

MANUAL DISCHARGE CABLE ASSEMBLY

MODEL	LENGTH	MODEL	LENGTH
SMAC-6	6 FT / 1.83 M	SMAC-20	20 FT / 6.10 M
SMAC-8	8 FT / 2.44 M	SMAC-22	22 FT / 6.71 M
SMAC-10	10 FT / 3.05 M	SMAC-26	26 FT / 7.93 M
SMAC-12	12 FT / 3.66 M	SMAC-30	30 FT / 9.15 M
SMAC-14	14 FT / 4.27 M	SMAC-36	36 FT / 10.98 M
SMAC-16	16 FT / 4.88 M	SMAC-40	40 FT / 12.20 M
SMAC-18	18 FT / 5.49 M	SMAC-D3	DUAL DISCHARGE CABLE ADAPTOR

NOTE: OTHER LENGTHS AVAILABLE, CONTACT FACTORY FOR DETAILS.



SEA-FIRE MARINE DIVISION OF METALCRAFT, INC.
 9331 A PHILADELPHIA ROAD
 BALTIMORE, MARYLAND 21237 USA
 TEL 410-687-500 FAX 410-687-5503
 Website: www.sea-fire.com



**FE-241[®]
 FE MODEL FIRE EXTINGUISHERS**

**INSTALLATION INSTRUCTIONS
 OWNER'S MANUAL**

THIS MANUAL IS AN INTEGRAL PART OF THE SYSTEM AND AS SUCH, THE EXTINGUISHER MUST BE INSTALLED AND MAINTAINED ACCORDINGLY.

U.S. COAST GUARD APPROVED
 No. 162.029/238/0

FM APPROVED

READ AND COMPLY WITH THESE INSTRUCTIONS,
 WARNINGS AND LIMITATIONS BEFORE INSTALLING
 SUITABLE FOR USE FROM 32°F (0°C) to 130°F (54°C)

ALL "FE" MODELS CONTAIN FE-241[®]

ALWAYS MAINTAIN THIS OWNERS MANUAL NEARBY
 FOR OPERATOR REFERENCE

REV. -

PRINTED IN USA

PART NO. 123-133

**SPECIFICATION TABLE
SEA-FIRE "FE" SERIES AUTOMATIC FIRE EXTINGUISHERS
DOT 3AL/1000**

MODEL		VOLUME OF PROTECTION		MINIMUM FE-241®		MAXIMUM FE-241®		DIAMETER X HEIGHT	
AUTO	MAN/AUTO	CU.FT. RANGE	CU.M. RANGE	LBS	KG	LBS	KG	IN	MM
FE325A	FE325M	0-325	0.0-9.2	10.2	4.6	11.0	5.0	6.9x18.3	175x463
FE350A	FE350M	326-350	9.2-9.9	11.0	5.0	11.9	5.4	6.9x18.3	175x463
FE375A	FE375M	351-375	9.9-10.6	11.9	5.4	12.7	5.8	6.9x18.3	175x463
FE400A	FE400M	376-400	10.6-11.3	12.7	5.8	13.5	6.1	6.9x18.3	175x463
FE425A	FE425M	401-425	11.4-12.0	13.5	6.1	14.4	6.5	6.9x18.3	175x463
FE450A	FE450M	426-450	12.1-12.7	14.4	6.5	15.2	6.9	6.9x18.3	175x463
FE475A	FE475M	451-475	12.8-13.5	15.2	6.9	16.1	7.3	6.9x23.0	175x584
FE500A	FE500M	476-500	13.5-14.2	16.1	7.3	16.9	7.7	6.9x23.0	175x584
FE550A	FE550M	501-550	14.2-15.6	16.9	7.7	18.6	8.5	6.9x23.0	175x584
FE600A	FE600M	551-600	15.6-17.0	18.6	8.5	20.3	9.2	6.9x23.0	203x584
FE650A	FE650M	601-650	17.0-18.4	20.3	9.2	21.3	9.7	6.9x27.5	203x698
FE700A	FE700M	651-700	18.4-19.8	21.3	9.7	23.7	10.8	6.9x27.5	203x698
FE750A	FE750M	701-750	19.8-21.2	23.7	10.8	25.4	11.5	6.9x27.5	203x698
FE800A	FE800M	751-800	21.3-22.7	25.4	11.5	27.1	12.3	6.9x27.5	203x698
FE850A	FE850M	801-850	22.7-24.1	27.1	12.3	28.7	13.0	8.0x27.5	203x698
FE900A	FE900M	851-900	24.1-25.5	28.7	13.0	30.4	13.8	8.0x32.5	203x825
FE950A	FE950M	901-950	25.5-26.9	30.4	13.8	32.1	14.6	8.0x32.5	203x825
FE1000A	FE1000M	951-1000	26.9-28.3	32.1	14.6	33.0	15.0	8.0x32.5	203x825
	FE1050M	1001-1050	28.3-29.7	33.0	15.0	33.8	15.4	8.0x32.5	203x825
	FE1100M	1051-1100	29.8-31.1	33.8	15.4	35.5	16.1	8.0x32.5	203x825
	FE1150M	1101-1150	31.2-32.6	35.5	16.1	37.2	16.9	8.0x32.5	203x825
	FE1200M	1151-1200	32.6-34.0	37.2	16.9	38.9	17.7	8.0x32.5	203x825
	FE1250M	1201-1250	34.0-35.4	38.9	17.7	40.6	18.5	8.0x32.5	203x825

