



**RECHARGE/RECOVERY MANUAL
NO. 14795
for HALOTRON I FIRE EXTINGUISHERS**

**Using
AMEREX
P/N 14535 Halotron I Recharge Kit
and Bulk Recharge Cylinders
Models
890 – 35 lb. 891 – 80 lb. 892 – 200 lb.**

TABLE OF CONTENTS

Introduction.....	2
Safety Precautions	2
A. Chemical Hazards	2
B. Personal Protective Equipment	3
Filling/Agent Recovery Principles	3
A. Evacuation Principles.....	3
B. Halotron I Filling (Liquid Transfer) Principles.....	4
C. Final Pressurization Principles	4
D. Agent Recovery Principles.....	5
P/N 14538 Halotron I Recharge Kit	6
A. Halotron I Recovery	7
B. Evacuation and Filling w/ Model 890 – 35 lb. system	9
C. Evacuation and Filling w/ Models 891 & 892 – 80 & 200 lb. Systems	11
D. Final Pressurization with Models 891 & 892 Systems	12
Halotron I Extinguisher Service Procedure	13
Halotron I Extinguisher Parts Sheet.....	15
Notes	16

**RECHARGE/RECOVERY MANUAL
HALOTRON I FIRE EXTINGUISHERS**

AMEREX CORPORATION – P.O. BOX 81 – TRUSSVILLE, ALABAMA 35173-0081
Phone: 205/655-3271 Fax: 800/654-5980
e-mail: sales@amerex-fire.com Web Page: <http://www.amerex-fire.com>

Printed in U.S.A.

RechMan14795A Rev. 3/11

INTRODUCTION

The principles and procedures contained in this manual are intended for the filling and agent recovery associated with the servicing of Amerex Halotron I hand portable fire extinguishers. They are intended for qualified service agencies using the Amerex P/N 14538 Halotron Recharge Kit and any of the Amerex supplied Bulk Recharge Cylinders (Model 890 – 35 lb., Model 891 – 80 lb. or Model 892 – 200 lb.). The process of charging fire extinguishers with Halotron I involves working with a pressurized liquid and high pressure gas, so it should only be undertaken by trained personnel.

It is recognized that most fire extinguisher service technicians will have had prior experience servicing halon 1211 extinguishers. While the procedures for Halotron I are similar in most respects, there are two main differences: the type of elastomers (collar o-rings, valve stem seals) and the use of argon (instead of nitrogen) for pressurization. The elastomers used with halon 1211 (or dry chemical) are not compatible with Halotron I. Chloroprene based or EPDM rubber is used in all Amerex o-rings, valve stem seals and recharge kit seals. If incompatible elastomers are used, the result can be loss of extinguisher pressure or blockage of the valve preventing proper discharge.

Extinguisher performance is enhanced and required cylinder volume is reduced by pressurizing extinguishers with argon, which is more soluble in Halotron I than nitrogen. As the extinguisher discharges and the extinguisher's internal pressure drops, argon in solution will move from the Halotron I liquid into the vapor space. This transfer of argon from the liquid to the vapor space helps maintain a higher and more even pressure throughout the extinguisher discharge, especially at cold temperatures. **NITROGEN SHOULD NOT BE USED TO PRESSURIZE HALOTRON I EXTINGUISHERS OR BULK RECHARGE CYLINDERS.**

SAFETY PRECAUTIONS

The process of filling extinguishers and bulk recharge cylinders with Halotron I involves the use of a pressurized liquid and high pressure gas. The process should only be undertaken by personnel trained in the use of these kinds of materials. High pressure (compressed) gases can be extremely dangerous if not handled properly. Improperly installed or maintained pressure regulators or hose assemblies can cause system failures and result in possible personal injury. Follow the instructions precisely for the installation of these components.

A. Chemical Hazards

The primary component of Halotron I is HCFC-123 (2,2-dichloro-1, 1, 1-trifluoromethane). Toxicologically, this chemical has been widely studied. The LC₅₀ (4 hr., rats) has been determined to be between 2.8 and 3.2% by volume. The cardiotoxic LOAEL (lowest observable adverse effect level) is 2% by volume. The NOAEL (no adverse effect level) is 1% by volume. HCFC-123 is relatively non-toxic, however, all measures should be taken to minimize inhalation of any vapors.

The primary hazard associated with argon used for extinguisher pressurization is its ability to function as a simple asphyxiant (i.e. to displace oxygen). **FILLING OPERATIONS SHOULD BE CONDUCTED IN A WELL VENTILATED ENVIRONMENT.**

B. Personal Protective Equipment

To insure proper protection, it is recommended that standard equipment for handling compressed gases and refrigerants be used for filling operations. This would include the use of rubber gloves and eye goggles.

