

Service Manual

Self Expelling Carbon Dioxide Hand Portable Fire Extinguishers

Models

Badger B5V/-1/-2 B10V/-1 B15V/-1 B20V/-1

<u>Kidde</u>

Pro 5-CDM-3/-4/-5 Pro 10-CDM-3/-4 Pro 15-CDM-3/-4 Pro 20-CDM-3/-4



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Warning:

Failure to follow the instructions contained herein may result in property damage and/or personal injury!

Important Notice

Any time an unusual extinguisher discrepancy is noticed or the specific corrective action or procedure required to resolve this condition is not fully understood, personnel should stop and seek proper qualified assistance prior to continuing.

For assistance, you may contact the nearest authorized Badger fire extinguisher distributor. Your local distributor can be located in the phone book yellow pages, by contacting Badger Fire Protection directly at (434) 964-3200 or by logging on to www.badgerfire.com.

Introduction

This manual is designed as a guide for trained personnel having the appropriate equipment and materials to properly perform the operation, after use, inspection, maintenance, service, recharge and testing of Badger fire extinguishers.

The service instructions are written and intended for use only by properly trained and certified service personnel already familiar with standard industry fire extinguisher safety procedures and practices. Completion of the manufacturer's factory fire extinguisher service certification school is recommended.

Any modification, reproduction or distribution of this factory service manual or any part of its contents is prohibited without written permission.

All fire extinguishers should be installed, inspected, maintained and tested in accordance with the National Fire Protection Association Standard titled "Portable Extinguishers" (NFPA-10) and all the requirements of the local authority having jurisdiction.

The instructions in the National Fire Protection Associations Standard for portable fire extinguishers (NFPA-10), the Code of Federal Regulations and the Compressed Gas Association (CGA) pamphlets are not generally repeated in the manual except where they may emphasize or clarify a point. Hy-drostatic testing of fire extinguisher cylinders for example, is amply covered in NFPA-10 and CFR-49 part 180.209 which reference procedures in CGA pamphlets C-1, C-2 and C-6A.

NFPA 1 Batterymarch Park Quincy, MA 02269 (617) 770-3000 www.nfpa.org Government Printing Office P.O. Box 371954 Pittsburgh, PA 15250-7954 (202) 512-1802 www.bookstore.gpo.gov Compressed Gas Association 1235 Jefferson Davis HWY Arlington, VA 22202 (703) 788-2700 www.cganet.com

General Information

Badger CO2 extinguisher models are self-expelling hardware designs, which utilize DOT specification agent cylinders. These models are charged with carbon dioxide as the extinguishing agent. Carbon dioxide is a clean agent that discharges as a cold, heavier than air, gas which displaces oxygen to extinguish fire.

At normal operating temperatures, indicated on the nameplate, these extinguishers are engineered to effectively discharge the full contents of the carbon dioxide agent charge.

Never attempt to recharge a Badger carbon dioxide fire extinguisher with any other agent than that specified on the original nameplate.

Descriptions

These hand portable fire extinguishers consist of the following basic parts:

- 1. Agent cylinder High-pressure DOT specification cylinders contain the proper carbon dioxide extinguishing agent charge.
- 2. Cylinder discharge valve assembly consists of a carry handle, operating lever, pressure safety relief and discharge outlet fitted with an anti-recoil device to permit the actuation and controlled discharge of the extinguishing agent from the cylinder.
- **3. Siphon tube assembly -** provides a means for the liquid extinguishing agent to be drawn up from the bottom of the agent cylinder to the discharge valve.
- **4. Ring pin and tamper seals** provide a means of visual assurance that the extinguisher has not been activated, discharged or subjected to tampering.
- **5. Discharge hose assembly** –High-pressure wire braided rubber hose provides a flexible means of agent delivery from the cylinder valve to the nozzle assembly.
- **6.** Nozzle and horn assembly provides a means to direct and shape the extinguishing agent stream for optimum fire fighting performance.

Operation Instructions

- 1. Remove the extinguisher from its hanger or bracket.
- 2. Pull and remove the ring pin, breaking the visual tamper seal.
- 3. Using the extinguisher carrying handle, transport the unit to a safe position upwind of the fire.
- 4. Remove the nozzle and horn assembly from the retention band clip and grasp the discharge horn by the insulated handle. While keeping the extinguisher in a vertical position, aim the horn at the base of the fire.

(FOR 5# MODELS) - rotate the swivel nozzle discharge horn out from the side of the cylinder. Do not hold any part of the swivel assembly or horn during discharge. B5V-2 and Pro 5 CDM-4 models now feature insulated horns to provide operator protection during discharge.

5. Operators should approach the fire from upwind, to within approximately 8 feet of the front edge of the fire.

WARNING:

Failure to start back at a sufficient distance from the front edge of the fire or to use an adequate sweeping tempo of the agent discharge stream could cause splashing and/or scattering of the burning material.

WARNING:

Sufficient concentrations of discharged carbon dioxide may reduce oxygen and cause unconsciousness or even death. Avoid discharging carbon dioxide agent into any occupied small or unventilated spaces.

