Enforcer 200

Operation and Maintenance Manual

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Chapter 1

Introduction

1-1. Manufacturer

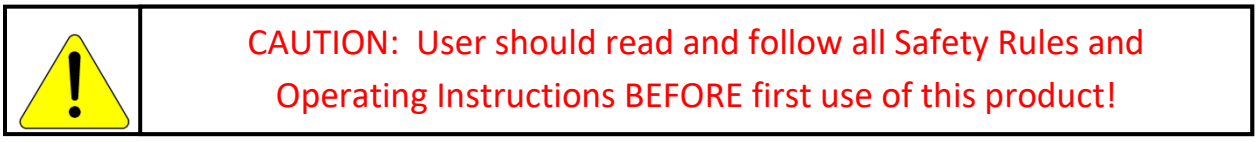
a. The Enforcer 200 is Manufactured by:

Enforcer One, LLC
473 Dividend Drive
Peachtree City, GA 30269
United States of America
Phone: 770.460.7793
Fax: 678.604.0107
E-mail: Info@enforcerone.com
Website: www.enforcerone.com

b. Enforcer One, LLC is committed to the satisfaction of our owners and operators of the Enforcer 200. If you have any problems, questions, or concerns please contact Enforcer One, LLC via phone, Fax, or E-mail.

1-2. Warranty

Limited Warranty



Fire Service Plus, Inc. warrants to the original owner-user that Enforcer One, LLC line of Compressed Air Foam products will be free from failures due to defects in workmanship for a period of one year from the date of original purchase. During the warranty period, Enforcer One, LLC , at its sole discretion, will repair or replace at no charge, the product that, in its sole opinion, is defective.

The purchaser is responsible for packing the product for shipment and for charges to ship the product to the location specified by Enforcer One, LLC, including, at the purchaser's sole discretion, insurance on the shipment. Enforcer One, LLC will return the product pre-paid to the purchaser.

If the product has been altered, modified or repaired in any way, or if the failure is the result of misuse, abuse or misapplication without the prior consent of Enforcer One, LLC, this warranty shall be void and Enforcer One, LLC shall have no obligation to repair or replace the failed product.

The use of any foam product other than FIREBULL® Fluorine Free Foam products will void the warranty.

When used in conjunction with sound fire management practices and strictly as per the manufacturer's instructions, the products may provide protection against anticipated fires and may accelerate the extinguishing of existing fires.

CAUTION: The unpredictable nature of fires, the techniques used to apply product(s) as well as the knowledge-understanding and judgment of the individual(s) attempting to extinguish or control them will affect the performance of Enforcer One, LLC product(s).

THIS WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY FOR ENFORCER ONE, LLC LINE OF PRODUCT(S) AND DISCLAIMS AND EXCLUDES ANY AND ALL IMPLIED WARRANTIES REGARDING THE PRODUCT(S) INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

No person or entity is authorized to bind Enforcer One, LLC to any other warranty obligation or liability to distributer, purchaser or any third party for any loss of profits, economic loss, indirect, incidental, punitive, special or consequential damages whatsoever and howsoever caused. Operation or use of this or any Enforcer One, LLC product for which this warranty is issued shall constitute acceptance of the terms hereof.

CAUTION: Prior to attempting to operate this or any Enforcer One, LLC product, you MUST read and understand all directions and instructions in this user manual. Until you have read and understand all CAUTIONS; Warnings, Requirements, Instructions for Set-up & Testing - Operation and Maintenance: NO ATTEMPT should be made to operate this or any Enforcer One, LLC product. In order to assure that your Enforcer One, LLC product(s) are ready when needed, they must be regularly maintained as outlined. FAILURE TO COMPLY WITH ALL CAUTIONS, WARNINGS, REQUIREMENTS, INSTRUCTIONS, PROCEDURES AND MAINTENANCE WILL VOID THIS WARRANTY & MAY RESULT IN SERIOUS INJURY OR DEATH &/OR DAMAGE TO OR LOSS OF PROPERTY.

SAFE OPERATING REQUIREMENTS

1. **DO NOT** attempt to use this or any Enforcer One, LLC line of product(s) if they appear damaged and/or broken. Missing or damaged components MUST be properly repaired or replaced as soon as possible.