All containers (including high pressure gas cylinders) used in filling operations should be secured to stationary objects to prevent uncontrolled movement.

It is recommended that persons involved in filling operations refrain from smoking.

NOTE: Consult the Halotron I Material Safety Data Sheet (MSDS) for more safety information. The “Halotron I Health and Toxicity Summary Bulletin” should also be consulted for additional information.

FILLING/AGENT RECOVERY PRINCIPLES

It is imperative that before performing filling or agent recovery procedures, the following guidelines are followed:

1. All of the Maintenance Procedures detailed in Amerex P/N 14425 “Owners Service Manual” be completed.
2. All extinguisher components and filling equipment components are compatible for use with Halotron I.

Extinguisher filling/agent recovery should be performed only by trained technicians. Amerex parts and service equipment should be used in the performance of these procedures. Contact Amerex Corporation if you have any questions regarding parts, recharging equipment, hydrostatic testing or need for any specialized tools.

All equipment should be maintained dry and free of moisture. Purging all lines with argon each time the filling apparatus has been exposed to air will help minimize the amount of moisture that can gain entry to the system.

The general filling procedure follows three basic steps:

1. Extinguisher evacuation
2. Halotron I filling (liquid transfer)
3. Extinguisher final pressurization

A. Evacuation Principals

Extinguishers may be evacuated one at a time, or in groups through the use of a manifold system. Cylinder evacuation prior to filling is strongly recommended for two reasons.

1. To remove moist air from the cylinder, which if present can cause corrosion.
2. To accelerate the filling process by removing some of the back pressure that results from entrapped air.

The vacuum pump selected should be capable of pulling a minimum vacuum of 27 inches (686 mm) mercury (at sea level).

B. Halotron I Filling (Liquid Transfer) Principals

Once the extinguisher has been vacuumed, it is ready to be filled with Halotron I (sometimes referred to as Halotron I Presat Base). The filling lines and quick connect used in the filling process should be compatible with Halotron I. Elastomers should be Chloroprene based on EPDM rubber.

One of the key differences between Halon 1211 and Halotron I is that the Halotron I bulk supply cylinder must be kept under pressure during the transfer of liquid from the bulk supply cylinder to an extinguisher. Halotron I is a blend of two gases forced into a base of HCFC-123 by pressure. To insure that the uniformity of the Halotron I blend stays consistent during transfer, a supply of argon must be connected to the Halotron I bulk supply cylinder to maintain a minimum pressure of 95 psig (655 kPa). This is easily accomplished with a high pressure argon cylinder and a regulator.

No pumps are necessary to transfer the Halotron I liquid into the extinguishers. The transfer can be completed by connecting the filling hose to the extinguisher and opening the extinguisher valve. Once the extinguisher valve is opened, the pressure difference will allow the Halotron I to fill the extinguisher. Once the desired Halotron I weight is reached, the extinguisher valve can be closed.

C. Final Pressurization Principals

The pressurizing gas for Halotron I is argon and should conform to the specification in Fig. A. Argon is somewhat soluble in Halotron I. When an extinguisher is discharged, the argon in solution is released into the extinguisher vapor space, helping to maintain the pressure. Since nitrogen is considerably less soluble in Halotron I, it should **NEVER** be used to pressure Halotron I. Pressurization with nitrogen could cause a decrease in the performance of the extinguisher.

The final pressurization of an extinguisher is accomplished by:

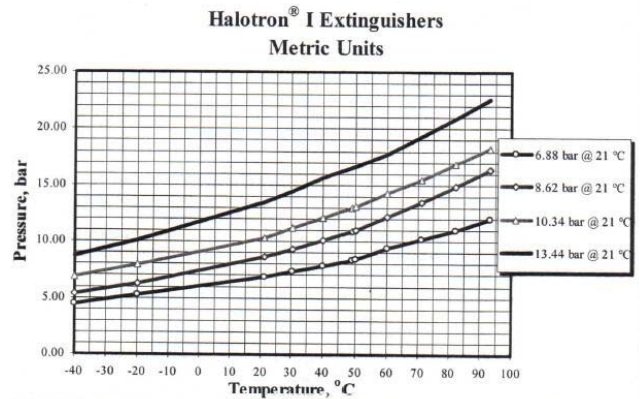
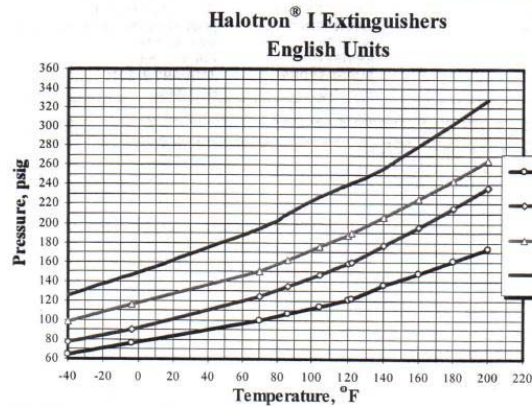
1. Pressurizing the extinguisher with argon to the desired pressure.
2. Agitating the extinguisher until the pressure equalizes
3. Repeating Steps 1 and 2 until pressure stabilizes at the correct operating pressure.