OPERATING TEMPERATURE RANGE: 32° TO 130°F (0° TO 54.4°C)

DISCHARGE TEMPERATURE: FE25 thru FE75 212°F (100°C)
FE100 thru FE300 165°F (74°C)
FE325 thru FE1500 175°F (79°C)

MODEL FE325 THRU FE1250, IN 3AL/1000 RATED CYLINDERS APPROVED FOR VERTICAL OR HORIZONTAL MOUNTING

Cubic Feet = CU.FT. Kilograms = KG
Cubic Meters = CU.M. Inches = IN
Pounds = LBS Millimeters = MM

DANGER

TO BE INSTALLED ONLY IN NORMALLY UNOCCUPIED AREAS. PRINCIPAL HEALTH HAZARDS ARE: INHALATION OF HIGH CONCENTRATIONS MAY CAUSE DEATH WITHOUT WARNING. VAPOR REDUCES OXYGEN AVAILABLE FOR BREATHING AND IS HEAVIER THAN AIR. LIQUID CONTACT MAY CAUSE FROSTBITE. LIQUID CONCENTRATED AGENT AND BY-PRODUCT OF APPLICATION TO FIRE ARE TOXIC. AVIOD BREATHING OF FUMES OR EXPOSURE. INDIVIDUALS WITH PREEXISTING DISEASES OF THE CENTRAL NERVOUS SYSTEM, CARDIOVASCULAR SYSTEM, LUNGS, OR KIDNEYS MAY HAVE INCREASED SUSCEPTIBILITY TO THE TOXICITY OF EXCESSIVE EXPOSURE. IF HIGH CONCENTRATIONS ARE INHALED, IMMEDIATELY REMOVE INDIVIDUALS TO FRESH AIR AND SEEK MEDICAL ASSISTANCE. IN CASE OF SKIN CONTACT, FLUSH SKIN WITH WATER FOR 15 MINUTES AFTER EXCESSIVE CONTACT. TREAT FOR FROSTBITE. IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH EYE WITH WATER FOR AT LEAST 15 MINUTES. SEEK MEDICAL ASSISTANCE. ACCIDENTAL DISCHARGE DURING HANDLING OR INSTALLATION MAY CAUSE SERIOUS INJURY. BEFORE ATTEMPTING TO INSTALL THIS DEVICE, READ AND COMPLY WITH INSTRUCTIONS, WARNINGS, AND LIMITATIONS CONTAINED IN THIS MANUAL. DO NOT LIFT, CARRY, OR HANDLE BY THE MANIFOLD ASSEMBLY. THE MANIFOLD ASSEMBLY CONTAINS THE SENSOR VALVE/DETECTOR WHICH IS VISUALLY DESCRIBED IN FIGURE 4 OF THIS MANUAL. DO NOT DROP. KEEP AWAY FROM EXCESSIVE HEAT. KEEP AWAY FROM CHILDREN.

**OWNERS MANUAL & INSTALLATION GUIDE
SEA-FIRE FE AUTOMATIC FIRE EXTINGUISHER MANUAL: PART NO. 123-133**

APPLICATION

FE-241® (CHCFCF3), the extinguishing agent, used in all Sea-Fire “FE” series fire extinguishers, is a suitable EPA accepted alternate replacement for Halon. FE-241® is electrically non conductive and residue free extinguishing agent that requires no clean-up.

These features and the versatility of design make the “FE” series fire extinguisher ideal for a broad range of applications. These applications would include marine, commercial and industrial use in normally **unoccupied** enclosures where electrical or flammable liquids are the likely source of fire.

Sea-Fire “FE” series have passed a rigid testing program and carry a Factory Mutual Research Corp. (FM) and United States Coast Guard (USCG) approval for fire suppression applications in marine pleasure craft and uninspected vessels, and Subchapter T inspected vessels subject to the approval of the local Officer in Charge, Marine Inspection (OCMI). This would include many applications such as **unoccupied** engine and generator rooms, electrical compartments, paint and flammable storage lockers.

WARNING: THE FE SERIES EXTINGUISHER IS NOT APPROVED FOR ANY ENCLOSURE THAT IS CONSIDERED NORMALLY OCCUPIED BY HUMAN BEINGS. NFPA 2001 (2000 EDITION) DEFINES NORMALLY OCCUPIED AREAS AS “ONE THAT IS INTENDED FOR OCCUPANCY.”

Sea-Fire “FE” extinguishers are designed to induce a minimum atmospheric concentration of 8.5 percent within the protected compartment.* The specification table in this manual lists the minimum and maximum approved compartment volume (size) allowable for each model. For the purpose of determining the proper size extinguisher, volume can be determined by multiplying the compartment’s **length x width x height which equals the volume in cubic feet or meters (LxWxH=V).**

*Reference: NFPA-2001, UL 2166

CAUTION: NEVER INSTALL A UNIT WITH A VOLUME RATING LESS THEN THE GROSS VOLUME OF THE COMPARTMENT TO BE PROTECTED. DO NOT DEDUCT FOR ENGINES, REMOVABLE TANKS OR OTHER EQUIPMENT.

