

OWNER'S SERVICE MANUAL

INSTALLATION, OPERATING & SERVICING INSTRUCTIONS



MANUAL PN 05620

CLASS D WHEELED EXTINGUISHERS

MODELS 680, 681

All fire extinguishers shall be installed, inspected and maintained in accordance with the National Fire Protection Association standard titled "Portable Fire Extinguishers", NFPA 10 or the National Fire Code of Canada and the requirements of local authorities having jurisdiction.

When maintenance is indicated, it shall be performed by trained persons having proper equipment. Fire extinguishers are pressure vessels and must be treated with respect and handled with care. They are mechanical devices and require periodic maintenance to be sure that they are ready to operate properly and safely. Amerex strongly recommends that the maintenance of portable fire extinguishers be done by a trained professional – your local authorized Amerex Distributor.

Amerex Corporation makes original factory parts available to insure proper maintenance – USE OF SUBSTITUTE PARTS RELEASES AMEREX OF ITS WARRANTY OBLIGATIONS. Amerex parts have machined surfaces and threads which are manufactured to exacting tolerances. All parts meet precise specifications and are subjected to multiple in-house inspections and tests for acceptability. There are substitute parts available which are incorrectly labeled as U/L component parts, some are advertised as Amerex type. None of these meet U/L requirements and all of them void the Amerex extinguisher warranty and U/L listing. **DO NOT SUBSTITUTE.**

RECHARGE FIRE EXTINGUISHERS IMMEDIATELY AFTER ANY USE

REFERENCES IN THIS MAUNUAL:

NFPA 10 Portable Fire Extinguishers

CGA C-1 Methods for Pressure Testing Compressed Gas Cylinders

CGA C-6 Standard for Visual Inspection of Steel Compressed Gas Cylinders.

National Fire Code of Canada

AVAILABLE FROM:

National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471

Compressed Gas Association, 14501 George Carter Way, Chantilly, VA 20151-2923

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National Research Council Canada, 1200 Montreal Road, Ottawa, ON K1A 0R6 Canada

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PREPARING YOUR NEW EXTINGUISHER FOR USE

WARNING: THIS FIRE EXTINGUISHER IS SHIPPED FROM THE FACTORY EMPTY. AFTER INITIAL PREPARATIONS, CAREFULLY FOLLOW THE RECHARGING INSTRUCTIONS BEFORE REPLACING IT INTO SERVICE.

1. Remove all wrappings, straps and pallet retaining bolts.
2. Examine the extinguisher for shipping damage. Check to make sure that you have received the Class D powder charge containers and Extension Wand which are packaged with the extinguisher.
3. Fill the extinguisher by carefully following the RECHARGE instructions.
4. Remove the ARGON cylinder protective shipping cap. Save the cap as it must be installed whenever a charged ARGON cylinder is transported. \
5. Check the ARGON cylinder pressure. The gauge shall read approximately 2015 psi (13.9 mPa) at 70°F (21°C) ambient temperature. See the "Troubleshooting Guide" for pressure-temperature allowances. The tamper seal shall be intact.
6. Connect the Argon supply hose firmly to the Argon cylinder valve. Make sure that there are no kinks in this hose.
7. Disconnect the discharge hose assembly from the agent cylinder. Make sure that the hose and nozzle (and Extension Wand) are unobstructed. Reconnect the discharge hose to the agent cylinder and with the shut-off valve in the closed (forward) position, properly coil the hose onto the storage rack. Place the shut-off nozzle (or Extension Wand if used) into the retaining clips [see hose coiling - last page].
8. Record the date the extinguisher is being placed into service on the inspection tag and attach it to the unit.
9. **Remove the CAUTION (NOT CHARGED) tag.**

INSTALLATION

WARNING: THE MODEL 680 CLASS D FIRE EXTINGUISHER HAS BEEN TESTED AND APPROVED FOR CLASS D FIRES INVOLVING MAGNESIUM, SODIUM, POTASSIUM OR POTASSIUM ALLOYS ONLY. THE MODEL 681 CLASS D FIRE EXTINGUISHER HAS BEEN TESTED AND APPROVED FOR CLASS D FIRES INVOLVING LITHIUM ONLY. DO NOT USE EITHER EXTINGUISHER ON CLASS A, B OR C FIRES.

