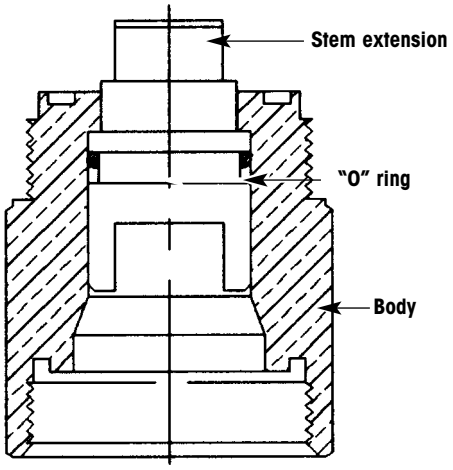
Refrigerant Component Retrofitting Recommendations

Figure 1



Size Conn.	Catalog Number	Catalog Number	Stem Extender Number	Seal Cap Number	Cap Gasket Number
⅜	900203	903203			
½	900204	903204	902205B-3A	900204A-3	PP12-493
⅝	900205	903205			
⅞	900307	903307			
1⅛	900409	903409	902409B-3A	900409A-3	PP12-494
1⅜	900511	903511			
1⅝	900613	903613			
2⅛	900617	903617	902613B-3A	900613-3	PP12-495
2⅝	900821				
3⅛	900825				

As the phase out of CFC refrigerants accelerates, the HVAC&R industry is turning to retrofitting existing systems. Retrofitting consists of using existing equipment with the new alternative refrigerants. This includes changing lubricants when required. The emphasis is to accomplish this conversion without replacing major components. In this way the life of the equipment is extended with environment friendly refrigerants at minimal cost.

When changing to the alternative refrigerants consideration must be given to the lubricant. It is well documented that, in most cases, mineral oil lubricants are not compatible with the alternative refrigerants. The methods of changing oils also have been well documented. However, less attention has been given to the minor components such as gaskets and seals, ball valves, driers, relief devices, etc. When considering a retrofit it is very important to determine that these components are compatible with the alternative refrigerant and lubricant being considered.

GASKETS AND SEALS: The alternative refrigerant/lubricant mixture may affect the gaskets and seals differently than the CFC/lubricant mixture. This could adversely affect their ability to maintain a tight seal. We therefore recommend that when possible all gaskets and seals be changed to materials compatible with the alternative refrigerant/lubricant mixture.

BALL VALVES: Our ball valves utilize a"blow out proof stem." This unique design feature requires that the stem be installed from inside the valve body. Consequently, it is not possible to replace the "O"-ring stem seal. Older valves have been manufactured with seals compatible with the CFC refrigerants and

mineral oils. These seals may not be compatible with the alternative refrigerants and Polyol Ester oils. For applications such as this we recommend the installation of a "ball valve stem extender."

The ball valve extender is comprised of a brass body extension and a stem extension complete with a replacable "O"-ring seal (see Figure 1 below).

Installation of this device is easily accomplished (see Figure 2):

1. Remove the existing seal cap from the valve and save for reuse.
2. Install a new gasket in the body groove.
3. Engage the stem extension to stem in valve body.
4. Engage threads of stem extender body to valve body and tighten. Be sure that the stem extender continues to engage the stem.
5. Install seal cap to stem extender and tighten ball valve stem. Extenders are available for all of the current Henry ball valves.

Note: These stem extenders will not fit competitive makes of valves.

One important feature of any valve including ball valves is the seal cap. Seal caps are designed not as dust protectors but as positive secondary seals. The seal caps provide a positive seal in case the main seal leaks. In order to effectively perform this sealing function and to assure a positive seal the seal cap **MUST BE WRENCH TIGHT**. Tightening the seal cap finger tight will not insure adequate loading of the gasket to provide a leak free seal.

Some valves were supplied with a plastic cap and neoprene gasket. It is recommended that these be replaced, on retrofit, to metal caps with new gaskets.

DRIERS: When performing a retrofit or following system maintenance, good service practice requires the replacement of the filter drier. It is recommended that the drier manufacturer be consulted for compatibility of the drier for use with the retrofit refrigerant.

RELIEF VALVES: Published literature suggests that discharge pressures of the alternative refrigerants are higher than the refrigerants they replace. Consequently high side components such as receivers and relief valves should be reviewed to insure that their working pressures are adequate.

Relief valves should be reviewed to insure a sufficient differential between the system operating pressure and the relief valve setting. This is important to eliminate nuisance leaks through the valves during normal operating conditions. It is always recommended that the relief valves be set as high as the system design will allow. (For further information refer to Tech Tip 1.) During all of the retrofit process good service practices must be followed. After retrofit, the system should be identified with the new refrigerant and oil.

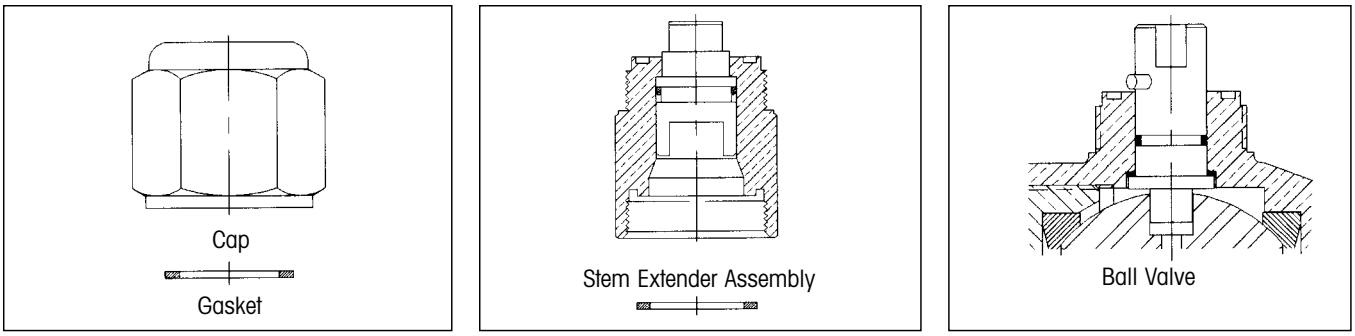


Figure 2