SERVICE MANUAL

FOR
NITROGEN CYLINDER OPERATED
REGULATED AND PRESSURE TRANSFER TYPE
WHEELED DRY CHEMICAL
FIRE EXTINGUISHERS

A-150-PT	125 LB. ABC	WITH 23 CU. FT. NITROGEN CYL.
A-150-RG	125 LB. ABC	WITH 110 CU. FT. NITROGEN CYL.
S-150-PT	150 LB. STD.	WITH 23 CU . FT. NITROGEN CYL.
S-150-RG	150 LB. STD.	WITH 110 CU. FT. NITROGEN CYL.
K-150-PT	125 LB. PK	WITH 23 CU. FT. NITROGEN CYL.
K-150-RG	125 LB. PK	WITH 110 CU. FT. NITROGEN CYL.
A-350-PT	300 LB. ABC	WITH 55 CU. FT. NITROGEN CYL.
A-350-RG	300 LB. ABC	WITH 220 CU. FT. NITROGEN CYL.
S-350-PT	350 LB. STD.	WITH 55 CU. FT. NITROGEN CYL.
S-350-RG	350 LB. STD.	WITH 220 CU. FT. NITROGEN CYL.
K-350-PT	300 LB. PK	WITH 55 CU. FT. NITROGEN CYL.
K-350-RG	300 LB. PK	WITH 220 CU. FT. NITROGEN CYL.

110 KINGS ROAD

KINGS MOUNTAIN, NC 28086

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SECTION I

Buckeye Fire Equipment Nitrogen Cylinder Operated Wheeled Fire Extinguishers are engineered to provide the fire protection industry with a wide variety of reliable fire protection equipment for those potential large fire hazards. This enables the fire protection professional to select the right unit for their specific need.

The extinguishers are designed with integral carriages that allow one person to move the extinguishers easily over smooth or rough surfaces, through standard doorways, and over walkways.

It is recommended that a fully trained fire extinguisher technician service this type of fire extinguisher.

SECTION I

Two-Year Limited Warranty

Buckeye Fire Equipment Company promises to the original consumer purchaser to repair or replace at the option of Buckeye, at no cost to the consumer purchaser, any part of the fire extinguisher which proves to be defective in workmanship or material under normal use, in the U.S.A. or Canada, for a period of two (2) years from date of purchase. During such time, Buckeye will provide all parts necessary to correct such defect free of charge, provided that the product has been operated in accordance with the instructions on the label or elsewhere. ONLY GENUINE FACTORY PARTS MUST BE USED WHEN SERVICING BUCKEYE FIRE EXTINGUISHERS OR THIS WARRANTY SHALL BECOME NULL AND VOID. THERE ARE TO BE NO GENERIC OR SUBSTITUTE PARTS USED. This warranty is based on the fire extinguisher not having been discharged and not being misused or improperly maintained. The original consumer purchaser shall give notice of any such defects by writing to Buckeye Fire Equipment Company, 110 Kings Road, Kings Mountain, North Carolina, 28086.

THIS WARRANTY SHALL NOT APPLY IF THE FIRE EXTINGUISHER IS DAMAGED WHILE IN POSSESSION OF PURCHASER WHETHER DUE TO ACCIDENT, ACT OF GOD, OR OTHERWISE, IS SUBJECTED TO UNREASONABLE USE WHICH CAUSES IT TO MALFUNCTION OR BECOME DEFECTIVE. THE TERM "UNREASONABLE USE" SHALL INCLUDE FAILURE TO PROVIDE REASONABLE AND NECESSARY MAINTENANCE IN ACCORDANCE WITH THE INSTRUCTIONS ON THE LABEL OR ELSEWHERE. BUCKEYE ASSUMES NO LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

References

NFPA-10: The National Fire Protection Associations Standard for portable fire extinguishers is considered part of this manual. It applies to selection, installation, maintenance, and testing of portable fire extinguishing equipment. The NEPA-10 Standard may be obtained from:

NATIONAL FIRE PROTECTION ASSOCIATION
Batterymarch Park
Quincy, MA 02269

CGA: The Compressed Gas Association pamphlets C-1, C-2, C-6, and C-6.1 are considered part of this manual. These cover hydrostatic testing, proper cylinder disposal, visual inspection, and handling of compressed gas cylinders. The above pamphlets may be obtained from:

COMPRESSED GAS ASSOCIATION
1235 Jefferson Davis Parkway
Arlington, VA 22202

U.S. GOVERNMENT PUBLICATIONS: Code of Federal Regulations, Title 49 is considered part of this manual. It may be obtained from:

U.S. GOVERNMENT PRINTING OFFICE
Washington, D.C. 20402

SECTION II

PREPARATION/ASSEMBLY INSTRUCTIONS

1. Examine the unit for any visual signs of shipping damage.

2. Carefully remove all of the protective shipping/wrapping materials from the unit.

3. Ensure that the agent cylinder is properly filled to its rated capacity with the extinguishing agent specified on the extinguisher's nameplate. If the unit is shipped empty but accompanied with extinguishing agent packaged separately, proceed with the following steps.

    a. Locate the extinguisher in a dry area then remove the agent fill cap and flat gasket.
    b. Using a funnel, fill the unit with the extinguishing agent supplied.
        150 Pound Standard Chemical models require 150 lbs. of agent
        150 Pound ABC and Purple-K Chemical models require 125 lbs. of agent
        350 Pound Standard Chemical Models require 350 lbs. Agent
        350 Pound ABC and Purple-K Chemical models require 300 lbs. of agent.
    c. After the unit is filled, remove the funnel and clean any residual agent from the unit, agent tank cylinder threads, and seating surfaces.
    d. Ensure the flat gasket is properly located within the fill cap and reinstall the fill cap onto the agent cylinder securely (hand tight).

