform the cleaning process several times or use a solvent such as "1,1,1-trichloroethane". Note that solvent-type cleaning fluids have an adverse effect on plastic and elastomeric materials after prolonged exposure, and any components containing such materials should be removed from the system before proceeding with the cleaning operation.

Insert # 5IGSE-110x-xx Rev -0	ECO: 2017-037B
Source File: 5IGSE-110x-xx$-0	Date: 2018-01-10

TR-75c Transfiller

- ☐ **00GSE-1100-___ (CGA-CGA)**
- ☐ **00GSE-1101-___ (DIN-CGA)**
- ☐ **00GSE-1102-___ (DIN-DIN)**

Mfg Date:

Length:

Cleaned for Oxygen Service per MH ESR-008

TR-95c Transfiller

- ☐ **00GSE-1104-___ (CGA-CGA)**
- ☐ **00GSE-1105-___ (DIN-CGA)**
- ☐ **00GSE-1106-___ (DIN-DIN)**

Mfg Date:

Length:

Cleaned for Oxygen Service per MH ESR-008

TR-105c Transfiller

- ☐ **00GSE-1108-___ (CGA-CGA)**
- ☐ **00GSE-1109-___ (DIN-CGA)**

Mfg Date:

Length:

Cleaned for Oxygen Service per MH ESR-008