Do not place this extinguisher close to a potential fire hazard. Amerex recommends location at a 50 foot minimum distance from the hazard with an unobstructed access. Avoid placing it in an extremely hot or cold place. The temperature range for this extinguisher is -40° to 120°F (-40° to 49°C). Keep the extinguisher clean and free from dirt, ice, chemicals and other contaminants which may interfere with its proper operation.

DO NOT FUNCTIONALLY TEST THIS FIRE EXTINGUISHER. Testing or any use may cause the extinguisher to gradually lose pressure and become ineffective.

OPERATION

CAUTION: PERSONS EXPECTED TO USE THIS EXTINGUISHER SHALL BE TRAINED IN INITIATING ITS OPERATION AND IN THE PROPER FIRE FIGHTING TECHNIQUE. FAMILIARIZE ALL PERSONNEL WITH THIS INFORMATION BEFORE AN EMERGENCY OCCURS.

1. Move the extinguisher to within approximately 25 feet of the fire site. REMOVE PULL PIN. Pull "T" handle to OPEN ARGON VALVE. This will pressurize the extinguisher.
2. Remove nozzle from the mount, and with the nozzle lever in the CLOSED position, PULL HOSE FROM RACK AND START BACK 15 FEET from the fire. Note: When using the wand applicator START BACK 6 FEET FROM FIRE.
3. OPEN NOZZLE SHUT-OFF slowly by pulling handle fully towards you (hold the nozzle firmly and be prepared for a discharge recoil). COVER ALL BURNING METAL WITH POWDER.
4. REAPPLY AGENT TO HOT SPOTS until the fire is fully extinguished.

DISCHARGE TIME (APPROXIMATE)
Model 680 – 80 Seconds Model 681 – 120 Seconds
EFFECTIVE RANGE OF THE AGENT THROW
With Nozzle (both units) – 20 to 30 feet
With Applicator (both units) – 4 to 6 feet
Hose Length—25 feet

SHUTDOWN

1. After making sure that the fire has been completely extinguished, push the nozzle lever forward to the CLOSED position.
2. Close the Argon cylinder valve (push “T” handle to closed position).
3. Tip extinguisher over to rest on wheels and handle, then slowly open the nozzle lever again to clear the hose of chemical agent and pressure (be prepared for recoil and discharge of agent).

WARNING: MAKE SURE THAT ALL PRESSURE HAS ESCAPED BEFORE FURTHER DISASSEMBLY.

4. Stand the extinguisher upright after complete depressurization. Note: Argon pressure in the agent cylinder cannot escape through a disconnected pressurizing hose due to a check valve in the system. Always be careful when removing the fill cap.
5. Coil the extinguisher hose onto the storage rack and position the nozzle (and/or Extension Wand) onto the mount in preparation for transport to the recharge location.

WARNING: THE SHIPPING CAP MUST BE INSTALLED ON THE ARGON CYLINDER PRIOR TO TRANSPORT TO THE RECHARGE LOCATION.

INSPECTING THE EXTINGUISHER

INSPECTION NFPA 10 is a “quick check” that an extinguisher is available and will operate. It is intended to give reasonable assurance that the extinguisher is fully charged and operable. This is done by seeing that it is in its designed place, that it has not been actuated or tampered with, and that there is no obvious physical damage or condition to prevent operation.

PERIODIC INSPECTION PROCEDURES (Monthly or more often if circumstances dictate)

NFPA 10 a “quick check” shall be made of the extinguisher for the following:

1. Located in designated place.
2. No obstructions to access or visibility.
3. Operating instructions on nameplate and facing outward.
4. Tamper seal not broken or missing.
5. Determine fullness by weighing on a scale with adequate capacity.
6. Examine for obvious physical damage, corrosion, leakage or clogged nozzle.
7. Pressure gauge (Argon cylinder) reading in the operable area.