Exception: If the boat manufacturer has placed a permanently affixed label in the engine compartment specifying the gross volume less the volume of permanently installed tankage, then this volume may be used to determine the proper size extinguisher. Check the specification table for proper application before making installation.

SYSTEM OPERATIONS

Sea-Fire units described in this manual are automatically actuated by a temperature sensor valve. Discharge will occur when the sensor valve temperature rises to the system activation point as shown in the specification table and on the label attached to each unit. Upon discharge, which is accompanied by a loud report and a hissing sound the extinguishing agent (FE-241®) floods the compartment with an electrically nonconductive, noncorrosive vapor that stops the combustion process through both physical and chemical means. FE-241® literally raises the total heat capacity of the protected area to the extent that the combustion reaction cannot sustain itself.

CAUTION: IN CASE OF EXTINGUISHER DISCHARGE, DO NOT RUSH TO OPEN THE PROTECTED COMPARTMENT. LET THE EXTINGUISHING AGENT WORK FOR SEVERAL MINUTES. HAVE A PORTABLE EXTINGUISHER AVAILABLE AND USE CARE WHEN OPENING THE COMPARTMENT.

AVOID BREATHING FIRE RELATED FUMES OR VAPOR.

NOTE: It is important to retain the designed vapor concentration within the compartment to insure complete fire outage. Upon discharge, diesel engine(s) and all powered ventilation (blowers) must be shut down.

**SPECIFICATION TABLE
SEA-FIRE “FE” SERIES AUTOMATIC FIRE EXTINGUISHERS
DOT 4B 360/4BW/500 CYLINDERS**

MODEL		VOLUME OF PROTECTION		MINIMUM FE-241®		MAXIMUM FE-241®		DIAMETER X HEIGHT	
AUTO	MAN/AUTO	CU.FT. RANGE	CU.M. RANGE	LBS	KG	LBS	KG	IN	MM
FE325A	FE325M	301-325	8.2-9.2	10.2	4.6	11.0	5.0	6.3x17	160x432
FE350A	FE350M	326-350	9.2-9.9	11.0	5.0	11.9	5.4	6.3x17	160x432
FE375A	FE375M	351-375	9.9-10.6	11.9	5.4	12.7	5.8	6.3x17	160x432
FE400A	FE400M	376-400	10.6-11.3	12.7	5.8	13.5	6.1	6.3x17	160x432
FE425A	FE425M	401-425	11.3-11.9	13.5	6.1	14.4	6.5	6.3x17	160x432
FE450A	FE450M	426-450	11.9-12.7	14.4	6.5	15.2	6.9	7.1x18	180x457
FE475A	FE475M	451-475	12.7-13.4	15.2	6.9	16.1	7.3	7.1x18	180x457
FE500A	FE500M	476-500	13.4-14.2	16.1	7.3	16.9	7.7	7.1x18	180x457
FE550A	FE550M	501-550	14.2-15.6	16.9	7.7	18.6	8.5	7.1x18	180x457
FE600A	FE600M	551-600	15.6-17.0	18.6	8.5	20.3	9.2	7.1x18	180x457
FE650A	FE650M	601-650	17.0-18.4	20.3	9.2	22.0	10.0	8.1x22	221x559
FE700A	FE700M	651-700	18.4-19.8	20.3	9.2	23.7	10.7	8.1x22	221x559
FE750A	FE750M	701-750	19.8-21.2	23.7	10.7	25.4	11.5	8x1x22	221x559
FE800A	FE800M	751-800	21.2-22.7	25.4	11.5	27.1	12.3	8.1x22	221x559
FE850A	FE850M	801-850	22.7-24.1	27.1	12.3	28.7	13.1	8.1x22	221x559
FE900A	FE900M	851-900	24.1-25.5	28.7	13.1	30.4	13.8	8.1x33	221x559
FE950A	FE950M	901-950	25.5-26.9	30.4	13.8	32.1	14.6	8.1x33	221x838
FE1000A	FE1000M	951-1000	26.9-28.3	32.1	14.6	33.8	15.3	8.1x33	221x838
VERTICAL ONLY UNIQUE LABEL	FE1100M	1001-1100	28.3-31.1	33.8	15.3	37.2	16.9	10x26	254x660
	FE1200M	1101-1200	31.1-33.9	37.2	16.9	40.6	18.4	10x26	254x660
	FE1300M	1201-1300	33.9-36.8	40.6	18.4	43.9	19.9	10x26	254x660
	FE1400M	1301-1400	36.8-39.6	43.9	19.9	47.3	21.5	10x26	254x660
	FE1500M	1401-1500	39.6-42.5	47.3	21.5	50.7	23.0	10x26	254x660

OPERATING TEMPERATURE RANGE: 32° TO 130°F (0° TO 54.4°C)

DISCHARGE TEMPERATURE: FE25 thru FE75 212°F (100°C)
FE100 thru FE300 165°F (74°C)
FE325 thru FE1500 175°F (79°C)

MODEL FE25 thru FE1000 APPROVED FOR VERTICAL OR HORIZONTAL MOUNTING

MODEL FE1100 thru FE1500 FOR VERTICAL MOUNTING ONLY

Cubic Feet = CU.FT. Kilograms = KG
Cubic Meters = CU.M. Inches = IN
Pounds = LBS Millimeters = MM

SEA-FIRE Model Series “FE325-FE1500” cylinders comply with DOT specification 4B360 4BW500, or 3AL which allows discharged cylinders to be **refilled**. The discharged extinguisher may be refilled upon the prepaid return of the discharged system to Sea-Fire or an authorized Sea-Fire dealer. Contact factory for details.

