

S5090-CL-MMC-010

TECHNICAL MANUAL

**PIPE JUMPER HOSE SYSTEM (PJHS)
KIT NO. 1 AND KIT NO. 2**

0910-LP-024-9740

Manufactured by:
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1-1. INTRODUCTION.

War damage reports from past conflicts, and more recent hostile actions involving the USS STARK (FFG-31), USS SAMUAL B. ROBERTS (FFG-58) and the USS PRINCETON (CG-59) have shown that when Navy ships are involved in combat action, the damage they incur, frequently involves ruptures to pipes and catastrophic separation of pipes within vital piping systems. Battle damage repair of such damage (if built-in isolation and by-pass capability is not present) frequently requires the time consuming and labor intensive process of cutting, fitting and welding (or swaging) in new sections of pipe.

As a result, the Chief of Naval Operations (CNO), by OPNAV Non-Acquisition Program Definition Document (NAPDD) No. 197-03; and the CNO sponsored Damage Control/Firefighting Working Group, (DC/FF/WG), by Action Item No. 910032DC, directed NAVSEA to develop faster and less labor intensive methods to re-join severed piping.

During its development, prototypes of the jumper fittings and jumper hose assemblies underwent extensive testing in the laboratory, and they were also tested evaluated by fleet personnel aboard the R&D test ship, the Ex-USS SHADWELL, located at the U.S. Navy Technology Center for Safety and Survivability, in Mobile, Alabama.

The PJHS will enable shipboard damage control personnel to rapidly replace destroyed sections of any air or fluid pipeline system (except steam) ranging in size from 1/4 inch to 2-1/2 inches diameter by:

- Removing the jagged end of the pipes with the PECU or hacksaw, and removing any sharp edges from the pipe surface with a file.
- Measuring the outside diameter of the pipes, and selecting a pair of PJHS fittings of the correct size.
- Installing the mechanically operated PJHS fittings and securing them with spanner wrenches.
- Snapping-on (Kit No. 1) or screwing on (Kit No. 2) the jumper hose.

The PJHS will be especially useful for replacing destroyed pipeline sections in systems or system areas where built-in redundancy does not exist. As for systems with built-in redundancy; the PJHS offers the option of quick repair and restoration of those pipeline system sections that have been isolated and by-passed. System restoration will not have to wait until the ships' force or repair facility has the resources to cut, fit and weld (or swage) in new sections of pipe.

2-1. PJHS DESCRIPTION.

2-1.1. PJHS Capabilities. The PJHS consists of two separate kits; a Kit No. 1 and Kit No. 2. The PJHS kits are compatible with the piping system medias shown in Table 2-1, and the kits are capable of withstanding the pressures and temperatures shown in Table-2-2.

TABLE 2-1 PIPELINE SYSTEM MEDIA COMPATIBILITY								
KIT NO	Pipeline System Media							
	Compressed Air			Water		Fuels		AFFF
	Low	Med	High	Fresh	Salt	DFM	JP-5	
1	X	X	X	X	X	X	X	X
2	---	---	---	X	X	X	X	X

TABLE 2-2 PRESSURES AND TEMPERATURES				
KIT NO.	Service Pressure PSIG	Proof Pressure PSIG	Burst Pressure PSIG	Service Temperature Degrees F.
1	300/4,000	7,500	10,000	200
2	300	600	900	200

2-1.2 PJHS Jumper Fittings. The key components of the PJHS are the jumper fittings. Kit No. 1 includes jumper fittings for 1/4, 3/8, 1/2 and 3/4 inch Nominal Pipe Size (NPS) pipes. Kit No. 2 includes jumper fittings for 1, 1-1/4, 1-1/2, 2 and 2-1/2 inch Nominal Pipe Size (NPS) pipes. FIGURE 2-1 is an exploded view depicting the parts of a typical PJHS Kit No. 1 and Kit No. 2 jumper fitting.

2-1.3. PJHS Kit No. 1 Contents. Kit No. 1 can be used for re-joining high pressure pipeline systems ranging in size from 1/4-inch to 3/4-inch Nominal Pipe Size (NPS). The kit consists of sets of jumper fittings, 7/16 inch I.D. jumper hose assemblies (manufactured from commercially available, high pressure, pneumatic / hydraulic hoses), and associated components. The Kit No. 1 jumper hose assemblies and jumper fittings are permanently fitted with valveless, quick-action hydraulic/pneumatic, type couplings. The kits' eight (8) individual five (5) foot jumper hose assemblies can be used individually or they can be joined end-to-end using the double male quick connect fittings included in the kit. A photograph of Kit No. 1 is contained in FIGURE 2-2. The Kit No. 1 parts list is shown in TABLE 5-1 on page 5-3. The Kit No. 1 parts are depicted in FIGURE 5-1 on page 5-4.

