

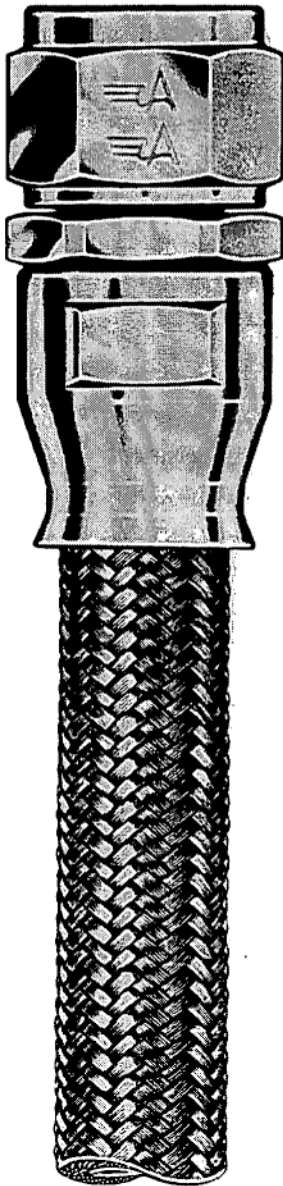
EATON

AEB

HOSE/FITTINGS

170A

Supersedes AEB-170



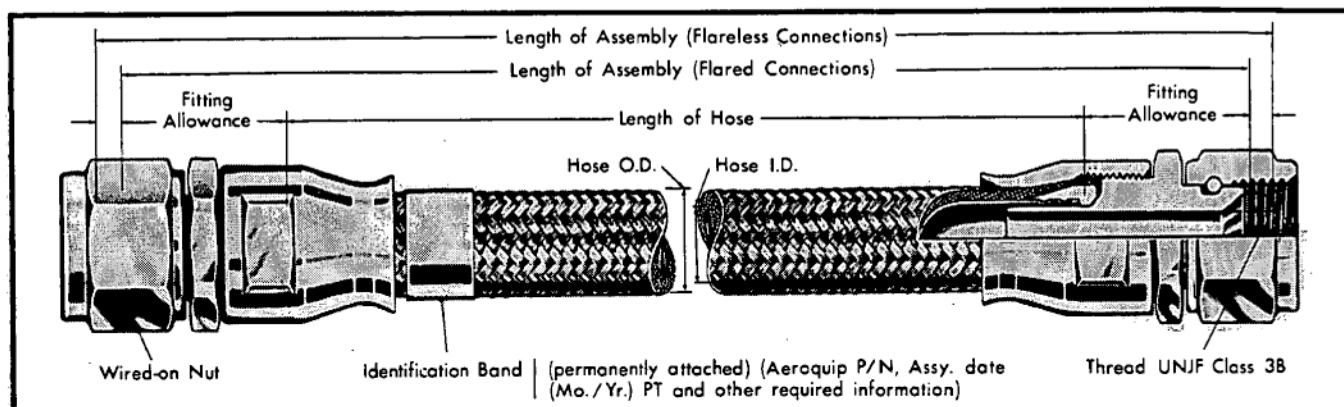
Aeroquip 666/667 Medium Pressure Teflon Hose and *“super gem”*[®] Reusable Fittings

Aeroquip 666 and 667 medium pressure Teflon hose is widely used in aircraft applications handling fuel, oils and other fluids. The economy of the reusable fitting concept for military applications has been well established. Special fittings which represent up to 80% of the cost of a hose assembly are completely reusable. Engineering mock-ups can be made quickly on the spot from a small stock of bulk hose and fittings. Hose lines obsoleted by engineering changes can be readily salvaged and reworked into usable assemblies. This means inventory requirements can be greatly reduced. There are no ordering delays or waiting for factory assembled hose lines.

Service Proven Lip Seal Fittings. The success of the Aeroquip *“super gem”* reusable fitting lies in the separation of the retention function from the sealing function. Thus it is possible to apply the necessary holding force without squeezing the tube. Sealing is accomplished positively by a lip seal which is unaffected by aging or cold flow of the tube.