4. Ensure that the proper nitrogen cylinder is securely installed into the extinguisher's cylinder retention bracket.

NOTE:

	Size of Nitrogen Cylinders Utilized		
150 PT Models	23 cu ft (.65 m3)	350 PT Models	55 cu ft (1.56 m3)
150 RG Models	110 cu ft (3.11 m3)	350 RG Models	220 cu ft (6.23 m3)

5. Remove the nitrogen cylinder's safety shipping cap. Do not discard the cap as it is required to be used and installed whenever transportation of the cylinder is necessary.

6. On nitrogen cylinder valve models that feature a "quick-release" lever, the safety shipping vent plug must also be removed from the valve outlet port. Again, save this safety shipping vent plug for future transportation or service functions.

CAUTION

If the "quick-release" lever is accidentally pulled when the valve is not secured or properly connected, the velocity of the escaping high-pressure gas from the cylinder valve is sufficient to cause serious personal injury or death. Never place or locate any part of your body in front of the cylinder valve outlet.

SECTION II (Cont.)

7. Verify that the cylinder pressure gauge reading is in the black operable range and that it correlates with the acceptable limitations detailed in the nitrogen "temperature/pressure correction chart" located on page 21 of this manual.

8. On Regulated (RG) type units, attach the regulator to the nitrogen valve and attach the low-pressure hose from the regulator to the chemical supply tank. On Pressure Transfer (PT) type units, attach the high-pressure hose from the nitrogen cylinder to the chemical supply tank.

9. Check the lead wire tamper seal on the cylinder valve. Replace it if it is broken or missing.

10. Check to make sure that the hose is unobstructed and firmly attached (with moisture seal in place) at the supply cylinder.

11. Check the nozzle. The handle should be in the forward "closed" position. Place it in the nozzle holder.

12. Record the date the unit is placed into service on the inspection tag and attach it to the cylinder.

13. Remove the caution "Not Charged" tag.

INSTALLATION INSTRUCTIONS

Select the proper location for unit. Do not place the unit too close to a potential fire hazard. Buckeye Fire Equipment recommends at least a minimum of 50 feet between the unit and a potential fire hazard. Make certain that the path from the unit to the primary hazard is clear. Avoid placing the unit in extremely hot or cold areas. The temperature range for this type of extinguisher is –65 degrees F to 120 degrees F (-40 degrees C to 49 degrees C). Keep the extinguisher clean, free from dirt, ice, chemicals, or other contaminants which may interfere with its proper operation.

SECTION II (cont.)

NOTE: DO NOT ATTEMPT TO FUNCTIONALLY TEST THIS UNIT. ONCE OPERATED, IT MUST BE FULLY SERVICED PRIOR TO PLACING IT BACK INTO SERVICE.

CAUTION: DO NOT USE DRY CHEMICALS ON FIRES IN AIRCRAFT ENGINES OR HIGHLY SENSITIVE ELECTRONIC EQUIPMENT UNLESS ABSOLUTELY NECESSARY. SEE YOUR BUCKEYE FIRE EQUIPMENT DISTRIBUTOR FOR CLEAN AGENT HALOTRON I FIRE EXTINGUISHERS FOR THESE TYPES OF APPLICATIONS.

OPERATING INSTRUCTIONS

1. Position the extinguisher approximately 50 feet upwind of the fire. The unit must be kept in the upright (standing) position and located so that all of the agent discharge hose can be easily removed from the hose retention arm.

2. Remove the discharge nozzle from its holder and after verifying that the operating handle is in the closed (forward) position, secure the nozzle in one hand.

3. Open the nitrogen cylinder valve by turning the handwheel in a counterclockwise position. Ensure that the cylinder is opened fully. On models equipped with a “quick-release” type operating lever, pulling the lever outward will also fully open the cylinder valve.

4. Pull all of the discharge hose coiled on the hose retention arm free. This ensures the best possible flow and discharge of agent from the nozzle.

5. The operator should approach the fire from upwind and be positioned and prepared to accommodate any recoil produced by the discharge of the extinguishing agent.

6. Slowly open the extinguisher nozzle by pulling back on the operating handle. Direct the extinguishing agent onto the base of the fire with a sweeping action. Progressively follow up on fighting the fire until it is completely extinguished. Avoid scattering or splashing burning materials.

SECTION II (cont.)

NOTES:

- The nozzle must be fully opened to obtain the optimum designed extinguisher discharge range, effective time, and agent flow rate.

- Discharge range of this unit is approximately 25 – 40 feet.

- Duration times range from approximately 45 to 55 seconds for 240B:C rated units and 50 to 60 seconds for 320B:C rated units.

- Lengths of hose are all 50 feet long. Unit sizes of 150-lbs. have ¾" diameter hoses and unit sizes of 350-lbs. have 1" diameter hoses.

- Evacuate and ventilate the area immediately after the fire has been extinguished. Fumes and smoke from any fire may be hazardous and/or deadly.

EXTINGUISHER SHUTDOWN PROCEDURE

1. After use, close the discharge nozzle operating handle by pushing it fully forward.

2. Locate and position the extinguisher where it can be blown down and remain stationary for a minimum of five minutes.

3. Close the nitrogen cylinder valve by turning the handwheel fully clockwise. When the "quick-release" style of valve has used the "pull-lever" to open the cylinder valve, the following procedure must be followed to close the valve.

    a. Turn the handwheel fully counterclockwise.
    b. Push the actuation lever back down and rotate the slotted shaft forward so that the flat portion of the shaft is parallel with the face of the pressure gauge on the valve.
    c. Turn the handwheel fully clockwise to close the cylinder.