RETURN TO:

SEA-FIRE MARINE Division of Metalcraft Inc.
9331-A Philadelphia Road, Baltimore, Maryland 21237 USA
Website: www.sea-fire.com

SPECIFICATION TABLE
SEA-FIRE “FE” SERIES AUTOMATIC FIRE EXTINGUISHERS
DOT 39 CYLINDER

MODEL		VOLUME OF PROTECTION		MINIMUM FE-241®		MAXIMUM FE-241®		DIAMETER X HEIGHT	
AUTO	MAN/AUTO	CU.FT. RANGE	CU.M. RANGE	LBS	KG	LBS	KG	IN	MM
FE25A	FE25M	0-25	0-0.7	0.9	0.4	0.9	0.4	2.5x9	64x229
FE50A	FE50M	26-50	0.7-1.4	0.9	0.4	1.7	0.8	3.1x12	79x305
FE75A	FE75M	51-75	1.4-2.1	1.7	0.8	2.5	1.2	3.1x15	79x381
FE100A	FE100M	76-100	2.1-2.8	2.5	1.2	3.4	1.5	3.5x15	89x381
FE125A	FE125M	101-125	2.8-3.5	3.4	1.5	4.2	1.9	3.5x15	89x381
FE150A	FE150M	126-150	3.5-4.2	4.2	1.9	5.1	2.3	4.1x16	104x406
FE175A	FE175M	151-175	4.2-5.0	5.1	2.3	5.9	2.7	5.1x16	130x406
FE200A	FE200M	176-200	5.0-5.7	5.9	2.7	6.8	3.1	5.1x16	130x406
FE225A	FE225M	201-225	5.7-6.4	6.8	3.1	7.6	3.5	5.1x16	130x406
FE250A	FE250M	226-250	6.4-7.1	7.6	3.5	8.5	3.8	5.1x16	130x406
FE275A	FE275M	251-275	7.1-7.8	8.5	3.8	9.3	4.2	5.1x18	130x457
FE300A	FE300M	276-300	7.8-8.5	9.3	4.2	10.2	4.6	5.1x18	130x457

OPERATING TEMPERATURE RANGE: 32° TO 130°F (0° TO 54.4°C)
DISCHARGE TEMPERATURE: FE25 thru FE75 212°F (100°C)
FE100 thru FE300 165°F (74°C)
FE325 thru FE1500 175°F (79°C)

MODEL FE25 thru FE300 APPROVED FOR VERTICAL OR HORIZONTAL MOUNTING

Cubic Feet = CU.FT. Kilograms = KG
Cubic Meters = CU.M. Inches= IN
Pounds = LBS Millimeters = MM

PRESSURE SWITCH

Sea-Fire “FE” series extinguishers are equipped with a factory installed pressure switch which is intended for cylinder pressure supervision and may also be used to control other electrical functions (engine shutdown, air exchange equipment, etc.).

When using the pressure switch as a electrical disconnect for any equipment shutdown function, a means of overriding (bypassing, shunting) the pressure switch must be provided in order to return the affected equipment to an operational mode after extinguisher discharge has occurred. The pressure switch is a single pole single throw (SPST) type that is normally closed (NC) with the system in the charged condition. Discharge or loss of system pressure will release the contacts to a open state thereby cutting off any electrical current flow.

NEVER USE PRESSURE SWITCH FOR ELECTRICAL LOADS OVER RATED CAPACITY.

SWITCH SPECIFICATIONS

4.0 AMPS AT 12 VDC 2.0 AMPS AT 28 VDC

For applications requiring larger load capacities see optional equipment section in this manual or contact factory.

ENGINES AND POWERED VENTILATION (BLOWERS)

DIESEL ENGINES

Continued operation of diesel engine(s) and or powered ventilation units will deplete the extinguishing agent and may cause a fire re-flash. **Diesel engine(s) must be automatically shutdown upon extinguisher discharge.**

Note: Power ventilation (blowers) that exceeds one air change per minute within the protected compartment must be automatically shutdown upon extinguisher discharge.*

* ABYC Requirement- Standard A-4

GASOLINE ENGINES

Shutdown may be accomplished by interruption of the electrical circuit between the ignition switch and the engine coils.

NOTE: Sea-Fire optional engine interrupt systems will automatically shutdown engines and powered ventilation upon discharge of the fire suppression system. They are available in 12 and 24-volt models with 3, 5 or 8 control circuits. Refer to optional equipment section in this manual.

REMINDER: SEA-FIRE SYSTEMS SHALL BE CONSIDERED AS SUPPLEMENTARY TO THE NUMBER OF PORTABLE FIRE EXTINGUISHERS REQUIRED ON-BOARD AND ARE DESIGNED AND INTENDED FOR ENCLOSED UNOCCUPIED COMPARTMENT INSTALLATIONS THAT ARE NOT SUBJECT TO DIRECT WEATHER OR WATER.

