

**KIDDE Aerospace
COMPONENT MAINTENANCE MANUAL (CMM)
473776**

TO: HOLDERS OF FIRE EXTINGUISHER CONTAINER 473776-1, 473776-2 COMPONENT MAINTENANCE MANUAL

REVISION NO. 3 DATED JUN 15/05

HIGHLIGHTS

Changes are given below. Changed pages are specified in the List of Effective Pages. Replace the revised pages with the pages included in this revision.

Chapter/Section and Page No.	Description of Change	Effectivity
TITLE	Changed page date and revision level.	All
RECORD OF REVISIONS	Entered Revision 3.	
LIST OF EFFECTIVE PAGES	Revised to show current pages and dates.	
ILLUSTRATED PARTS LIST, Page 1007	Corrected container configuration, items 1-1, 1-1A, 1-5.	



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COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

FIRE EXTINGUISHER CONTAINERS 473776-1, 473776-2

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SERVICE BULLETIN LIST

SB NO.	R E V	INCLUDED IN REVISION	DATE OF INCORPORATION	TITLE

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INTRODUCTION

1. General

A. This manual supplies the data and instructions necessary to do component maintenance and return the component to service. It contains:

- (1) Technical data for the component.
- (2) Maintenance, testing and repair procedures for the component.
- (3) An Illustrated Parts List (IPL)

B. Refer to the Table of Contents to find page numbers for each section.

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C. The IPL figure and parts list identifies the parts that can be replaced. Information on how to use the IPL is given in the introduction to the Illustrated Parts List.

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- D. All weights and measurements in the manual are in English units with metric equivalents in parenthesis unless otherwise stated.
- E. This manual will be revised as necessary to include current information.
- F. List of abbreviations used in the manual:
 - CAGE: Commercial and Government Entity
 - IPL: Illustrated Parts List
 - NHA: Next Higher Assembly

2. Verification

- A. Testing and Fault Isolation: Jun 30/04
- B. Disassembly: Jun 30/04
- C. Assembly: Jun 30/04

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DESCRIPTION AND OPERATION

1. Description

- A. The fire extinguisher (Figure 1) is called "container" in the pages that follow.
- B. The container is a triple outlet steel sphere with a minimum internal volume of 164 in.³ (2687 cm³). A fill plug and pressure gauge are fusion welded to the container weldment and a disc assembly is fusion welded in each neck. This causes the container to be hermetically sealed. A discharge head is installed on each neck.

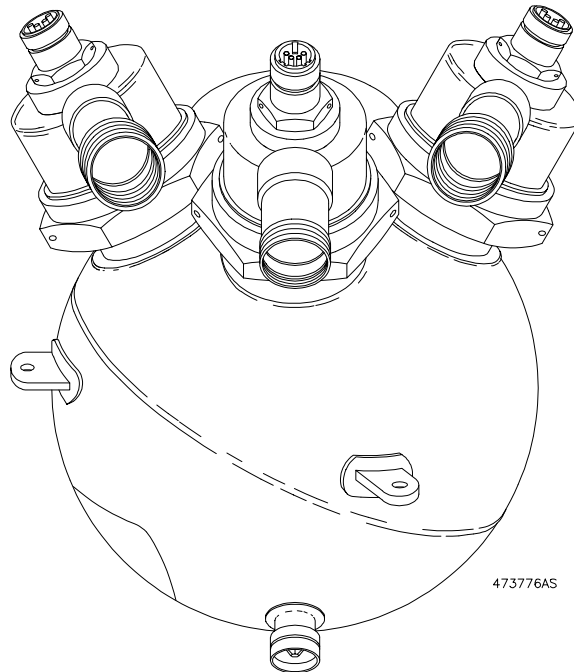


Figure 1. Fire Extinguisher Container

- C. The discharge head has a debris screen and a threaded hole. The electrically operated explosive cartridge is installed in this threaded hole.
- D. The container is filled with a liquid fire-extinguishing agent, bromotrifluoromethane (CBrF₃), and pressurized with nitrogen (N₂). The disc assembly in the neck keeps the extinguishing agent and nitrogen in the container.
- E. The pressure gauge continuously monitors the pressure in the container.
- F. The fill plug is used to fill and remove the contents of the container.

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G. When the container is installed in the aircraft and connected to the discharge line, the electrically actuated explosive cartridge mounted on the discharge head is used to break the disc assembly to release the extinguishing agent.

2. Operation

- A. The container is pressurized to 600 to 625 psig (4137 to 4309 kPa) to get the force that is necessary to push the extinguishing agent from the container. The extinguishing agent and the nitrogen are kept in the container by the disc until the explosive cartridge fires.
- B. When the explosive cartridge fires, the disc assembly breaks. The nitrogen pushes the extinguishing agent out of the container. The extinguishing agent goes through the discharge head to the fire-extinguishing-system tubing. The debris screen keeps the broken pieces of the disc assembly in the discharge head.
- C. The disc assembly in the neck will break when the pressure in the container is more than the usual operating pressure. This will release the extinguishing agent through the discharge head and prevent damage to the container from too much pressure. The disc will break when the pressure in the container is increased to between 1700 and 1900 at +180°F (11722 to 13101 kPa at +82°C).

3. Specified Data

A. The specified data are given in Table 1.

Table 1. Specified Data

DESCRIPTION OR FUNCTION	CHARACTERISTICS
Operating Pressure	600 to 625 psig at +70°F (4137 to 4309 kPa at +21°C)
Test Pressure	2000 psig (13790 kPa)
Burst Pressure	2700 psig (18617 kPa) min.
Ambient Temperature Range	-65°F to +172°F (-54°C to +78°C)
Burst Range of Disc Assembly	1700 and 1900 at +180°F (11722 to 13101 kPa at +82°C)
Pressure Gauge Actuation Points:	
Increasing Pressure	450 psig (3103 kPa) max.
Decreasing Pressure	275 to 225 psig (1896 to 1551 kPa)
Cartridge Weight, each	0.130 lb (0.059 kg) nom
Discharge Head Weight, each	0.270 lb (0.122 kg) nom
Container Material and Specification	CRES, Nitronic 40, DOT-E-8495-788, 4DS

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DESCRIPTION OR FUNCTION	CHARACTERISTICS
Weight, Charged Assembly, Less Anti-Recoil Caps, Discharge Heads, Cartridges	10.60 lbs (4.81 kg) max.
Airborne Weight	11.90 lbs (5.40 kg) max.
Extinguishing Agent (CBrF ₃)	6.50 to 6.60 lbs (2.95 to 2.99 kg)
Nitrogen (N ₂) 600 to 625 psig at +70°F (4137 to 4309 kPa at 21°C)	0.160 lb (0.073 kg) max.
Capacity	164 in. ³ (2687 cm ³)
Permitted Weight Loss (Cumulative)	0.067 lb (0.030 kg)
Pressure-Gauge Electrical-Receptacle-Mating Plug	MS24266R12T3S6
Assembly Installation Position	Discharge outlets down
Cartridge Data	Refer to Kidde Aerospace Power Device Cartridge Abbreviated Component Maintenance Manual 26-21-34
Minimum Wall Thickness, Container Weldment	0.040 inch (0.102 cm)
Thread Size, Pressure Gauge Fitting	0.4375-20UNJF-3B
Thread Size, Neck, Discharge	1.625-16UN-3A
Thread Size, Fill Fitting Flange	0.5625-18UNF-2B

4. Related Publications

- A. Kidde Aerospace Service Information Letter (SIL) 96-2, Hydrostatic Test and Inspection Intervals of Fire Extinguisher Containers.
- B. Kidde Aerospace Power Device Cartridge Abbreviated Component Maintenance Manual 26-21-34.
- C. Compressed Gas Association (CGA) Pamphlet C-1.
- D. Compressed Gas Association (CGA) Pamphlet C-6.
- E. United States Department of Transportation (DOT) Code of Federal Regulations (CFR) 49, Part 180.205.
- F. Federal Aviation Administration (FAA) Airworthiness Inspector's Handbook 8300.10.
- G. Federal Specifications for Screw-Threads, FED-STD-H28A.

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TESTING AND FAULT ISOLATION

1. General

A. This section gives the procedures, materials, and equipment necessary to do the tests of the container and to find the defective parts. Do the visual checks, leak tests and the necessary repairs before you do the electrical and hydrostatic tests. See IPL Figure 1 for the location of the parts on the container.

2. Equipment and Material

A. Table 101 gives a list of the test equipment and materials necessary to do tests of the fire extinguisher container. Refer to SPECIAL TOOLS, FIXTURES, EQUIPMENT AND CONSUMABLES for the specifications and where to get the items. You can use alternative equipment and materials if the measurement accuracy and material life is not decreased. All calibrated equipment must have a current calibration approval.

NOTE: You can use equivalent alternatives for the items given in the table.

Table 101. Test Equipment and Materials

DESCRIPTION	PART NUMBER OR SPECIFICATION
Recharge Stand	WT-02453
Charging Adapter	WT-01662
Lockpin Handle	WT-00489-6
Halide Leak Detector	H-25C
Halide Leak Standard	LS-20
Hydrostatic Pressure Test Setup	None
Proof Booth, Explosion Proof	WT-00689
Pressure Test Plug, Fill Fitting	T-262775
Pressure Test Plug, Gauge Fitting	WT-00444
O-Ring	2-013
Pressure Test Cap, Neck	T-897864-10
Pressure Test Cap, Neck	T-897864-20
Protection (Anti-Recoil) Caps	214583
Digital Multimeter	70 Series
Gauge, Thickness, Ultrasonic	T-Mike 3000 or T-Mike E

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3. Pressure Gauge Test

- A. This procedure is used to make sure that the gauge contacts open and close at the correct pressures. Electrical power is not necessary to do this test.
- B. Test Setup

WARNING: DO ALL WORK ON A PRESSURIZED CONTAINER IN AN EXPLOSION PROOF BOOTH OR BEHIND AN APPLICABLE BARRICADE. IT IS DANGEROUS TO PERSONS IF THE PRESSURE IN THE CONTAINER IS RELEASED FROM THE CONTAINER ACCIDENTALLY.

- (1) Attach the container to the workstand or in an explosion proof booth.
- (2) Install the protection cap in the swivel nut. Tighten the protection cap with your hand.
- (3) Prepare the recharge stand. Refer to ASSEMBLY.
- (4) Close the recharge stand and supply cylinder valves.
- (5) Connect the charging adapter to the fill plug.
- (6) Lock the charging adapter to the fill plug with the lockpin handle.

C. Test Procedure

- (1) Connect the multimeter leads to pins 1 and 2 of the pressure gauge (see Figure 101). The multimeter must show continuity between pins 1 and 2.

NOTE: The schematic shows the container pressurized to the operating pressure specified in Table 1, Specified Data.

- (2) Turn the charging adapter one full turn counterclockwise.
- (3) Close the door of the proof booth.
- (4) Open the nitrogen-supply cylinder-valve and adjust the nitrogen regulator to get sufficient pressure to do the test.
- (5) Slowly open recharge stand valve C while you monitor the multimeter and the pressure meter. The gauge contacts must open by 450 psig (3103 kPa) maximum, and the multimeter must show no continuity between pins 1 and 2.
- (6) Open the door of the proof booth.
- (7) Connect the multimeter leads to pins 2 and 3. The multimeter must show continuity between pins 2 and 3.
- (8) Close the door of the proof booth.
- (9) Continue to pressurize the container to 600 psig (4137 kPa). The multimeter must continue to show continuity between pins 2 and 3.

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- (10) Close recharge stand valve C.
- (11) Look at the pressure indication shown on the pressure gauge. The gauge indication must show 585 to 615 psig (4034 to 4240 kPa). If the indication is not in the limit, you must replace the gauge.
- (12) Slowly open recharge stand valve D and decrease the pressure while you monitor the multimeter and pressure meter. The multimeter must show no continuity between pins 2 and 3 when the pressure goes to less than 275 to 225 psig (1896 to 1551 kPa).
- (13) Continue to decrease the pressure. When all of the pressure is removed from the line, close recharge stand valve D.
- (14) Open the door of the proof booth.
- (15) Turn the charging adapter one full turn counterclockwise.
- (16) Disconnect the multimeter leads from the pressure gauge.
- (17) Turn the charging adapter one full turn clockwise.
- (18) Remove the lockpin handle and the charging adapter from the fill plug.