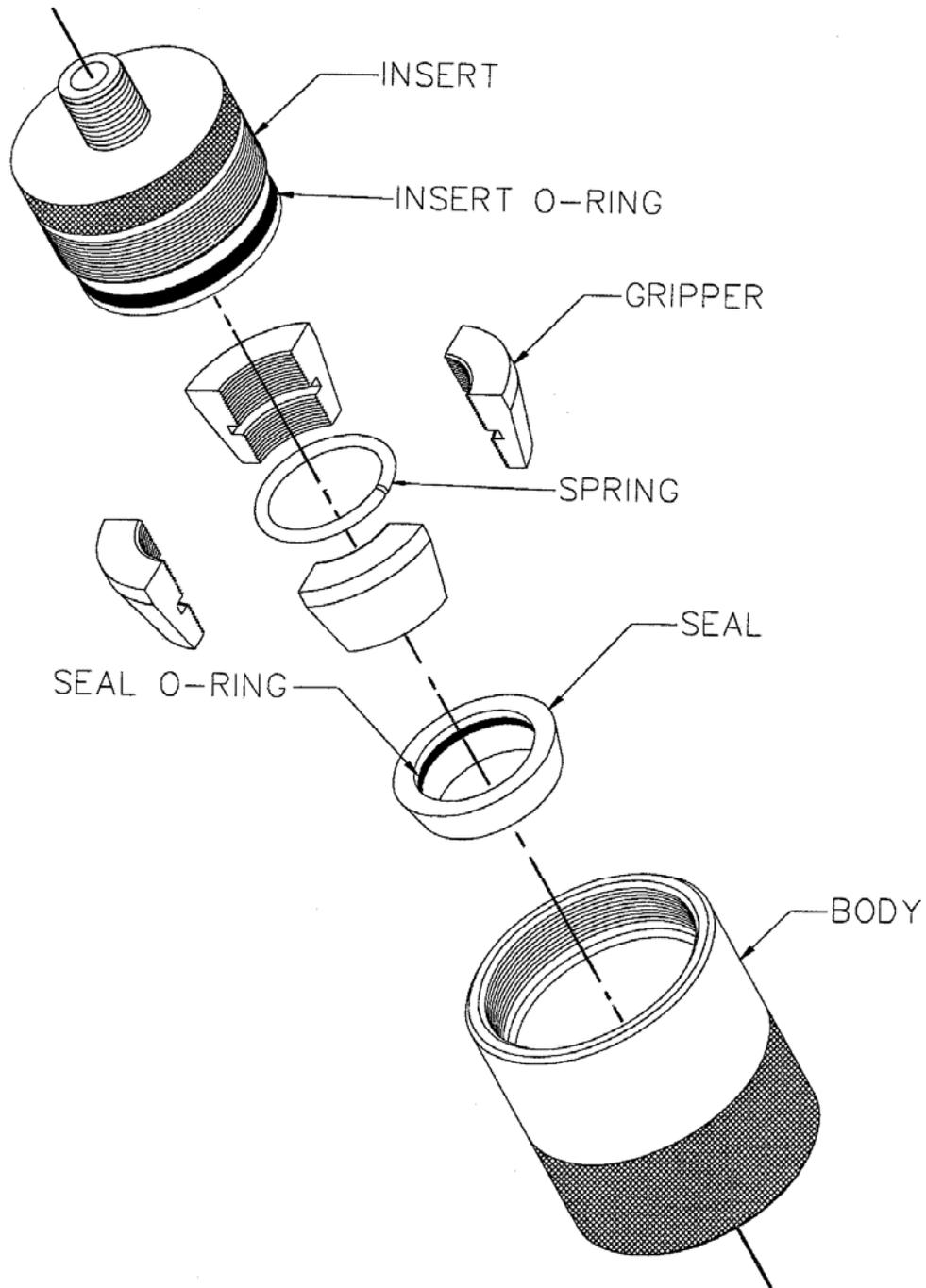


FIGURE 2-1 PARTS OF A TYPICAL JUMPER FITTING

2-1.4 PJHS Kit No. 2. Contents. Kit No. 2 can be used for re-joining fluid system pipeline systems ranging in size from 1-inch to 2-1/2 inches Nominal Pipe Size (NPS). The kit consists of sets of jumper fittings, jumper hose assemblies (manufactured from commercially available aircraft refueling hoses), and associated components. The Kit No. 2 jumper hose assemblies and jumper fittings are permanently fitted with 1-1/2 inch Navy Standard (NPSH) threaded hose couplings. The kits eight (8) individual five (5) foot jumper hose assemblies can be used individually, or they can be joined end to end using the double male NPSH fittings included in the kit. A photograph of Kit No. 2 is contained in FIGURE 2-3. The Kit No. 2 parts list is shown in TABLE 5-2 on page 5-5. The Kit No. 2 parts are depicted in FIGURE 5-2 on page 5-6.

NOTE

THE HOSE THREADS ON THE PJHS KIT NO. 2 JUMPER FITTINGS AND JUMPER HOSE ASSEMBLY COUPLINGS ARE COMPATABLE WITH 1-1/2 INCH NAVY STANDARD (NPSH) FIRE HOSE THREADS.

IF THE AMOUNT OF WATER PIPELINE REPAIRS EXCEED THE QUANTITY OF THE PJHS KIT NO.2 JUMPER HOSE ASSEMBLIES, THE SHIPS' 1-1/2 INCH FIRE HOSES CAN BE USED TO AUGMENT PJHS KIT NO. 2

2-1.5 Pipeline Plugging. PJHS Kit No. 1 and No. 2 each contain end caps which can be attached to the jumper fittings (in lieu of the jumper hose assemblies) to allow the jumper fittings to function as temporary pipeline plugs.

2-1.6 PJHS Specifications and Manufacturers. Section 6-1 lists the specifications and manufacturing sources for the PJHS Kit No. 1 and Kit No. 2 jumper fittings and jumper hose assemblies.