666/667 Medium Pressure Teflon Hose

Hose assemblies in accordance with MIL-H-25579



General Characteristics:

Chemical resistance: Aeroquip Teflon hose is unaffected by all fuels, oils, alcohols, coolants, or solvents commonly used in aircraft. In addition, it is inert to acids both concentrated and diluted and propellants used in the missile field. It is superior in use to flexible metal hose in critical, high temperature steam applications, and with certain liquefied gases.

The Teflon liner has sufficient conductivity to prevent electrostatically induced hose failures. The tube is capable of conducting a direct current equal to or greater than 10 micro-amps in sizes -4, -6 and -8, and 20 micro-amps in size -10 and above with a potential of 1000 volts.

The method of construction of Aeroquip Teflon hose results in a lower volumetric expansion than any elastomer hose. This assures maximum response efficiency in ballistics ejection systems, brake systems, and so on, where there can be no softness under shock load.

Inherent resiliency and toughness are ensured in the extruded tube by close control of factors affecting crystallinity. Additional structural strength is supplied in Aeroquip Teflon hose by the tightly braided stainless steel wire reinforcement. The result is a lightweight hose able to withstand prolonged flexing and vibration under all service conditions.

The extruded tube has a tough, smooth, wax-like texture which resists erosion. No materials of a sticky or viscous nature will stick to its surface.

Teflon hose has essentially zero moisture absorption. This together with its chemical inertness and anti-adhesive characteristics make it ideal for missile fluid systems where non-contamination and cleanliness are so essential, and for pneumatic systems when maintenance of low dew point is necessary.

Service and shelf life of Aeroquip Teflon hose are unlimited for all practical purposes. However, experience has shown that service life on impulsing applications may eventually be limited by fatigue in the wire reinforcement. Maximum service life on such applications is best determined by the operator based on experience.

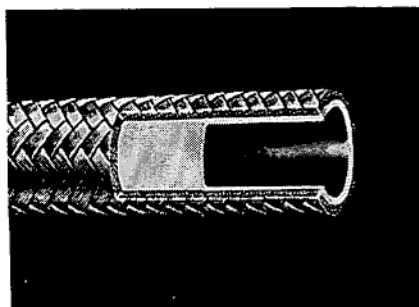
Application Data: Aeroquip 666/667 medium pressure Teflon hose may be used for all hydrocarbon fuel systems. The rate of effusion of gases and resistance to capillary leakage of fluid through the hose lines is controlled by a patented extrusion method used to produce Aeroquip Teflon hose liners.

Other Special Applications . . . Aeroquip Teflon hose shown in this bulletin are rated according to the listed specifications. These various ratings are for specific service conditions involving specified temperature, pressure and impulse conditions.

In many cases a specific rating can be successfully exceeded if other variables are modified. Thus a higher operating pressure might be allowable if temperature and impulse life are modified or, similarly, operating temperature may be raised if pres-

sure or surge conditions are reduced. Our experience and test facilities are available through trained field engineers to help with recommendations for special applications.

Aeroquip 666/667 medium pressure Teflon hose is also used in hydraulic and pneumatic applications at pressures up to 1500 psi.



Hose in accordance with MIL-H-27267 Operating temperatures . . . -65° to +450° F. fluid and ambient.

Construction . . . Inner tube . . . spiral extruded Teflon resin.

Reinforcement and outer cover . . . 666 Hose—Type 300 Series stainless steel wire braid outer cover.

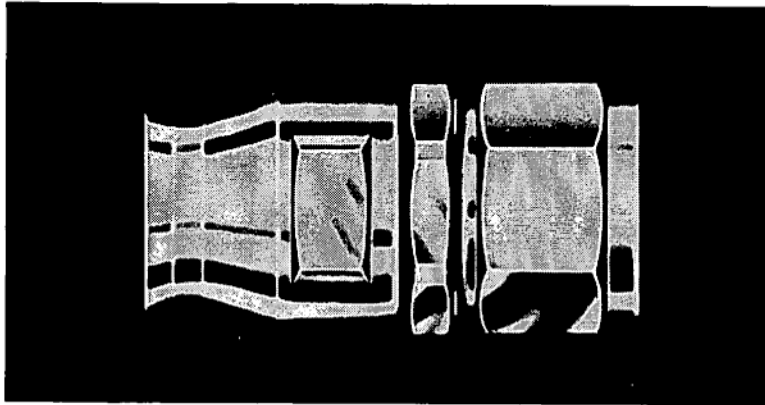
667 Hose—two layers of Type 300 Series stainless steel wire braid.