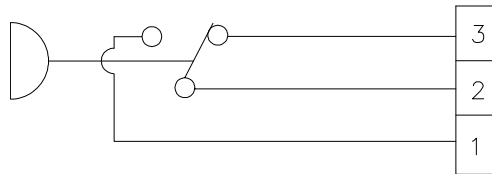


Figure 101. Pressure Gauge Electrical-Schematic

4. Halide Leak Test

- A. Do the leak test with a H-25C Halide Leak Detector or equivalent calibrated to 1×10^{-5} Std cc/sec. as follows:
 - (1) Make sure the leak detector is calibrated as specified in the operating instructions.
 - (2) Turn the container until the area where you think there is a leak is at the highest point.
 - (3) Use the detector probe to find if the air in the test area contains halon. Refer to the operating instructions for the leak detector.
 - (4) Continue to do the leak test on all of the components and the welds.

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NOTE: When you do the test on the disc assemblies, remove the anti-recoil caps from the swivel nuts.

5. Preparation for Hydrostatic Test

- A. Do the hydrostatic test at the intervals specified in Kidde Aerospace Service Information Letter (SIL) 96-2. Refer to United States Department of Transportation (DOT) 49 CFR 180.205 and Federal Aviation Administration (FAA) Airworthiness Inspector's Handbook 8300.10.
- B. Disassemble the container. Remove the fill plug, disc assemblies and pressure gauge. Refer to DISASSEMBLY.
- C. Only trained test persons are permitted in the test area during hydrostatic tests.

WARNING: CONCENTRATION OF COMPRESSED AIR OR UNWANTED MATERIAL MOVED BY COMPRESSED AIR CAN CAUSE INJURY TO PERSONS. ALWAYS POINT COMPRESSED AIR AWAY FROM PERSONS. USE APPLICABLE EYE PROTECTION TO PREVENT INJURY TO YOUR EYES.

- D. Clean all fittings with clean, dry air or nitrogen at a maximum pressure of 30 psi (207 kPa).
- E. Install o-ring 2-013 and pressure test plug WT-00444 in the gauge fitting.
- F. Install pressure test plug T-262775 in the fill fitting.
- G. Fill the container with water through an open neck.
- H. Install pressure test cap T-897864-20 on two of the necks.
- I. Install pressure test cap T-897864-10 on the open neck.

6. Hydrostatic Test Procedure

CAUTION: MAKE SURE THAT TEST PERSONS KNOW THE TEST. DEFECTIVE CONTAINERS ARE DANGEROUS TO PERSONS. IF EXPERIENCED INSPECTION PERSONS ARE NOT AVAILABLE TO DO THE TEST, RETURN THE CONTAINER TO THE MANUFACTURER FOR INSPECTION.

- A. Install the container in the test setup shown in CGA Pamphlet C-1.

NOTE: Do the hydrostatic test by the water-jacket volumetric-expansion method specified in the Compressed Gas Association (CGA) Pamphlet C-1. Do not do the hammer test. Test persons must know the contents of CGA Pamphlet C-1 to make a correct analysis of the results.

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- B. Attach the pressure line of the test setup to pressure test cap T-897864-10.
- C. Pressurize the container to 2000 psig (13790 kPa).
- D. Do the hydrostatic test as specified by 49 CFR 180.205. Use the Water Jacket Volumetric Expansion Method in CGA Pamphlet C-1.

NOTE: You MUST NOT do the hammer test for this type of container.

7. Analysis of Hydrostatic Test Results

CAUTION: BE CAREFUL WHEN YOU DO THE HYDROSTATIC TEST. CALCULATE THE TOTAL, PERMANENT, AND PERCENT OF PERMANENT EXPANSION OF THE CONTAINER WITH PRECISION. DISCARD THE CONTAINER IF THE WALLS ARE DANGEROUSLY THIN. DO NOT DISCARD THE CONTAINER IF THE WALL THICKNESS IS CORRECT.

- A. The test gives the total and permanent expansion of the container at a specified pressure. Total expansion minus the permanent expansion is the elastic expansion. Elastic expansion at a specified pressure is a definite measure of the container average wall thickness.
- B. Divide the permanent expansion by the total expansion and multiply by 100 to calculate the percent of permanent expansion. If the total permanent volumetric expansion is more than 10 percent, discard the container.
- C. Too much permanent expansion shows that the container wall is too thin or was in conditions that changed its dimensions. An increase in the elastic expansion shows a decrease in the average wall thickness.

8. Cartridge Examination and Test

- A. Do the examinations and tests of the cartridge as specified by the Kidde Aerospace Power Device Cartridge Abbreviated Component Maintenance Manual 26-21-34.

9. Minimum Wall Thickness Test

- A. Do the minimum wall thickness test after you remove scratches from the container (refer to REPAIR).
- B. Calibrate the ultrasonic thickness gauge as specified in the manufacturer's operating instructions before you do the test.
- C. Measure the thickness of the container wall with the ultrasonic thickness gauge. Refer to Table 1, Specified Data for the applicable minimum wall-thickness

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dimension. Discard containers when the wall thickness is less than the specified wall-thickness dimension.

10. Weight Check

- A. Refer to Kidde Aerospace Service Information Letter (SIL) 96-2 for recommendations for the weight check interval. The paragraphs that follow give the necessary instructions. Refer to Table 1, Specified Data for the permitted cumulative weight-loss-limit.
- B. The container has an identification plate. The "TOTAL WT (ACTL)" indicated on this plate is for a filled container with the discharge heads and cartridges removed.
- C. Kidde Aerospace recommends that you weigh the container with the discharge heads and cartridges removed so that a cartridge will not be fired accidentally. The anti-recoil cap must be installed in the swivel nut to prevent damage to a disc assembly when you move or weigh the container.
- D. Weigh the container as follows:

WARNING: A SHUNT DEVICE OR PROTECTION CAP MUST BE INSTALLED ON THE CARTRIDGE ACTUATOR BEFORE YOU TOUCH IT. THE CARTRIDGE ACTUATOR IS AN EXPLOSIVE DEVICE AND IS DANGEROUS TO PERSONS. IF YOU TOUCH A CARTRIDGE WITHOUT THIS DEVICE INSTALLED, IT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT. DO NOT USE FOIL AS A SHUNT.

- (1) If installed, remove the cartridges and discharge heads from the container.

WARNING: IF THE DISCHARGE HEAD IS NOT INSTALLED, MAKE SURE THAT AN ANTI-RECOIL CAP IS ALWAYS INSTALLED ON THE CONTAINER SWIVEL NUT. THIS WILL PREVENT THE POSSIBILITY OF DAMAGE TO A DISC ASSEMBLY AND ACCIDENTAL RELEASE OF THE CONTENTS OF THE CONTAINER. ACCIDENTAL RELEASE OF THE PRESSURE IN THE CONTAINER IS DANGEROUS TO PERSONS.

- (2) Install the anti-recoil cap in each swivel nut. Tighten the cap with your hand.
- (3) Put the container on the scale. Weigh and record this weight.
- (4) Remove the container from the scale.
- (5) Compare the total filled container weight you got in step (3) to the last "TOTAL WT (ACTL)" written on the identification plate.
- (6) If the weights are the same, the container does not leak. If the weights are not the same, subtract the weight you got in step (3) from the last weight written on the identification plate.

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- (7) If the difference is more than the permitted weight loss in Table 1, Specified Data, you must repair the container. Refer to Table 102, Fault Isolation for the probable causes and necessary repairs.

WARNING: ISOPROPYL ALCOHOL IS FLAMMABLE AND POISONOUS. KEEP AWAY FROM OPEN FLAME AND DISPOSE OF ALCOHOL-SOAKED RAGS SAFELY. DO NOT DRINK THE ALCOHOL.

- (8) If the weight is satisfactory, remove the date from the "LAST WT INSPECTION" block on the identification plate with alcohol and a lint-free cloth.
- (9) Write the date you weighed the container on the identification plate. Refer to ASSEMBLY.

11. Fault Isolation

- A. If a component fails a test, refer to Table 102 for the probable cause(s) and necessary actions.

Table 102. Fault Isolation Data

TROUBLE	PROBABLE CAUSE	CORRECTIVE ACTION
Container is nicked, dented or damaged.	Incorrect handling	Refer to CHECK.
Pressure switch fails test.	Defective switch	Discard the switch.
Container leaks.	Loose or defective pressure switch	Repair the switch flange, weld or replace switch.
	Defective disc assembly	Replace the disc assembly.
	Damaged or defective container	Discard the container.
Container permanent volumetric expansion is more than 10%.	Container walls too thin	Discard the container.
Container wall thickness less than minimum wall thickness.	Incorrect handling, corrosion, too much pressure	Discard the container.

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DISASSEMBLY

1. General

- A. Do an examination of the container before you disassemble it. Refer to CHECK.
- B. Disassemble the container in the sequence given. See the IPL figure for the location of the parts.

2. Equipment and Materials

- A. The equipment and materials that are necessary to disassemble the container are given in Table 301. Refer to the SPECIAL TOOLS, FIXTURES, EQUIPMENT AND CONSUMABLES section for the specifications and where to get the necessary tools.

NOTE: You can use equivalent alternatives for the items given in the table.

Table 301. Disassembly Equipment and Materials

DESCRIPTION	PART NUMBER
Recharge Stand	WT-02453
Charging Adapter	WT-01662
Lockpin Handle	WT-00489-6
Cartridge Shunt	324477
Protection (Anti-Recoil) Caps	214583
Proof Booth, Explosion Proof	WT-00689
Vise Station, Air-Operated	510-010
Retainer Torque Adapter	T-260674-01
Tool Holder, Disc Assembly Weld-Machining Tool	161-6003-400
Cutter, Disc Assembly Weld-Machining Tool	161-6003-7
Fill Plug Weld-Machining Tool	T-05640-6
Pressure Gauge Weld-Machining Tool	WT-01916

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DESCRIPTION	PART NUMBER
Heat Gun	None
Blind Hole Puller Set	None

3. Preparation

- A. Set-up the recharge stand as specified in the instructions supplied by the manufacturer of the recharge stand.

4. Cartridge and Discharge Head

WARNING: A SHUNT DEVICE OR PROTECTION CAP MUST BE INSTALLED ON THE CARTRIDGE ACTUATOR BEFORE YOU TOUCH IT. THE CARTRIDGE ACTUATOR IS AN EXPLOSIVE DEVICE AND IS DANGEROUS TO PERSONS. IF YOU TOUCH A CARTRIDGE WITHOUT THIS DEVICE INSTALLED, IT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT. DO NOT USE FOIL AS A SHUNT.

- A. If installed, remove the cartridge from the discharge head.
B. Look through the hole in the top of the discharge head. If the disc assembly is broken, the container is empty. Continue to paragraph 6.

WARNING: IF THE DISCHARGE HEAD IS NOT INSTALLED, MAKE SURE THAT AN ANTI-RECOIL CAP IS ALWAYS INSTALLED ON THE CONTAINER SWIVEL NUT. THIS WILL PREVENT THE POSSIBILITY OF DAMAGE TO A DISC ASSEMBLY AND ACCIDENTAL RELEASE OF THE CONTENTS OF THE CONTAINER. ACCIDENTAL RELEASE OF THE PRESSURE IN THE CONTAINER IS DANGEROUS TO PERSONS.

- C. If a disc assembly is not broken, the container is not empty. Remove the discharge head and install the protection cap in the swivel nut. Continue to paragraph 5.

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5. Container Contents

WARNING: DO ALL WORK ON PRESSURIZED EQUIPMENT IN AN EXPLOSION PROOF BOOTH OR BEHIND AN APPLICABLE BARRIER. IT IS DANGEROUS TO PERSONS IF THE PRESSURE IS RELEASED ACCIDENTALLY. THE PROOF BOOTH MUST BE EQUIPPED WITH A PRESSURE RELIEF VALVE WITH A SET POINT OF 110% OF THE PRESSURE USED.