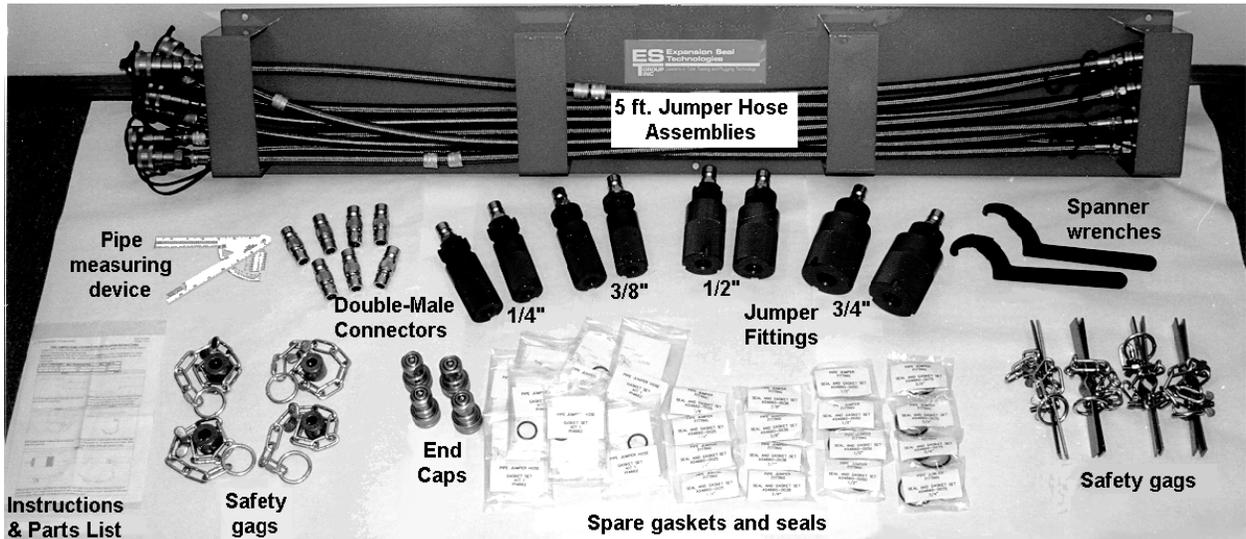


FIGURE 2-2 PJHS Kit No. 1

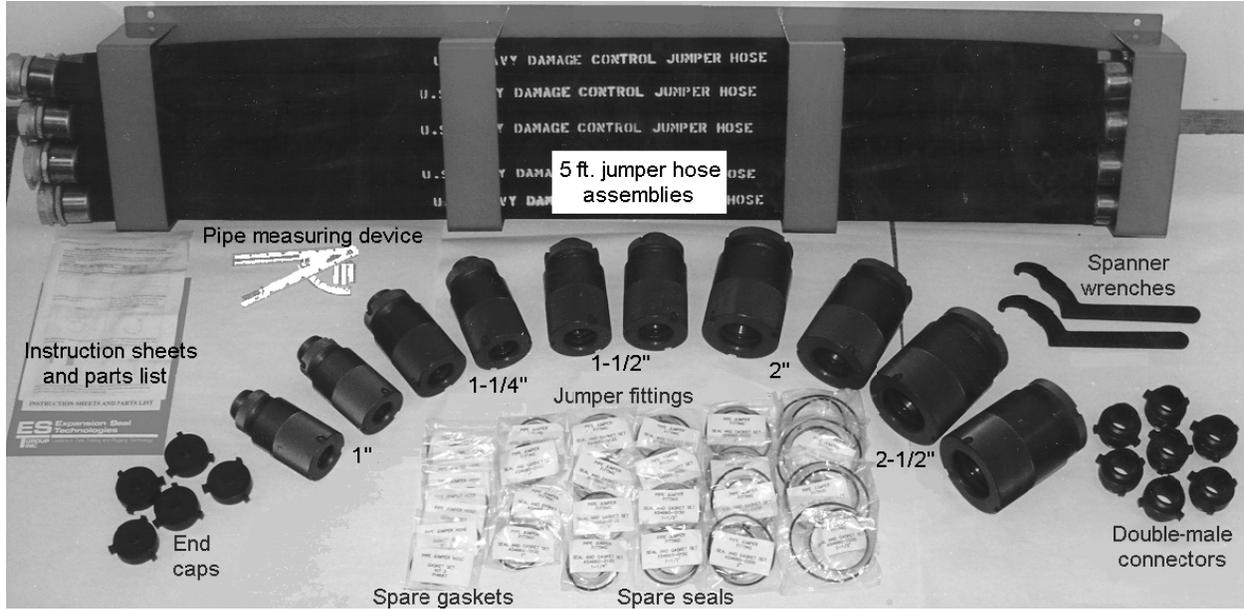


FIGURE 2-3 PJHS Kit No. 2

3-1. PJHS INSTALLATION.

3-1.1. Step One - Pipeline Section Isolation. Isolate and stop the media flow in the damaged section of the pipeline system.

WARNING

BEFORE REPAIRING PIPELINES CONTAINING FLAMMABLE LIQUID, PURGE THE ISOLATED AREA OF SUCH LIQUID AND SET A FIRE WATCH UNTIL THE REPAIRS HAVE BEEN COMPLETED.

3-1.2. Step Two - Pipe Preparation. Cut the jagged ends of the pipes off as square as possible with a hacksaw or the Portable Exothermic Cutting Unit (PECU)

NOTE

WHEN CUTTING PIPES WITH THE PECU: REMOVE THE MOLTEN SLAG AND FILE DOWN ANY LARGE BURRS OFF THE PIPE END BEFORE COOLING THE PIPE WITH WATER. SOME METALS, PARTICULARLY CARBON STEEL, HARDEN WHEN COOLED WITH WATER MAKING THE PIPE END CLEANUP DIFFICULT.

After cooling the pipe, completely remove all sharp edges from the pipe end with a course file or wire brush. Also clean loose paint, grease, oil, scale and foreign matter from the surface of the pipe where the jumper fitting is going to be installed.

3-1.3. Step Three - Pipe Size Measurement. Determine the diameter of the pipe. If necessary, measure the outside diameter of the pipe with the pipe measuring device contained in the PJHS kit. See FIGURE 3-1.

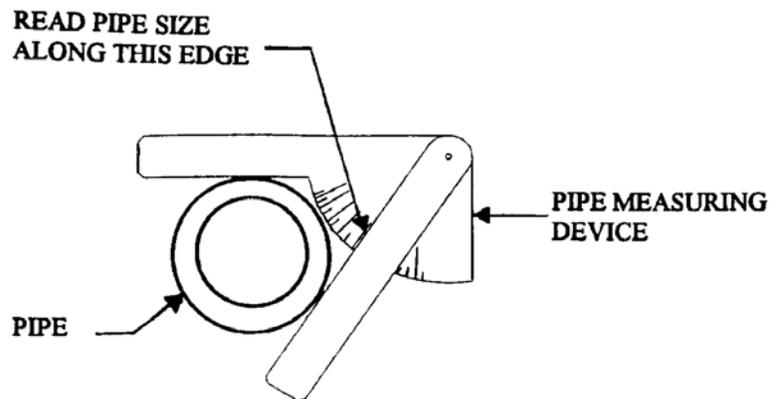


FIGURE 3-1 Pipe Measuring Device

3-1.4. Step Four – Safety Gag Installation. When repairing a compressed air system pipeline, select, install and secure, the proper size safety gag approximately 6 to 8 inches from the end of the pipe, see FIGURE 3-2.