INSTALLATION: READ ENTIRE INSTRUCTION MANUAL AND CYLINDER NAMEPLATE PRIOR TO INSTALLATION

These installation instructions are intended to cover most normal installations. Additional technical or application information can be obtained by contacting:

Sea-Fire Marine Baltimore, Maryland 21237. USA Telephone 410-687-5500
Website: www.sea-fire.com

CAUTION:

- DO NOT INSTALL IN AN AREA DESIGNATED FOR OCCUPANCY
- ACCIDENTAL DISCHARGE MAY CAUSE SERIOUS INJURY.
- HANDLE THE CYLINDER WITH EXTREME CARE.
- WEAR EYE PROTECTION.
- DO NOT LIFT OR CARRY CYLINDER BY THE MANIFOLD OR ACTUATOR COMPONENTS.
- DO NOT ATTEMPT TO LOOSEN OR REMOVE ANY EXTINGUISHER COMPONENT.

- DO NOT ATTACH SEA-FIRE EXTINGUISHER ON UNDERSIDE OF COVER OR COMPARTMENT HATCH THAT COULD BE THROWN CLEAR DUE TO POSSIBLE EXPLOSION.
- DO NOT MOUNT WHERE AN ACCUMULATION OF STANDING WATER COULD BLOCK SENSOR OR CAUSE CORROSION.

EXTINGUISHER INSTALLATION:

- Step 1** Carefully remove extinguisher from carton and visually check for damage in shipment.
- Step 2** To ensure that the extinguisher is operational, both the weight and pressure indicator must conform with the extinguisher specification as shown on the nameplate. Weigh extinguisher (less bracket) on an accurate calibrated scale before installing. Record date and weight on tag provided for this purpose.
- Step 3** Choose a location that is as high as possible on compartment bulkhead for mounting. Generally, it is preferred to locate the detector head near the area in which a fire is most likely to occur. This would be on the fuel line side of the engine, near the carburetor, or fuel pump. When mounting in a confined engine space, keep detector head away from exhaust manifold.
- Step 4** Loosen mounting bracket cylinder holding straps (**Figure 1**) and remove extinguisher from bracket. Although the sensor valve/detector is protected, care should be exercised to avoid striking the sensor valve/detector.

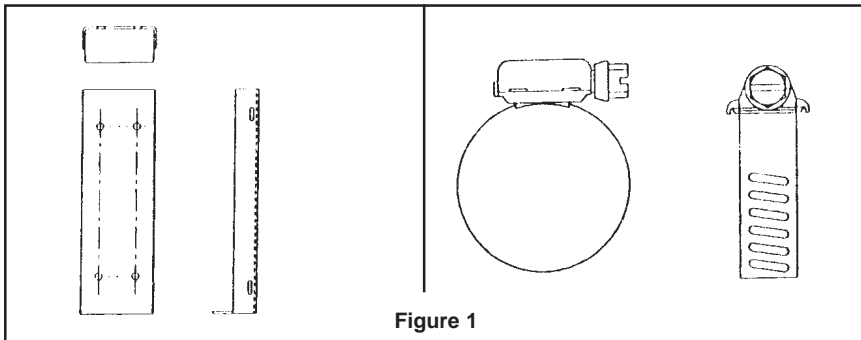


Figure 1

- Step 5** Locate bracket in desired position (Vertical-Sensor Valve/Detector Head Up, or Horizontal, **Figure 2**). Using the bracket as a template, mark and drill holes in bulkhead and install bracket insuring that all bolts are thoroughly tight.

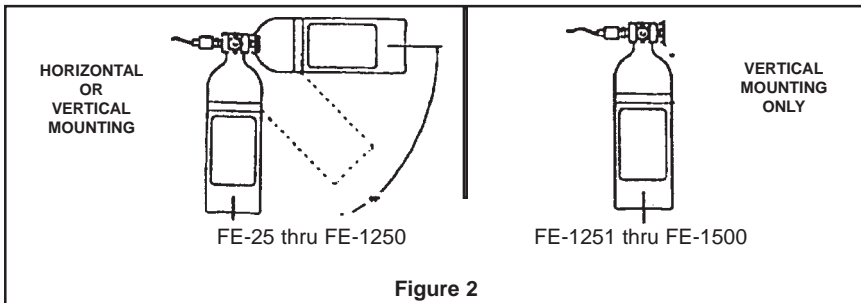


Figure 2

WARNING: When installing cylinder in horizontal position, the actuator (top of cylinder) must NEVER be lower than the bottom of the cylinder or proper discharge of agent will not occur (See Figure 2 above).

MODELS FE-1251 THRU FE-1500 MUST BE INSTALLED VERTICALLY ONLY

OPTIONAL EQUIPMENT

- SDDA I** — Panel mounted visual/audible discharge alarm unit
- ESRS - 2** — Panel mounted system status indicator with override switch for engine(s) restart. For use with the ESRS engine shutdown system as a replacement or add-on second helm station.
- ESRS III, V, VIII** — Engine and powered ventilation (blower) shutdown system. Includes one circuit control unit and one panel mounted ESRS-2 visual/audible system status indicator with override switch for engine restart. Available with 3, 5, or 8 control circuits in 12 or 24 VDC models.
- ESRS-W/T V, VIII** — Same as ESRS shutdown system, but also includes a factory-installed nominal 20-second release timer on the engines control circuits. For use on diesel engines that shutdown through activation of a momentary device (i.e. push button, lever, etc.).
- SFAB 12 (24)** — Discharge alarm bell 6" round 12 or 24 VDC models.
- ESEH-10** — 10 foot (3.05 meters) extender harness for use with ESRS systems.
- ESEH-30** — 30 foot (9.15 meters) extender harness for use with ESRS systems.