MAINTENANCE

MAINTENANCE NFPA 10 At least once a year (or more frequently if indicated by an inspection), MAINTENANCE shall be performed. MAINTENANCE is a “thorough check” of the extinguisher. It is intended to give maximum assurance that an extinguisher will operate effectively and safely. It includes a thorough examination and any necessary repair or replacement. It will normally reveal the need for hydrostatic testing

NOTE: NFPA 10 spells out wheeled extinguisher maintenance procedures. Para. 4-4.1.3 requires that REGULATORS on wheeled extinguishers be checked annually to meet manufacturer's "dead set" and "minimum flow" recommendations. The Getz Mfg. PN: 52576 Wheeled Extinguisher Service Kit is available so that you can perform these required functions. Getz part numbers from the kit are referenced in this manual.

ANNUAL MAINTENANCE PROCEDURES

WARNING: BEFORE SERVICING BE SURE THE EXTINGUISHER AGENT CYLINDER IS NOT PRESSURIZED.

NOTE: This procedure will be best accomplished with the extinguisher in an upright position and on a level surface.

1. Clean extinguisher to remove dirt, grease or foreign material. Check to make sure that the instruction nameplate is securely fastened and legible. Inspect the cylinders for corrosion, abrasion, dents or weld damage. If damage is found, hydrostatically test in accordance with instructions in CGA Pamphlet C-1 and C-6 and NFPA 10.
2. Inspect the extinguisher for damaged, missing or substitute parts. A careful inspection shall be made of the safety relief to make sure that it has not ruptured, corroded or been tampered with. Only factory replacement parts are approved for use on Amerex fire extinguishers.
3. Check the date of manufacture on the extinguisher nameplate or on the agent cylinder dome. The agent cylinder assembly and discharge hose assembly must be hydrostatically tested every 12 years. Test pressure for the agent cylinder is 500 psi (3448 kPa). Test pressure for the hose assembly is 300 psi (0268 kPa).
4. Check the hydrostatic test date on the crown of the Argon cylinder. The Argon cylinder must be retested in accordance with D.O.T. regulations every 5 years.
5. Check the gauge on the Argon cylinder. If the pressure is below 1700 psi (11.7 mPa) repressurize the cylinder to 2015 psi (13.9 mPa) or replace it. A low pressure may indicate leakage. Check for leaks. A low gauge reading may also result from low temperature. See the temperature/pressure relationship chart in the "Troubleshooting Guide". Check the tamper seal on the Argon valve and replace if necessary.
6. Inspect the wheels to insure they rotate freely. Lubricate as required.

WARNING: THE FOLLOWING STEPS SHALL ONLY BE PERFORMED BY PROFESSIONALLY TRAINED AND QUALIFIED SERVICE PERSONNEL THOROUGHLY FAMILIAR WITH INDUSTRY SERVICE PROCEDURES AND SAFETY PRECAUTIONS AND HAVING THE NECESSARY EQUIPMENT TO PERFORM THE SERVICE PROPERLY. ALL EXTINGUISHER AND SERVICE EQUIPMENT COMPONENTS, FITTINGS AND ADAPTERS MUST BE IN GOOD CONDITION AND PROPERLY CONNECTED.

7. Disconnect the regulator from the agent cylinder. Visually examine the regulator and high pressure hose for signs of damage, corrosion or deterioration. To perform the regulator static pressure, dead set and minimum pressure flow rate checks:
 - a) Connect the proper service kit ADAPTER (PN: 01740) to the low pressure outlet port of the regulator.
 - b) Connect the service kit HOSE ASSEMBLY (PN: 01410) and FLOW CHAMBER (PN: 01250) to the regulator low pressure port adapter.
8. Make sure all service kit connections are secure and that the kit flow chamber is CLOSED. Check the ARGON cylinder pressure to ensure that it is within the acceptable operating range. Hold the kit flow chamber in one hand and slowly open the Argon cylinder (with either "T" handle operating lever or by turning the handwheel if so equipped). Observe flow chamber pressure reading to see if it is within the recommended static dead set pressure parameters for the Models 680 & 681 regulator listed below.