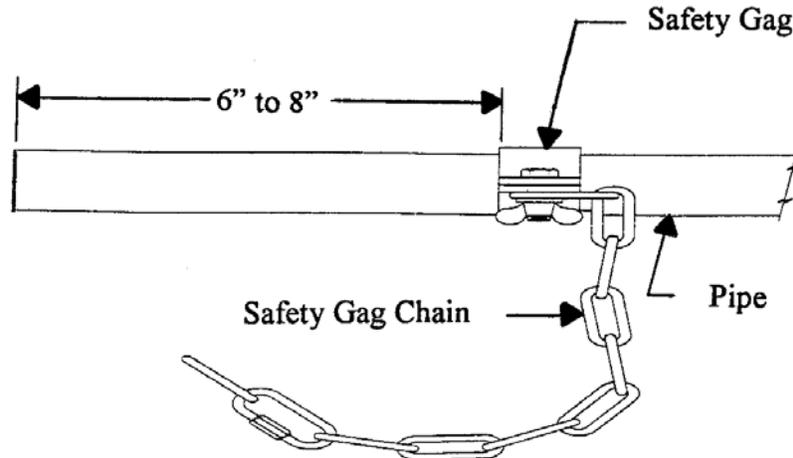


FIGURE 3-2 Safety Gag Installation on Compressed Air System Pipelines

WARNING

WHEN PJHS KIT NO. 1 IS USED TO REPAIR COMPRESSED AIR SYSTEM PIPELINES (GREATER THAN 100 PSIG), A SAFETY GAG MECHANISM AS SHOWN IN FIGURE 3-2 AND 3-3 MUST BE USED TO PREVENT A LOOSE JUMPER FITTING FROM BECOMING A MISSILE HAZARD AFTER THE PIPE SYSTEM IS PRESSURIZED

NOTE

WHEN PJHS KIT NO. 1 IS USED TO REPAIR FLUID SYSTEM PIPELINES, USE OF THE SAFETY GAGS IS NOT NECESSARY

3-1.5. Step Five – Jumper Fitting Installation. Install each jumper fitting on the pipe ends by pushing the jumper fitting onto the pipe until the pipe end is butted against the end of the bore within the jumper fitting. NEXT: push the jumper fitting back in the reverse direction approximately 1-inch towards the end of the pipe.

3-1.6. Step Six – Jumper Fitting Tightening. Tighten each jumper fitting by **HOLDING THE BODY STEADY** and **ROTATING THE INSERT CLOCKWISE** by hand until the insert can no longer be turned.

NOTE

THE JUMPER FITTING INSERTS AND BODIES ARE KNURLED AND FITTED WITH SLOTS FOR SPANNER WRENCHES SO THAT THE JUMPER FITTINGS CAN BE TIGHTENED FIRST WITH BARE HANDS, THEN SECURED WITH A PAIR OF SPANNER WRENCHES.

NEXT: take the spanner wrenches contained in the PJHS kit and insert them into the slots in the jumper fitting insert and body. **ROTATE THE INSERT CLOCKWISE AND THE BODY COUNTER-CLOCKWISE** until the insert and body can no longer be rotated with respect to the pipe.

3-1.7. Step Seven – Jumper Hose Assembly Connection. When the repair involves utilization of Kit No. 1 on a compressed air system pipeline: **FIRST** attach the ring at the end of the safety gag chain to the jumper fitting by placing it over the male quick connect fitting on the Kit No. 1 jumper fittings, see FIGURE 3-3. **NEXT:** if the pipeline is to be plugged (rather than repaired), attach an end cap to the jumper fitting. If the pipeline is being repaired, connect a jumper hose assembly to the jumper fittings. If the distance between the installed jumper fittings is greater than 5 feet, additional jumper hoses assemblies can be added by coupling them end-to-end using the double male fittings contained in the PJHS kits.

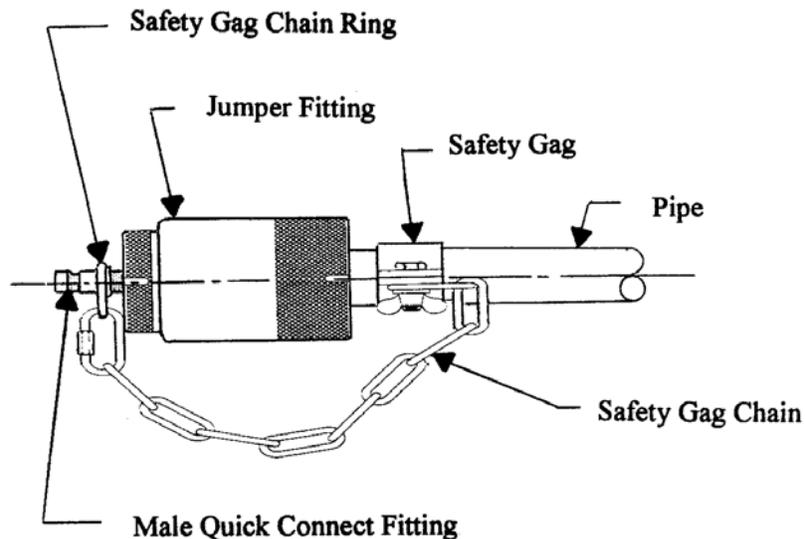


FIGURE 3-3 Attachment of Safety Gag Chain to Kit No. 1 Jumper Fittings

WARNING

DO NOT KINK THE PJHS KIT NO. 1 JUMPER HOSE ASSEMBLIES, SUCH ACTION WILL DAMAGE OR DESTROY THE TETRAFLUOROETHYLENE (TELFON) INNER TUBING, AND RENDER THE JUMPER HOSE ASSEMBLY USELESS.

WARNING

AFTER PIPELINE RE-ACTIVATION, (ESPECIALLY FUEL SYSTEMS) PERIODICALLY INSPECT THE JUMPERED AREA FOR LEAKS. IF A JUMPER FITTING IS LEAKING, SECURE THE PIPELINE SYSTEM. NEXT LOOSEN, AND RE-ATTACH THE JUMPER FITTING BY REPEATING STEPS SIX AND SEVEN.

NOTE

THE PJHS IS INTENDED AS A TEMPORARY (TWO (2) WEEK SERVICE LIFE) REPAIR DEVICE. IF THE PJHS MUST BE USED FOR A LONGER SERVICE PERIOD, IT IS RECOMMENDED THAT THE JUMPER FITTING AND JUMPER HOSE ASSEMBLY SEALS AND O RINGS BE REPLACED AT TWO (2) WEEK INTERVALS.

FIGURE 3-4 depicts the installation of a Kit No. 1 jumper fittings and jumper hose assembly on compressed air system pipelines. FIGURE 3-5 depicts the installation of a Kit No. 2 jumper fitting and jumper hose assembly on fluid system pipelines.