Identification . . . identification bands showing specification number, manufacturers code number, operating pressure and other required information.

Specification . . . Aeroquip medium pressure assemblies with 666 and 667 Teflon hose and "super gem" fittings comply with MIL-H-25579 industry standard for 1500 psi, high temperature lines for aircraft and missile fluid systems and for ground support use.

"super gem" Reusable Fittings

In accordance with MIL-F-27272



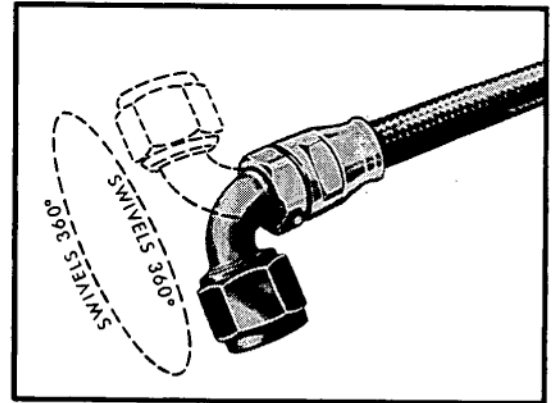
Fittings . . .

The "super gem" fitting provides permanent protection against leakage, even after high temperature aging and impulsing. The reason for this performance lies in the separation of the sealing function from the retention function. A lip seal is formed by the separation of the Teflon tube in an annular chamber, while positive grip on the wire reinforcement between socket and nipple sleeve provides permanent protection against fitting blow-off.

"super gem" fittings have a dry lube (Molybdenum disulfide) coating on thread and sealing surfaces. This is a permanent coating and requires no additional lubrication during assembly.

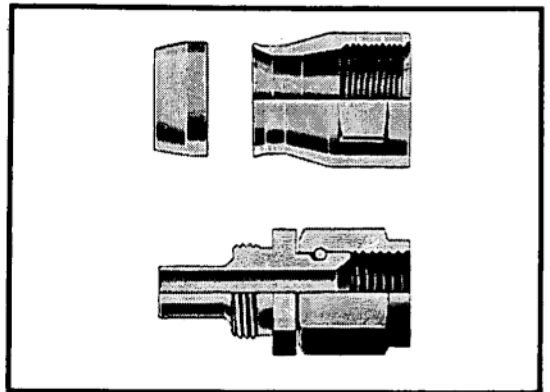
"super gem" fittings are designed for assembly to a gap dimension which indicates proper assembly.

"super gem" fittings are available in both flared and flareless types to mate with MS33656 and MS33514 end connections. In addition, elbow fittings are available in standard 45° and 90° styles. Special elbows, crosses, tees, wyes, adapters, bosses, etc. may be made for custom installations.



Adjustable elbows

"super gem" adjustable elbow fittings are easily positioned through 360° to the desired relative angle between opposite elbow fittings. Mock-up and prototype installation changes are simplified, as the position angle can be determined on the actual installation.



3-piece fitting The Aeroquip medium pressure "super gem" reusable fitting consist of 3 pieces; a socket, sleeve and nipple assembly.

"super gem" fitting standard material specifications:	Nut—Cres., QQ-S-763 (304.)
	Wire—Cres., AMS5685 (305).
	Nipple—Cres., QQ-S-763 (304).
	Socket—Cres., QQ-S-763 (304).