Regulator Type Victor

Static Dead Set Pressure 120 ± 10 PSI

Minimum Flow Pressure 110 PSI Minimum

- b) Use a regulated Argon pressure source, set to the extinguisher operating pressure (110 PSI) and briefly pressurize the agent cylinder (the siphon tube shall clear within a couple of seconds and the agent cylinder pressure slowly vent from the fill cap thread vent). Pressure and/or dry powder leaking from the gas inlet port, where the regulator was installed, will indicate a defective gas tube. This will require emptying the agent cylinder and replacing the gas tube.
 - c) Close the Argon pressure source and allow all pressure to slowly vent from the thread vent port on the fill cap.
 - d) **AFTER ALL PRESSURE HAS BEEN RELIEVED, SLOWLY OPEN THE FILL CAP AND - REMOVE THE TEST KIT VENT SPACER.**
 - e) Re-examine the Class D dry powder agent to determine if any obstructions have been cleared from the siphon tube and have risen to the surface.
 - f) Clean the fill cap and agent cylinder thread surfaces. Securely install the fill cap gasket and fill cap.
16. Disconnect the service kit quick connect adapter from the low pressure port of the regulator and reinstall the regulator securely to the agent cylinder.
 17. Disconnect the high pressure hose from the Argon cylinder valve. Securely install the service kit ARGON/NITROGEN CYLINDER PRESSURE CHECK GAUGE ASSEMBLY (PN: 01300) to the Argon cylinder valve outlet and verify the indicated cylinder gauge pressure. Argon pressure shall conform to the temperature correction chart provided in the TROUBLE SHOOTING section of this manual. Close the Argon cylinder valve and disconnect the Pressure Check Gauge Assembly.
- WARNING: IF THE ARGON CYLINDER VALVE HAS A "T" HANDLE QUICK OPENING OR QUICK OPENING TRIP LEVER RELEASE, THE SAFETY VENT PLUG (PN: 01560) MUST BE INSTALLED TO PROTECT SERVICE PERSONNEL FROM A HIGH VELOCITY DISCHARGE IN CASE THE LEVER IS ACCIDENTALLY OPENED.**
18. Install a new Amerex PN: 07411 Moisture Seal per instructions in the package. Securely connect the discharge hose to the extinguisher. When assembling the hose to the agent cylinder or nozzle to the hose, tighten the coupling ¼ turn after contacting the hose gasket.
 19. Coil the hose onto the extinguisher hose rack using the reverse loop procedure (see instructions later in this manual). Install the shut-off nozzle (and/or Extension Wand) with the lever in the CLOSED (forward) position on the mount.
 20. Remove the safety vent plug from the Argon cylinder. Re-connect the high pressure hose securely to the Argon cylinder valve. Wipe the extinguisher clean. Record the service data on the inspection tag according to NFPA 10 requirements and attach to the extinguisher. Return the extinguisher in its proper location.

RECHARGE

RECHARGING NFPA 10 is the replacement of the extinguishing agent and also includes the expellant for this type of extinguisher.

RECHARGE PROCEDURE

WARNING: BEFORE ATTEMPTING TO RECHARGE BE SURE THIS EXTINGUISHER IS COMPLETELY DEPRESSURIZED. THERE IS A CHECK VALVE IN THE SYSTEM WHICH PREVENTS ARGON PRESSURE FROM ESCAPING FROM THE AGENT CYLINDER WHEN THE ARGON SUPPLY HOSE IS DISCONNECTED. THE AGENT CYLINDER MAY BE PRESSURIZED EVEN THOUGH NO PRESSURE ESCAPES FROM THE ARGON CYLINDER HIGH PRESSURE HOSE CONNECTION.