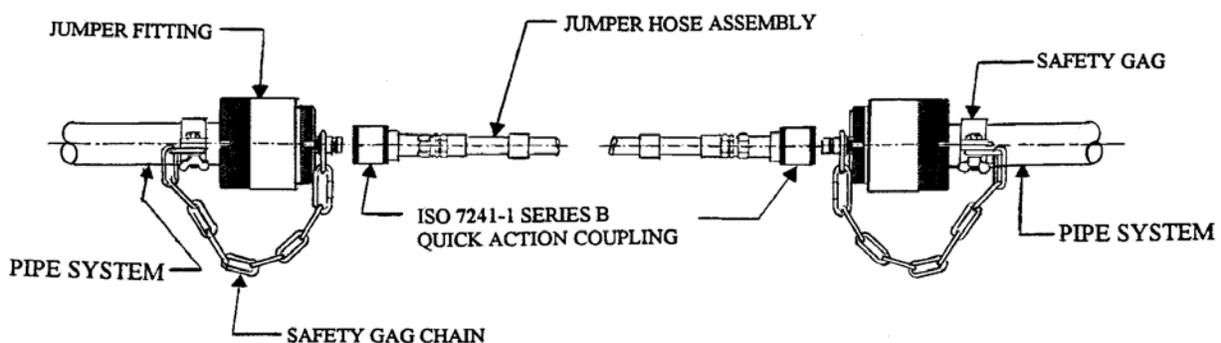


FIGURE 3-4 Example of PJHS Kit No. 1 Installation on Compressed Air System Pipelines

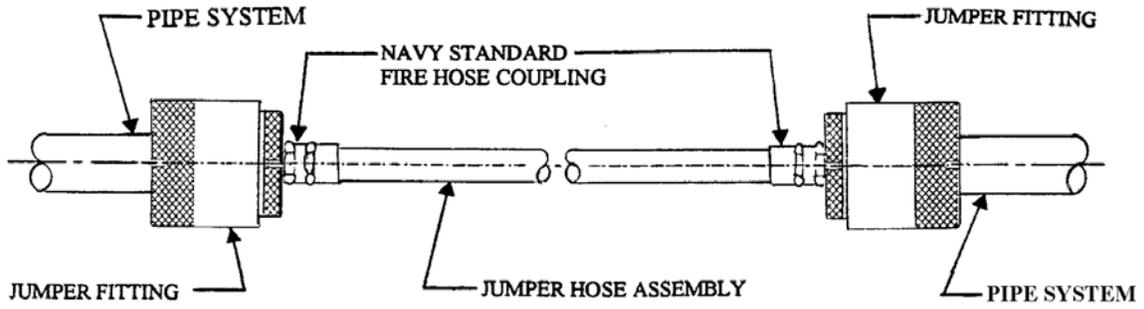


FIGURE 3-5 Example of PJHS Kit No. 2 Installation on Fluid System Pipelines

4-1. PJHS REMOVAL.

4-1.1. Step One – Pipeline Section Isolation. Isolate the section of the pipeline system where the PJHS is installed, and relieve the pipeline system pressure.

4-1.2 Step Two – Jumper Fitting and Jumper Hose Assembly Removal. Disconnect the jumper hose assembly and remove the jumper fittings. If a jumper fitting has become locked onto the pipe, insert the spanner wrenches into the slots in the jumper fitting insert and body, and strike the spanner wrenches with a hammer. When the jumper fitting is loosened, slide it off the pipe.

NOTE

IF THE ENTIRE JUMPER FITTING HAS BECOME ADHERED TO THE PIPE AND IT WILL NOT SLIDE OFF, COMPLETELY UNSCREW AND SEPARATE THE JUMPER FITTING INSERT FROM THE JUMPER FITTING BODY. SLIDE THE JUMPER FITTING BODY BACK TO EXPOSE AND REMOVE THE GRIPPER AND RETAINING SPRING ASSEMBLY AND PRIMARY SEAL FROM THE PIPE.

5-1. PJHS - LIFE CYCLE MAINTENANCE.

5-1.1. AFTER EACH USE.

5-1.1.1. Jumper Fitting Cleaning and Lubrication. Disassemble the used jumper fittings and flush their components with fresh water. Clean and dry all the components and re-lubricate the internal taper of the body and the threads of the insert and body with a Nickel based anti-seize compound.

5-1.1.2. Jumper Fitting Seal Replacement. Replace the used jumper fitting seal and seal O-ring and the insert O-ring with new ones from the PJHS spare parts package, and lubricate them with Barium Grease. Re-assemble the jumper fittings in accordance with the instructions contained on the jumper fitting exploded view placard supplied with each PJHS kit.

NOTE

IF DURING RE-ASSEMBLY THE GRIPPER ASSEMBLY AND SEAL ASSEMBLY BECOMES MISALIGNED AND JAMMED, LOOSEN THE JUMPER FITTINGS' INSERT BY TURNING IT COUNTER CLOCKWISE UNTIL THE GRIPPER ASSEMBLY AND SEAL ASSEMBLY ARE LOOSE WITHIN THE JUMPER FITTING BODY, THEN RE-ALIGN THE GRIPPER ASSEMBLY AND SEAL. NEXT, SCREW THE JUMPER FITTING INSERT CLOCKWISE UNTILL 1-9/16 INCHES OF THE INSERT PROJECTS OUT OF THE JUMPER FITTING BODY (MEASURED FROM THE LIP OF THE BODY TO THE TOP OF THE INSERT).

CAUTION

DO NOT STORE A JUMPER FITTING WITH ITS INTERNAL SEAL ASSEMBLY UNDER COMPRESSION. LONG TERM COMPRESSION MAY PERMANENTLY DEFORM AND IMPARE THE FUNCTION OF THE SEAL ASSEMBLY. BEFORE RETURNING A JUMPER FITTING TO STORAGE, RELAX THE SEAL ASSEMBLY BY TURNING THE INSERT COUNTER CLOCKWISE FROM THE BODY UNTIL 1-9/16 INCHES OF THE INSERT PROJECTS OUT OF THE JUMPER FITTING BODY (MEASURED FROM THE LIP OF THE BODY TO THE TOP OF THE INSERT).

5.1.1.3. Replacement of Jumper Hose Assembly O-Rings and Gaskets. If any Kit No. 1 jumper hose assemblies were used, replace the used O-ring and backup ring in each of the quick action couplings with new one from the Kit No. 1 spare parts package. If any Kit No. 2 jumper hose assemblies were used, replace the gasket within each coupling with a new one from the Kit No.2 spare parts package

5-1.1.4. PJHS Kit Inventory. Inspect each PJHS kit and insure that the contents of the kit match the parts list contained in TABLES 5-1 and 5-2.