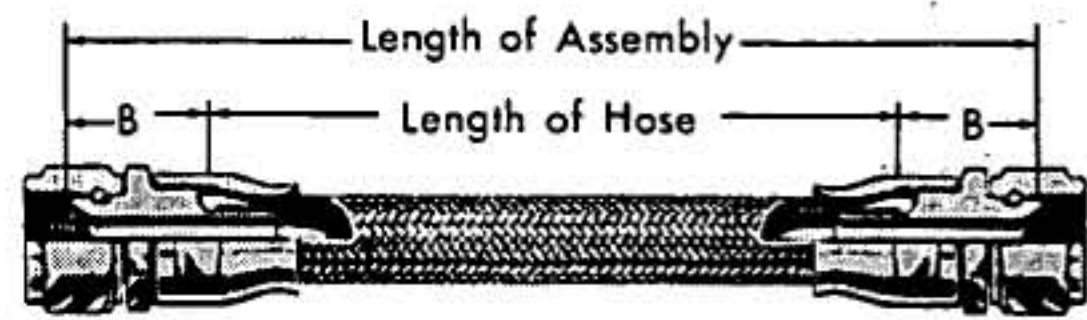
666/667 Hose Data

Dash Size	-3†	-4	-5	-6	-8	-10	-12	-16	-20	-24
Part number	AE240-3	666-4	666-5	666-6	666-8	666-10	666-12	667-16	667-20	667-24
Hose I.D. (inches)	.125	.188	.250	.313	.406	.500	.625	.875	1.125	1.375
Hose O.D. (inches)	.250	.312	.375	.466	.562	.656	.789	1.109	1.359	1.672
Fluid operating pressure (psi)	1500	1500	1500	1500	1500	1500	1000	1250	1000	1000
Vacuum data (max. inches hg.)	28	28	28	28	28	28	28*	28*	28*	28*
Proof pressure (psi)	3000	3000	3000	3000	3000	3000	2000	2500	2000	2000
Min. burst pressure (psi)	12000	12000	10000	9000	8000	7000	5000	5000	4000	4000
Min. bend radius (inches)	1.50	2.00	2.00	4.00	4.62	5.50	6.50	7.38	11.00	14.00
Weight per inch (lbs.)	.0034	.0068	.0082	.0098	.0121	.0166	.0205	.0431	.0484	.0700

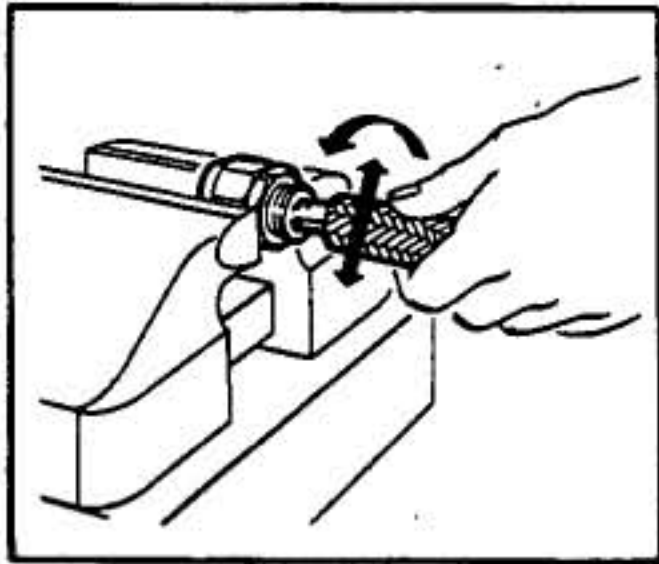
*With internal support coil, contact Aeroquip.

†Non-conductive hose also available in other sizes for gaseous and liquid oxidizing systems.

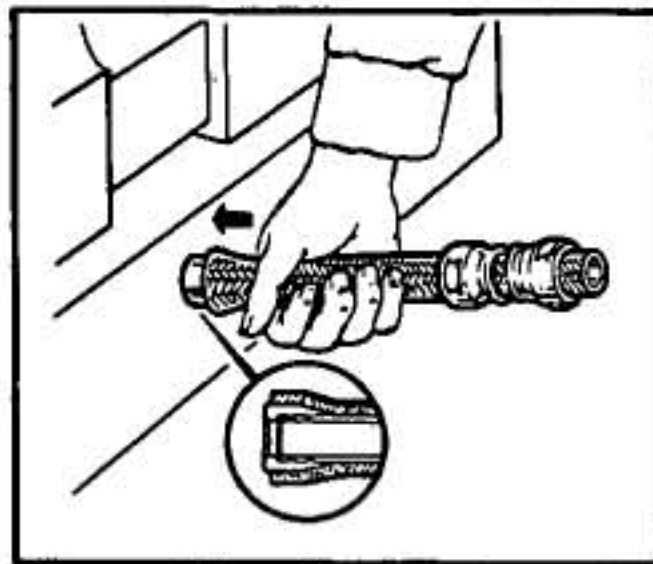
How to assemble Medium Pressure Teflon Hose and "super gem" Reusable Fittings