ARGON SPECIFICATIONS		
Property	Minimum	Maximum
Assay	99.998%	---
Oxygen		4.0 ppm
Total Hydrocarbons	---	0.5 ppm
Water	---	4 ppm
Dew Point	---	-90°F (-68°C)

Fig. A

The agitation of the extinguisher aids in the absorption of argon into the Halotron I liquid. The agitation does not have to be vigorous but can be accomplished by a gentle rocking of the extinguisher for 5 to 10 seconds. It is not uncommon for the extinguisher to drop more than 20 or 30 psig (38 kPa to 207 kPa) the first time it is agitated.

Depending on the temperature when filling the extinguisher, it may be necessary to adjust the final pressure. See temperature vs. pressure charts below.



D. Agent Recovery Principles:

Halotron I should always be stored and transferred under pressure to ensure that the inert gases in the blend are not released. The Halotron I agent in the extinguisher can be transferred to a recovery cylinder either by a pump or by using pressure differentials. If using a pump, ensure that all pump materials and seals are compatible with Halotron I.

Generally, there are four steps to this transfer when not using a pump:

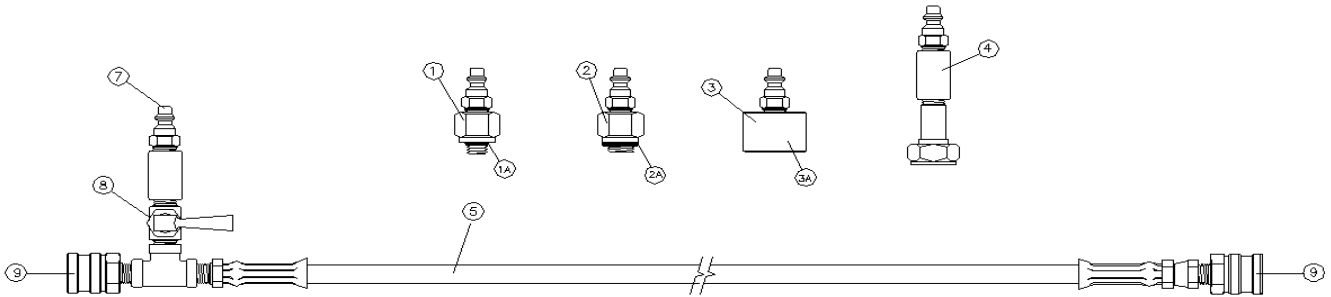
1. Connect the extinguisher to the line leading to the recovery cylinder liquid valve.
2. Open the extinguisher valve to allow the liquid from the extinguisher to transfer to the recovery cylinder (because of back-pressure, not all liquid will transfer).
3. Re-pressurize the extinguisher to operating pressure with argon (flip valve allows this to be accomplished without disconnecting the extinguisher from the line to the recovery cylinder).
4. Repeat Steps 2 and 3 until no more liquid will transfer from the extinguisher (usually 2-3 times).

When the transfer is complete, the extinguisher can be vented and serviced according to the step by step procedure. There will be a small amount of residual Halotron I left in the extinguisher which will evaporate when the extinguisher is opened. Agent recovery should be performed in a well-ventilated area to prevent vapor accumulation.

After servicing has been completed and the extinguisher is ready to be refilled, the recovery cylinder can be treated as any other Halotron I bulk cylinder. Refill the extinguisher according to the step by step procedure. Between each extinguisher service, the recovery cylinder should be vented down to approximately 5 psig (34 kPa). By venting to this minimal pressure, a small liquid heal will remain (minimizing further heal loss) and the positive pressure will ensure that no contaminants enter the cylinder.

Prior to the first time use of a recovery cylinder, the cylinder should be internally inspected for cleanliness and then vacuumed to a minimum of 27 inches (686 mm) mercury (at sea level).