2. **DO NOT** attempt to use this or any Enforcer One, LLC line of product(s) if you are tired, injured or under the influence of drugs, medication or alcohol.
3. **DO** keep children and bystanders away from the area when Enforcer One, LLC product(s) are in-use.
4. **DO NOT** attempt to use this or any Enforcer One, LLC line of product(s) in the event that the fire represents a situation that is beyond the capabilities of the Operator and/or the Equipment.
5. **DO** follow the proper Set-up, Testing, and Maintenance & Inspection Procedures to assure that your Enforcer One, LLC line of product(s) is/are ready for use when needed.
6. **DO** exit the area IMMEDIATELY if progress in fighting the fire is not being made and **DO NOT** return to the area.
7. **DO** comply with all local Laws & Regulations related to the proper use, installation, maintenance, training and inspection of Fire-Fighting Equipment.

WARNING: The act of fighting fire is both hot and dangerous work. Smoke, heat, unseen fumes/gases and flames can be easily underestimated. In the absence of the proper training, protective gear and clothing, extreme caution should be exercised to avoid serious injury or death. If ever, in an attempt to extinguish a fire, you are unsure that progress is being made, contain the fire (if possible) and move quickly and safely away from the threat.

ADDITIONAL INFORMATION

http://www/usfa.fema.gov/safety/sheets.htm

http://www.nfpa.org/education/index.html

http://www.ilpi.com/safety/extinguishers.html

http://www.EnforcerOne.com

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1-3. Manual Changes

1. Enforcer One, LLC will provide equipment update changes to this manual on an as need basis.
2. This manual supersedes all previous Operating Instructions for the Enforcer 200 system.

Chapter 2

System Description

2-1. General Information

The Enforcer 200 Compressed Air Foam System utilizes compressed air to propel firefighting foam. Enforcer 200 produces air aspirated foam providing a thick vapor sealing blanket that will inhibit re-ignition. The Enforcer 200 will produce up to 4000 gallons of finished foam with discharge duration of up to 20 minutes. The system can be easily recharged by the end user.

2-2. Model Configuration

The Enforcer 200 consists of a Premix Tank which holds 200 gallons of pre-mixed FIREBULL® Fluorine Free Foam. Two compressed air cylinders are attached to the Premix Tank through a regulator and hose assembly. Discharge hose include one 300' section of 1" Booster Hose on a hose reel with pistol grip style nozzle. Enforcer 200 also includes one 50' section of 1.5" lay flat hose with pistol grip style nozzle. The Enforcer 200 can discharge both hoses simultaneously.

2-3. Specifications

- **Height:** 39 " (99 cm) **Length**: 97 " (246 cm) **Width**: 44 " (112cm.)
- **Empty Weight**: 2000 lbs. (998 kg) **Loaded Weight:** 3200 lbs. (1360 kg)
- **Premix Tank:** 200 US Gallons (757 l)
- **Finished Foam Capacity:** 4000 US Gallons (13,514 l)
- **Foam Discharge Distance:** Up to 95 Feet (29 m)
- **Air Cylinders:** 300 cu. ft. 2400 psi (165.5 bar)
- **Recharge Time:** 20 minutes

2-4. Transporting

The Enforcer 200 should be secured when transporting in trailers or vehicles.

Chapter 3

Operating Instructions

3-1. Initial Setup

The Enforcer 200 comes fully assembled. The **200-gallon Premix Tank** and **Compressed Air Cylinder** must be filled prior to use. The proper FIREBULL® Fluorine Free Foam product should be selected based on operational ambient temperatures and type of anticipated fires *before* putting the unit into service.

3-2. FIREBULL® Fluorine Free Foam Products

a. Enforcer 3 Backpack should only be used with FIREBULL® Fluorine Free Foam products mixed at a 1%, 3% or 6% solution for low, medium and high expansion.
b. It is recommended that a FIREBULL® Freeze Protected Fluorine Free Foam Product be used when positioning the unit outside during extended subfreezing weather.

3-3. System Depressurization

Ensure the system is depressurized before conducting maintenance

a. Close the Air Cylinder Valves.
b. Open nozzle until all Nitrogen is deployed and working pressure gauge reads ***zero*** or open Pressure Relief Valve.

3-4. Preventative Maintenance Checks & Services (PMCS)

a. It is recommended that the PMCS CHECKLIST be completed *every month*.
b. Personnel conducting the PMCS should be thoroughly familiar with the Enforcer 200 system and the information contained in this manual.