PORTABLE FIRE EXTINGUISHERS

Clean agent and dry chemical USCG approved portable fire extinguishers are also available. Contact Sea-Fire or an authorized Sea-Fire dealer for details.

THREE (3) YEAR "FE" SERIES LIMITED WARRANTY

We warranty to the original retail purchaser, all SEA-FIRE extinguishers for a period of three (3) years after retail purchase against defective material and faulty workmanship. Any system found to be defective during the warranty period will be repaired or replaced free of charge upon the prepaid return of the defective system. Proof of retail purchase required, otherwise date of manufacture on extinguisher label will apply.

This warranty gives you specific legal rights which may vary by state.

THE FOREGOING WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES WITH RESPECT TO THE SYSTEM INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY, OR TO ASSUME FOR SEA-FIRE MARINE ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OR INSTALLATION OF ITS PRODUCTS. REPLACEMENT OF THE SYSTEM WILL BE THE SOLE REMEDY WITH RESPECT TO ANY LOSS OR DAMAGE TO PROPERTY. BUYER IS NOT RELYING ON SELLER'S JUDGMENT REGARDING BUYER'S PARTICULAR REQUIREMENTS AND BUYER HAS HAD AN OPPORTUNITY TO INSPECT THE PRODUCT TO BUYER'S SATISFACTION.

CONDITIONS

All Sea-Fire products are tested after manufacture and shipped in perfect working order. Damage noted upon receipt of shipment should be addressed as a shipping claim, the filing of which is the sole responsibility of the consignee for which the total compensatory award will be limited to that appropriated by the carrier. Insured freight costs are the responsibility of the consignee. Missing component parts and damage noted upon installation are typically the result of mishandling during the installation process and will not qualify for warranty coverage. Incidents of accidental discharge are not indicative of product failure – heed product warnings to avoid injury and /or associated cost. No returns will be processed without proper return authorization.

OUT OF WARRANTY REPLACEMENTS / RECHARGES

SEA-FIRE Model Series "FE25-FE300" cylinders comply with DOT specification 39. These cylinders are **not refillable**. The discharged cylinder will be replaced with a comparable SEA-FIRE extinguisher upon prepaid return of the discharged system for one-half of the current suggested list price.

SYSTEM MAINTENANCE

Cylinder Inspection / Cylinder Testing

Model FE extinguishers built with DOT 39 cylinders are non-reusable and do not require any testing.

Model FE extinguishers built in DOT 4B, 4BW and 3AL cylinders are reusable and must be periodically tested. Refer to the cylinder label on your extinguisher. DOT 4B and 4BW cylinders may be inspected by an external visual inspection in accordance with section 3 of CGA C-6, Standard for Visual Inspection of Steel Compressed Cylinders, and shall be performed every 5 years except the cylinders do not have to be emptied or stamped under pressure. Inspection shall be made by competent personnel and results noted on a permanent record tag. Alternatively, the cylinders may be emptied and subjected to a hydrostatic test every 12 years in accordance with 49 CFR.

DOT 3AL cylinders must be emptied and subjected to a hydrostatic test every 12 years in accordance with 49 CFR.

WARNING: DO NOT ATTEMPT TO DISASSEMBLE ANY PART OR COMPONENT OF THE EXTINGUISHER. THIS UNIT IS PRESSURIZED AND SERIOUS INJURY COULD RESULT. CONTACT THE FACTORY OR AN AUTHORIZED DEALER FOR SERVICE INFORMATION.

Before operating, visually check to insure indicator light is operational, and cylinder pressure indicator is in the normal range. All fire suppression systems containing liquefied gas require periodic weighing to ensure a fully charged unit. Pressure gauges indicate the ability to discharge the agent but not the quantity of extinguishing agent. The cylinder (less bracket) must be weighed on at least a semiannual basis and be replaced immediately if gross weight has decreased by quantity noted on the specification label.

Never paint or obstruct the cylinder manifold or sensor valve/detector, as this will adversely affect its operating characteristic. Some FE models are refillable, see name plate on cylinder for instructions and OUT OF WARRANTY REPLACEMENTS/RECHARGES section of this manual.

- REMEMINDER:**
- FREQUENTLY CHECK GAUGE FOR PROPER PRESSURE
 - WEIGH CYLINDER TO INSURE AMPLE EXTINGUISHER AGENT

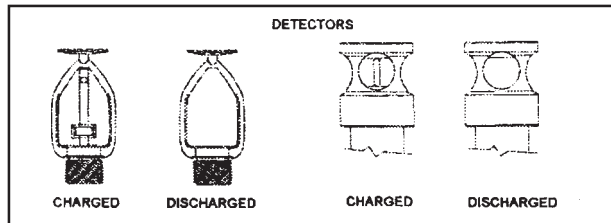


Figure 4

LIMITATIONS

Sea-Fire "FE" model series FE-241® automatic fire extinguishers are designed and tested to extinguish Class B (flammable liquid) fires in enclosed **unoccupied** compartments only. Any open doors or hatches will allow discharging agent to escape and will seriously affect the ability of the agent to extinguish the fire.