6. Starting back from this distance, squeeze the operating lever to initiate the agent discharge.

Note: The carbon dioxide discharge will be very cold and may cause frostbite to unprotected skin.

- 7. Apply the extinguishing agent discharge at the base of the flames with a side-to-side sweeping manner, being careful not to splash or scatter the fuel. Operators may advance closer as control of the fire is gained however, they should avoid stepping into the fuel or fire area.
- 8. After the fire is extinguished, stand by and be prepared to address any re-flash.
- 9. Once the fire is out and has cooled, the fuel should be properly removed and disposed of in accordance with any local handling requirements.

After Use Instructions

Note: Fire extinguishers should always be recharged immediately after any use.

1. Notify proper person that the fire extinguisher was used, so that the fire extinguisher can be immediately recharged or a replacement obtained.

Monthly Inspection Procedures

According to NFPA 10, inspection 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 verifying that it is in its designated place, that it has not been actuated or subjected to tampering, and that there is no obvious physical damage or condition to prevent its operation.

Inspections should be conducted whenever extinguishers are initially placed into service and thereafter at approximately 30 day intervals. When circumstances require, more frequent intervals may be necessary. Any time an inspection reveals a discrepancy, maintenance and service procedures should be performed.

- 1. Ensure the extinguisher is properly located in plain view and its access is unobstructed.
- 2. Examine unit for any signs of corrosion, leakage, wear or physical damage.
- 3. Ensure the nameplate is secure and legible and that "operating instructions" face outward.
- 4. Ensure ring pin and visual inspection tamper seal are in place and intact.
- 5. Heft or weigh extinguisher to determine its fullness. (When hefting and tilting the unit, the sound of liquid agent movement within the cylinder may be heard. If any other sounds are observed, refer to maintenance and trouble shooting recommendations.)

Note: Badger recommends all Carbon Dioxide hand portable fire extinguishers be weighed at least semi-annually to verify the proper total extinguisher weight, as stamped onto the side of the valve assembly.

- 6. Visually examine the discharge nozzle to ensure it is not damaged or obstructed.
- 7. Date and initial the inspection tag or record in accordance with NFPA 10 & local requirements.

Annual Maintenance & Service Examination Procedures

Per NFPA 10, maintenance is a thorough examination of a fire extinguisher and is intended to provide maximum assurance that it will operate effectively and safely. It includes a thorough examination of all components and the repair or replacement of such items if necessary.

Maintenance should be performed at intervals not to exceed one year apart or any time an inspection discrepancy dictates.

Badger recommends that only authorized Badger distributors and certified personnel who have been properly trained to recognize and correct discrepancies, as well as understand all the proper industry safety procedures, conduct the maintenance or service of Badger fire extinguishers. Refer to the trouble shooting section of this manual for additional information on specific equipment observations or discrepancies. **Only Badger factory replacement parts are recommended for use in Badger extinguishers.**

WARNING:

Prior to servicing or recharging an extinguisher, personnel should be thoroughly familiar with the contents of this manual to recognize any equipment conditions or discrepancies that might dictate or prohibit further equipment maintenance or repair.

WARNING:

To prevent injury or death, always ensure all pressure is properly relieved from an extinguisher prior to attempting any service, repair or recharge.

WARNING:

To avoid compromising the "MR Conditional" rating of the B5V-MR models, only the service parts specified on the back nameplate shall be utilized.

- 1. Ensure extinguisher is installed in its proper location and that it is readily accessible. (Badger carbon dioxide extinguisher models are approved for temperatures indicated on nameplates). Ensure mounting hardware is correct and secure.
- 2. Externally examine unit and cylinder for any signs of damage, dents or corrosion that mig prohibit service or dictate the need for any special maintenance/repair procedures. When the extinguisher is tilted or rotated, service personal should listen for any sounds from within the cylinder that might indicate a broken siphon tube or foreign material.
- 3. The hydrostatic test date stamped into the shoulder of the extinguisher cylinder must be checked. The maximum periodic interval for Badger carbon dioxide fire extinguishers is 5 years. (Refer to NFPA 10 and CFR 49 for specific cylinder hydrostatic re-test requirements and procedures.)

Warning:

To prevent accidental discharge of high pressure during the following steps, ensure ring pin is properly installed

4. Unscrew and remove the discharge hose assembly from the cylinder valve assembly. Closely examine the hose assembly, discharge horn and couplings for any damage, obstructions, abrasions, cracking, thread wear or conditions that might affect its proper function. Remove horn retention clip to expose nozzle for examination and to ensure it is correct for the model.

(ON 5# MODELS) – The agent discharge horn, metal tube and elbow assembly should be disconnected and thoroughly examined for any damage, obstructions, abrasions, cracking, thread wear or conditions that might affect its proper function.