1. **TO DEPRESSURIZE:**
 - a) Close the Argon cylinder valve.
 - b) Carefully tip extinguisher over until it rests on both wheels and handle. (in this position much of the agent will remain in the cylinder)
 - c) Open the nozzle lever slowly to discharge all remaining agent and pressure. (be prepared for a nozzle recoil).
 - d) **Insure that all pressure has escaped before further disassembly.**
 - e) Return extinguisher to the upright position after complete depressurization.
2. Carefully remove the fill cap. Detach discharge hose from the agent cylinder and the nozzle assembly from the hose. Blow out any chemical agent remaining in the hose. Clean hose and container fittings and gaskets. Replace gaskets as necessary.

WARNING: IF THE PRESSURE READING EXCEEDS THE GIVEN PARAMETERS, QUICKLY CLOSE THE ARGON CYLINDER “T” HANDLE OR HANDWHEEL VALVE AND VENT THE PRESSURE BY OPENING THE FLOW CHAMBER BALL VALVE. REGULATORS CANNOT BE FIELD ADJUSTED. THEY MUST BE REPLACED IF FOUND TO BE OUT OF TOLERANCE.

9. Observe the proper regulator static dead set pressure for a minimum of one minute, then fully open the flow chamber valve for 1 - 2 seconds. Observe the pressure reading to ensure that the flow pressure does not drop below the minimum specified. Close the Argon cylinder valve after the test and vent the flow chamber pressure by opening the flow chamber valve.

NOTE: Prior to performing the minimum flow check, make sure that the nitrogen cylinder valve (“T” handle or handwheel) is FULLY OPEN so that it does not restrict or alter the flow readings.

WARNING: ALWAYS OPEN THE SHUTOFF NOZZLE HANDLE SLOWLY. ANY PRESSURE IN THE AGENT CYLINDER WILL CAUSE THE EXTINGUISHER TO DISCHARGE. BE PREPARED FOR A POSSIBLE DISCHARGE AND NOZZLE RECOIL. ANY EVIDENCE OF AGENT IN THE NOZZLE INDICATES THAT THE UNIT MAY HAVE BEEN USED AND THE USE NOT REPORTED.

10. Disconnect the discharge hose from the agent cylinder. Check the couplings, hose and hose gaskets for damage or deterioration – replace as necessary.
11. To perform an operational integrity check on the discharge hose and nozzle combination:
 - a) Connect the test kit hose adapter to the female end of the discharge hose.
 - b) Close the discharge nozzle shut-off lever and properly secure it.
 - c) Connect a properly regulated and verified nitrogen pressure source (set to the extinguisher operating pressure [110 - 130 psi] to the test kit hose adapter.
 - d) Slowly pressurize the discharge hose/nozzle assembly to the extinguisher operating pressure and check for leaks or distortion.
 - e) Operate the nozzle lever to ensure proper operation and to clear the hose of any obstructions (if hose is obstructed - refer to the TROUBLE SHOOTING section of this manual.
 - f) Close the nitrogen pressure source and relieve remaining pressure by slowly and fully opening the nozzle lever.
12. Remove the agent cylinder cap and examine it closely for signs of damage, cracks or thread wear. Clean the agent cylinder fill cap threads and thread vent port on the cap with a stiff bristle nylon brush. Remove the fill cap gasket and check for wear, cracks or tears - replace if necessary. Lightly lubricate the gasket with V-711 and reinstall.
13. Examine the condition of the chemical agent for proper type and condition. Replace chemical that is contaminated, caked or different than the type indicated on the nameplate (label). Do not trust to the “height” of the chemical when determining agent fill. Dry powder will settle and the only true indication of agent fill is to weigh the extinguisher and compare with the weight indicated on the nameplate (label).
14. Place the service kit VENT SPACER (PN: 01530) on top of the agent cylinder fill opening collar. Check again to see that the fill cap thread vent is clean and that the agent fill cap gasket is in place. Install the agent fill cap securely over the vent spacer.

CAUTION: STEP 15 - THE AGENT CYLINDER CAP THREADS MUST BE CLEAR AND THE CAP SECURELY INSTALLED ONTO THE VENT SPACER AND AGENT CYLINDER TO ALLOW PRESSURE TO SLOWLY VENT AFTER PERFORMING THE SIPHON TUBE CLEARING AND GAS TUBE INTEGRITY CHECKS.