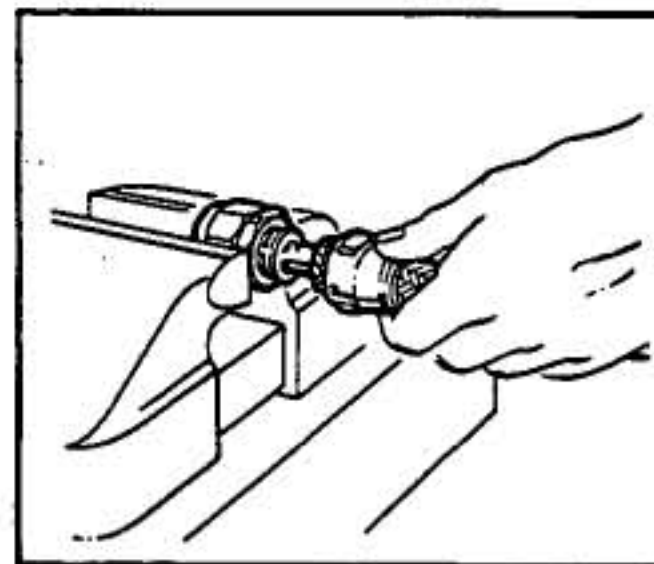
Determine hose cut-off length by subtracting fitting cut-off factor (B+B) from hose assembly length or by calculating the length from the information shown on the hose assembly drawing. The cut-off length may also be determined by measuring the used length of hose being replaced.



Step 1
Wrap hose with tape at cut-off point and cut squarely to length through taped area using a sharp cut-off wheel or a fine-tooth hack saw. Remove tape and trim any loose wires flush with tube stock. Any burrs on the bore of the tube stock should be removed with a knife. Clean the hose bore. Sometimes wire braid will tend to "neck down" on one end and "flare out" on the opposite end. This is characteristic of wire braid hose and can be used to an advantage in the assembly of the "super gem" fittings. Slip two sockets skirt to skirt over the "necked down" end of the hose. Mount nipple hex in a vise. Work the hose bore over the nipple in a circular motion to size the tube and aid in separating the braid prior to fitting the sleeve. Remove hose from nipple.

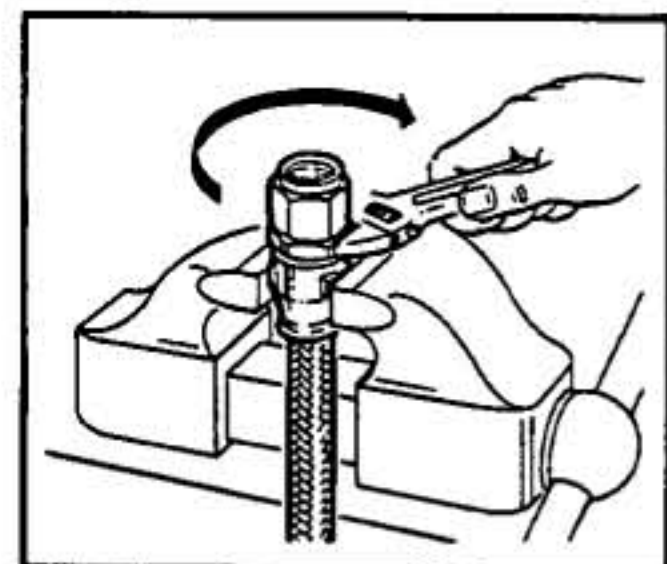


Step 2
Carefully insert the sleeve over the end of the inner tube and under the wire braid by hand. Complete positioning of the sleeve by pushing the sleeve end against a flat surface until tube bottoms against shoulder in sleeve I. D. Visually inspect to see that tube stock butts against the inside shoulder of the sleeve and that no wires are trapped under sleeve.



Step 3
Hold the nipple with hex in vise. Push hose over nipple with twisting motion until seated against nipple chamfer. Push socket forward, and hand start threading of socket to nipple.

NOTE: When assembling new fittings no lubrication is needed as component parts are dryfilm lubricated at the time of manufacture. After reuse of the fitting, if undue wearing of the dryfilm or bare metal is observed, the thread area should be lubricated with Molykote G-n Paste.



