OWNER'S SERVICE MANUAL

INSTALLATION, OPERATING & SERVICING INSTRUCTIONS

MANUAL PN 05618

CARBON DIOXIDE WHEELED EXTINGUISHERS
MODELS 333, 334

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 that are manufactured to exacting tolerances. O-rings, hoses, nozzles, and all metal parts meet precise specifications and are subjected to multiple in-house inspections and tests for acceptability. There are substitute parts available that may be incorrectly labeled as UL component parts, some are advertised as Amerex type. None of these meet UL requirements, and all of them void the Amerex extinguisher warranty and UL listing. DO NOT SUBSTITUTE.

RECHARGE FIRE EXTINGUISHERS IMMEDIATELY AFTER ANY USE

REFERENCES IN THIS MAUNUAL:	AVAILABLE FROM:
NFPA 10 Portable Fire Extinguishers	National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471
CGA C-1 Methods for Pressure Testing Compressed Gas Cylinders	Compressed Gas Association, 14501 George Carter Way, Chantilly, VA 20151-2923
CGA C-6 Standard for Visual Inspection of Steel Compressed Gas Cylinders.	Compressed Gas Association, 14501 George Carter Way, Chantilly, VA 20151-2923
National Fire Code of Canada	National Research Council Canada, 1200 Montreal Road, Building M-58 Ottawa, ON K1A 0R6 Canada

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AMEREX CORPORATION – P.O. BOX 81 – TRUSSVILLE, ALABAMA 35173-0081 **Phone:**

205/655-3271 Fax: 800/654-5980

e-mail: customer.service@amerex-fire.com Web Page: http://www.amerex-fire.com

PREPARING YOUR NEW EXTINGUISHER FOR USE

1. Remove all wrappings, straps, and pallet retaining bolts.
2. Examine the extinguisher for shipping damage.
3. Remove shipping cap(s) from CO2 cylinder(s). Install discharge hose (50 lb.) or manifold (100 lb.) to cylinder valve(s). Check to insure that the hose connection to the opening valve/or manifold and hose to the squeeze-grip shut-off valve are tight.
4. Check to insure that the cylinder valve(s) are in the **CLOSED** position. The pull pin(s) shall be installed and the tamper seal(s) intact.
5. Visually inspect the safety relief on the cylinder valve for evidence of obstruction or damage. DO NOT REMOVE.
6. This extinguisher is shipped from the factory fully charged. The most accurate method to determine if the extinguisher is filled with the proper amount of Carbon Dioxide is to weigh the unit. The gross weight is indicated on the lower right hand corner of the pictogram operation 'INSTRUCTIONS' (plus weight of cylinders stamped on the cylinder valve[s]).
7. Record the date the unit is being placed into service on the inspection tag, and attach it to the extinguisher.

INSTALLATION

Your plant layout and particular hazards dictate the placement of fire extinguishers. Do not place this extinguisher close to a potential fire hazard. Amerex recommends location no less than a 20-foot distance from a potential hazard while leaving an unobstructed access. Avoid placing it in an extremely hot or cold place. The operational temperature range for this extinguisher is -22ºF to +120ºF (-30ºC to +49ºC). The extinguisher shall be adequately protected if temperatures outside of this range are anticipated. Keep the extinguisher clean and free from dirt, ice, chemicals, and any 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

NOTE: 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.

WARNING: HIGH CONCENTRATIONS OF CARBON DIOXIDE CAN CAUSE RESPIRATORY PROBLEMS. SELF CONTAINED BREATHING APPARATUS OR AIR LINE RESPIRATORS SHALL BE USED IF OXYGEN LEVER HAS BEEN DIMINISHED BELOW 19%. AVOID SKIN CONTACT – CO2 IS VERY COLD AND COULD CAUSE BURNS OR FROSTBITE.

1. Move the extinguisher (wheeled unit) to within 30 feet of the fire site.
2. Twist and pull the pull pin(s) snapping the tamper seal(s). Pull "T"-handle cylinder valve lever(s) to open cylinder valve. Pull hose from rack. Start back 10 feet from the fire.
3. Grasp horn squeeze-grip shut off valve, and aim horn at base of fire nearest you.
4. Squeeze horn shut off valve lever. Sweep side to side across the base of the fire and past both edges. Progressively follow up until the fire is extinguished. Work the fire away from you while being alert for flashbacks. Move closer as the fire is extinguished but not so close as to scatter or splash the burning materials.
5. When the fire is out release the horn shut off valve lever to stop discharge. Stand by and watch for possible reignition.

6. Evacuate and ventilate the area immediately after extinguishing the fire. The fumes and smoke from any fire may be hazardous and can be deadly.

BEFORE PREPARING TO MOVE THE EXTINGUISHER TO THE RECHARGE LOCATION, DETERMINATION MUST BE MADE THAT THE FIRE IS COMPLETELY EXTINGUISHED AND THERE IS NO DANGER OF A FLASHBACK.

	50 LB.	100 LB.
Discharge Time (approximately)	**44 seconds ±5 sec.**	**74 seconds ±8 sec.**
Hose Length	**40 feet**	**40 feet**

INSPECTING THE EXTINGUISHER

This extinguisher must be inspected at regular intervals (monthly or more often if circumstances dictate) to insure that it is ready for use. Inspection is a "quick check" that a fire extinguisher is available and is in operating condition. It is intended to give reasonable assurance that the fire extinguisher is fully charged. This is done by verifying that it is in its designated place, that it has not been actuated or tampered with, and that there is no obvious physical damage or condition to prevent its operation.

PERIODIC INSPECTION PROCEDURES

(Monthly or more often if circumstances dictate)

NFPA 10 Periodic inspection of fire extinguishers shall include a check of at least the following items:

1. Located in designated place.
2. No obstruction to access or visibility.
3. Pressure gauge reading or indicator in the operable range or position.
4. Operating instructions on nameplate and facing outward.
5. Tamper seal(s) not broken or missing.
6. Examination for obvious physical damage, corrosion, leakage, or clogged nozzle.
7. Determine fullness by weighing.
8. Condition of tires, carriage, and hose.

MAINTENANCE

NFPA 10 At least once a year or more frequently if circumstances require, maintenance shall be performed. Maintenance is a "thorough check" of the extinguisher. It is intended to give maximum assurance that a fire extinguisher will operate effectively and safely. It includes a thorough examination for physical damage or condition to prevent its operation and any necessary repair or replacement. It will normally reveal if hydrostatic testing or internal maintenance is required.

MAINTENANCE – SERVICE PROCEDURE

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 any damage is found, hydrostatically test to factory test pressure 3000 psi (20.69 MPa) in accordance with instructions in C-6 and NFPA 10.
2. Inspect the extinguisher for damaged, missing, or substitute parts. Only factory-replacement parts are approved for use on Amerex fire extinguishers.
3. Check the date of manufacture on the extinguisher cylinder dome. The agent cylinder must be hydrostatically tested every 5 years to the test pressure indicated on the nameplate [3000 psi (20.69 MPa)]. Complete maintenance shall be performed whenever a hydrostatic test is being done. This includes an inspection of the interior of the valve assembly, the spring, and the interior of the cylinder. Install a new valve stem after lightly lubricating the O-ring with V-711 (do not lubricate the seal).
4. Check pull pin for freedom of movement. Replace if bent or if removal appears difficult.

5. **Check the horn shutoff lever** for freedom of movement (squeeze and release several times). If the operation is impeded, disassemble the nozzle, replace parts, and/or properly lubricate as necessary. Make sure that the horn is clear and unobstructed.

   WARNING: SQUEEZE HORN SHUT OFF LEVER SLOWLY. CARBON DIOXIDE MAY HAVE BEEN LEFT IN THE HOSE FROM A PREVIOUS DISCHARGE. BE PREPARED FOR A POSSIBLE DISCHARGE AND NOZZLE RECOIL.

6. Remove hose and horn and visually inspect inside valve body. Inspect the hose, and replace if the hose is cut or cracked. Inspect the horn assembly for damage, and replace if it is brittle, cracked, or deformed. Blow air through the hose and nozzle assemblies to insure passage is clear of foreign material.

   CAUTION: CARBON DIOXIDE HOSE ASSEMBLIES HAVE A CONTINUOUS METAL BRAID THAT CONNECTS TO BOTH COUPLINGS TO MINIMIZE STATIC SHOCK. A HOSE CONTINUITY TEST SHALL BE PERFORMED USING A BASIC CONDUCTIVITY TESTER CONSISTING OF A FLASHLIGHT HAVING AN OPEN CIRCUIT AND A SET OF TWO WIRES WITH A CONDUCTOR (CLAMPS OR PROBE) AT EACH END. NFPA 10

   NOTE: Carbon Dioxide hose assemblies require hydrostatic testing every 5 years to the same test pressure as the cylinder (3000 psi [20.69 MPa])

7. Inspect the valve assembly for corrosion or damage to hose thread connection. Replace valve assembly or component parts as necessary following the proper depressurization and recharge procedures. If valve removal is necessary, complete all steps in the Recharge Procedure. **Valve removal and/or valve part replacement shall be made only after completely discharging the contents of the cylinder**.
8. Inspect the wheels to insure they rotate freely. Lubricate as required.
9. Check carriage assembly for loose nuts, bolts, frame distortion, or damage. Check welds for damage or corrosion. Replace damaged parts, or make repairs as necessary
10. Reinstall horn to shut off valve and valve to hose. Reconnect the hose to the agent cylinder. Properly coil the hose on the rack and horn in the clips.
11. Weigh extinguisher, and compare with the weight printed on the Pictogram operating instruction on the label (plus the weight of the cylinder(s) stamped on the cylinder valve(s). Recharge extinguisher if weight is not within indicated allowable tolerances (more than 5 lbs. per cylinder).
12. Install a new tamper seal(s), and record service data on the extinguisher inspection tag.
13. If the extinguisher has been moved to perform service, make sure it is returned to its proper location.

RECHARGE

RECHARGING NFPA 10 is the replacement of the extinguishing agent.

RECHARGING PROCEDURE

WARNING: Before attempting to recharge, be sure the extinguisher is completely empty and depressurized. Use only an approved source of carbon dioxide (see minimum specifications in NFPA 10 Inspection, Maintenance, and Recharging). Do not use dry ice converters. Use an approved pump, hose, and recharge adapted to insure safe and efficient recharge operations.

1. Perform steps 1 through 10 of the Maintenance procedure.
2. Discharge all remaining carbon dioxide from the extinguisher.

   NOTE: The Model 334 & 335 (100 lb.) extinguishers have two 50 lb. cylinders manifolded to a common discharge hose. The manifold must be removed before attempting to recharge the cylinders.

3. Place 50-lb. cylinder on an accurate scale (the full weight – cylinder, valve, and CO2 is stamped on the valve). Install recharge adapter. Connect carbon dioxide supply line to the recharge adapter.
4. Move “T” handle on the cylinder valve to the open position, and pump 50 lbs. (22.7 KG) of clean, dry carbon dioxide into the cylinder.

5. When the proper weight is reached, move the “T” handle on the cylinder valve to the closed position. Shut off CO2 pump and vent supply line.
6. Remove the CO2 supply line, and recharge adapter from the cylinder valve.
7. Check for leaks using leak detection fluid or a solution of soapy water. If any leaks occur, refer to the Troubleshooting Guide.
8. Install pull pin and tamper seal(s) on cylinder valve(s). Attach new recharge tag.
9. Install cylinder(s) to the carriage and properly secure.
10. Attach the hose and horn assembly to the cylinder valve. Install hose and horn assembly on carriage.

    CAUTION: THE MODEL 334 AND 335 EXTINGUISHERS HAVE TWO 50-LB. CYLINDERS MANIFOLDED TO A COMMON DISCHARGE HOSE. PROPERLY ALIGN THE CYLINDERS, THEN ATTACH MANIFOLD HOSES WITH MANIFOLD AND DISCHARGE HOSE AND HORN ASSEMBLY TO THE CYLINDER VALVES.

11. Weigh assembled extinguisher, and confirm that the total weight is within the allowable tolerances indicated on the pictogram operating instructions (plus weight of cylinder[s] stamped on cylinder valve[s]).

TROUBLESHOOTING GUIDE

WARNING: Before attempting to correct any leakage problem, be sure that the agent cylinder and hose are completely depressurized. Check to determine the source of a leak before the extinguisher is depressurized. Leakage repairs will require depressurization and removal of the valve assembly. Depressurize by discharging into a Closed Recovery System or inverting the extinguisher. After depressurizing the extinguisher and correcting the problem, it will be necessary to clean all valve parts thoroughly.

	PROBLEM	CORRECTIVE ACTION
1.	Leak at valve to cylinder connection	Remove valve assembly, install new Teflon sealing tape, reinstall valve to a maximum of 150 ft. lbs. torque.
2.	Leak through valve	Remove valve assembly, downtube, spring, and valve stem assembly. Install NEW valve stem assembly. Check valve seat for scratches or foreign matter.
3.	Leak at safety relief nut	Remove safety nut, disc, and gasket assembly. Replace with new Amerex PN 04000 safety nut, disc, and gasket assembly. Tighten assembly to 250 in. lbs. of torque.
4.	Leak at base of “T” handle on valve.	Remove valve assembly, downtube, spring, and valve cylinder stem assembly. Install new valve stem assembly. Check valve seat for scratches or foreign matter.
5.	Leak at any hose connections	Tighten hose connections, and check for hose coupling damage. Replace hose assembly as necessary.
6.	Leak in the cylinder	Contact Amerex if under warranty, otherwise mark “REJECTED” and return to owner.
	NOTE: When valve removal is performed at hydrotest, the cylinder neck threads must be examined per CGA C-6. “Cylinders shall be rejected if the required number of effective threads is materially reduced so that a gas-tight seal cannot be obtained by reasonable valving methods. Common defects are worn or corroded crests and broken or nicked threads.	

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.