Only one extinguisher may be used to protect a compartment. If more than one extinguisher is used to achieve the required amount of agent concentration, there is no guaranty that several extinguishers will actuate simultaneously as each extinguisher operates independently. Several extinguishers may be used only if each independent extinguisher is capable of protecting the entire volume of the compartment.

- Step 6** Carefully attach cylinder to bracket. Sensor valve/Detector head should point towards engine or center of the compartment. Nameplate should be visible. Tighten bracket straps so that the cylinder body is firmly and securely held in place by its bracket.

CABLE ASSEMBLY INSTALLATION

(For FE systems with "M" designation — manual discharge capability: Model SMAC-XX is required.)

CAUTION: TO PREVENT ACCIDENTAL DISCHARGE DURING CABLE INSTALLATION, VERIFY THAT THE MANUAL DISCHARGE LEVER SAFETY PIN IS PROPERLY INSTALLED (SEE FIGURE 6A OR 7C)

- Step 1** Select the proper location.

- Manual discharge release handles should never be installed in the protected compartment.
- Locate discharge handle at the helm station with full view and easy access by the operator.
- The area selected must be structurally secure and provide at least twelve (12) inches (305mm) of clearance at the rear of the panel to facilitate cable hardware.
- Do not install actuator cable in area where the possibility of physical abuse is likely. Where practical, follow the same cable path as installed by boat manufacturer.
- The cumulative number of bends in the cable run must never exceed 360 degrees. This is equivalent to four (4) right (90 degree) angles. Use extreme care when bending cable to avoid kinking. Never form a bend with a radius of less than twelve (12) inches. Selection of the correct size Sea-Fire cable length will eliminate cable coil.

- Step 2** Mounting manual cable, faceplate, and release handle.

- Using the manual discharge face plate as a template (**Figure 5**) mark and drill a 13/32 inch (10.4mm) hole. Install the manual release cable adhering to the guideline in Step 1 above.
- Do not connect cable to the cylinder at this time.
- Remove the protective backing from the face plate. While aligning the holes, place even pressure upon the face plate. To insure a good bond, the temperature should be in excess of 50 degrees F (10 degrees C).
- Following the diagram in (**Figure 5**), install the nut and lock washer on the cable and insert the cable end through the panel and faceplate hole. Extend cable shaft out to its fullest and install ferrule by screwing onto the cable shaft end. Do not over tighten. Four or five turns are sufficient.
- Place rubber o-ring seal onto the cable shaft and install the release handle by screwing it onto the cable shaft. Do not tighten to the point where the pin hole in the handle will be obstructed.
- Push the handle into the ferrule. This will seat the o-ring seal. Align the pull pin holes in the handle and ferrule and insert the pull pin (**Figure 5**).
- Turn the handle so that the word FIRE is vertical. The handle can now be locked in position by tightening the nut behind the face plate panel.
- Temporarily remove pull pin and test cable operation. Cable must move freely without friction or binding. Reinstall pull pin and confirm that release handle is now locked in place.

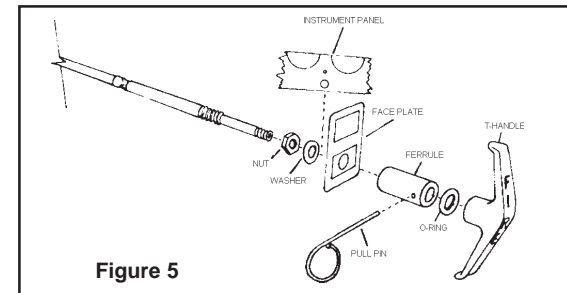


Figure 5

- i. Attach the tamper resistant round plastic tie to the pull pin by passing tie through the pull pin ring and around the cable assembly. Insert the end of the tie into cable end and pull up snug. The tie provides a means of determining if manual discharge has occurred.
- j. Nylon cable ties should be used for cable securing. Fasten and support the cable on straight runs only. Do not secure at locations where cable forms a bend.

CAUTION: DO NOT USE NYLON CABLE TIES AS TAMPER FOR PULL PIN

CAUTION

ACCIDENTAL DISCHARGE DURING HANDLING OR INSTALLATION MAY CAUSE SERIOUS INJURY. DO NOT REMOVE FACTORY INSTALLED SAFETY PIN FROM CYLINDER SENSOR VALVE/DETECTOR UNTIL INSTALLATION IS COMPLETED AND CHECKED. WEAR EYE PROTECTION WHEN INSTALLING OR SERVICING THE SYSTEM.

Step 3 Connecting cable assembly to cylinder (Figure 6 or 7)

- a. Before attaching cable to the cylinder, check that the cylinder bracket is located correctly and firmly mounted.
- b. With the cylinder strapped in its bracket, pass the cable jacket ferrule completely through the hole in the cylinder manifold. This will allow the necessary cable flexibility needed for inserting the offset end of the flexible shaft into the actuator lever. After connecting the shaft and actuator lever, move the cable back and align the ferrule groove with the slot in the manifold. Insert the locking clip that is provided with cable assembly. The cable assembly must be locked to the manifold or accidental discharge can occur.
- c. Using care, remove the factory installed actuator lever safety pin from the cylinder. Store safety pin in the nylon retainer provided on the cylinder neck (Figure 6 or 7).
- d. The Sea-Fire manual/automatic extinguisher is now fully operational.