NOTE

SPARE PJHS PARTS ARE NOT STOCKED IN THE NAVY SUPPLY SYSTEM.

5-1.1.5. Obtaining Spare Parts. If some PJHS parts are lost or destroyed, and the supply of spare seals and gaskets are nearly depleted, replacement parts must be purchased from the PJHS manufacturer indicated in section 7-1.

5-1.2. ONCE EACH YEAR

5-1.2.1. Jumper Fitting Threads and Taper Lubrication. Disassemble the jumper fittings and re-lubricate the internal taper of the body and the threads of the insert and body with a Nickel based anti-seize compound.

5-1.2.2. Jumper Fitting Seal Lubrication. Re-lubricate the seal and seal O-ring and the insert O-ring with Barium Grease. Re-assemble the jumper fittings in accordance with the instructions contained on the jumper fitting exploded view placard supplied with each PJHS kit.

5-1.2.3. PJHS Kit Inspection. Inspect the Kit No. 1 and No. 2 in accordance with paragraph 5-1.1.4. If some PJHS parts are lost or destroyed and the supply of spare seals and gaskets are nearly depleted, reorder addition parts from the PJHS manufacturer identified in section 7-1.

5-1.2.4. Jumper Hose Assembly Inspection. Inspect the Kit No. 1 and No. 2 jumper hose assemblies for abnormal wear and degradation. If any of the hose assemblies require replacement, order replacement hose assemblies from the PJHS manufacturer identified in section 7-1.

5-1.3. ONCE EVERY FIVE (5) YEARS

5-1.3.1. Jumper Hose Assembly Hydrostatic Tests. Once every five (5) years hydrostatically test the PJHS Kit No. 1 and No. 1 jumper hose assemblies in accordance with the proof pressures listed in Table 2-2 on page 2-1.

PJHS Kit No. 1
COMPLETE KIT NO. 1 (PART NO. AS4656)
INCLUDES:

**(1) AS4668-01 PIPE JUMPER HOSE SYSTEM – STORAGE BOX ASSEMBLY
CONSISTING OF THE PARTS LISTED BELOW**

ITEM	PART NUMBER	DESCRIPTION	QTY
1	AS5110-0025	PIPE JUMPER FITTING 1/4-INCH	2
2	AS5110-0038	PIPE JUMPER FITTING 3/8-INCH	2
3	AS5110-0050	PIPE JUMPER FITTING 1/2-INCH	2
4	AS5110-0075	PIPE JUMPER FITTING 3/4-INCH	2
5	AS4690-0025	SAFETY GAG 1/4-INCH	2
6	AS4690-0038	SAFETY GAG 3/8-INCH	2
7	AS4690-0050	SAFETY GAG 1/2-INCH	2
8	AS4690-0075	SAFETY GAG 3/4-INCH	2
9	AS4660-0025	SEAL & GASKET SET 1/4INCH	4
10	AS4660-0038	SEAL & GASKET SET 3/8-INCH	4
11	AS4660-0050	SEAL & GASKET SET 1/2-INCH	4
12	AS4660-0075	SEAL & GASKET SET 3/4-INCH	4
13	AS4663-01	END CAP	4
14	MI4619	QUICK CONNECT DOUBLE MALE	7
15	AS5568-01	HOSE GASKET SET (INCLUDED 2)	8
16	PI4673-01	SPANNER WRENCH	2
17	PI4674	PIPE MEASURING DEVICE	1
18	DC9173	OPERATING INSTRUCTIONS	1
19	DC9174	PARTS LIST	1
20	DC9175	PLACARD	1
21	PI4675-01	STORAGE BOX	1