AMEREX P/N 14538 HALOTRON I RECHARGE KIT



AMEREX P/N 14538 HALOTRON I RECHARGE KIT			
Item No.	Part No.	Description	Quantity Included in Kit
1	14569	Fill Adapter – Aluminum Valve	1
1A	01532	Hose/Nozzle Gasket (o-ring)	1
2	14568	Fill Adapter – Brass Valve	1
2A	06978	Hose Gasket – Brass Valve	1
3	14649	Fill Adapter Assembly (Installs to Vapor Port on 890, 891 & 892)	1
3A	14540	Gasket for Fill Adapter Assembly	1
4	14648	CGA Fill Adapter Assembly	1
5	14537	Hose Assembly (6 ft.)	1
6	14536	Adapter “Quick Connect” Male (Fill Adapters)	4
7	01406	Adapter “Quick Connect” Male (Recharge Hose Assembly)	1
8	01733	Toggle Valve	1
9	14535	Adapter “Quick Connect” Female	2



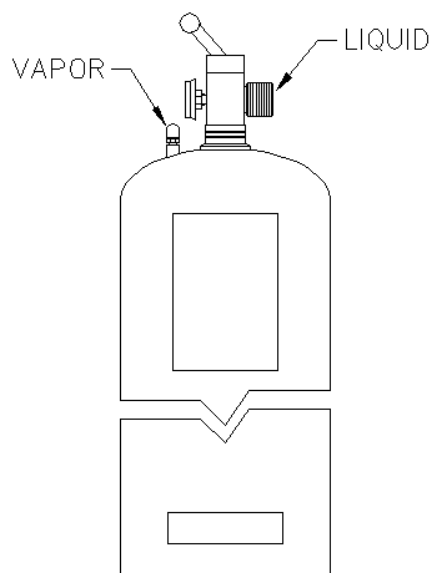
HALOTRON I RECOVERY
using
Amerex P/N 14796 Recovery Cylinder & P/N 14538 Halotron I Recharge Kit

NOTE: In order that a partially discharged or leaking Halotron I extinguisher may be properly serviced and recharged, it will be necessary to have a Recovery Cylinder (either empty or with sufficient capacity to void the extinguisher of remaining Halotron I). The P/N 14796, 35 lb. capacity Recovery Cylinder is ideal for this purpose.

TRANSFER TO RECOVERY CYLINDER

1. Confirm that the hoses and components are clean and free of debris. Purge all hoses with argon. Check for leaks and repair if necessary.
2. Ensure that the recovery cylinder is ready for the liquid transfer. It should be either under a vacuum or have a minimal pressure, about 5 psig (34 kPa).
3. Starting with all valves closed, connect the charging hose female quick connect (toggle valve end) to the extinguisher fill adapter male quick connect.
4. Connect the charging hose female quick connect to the recovery cylinder fill adapter male quick connect.
5. Connect the argon gas supply hose female quick connect to the toggle valve male quick connect.
6. Adjust the toggle valve to direct the flow from the extinguisher to the recovery cylinder.
7. Set the argon regulator to 0 psig (0 kPa) and then open the argon cylinder valve.
8. Set the argon regulator to the extinguisher operating pressure and open the toggle valve. Depress extinguisher operating lever – this will pressurize the extinguisher. After operating pressure is reached, release the operating lever and close the toggle valve.
9. Open the “T” handle valve on the recovery cylinder (rotate towards charging hose).
10. Open extinguisher valve (depress operating lever) to allow the extinguisher contents to flow into the recovery cylinder.
11. After the flow has stopped, close the extinguisher valve (release operating lever). Close the recovery cylinder valve.
12. Open the toggle valve to allow the flow of additional argon to repressurize the extinguisher.
13. Open the extinguisher valve (depress lever) and re-pressurize the extinguisher with argon to its operating pressure.
14. Close the toggle valve, open the recovery cylinder valve and open the extinguisher valve (depress lever).
15. After the flow has stopped, close the extinguisher valve (release lever). Close the recovery cylinder valve.
16. If there is still appreciable liquid in the extinguisher, repeat Steps 12 through 15 as necessary.
17. Make sure that your area is well ventilated and vent the remaining contents of the extinguisher and perform the maintenance procedures detailed in P/N 14425 Owner's Service Manual prior to recharging the extinguisher.

NOTE: In the Recovery/Recharge procedure, it will be impossible to completely empty the recovery cylinder contents. A heel in the recovery cylinder of up to 1 pound is normal and should be expected. If recovering a full extinguisher (leaker), the need for an additional supply of Halotron I agent should be anticipated so that the extinguisher may be brought back to its full charged weight. If the Halotron I in the Recovery Cylinder will not be used immediately, the cylinder should be stored with 95 – 100 psig argon pressure maintained to keep the Halotron I/argon mix in solution. The pressure should be checked once a week or more frequently.