- 5. Blow (low pressure) dry air through the discharge hose assembly and nozzle to ensure the four nozzle orifice ports are not plugged or obstructed. (If hose is obstructed, properly secure hose assembly and using the proper service kit adaptor, connect a regulated pressure source set no higher than 100 PSI to assist in clearing the hose.)
- 6. Using a continuity tester, perform an agent hose continuity test between both of the metal agent hose couplings to ensure the internal wire braid within the hose is intact, to help dissipate any potential static charge build up. Hoses passing this continuity test must be properly labeled in accordance with NFPA 10 requirements. Reassemble and secure the discharge horn and clip.
- 7. Visually examine the cylinder valve safety relief assembly to ensure it is intact and correct for the model. Ensure the safety relief is not damaged, corroded or obstructed.
- 8. Unscrew and remove the anti-recoil discharge elbow from the valve. Closely examine valve port and elbow to ensure they are not damaged, corroded or obstructed and that the elbow or-ring and clear flat fiber washer are intact and in good condition. Lightly lubricate the o-ring and properly re-install the elbow back into the valve until it bottoms out and is snug. If necessary, service personnel can back-off or unscrew the discharge elbow between 1/4 to 1/2 turn, to facilitate installation of the discharge assembly.

CAUTION: If discharge elbow is backed-off or unscrewed over the recommended 1/2 turn, the o-ring seal may permit unwanted release of cold carbon dioxide agent during discharge or filling.

9. Verify the hose and horn are correct for the model, then re-install and secure the proper discharge hose assembly wrench tight onto the valve's anti-recoil outlet elbow. On models equipped with a discharge hose, adjust and secure the nozzle into the retention band clip. The hose/horn models can be orientated to either the left or right side of the fire extinguisher cylinder to best accommodate proper hose/horn retention.

Note: Avoid the use of Teflon tape or similar materials which can compromise continuity for disapation of static build up.

(ON 5# MODELS) – Properly reconnect the agent discharge horn, metal tube and elbow assembly onto the extinguisher valve. Ensure it is secure and properly orientated.

- 10. Closely examine the carrying handle and operating lever for any damage or deformation, and ensure the rivets are secure.
- 11. Being careful not to accidentally discharge the fire extinguisher, pull and remove the ring pin from the operating lever (breaking the visual inspection seal). Ensure the ring pin pulls freely and is not bent, damaged or corroded. Re-install proper ring pin and install a new visual inspection tamper seal through the ring pin pull loop and the operating lever.
- 12. Look under the operating lever to ensure the visual portion of the valve stem shaft is not bent, damaged or corroded. The top portion of the stem should extend approximately 3/8 of an inch above the valve body.
- 13. Wipe the extinguisher clean with a damp cloth to remove any surface dirt or contaminants that may have accumulated.
- 14. Ensure the extinguisher nameplate is legible and secure. Check to ensure HMIS information is present and legible.

- 15. Weigh the extinguisher (with hose and nozzle assembly) on a calibrated scale to ensure it properly correlates with the fully charged weight stamped onto the side of the cylinder valve.
- 16. Upon satisfactory completion of the maintenance examination, properly tag, label and record the procedure in accordance with NFPA 10 and any local requirements.

Recharge Instructions

According to NFPA 10, recharge is the replacement of extinguishing agent and expellant. All rechargeable fire extinguishers shall be recharged after any use or as indicated by an inspection or when performing maintenance. When performing extinguisher recharge, the recommendations of the manufacturer shall be followed.

Because of potential performance or detrimental material compatibility problems which may occur with the use of other agents, Badger recommends that only carbon dioxide extinguishing agent meeting the following specification be utilized for recharge.

Carbon dioxide shall be of a commercial grade free of contaminants with a vapor phase of 99.5% or greater and have a water content of less than 60 ppm by weight at a -52 F (-46.6 C) dew point. The oil content of the carbon dioxide shall not exceed 10 ppm by weight.

WARNING:

Prior to recharging an extinguisher, personnel should be thoroughly familiar with the contents of this manual to recognize any equipment conditions or discrepancies that may prohibit the recharge or further service of the equipment.

WARNING:

To avoid personal injury or death, always ensure all pressure is properly relieved from an extinguisher prior to attempting any service, repair or recharge.

WARNING:

Sufficient concentrations of discharged carbon dioxide may reduce oxygen and cause unconsciousness or even death. Avoid discharging carbon dioxide agent into any occupied small or unventilated spaces.

WARNING:

To avoid compromising the "MR Conditional" rating of the B5V-MR models, only the service parts specified on the back nameplate shall be utilized.

- 1. In a well-ventilated area, secure the nozzle and slowly squeeze the discharge lever to discharge any remaining agent and remove pressure from the extinguisher.
- 2. Visually examine the complete fire extinguisher for any signs of damage, wear, corrosion, repair or other conditions that might prohibit the unit from being recharged. (Ensure the bottom of the extinguisher is also examined.) When the extinguisher is tilted or rotated, service personal should listen for any sounds from within the cylinder that might indicate a broken siphon tube or foreign objects present.

WARNING:

To avoid personal injury or death, should any audible pressure leakage be observed during extinguisher disassembly, technicians should stop any further service action and wait until all residual pressure is relieved.