- A. Cut the weld on the fill plug as specified in paragraph 9, steps A thru F only. DO NOT do step 9.G at this time.
- B. Make sure that all recharge stand valves are closed.
- C. Connect the charging adapter to the fill plug.

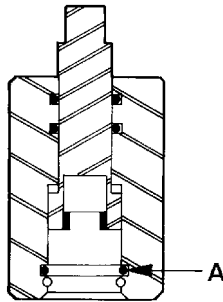


Figure 301. Charging Adapter

- D. Use the lockpin handle to keep the charging adapter in position.
- E. Turn the container to point the charging adapter down.
- F. Slowly turn the charging adapter one full turn counterclockwise.
- G. Open recharge stand valve D and fully remove all of the contents from the container.

NOTE: The effect of the Montreal Protocol and the U.S. Environmental Protection Agency's Clean Air Act of 1990 is to ban the release of halon into the atmosphere unless it is necessary. In compliance with the preceding, Kidde Aerospace recommends that the extinguishing agent be caught and used again.

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- H. Close recharge stand valve D when the container is empty.
- I. Loosen the fill plug with the charging adapter. Use the charging adapter to remove the fill plug from the fill fitting.
- J. Remove the lockpin handle from the charging adapter.
- K. Remove the charging adapter from the fill plug.

6. Retainer, Gasket and Swivel Nut

- A. Install the container in the vise station with the necks pointed up.
- B. Remove the anti-recoil caps from the swivel nuts.

CAUTION: TO PREVENT DAMAGE TO THE RETAINER, THE RETAINER TORQUE ADAPTER MUST BE AGAINST THE RETAINER.

- C. Use the retainer torque adapter to remove the retainer.
- D. Remove the gaskets and the swivel nuts from the container outlets. Discard the gaskets.

7. Disc Assembly

- A. Cut the fused portion of discharge outlet and disc assembly with the disc assembly weld-machining-tool as follows:
 - (1) Put the cutter (Figure 302, 2) into the guide bushing (1) and install the guide bushing and cutter assembly on the outlet on the container.
 - (2) Attach a low speed drill press or hand drill motor to the shank of the cutter and lower the cutter until it touches the joint.
 - (3) Adjust the drill press to let the cutter go approximately 0.050 in. (0.127 cm) into the weld joint.
 - (4) Turn the drill press at 60 to 80 rpm until the joint is broken. Use cutting oil during the machining operation.

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- (5) Remove the drill press, guide bushing and cutter assembly. Look at the weld and make sure that the joint is broken.

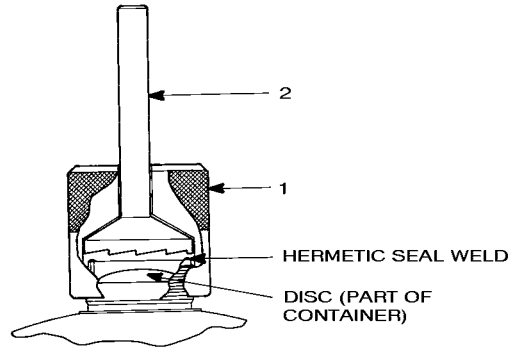


Figure 302. Disc Assembly Weld-Machining Tool

- B. Use a blind hole puller or equivalent tool to remove the disc assembly from the neck. Discard the disc assembly.

NOTE: If you do a hydrostatic test of the container, you must remove each disc assembly.

8. Pressure Gauge

- A. Put the container in the vise station with the pressure gauge pointed up.
- B. Remove the three screws and the guard from the container. Discard the screws.
- C. Remove the pressure gauge from the container with the pressure gauge weld-machining-tool as follows:
- (1) Loosen the set screws and move the two halves of the pressure gauge weld-machining-tool (Figure 303) apart.
 - (2) Put the two halves of the of the tool around the pressure gauge and the fitting. Tighten the set screws.
 - (3) Adjust the cutter with the thumbscrew on the tool until the cutter touches the weld area of the gauge and fitting flanges.
 - (4) Carefully cut the weld around the flange until the weld joint is broken. Do not let the cutter go more than 0.040 in. (0.102 cm) into the weld joint.

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- (5) Loosen the set screws and remove the tool. Look at the weld and make sure that the joint is broken. If the joint is not broken, do steps (2) thru (4) until the joint is broken.
- (6) Remove the pressure gauge and shims from the gauge fitting. Discard the shims.

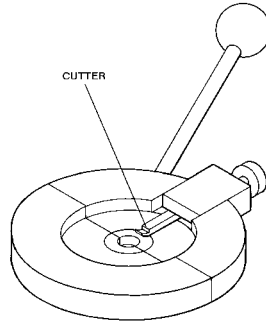


Figure 303. Pressure Gauge Weld-Machining Tool

9. Fill Plug

- A. Put the container in the vise station with the fill plug pointed up.
- B. Put the feed bushing (Figure 304, 2) on the fill fitting and tighten the set screws.

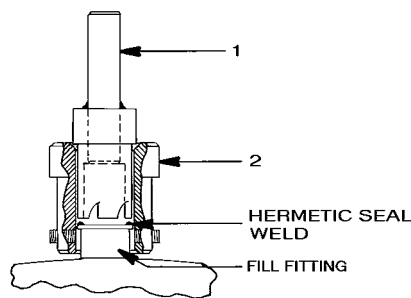


Figure 304. Fill Plug Weld-Machining Tool

- C. Attach a low speed drill press or hand drill motor to the shank end of the cutter.
- D. Adjust the depth of the drill press to 0.040 inch (0.102 cm).

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- E. Operate the drill press from 60 to 80 rpm until the weld joint breaks. Use cutting oil during the machining operation.
- F. Loosen the set screws and remove the guide and cutter feed bushing. Look at the weld and make sure it is cut.
- G. Loosen the set screws and remove the guide and cutter feed bushing. Look at the weld and make sure it is cut.

WARNING: YOU MUST REMOVE THE CONTENTS OF THE CONTAINER BEFORE YOU REMOVE THE FILL PLUG. IF THE CONTAINER IS FULL, YOU WILL RELEASE THE PRESSURIZED CONTENTS. ACCIDENTAL RELEASE OF THE PRESSURE IN THE CONTAINER IS DANGEROUS TO PERSONS.

- H. Use the charging adapter to loosen and remove the fill plug. Keep the fill plug for assembly.

10. Discharge Head

- A. If necessary, remove the debris screen from the discharge head body.

NOTE: If the container was discharged by operation of a cartridge, you must disassemble and clean the discharge head as specified in CLEANING.

11. Labels and Plates

- A. Use a heat gun to make the adhesive soft; then remove the label or plate from the container.

12. Close Out

- A. Remove the container from the vise station.
- B. Clean the surface of the container. Refer to CLEANING.

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CLEANING

1. General

- A. This section gives the necessary instructions to clean the container and gives the materials to use. You can use equivalent materials.
- B. You must fully clean all openings on removed parts. Put protection caps and plugs on the openings before you touch, keep, or move the parts.
- C. Clean the container only to remove unwanted materials.

2. Equipment and Materials

- A. The equipment and materials necessary to clean the container are given in Table 401. Refer to the SPECIAL TOOLS, FIXTURES, EQUIPMENT AND CONSUMABLES section for the specifications and where to get the items.

NOTE: You can use equivalent alternatives for the items given in the table.

Table 401. Cleaning Equipment and Materials

EQUIPMENT OR MATERIAL	PART NUMBER OR SPECIFICATION
Ethanol (Ethyl Alcohol)	None
Nitrogen or Clean, Dry Air	None
Isopropyl Alcohol	None
Cleaning Cloth	CCC-C-46
Protection (Anti-Recoil) Caps	214583

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3. Cleaning Procedure

WARNING: OBEY THE PRECAUTIONS THAT FOLLOW WHEN YOU USE SOLVENTS. SOLVENTS ARE DANGEROUS BECAUSE THEY CAN BE FLAMMABLE, POISONOUS, AND CAN CAUSE INJURY.

- USE APPROVED EYE AND BODY PROTECTION.
- DO THE WORK IN AN AREA THAT HAS A GOOD FLOW OF CLEAN AIR.
- MAKE SURE THAT THE AREA HAS NO SPARKS, FLAMES, OR HOT SURFACES.
- DO NOT LET THE SOLVENT TOUCH YOUR SKIN, EYES, OR MOUTH.
- GET MEDICAL AID IMMEDIATELY IF IRRITATION OCCURS.
- OBEY ALL THE LOCAL HEALTH AND SAFETY PRECAUTIONS AND REGULATIONS.

A. Clean metal parts with ethanol or an equivalent cleaning solvent.

WARNING: CONCENTRATION OF COMPRESSED AIR OR UNWANTED MATERIAL MOVED BY COMPRESSED AIR CAN CAUSE INJURY TO PERSONS. ALWAYS POINT COMPRESSED AIR AWAY FROM PERSONS. USE APPLICABLE EYE PROTECTION TO PREVENT INJURY TO YOUR EYES.

- B. Use clean, dry compressed air or nitrogen at a maximum pressure of 30 psi (207 kPa) to dry the parts, or dry with clean, lint-free cloth.
- C. Clean parts that are not metal and electrical components with a dry, clean, lint-free cloth.

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CHECK

1. General

A. This section gives the procedures and equipment necessary to do an examination of the container to find damage and to make sure that the repair has been done correctly.

2. Check Equipment

A. The equipment necessary to do examinations of the container are given in Table 501. Refer to the SPECIAL TOOLS, FIXTURES, EQUIPMENT AND CONSUMABLES section for the specifications and where to get the items. All calibrated equipment must have a current calibration approval.

NOTE: You can use equivalent alternatives for the items given in the table.

Table 501. Check Equipment

DESCRIPTION	PART NO.
Borescope Kit	BFO10555AK
Halogen Light	AIL-115
Fiber Optic Light Carrier	FC-6
Ultrasonic Thickness Gauge	T-Mike 3000 or T-Mike E

3. Check Data

A. Use the equipment in Table 501, the data in Table 502 and the procedures to do the checks.

Table 502. Check Data

ITEM	TYPE OF CHECK	CHECK	NECESSARY DATA
Container	Dimensional	Minimum wall thickness	0.040 in. (0.102 cm)
Container External Surface	Visual	Bulges, nicks, weld cracks	No bulges, nicks, weld cracks

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ITEM	TYPE OF CHECK	CHECK	NECESSARY DATA
	Dimensional	Scratches	No scratches deeper than 0.004 in. (0.010 cm) or longer than 2.000 in. (5.080 cm)
	Dimensional	Gouges	No gouges deeper than 0.004 in. (0.010 cm)
	Visual	Loose or missing components	No loose or missing components
	Visual	Fire damage, signs container was too hot	No fire or heat damage
Container Internal Surface	Visual	Moisture, chips, oil, or other contamination	None allowed
	Visual	Cracks, pits, corrosion	None allowed
Neck	Visual	Thread damage	No damaged threads
	Dimensional	Minimum fitting height	Refer to paragraph 8
Gauge Fitting	Dimensional	Minimum diameter	0.800 in (2.032 cm)
Fill Fitting	Visual	Thread damage	No damaged threads
	Dimensional	Minimum fitting height	Refer to paragraph 9
Pressure Gauge Connector	Visual	Bent, broken pins, damaged threads	No bent, broken pins, or damaged threads
	Visual	Corrosion, dirt	No corrosion or debris
Discharge Head	Visual	Corrosion or pitting	No corrosion or pitting
Pressure Gauge	Visual	Vent hole	Vent hole must be covered

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ITEM	TYPE OF CHECK	CHECK	NECESSARY DATA
Gauge Guard	Visual	Cracks, bends, warps, distorted screw holes	No damage you can see
Retainer	Visual	Cracks, damaged threads	No damage
Swivel Nut	Visual	Cracks, damaged threads	No damage
Identification Plate, Labels	Visual	Legibility	No damage

4. Definitions

A. The definitions that follow are applicable to this section.

(1) Minimum Allowable Wall Thickness

(a) The minimum wall thickness is that thickness of the container metal given by the specification used to make the container.