Preventative Maintenance Checks and Services (PMCS)

 Checklist

Date Completed _____

Name _____ Signature _____

_____ 1. Conduct a visual inspection of the system for chaffing or loose hose(s), dirt, corrosion or damage.

_____ 2. Check the Air Cylinder for normal operating pressure (1800-2200 psi).

a. Ensure System is depressurized.
b. Disconnect Air Cylinders and pull out of unit.
c. Connect Air Cylinder Pressure Check Gauge.
d. Open Air Cylinder and check for normal operating pressure. (1800-2200psi)
e. Close Air Cylinder and slowly disconnect Pressure Check Gauge allowing for pressure bleed off.
f. If the Air Cylinder pressure is *below* 1500 psi remove, recharge and replace the Air Cylinder.
The Air Cylinder should normally be left in the closed position.

_____ 3. Check the Premix Tank Level

a. Disconnect fill tower Cap check liquid level.
b. Fill up the Premix Tank if low.

_____ 4. Check the tire condition.

Note any other Problems:

_____

_____

3-5. Operating Instructions

Warning

Always refer to the product MSDS for proper precautions and treatment(s) if foam is accidently ingested or sprayed in eyes, mouth or nose

a. Turn the Regulator to zero, so no air can pass through it. Slowly open both Air Cylinders. Turn the Regulator up to chosen operating pressure between (150 psi-175 psi) allowing the Premix Tank to fill with compressed air. (Some Models are factory set to 150 psi)
b. Extend one or both hoses that will be used for discharge. Ensure the Nozzle ball valve is in the closed position.
c. Open the Foam Discharge Valve for the selected discharge hose slowly to the fully open position.
d. Grasp the nozzle with hand.
e. Aim the nozzle at the base of the fire and open valve to discharge foam.

3-6. Cold Weather Operations

a. It is recommended that a* FIREBULL® *Fluorine Free Foam Pre-Mix product is used when freezing is anticipated.

3-7. Emergency Procedures

a. Loose Hose

1. Go to the unit and close the Foam Discharge Valve.
2. Go to the Nozzle and close the valve.

b. No Foam Discharge

1. Check to see if Air Cylinder is full.
2. Verify the Air Cylinder Valve is turned completely on.
3. Ensure Air Pressure Hose is attached to the Air Cylinder properly.
4. Ensure the Regulator is on the correct operating pressure.
5. Check for obstruction in discharge hose.

c. Shut Down Procedures

1. Close the Nozzle Valve.
2. Close the Foam Discharge Valve.
3. Close the Air Cylinder Valve.
4. Open Nozzle valve to depressurize the hose line.
5. Open the Depressurizing Valve to depressurize the Premix Tank.
6. Secure discharge hose.

Chapter 4

Training

4-1. Training Program

a. Training on the Enforcer 200 should be conducted or reviewed annually for all operators
b. Maintenance personnel should complete initial training and refresher training as required
c. Trainers should be thoroughly familiar with the system, fire behavior, hazard identification, and basic firefighting techniques
d. Operator training should be accomplished in live fire scenarios. Live fire training can often be accomplished through coordination with a local fire department.

4-2. Training Program of Instructions

a. Operators and Maintenance Personnel

1. PMCS
2. Normal and Cold Weather Operating Instructions
3. Emergency Procedures
4. Operation in live fire scenario

b. Maintenance Personnel

1. General Maintenance
2. Instructions and Technical Assistance
3. Foam Product
4. Maintenance Log
5. Servicing Under Normal and Cold Conditions
6. Scheduled Maintenance
7. Unscheduled Maintenance
8. Troubleshooting Procedures
9. Storage and Protection

Chapter 5

Maintenance

5.1 General Instructions

a. It is recommended that the preventative and maintenance (PMCS) be conducted monthly.
b. It is recommended that qualified personnel be assigned the responsibility to service and maintain the system
a. All maintenance activity should be documented and should include copies of the completed PMCS Checklist, Premix Tank Filling Calendar, type/ ratio of product used, component changes and any other problems encountered. A MSDS should be maintained for the type of foam being used.

5-2. Technical Assistance

Maintenance personnel should contact Enforcer One whenever any problem arises that cannot be solved using the information in this manual or when unusual situations are encountered or expected.