P/N 14796
RECOVERY CYLINDER

RECHARGING HALOTRON I EXTINGUISHERS
with
Amerex Model 890, 35 lb. Halotron I Recharge System & P/N 14538 Halotron I
Recharge Kit

SET UP INSTRUCTIONS

1. Attach fill adapter P/N 14649 to the recharge cylinder valve.
2. Install "Female Quick connect" end of charging hose assembly with toggle valve to the fill adapter.
3. Verify that there is at least 100 psig of argon pressure in the recharge system cylinder. Add argon gas if required.

RECHARGING AN EMPTY HALOTRON I EXTINGUISHER

1. Extinguisher to be recharged must be properly serviced and a new o-ring and valve stem assembly installed (see Amerex Halotron I parts sheet). The extinguisher cylinder interior must be clean and dry.
2. Connect the empty extinguisher to a vacuum pump. Open extinguisher valve (depress operating lever) and evacuate the extinguisher to approximately 27 inches (at sea level). Close extinguisher valve (release operating lever) and disconnect from the vacuum pump.
3. Install proper Halotron I fill adapter to extinguisher (see parts sheet).
4. Connect charging hose to the extinguisher fill adapter. Place extinguisher on an accurate scale.
5. Open the valve on the Model 890 recharging system by rotating the "T" handle toward the charging hose, filling the hose with Halotron I.
6. Set tare on the scale.
7. Open the extinguisher valve (depress operating lever) and begin transfer of Halotron I liquid to the extinguisher.
8. Periodically close the extinguisher valve (release operating lever) and check the weight. Also check the pressure in the recharge system cylinder (a pressure of 100 psig argon must be maintained in the recharge system cylinder).
9. When the extinguisher has reached the proper fill weight, close the extinguisher valve (release operating lever) and close the recharge system cylinder valve (rotate "T" handle away from charging hose).
10. Attach a regulated argon supply hose to the male quick connect of the toggle valve on the charging hose. the regulator should be set to approximately 10 psi higher than the extinguisher operating pressure.
11. Open the toggle valve on the charging hose.
12. Open the extinguisher valve (depress lever) and pressure with argon until the pressure equalizes.
13. Close the extinguisher valve (release lever) and gently rock the extinguisher back and forth for 10-15 seconds allowing the argon to be absorbed into the Halotron I and causing the extinguisher pressure gauge reading to fall.
14. Repeat Steps 12 and 13 until the extinguisher pressure gauge equalizes with the argon pressure supply (just slightly above the extinguisher operating pressure). This normally takes 3 repetitions.
15. Close the toggle valve and disconnect the argon gas supply line.
16. Disconnect the filled and pressurized extinguisher from the charging hose and check for proper fill weight. Check extinguisher for leaks and remove all liquid residue.
17. Install ring (safety) pin, lockwire (tamper) seal and recharge tag.
18. Install nozzle or hose assembly.
19. Hold extinguisher for 24 to 48 hours, verify pressure and return to customer.

SHUT DOWN INSTRUCTIONS

After following the above procedure, there may be a small amount of Halotron I left in the charging hose. If it will be more than 8 hours before another extinguisher will be filled, Amerex recommends bleeding this Halotron I off into the atmosphere. The bleed off process will prolong the life of your recharge equipment.

Follow this procedure to remove Halotron I captured in the charging hose:

1. Make sure that the Halotron I recharge cylinder is CLOSED.
2. Point the male quick connect plug for the argon supply away from yourself and others and open the toggle valve. A small amount of Halotron I and argon may be discharged. Close the toggle valve. The charging hose is now empty of Halotron I and argon pressure.

FILLING (LIQUID TRANSFER) OF HALOTRON I EXTINGUISHERS
with
Amerex Models 891 (80 lb.) and 892 (200 lb.) Halotron I Recharge Systems
and P/N 14538 Halotron I Recharge Kit

SET UP INSTRUCTIONS

1. Attach fill adapter (P/N 14648) to the recharge cylinder valve.
2. Confirm that all hoses and components are clean and free of debris. Purge all hoses with argon. Check for leaks and repair if necessary.
3. Install female quick connect end of charging hose assembly with toggle valve to the fill adapter.
4. Connect the argon supply line quick connect to the vapor port quick connect on the recharge system cylinder.

NOTE: IT IS VERY IMPORTANT THAT BULK CYLINDER PRESSURE BE MAINTAINED AT A MINIMUM OF 100 PSIG (689 kPa) THROUGHOUT THE FILLING PROCESS USING A CONSTANT FLOW OF ARGON.