4. Invert the extinguisher cylinder by pivoting it about its wheeled axis so that the extinguisher carriage pulling handle rests on the ground and the nitrogen cylinder is not positioned on top.

SECTION II (cont.)

5. Slowly open the discharge nozzle until all the pressure is relieved from the agent cylinder and the discharge hose is clear of all dry chemical. Ensure that the nozzle is left open and that the unit remains in this inverted position for at least 5 minutes.

NOTE: If the unit is over half full some siphoning and additional loss of agent is possible. If this occurs the pressure release rate from the nozzle should be reduced by partially closing the nozzle.

6. After waiting 5 minutes, the nozzle should be closed and the extinguisher transported to a location where it can be promptly recharged. Refer to the recharge instructions contained in this manual.

SECTION III

PERIODIC INSPECTION PROCEDURES

Per NFPA-10, the following applies to the inspection of wheeled fire extinguishers.

DEFINITION – Inspection is a quick check that a fire extinguisher is available and it will operate. It is intended to give reasonable assurance that the fire extinguisher is fully charged and operable. 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.

FREQUENCY – Fire extinguishers shall be inspected when initially placed in service and thereafter at approximately 30-day intervals. Extinguishers shall be inspected at more frequent intervals when circumstances require.

NOTE: Anytime an inspection reveals a discrepancy immediate action should be taken to correct the condition or a complete maintenance procedure initiated to resolve the discrepant condition specifically indicated.

1. Ensure that the extinguisher is located in its designated place and is positioned so that it can be easily mobilized or put into operation in the event of a fire.

2. Ensure that there are no obstructions that might prevent anyone from visually locating or accessing the extinguisher in the event of a fire emergency.

3. Ensure that the extinguisher's operating instructions located on the nameplate are legible and facing outward.

4. Ensure that the visual inspection lead wire safety seals are not broken or missing.

5. Examine the unit for any visual signs of missing /loose parts, physical damage, and corrosion or leakage.

6. Inspect the discharge nozzle to ensure it is unobstructed and that the operating handle is in the closed (forward) position.

7. Ensure that the nitrogen cylinder valve pressure gauge needle indicates pressure within the acceptable black operating range.

SECTION III (cont.)

8. Determine the fullness of the agent cylinder by weighing the extinguisher or hefting the extinguisher by pivoting it up and down about its wheeled axis.

9. Ensure that the wheels rotate freely and, if equipped with pneumatic tires, that they are inflated.

10. Record the date of inspection in accordance with NFPA-10 recommendations.

NOTE: CORRECTIVE ACTION MUST BE TAKEN IMMEDIATELY IF THE ABOVE INSPECTION REVEALS A DEFICIENCY.

MAINTENANCE PROCEDURES

Per NFPA-10, the following applies to the maintenance of wheeled fire extinguishers.

DEFINITION – Maintenance is the thorough examination 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 if hydrostatic testing is required.

FREQUENCY – Extinguishers shall be subjected to maintenance not more than one year apart or when specifically indicated by an inspection.

NOTES: Maintenance procedures include the examination of the following three basic elements of wheeled fire extinguishers: The mechanical parts, the extinguishing agent, and the expelling means.

To perform wheeled extinguisher maintenance properly the use of some special service component assemblies are necessary. This manual references the use of the Model 30/350 “Universal Wheel Extinguisher Service Kit” or equivalent for service procedures.

1. The extinguisher should be in the upright (standing) position and located in an area suitable for performing all of the following checks.

WARNING – To avoid serious injury or death, always ensure that the extinguisher has been blown down after any use and that all the pressure has been relieved from the agent cylinder and hose assembly prior to attempting to perform any maintenance, recharge, or service. The design of the gas tube’s check valve prevents tank pressure from escaping when the expellant gas hose is disconnected.

WARNING – To prevent serious injury or death, whenever nitrogen cylinders are being removed from the extinguisher for storage or transportation, a safety shipping cap must be installed. Nitrogen cylinder valves that feature the “quick-release” style of operational pull levers should also have a safety shipping vent plug installed into the valve outlet.

2. Examine the overall condition of extinguisher, looking for any mechanical damage, corrosion, missing parts, or physical conditions which might prohibit maintaining or servicing the extinguisher.

3. Check the extinguisher's nameplate to make certain it is legible and fastened securely.

4. Check the agent cylinder's date of manufacture (located on top dome of the cylinder) to determine if a periodic 12 year hydrostatic retest per NFPA-10 is necessary.

5. Check the nitrogen cylinder's date of manufacture (located on the top shoulder of the cylinder) to determine if a 5 or 10 year hydrostatic retest per CFR-49 DOT regulations is necessary.

6. Pull out and fully extend the agent discharge hose assembly from the hose retention arm in a straight line. Closely examine the couplings and hose for any corrosion, cracks, digs, cuts, deformation, or abrasions. Verify that the proper nozzle is being used. Replace the assembly if any discrepancy is observed.

7. Check both of the wheels for any damage and ensure they rotate freely. Lubricate the wheels and check the tire inflation as necessary.

SECTION III (cont.)

Specific Instructions For Pressure Transfer & Regulated Units

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BUCKEYE FIRE EQUIPMENT PT (PRESSURE TRANSFER) MODELS

a. Disconnect the expellant gas pressure from the nitrogen cylinder valve.

b. Minimum Pressure Verification Check – Examine the nitrogen cylinder valve for any damage that might impair its operation. Verify the indicated nitrogen cylinder valve pressure with the service kit's "check gauge" and ensure that the pressure and ambient temperature meet the requirements of the temperature/pressure correction chart located on page 21.

WARNING

If the nitrogen cylinder valve is the "quick-release" type, install a safety shipping vent plug into the valve outlet for the rest of the service procedure. Should the lever be accidentally pulled, the velocity of the escaping high-pressure gas from the cylinder valve is sufficient to cause serious personal injury or death. Service personnel should never place or locate any part of their body directly in front of the cylinder valve outlet.

c. Disconnect the expellant gas pressure hose assembly from the agent tank and examine it closely for any damage, corrosion, cuts, digs, cracks, or abrasions. Replace as necessary. Ensure it is unobstructed and free of any dry chemical residue. Presence of dry chemical residue indicates a faulty gas tube assembly.

d. Fill Cap Check – Remove the agent cylinder fill cap and ensure that the flat gasket is in place. Closely examine the cap for any damage, cracks, or thread damage.

e. Agent Type Check – Examine the extinguishing agent within the cylinder to verify it is the proper type and that it is free of any contamination or moisture caking.

f. Ensure the fill cap threaded weep hole/vent is unobstructed and clear, then install the service kits "vent spacer" onto the tank collar. Reinstall the fill cap and gasket securely on top of the "vent spacer".

g. Siphon Tube Clearing and Gas Tube Integrity Check – Connect the proper sized service kit "agent hose adapter" onto the tank outlet where the agent hose was attached. Remove the hose moisture/inspection disc before performing this test.

SECTION III (cont)

h. Using an *external regulated dry nitrogen pressure source set to 200 PSI*, connect to the service kit hose adapter attached to the tank outlet. Slowly and momentarily apply pressure to the extinguisher's agent outlet port until the pressure clears the siphon tube (which is indicated when the fill cap slowly begins to weep/vent tank pressure). Once the siphon tube clears, shut off the source of pressure and allow all pressure to vent from the agent cylinder. If any dry chemical or pressure leaks from the safety relief or gas tube port during the procedure this indicates a problem and the respective part must be repaired or replaced.

i. After all pressure has vented, remove the service kit "agent hose adapter" from the tank outlet.

j. Open the fill cap and remove the test kits "vent spacer". Re-examine the agent for any lumps of caked agent or foreign materials which might have been brought to the surface from the siphon tube clearing procedure.

k. Agent Charge Verification Check – Verify the proper agent charge by visually ensuring that its level measures approximately 3-6 inches from the bottom of the fill cap tank opening. This is a visual reference check only. If the agent level is not within the 3-6 range, weigh the extinguisher to verify the gross weight is within the range noted on the extinguisher nameplate.

l. Clean the tank collar and fill cap threaded areas and seating surfaces. Clean and lightly lubricate the fill cap gasket and place it into the fill cap. Reinstall the fill cap onto the agent tank and secure it firmly by hand.

m. Reconnect and properly secure the expellant gas hose assembly onto the agent cylinder using Teflon tape.

n. Functional Agent Discharge Hose Assembly and Nozzle Check – Install the proper service kit "agent hose adapter" onto the female end of the extinguisher's agent discharge hose assembly. Using an *external regulated dry nitrogen pressure source set to 200 PSI,* properly connect it to the service kit "agent hose adapter" attached to the agent discharge hose assembly. Ensure that the extinguisher's agent discharge hose is secure and the nozzle open. Slowly apply some pressure to verify that the assembly is clear and unobstructed. If the hose is obstructed, reapply pressure and, by flexing the hose, locate and work the obstruction free.

o. Close the nozzle and apply some additional pressure to check the assembly for any leaks. This functional check verifies the operational integrity of the complete hose assembly and that the nozzle functions properly under pressure. If deformation or leakage is evident, quickly close the source of pressure and vent all pressure from the assembly by pulling back the discharge nozzle's operating lever.

SECTION III (cont.)

p. Close, vent and disconnect the external pressure source, and then remove the service kit “agent hose adapter” from the extinguisher’s agent discharge hose assembly.

BUCKEYE FIRE EQUIPMENT REGULATED MODELS

a. Examine the regulator and the high-pressure expellant gas hose assemblies for any damage, corrosion, missing parts, cracks, cuts, deformation, or abrasions. Ensure that the regulator safety relief is intact and not damaged or obstructed.

b. Examine the nitrogen cylinder valve for any damage that might impair its operation and ensure that the gauge indicates pressure within the acceptable range.

WARNING
If the nitrogen cylinder valve is the “quick-release” type and the pull lever is accidentally pulled, the velocity of the escaping high-pressure gas from the cylinder valve is sufficient to cause serious personal injury or death. Service personnel should never place or locate any part of their body directly in front of the cylinder valve outlet.

c. Disconnect the regulator from the extinguisher agent cylinder.

d. Connect the appropriate wheel unit service kit “quick connect adapter” onto the low pressure port of the regulator to permit the functional “static and minimum flow testing” of the regulator and hose assembly.

NOTES: Buckeye Fire Equipment Regulated Wheeled unit models contain an excess amount of nitrogen expellant gas which will generally permit annual testing of these units and still sufficiently meet the minimum pressure and volume requirements specified on page 21.

Regulators that fail to meet the static or minimum flow test recommendations must be replaced. No adjustments are permitted.

SECTION III (cont.)

<u>WARNING</u> – To prevent any possible injury and/or death, always ensure that all pressure connections are properly connected and secured prior to applying pressure. Always use the nitrogen cylinder valve's handwheel for applying any pressure during maintenance or functional checks. Never use the nitrogen cylinder valve quick-release pull levers for service or maintenance functions as this applies pressure instantaneously and does not allow service personnel sufficient reaction time to defects.

e. <u>Static Pressure Check</u> – Reconnect and secure the high-pressure expellant gas hose assembly and regulator to the nitrogen cylinder valve. Properly connect the service kit "test hose" and "flow chamber" onto the quick connect adapter. Slowly open the nitrogen cylinder valve by turning the handwheel in a clockwise direction. Observe the regulator static pressure reading for approximately one minute. The static pressure should indicate between *235 to 245 PSI.* If the pressure exceeds this recommendation promptly close the cylinder valve and vent the pressure from the flow chamber. The regulator must be replaced.

f. <u>Minimum Flow Check</u> – With the test kit "flow chamber" still connected and under static pressure, momentarily fully open and close the flow chamber ball valve. Observe the flow chamber pressure gauge reading to ensure that the expellant gas flow pressure through the regulator *does not drop below 140 PSI.* Close the nitrogen cylinder valve and then vent the pressure and disconnect the flow chamber from the test hose assembly.

NOTE: Ensure that the nitrogen cylinder valve handwheel is fully open prior to this check or it could restrict the flow of expellant gas getting to the regulator.

g. <u>Fill Cap Check</u> – Remove the agent cylinder fill cap and ensure that the flat gasket is in place. Closely examine the cap for any damage, cracks, or thread damage.

h. <u>Agent Type Check</u> – Examine the extinguishing agent within the cylinder to verify it is the proper type and that it is free of any contamination or moisture caking.

i. Ensure the fill cap threaded weep hole/vent is unobstructed and clear, then install the service kit's "vent spacer" onto the tank collar. Reinstall the fill cap and gasket securely on top of the "vent spacer".

j. <u>Siphon Tube Clearing and Gas Tube Integrity Check</u> – Connect the proper sized service kit "hose adapter" onto the tank outlet where the agent hose was attached. The hose moisture/inspection disc must first be completely removed before performing this test.

SECTION III (cont.)

k. Using the verified regulated nitrogen operating pressure, connect the service kit "test hose" onto the agent tank outlet adapter. Slowly and momentarily apply regulated operating pressure until the pressure clears the siphon tube (which is indicated when the fill cap slowly begins to weep/vent tank pressure). Once the siphon tube clears, shut off the source of pressure and allow all pressure to vent from the agent cylinder. If any dry chemical or pressure leaks from the agent cylinder's safety relief or gas tube port during the procedure, this indicates a problem and the respective part must be repaired or replaced.

l. After all pressure has vented, remove the service kit "agent hose adapter" from the tank outlet.

m. After all the pressure from the tank has vented, slowly open the fill cap and remove the test kit "vent spacer". Examine the agent for any lumps of caked agent or foreign materials which might have been brought to the surface from the siphon tube clearing procedure.

n. Agent Charge Verification Check – Visually verify proper agent charge by determining that its level measures approximately 3-6 inches from the bottom of the fill cap tank opening. This is a visual reference check only. If the agent level is not within the 3-6 range, weigh the extinguisher to verify the gross weight is within the range noted on the extinguisher nameplate.

o. Clean the tank collar, fill cap threads, and seating surfaces. Lightly lubricate the fill cap gasket and place it into the fill cap. Reinstall the fill cap onto the agent tank handtight.

p. Functional Agent Discharge Hose Assembly and Nozzle Check – Install the proper service kit "agent hose adapter" onto the female end of the extinguisher's agent discharge hose assembly. Using the verified regulated nitrogen operating pressure, properly connect it to the service kit "agent hose adapter" attached to the agent discharge hose assembly. Ensure the extinguisher's agent discharge hose is secure and the nozzle open, then slowly apply some pressure to verify that the assembly is clear and unobstructed. If the hose is obstructed, reapply pressure and by flexing the hose, locate and work the obstruction free.

SECTION III (cont.)

q. Close the nozzle and apply some additional pressure to check the assembly for any leaks. This functional check verifies the operational integrity of the complete hose assembly and the proper function of the nozzle under pressure. If deformation or leaks are evident, quickly close the source of pressure and vent all pressure from the assembly by pulling back the discharge nozzle operating lever.

r. Close, vent, and disconnect the external source. Remove the service kit "agent hose adapter" from the extinguisher agent discharge hose assembly.

s. Using Teflon tape on the threads, properly reconnect the regulator and high pressure hose assembly onto the agent tank. Be careful when applying the Teflon tape. Do not obstruct any of the small pressure orifices in the unit.

WARNING:
If the nitrogen cylinder valve is the "quick-release" type and the pull lever is accidentally pulled, the velocity of the escaping high-pressure gas from the cylinder valve is sufficient to cause serious personal injury or death. Service personnel should never place or locate any part of their body directly in front of the cylinder valve outlet.

t. Disconnect the high-pressure hose assembly from the nitrogen cylinder valve.

u. Minimum Pressure Verification Check – Verify the indicated nitrogen cylinder valve pressure with the service kit "check gauge" and ensure that the pressure and ambient temperature meet the minimum requirements of the temperature/pressure correction chart located on page 21.

8. Reinstall an agent hose moisture/inspection disc onto the agent tank outlet. Ensure that the surface is clean. Using a wrench, reconnect and secure the agent hose assembly onto the agent tank outlet. Recoil the agent hose assembly onto the hose retention arm using the standard alternating reverse loop procedure detailed in NFPA-10. After the hose is coiled, ensure that the nozzle is properly installed in its retainer and that the operating lever in the closed (forward) position.

SECTION III (cont.)

9. Verify all extinguisher components are properly and securely reconnected. Wipe down and clean the unit. Install all the necessary visual inspection tamper seals.

10. Properly tag and record the maintenance check in accordance with NFPA-10 recommendations and return the unit to its proper location.

RECHARGE INSTRUCTIONS

Per NFPA-10, recharging pertains to the replacement of extinguishing agent and expellant gas. Buckeye Fire Equipment recommends that properly trained individuals promptly recharge extinguishers after any use. Only the materials specifically identified on the nameplate should be used.

WARNING:
To avoid serious injury or death, always ensure that the extinguisher has been blown down after any use and that all pressure has been relieved from the agent cylinder and hose assembly prior to attempting to perform any maintenance, recharge, or service. The design of the gas tube check valve prevents tank pressure from escaping when the expellant gas hose is disconnected.

WARNING:
If the nitrogen cylinder valve is the "quick-release" type and the pull lever is accidentally pulled, the velocity of the escaping high-pressure gas from the cylinder valve is sufficient to cause serious personal injury or death. Service personnel should never place or locate any part of their body directly in front of the cylinder valve outlet.

NOTE: If a closed recovery dry chemical agent type system is used, follow the proper procedural recommendations of the system's manufacturer for recharge.

1. Ensure the "after use/blow down procedures" contained within this manual are performed.

2. Locate the extinguisher in a dry area and follow the appropriate model extinguisher "maintenance procedures" contained within this manual.

SECTION III (cont.)

3. Ensure the agent cylinder is properly filled with the proper amount and type of Buckeye Fire Equipment dry chemical agent.

    150 Pound Standard Chemical models require 150 lbs. of agent
    150 Pound ABC and Purple-K Chemical models require 125 lbs. of agent
    350 Pound Standard Chemical models require 350 lbs. of agent
    350 Pound ABC and Purple-K Chemical models require 300 lbs. of agent

***WARNING* – To prevent serious injury or death, whenever nitrogen cylinders are being removed from the extinguisher for storage or transportation a safety shipping cap must be installed. Nitrogen cylinder valves that feature the "quick-release" style of operational pull levers should also have a safety shipping vent plug installed into the valve outlet.**

***WARNING*:**
If the "quick-release" lever is accidentally pulled when the valve is not secured or properly connected, the velocity of the escaping high-pressure gas from the cylinder valve is sufficient to cause serious personal injury or death. Never place or locate any part of your body in front of the cylinder valve outlet.

4. When replacing the expellant gas cylinder, ensure that it is the proper size, meets dew point specification of –60°F (-51°C), and meets the proper operating pressure specified on the temperature/pressure correction chart located on page 21.

Size Nitrogen Cylinders Utilized

150 PT Models	23 cu ft (.65 m3)	350 PT Models	55 cu ft (1.56 m3)
150 RG Models	110 cu ft (3.11 m3)	350 RG Models	220 cu ft (6.23 m3)

5. The extinguisher's nitrogen cylinder retention bolts and nuts should be lubricated with a thin coat of grease.

6. Properly record the recharge/maintenance procedure and tag the unit in accordance with NFPA-10 recommendations.

SECTION III (cont.)

HYDROSTATIC TESTING REQUIREMENTS

Portable fire extinguisher cylinders and certain hose assemblies are subject to various integrity and periodic hydrostatic (proof pressure) retesting requirements.

Any Buckeye Fire Equipment fire extinguisher having evidence of mechanical injury, damage, or corrosion which may call into question the integrity of the pressure vessel, should immediately be removed from service and subjected to the appropriate test procedure or be properly disposed and replaced.

CYLINDERS – The CGA association has established guidelines for visual inspection of steel Compressed Gas cylinders outlined in pamphlet C-6. The non-compressed gas steel cylinders commonly utilized for fire equipment are not necessarily constructed with the same types of materials or procedures and therefore these CGA recommendations may not appropriately apply. Buckeye Fire Equipment feels that any corrosion condition that has penetrated into a pressure vessel such that a loss of parent metal is visually evident may be potentially weakened.

HOSE AND COUPLING ASSEMBLIES – Damaged or questionable hose assemblies should not be tested, but instead, be replaced.

D.O.T. Specification Type Compressed Gas Cylinders

Only those qualified and trained personnel recognized and authorized by D.O.T. may retest D.O.T. specification cylinders. The retest must follow the appropriate D.O.T. requirements and procedures.

Buckeye Fire Equipment Wheeled units use DOT 3A or 3AA specification type nitrogen cylinders which have a (5) or (10) year periodic hydrostatic test interval per CFR-49.

UL/ANSI or ASME Type Agent Cylinders & Extinguisher Hose Assemblies

NFPA-10 provides guidance for the testing and labeling of non-compressed types of cylinders and hose assemblies.

Buckeye Fire Equipment Wheeled units use agent cylinders and hose assemblies which require a 12 year periodic retest interval.

SECTION III (cont.)

Buckeye Fire Equipment recommends the removal of the agent cylinder safety relief, siphon tube, and gas tube when hydrostatic testing the cylinder. The extinguisher fill cap should be used and remain upon the cylinder during hydrostatic testing.

Buckeye Fire Equipment recommends the removal of the nozzle valve assembly when hydrostatic testing the agent hoses.

Buckeye Fire Equipment recommends the following hydrostatic retest pressures be used.

-Expellant Gas Nitrogen…….Per DOT Requirements
-Agent Cylinders……480 PSI
-Agent Discharge Hose Assemblies……300 PSI
-High Pressure Expellant Gas Hose Assemblies……3000 PSI
-Low Pressure Expellant Gas Hose Assemblies……300 PSI

BUCKEYE NITROGEN CYLINDER

TEMPERATURE/PRESSURE CORRECTION CHART

Buckeye Fire Equipment provides the following temperature/correction chart for determining the minimum acceptable operating nitrogen expellant gas pressure when performing maintenance, recharge and service functions on its wheeled extinguishers.

Ambient Cylinder Temperature	Min. Pressure Recommended PSI	Kpa	Ambient Cyl Temperature	Min. Pressure Recommended PSI	Kpa
- 60°F (-51°C) ……	1340	9240	+ 30°F (-1°C) ……	1815	12515
- 50°F (-46°C) ……	1400	9653	+ 40°F (+4°C) ……	1865	12860
- 40°F (-40°C) ……	1435	9895	+ 50°F (+10°C) ……	1916	13211
- 30°F (-34°C) ……	1485	10240	+ 60°F (+16°C) ……	1965	13549
- 20°F (-29°C) ……	1535	10584	+ 70°F (+21°C) ……	2015	13894
- 10°F (-23°C) ……	1600	11032	+ 80°F (+27°C) ……	2065	14239
- 0°F (-18°C) ……	1654	11405	+ 90°F (+32°C) ……	2114	14577
+ 10°F(-12°C) ……	1715	11825	+ 100°F (+38°C) ……	2154	14852
+ 20°F(-7°C) ……	1765	12170	+ 110°F (+43°C) ……	2214	15266
			+ 120°F (+49°C) ……	2268	15639

SECTION IV

TROUBLESHOOTING

This section is provided as a supplement to the various inspection, maintenance, service, and hydrostatic test procedures contained within this manual. Prior to performing any troubleshooting, ensure that all the appropriate industry safety precautions and practices are understood and adhered to.

Buckeye Fire Equipment recommends that any personnel expected to inspect, maintain, recharge, or service these extinguishers be properly trained and have first thoroughly familiarized themselves with this entire service manual.

For further information or assistance, refer to this service manual or contact Buckeye Fire Equipment directly.

COMPONENT	PROBLEM	CORRECTION ACTION
1) AGENT CYLINDER	Dents, damage, abrasions or corrosion	Hydrotest, clean/repaint or replace as appropriate
2) AGENT CYLINDER	Damaged threads or cracks in welds	Replace agent cylinder
3) HOSE ASSEMBLIES	Damaged, corroded, cracked or deformed	Replace assembly
4) SAFETY RELIEF	Damaged, cracked, corroded	Replace assembly
5) NAMEPLATE	Unreadable, loose or missing	Replace as necessary
6) GAS TUBE	Plugged, damaged or leaking	Replace assembly
7) SIPHON TUBE	Plugged, cracked or damaged	Clear or replace as necessary
8) WHEEL	Bent or damaged	Replace as necessary
9) NOZZLE	Plugged, damaged or leakage	Clean, repair or replace as necessary
10) DISCHARGE VALVE	Inoperable, damaged or leakage	Clean, repair or replace as necessary
11) CYLINDER VALVE	Damaged, corroded or leakage	Replace assembly
12) CYLINDER VALVE	Inoperable or pressure gauge inaccurate	Replace/Repair as necessary
13) REGULATOR	Damaged or out of specifications	Replace assembly
14) CARRIAGE	Damaged, corroded or bent	Repair or replace as necessary
15) EXTINGUISHING AGENT	Contaminated or moisture caked	Empty, clean cylinder and recharge with new
16) EXPELLANT GAS	Low pressure or not meeting specifications	Recharge/Replace with new cylinder

SECTION V

PARTS LIST

Wheeled Dry Chemical
Model 150 PT
Fire Extinguishers
Pressure Transfer
23 cu. In. Nitrogen Cylinder
With 16” Pneumatic Tires

Model Numbers

A-150-PT 125 lb. ABC
S-150-PT 150 lb. STD
K-150-PT 125 lb. PK

No.	Part No.	Part Name
1	900834	Fill Cap, Cylinder
2	900835	Gasket, Fill Cap
3	900242	Safety Disc Assembly
4	300397	Nitrogen Hose Assembly
5	900846	Nitrogen Cylinder Assembly Charged – 23 cu ft w/cap, gauge
6	900849	Nitrogen Valve with Gauge
	900893	Quick Release Nitrogen Valve with Gauge – Alternate
7	900045	Lead Seal Wire for Nitrogen Valve
8	900824	Retaining Strap, Nitrogen Cylinder
9	700445	Bumper, Rubber
10	300398	Bolt, Nut & Washer
11	900387	Hub Cap w/Washer & Cotter Pin
12	900883	Moisture Seal
13	302360	Nozzle Tip – ABC .360 dia.
	302325	Nozzle Tip – PK .325 dia.
	302400	Nozzle Tip – STD .400 dia.
14	300389	Hose Assembly ¾” x 50’
15	900085	Hose Washer, Rubber
16	900205	Ball Valve Assembly
17	200107	Wheel Assy w/Hub Cap, Washer and Roll Pin
18	900093	Wheel Washer
19	900094	Roll Pin
20	Varies	Label – Non UL
*	200108	Wheel – 36” x 2 ½” w/Hub Cap, Washer and Roll Pin
*	200109	Wheel – 36” x 2 ½” w/Rubber w/Hub Cap, Washer & Roll Pin
*	900239	Hub Cap – 36” Wheel