- 3. Closely examine the agent cylinder for any signs of heat exposure, damage, and wear, dents, corrosion or repair. (Suspected aluminum cylinder temperature exposure over 350°F (177°C) require removal from service and hydrotesting.)
- 4. The periodic re-hydrostatic test date of the extinguisher cylinder must be checked prior to recharge. The maximum periodic interval for Badger carbon dioxide fire extinguishers is 5 years (Refer to CFR 49 for specific cylinder hydrostatic test requirements and procedures.)
- 5. Closely examine the carrying handle and operating lever for any damage or deformation, and ensure the rivets are secure.
- 6. Ensure the extinguisher operating nameplate instructions are secure and legible. Check to ensure HMIS information is present and legible.
- 7. Unscrew and remove the agent hose assembly from the cylinder operating valve. Closely examine the hose assembly, discharge horn and couplings for any damage, obstructions, abrasions, cracking, thread wear or conditions that might affect its proper function. Verify that the discharge nozzle is correct for the model.

(ON Badger B5V MODELS) – The agent discharge horn, metal tube and elbow assembly should be disconnected and thoroughly examined for any damage, obstructions, abrasions, cracking, thread wear or conditions that might affect its proper function.

8. Unscrew and remove the anti-recoil discharge elbow from the valve. Closely examine valve port and elbow to ensure it is not damaged or obstructed and that the elbow o-ring and clear flat fiber washer are intact and in good condition. Lightly lubricate the o-ring with Dow-111 and properly re-install the elbow back into the valve until it bottoms out and is snug. If necessary, service personnel can back-off or unscrew the discharge elbow between 1/4 to 1/2 turn, to facilitate installation of the discharge assembly or recharge filling adapter.

Caution: If discharge elbow is backed-off or unscrewed over the recommended 1/2 turn, the o-ring seal may permit unwanted release of cold carbon dioxide agent during discharge or filling.

9. Examine the cylinder valve safety relief assembly to ensure it is not damaged, corroded or obstructed.

Note: If replacement of safety relief is required, the extinguisher must first be emptied and free of any pressure. A new Badger 3 part safety assembly (*P/N-24643*)) should be installed washer first, then the disc (printed side outward) and then the nut. The new safety assembly must be properly torqued between 30 to 35 foot-pounds. Never reuse old safety relief components and always ensure the valve body seating surface is free of any damage or contamination prior to installation of new assemblies.

10. Use a calibrated weight scale to determine the proper CO2 agent charge specified on nameplate and total weight stamped into the side of the valve body.

5# Models: Properly install anti-recoil discharge tube into elbow and utilize special Badger charge adaptor P/N-21009781 to fill.

10/15/20# Models: Properly install industry standard CO2 charge adaptor onto outlet end of anti-recoil elbow to fill.

Note: When filling extinguishers from a carbon dioxide supply utilizing a pump, the specific instructions for using that equipment should be followed. Ensure the carbon dioxide supply meets the extinguishing agent specification identified earlier in this manual for recharging Badger fire extinguishers.

- 11. Upon reaching the proper fill weight, close the cylinder valve and properly vent the supply line. Then carefully remove the carbon dioxide charge adapter from the anti-recoil discharge tube or elbow.
- 12. Properly install the pull pin back into the cylinder valve. Then install a visual inspection tamper seal through the ring pin pull loop and operating lever.
- 13. Using a soapy solution or leak detecting fluid, properly perform a leak check of the cylinder valve assembly and cylinder collar to ensure no pressure leakage is occurring. Upon successful completion of the leak check, properly clean and dry all extinguisher surfaces.
- 14. Look under the operating lever to ensure the visual portion of the valve stem shaft is not bent, damaged or corroded. The top portion of the stem should extend approximately 3/8 of an inch above the valve body.
- 15. Blow (low pressure) dry air through the hose /nozzle assembly and ensure the four nozzle orifice ports are not plugged or obstructed. (If hose is obstructed, properly secure hose assembly and using the proper service kit adaptor, connect a regulated pressure source set no higher than 100 PSI to assist with clearing hose assembly.)
- 16. Reinstall and secure the discharge hose assembly wrench tight onto the cylinder operating valve outlet elbow to prevent leakage.

Note: Avoid the use of Teflon tape or similar materials which can compromise continuity for disapation of static build up.

(ON 5# MODELS) – Properly reconnect the agent discharge horn onto the extinguisher discharge tube. Ensure it is secure and properly oriented.

- 17. Wipe the extinguisher clean with a damp cloth to remove any surface dirt or contaminants that may have accumulated.
- 18. Weigh the extinguisher (with hose and nozzle assembly) on a calibrated scale to ensure it properly correlates with the fully charged weight stamped onto the side of the cylinder valve.

Note: Prior to placing recharged CO2 extinguishers back into fire protection service, Badger recommends the extinguisher weight be re-verified a minimum of 24 hours after recharge.

 Upon satisfactory completion of the maintenance examination, properly tag, label and record the procedure in accordance with NFPA 10 and any local requirements
 Hydrostatic Test Requirements

Hydrostatic testing is the integrity pressure testing method of a vessel utilizing a liquid compression medium. Badger carbon dioxide extinguisher cylinders require hydrostatic testing at 5 year periodic intervals or anytime the integrity of the vessel is questioned from any visually observed condition.

Visual cylinder examinations and hydrostatic testing should be performed in accordance with NFPA 10 and D.O.T. CFR 49 part 180.209 recommendations.