REFILLING (LIQUID TRANSFER) OF AN EMPTY HALOTRON I EXTINGUISHER

1. EXTINGUISHER TO BE REFILLED MUST BE PROPERLY SERVICED AND A NEW O-RING AND VALVE STEM ASSEMBLY INSTALLED (SEE Amerex Halotron I parts sheet). The extinguisher cylinder interior must be clean and dry.
2. Connect the empty extinguisher to a vacuum pump. Open extinguisher valve (depress operating level) and evacuate the extinguisher to approximately 27 inches (at sea level). Close extinguisher valve (release operating lever) and disconnect from the vacuum pump.
3. Install proper Halotron I fill adapter to extinguisher (see parts sheet).
4. Starting with all valves closed, set the argon regulator at 0 psig (0 kPa) and then open the argon cylinder valve. Set the regulator to 100 psig (689 kPa). Verify the correct pressure on the pressure gauge and adjust as necessary.
5. Completely open the bulk cylinder vapor valve and let the cylinder pressure stabilize for one minute before proceeding to the next step. **This valve is to remain open during the entire liquid transfer.**
6. Connect the charging hose to the extinguisher fill adapter.
7. Open the cylinder liquid valve on the model 891 or 892 recharging system, filling the hose with liquid.
8. Place the extinguisher on an accurate scale.
9. Tare weight (zero) the scale. This will take into account the liquid now in the hose and the net weight transferred will be indicated.
10. Open the extinguisher valve (depress operating lever) and allow liquid transfer into the extinguisher until the desired weight is achieved as determined by the scale.
11. When the desired liquid weight is reached, close the extinguisher valve (release lever) and close the Halotron I bulk cylinder liquid valve.
12. Close the bulk cylinder vapor valve and the argon supply cylinder valve.
13. Open the argon gas hose vent (if installed) to relieve pressure in the gas hose.
14. Disconnect the argon gas hose quick connect from the bulk cylinder vapor valve quick connect.
15. Proceed with final pressurization – page 12.

FINAL PRESSURIZATION OF HALOTRON I EXTINGUISHERS
with
Amerex Models 891 (80 lb.) and 892 (200 lb.) Halotron I Recharge System and
P/N 14538 Halotron I Recharge Kit

FINAL PRESSURIZATION PROCEDURE

1. Confirm that the hoses and components are clean and free of debris. Purge all hoses with argon. Check for leaks and repair if necessary.
2. Start with all valves closed, connect the argon gas supply cylinder female quick connect to the extinguisher fill adapter male quick connect.
3. Set the regulator at 0 psig (0 kPa) and open the argon cylinder valve.
4. Open the argon gas cylinder valve and set the regulator to the extinguisher operating pressure. If the temperature range is not in the range of 70±5°F, consult the pressure/temperature chart on page 5 for the correct temperature/pressure adjustment. Verify the correct pressure on the pressure gauge and adjust as needed.
5. Open the extinguisher valve (depress lever) and allow argon gas to transfer into the extinguisher until the pressure equalizes.
6. Close the extinguisher valve (release lever) and agitate the extinguisher by vigorously rocking it back and forth for 5 to 10 seconds.

Note: A large amount of argon will be absorbed into the Halotron. It is very important that the extinguisher be rocked well to allow this absorption.

7. Repeat steps 5 and 6 until the extinguisher pressure equalizes at the correct operating pressure for the extinguisher. This will normally require 3 repetitions.
8. Close the argon supply valve and then open the argon supply hose vent (if installed) to relieve the pressure in the hoses.
9. Disconnect the argon supply hose quick connect from the extinguisher adapter. Remove the extinguisher adapter.
10. Install ring (safety) pin and lockwire seal.
11. Install nozzle or hose assembly and recharge tag.
12. Hold extinguisher for 24 to 48 hours, verify pressure and return to customer.

Caution: Never leave pressure in a hose (either argon supply or recharge) for a prolonged period of time.

SHUT DOWN INSTRUCTIONS

After following the above procedure, there may be a small amount of Halotron I left in the charging hose. If it will be more than 8 hours before another extinguisher will be filled, Amerex recommends bleeding this Halotron I off into the atmosphere. The bleed off process will prolong the life of your recharge equipment.

Follow this procedure to remove Halotron I captured in the charging hose:

1. Make sure that the Halotron I recharge cylinder is **CLOSED**.
2. Point the male quick connect plug for the argon supply away from yourself and others and open the toggle valve. A small amount of Halotron I and argon may be discharged. Close the toggle valve. The charging hose will be empty of Halotron I and argon pressure.