(2) Dents

(a) Dents are deformations of the container caused by a blunt object and do not cause the wall thickness to be decreased.

(3) Cuts, Gouges, Digs and Scratches

(a) These are damage which cause loss of wall thickness and are caused by sharp objects that cut into the metal.

(4) Corrosion

(a) Corrosion is the loss of thickness by some corrosive effect. It usually shows as general corrosion or pitting corrosion.

(b) General corrosion shows a uniform loss of wall thickness in a large area.

(c) Pitting corrosion can be small and localized or large and scattered.

(d) Line corrosion is a series of pits closely spaced which appear to be "in line". This condition is more serious than isolated pitting.

(5) Bulges

(a) Bulges are irregular surface dimensions on part of the container. Most containers are made with an almost symmetrical shape. Bulges usually

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occur because of too much pressure or because the container became too hot.

5. External Surface Examination

- A. Visually examine the container for damage, dents, scratches, gouges, nicks, weld cracks and loose or missing components.
- B. Use the data in Compressed Gas Association (CGA) Pamphlet C-6 to determine if you must accept or reject containers that have dents. The paragraphs (1) thru (3) below are CGA's description of limits of dents in containers:
 - (1) Dents. Dents are of concern where the metal deformation is sharp and confined, or where it is near a weld. Where metal deformation is not sharp, dents of larger magnitude can be tolerated.
 - (2) Dents at Welds. Where denting occurs so that any part of the deformation includes a weld, the maximum allowable dent depth shall be 0.25 in. (6.35 mm). Depth should be measured on a longitudinal plane.
 - (3) Dents Away from Welds. Where denting occurs so that no part of the deformation includes a weld, the container shall be rejected if the depth of the dent is greater than one-tenth of the greatest dimension of the dent.
- C. You must discard containers that have:
 - Bulges
 - Scratches deeper than 0.004 in. (0.010 cm), or longer than 2.000 in. (5.080 cm)
 - Gouges deeper than 0.004 in. (0.010 cm)
 - Nicks deeper than 0.004 in. (0.010 cm)
 - Weld cracks or breaks
 - Fire damage or signs that the container was near too much heat
- D. You must repair containers with damage in the permitted limits. Refer to REPAIR.
- E. You must repair or replace missing or loose components as necessary.

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6. Internal Surface Examination

- A. Use a borescope with the fiber optic light carrier and halogen light to examine the internal surface of the container for moisture, chips, oil or other unwanted material. You can use a mirror and light as alternate equipment to do the examination.

WARNING: CONCENTRATION OF COMPRESSED AIR OR UNWANTED MATERIAL MOVED BY COMPRESSED AIR CAN CAUSE INJURY TO PERSONS. ALWAYS POINT COMPRESSED AIR AWAY FROM PERSONS. USE APPLICABLE EYE PROTECTION TO PROTECT YOUR EYES.

- B. Remove unwanted materials from the internal surface of the container with clean, dry, oil-free nitrogen at a maximum pressure of 30 psi (207 kPa).
- C. Visually examine the internal surface of the container for damage. Replace a container that has:
- Cracks
 - Elongated pits of any length
 - Much localized pitting
 - Corrosion

7. Threads

- A. Visually examine the threads on the neck, fill, and pressure gauge fittings for damage or burrs. If you find damage, refer to REPAIR.

8. Minimum Height of Neck Fitting

- A. Measure the neck for a minimum height of 0.060 inch (0.152 cm) to let you install a new disc correctly. Reject containers with less than the minimum permitted height. See Figure 501.

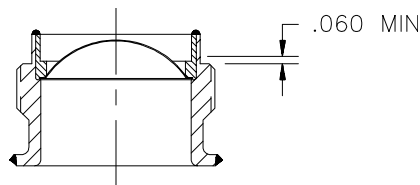


Figure 501. Minimum Neck Height

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9. Minimum Height of Fill Fitting

- A. Measure the fill fitting for a minimum height of 0.290 inch (0.737 cm) to let you install a new filler plug correctly. Reject containers with less than the minimum permitted height. See Figure 502.

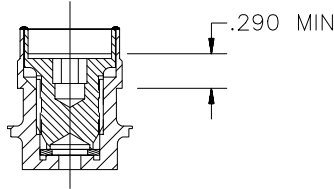


Figure 502. Minimum Fill Fitting Height

10. Pressure Gauge Fitting

- A. Measure the diameter of the pressure gauge fitting for a minimum diameter of 0.800 in. (2.032 cm). This is the minimum diameter necessary for correct installation of the pressure gauge. If the diameter is less than this dimension, refer to REPAIR.

11. Pressure Gauge and Guard

- A. Examine the connector on the pressure gauge for bent, broken, or missing pins. Replace the gauge if you find damage.
- B. The body of the pressure gauge has a vent hole. The vent hole is covered with tape. If you can see the vent hole, replace the pressure gauge.
- C. Examine the pressure gauge for unwanted materials or corrosion. Clean the gauge as necessary.
- D. Examine the pressure gauge for damaged threads. Replace the gauge if you find damage.
- E. Examine the gauge guard for cracks, warps, bends, or damaged screw holes. Replace the guard if you find damage.

12. Retainer and Swivel Nut

- A. Examine the retainer and swivel nut for cracks or thread damage. Replace damaged parts.

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13. Discharge Head

- A. Examine the discharge head for cracks, thread damage, corrosion or pitting. Clean or replace the discharge head as necessary.
- B. Examine the debris screen for cracks. Replace a cracked screen.

14. Labels and Plates

- A. Examine all labels or plates installed on the container. Make sure you can read all the data. Replace a damaged label or plate.

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REPAIR

1. General

A. This section gives the data and procedures to repair the container. Also, the items that cannot be repaired and must be replaced, are identified.

2. Equipment and Materials

A. The special tools and materials that are necessary to do repairs of the container are given in Table 601. Refer to the SPECIAL TOOLS, FIXTURES, EQUIPMENT AND CONSUMABLES section for the specifications and where to get the necessary tools and materials.

NOTE: You can use equivalent alternatives for the items given in the table.

Table 601. Repair Equipment and Materials

DESCRIPTION	PART NO.
Tungsten Inert Gas Welder	None
Tap and Die Set	None
Thread Gauge	None
Steel, CRES, 304L	None
Vertical Milling Machine	None
Fly Cutter	None
Lathe	None
Sandpaper, 320 Grit	None
Alcohol, Isopropyl	None
Dye Penetrant Kit	None
Protection (Anti-Recoil) Caps	214583

3. Definitions

A. **REPAIRABLE:** An item that is made serviceable when you weld, grind, crimp, thread or replace one or more components.

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- B. REPLACEABLE: An item that is repaired only by removal and replacement with a new component.
- C. NON-REPAIRABLE: An item that cannot be made serviceable by replacement of components or by any other standard repair method.
- D. DAMAGED: An item that has been used incorrectly or has been broken when hit by another object.
- E. DEFECTIVE: An item that does not operate correctly during usual operation because of a structural, electrical, or mechanical malfunction.
- F. USED: An item that has been used and cannot be used again until the contents or components are filled or replaced.

4. Threads

- A. Get a tap or die of the correct thread size.
- B. Put the tap or die into or onto the threads to be repaired.
- C. Put cutting oil on the threads.
- D. Turn the tap or die into or on the threads, then remove the tap or die.
- E. Remove the oil and cuttings from the threads as specified in CLEANING.
- F. Use an applicable thread gauge and measure the threads for the correct major, minor, and pitch diameters as specified in FED-STD-H28A. Discard the part if the threads are not equal, are chipped, or have incorrect diameters.

NOTE: The applicable thread sizes are given in DESCRIPTION AND OPERATION, Table 1, Specified Data.

5. Container External Surface

- A. Use 320 grit minimum sandpaper to remove any scratches and gouges in the permitted limits specified in CHECK.
- B. After the repair is complete, do the minimum wall thickness check and hydrostatic test specified in TESTING AND FAULT ISOLATION.

6. Pressure Gauge Fitting Flange

CAUTION: DO NOT REPAIR THE FITTING IF THE BOSS IS MACHINED BELOW 0.750 INCH (1.905 CM). RETURN THE CONTAINER TO THE MANUFACTURER FOR REPAIR.

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- A. The flange of the fitting can be damaged or unusable after many removals of the pressure gauge. This procedure gives instructions to replace the flange on the gauge fitting.

NOTE: This repair is NOT necessary if the flange has a diameter of 0.800 in. (2.032 cm) or greater.

- (1) Disassemble the container to the level necessary to do the repair (refer to DISASSEMBLY).
- (2) Put protection cap on the outlet to protect the disc assembly.
- (3) Install an applicable aluminum plug in the fitting. The plug will keep unwanted materials out of the container and is also a heat sink.

NOTE: Install the plug so there is sufficient clearance to machine the fitting.

CAUTION: MAKE SURE THAT THE CONTAINER IS CORRECTLY HELD BEFORE YOU REPAIR THE FITTING. THIS WILL PREVENT DAMAGE TO THE CONTAINER, EQUIPMENT, OR INJURY TO PERSONS.

- (4) Machine the flange of the fitting to the tolerances given in Figure 601 with a vertical milling machine and a fly cutter.

WARNING: ISOPROPYL ALCOHOL IS FLAMMABLE AND POISONOUS. KEEP AWAY FROM OPEN FLAME. WEAR GLOVES AND EYE PROTECTION TO PREVENT INJURY. DO NOT DRINK THE ALCOHOL.

- (5) After you machine the flange, remove the cutting oil from the external surface of the container with alcohol.
- (6) Make a new flange washer with the dimensions and materials given in Figure 601.
- (7) Put the new "washer" flange on the machined pressure-gauge fitting with the chamfered side up. Make sure that the washer is in the center of the flange.
- (8) Use a Tungsten Inert Gas (TIG) welder, set to 25 to 35 amperes maximum, to attach (tack weld) the washer to the flange in three (3) places. See Figure 601.

NOTE: Make sure that the washer stays aligned with the flange on the fitting while you weld the washer to the fitting.

- (9) Fuse weld the washer to the fitting.

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NOTE: If a blowout occurs, re-fuse the blowout area to prevent leakage. Make sure you do not use too much amperage while you weld the washer to the fitting.

- (10) Examine the weld and make sure the weld is flush with the flange surface. If the weld is not flush with the flange surface, refinish the surface.
- (11) Do a test of the weld area with the dye penetrant kit.

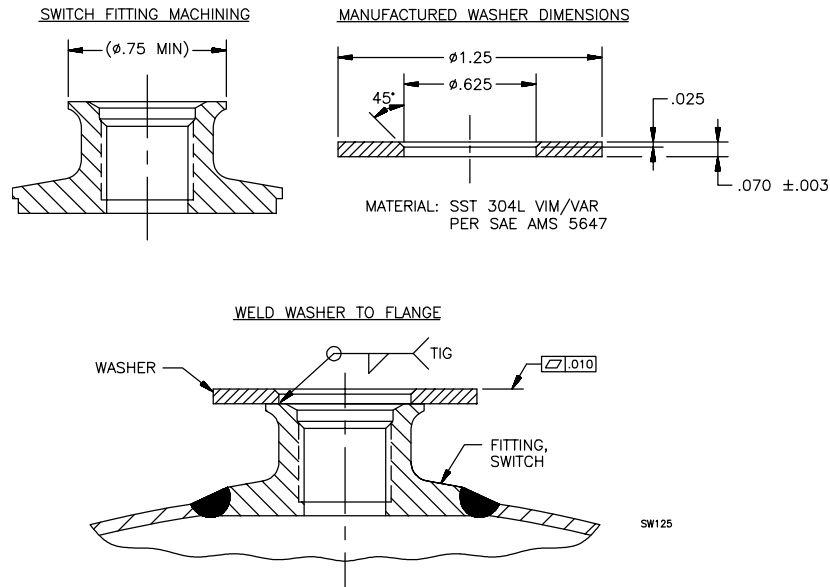


Figure 601. Repair of Pressure Gauge Fitting

7. Replacement

- A. Replace all damaged, defective and used items that are not repairable. Refer to ASSEMBLY.
- B. Replace all gaskets or packings that were removed during disassembly or repair.
- C. Replace the disc assembly if it has scratches, burrs, distortions or cracks. Do not install any disc assembly that has scratches, burrs, distortions, or cracks.
- D. Replace the weight data after you fill the container.