**(1) AS4657 PIPE JUMPER HOSE SYSTEM – HOSE RACK ASSEMBLY
CONSISTING OF THE PARTS LISTED BELOW**

ITEM	PART NUMBER	DESCRIPTION	QTY
22	AS4676	HOSE RACK	1
23	PI46641	JUMPER HOSE ASSEMBLY 5 FT	8

TABLE 5-1 PJHS KIT NO. 1 Parts List

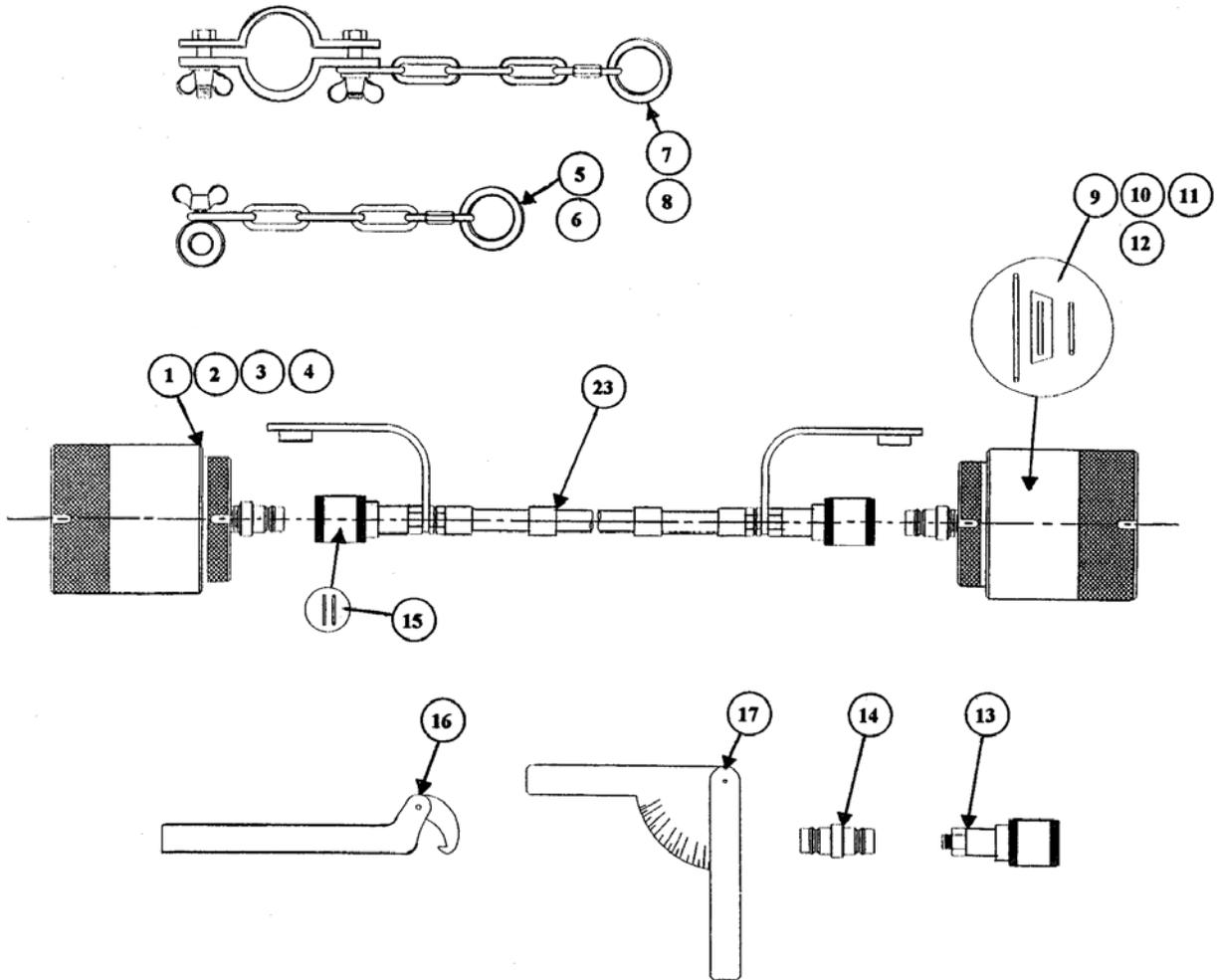


FIGURE 5-1 Depiction of PJHS Kit No. 1 Parts

PJHS Kit No. 2
COMPLETE KIT NO. 2 (PART NO. AS4658)
INCLUDES:

**(1) AS4668-02 PIPE JUMPER HOSE SYSTEM – STORAGE BOX ASSEMBLY
CONSISTING OF THE PARTS LISTED BELOW**

ITEM	PART NUMBER	DESCRIPTION	QTY
1	AS5110-0100	PIPE JUMPER FITTING 1-INCH	2
2	AS5110-0125	PIPE JUMPER FITTING 1-1/4-INCH	2
3	AS5110-0150	PIPE JUMPER FITTING 1-1/2-INCH	2
4	AS5110-0200	PIPE JUMPER FITTING 2-INCH	2
5	AS5110-0250	PIPE JUMPER FITTING 2-1/2-INCH	2
6	AS4660-0100	SEAL & GASKET SET 1-INCH	4
7	AS4660-0125	SEAL & GASKET SET 1-1/4-INCH	4
8	AS4660-0150	SEAL & GASKET SET 1-1/2-INCH	4
9	AS4660-0200	SEAL & GASKET SET 2-INCH	4
10	AS4660-0250	SEAL & GASKET SET 2-1/2-INCH	4
11	AS4663-02	END CAP	5
12	MI4621	DOUBLE MALE 1-1/2-INCH NPSH FITTING	7
13	AS5568-02	HOSE GASKET SET (INCLUDES 2)	8
14	PI4673-01	SPANNER WRENCH	2
15	PI4674	PIPE MEASURING DEVICE	1
16	DC9176	OPERATING INSTRUCTIONS	1
17	DC9177	PARTS LIST	1
18	DC9178	PLACARD	1
19	PI4675-02	STORAGE BOX	1