* Not Shown

SECTION V

PARTS LIST

Wheeled Dry Chemical
Model 150 RG
Fire Extinguishers
Regulated
110 cu. in. Nitrogen Cylinder

Model Numbers

A-150RG W/16" Wheels
S-150RG W/16" Wheels
K-150RG W/16" Wheels
A-150RG W/36" Wheels
S-150RG W/36" Wheels
K-150RG W/36" Wheels

No.	Part No.	Part Name
1	900834	Fill Cap, Cylinder
2	900835	Gasket, Fill Cap
3	300513	Retaining Strap w/Hose Holder
4	300563	Nitrogen Hose Assembly
5	900848	Nitrogen Cylinder Assembly Charged – 110 cu ft w/cap, valve & gauge
6	900849	Nitrogen Valve with Gauge
	900893	Quick Release Nitrogen Valve with Gauge – Alternate
7	900045	Lead Seal Wire for Nitrogen Valve
8	300511	Retaining Strap, Nitrogen Cylinder
9	700445	Bumper, Rubber
10	300398	Bolt, Nut & Washer
11	900387	Hub Cap w/Washer & Cotter Pin
12	900883	Moisture Seal
13	302345	Nozzle Tip – ABC .345 dia.
	300280	Nozzle Tip – PK .280 dia.
	300350	Nozzle Tip – STD .350 dia.
	300375	Nozzle Tip – ABC HF - .375
	300330	Nozzle Tip – PK HF - .330
	300280	Nozzle Tip – PK 240 - .280
14	300542	Nipple – Hex ¼ x ¼
15	300389	Hose Assembly – ¾" x 50'
16	900085	Hose Washer, Rubber
17	900205	Ball Valve Assembly
18	200107	Wheel 16" w/Hub Cap, Washer & Roll Pin
19	900093	Wheel Washer
20	900094	Roll Pin
21	900856	Regulator
22	Varies	Label – Non UL
*	200108	Wheel – 36" x 2 ½" w/Hub Cap, Washer and Roll Pin
*	200109	Wheel – 36" x 2 ½" w/Rubber
*	900239	Hub Cap – 36" Wheel

* Not Shown

SECTION V

PARTS LIST

Wheeled Dry Chemical
Model 350 PT
Fire Extinguishers
Pressure Transfer
55 cu. in. Nitrogen Cylinder
With 36” Steel Wheels

Model Numbers

A-150-PT 300 lb. ABC
S-150-PT 350 lb. STD
K-150-PT 300 lb. PK

No.	Part No.	Part Name
1	900834	Fill Cap, Cylinder
2	900835	Gasket, Fill Cap
3	900242	Safety Disc Assembly
4	900855	Nitrogen Hose Assembly
5	900847	Nitrogen Cylinder Assembly charged – 55 cu. Ft. w/Cap
6	900849	Nitrogen Valve with Gauge
	900893	Quick Release Nitrogen Valve with Gauge – Alternate
7	900045	Lead Seal Wire for Nitrogen Valve
8	900831	Retaining Strap, Nitrogen Cylinder
9	700445	Bumper, Rubber
10	300398	Bolt, Nut & Washer
11	900239	Hub Cap
12	900859	Moisture Seal
13	302500	Nozzle Tip – ABC & PK .500 dia.
	302600	Nozzle Tip – STD .600 dia.
14	900253	Hose Assembly – 1” x 50’
15	900086	Hose Washer, Rubber
16	900207	Ball Valve Assembly
17	200110	Wheel Assembly – 36” x 6” w/Hub Cap, Washer & Roll Pin
	200111	Wheel Assembly – 36” x 6” w/Rubber w/Hub Cap, Washer and Roll Pin
18	900095	Wheel Washer
19	900084	Roll Pin
20	900085	Hose Washer – Rubber
21	Varies	Label – Non UL

SECTION V

PARTS LIST

Wheeled Dry Chemical
Model 350 RG
Fire Extinguishers
Regulated
220 cu. in. Nitrogen Cylinders
With 36” Steel Wheels

Model Numbers

A-350-RG 300 lb. ABC
S-350-RG 350 lb. STD
K-350-RG 300 lb. PK

No.	Part No.	Part Name
1	900834	Fill Cap, Cylinder
2	900835	Gasket, Fill Cap
3	900242	Safety Disc Assembly
4	900865	Nitrogen Hose Assembly
5	900881	Nitrogen Cylinder Assembly charged – 220 cu. Ft. w/Cap
6	900849	Nitrogen Valve with Gauge
	900893	Quick Release Nitrogen Valve with Gauge – Alternate
7	900045	Lead Seal Wire for Nitrogen Valve
8	900819	Retaining Strap, Nitrogen Cylinder
9	700445	Bumper, Rubber
10	300398	Bolt, Nut & Washer
11	900239	Hub Cap
12	900859	Moisture Seal
13	302450	Nozzle Tip – ABC .450 dia.
	302437	Nozzle Tip – PK .437 dia.
	302455	Nozzle Tip – STD - .455 dia.
14	900253	Hose Assembly – 1” x 50’
15	900086	Hose Washer, Rubber
16	900207	Ball Valve Assembly
17	200110	Wheel Assembly – 36” x 6” w/Hub Cap, Washer & Roll Pin
	200111	Wheel Assembly – 36” x 6” w/Rubber w/Hub Cap, Washer and Roll Pin
18	900095	Wheel Washer
19	900084	Roll Pin
20	900884	Retaining Strap w/Hose Holder
21	900085	Hose Washer – Rubber
22	900856	Regulator
23	Varies	Label – Non UL

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