8. Retest

- A. After you complete the repairs, fill the container and do the halide leak test. Refer to TESTING AND FAULT ISOLATION.

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ASSEMBLY

1. General

CAUTION: ONLY KIDDE AEROSPACE MANUFACTURED/SUPPLIED SPARE PARTS AND COMPONENTS SHALL BE USED IN ACCORDANCE WITH THIS CMM.

- KIDDE AEROSPACE HAS NOT APPROVED ANY COMPONENTS OR SUBSTITUTE PARTS OF ANY KIND, OTHER THAN THOSE LISTED WITHIN THIS CMM. THE USE OF ANY SPARE PART OR COMPONENT OTHER THAN THOSE SPECIFIED WITHIN THIS CMM IS NOT AUTHORIZED BY KIDDE AEROSPACE AND REPRESENTS **NONCOMPLIANCE** WITH THE PROCEDURES DEFINED IN THIS CMM.
- THE USE OF NON-KIDDE AEROSPACE PARTS WILL VOID ANY AND ALL WARRANTIES. KIDDE AEROSPACE WILL NOT ACCEPT RESPONSIBILITY OR LIABILITY FOR ANY PMA OR OTHER SUBSTITUTE PARTS OF ANY KIND, OTHER THAN KIDDE AEROSPACE MANUFACTURED/SUPPLIED PARTS; NOR WILL KIDDE AEROSPACE ACCEPT RESPONSIBILITY OR LIABILITY FOR ANY OF THE KIDDE AEROSPACE END ITEM PRODUCTS THESE PARTS ARE INSTALLED ON/IN.
- FURTHERMORE KIDDE AEROSPACE INDEMNIFIES AND HOLDS ITSELF HARMLESS FROM ANY PERFORMANCE CLAIM OR EXPECTATION, AND ANY FAILURE AND/OR CONSEQUENCE THEREOF ASSOCIATED WITH THE FUNCTIONALITY AND PERFORMANCE OF KIDDE AEROSPACE PRODUCTS WHEN/IF NON-KIDDE AEROSPACE PMA OR SUBSTITUTE PARTS OF ANY KIND ARE USED ON/IN KIDDE AEROSPACE PRODUCTS.

A. This section gives the assembly procedures, the sequence of assembly and the materials necessary to assemble components. Always assemble components in the specified sequence. Ignore the assembly instructions for components that were not disassembled or removed. See the Illustrated Parts List (IPL) for the location of the parts.

2. Equipment and Materials

A. The special tools and materials that are necessary to assemble the container are given in Table 701. Refer to the SPECIAL TOOLS, FIXTURES, EQUIPMENT AND

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CONSUMABLES section for the specifications and where to get the necessary tools and materials. The necessary parts are given in the IPL.

NOTE: You can use equivalent alternatives for the items given in the list.

Table 701. Assembly Equipment and Materials

MATERIAL/EQUIPMENT	PART NO.
Bromotrifluoromethane (CBrF ₃)	ASTM D5632, Type II (No Substitutions)
Nitrogen (N ₂)	None
Alcohol, Isopropyl	DLA O-E-760D
Thermometer, Fahrenheit or Celsius	None
Loctite 325	32530 (50 ml tube) 32555 (100 ml tube)
Loctite 7387	18861
Locquic Primer Grade T	22477
Loctite Grade B	8531
Ink, Marking, Black, Quick Drying	None
Lacquer, Acrylic, Clear	None
Grease, Pneumatic	Versilube G-300, G-351, or G-321
SEAMTEST Concentrate	None
Halon Warning Label	325217
Recharge Stand	WT-02453
Charging Adapter	WT-01662
Lockpin Handle	WT-00489-6
Cartridge Shunt	324477
Protection (Anti-Recoil) Caps	214583
Proof Booth, Explosion Proof	WT-00689
Vise Station, Air-Operated	510-010
Tool Holder, Disc Assembly Weld-Machining Tool	161-6003-400
Cutter, Disc Assembly Weld-Machining Tool	161-6003-7
Fill Plug Weld-Machining Tool	T-05640-6
Pressure Gauge Weld-Machining Tool	WT-01916
Retainer Torque Adapter	T-260674-01
Chill Block and Protector Tool	WT-00198-7

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MATERIAL/EQUIPMENT	PART NO.
Halide Leak Detector	H-25C
Halide Leak Standard	LS-20
Tungsten Inert Gas (TIG) Welder	None
Torque Wrench, lbf in.	None
Torque Wrench, lbf ft	None
Brush, Wire, Stainless Steel	None

3. Preparation

WARNING: IF NECESSARY, DO THE HYDROSTATIC TEST BEFORE ASSEMBLY. THIS WILL PREVENT POSSIBLE INJURY CAUSED BY CONTAINERS THAT BREAK OPEN.

WARNING: CONCENTRATION OF COMPRESSED AIR OR UNWANTED MATERIAL MOVED BY COMPRESSED AIR CAN CAUSE INJURY TO PERSONS. ALWAYS POINT COMPRESSED AIR AWAY FROM PERSONS. USE APPLICABLE EYE PROTECTION TO PREVENT INJURY TO YOUR EYES.

- A. Clean the internal surface of the container with clean, dry, oil-free nitrogen or air at a maximum pressure of 30 psi (207 kPa).

4. Disc Assembly

- A. Clean the disc assembly. Refer to CLEANING.

NOTE: When you clean the disc assembly, be careful not to remove the manufacturer's data.

- B. Install the disc assembly in the container neck.
- C. Make sure the mounting ring of the disc assembly is flush with the container neck.
- D. If the disc-assembly is not flush, use the disc-assembly weld-machining tool to machine the disc-assembly mounting-ring until it is flush with the container neck.
- E. Use a tungsten inert gas (TIG) welder and the straight fusion weld procedure to weld the disc assembly to the neck as follows:
 - (1) Put the chill block and protector tool on the disc assembly so that the disc assembly will not become too hot.

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- (2) Tack weld the disc assembly at three equally spaced locations to hold the disc assembly in position.

NOTE: Do not operate the welder at more than 25 amps.

- (3) Fuse-weld the edge of the joint around the circumference of the disc assembly. You must not use filler wire.
- F. Remove the chill block and protector tool.
- G. Measure the outside diameter of the neck at the weld. Make sure that the diameter of the neck is not more than 1.375 to 1.385 in (3.493 to 3.518 cm).
- H. Remove any weld discolorations with a stainless steel wire brush.
- I. Do steps A thru H for the other neck(s).

5. Swivel Nut, Gasket and Retainer

- A. Put the container in the vise station with the necks pointed up.
- B. Put the nylon gaskets in the swivel nuts.
- C. Put the swivel nuts on the container necks with the threads up.
- D. Apply a thin layer of G-300, G-321 or G-351 grease on the threads of the retainers.
- E. Put the retainers on the container necks.

CAUTION: TO PREVENT DAMAGE TO THE RETAINER, THE RETAINER TORQUE ADAPTER MUST BE AGAINST THE RETAINER.

- F. Use the retainer torque adapter to torque the retainers to 80 to 100 lbf ft (108,48 to 135,60 N•m).
- G. Install the anti-recoil caps in the swivel nuts. Tighten the caps with your hand.

6. Fill Plug

- A. Temporarily put the fill plug in the container fill fitting. Tighten the fill plug with your hand.
- B. Make sure the flange of the fill plug is flush with the fill-fitting flange.
- C. If the fill plug is not flush, remove unwanted material from the fill-plug flange. Use the fill-plug weld-machining tool to machine the fill plug flange until it is flush with the fill-fitting flange. Refer to DISASSEMBLY.
- D. Remove and clean the fill plug. Refer to CLEANING.
- E. Apply a thin layer of grease to the seal gasket.
- F. Apply a thin layer of grease to the threads of the fill plug.

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- G. Install the seal gasket in the fill fitting.
- H. Install the fill plug in the fill fitting. Tighten the fill plug with your hand.

7. Pressure Gauge

WARNING: ISOPROPYL ALCOHOL IS FLAMMABLE AND POISONOUS. KEEP AWAY FROM OPEN FLAME. WEAR GLOVES AND EYE PROTECTION TO PREVENT INJURY. DO NOT DRINK THE ALCOHOL.

- A. Clean the pressure-gauge-fitting weld area on the container with alcohol and a clean cloth.
- B. Get any combination of shims that have the necessary thickness to align the pressure gauge correctly.

NOTE: When installed, the pivot point of the gauge must be on a centerline between the gauge fitting and the fill fitting.

- C. Put the shims on the pressure gauge and install the pressure gauge in the gauge fitting.
- D. Temporarily put the gauge guard on the container. Make sure the connector is correctly aligned.
- E. Remove the guard and tighten the pressure gauge to a torque of 135 to 150 lbf in. (15,26 to 16,95).

NOTE: Make sure the pressure gauge and shims are fully against the gauge fitting.

- F. Make sure the pressure gauge is correctly aligned. If the alignment is not correct, do the procedure again.
- G. If necessary, use the pressure gauge weld-machining-tool to make the flange of the pressure gauge and the shims flush with the flange of the pressure-gauge-fitting as follows:
 - (1) Loosen the set screws and move the two halves of the pressure gauge weld-machining-tool apart.
 - (2) Put the two halves of the of the tool around the pressure gauge and the fitting. Tighten the set screws.
 - (3) Adjust thumbscrew on the tool until the cutter touches the parts that must be made flush.
 - (4) Carefully turn the pressure gauge weld-machining-tool until the flanges and shims are flush.

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NOTE: Do not remove too much material from either of the flanges.

(5) Loosen the set screws and remove the tool from the fitting.

H. Use a tungsten inert gas (TIG) welder and the straight-fusion-weld procedure. Weld all around the joint between the pressure-gauge flange and the pressure-gauge-fitting flange.

NOTE: Do not operate the welder at more than 25 amps.

I. Remove weld discolorations with a stainless steel brush.

8. Recharge Stand Set-Up

CAUTION: CLOSE ALL SUPPLY CYLINDER VALVES BEFORE YOU SET UP THE RECHARGE STAND.

A. Set-up the recharge stand as specified in the instructions supplied by the manufacturer of the recharge stand.

NOTE: Flush the fire extinguishing agent from the recharge stand before you connect it to the new extinguishing agent supply. If you do not do this, the filled container can have contamination.

NOTE: The figure below shows Kidde Aerospace Recharge Stand WT-02453. You can use an equivalent recharge stand.

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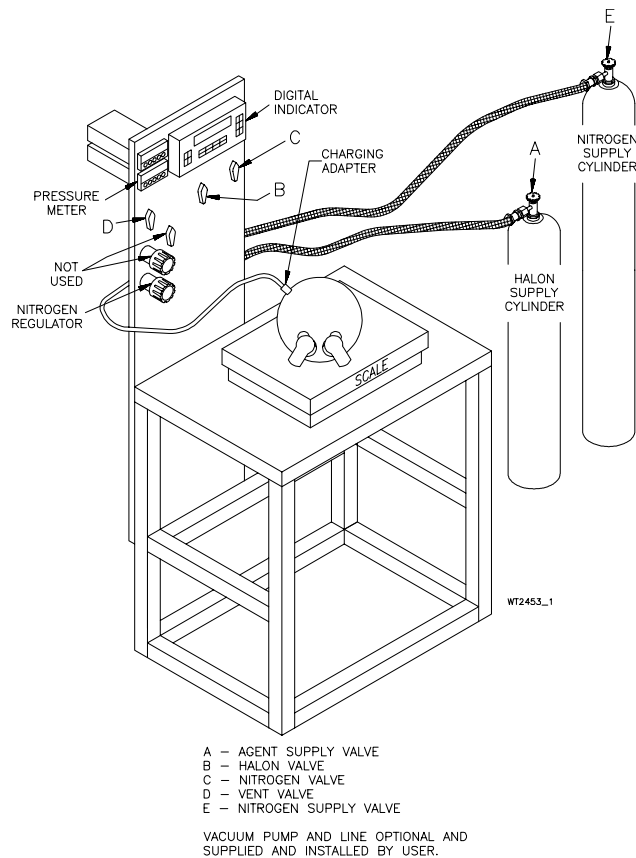


Figure 701. Recharge Stand WT-02453

- B. Install the charging adapter on the flex hose of the recharge stand.
- C. Close all recharge stand and supply cylinder valves.

9. Integrity and Leak Test

WARNING: DO ALL WORK ON PRESSURIZED EQUIPMENT IN AN EXPLOSION PROOF BOOTH OR BEHIND AN APPLICABLE BARRIER. IT IS DANGEROUS TO PERSONS IF THE PRESSURE IS RELEASED ACCIDENTALLY. THE PROOF BOOTH MUST BE EQUIPPED WITH A PRESSURE RELIEF VALVE WITH A SET POINT OF 110% OF THE PRESSURE USED.

- A. After assembly, do the integrity and leak test to make sure the container will correctly keep the extinguishing agent. Do this test in a proof booth or behind an applicable barrier. You will first pressurize the container with 1550 psig (10687

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kPa) of dry, oil-free nitrogen to make sure that the container is serviceable. You will then decrease the pressure to 600 psig (4137 kPa) and do the leak test.

B. Test Setup

- (1) Install anti-recoil caps in the swivel nuts.
- (2) Install the container in a proof booth with the fill plug pointed up.

WARNING: CONCENTRATION OF COMPRESSED AIR OR UNWANTED MATERIAL MOVED BY COMPRESSED AIR CAN CAUSE INJURY TO PERSONS. ALWAYS POINT COMPRESSED AIR AWAY FROM PERSONS. USE APPLICABLE EYE PROTECTION TO PREVENT INJURY TO YOUR EYES.

- (3) Blow out the fill fitting with dry, oil-free nitrogen or air, at a maximum pressure of 30 psi (207 kPa), immediately before you pressurize the container. This will keep the possibility of corrosion caused by moisture in the container to a minimum.
- (4) Attach the charging adapter to the fill plug.
- (5) Use the lockpin handle to lock the charging adapter in position.

C. Procedure

- (1) Turn the charging adapter one full turn counterclockwise.
- (2) Close the proof booth door.
- (3) Open the nitrogen-supply cylinder-valve E and adjust the nitrogen regulator to get sufficient pressure to do the test.
- (4) Open recharge stand valve C and pressurize the container with 1550 psig (10687 kPa) of nitrogen. Keep this pressure for one minute.
- (5) Close recharge stand valve C.
- (6) Slowly open recharge stand valve D and decrease the pressure, at a rate of 100 psig (690 kPa) per minute, to 600 psig (4137 kPa).
- (7) Close recharge stand valve D.
- (8) Open the proof booth door.
- (9) Turn the charging adapter one full turn clockwise.
- (10) Open recharge stand valve D to remove pressure from the recharge stand and lines.
- (11) Close recharge stand valve D.
- (12) Remove the lockpin handle from the charging adapter.
- (13) Remove the charging adapter from the fill plug.
- (14) Remove the anti-recoil caps from the swivel nuts.

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- (15) Apply the SEAMTEST soap solution to all the welded seams on the container, disc assemblies and pressure gauge. If you find leaks, remove the pressure in the container. See DISASSEMBLY. Replace the parts that leak and do the test again.

WARNING: CONCENTRATION OF COMPRESSED AIR OR UNWANTED MATERIAL MOVED BY COMPRESSED AIR CAN CAUSE INJURY TO PERSONS. ALWAYS POINT COMPRESSED AIR AWAY FROM PERSONS. USE APPLICABLE EYE PROTECTION TO PREVENT INJURY TO YOUR EYES.

- (16) Remove all signs of the soap solution and water with dry compressed air at a maximum pressure of 30 psi (207 kPa) before you fill the container.
- (17) Install the anti-recoil caps in the swivel nuts. Tighten the caps with your hand.
- (18) Attach the charging adapter to the fill plug.
- (19) Use the lockpin handle to lock the charging adapter in position.
- (20) Turn the charging adapter one full turn counterclockwise.
- (21) Open recharge stand valve D to remove the nitrogen from the container.
- (22) After the pressure is removed, close recharge stand valve D.
- (23) Turn the charging adapter one full turn counterclockwise.
- (24) Remove the lockpin handle from the charging adapter.
- (25) Remove the charging adapter from the fill plug.

WARNING: WEAR GLOVES. LOCTITE IS POISONOUS.

- D. Put Locquic Primer Grade T and Loctite B on the threads of the screws.
- E. Attach the guard to the container with the screws.
- F. Torque the screws to 5 to 6 lbf in. (0,57 to 0,68 N•m).

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10. Container Fill

A. Do the integrity and leak test before you fill the container.

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CAUTION: MOISTURE CAN CAUSE CORROSION. FULLY DRY THE INTERNAL SURFACE OF THE CONTAINER WITH NITROGEN OR USE A VACUUM PUMP TO REMOVE MOISTURE.

B. Fully dry the fill fitting with dry, oil-free nitrogen or air, at a maximum pressure of 30 psi (207 kPa).

C. Put the empty container on the scale with the fill plug pointed up.

D. Weigh the empty container and record the weight.

NOTE: The empty weight includes the container only. The empty weight does not include the agent, nitrogen, anti-recoil caps, discharge heads and cartridges.

E. Install the charging adapter on the fill plug.

F. Use lockpin handle to lock the charging adapter in position.

G. Turn the charging adapter one full turn counterclockwise.

H. Push TARE to zero the scale.

I. Open the agent-supply cylinder-valve A and recharge stand valve B and fill the container with CBrF₃ (refer to Table 1, Specified Data for the weight of the agent).

J. Close the agent-supply cylinder-valve A and recharge stand valve B.

NOTE: The recharge stand keeps 0.50 to 0.70 lb (0.23 to 0.32 kg) of agent. Make allowance for this or the container will weigh too much after it is pressurized with nitrogen.

K. After the container pressure and temperature become stable, open the nitrogen-supply cylinder-valve E and adjust the nitrogen regulator to the necessary pressure for the ambient temperature given in Table 702.

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Table 702. Pressure-Temperature Properties

Ambient Temperature		Container Pressure	
°F	°C	Psig	kPa
50	10	530	3654
55	13	546	3764
60	16	564	3889
65	18	582	4013
70	21	600	4137
75	24	619	4268
80	27	639	4406
85	29	660	4551
90	32	682	4702
95	35	704	4854
100	38	727	5013
105	41	752	5185
110	43	778	5364

L. Add nitrogen pressure to the container as follows:

- (1) Open recharge stand valve C and monitor the pressure meter until the meter shows the correct pressure.
- (2) Close recharge stand valve C. Lift and shake the container to cause the nitrogen to be absorbed into the CBrF₃.
- (3) Do steps (1) and (2) until the nitrogen is absorbed and the container pressure becomes stable.

NOTE: The container pressure is stable when the indication on the pressure meter does not change when you shake the container.

- (4) Close recharge stand valve C and the nitrogen-supply cylinder-valve E when the pressure meter shows the correct pressure.
- (5) Turn the charging adapter one full turn clockwise to tighten the fill plug.

M. Close-out the fill procedure as follows:

- (1) Open recharge stand valve D to release the pressure.
- (2) Remove the lockpin handle from the charging adapter.
- (3) Remove the charging adapter from the fill plug.
- (4) Remove the container from the recharge stand.

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(5) Remove all signs of moisture from the container.

N. Torque the fill plug to 30 to 35 lbf ft (40,68 to 47,46 N•m).

WARNING: ISOPROPYL ALCOHOL IS FLAMMABLE AND POISONOUS. KEEP AWAY FROM OPEN FLAME. WEAR GLOVES AND EYE PROTECTION TO PREVENT INJURY. DO NOT DRINK THE ALCOHOL.

O. Put alcohol on the fill plug and check for bubbles. If you see bubbles, the fill plug has a leak. Tighten the fill plug and do the test with alcohol again.

WARNING: CONCENTRATION OF COMPRESSED AIR OR UNWANTED MATERIAL MOVED BY COMPRESSED AIR CAN CAUSE INJURY TO PERSONS. ALWAYS POINT COMPRESSED AIR AWAY FROM PERSONS. USE APPLICABLE EYE PROTECTION TO PREVENT INJURY TO YOUR EYES.

P. Remove the alcohol with clean, dry air or nitrogen at a maximum pressure of 30 psi (207 kPa).

11. Halide Leak Test

WARNING: CONCENTRATION OF COMPRESSED AIR OR UNWANTED MATERIAL MOVED BY COMPRESSED AIR CAN CAUSE INJURY TO PERSONS. ALWAYS POINT COMPRESSED AIR AWAY FROM PERSONS. USE APPLICABLE EYE PROTECTION TO PREVENT INJURY TO YOUR EYES.

A. Remove any traces of extinguishing agent that remain at the fill fitting after the fill procedure with clean, dry air or nitrogen at a maximum pressure of 30 psi (207 kPa) before you do the halide leak test.

B. Do the halide leak test before you weld the fill plug. Refer to TESTING AND FAULT ISOLATION.

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12. Weld Fill Plug to Fill Fitting

NOTE: Before you weld the fill plug to the fill fitting, make sure the weight of the charged container is in the permitted limits specified in DESCRIPTION AND OPERATION, Table 1.

WARNING: ALCOHOL IS FLAMMABLE AND POISONOUS. KEEP AWAY FROM OPEN FLAME. WEAR GLOVES AND EYE PROTECTION TO PREVENT INJURY. DO NOT DRINK THE ALCOHOL.

- A. Clean the weld area of the fill plug and fill fitting with alcohol to remove all oil, grease and other contamination.
- B. Weld the fill plug to the fill fitting with a tungsten inert gas (TIG) welder. Use the straight fusion procedure. Fuse the edge of the joint all around. Be careful not to fuse too far into the metal. Do not use filler wire.

NOTE: Do not operate the welder at more than 25 amps.

- C. Remove weld discolorations with a stainless steel wire brush.

13. Metal Plate Data and Installation

- A. Write data on the metal plates as follows:

CAUTION: IF YOU MUST CHANGE THE DATA ON AN INSTALLED PLATE, USE AN ELECTRO-ETCHING DEVICE. DO NOT USE A METAL STAMP ON A PLATE WHILE IT IS INSTALLED ON THE CONTAINER. THIS CAN CAUSE DAMAGE TO THE CONTAINER.

- (1) Put data on a new plate before you install it on the container.
 - (2) Rubber-stamp the weight in the TOTAL WT ACTUAL block and the date in the LAST WT INSPECTION block on the identification plate with black ink A-A-208 or equivalent and let dry.
 - (3) When the ink is dry, apply a layer of clear acrylic lacquer to the ink stamped areas.
 - (4) Metal-stamp data in all other blocks of the identification plate.
- B. Install the plate as follows:
 - (1) Put the plate on the applicable area of the container and lightly hit the plate with a rubber mallet to make it in the container's shape.
 - (2) Remove the plate from the container.

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- (3) Clean the applicable area on the container with alcohol.
- (4) Clean the rear surface of the plate with alcohol.
- (5) Apply the primer activator 7387 on the rear surface of the plate and the applicable area on the container.
- (6) Let the primer activator dry.
- (7) Apply the Loctite 325 to the rear surface of the plate and the applicable area of the container.
- (8) Put the plate on the applicable area of the container.

14. Final Assembly

- A. Install the debris screen in the discharge head body until it touches the top surface of the body. Make sure the debris-screen overlap area is opposite the discharge head outlet.
- B. Apply a thin layer of grease to the threads of the discharge head.
- C. Remove the anti-recoil cap from the swivel nut.
- D. Install the discharge head in the swivel nut and put the outlet of the discharge head in the correct position.
- E. Install a "B" nut on the outlet of the discharge head.
- F. Install a socket with an extension approximately 6.00 in. (15.24 cm) long over the "B" nut.
- G. Use the socket and extension to hold the discharge head in position as you torque the swivel nut to 55 to 65 lbf ft (74,58 to 88,14 N•m).
- H. After the torque procedure, make sure the swivel nut is fully tightened and does not turn.

CAUTION: IF THE ALIGNMENT OF THE DISCHARGE HEAD IS NOT CORRECT, LOOSEN THE SWIVEL NUT BEFORE YOU MOVE THE DISCHARGE HEAD. IF YOU MOVE THE DISCHARGE HEAD BEFORE YOU LOOSEN THE SWIVEL NUT, YOU CAN DAMAGE THE DISCHARGE HEAD.

- I. Make sure the alignment of the discharge head is correct. If the alignment is not correct, loosen the swivel nut and do the procedure again.

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J. Remove the socket with extension and the “B” nut.

WARNING: A SHUNT DEVICE OR PROTECTION CAP MUST BE INSTALLED ON THE CARTRIDGE ACTUATOR BEFORE YOU TOUCH IT. THE CARTRIDGE ACTUATOR IS AN EXPLOSIVE DEVICE AND IS DANGEROUS TO PERSONS. IF YOU TOUCH A CARTRIDGE WITHOUT THIS DEVICE INSTALLED, IT CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT. DO NOT USE FOIL AS A SHUNT.

K. Install the cartridge in the discharge head. Torque the cartridge to 80 to 100 lbf in. (9,04 to 11,30 N•m).

15. Storage and Handling

WARNING: AN AMBIENT TEMPERATURE MORE THAN +160°F (+71°C) CAN CAUSE DAMAGE TO THE CONTAINER BECAUSE OF TOO MUCH PRESSURE. DO NOT DROP THE CONTAINER. THE CONTAINER CAN BREAK AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

WARNING: IF THE DISCHARGE HEAD IS NOT INSTALLED, MAKE SURE THAT AN ANTI-RECOIL CAP IS ALWAYS INSTALLED ON THE CONTAINER SWIVEL NUT. THIS WILL PREVENT THE POSSIBILITY OF DAMAGE TO A DISC ASSEMBLY AND ACCIDENTAL RELEASE OF THE CONTENTS OF THE CONTAINER. ACCIDENTAL RELEASE OF THE PRESSURE IN THE CONTAINER IS DANGEROUS TO PERSONS.

A. You can lift and touch containers at ambient temperatures of 0°F to +100°F (-18°C to +38°C).

B. Keep the filled containers in a clean, dry area at an ambient temperature of 0°F to +100°F (-18°C to +38°C).

C. Carefully examine the containers and the cardboard boxes before you move or put them on each other.

NOTE: Unless total information is available that is applicable to ambient storage temperatures, persons must touch the containers as if they were kept at high temperatures.

D. Keep the empty containers and components in a clean, covered box during overhaul operations. Do not let containers and components be open to high humidity while you keep them.

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- E. Temporarily keep the cartridges during overhaul as specified by local regulations for the storage of Class 1.4C explosives.
- F. Keep the filled container, with the protection caps installed in the swivel nuts, in a clean and dry area. The containers must be kept in an applicable sealed cardboard box so the container will not be open to humidity, dust, or other unwanted materials. Keep the filled containers in an area with the temperature between 0°F and +100°F (-18°C and +38°C).
- G. Keep the cartridges as specified by Kidde Aerospace Power Device Cartridge Abbreviated Component Maintenance Manual 26-21-34.

16. Shipping Instructions for Filled Containers

WARNING: IF THE DISCHARGE HEAD IS NOT INSTALLED, MAKE SURE THAT AN ANTI-RECOIL CAP IS ALWAYS INSTALLED ON THE CONTAINER SWIVEL NUT. THIS WILL PREVENT THE POSSIBILITY OF DAMAGE TO A DISC ASSEMBLY AND ACCIDENTAL RELEASE OF THE CONTENTS OF THE CONTAINER. ACCIDENTAL RELEASE OF THE PRESSURE IN THE CONTAINER IS DANGEROUS TO PERSONS.

- A. Move the container with the anti-recoil cap installed in the swivel nut.
- B. Put the container in an applicable cardboard box that contains materials that will absorb shock. Make sure that the container does not touch the cardboard box.
- C. Identify the cardboard box with an applicable label. Refer to the applicable shipping regulation in Table 703.

Table 703. Labeling and Shipping Regulations

SHIPPING METHOD	GOVERNING REGULATION(S)	
	U.S. DOMESTIC	INTERNATIONAL
Air	International Air Transport Association (IATA) Dangerous Goods Regulations	International Air Transport Association (IATA) Dangerous Goods Regulations and International Civil Aviation Organization (ICAO) Doc 9284-AN/905
Land/Air	DOT 49 CFR 172	International Air Transport Association (IATA) Dangerous Goods Regulations and International Civil Aviation Organization (ICAO) Doc 9284-AN/905
Ocean	International Maritime Organization (IMO)	International Maritime Organization (IMO)

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- D. Ship the cardboard box as specified in the applicable shipping regulation in Table 703.

17. Shipping and Handling Instructions for Cartridges

- A. Move and touch the cartridges as specified by Kidde Aerospace Power Device Cartridge Abbreviated Component Maintenance Manual 26-21-34.

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FITS AND CLEARANCES

1. General

A. This section gives the necessary fits and clearances and torque values applicable to the assembly and installation of the container.

2. Fits and Clearances

- A. There are no necessary fits and clearances for assembly of the container.
B. The fits and clearances for installation of the container in the aircraft are not necessary for this manual.

3. Torque Values

A. The necessary torque values are specified in Table 801.

Table 801. Torque Values

ITEM	PART NO.	TORQUE RANGE
Screw	1692-0604	5 to 6 lbf in. (0,57 to 0,68 N•m)
Swivel Nut	262298	55 to 65 lbf ft (74,58 to 88,14 N•m)
Pressure Gauge	283199	135 to 150 lbf in. (15,26 to 16,95 N•m)
Fill Plug	346521	30 to 35 lbf ft (40,68 to 47,46 N•m)
Cartridge	446518-1	80 to 100 lbf in. (9,04 to 11,30 N•m)

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SPECIAL TOOLS, FIXTURES, EQUIPMENT AND CONSUMABLES

1. General

A. This section gives the special tools, fixtures, equipment and consumable materials that are necessary to keep the fire extinguisher container in a serviceable condition.

2. Special Tools, Fixtures and Equipment

A. Special tools, fixtures and equipment are given in Table 901.

NOTE: Unless noted, you can use equivalent alternatives for the items given in the list.

Table 901. Special Tools, Fixtures and Equipment

DESCRIPTION	REPRESENTATIVE PART NO.	MINIMUM SPECIFICATION	SOURCE (CAGE CODE)
Recharge Stand, includes Platform Scale and Digital Indicator	WT-02453	None	Kidde Aerospace (61423)
Charging Adapter	WT-01662	None	Kidde Aerospace (61423)
Lockpin Handle	WT-00489-6	None	Kidde Aerospace (61423)
Protection (Anti-Recoil) Cap	214583	None	Kidde Aerospace (61423)
Cartridge Shunt	324477	None	Kidde Aerospace (61423)
Pressure Test Fitting, Fill Fitting	T-262775	None	Kidde Aerospace (61423)
Pressure Test Plug, Gauge Fitting	WT-00444	None	Kidde Aerospace (61423)
O-Ring	2-013	None	Parker Hannifin Seal Group Div. (30781)

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DESCRIPTION	REPRESENTATIVE PART NO.	MINIMUM SPECIFICATION	SOURCE (CAGE CODE)
Pressure Test Cap, Neck	T-897864-10	None	Kidde Aerospace (61423)
Pressure Test Cap, Neck	T-897864-20	None	Kidde Aerospace (61423)
Thermometer	None	None	Commercially Available
Vise Station, Air-Operated	510-010	None	Hydro-Test Products, Inc. (56043)
Hydrostatic Test Stand	None	Compressed Gas Association (CGA) Pamphlet C-1	Make locally
Proof Booth, Explosion Proof	WT-00689	None	Kidde Aerospace (61423)
Tool Holder, Disc Assembly Weld-Machining Tool	161-6003-400	None	Kidde Aerospace (61423)
Cutter, Disc Assembly Weld-Machining Tool	161-6003-7	None	Kidde Aerospace (61423)
Retainer Torque Adapter	T-260674-01	None	Kidde Aerospace (61423)
Fill Plug Weld-Machining Tool	T-05640-6	None	Kidde Aerospace (61423)
Pressure Gauge Weld-Machining Tool	WT-01916	None	Kidde Aerospace (61423)
Chill Block and Protector Tool	WT-00198-7	None	Kidde Aerospace (61423)
Torque Wrench	None	5 to 150 lbf in. (0,57 to 16,95 N•m)	Commercially Available
Torque Wrench	None	30 to 100 lbf ft (40,68 to 135,60 N•m)	Commercially Available

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DESCRIPTION	REPRESENTATIVE PART NO.	MINIMUM SPECIFICATION	SOURCE (CAGE CODE)
Ultrasonic Thickness Gauge	T-Mike 3000 or T-Mike E	0.025-19.999 in. ±0.001 in.	Stresstel Corp (65007)
Digital Multimeter	70 Series	0-32 VDC, 0-1 Amp, 0-1MΩ	Fluke Corp. (89536)
Halide Leak Detector	H-25C	1x10 ⁻⁵ Std cc/sec.	Yokagawa Corp. of America (60336)
Halide Leak Standard	LS-20	1x10 ⁻⁵ Std cc/sec.	Yokagawa Corp. of America (60336)
Tungsten Inert Gas (TIG) Welder	None	None	Commercially Available
Tap and Die Set	None	None	Commercially Available
Thread Gauge	None	None	Commercially Available
Borescope Kit	BFO10555AK	90 degree direction of view	Circon Corp., Circon AMCI Industrial Div. (02033)
Halogen Light	AIL-115	115 VAC, 50-60 Hz, 150/240W	Circon Corp., Circon AMCI Industrial Div. (02033)
Fiber Optic Light Kit	FC-6	None	Circon Corp., Circon AMCI Industrial Div. (02033)
Lathe	None	None	Commercially Available
Fly Cutter	None	None	Commercially Available
Vertical Milling Machine	None	None	Commercially Available
Cleaning Cloth	CCC-C-46	None	Commercially Available
Dye Penetrant Kit	None	None	Commercially Available
Blind Hole Puller Set	None	None	Commercially Available

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DESCRIPTION	REPRESENTATIVE PART NO.	MINIMUM SPECIFICATION	SOURCE (CAGE CODE)
Heat Gun	None	None	Commercially Available
Stainless Steel Wire Brush	None	None	Commercially Available

3. Consumable Materials

A. Consumable materials are given in Table 902.

NOTE: Unless noted, you can use equivalent alternatives for the items given in the list.

Table 902. Consumable Materials

DESCRIPTION	PART NO.	SPECIFICATION	SOURCE (CAGE CODE)
Bromotrifluoromethane (CBrF ₃)	None	ASTM D5632 (No Substitutions)	Commercially Available
Nitrogen (N ₂)	None	A-A-59503, Type I, Grade A, Class 1	Commercially Available
Alcohol, Isopropyl	None	DLA O-E-760D	Commercially Available
Loctite 325	32530 (50 ml tube) 32555 (100 ml tube)	None	Loctite Corp (0PKX7)
Loctite 7387	18861	None	Loctite Corp. (0PKX7)
Locquic Primer Grade T	22477	MIL-S-22473	Loctite Corp (0PKX7)
Loctite Grade B	8531	None	Loctite Corp (0PKX7)
Ink, Marking, Black, Quick Drying	None	A-A-208, Type IV	Commercially Available
Lacquer, Acrylic, Clear	Krylon 1301	None	Sherwin-Williams Co. (54636)

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DESCRIPTION	PART NO.	SPECIFICATION	SOURCE (CAGE CODE)
Grease, Pneumatic	Versilube G300, G321, or G351	None	Novagard Silicone Compounds and Grease (0609Y)
SEAMTEST Concentrate	None	None	Winton Products Co., Inc. (23316)
Ethanol (Ethyl Alcohol)	None	None	Commercially Available
Sandpaper	None	320 Grit	Commercially Available
Steel, CRES, 304L	None	VIM/VAR per AMS 5617	Commercially Available
Label, Halon Warning	325217	None	Kidde Aerospace

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ILLUSTRATED PARTS LIST

1. Introduction

- A. This section shows illustrations and identifies the parts used to make the assembly shown on the title page. These parts can be disassembled, repaired or replaced and assembled.