Step 4
Wrench tighten nipple hex until clearance with socket hex is 1/32" or less (may vary from 0.023 to 0.046 inch.) Tighten further to align corners of nipple and socket hexes.

To disassemble
Unscrew and remove nipple: slide socket back on hose by tapping against flat surface; remove sleeve with pliers.

Molykote G-n Paste is a registered trademark of the Dow Corning Corporation.

Hose size (dash size)

Hose size is expressed as a dash number which designates the tube OD in 1/16's of an inch. This number is added immediately following the basic style number and is normally separated from it with a dash. However, on assemblies with elbow fittings on each end, hose size is expressed with an alphabetic code; a similar code letter may be used to indicate jump size. When position angle and letter code are used, dashes are omitted between basic style number and hose size; also between hose size and lengths.

Basic assembly numbers

The basic part numbers shown here represent standard configurations with materials, markings, and cleaning requirements conforming to MIL-H-25579. If your requirements differ from these standards, the hose assemblies you order will be assigned new numbers by Aeroquip.

These part numbers are generated as follows:

Example:

Straight to straight assemblies

Basic style number

M666000-10-0184

Assembly length

Always four digits, last digit indicates fractional length in 1/8's of an inch.

Hose dash size

Double elbow assemblies

180 M 666302 J 0184

Position angle

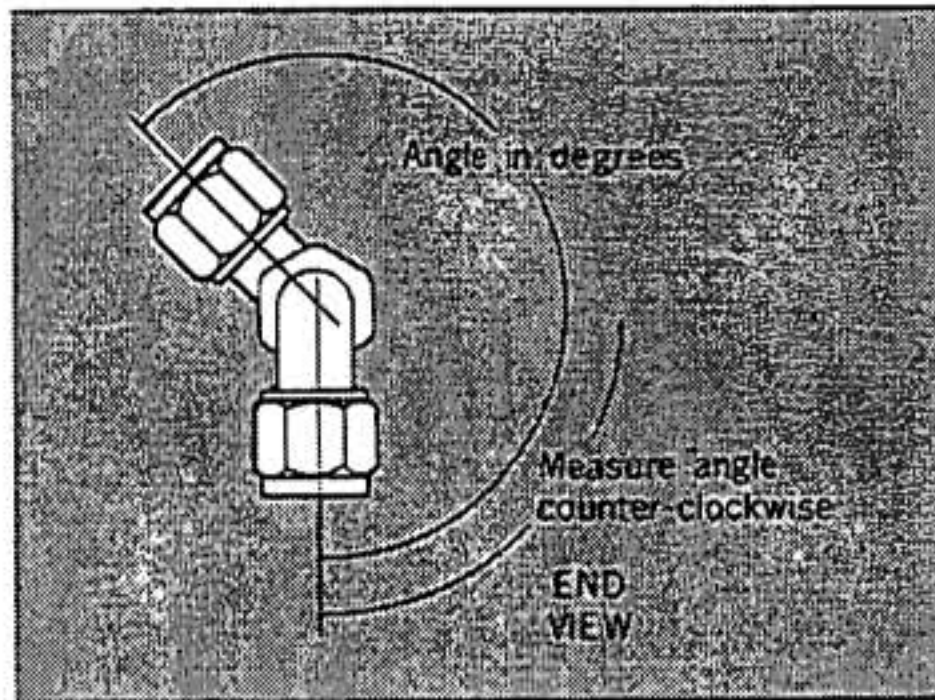
Basic style *

Assembly length

Always four digits, last digit indicates fractional length in 1/8's of an inch.

Hose dash size (letter code)

How to complete assembly part number



Measure assembly length from end fitting sealing surface to end fitting sealing surface (see "Assembly length" call-out on hose assembly picture). Assembly length is always expressed in four digits (see example).

Position angle

On assemblies with an elbow fitting on each end, measure the position angle as shown above and prefix the angle to the basic style number. In all cases, the angle should be expressed in 3 digits. For example 35° should be written as 035. If the angle desired is 0°, specify 000.

* Contact your Aeroquip distributor or Aeroquip for information on various protective sleeving for 666/667 Teflon Hose.

Dash size	Letter code
-4	F
-5	G
-6	H
-8	J
-10	K
-12	L
-16	M
-20	N
-24	P

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