HALOTRON I EXTINGUISHER SERVICE PROCEDURES **for** **A Leaking Extinguisher or Bulk Supply Cylinder**

If an extinguisher is leaking but has not lost substantial pressure, the Halotron I can be recovered following the procedures on Page 7 (Halotron I Recovery). If the extinguisher has lost all or most of the pressure, which would cause a loss of the gases from the Halotron I blend, perform the following:

1. Pressurize the extinguisher with argon before attempting a transfer of the contents into a recovery cylinder.
2. Recover the Halotron I liquid in the extinguisher through the prescribed normal agent recovery techniques (see page 7) into a Halotron I bulk cylinder (supply or recovery) which contains “fresh” Halotron I. There will be enough additional gases in the bulk cylinder to “reconstitute” the recovered Halotron I.

If a bulk cylinder is leaking but has not lost substantial pressure, the Halotron I can be transferred to a new cylinder by performing the following:

NOTE: If your Halotron I bulk cylinder has lost a substantial amount of pressure or has lost total pressure, please notify Amerex immediately.

Model 890 – 35 lb. Halotron I Bulk Recharge Cylinder only

1. Attach the P/N 14649 fill adapter to the model 890 operating valve. Connect the argon supply hose to the adapter, open the “T” handle valve and pressurize the model 890 to 100 psig (689 kPa). Attach the recharge kit hose assembly to the fill adapter.
2. Attach the recharge hose assembly to a new empty bulk cylinder which is empty and under a vacuum.

NOTE: An additional P/N 14649 fill adapter will be required. The Halotron I recharge kit includes only one.

3. Open the valves on the leaking and new cylinder and transfer the agent into the new cylinder. When the pressure equalizes and no further liquid is moving from leaking to new cylinder, close bot cylinder valves. Depress the air (vapor) valve needle on the “new” cylinder and vent argon gas pressure until the “new” cylinder pressure is lower than the “leaker”.
4. Detach the recharge hose assembly quick connect from the leaking cylinder and repressurize with argon to 100 psig (689 kPa).
5. Repeat this process until the maximum amount of liquid Halotron I has been transferred to the new cylinder. Vent the recharge hose assembly when completed. Keep in mind that up to a pound heel will always be left in the leaking cylinder.

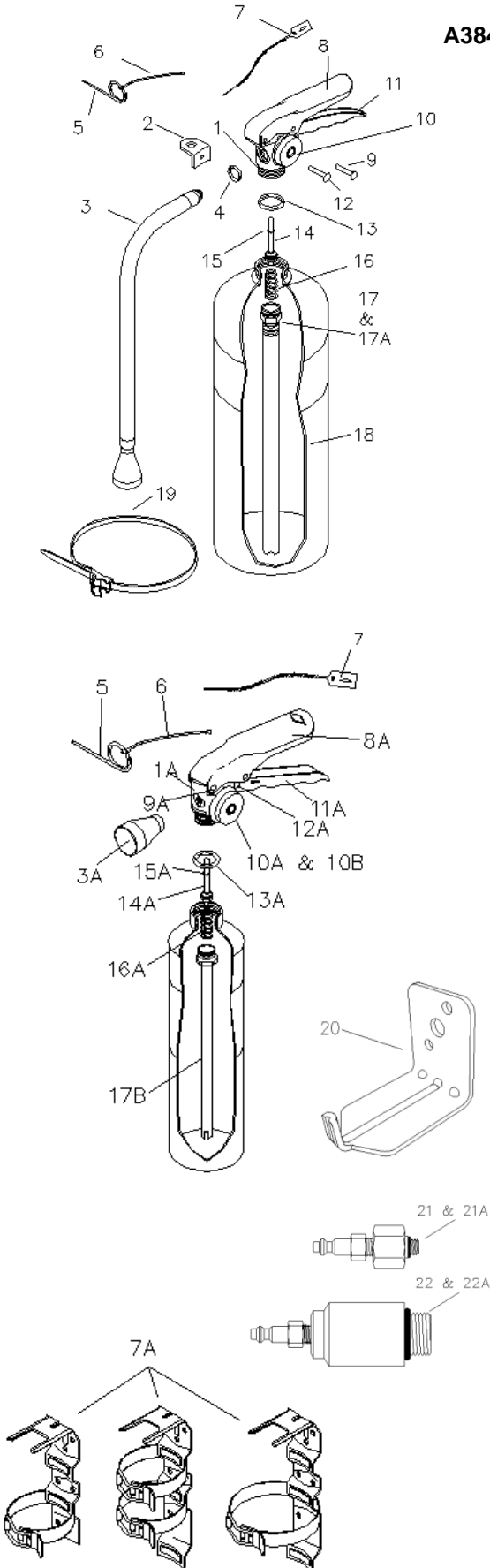
Models 891 and 892 – 80 and 200 lb. Halotron I Bulk Recharge Cylinders

1. Connect the argon supply hose to the vapor valve on the leaking supply cylinder and maintain a constant argon pressure of 100 psig (689 kPa) throughout the transfer.
2. Connect the recharge hose assembly to the liquid supply on the leaking cylinder to the liquid supply on a new cylinder that is under a vacuum.
3. Open the liquid valves on both cylinders to allow the liquid to transfer into the new cylinder.
4. When the liquid transfer is complete, allow the cylinders to equalize pressure at 100 psig (689 kPa) before closing the liquid valves and venting the hose.