2. How To Use The Illustrated Parts List

A. Indenture System

- (1) The procedure used to write the parts lists shows the relation of one part to a different part. For a given item, the number of spaces before the item is written shows the relation of the item to the next higher assembly (NHA) as follows:

Assembly

- Detail parts for assembly
- Subassembly
- Attaching parts for subassembly
- Detail parts for subassembly
- Sub-subassembly
- Attaching parts for sub-subassembly
- Detailed parts for sub-subassembly

B. Effectivity Code

- (1) The EFF CODE area shows the letters (A, B, C etc.) to refer to for each top assembly. The letter of the applicable top assembly is also shown in the EFF CODE area for each detail part and subassembly. No letter is shown for detail parts and subassemblies used on all top assemblies.

C. Units Per Assembly

- (1) The UNITS PER ASSY area gives the total number of units necessary for each assembly, for each subassembly and for each sub-subassembly, as applicable. For large quantity items, the letters AR are for "as required". The letters "RF" show that the item is given to refer to.

D. Parts Replacement Data

- (1) The NOMENCLATURE area of the parts list gives the interchangeable relation between parts. The data and how it is written to show how the parts are interchangeable is as follows:

Optional (OPT): This part is optional to and interchangeable with other parts in the same item number variant group or other item number if designated.

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Superseded By (SUPSD BY): The part in the part number column is superseded by and is not interchangeable with the item number shown in the notation.

Supersedes (SUPSDS): The part in the part number column supersedes and is not interchangeable with the item number shown in the notation.

Replaced By (REPLD BY): The part in the part number column is replaced by and interchangeable with the item number shown in the notation.

Replaces (REPLS): The part in the part number column replaces and is interchangeable with the item number shown in the notation.

E. Alpha Variant Item Numbers

- (1) Alpha variants A-Z (does not include I and O) are given to item numbers used before when necessary to add items to show:

Service bulletin modifications

Configuration differences

Optional parts

Product improvement parts (not from a service bulletin)

- (2) The exploded view does not show alpha variant item numbers when the item looks the same and location is the same as the basic item.

F. Service Bulletin Incorporation

- (1) Assemblies, subassemblies and detail parts to be changed by modification, removed, added, or replaced by an issued service bulletin are written to show both pre-and post-service bulletin configuration. The data (PRE SB XXXX) in the NOMENCLATURE area of the parts list identifies the initial configuration and the data (POST SB XXXX) identifies assemblies and parts after the service bulletin modification has been completed.
- (2) Subassemblies and detail parts used on assemblies that have the pre- or post- service bulletin note will not have the pre- or post- service bulletin identification themselves if the use code(s) given to them clearly shows their pre- or post- service bulletin use.

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- (3) Top assemblies to be changed by a service bulletin and are not given a new part number (no production equivalent of the modified assembly) are not identified with pre-or post-service bulletin data.

G. Items Not Illustrated

- (1) A dash (-) before the item in the FIG & ITEM NO. area of the parts list shows the item is not shown.

H. Part Number Identification

CAUTION: ONLY KIDDE AEROSPACE MANUFACTURED/SUPPLIED SPARE PARTS AND COMPONENTS SHALL BE USED IN ACCORDANCE WITH THIS CMM.

- KIDDE AEROSPACE HAS NOT APPROVED ANY COMPONENTS OR SUBSTITUTE PARTS OF ANY KIND, OTHER THAN THOSE LISTED WITHIN THIS CMM. THE USE OF ANY SPARE PART OR COMPONENT OTHER THAN THOSE SPECIFIED WITHIN THIS CMM IS NOT AUTHORIZED BY KIDDE AEROSPACE AND REPRESENTS **NONCOMPLIANCE** WITH THE PROCEDURES DEFINED IN THIS CMM.
 - THE USE OF NON-KIDDE AEROSPACE PARTS WILL VOID ANY AND ALL WARRANTIES. KIDDE AEROSPACE WILL NOT ACCEPT RESPONSIBILITY OR LIABILITY FOR ANY PMA OR OTHER SUBSTITUTE PARTS OF ANY KIND, OTHER THAN KIDDE AEROSPACE MANUFACTURED/SUPPLIED PARTS; NOR WILL KIDDE AEROSPACE ACCEPT RESPONSIBILITY OR LIABILITY FOR ANY OF THE KIDDE AEROSPACE END ITEM PRODUCTS THESE PARTS ARE INSTALLED ON/IN.
 - FURTHERMORE KIDDE AEROSPACE INDEMNIFIES AND HOLDS ITSELF HARMLESS FROM ANY PERFORMANCE CLAIM OR EXPECTATION, AND ANY FAILURE AND/OR CONSEQUENCE THEREOF ASSOCIATED WITH THE FUNCTIONALITY AND PERFORMANCE OF KIDDE AEROSPACE PRODUCTS WHEN/IF NON-KIDDE AEROSPACE PMA OR SUBSTITUTE PARTS OF ANY KIND ARE USED ON/IN KIDDE AEROSPACE PRODUCTS.
- (1) When the PART NO. area of the parts list shows a standard part number or another vendor's part number, the vendor code, which starts with the letter "V" is shown in parenthesis after the item data in the NOMENCLATURE area of the parts list. The Kidde Aerospace part number, in parenthesis, will follow the vendor code. When you write an order for parts from Kidde Aerospace, use the Kidde Aerospace part number.

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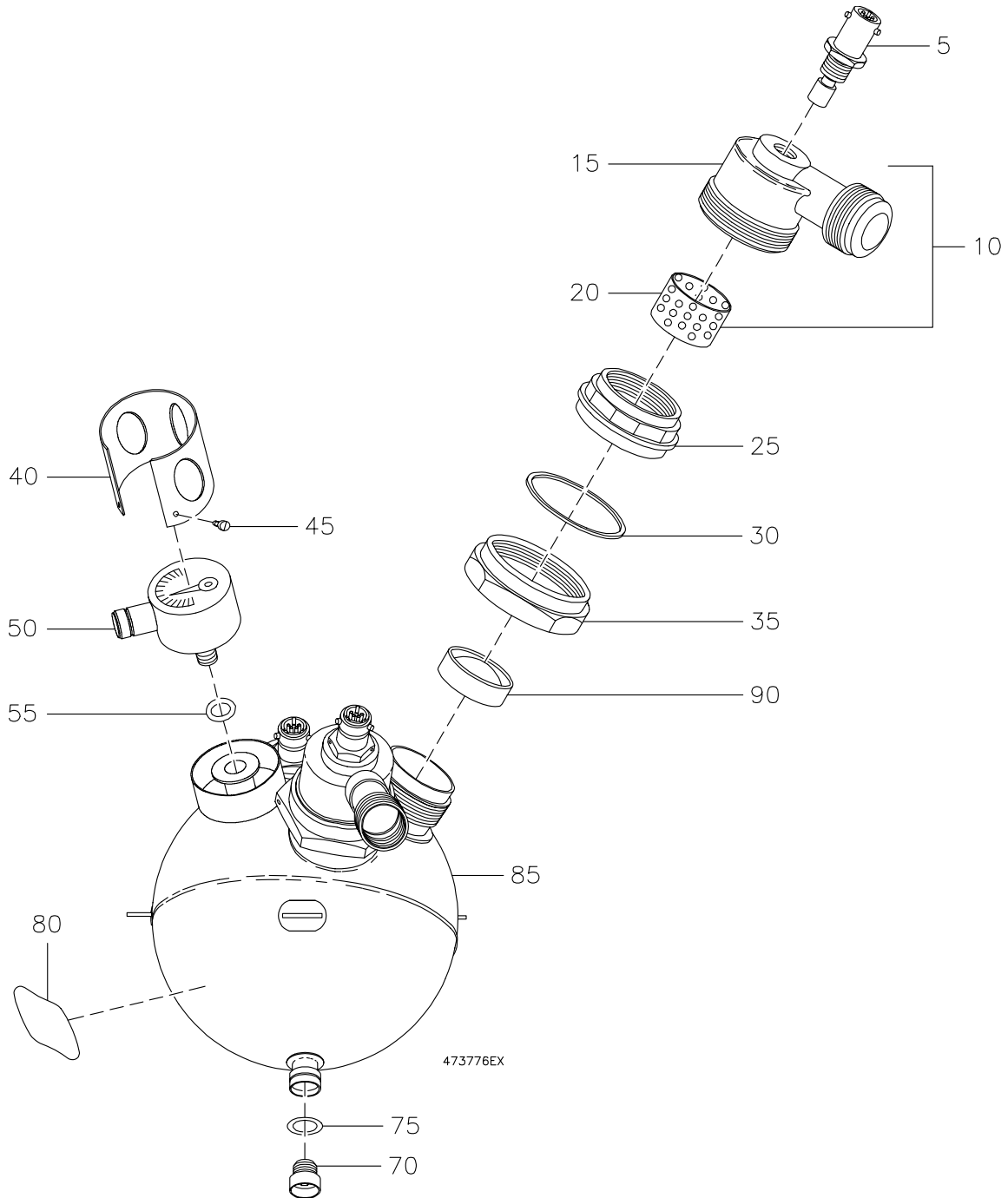
Vendors

V61423 Kidde Aerospace
4200 Airport Drive N.W.
Wilson, NC 27896-8630 USA
Website: www.kiddeaerospace.com

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IPL Figure 1. Fire Extinguisher Container, Exploded View

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FIG & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE	EFF CODE	UNITS PER ASSY
1- -1	473776-1		CONTAINER, FIRE EXTINGUISHER, 164 IN. ³ (2687 CM ³), CHARGED, WITH DISCHARGE HEADS, LESS CARTRIDGES (CANADAIR GK774-0020-2)	A	RF
-1A	473776-2		CONTAINER, FIRE EXTINGUISHER, 164 IN. ³ (2687 CM ³), CHARGED, WITH DISCHARGE HEADS, LESS CARTRIDGES (CANADAIR GK774-0020-2)	B	RF
5	446518-1		CARTRIDGE, POWER DEVICE		RF
10	446525		. HEAD, DISCHARGE		3
15	347051-2		. . BODY		1
20	325406		. . SCREEN, DEBRIS		1
25	282520		. RETAINER		3
30	212605		. GASKET, NYLON		3
35	262298		. NUT, SWIVEL		3
40	346515		. GUARD, GAUGE		1
			ATTACHING PARTS		
45	1692-0604		. SCREW, FIL. HD, NO. 6-32 X 1/4 ***		3
50	283199		. GAUGE, PRESSURE ALARM TYPE		1
55	260810		. SHIM, .004 INCH (SELECT THIS OR ITEMS -60 AND -65)		AR
-60	260811		. SHIM, .010 INCH		AR
-65	260812		. SHIM, .031 INCH		AR
70	346521		. PLUG, FILL		1
75	262539		. GASKET, SEAL		1
80	324269		. PLATE, IDENTIFICATION		1
85	473785		. CONTAINER, WELDMENT	A	1
-ITEM NOT ILLUSTRATED					

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FIG & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE	EFF CODE	UNITS PER ASSY
1- -85A	473785-1		. CONTAINER, WELDMENT	B	1
90	446555		. . DISC ASSEMBLY		3
-ITEM NOT ILLUSTRATED					