Evidence of conditions such as exposure to fire or heat, thread damage, thread wear, corrosion, cylinder repairs or physical damage as detailed within NFPA 10 require the extinguisher cylinder to be removed from service and at the owner's direction, properly disposed of.

Hydrostatic testing should only be performed by those persons trained in the appropriate testing procedures/safeguards and having the proper testing equipment, facilities, documents and information.

WARNING:

To avoid compromising the "MR Conditional" rating of the B5V-MR models, only the service parts specified on the back nameplate shall be utilized.

Some Badger Hydrodtatic Test Recommendations

- Removal and installation of cylinder valves should only be made using valve tool P/N# 24681.
- Carbon dioxide cylinder safety relief assemblies should be replaced every 5 years, when hydrostatic testing the cylinder. A new Badger 3 part safety assembly (P/N-24643) should be installed washer first, then the disc (printed side outward) and then the nut. The new safety assembly must have the proper amount of torque between 30 to 35 foot-pounds. Never reuse safety relief components and always ensure the valve body seating surface is free of any damage or contamination prior to installation of new assemblies.
- Carbon dioxide extinguisher valve stems and o-rings should be replaced at hydrostatic test intervals.
- Ensure cylinder valve removed for hydrotest is reinstalled in the same cylinder.
- Prior to valve installation, the collar O-ring and external valve thread collar surface should be lightly lubricated with Dow-111 lubricant.
- When re-assembling the siphon tube onto the valve assembly, ensure it is snug and properly assembled.
- Extinguisher cylinders should be replaced any time the pressure vessel has been weakened due to corrosion, cuts, dents, digs, etc. and be properly disposed in accordance with CGA pamphlet C-2.
- Only water be used as the hydro-test medium and that the vessel then be flushed clean, thoroughly dried and visually re-examined after testing.
- The cylinder valve assembly should be removed prior to hydrostatic testing of the cylinder. Badger recommends cylinder valve installations be properly torqued between 60 to100 footpounds with the B-9 valve removal/installation tool.
- The hydrostatic test marking methods should only utilize the proper type of record labels per NFPA 10 and CFR 49 stamping requirements.
- Never stamp or etch unauthorized markings onto the cylinder.
- Any time a fire extinguisher is known to have contained agents, additives or mediums other than that specified on the nameplate, it should be removed from service and disposed at the owner's direction.
- No repairs to the cylinder are permitted. If such cylinder repairs are observed the extinguisher should be removed from service and properly disposed at the owner's direction.

Hydrostatic Re-Test Data:

Component Description	Periodic Test Interval
Agent cylinders DOT 3AL	5 years per DOT

Test Pressure 3000 PSI This page intentionally left blank

Trouble Shooting Suggestions

Problem	Corrective Suggestion
Bracket or hanger bent /damaged	Repair or replace
Extinguisher charge weight incorrect	Recharge extinguisher
Noise observed from within agent cylinder	De-pressurize & internally examine cylinder for broken siphon tube or foreign object
Nozzle obstructed	Clear, clean or replace
Hose assembly obstructed	Clear, clean or replace
Hose assembly worn, cracked or damaged.	Replace
Hose assembly fails continuity test	Replace
Cylinder valve discharge port dirty or damaged	Clean or empty and replace *
Safety relief damaged, corroded or obstructed	De-pressurize & replace safety relief assembly **
Pull pin bent, corroded, missing or damaged	Replace
Cylinder valve stem bent or damaged	De-pressurize and replace stem *
Cylinder valve stem length incorrect	De-pressurize and replace with proper stem *
Total charge weight of cylinder outside tolerance	De-pressurize and recharge
Operating instructions missing or illegible	Replace
Agent cylinder burned or repaired	Replace
Agent cylinder dented, damaged or corroded	Inspect, hydrostatic re-test or dispose in accordance with NFPA 10 and CFR 49 recommendations.
Leakage from safety relief area	De-pressurize & replace safety relief **
Leakage from valve outlet area	De-pressurize & replace valve stem *
Leakage from cylinder valve thread area	De-pressurize, remove valve, replace o-ring and examine sealing surfaces, replace valve if necessary*

* Badger recommends cylinder valve installations be properly torqued between 60 to100 footpounds. Installation of new CO2 cylinder valves, require the side of the valve body to be properly weight stamped in accordance with the Badger recommendations contained in Product Bulletin #215.

** Badger recommends the safety relief assembly be installed washer first, then the disc (printed side outward) and then nut. The new safety relief assembly must be properly torqued 30 to 35 foot-pounds.