Parts List

for
1.4, 2½, 5, 5½, 11 & 15½ lb. Halotron I "Clean Agent"
Stored Pressure Fire Extinguishers

**A384(1.4 lb), A385, B385(2½ lb), A386, B386 (5 lb),B394(5½ lb) Aluminum Valve
387 (11 lb), 388 (15½ lb), 397 (11 lb) 398 (15½ lb) Brass Valve**



Item No.	Part No.	Description	Std. Pkg.
1	14527	Vlv Asy – 387 & 388, 397 & 398	1
1A	14525	Vlv Asy – 384	1
	14526	Vlv Asy – A385 & A386	
2	16694	Hanger Loop & Screw – 387,388,397,398	6
3	14436	Hose & Nozzle Asy – 387, 397 (.247)	1
	14449	Hose & Nozzle Asy – 388, 398 (.295)	
3A	14407	Nozzle – A384 (.121)	1
	14408	Nozzle – A385, B385 (.166)	
	14409	Nozzle – A386, B394 (.277)	
	06978	O-ring (hose) – 387 & 388	
4	06978	O-ring (hose) – 387 & 388	24
4A	01532	O-ring (nozzle) – A386,A385,A386	24
5	00160	Ring Pin, Stainless Steel – ALL	24
6	00532	Chain (Nylon) for Ring Pin - ALL	24
7	01387	Lockwire Seal (Yellow) – ALL	500
8	07762	Lever & Rivet – 387, 388, 397, 398	1
	06067	Lever & Rivet – A384	
8A	11825	Lever & Rivet – A385 & A386, B394	1
9	01563	Rivet Only for Lever – 387,388,397,398	24
9A	01060	Rivet Only for Lever – A384,A385,A386	24
10	14418	Gauge – 125 PSI – 387,388,A384,397,398	1
10A	14417	Gauge – 100 PSI – A385 & A386	1
10B	16221	Gauge – 150 PSI – B394	1
11	09020	Handle & Rivets – 387, 388, 397, 398	1
11A	09001	Handle & Rivets – A384	1
12	01564	Rivet Only for Handle (2 req)- 387,388,397,398	24
12A	01064	Rivet Only for Handle – A384, A385, A386	24
13	13305	Collar O-ring (Green) – 387, 388, 397, 398	12
13A	14268	Collar O-ring (Green) – A384, A385, A386, B394	12
14	13288	Vlv Stem Asy (Grn Seal) - 387, 388, 397, 398	6
14A	14327	Vlv Stem Asy (Grn Seal) – A384, B384, A385, B385, A386, B386, B384	6
15	05243	Vlv Stem O-ring – 387, 388, 397, 398	24
15A	05235	Vlv Stem O-ring – A384, A385, A386, B394	24
16	00383	Spring – 387, 388, 397, 398	6
16A	01074	Spring, A384, A385, A386, B394	6
17	14285	Downtube/Retainer Asy – 387, 388	1
17A	15507	Downtube/Retainer Asy – 397, 398	1
17B	06069	Downtube/Retainer Asy – A384	1
	01075	Downtube/Retainer Asy – A385	
	06212	Downtube/Retainer Asy – A386, B394	
19	14478	Strap & Hose Clip Asy (Black) Plastic – ½" Hose) – 387 & 388	1
20	00575	Wall Hanger – 387, 388, 397, 398	1
20A	05530	845 Vehicle Bkt (Red) – A384	1
	01089	817 Vehicle Bkt, A385	1
	06098	817S Vehicle Bkt, 2 Strap (Red) – A385	1
	01211	818 Vehicle/Marine Bkt (Red) – A386, B394	1
	05294	818S Vehicle/Marine Bkt, 2 Strap (Red) – A386, B394	1
21	14568	Fill Adapter (w/Snap Tite Quick Connect) – 387, 388, 397, 398	1
21A	14579	Fill Adapter (w/Snap Tite Quick Connect) – A384, A385, A386, B394	1
22	03038	Hydrotest Adapter (1¼"-12UN2B) – 387 & 388, 397, 398	1
22A	03610	Hydrotest Adapter (1"-12UN2B) – A384, A385, A386, B394	1
ALL VALVE ASY INCLUDES VLV BODY, GAUGE, HANDLE & LEVER			

NOTES: