

# **Hydrasearch Six-Inch Hose Couplings and Connections**

---

*OP-M-930*

*Revision 0*

*Approved by* 

*17 February 2004*

*Active Divisions/Departments  
Area Directorate*

**Table of Contents**

Table of Contents ..... 1  
Purpose ..... 2  
Scope/Applicability ..... 2  
Terms and Definitions ..... 2  
Responsibilities ..... 4  
Discussion ..... 4  
References ..... 6

## Purpose

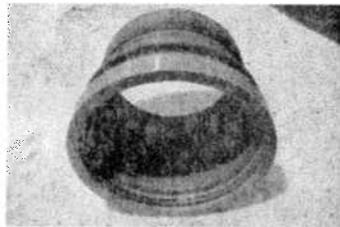
This procedure describes the details that will ensure consistency when making couplings and connections on six-inch Angus Chemicoil hose.

## Scope/Applicability

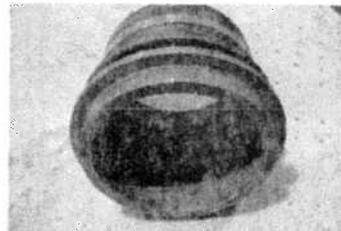
This document applies to the Fuels Operators, Fuels Mechanic, Fuels Foreman, and Fuels Supervisor.

## Terms and Definitions

**Barbed Nipple Gender Fitting** – Metal cylinder over which a hose end can be fitted to make a Hydrasearch Segmental Gender Coupling. Barbed nipple gender fittings are either male or female.

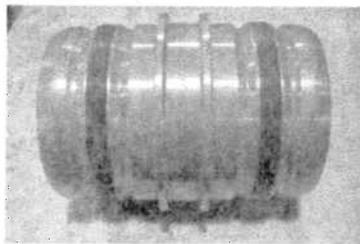


FEMALE FITTING



MALE FITTING

**Barbed Nipple Mender Fitting** – One piece metal cylindrical fitting with barbed nipples on both ends. A Mender Fitting allows a connection to be made without the use of gender fittings or a wedding band.

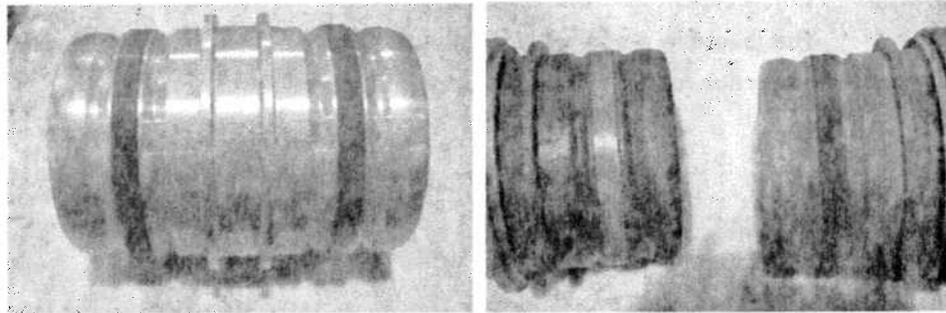


MENDER FITTING



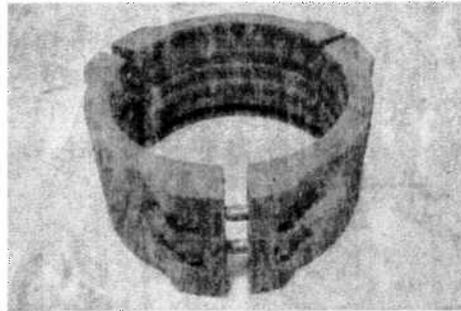
MENDER FITTING

**Florician Gasket** – Specialized low temperature gasket that fits in a groove on a barbed nipple gender or mender fitting. Florician gaskets are blue in color.



FLORICILIAN GASKETS

**Collar** – Three part segmented metal clamp that binds the six-inch hose to the barbed nipple of a gender or mender fitting. The collar presses on the Florician Gasket to create a seal. A collar is held together with six bolts.



COLLAR

**Hydrasearch Segmental Gender Coupling** – One barbed nipple gender fitting with the collar attached.

**Hydrasearch Segmental Mender Coupling** – A mender fitting with collars on both ends. Same as a Mender Connection.

**Florician O-Ring** – Specialized low temperature O-ring used when making a connection between Hydrasearch Segmental Gender Couplings. The O-ring is inserted into the female gender fitting. Florician O-rings are blue in color.



O-RING INSIDE FEMALE GENDER FITTING

**Wedding Band** – Hinged ring that fits over the shoulder of joined male and female gender fittings.

**Gender Connection** – Two Hydrasearch Segmental Gender Couplings sealed with a wedding band.

**Mender Connection** – Same as a Mender Coupling (no wedding band is necessary, as the fitting is one piece).

**Angus Chemicoil Hose** – Six-inch lay-flat hose used for Ice Runway, Williams Field Runway, and fuel tanker offload applications.

**Torque Wrench** – A specialized wrench that measures foot pounds of torque applied to a bolt.

**Six-Inch Hose Kit** – Small tool box consisting of a torque wrench, speed wrench, 9/16” socket, 9/16” deep well socket, flat head screw driver, dead blow hammer, spare bolts, a file, a marker, utility knife, oil, and six-inch gaskets and O-rings used to make six-inch hose couplings and connections.

## Responsibilities

Fuels personnel making six-inch hose couplings must follow this procedure to ensure proper construction.

The Fuels Supervisor is responsible for ensuring that all torque wrenches used have been properly calibrated under the NSF blanket agreement with Cal-Labs T-911.

## Discussion

### Materials

Six-inch hose kit

Plywood

Male and female gender fittings

Mender fittings

Collars

Wedding bands

Gaskets  
O-rings  
Black magic marker  
Straight edge/square  
Six-inch Chemicoil hose

### **Making Gender Couplings**

Place the six-inch chemicoil hose on a large piece of plywood. Make a straight, clean cut across the hose using a utility knife. In order to guarantee that the cut is straight, make sure that the blade in the knife is sharp. Spare blades are kept within the utility knife casing. Use a straight edge or a square when making the cut.

Remove a floricilian gasket from the hose kit. The gasket should be warmed so it is pliable when fitted on the barbed nipple of the gender or mender fitting. If a black (buna-N) gasket is found, replace it with a blue floricilian gasket.

Place the floricilian gasket on the barbed nipple fitting. Round the hose to allow the fitting to slide past the creases. Lubricate the fitting with a small amount of oil and gently place in the hose. Keep a close eye on the gasket to assure that it does not pinch or slide out of its groove.

Find a segmented collar and inspect the collar carefully looking for any signs of cracking, distortion, or other damage prior to use. Use a speed wrench to loosen all the bolts. Remove two of the bolts so the collar can be placed around the hose and the fitting. Slide the collar into position, with the groove on the top of the collar matching up with the lip on the fitting. Take care to ensure that none of the gaps of the collar are lined up with a crease in the hose.

Replace the two bolts that were previously removed from the collar and begin to slowly tighten all the bolts with a speed wrench. Alternate the order in which the bolts are tightened. DO NOT tighten one bolt all the way before switching to the next. Once all the bolts are semi-tight, use the torque wrench to tighten all the bolts to twenty-five foot pounds. Make certain that as the collar is being tightened, the gaps between its each of its three sections remain even. In addition, make sure the hose is not being pinched in the gaps. The sections of the collar should be parallel to each other. Each gap should be consistent, and the three gaps should all be consistent in width with each other. This is critical to avoid placing undue stress on the collar.

When tightening the bolts, tighten the bolt closest to the hose side of the collar first. Continue to use an alternating pattern when tightening the bolts. Once each bolt has reached 25 foot pounds, reset the torque wrench to 32 foot pounds and repeat this procedure. Do not over-tighten any bolts. Ensure torque wrenches are set to zero at the end of each day.

Once both sides of the hose have a coupling (one female and one male) and the collars have been secured and torqued to specifications, the connection between the two couplings can be made.

After a coupling is made, the person making the coupling must write on the hose with a black magic marker. Draw a line on the hose around the edge of the collar. This will be monitored to see if the hose is pulling away from the coupling. In addition, the person making the coupling should write their name, the date, and the gender of the coupling (if applicable) next to the coupling.

#### **Making Six-Inch Gender Connections**

Remove the Floricilian O-ring from the female gender coupling and inspect it for nicks, cuts or defects. Replace the O-ring into the female gender coupling. Apply oil to the O-ring. Inspect the male gender coupling for any damage or defects that might nick the O-ring or prevent a good seal once the connection has been made. Connect the male and female gender couplings. Clean any ice or dirt from the inside of the six-inch wedding band and place the wedding band around the joined gender couplings. Secure the connection by tightening the screw on the wedding band.

## **References**

USAP Calibration Program, NAVAIR MET CAL Program T-911

Fuels SOP "Laying Six-Inch Fuel Hose to Runways"