15. To perform a siphon tube clearing and gas tube integrity check:
 - a) Remove the service kit AGENT HOSE ADAPTER (PN: 01455) from the discharge hose assembly and install it securely onto the agent cylinder siphon tube outlet.

3. Inspect the cylinder interior following CGA Visual Inspection Standard, Pamphlet C-6.
4. Perform MAINTENANCE-SERVICE PROCEDURES 1 through 3, 6 and 7. All parts shall be inspected, clean and replaced if necessary.
5. Detach hose from the Argon cylinder, install the shipping cap, unscrew the wing nuts and remove the Argon cylinder from the extinguisher
6. Fill the agent cylinder with the proper amount of Amerex Class D Powder (Model 680 – capacity 150 lbs., Super D [Sodium Chloride] or Model 681 – capacity 250 lbs. Copper). Lubricate the fill cap gasket. Install the fill cap and tighten securely.

WARNING: REPLACE ANY CHEMICAL THAT IS CONTAMINATED OR CAKED. DO NOT OVERFILL THE EXTINGUISHER - THIS COULD CAUSE MALFUNCTION. NEVER MIX TYPES OF AGENTS.

7. Install an Amerex PN 10904 110 cu. ft. ARGON cylinder (pressurized to 2015 psi), remove the shipping cap, place on the extinguisher and attach the Argon hose. The pull pin and tamper seal ["T" handle valve] or wire seal [handwheel valve] must be in place.
8. Reattach the hose to the extinguisher (tighten hand tight plus a ¼ turn). Properly coil the hose onto the storage rack. Reattach the shutoff nozzle (and/or Extension Wand) firmly to the hose and store it in the mount with the shutoff lever in the CLOSED (forward) position.
9. Record the service date on the inspection tag and place the extinguisher in its proper location.

TROUBLESHOOTING GUIDE

WARNING: BEFORE ATTEMPTING TO CORRECT ANY LEAKAGE PROBLEM, BE SURE THAT THE AGENT CYLINDER IS COMPLETELY DEPRESSURIZED. ALWAYS USE CAUTION WHEN OPENING THE SHUTOFF NOZZLE, AGENT CLINDER CAP OR ANY OTHER CONNECTION AS A LEAKING ARGON VALVE SEAT MAY HAVE PRESSURIZED THE AGENT CONTAINER. REFER TO THE PREVIOUS PAGE IN THE RECHARGE PROCEDURE FOR PROPER METHOD OF DEPRESSURIZATION.

| PROBLEM | CORRECTIVE ACTION |
|--|--|
| 1. Argon cylinder reads low or high | 1. Temperature may have affected the pressure reading. Temp. F 35° 70° 120° Temp. C 2° 21° 49° <u>Recommended Pressure</u> psi 1880 2015 2200 mPa 13.0 13.9 15.2 <u>Minimum Pressure</u> psi 1590 1700 1900 mPa 11.0 11.7 13.1 No corrective action is required if the pressure is within parameters stated above. |
| 2. Argon pressure is too low. Valve is closed. Tamper seal is intact. Pressure in agent and the Argon cylinders. | 2. Valve seat has leaked and has pressurized the agent cylinder. Follow RECHARGE PROCEDURE for restoring the extinguisher to service. |
| 3. Argon pressure is too low. Valve is closed. Tamper seal is intact. No pressure observed in cylinder. | 3. Leakage in the Argon valve at other than the valve seat. Replace with a properly charged Argon Cylinder. |
| 4. Unable to move the agent cylinder cap. | 4. Agent cylinder may be pressurized. Make no further attempt to remove the cap until this is checked |
| 5. Argon supply hose cut, cracked, or abraded. | 5. Replace hose assembly with Amerex PN 06814. |

FOR REPLACEMENT PARTS SEE THE AMEREX PORTABLE AND WHEELED PARTS BOOK PN 27277 AVAILABLE AT <http://www.amerex-fire.com> UNDER MANUALS OF THE RESOURCE SELECTION.