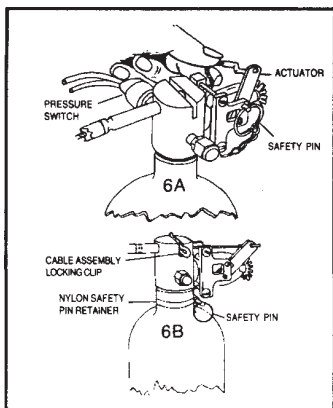


Figure 6

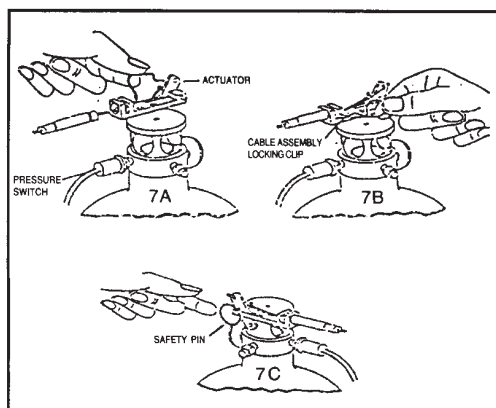


Figure 7

REMEMBER: ALWAYS INSTALL SAFETY PIN IN CYLINDER ACTUATOR LEVEL (FIGURE 6A OR 7C) WHEN PERFORMING SERVICE OR MAINTENANCE ON SYSTEM. BE SURE TO REMOVE SAFETY PIN FROM ACTUATOR LEVER UPON COMPLETION OF SERVICING.

INDICATOR LIGHT OPERATION

All Sea-Fire extinguisher approved for pleasure craft and uninspected vessel applications are packaged with an indicator light and escutcheon. The indicator light (unless replaced by another Sea-Fire method) must be installed for system supervision and operator

awareness. When properly installed, activation of electrical power to the system will illuminate the light indicating normal charged condition. System discharge or loss of pressure will immediately extinguish the indicator light. In the event that the indicator light is not lit when power is applied, check for the following conditions:

1. Check pressure indicator gage for proper range.
2. Check fuse and indicator light and replace if defective (lamp replacements available from factory).
3. Check for loose electrical connections.
4. Remove and weigh system cylinder as described in **Maintenance Section** of the manual.

INDICATOR LIGHT INSTALLATION

Select a location at the helm on or near the console that is in full view of the helmsman. The location selected must have access for electrical wiring. Remove the adhesive protective cover from back of indicator escutcheon and attach. For proper adhesion, surface must be clean and dry and temperature must be above 50°F (10°C). Use the preformed escutcheon hole as a template and carefully drill a 5/16-inch (8 mm) hole. Insert indicator light wire through hole and seat light assembly by pressing into position. Indicator light is now ready for wiring (See Figure 3).

CAUTION: PRIOR TO WIRING INDICATOR LIGHT TURN OFF ELECTRICAL POWER BY SWITCHING OFF CIRCUIT BREAKER, REMOVING FUSE OR DISCONNECTING POSITIVE BATTERY TERMINAL. FAILURE TO DISCONNECT ELECTRICAL POWER WHILE MAKING ELECTRICAL CONNECTION CAN RESULT IN INJURY FROM FIRE OR ELECTRICAL BURNS.

The indicator light is rated for 12 VDC (contact factory for other voltages). Wire in accordance with the American Boating and Yacht Council Standard E-9 "Direct Current Electrical System on Boats," copies of which may be obtained from ABYC, Edgewater, Maryland USA, (410) 956-1050.

Supplies, which are not included with your Sea-Fire system and should be at hand before indicator light installation, are as follows:

1. Five (5) Ampere in-line fuse and holder
2. Sufficient length of insulated 16 AWG stranded wire.
3. Crimp on wire connectors.
4. Crimp pliers, hand tools.

Attach one wire lead from the in-line fuse to the ignition position on the starter switch. Connect other lead from the in-line fuse to the indicator light. Connect remaining indicator lead to one of the Sea-Fire cylinder pressure switch connector wires. Connect the remaining cylinder pressure switch lead to common ground, which may be the negative battery buss at the control panel, or directly to the engine block. (See Figure 3.)

CAUTION: ELECTRICAL SYSTEMS VARY FROM VESSEL TO VESSEL AND THESE DIRECTIONS MAY NOT BE APPLICABLE FOR YOUR INSTALLATION. SHOULD YOU HAVE ANY DOUBTS OF SAFELY ACCOMPLISHING THIS INSTALLATION, CONTACT A QUALIFIED MARINE ELECTRICIAN OR SEA-FIRE MARINE USA @ 410-687-5500 FOR TECHNICAL ASSISTANCE.

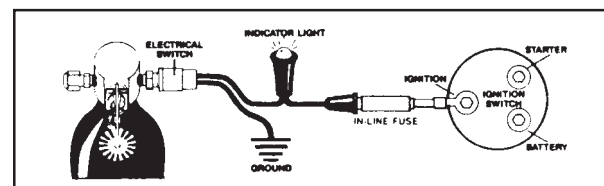


Figure 3