Enforcer 200 Maintenance Log

Preventative Maintenance Checks and Services (PMCS)

Refer to Chapter 5 – Maintenance for specific activities

Maintenance Activity	Date Completed	Performed By	Notes/Comments

Scheduled Maintenance

Maintenance Activity	Recommended Interval	Date Due	Date Completed	Performed By:
Air Cylinder Pressure Check	**Every 6 months**			
Air Cylinder – Visual Inspection	**Annually**			
Air Regulator Inspection	**Every 2 years**			
Air Cylinder Hydrostatic Test	**Every 5 Years**			
Premix Cylinder and Discharge Hose Hydrostatic Test	**Every 5 Years**			

Unscheduled Maintenance

Maintenance Activity	Date Completed	Performed By	Comments/Notes

5-3. Servicing Under Normal Conditions

a. System Pressure Check

1. **Make sure that the Fill Tower Cap is *secure*, the Foam Discharge Valves and Pressure Relief Valve are *closed*.**
2. **Turn** the Regulator to Zero.
3. ***Open*** the Air Cylinder Valves. **Turn** the Regulator to 150 psi and check the air pressure on the ***High Pressure Gauge*** for ***normal operating pressure of 2200-2400psi***.
4. Check the ***Working Pressure Gauge*** is in the ***normal operating position 150psi***.
5. Conduct a leak check if the High Pressure Gauge reads ***below*** 1500 psi or if the Working Pressure Gauge reads ***below*** 150 psi.
   a. Spray a soap solution on all airlines/fittings.
   b. Tighten leaking fittings, replace O-rings, or replace defective components.
5. Bleed off any stored pressure through Pressure Relief Valve.

b. Changing and Servicing Air Cylinder

Ensure the system is depressurized before conducting any maintenance on the system. Extreme care should be used when transporting the Air Cylinder(s).

1. Ensure Air Cylinder Valves are closed
2. Depressurize the system
3. Lift out the Air Cylinders
4. Have the Air Cylinders filled to 2400 psi by a certified technician
5. Replace the Air Cylinders in the holder
6. Reconnect the Air Cylinders

d. Refilling the Premix Tank

1. Close the Air Cylinder Valve
2. Ensure System is depressurized
3. Unscrew Fill Cap
4. Add water until Premix Tank is full
5. Add appropriate amount of foam to an empty pail or drum
6. Add the water to the foam and mix to thin the concentrate
7. Using a long spout funnel add the thinned concentrate to the unit (Ensure the funnel extends to the lower portion of the tank, the concentrate solution will push the clear water out of the top ensuring a perfect fill)
8. Replace Fill Cap ensuring it is tightened properly
9. ***Important Note:*** **The Premix Tank Manifold should be tightened by hand. *Do not* use any wrenches or Teflon tape or thread sealant on any of the Premix tank fittings.**

5-4. Servicing In Cold or Freezing Conditions

Fill the Premix Tank with FIREBULL® Fluorine Free Foam solution whenever temperatures are below 32 degrees Fahrenheit. FIREBULL® should be used in the concentrate form in cold or freezing temperature conditions. FIREBULL® Fluorine Free Foam is a solution made by Enforcer One, LLC. The Pre-Mix solution is already mixed, this means Water and Foam, no need for mixing onsite. Maintenance personal should open the Pre-Mix bucket and fill the Enforcer unit full of the Pre-Mix solution.

5-5. Scheduled Maintenance Interval Recommendations

Component	Maintenance Activity and Recommended Interval
Air Cylinder	• **Check pressure - *every 6 months*** • **Visual inspection and certification – *annually*** • **Hydrostatic testing – *every 5 years***
Cleaning	• **Wash with soap and water – *minimum annually***
Air Regulator	• **Check Operation – *every 2 years***
Premix Tank & Discharge Hose	• **Pressurize and check for leaks – annually** • **Hydrostatic testing should be completed *every 5 years***
Foam Solution	• **Follow Foam Manufacturer quality testing recommendations**

5-6. Unscheduled Maintenance

Unscheduled maintenance will need to be performed as required.

5-7. Trouble Shooting the System

Users should contact Enforcer One if malfunctions cannot be corrected after employing good troubleshooting practices. Use the matrix on page 17 for assistance.