Extinguisher Parts Diagram Carbon Dioxide Extinguisher Models Badger Units: B5V/-1/-2, B10V/-1, B15V/-1, B20V/-1 Kidde Units: Pro 5-CDM-3/-4/-5, Pro 10-CDM-3/-4, Pro 15-CDM-3/-4, Pro 20-CDM-3/-4



Extinguisher Part Numbers Carbon Dioxide Extinguisher Models: Badger Units: B5V/-1/-2, B10V/-1, B15V/-1, B20V/-1

Kidde Units: Pro 5-CDM-3/-4/-5, Pro 10-CDM-3/-4, Pro 15-CDM-3/-4, Pro 20-CDM-3/-4

1 23304	ltem	Part Numbers	Description
2 -24643 Safety assembly (nut, washer & disc) 3 -16438 Operating lever 4 -16633 Operating lever rivet 5 -16437 Carrying handle rivet (2 required) 7 16464 Carrying handle rivet (2 required) 8 20981 Carrying handle rivet (2 required) 9 03523 Spring 10 211145P Spring 11 21119	1	23304	. Valve assembly (For aluminum cylinders only)
3 -16438	2	-24643	Safety assembly (nut, washer & disc)
4 -16633	3	-16438	Operating lever
5 -16437	4	-16633	Operating lever rivet
6 -04095 -Carrying handle rivet (2 required) 7 16464 -O-ring (valve collar) 8 20981 -Valve stem assembly 9 03523	5	-16437	Carrying handle
7 16464	6	-04095	Carrying handle rivet (2 required)
8 20981	7	16464	O-ring (valve collar)
9 03523	8	20981	Valve stem assembly
10 21114SP Siphon tube assembly (5# Models) 21110SP Siphon tube assembly (10# Models) 210995P Siphon tube assembly (5 & 20# Models) 11 21119 Elbow assembly (5# Models) 12 21100 Elbow assembly (Anti-recoil) (10, 15 & 20# Models) 13 -21101	9	03523	Spring
21110SP Siphon tube assembly (10# Models) 21099SP Siphon tube assembly (15 & 20# Models) 11 21119 Elbow assembly (5# Models) 12 21100 Elbow assembly (Anti-recoil) (10, 15 & 20# Models) 13 -21101 -Discharge elbow o-ring 14 -03524 -Fiber washer 15 23537 Pull pin (Ring Pin) 16 23535 Tether for pull pin (post 2001 models) 17 13120 Visual inspection tamper seal (red) 18 21101 Discharge tube anti-recoil (early 5# Models) 21009783 Discharge tube anti-recoil with cover (BSV-2 and Pro 5 CDM-5 Models) 21009782 Insulated horn (B5V-2 and Pro 5 CDM-5 Models) 21009782 Discharge Hose with 4 hole .110 orifices (Early 10# Models) 21009782 Discharge Hose with 4 hole .100 orifices (Early 10# Models) 21009782 Discharge hose with 4 hole .100 orifices (Early 10# Models) 21009782 Discharge hose with 4 hole .100 orifices (Early 10# Models) 21008965 Discharge hose with 4 hole .109 orifices (Early 15# and 20# Models) 21008965 Discharge hose with 4 hole .138 orifices (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) <th>10</th> <th>21114SP</th> <th>. Siphon tube assembly (5# Models)</th>	10	21114SP	. Siphon tube assembly (5# Models)
210995P. Siphon tube assembly (15 & 20# Models) 11 21119 Elbow assembly (5# Models) 12 21100 Elbow assembly (Anti-recoil) (10, 15 & 20# Models) 13 -21101 -Discharge elbow o-ring 14 -03524 -Fiber washer 15 23535 Pull pin (Ring Pin) 16 23535 Tether for pull pin (post 2001 models) 17 13120 Visual inspection tamper seal (red) 18 21116 Discharge tube anti-recoil (early 5# Models) 21009783 Discharge tube anti-recoil with cover (B5V-2 and Pro 5 CDM-5 Models) 21009782 Insulated horn (B5V-2 and Pro 5 CDM-5 Models) 21008966 Discharge Hose with 4 hole .110 orifices (Early 10# Models) 21008966 Discharge hose with 4 hole .109 orifices (Early 10# Models) 21008965 Discharge hose with 4 hole .138 orifices (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) 21008965 210108965 Horn (10# Models) 01841 Horn (10# Models) 01841 Horn (10# Models) 01841 Horn (15 & 20# Models) 21 01838 Nozzle and horn retainer spring clip (10, 15 & 20# Model		21110SP	Siphon tube assembly (10# Models)
11 21119 Elbow assembly (5# Models) 12 21100 Elbow assembly (Anti-recoil) (10, 15 & 20# Models) 13 -21101Discharge elbow o-ring 14 -03524 Fiber washer 15 23537 Pull pin (Ring Pin) 16 23535 Tether for pull pin (post 2001 models) 17 13120 Visual inspection tamper seal (red) 18 21116 Discharge tube anti-recoil (early 5# Models) 21009783 Discharge tube anti-recoil with cover (B5V-2 and Pro 5 CDM-5 Models) 21009782 Discharge Hose with 4 hole .110 orifices (Early 10# Models) 21009782 Discharge Hose with 4 hole .110 orifices (B10V-1 and Pro 10 CDM -4 Models) 21008966 Discharge hose with 4 hole .110 orifices (B10V-1 and Pro 10 CDM -4 Models) 21008965 Discharge hose with 4 hole .138 orifices (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) 21 01840 Horn (15 & 20# Models) 22 01838 Nozzle and horn retainer spring clip (10, 15 & 20# Models) 23 19329		21099SP	Siphon tube assembly (15 & 20# Models)
12 21100	11	21119	Elbow assembly (5# Models)
13 -21101	12	21100	Elbow assembly (Anti-recoil) (10, 15 & 20# Models)
14 -03524	13	-21101	-Discharge elbow o-ring
 15 23537 Pull pin (Ring Pin) 16 23535 Tether for pull pin (post 2001 models) 17 13120 Visual inspection tamper seal (red) 18 21116 Discharge tube anti-recoil (early 5# Models) 21009783 Discharge tube anti-recoil (early 5# Models) 21009782 Insulated horn (B5V-2 and Pro 5 CDM-5 Models) 20 23005 Discharge Hose with 4 hole .110 orifices (Early 10# Models) 21008966 Discharge hose with 4 hole .099 orifices (Early 15# and 20# Models) 21008965 Discharge hose with 4 hole .138 orifices (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) 21 01840 Horn (10# Models) 22 01838 Nozzle and horn retainer spring clip (10, 15 & 20# Models) 23 19329 Band (10 & 15# Models) 24 08921 Band horn retention clasp (10, 15 & 20# Models) 25 19347 Band spacer 	12	-03524	-Fiber washer
16 23535	15	23537	Pull nin (Ring Pin)
 17 13120 Visual inspection tamper seal (red) 18 21116 Discharge tube anti-recoil (early 5# Models) 21009783 Discharge tube anti-recoil with cover (B5V-2 and Pro 5 CDM-5 Models) 19 08886 Horn (early 5# Models) 21009782 Insulated horn (B5V-2 and Pro 5 CDM-5 Models) 20 23005 Discharge Hose with 4 hole .110 orifices (Early 10# Models) 21008966 Discharge Hose with 4 hole .110 orifices (B10V-1 and Pro 10 CDM -4 Models) 20 23010 Discharge Hose with 4 hole .100 orifices (Early 15# and 20# Models) 21008965 Discharge hose with 4 hole .138 orifices (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) 21 01840 Horn (10# Models) 01841 Horn (15 & 20# Models) 22 01838 Nozzle and horn retainer spring clip (10, 15 & 20# Models) 23 19329 Band (10 & 15# Models) 24 08921 Band horn retention clasp (10, 15 & 20# Models) 25 19347 Band spacer screw 26 06650 Band spacer 	15	23537	Tether for null nin (nost 2001 models)
 18 21116 Discharge tube anti-recoil (early 5# Models) 21009783 Discharge tube anti-recoil with cover (B5V-2 and Pro 5 CDM-5 Models) 19 08886 Horn (early 5# Models) 21009782 Insulated horn (B5V-2 and Pro 5 CDM-5 Models) 20 23005 Discharge Hose with 4 hole .110 orifices (Early 10# Models) 21008966 Discharge Hose with 4 hole .110 orifices (B10V-1 and Pro 10 CDM -4 Models) 23010 Discharge hose with 4 hole .109 orifices (Early 15# and 20# Models) 21008965 Discharge hose with 4 hole .138 orifices (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) 21 01840 Horn (10# Models) 01841 Horn (15 & 20# Models) 22 01838 Nozzle and horn retainer spring clip (10, 15 & 20# Models) 23 19329 Band (10 & 15# Models) 19332 Band (20# Models) 24 08921 Band horn retention clasp (10, 15 & 20# Models) 25 19347 Band spacer screw 26 06650 Band spacer 	17	13120	Visual inspection tamper seal (red)
 2110 21110 21110 21110 2110000000000000	18	21116	Discharge tube anti-recoil (early 5# Models)
 19 08886 Horn (early 5# Models) 21009782 Insulated horn (B5V-2 and Pro 5 CDM-5 Models) 20 23005 Discharge Hose with 4 hole .110 orifices (Early 10# Models) 21008966 Discharge Hose with 4 hole .110 orifices (B10V-1 and Pro 10 CDM -4 Models) 23010 Discharge hose with 4 hole .099 orifices (Early 15# and 20# Models) 21008965 Discharge hose with 4 hole .138 orifices (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) 21 01840 Horn (10# Models) 01841 Horn (15 & 20# Models) 22 01838 Nozzle and horn retainer spring clip (10, 15 & 20# Models) 19322 Band (10 & 15# Models) 19332 Band (20# Models) 24 08921 Band horn retention clasp (10, 15 & 20# Models) 25 19347 Band spacer screw 26 06650 Band spacer 	10	21009783	Discharge tube anti-recoil with cover (B5V-2 and Pro 5 CDM-5 Models)
 19 00000 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10	08886	Horn (early 5# Models)
 20 23005 21008966 21008966 Discharge Hose with 4 hole .110 orifices (Early 10# Models) 23010 Discharge Hose with 4 hole .110 orifices (B10V-1 and Pro 10 CDM -4 Models) 23010 Discharge hose with 4 hole .099 orifices (Early 15# and 20# Models) 21008965 Discharge hose with 4 hole .138 orifices (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) 01840 Horn (10# Models) 01841 Horn (15 & 20# Models) 22 01838 Nozzle and horn retainer spring clip (10, 15 & 20# Models) 19329 Band (10 & 15# Models) 19332 Band horn retention clasp (10, 15 & 20# Models) 25 19347 Band spacer screw 26 06650 	19	21000792	Insulated here (PEV 2 and Pro 5 CDM 5 Models)
20 23003 Discharge Hose with 4 hole .110 orifices (Early 10# Models) 21008966 Discharge Hose with 4 hole .110 orifices (B10V-1 and Pro 10 CDM -4 Models) 23010 Discharge hose with 4 hole .099 orifices (Early 15# and 20# Models) 21008965 Discharge hose with 4 hole .138 orifices (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) 21 01840 Horn (10# Models) 01841 Horn (15 & 20# Models) 22 01838 Nozzle and horn retainer spring clip (10, 15 & 20# Models) 23 19329 Band (10 & 15# Models) 24 08921 Band (20# Models)) 24 08921 Band spacer screw 26 06650 Band spacer	20	21009/02	Discharge Hore with 4 hole, 110 orifices (Early 10# Models)
21003900 Discharge Hose with 4 hole .110 offices (B10V-1 and Pro 10 CDM -4 Models) 23010 Discharge hose with 4 hole .099 orifices (Early 15# and 20# Models) 21008965 Discharge hose with 4 hole .138 orifices (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) 01840 Horn (10# Models) 01841 Horn (10# Models) 01841 Nozzle and horn retainer spring clip (10, 15 & 20# Models) 22 01838 Nozzle and horn retainer spring clip (10, 15 & 20# Models) 23 19329 Band (10 & 15# Models) 24 08921 Band horn retention clasp (10, 15 & 20# Models) 25 19347 Band spacer screw 26 06650 Band spacer	20	23003	Discharge Hose with 4 hole 110 orifices (P10)/ 1 and Pro 10 (DM, 4 Models)
21008965 Discharge hose with 4 hole .039 offices (Early 13# and 20# Models) 21 01840 Discharge hose with 4 hole .138 orifices (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) 21 01840 Horn (10# Models) (10# Models) 01841 Horn (15 & 20# Models) 22 01838 Nozzle and horn retainer spring clip (10, 15 & 20# Models) 23 19329 Band (10 & 15# Models) (10, 15 & 20# Models) 24 08921 Band horn retention clasp (10, 15 & 20# Models) 25 19347 Band spacer screw 26 06650 Band spacer		27000300	Discharge hose with 4 hole .000 orifices (Early 15# and 20# Models)
21008903 Discharge Hose with 4 Hole 1.38 of Hites (B15V-1, B20V-1 and Pro 15 CDM -4, Pro 20 CDM-4 Models) 21 01840 Horn (10# Models) 01841 Horn (15 & 20# Models) 22 01838 Nozzle and horn retainer spring clip (10, 15 & 20# Models) 23 19329 Band (10 & 15# Models) 19332 Band (20# Models)) 24 08921 Band horn retention clasp (10, 15 & 20# Models) 25 19347 Band spacer screw 26 06650		23010	Discharge hose with 4 hole, 128 orifices
21 01840		/P15\/ 1 P20\/ 1 or	ad Pro 15 CDM / Pro 20 CDM / Models)
21 01840 1 <th>21</th> <th>(BISV-I, B20V-I al</th> <th>Horp (10 # Modele)</th>	21	(BISV-I, B20V-I al	Horp (10 # Modele)
22 01838	21	01040	Horn (15 % 20# Models)
22 01838	22	01041	Negale and here retainer enring clip (10, 15, 8, 20# Medale)
23 19329	22	10220	. Nozzie and norn relainer spring cip (10, 15 & 20# Models)
19332	23	19329	Band (10 & 15# Models)
24 08921	24	19332	Band (20# Models))
25 19347 Band spacer screw 26 06650 Band spacer	24	08921	Band norn retention clasp (10, 15 & 20# Models)
26 06650 Band spacer	25	19347	. Band spacer screw
	26	06650	. Band spacer
27 01141	27	01141	. Wall hook hanger (5# Models)
01142		01142	. Wall hook hanger (10 & 15# Models)
14260 Wall hook hanger (20# Models)		14260	. Wall hook hanger (20# Models)
28 23730 Replacement operation nameplate (Early 5# models)	28	23730	. Replacement operation nameplate (Early 5# models)
21009801 Replacement operation nameplate (B5V-2 model)		21009801	. Replacement operation nameplate (B5V-2 model)
23733 Replacement operation nameplate (B10V/-1 models)		23733	. Replacement operation nameplate (B10V/-1 models)
23736 Replacement operation nameplate (B15V/-1 models)		23736	. Replacement operation nameplate (B15V/-1 models)
23739 Replacement operation nameplate (B20V/-1 models)		23739	. Replacement operation nameplate (B20V/-1 models)
29 24681 B-9 Valve Removal/Installation Tool	29	24681	. B-9 Valve Removal/Installation Tool
30 21009781 CO2 Discharge Tube Charge Adaptor – all 5# Models	30	21009781	. CO2 Discharge Tube Charge Adaptor – all 5# Models

WARNING: To avoid compromising the "MR Conditional" rating of the B5V-MR models, only the service parts specified on the back nameplate shall be utilized.

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