**(1) AS4659 PIPE JUMPER HOSE SYSTEM – HOSE RACK ASSEMBLY
CONSISTING OF THE PARTS LISTED BELOW**

ITEM	PART NUMBER	DESCRIPTION	QTY
20	AS4651	HOSE RACK	1
21	PI4669	JUMPER HOSE ASSEMBLY 5 FT	8

TABLE 5-2 PJHS KIT NO. 2 Parts List

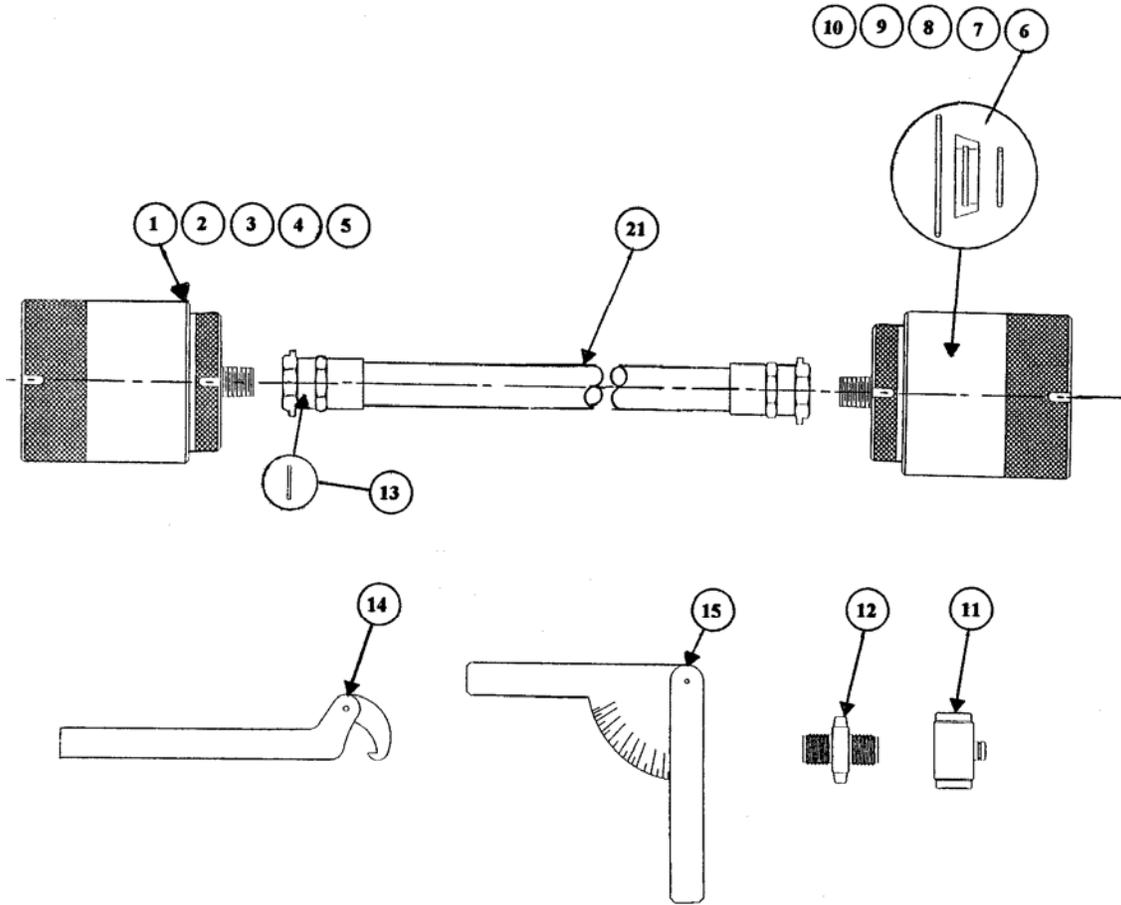


FIGURE 5-2 Depiction of PJHS Kit No. 2 Parts

6-1 JUMPER FITTING AND JUMPER HOSE ASSEMBLY SPECIFICATIONS AND MANUFACTURERS

The PJHS was procured in accordance with Naval Sea Systems Command, Purchase Description (SEA-03G-CRG-001B dated 1 April 1997, entitled: PIPE JUMPER HOSE SYSTEM (PJHS) 1/4 Inch To 2-1/2 Inches.

6-1.1 Jumper Fittings Kit No. 1 and Kit No. 2.

- | | |
|--|---|
| (a) Manufacturer: | EST Group, Inc.
2701 Township Line Road
Hatfield, PA. 19440-1770. |
|
 | |
| (b). Jumper Fitting Body and Insert. | |
| 1. Material: | Aluminum |
| 2. Preservation: | Anodized, IAW: MIL-A-8625F, Type III, Class 1. |
|
 | |
| (d) Jumper Fitting Gripper Assembly: | 17-4PH Stainless Steel Alloy Material. |
|
 | |
| (e) Jumper Fitting Sealing Elements: | High temperature urethane back-up seal with a
Fluorocarbon elastomer primary seal |
|
 | |
| (f) Quick-Action Male Coupling
(Secured into the Kit No. 1
jumper fittings). | |
| 1. Size: | International Organization for Standardization
(ISO) 7241-1: 1987 (E), Series B, Size 12.5, with a
“B” dimension of 25.65 to 25.76 millimeters. |
| 2. Material: | 303 Grade Stainless Steel, secured into jumper
fitting using an epoxy thread locking agent. |
|
 | |
| (g) Quick-Action End Caps (Kit No. 1). | |
| 1. Manufacturer: | Parker Division, Parker Hannifin Corporation,
Ravenna, Ohio. |
| 2. Model No. and Part No.: | Parker 60 Series (Part No. SH4-62) |
| 3. Type: | Valveless, Female |
| 4. Material: | 303 Grade, Stainless Steel |
| 5. Size: | See 6-1.1 (f) 1. |

6-1.1 Jumper Fittings Kit No. 1 and Kit No. 2. (Continued)

(h) End Caps (Kit No. 2).

1. Manufacturer: Red Head Brass.
2. Type and Thread Size: Female, 1-1/2-inch, (Navy Standard) NPSH, IAW Federal Specification WW-C-621G.

6-1.2 Jumper Hose Assemblies – Kit No. 1.

(a) Hose.

1. Manufacturer: Parker Division, Parker Hannifin Corporation, Ravenna, Ohio
2. Model Number: 955200
3. Size: -08 (nominal 7/16 inch I.D) x 5 feet long.
4. Core Tube Material: Tetrafluoroethylene (Teflon)
5. Outer jacket Material: Stainless Steel Wire Braid (Multiple layers)

(b) Quick-Action Couplings.

1. Manufacturer: Parker Division, Parker Hannifin Corporation, Ravenna, Ohio
2. Model and Part No. No.: Parker 60 Series, Parker Part No. SH4-62
3. Type: Valveless, Female.
3. Material: 303 Grade Stainless Steel
4. Size: See 6-1.1 (f) 1.

(c) Quick-Connect Couplings (Double Male).

1. Manufacturer: Parker Division, Parker Hannifin Corporation, Ravenna, Ohio
2. Type: Double Male
3. Material: 303 Grade Stainless Steel
4. Size: Same as 6-1.1 (f) 1

6-1.3 Jumper Hose Assemblies – PJHS Kit No. 2.

(a) Hose:

- | | |
|---------------------------|--|
| 1. Manufacturer: | Goodyear Tire and Rubber Company, Industrial Products Division, Akron, Ohio. |
| 2. Model Number: | WINGCRAFT TM |
| 3. Type: | Aircraft Refueling Hose |
| 4. Size: | 1-1/2 inches I.D. x 2-1/8 inches O.D x 5 feet long. |
| 5. Core Tube Material: | Black Chemigum synthetic rubber (ORS) |
| 5. Reinforcement: | Synthetic Fabric |
| 6. Outer Jacket Material: | Black Wingprene, static dissipating synthetic rubber (ORS) |

(b) Hose Couplings

- | | |
|---|--|
| 1. Hose Assembly coupler and distributor: | Gammon Technical Products, Manesquan, N.J. |
| 2. Type and Thread Size: | Female, 1-1/2-inch, NPSH (Navy Standard), IAW Federal Specification WW-C-621G. |
| 3. Material: | Brass |

(c) Double Male Couplings.

- | | |
|--------------------------|---|
| 1. Type and Thread Size: | Male, 1-1/2-inch, NPSH, (Navy Standard), IAW Federal Specification WW-C-621G. |
| 2. Material: | Aluminum |

7-1. PJHS - POINTS-OF-CONTACT.

7-1.1. PJHS Development Activity Submit questions or suggestions concerning the PJHS to the following activity:

COMMANDER, NAVAL SEA SYSTEMS COMMAND
2531 Jefferson Davis Hwy
Arlington, Virginia 22242-5160
Attn: Damage Control and Fire Protection Group (SEA 03L4)

7-1.2. PJHS Manufacturer To order additional PJHS components and spare parts contact the following activity:

EST Group Inc.
2701 Township Line Road
Hatfield, PA. 19440-1770 U.S.A.
(800) 355-7044 (215) 721-1100 FAX (215) 721-1101
E-Mail: est-info@curtisswright.com
URL: <http://estgroup.cwfc.com>