Problem or Symptom	Possible Solution
No Pressure on Gauges	• Air Cylinder Valve is not turned on • Air Cylinder is empty • Pressure Gauge is inoperative • Broken or blocked air hose • Air Regulator has malfunctioned
Foam Does Not Discharge From Hose	• Premix Tank is empty • Air Cylinder is empty • Air Cylinder is not turned on • Nozzle is in the off position • Nozzle valve has malfunctioned • Blockage on dispensing hose • Foam solution is frozen
Air line Leak	• Air hose fittings are loose or broken • Air line is pinched, cracked or broken
System is Not Fully Discharging	• There is insufficient volume of air in the Air Cylinder • The Foam Discharge Nozzle is not fully opening • The Foam Discharge Hose has a restriction • The Air Regulator has a malfunction • The Foam solution is frozen or near freezing • There is a blockage in the Premix Tank

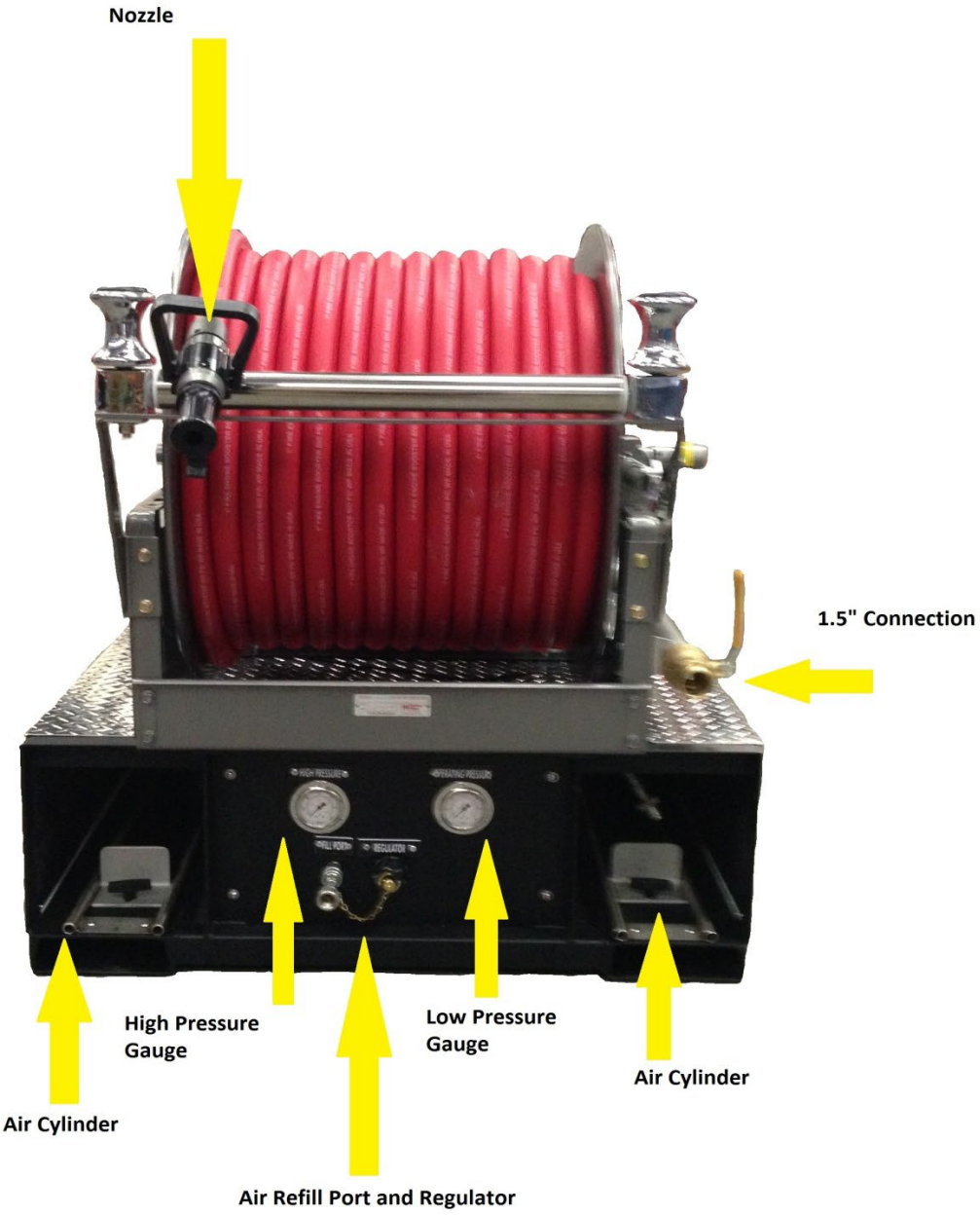
5-8. Storage and Protection

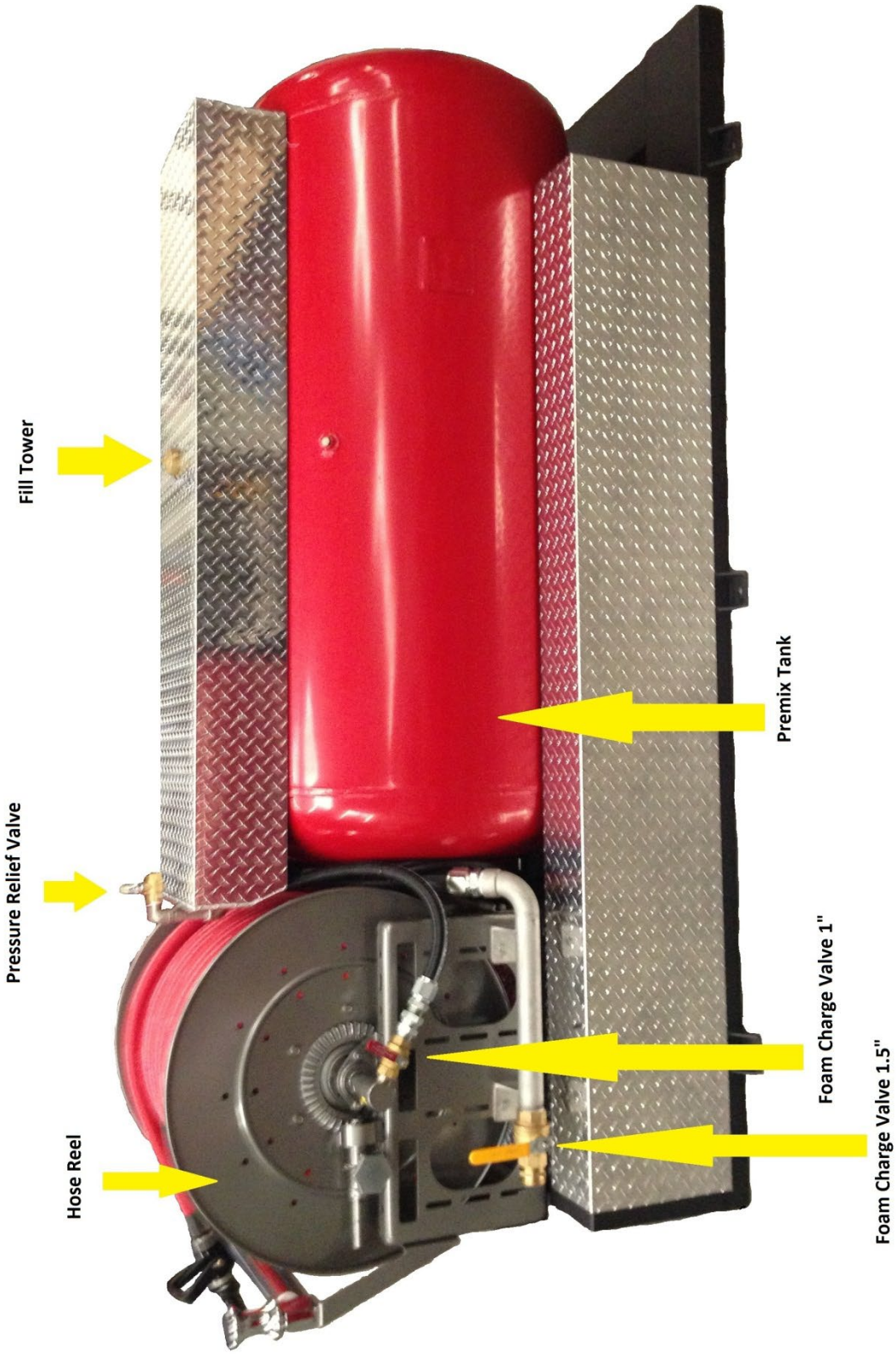
a. The Enforcer 200 does not have any special storage requirements if stored inside.

b. A protective cover is recommended and should be used if the equipment is stored outside as this will reduce sun damage to hoses and gauges.

Chapter 6

6-1. Pictures




Fill Tower
Pressure Relief Valve
Hose Reel
Premix Tank
Foam Charge Valve 1"
Foam Charge Valve 1.5"