PRO F1™
Universal Fastening System

Read this Manual and Retain for Future Reference

FERNO®

Users' Manual
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Ferno Customer Relations

For ordering assistance or general information:

CANADA AND THE U.S.A.

Telephone (Toll-free)	1.877.733.0911
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Fax (Toll-free)	1.888.388.1349
Fax	1.937.382.1191
Internet	www.ferno.com

ALL OTHER LOCATIONS

For assistance or information, please contact your Ferno distributor. If you do not have a Ferno distributor, please contact Ferno Customer Relations:

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Wilmington, Ohio 45177-9371, U.S.A.

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Internet	www.ferno.com

PRO F1 Serial Number _____

Location: End of fastening system.

Disclaimer

This manual contains general instructions for the use, operation and care of this product. The instructions are not all-inclusive. Safe and proper use of this product is solely at the discretion of the user. Safety information is included as a service to the user. All other safety measures taken by the user should be within and under consideration of applicable regulations and local protocol. Training on the proper use of this product must be provided before using this product in an actual situation.

Retain this manual for future reference. Include it with the product in the event of transfer to new users. Additional free copies are available upon request from Customer Relations.

Proprietary Notice

The information disclosed in this manual is the property of Ferno-Washington, Inc., Wilmington, Ohio, USA. Ferno-Washington, Inc. reserves all intellectual property rights, proprietary design rights, manufacturing rights, reproduction use rights, and sales use rights thereto, and to any article disclosed therein except to the extent those rights are expressly granted to others or where not applicable to vendor proprietary parts.

Limited Warranty Statement

The products sold by Ferno are covered by a limited warranty, which is printed on all Ferno invoices. The complete terms and conditions of the limited warranty, and the limitations of liability and disclaimers, are also available upon request by calling Ferno at 1.800.733.3766 or 1.937.382.1451.

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1 - SAFETY INFORMATION

1.1 Warning

Warning notices indicate a potentially hazardous situation which, if not avoided, could result in injury or death.

> ⚠ **WARNING**
>
> **Improper or inadequate installation can cause injury. The installer must test the fastening-system setup to meet or exceed all applicable guidelines before using the setup in an ambulance.**
>
> **Improper installation can cause injury and damage. Install the fastening system only as described in this manual.**
>
> **Failure to use protective equipment can allow injury. Use protective equipment as needed for installation.**
>
> **Untrained operators can cause injury or be injured. Permit only trained personnel to operate the fastening system.**
>
> **Improper use can cause injury. Use the fastening system only for the purpose described in this manual.**
>
> **An improper cot can cause injury. Use only a manufacturer-approved cot designed for use with the fastening system.**
>
> **Improper operation can cause injury. Operate the fastening system only as described in this manual.**
>
> **Improper maintenance can cause injury. Maintain the fastening system only as described in this manual.**
>
> **An improperly-secured fastening system can fail in a crash. Confirm all fasteners are fully tightened and properly secure the fastening system to the floor.**
>
> **Improper parts and service can cause injury. Use only Ferno parts and Ferno-approved service on the fastening system.**
>
> **Modifying the fastening system can cause injury and damage. Use the fastening system only as designed by Ferno.**

1.2 Notice

Notices emphasize important, but not hazard-related information. Failure to follow Notices could result in product or property damage.

> **NOTICE**

1.3 Tip

Tips provide recommendations for easier use of the product.

Tip

1.4 Bloodborne Disease Notice

To reduce the risk of exposure to blood or other potentially infectious materials when using the fastening system, follow the disinfecting and cleaning instructions in this manual.

1.5 Symbol Glossary

The symbols defined below are used on the fastening system and/or in this' manual. Ferno uses symbols recognized by the International Standards Organization (ISO), American National Standards Institute (ANSI) and the emergency medical services industry.

General Warning of Potential Injury

Read the Users' Manual

Unlocked

Locked

Do Not Lubricate

QR Code: Scan with an Internet-Connected Device for Online Content

Manufacturer

| EC | REP |

Authorized Representative in the European Community

1.6 Safety and Instruction Labels

Safety and instruction labels place important information from the users' manual on the fastening system. Read and follow label instructions. Replace worn or damaged labels immediately.

General Information Label: Follow the instructions in this manual for proper and safe use of the fastening system.

1.7 Compliance

SPECIFICATIONS AND STANDARDS

When properly installed and used with appropriate additional Ferno products, the PRO F1™ fastening system meets or exceeds the following global specifications and standards. Be aware: standards and specifications are updated periodically. Current guidelines are available from these organizations. See the contact information at right.

U.S.A.

- **AMD:** Ambulance Manufacturer's Division (AMD) of the National Truck Equipment Association Standard 004 (August 2007 edition), Litter Retention System Static Test.

- **KKK-A-1822 (F):** Federal Ambulance Specification KKK-A-1822 revision F (2007), Change Notice 8 as applicable.

- **NFPA:** National Fire Protection Association standard NFPA® 1917 (2016 edition).

- **SAE:** Society of Automotive Engineers SAE J3027 Recommended Practice (2014). See information at right.

- **CAAS:** Commission on Accreditation of Ambulance Services Global Vehicle Standard (GVS) v1.0

- **IP56:** Ingress Protection rating. Tested in compliance with dust and water infiltration standards.

CANADA

- **BCAS:** BCAS Ambulance Performance Test Criteria E2 Stretcher Retention.

- **Alberta:** Alberta Health and Wellness Ambulance Vehicle Standard Code January 2010; Section 17.5 Cot Retention System Test.

- **AMD:** Ambulance Manufacturer's Division (AMD) of the National Truck Equipment Association Standard 004 (August 2007 edition), Litter Retention System Static Test. (Some provinces follow the U.S. AMD specification.)

EUROPEAN STANDARDS

- **RoHS-2:** Meets the requirements of RoHS-2 (EU Directive 2011/65/EU) on the Restriction of the use of certain Hazardous Substances.

Specifications/Standards Contact Information

For information about AMD standards:
Ambulance Manufacturer's Division
National Truck Equipment Association
37400 Hills Tech Drive
Farmington Hills, MI, 48331-3414
Internet: www.ntea.com

For information about CAAS standards:
CAAS
1926 Waukegan Road, Suite 300
Glenview, IL, 60025-1770
Internet: www.caas.org

For information about Federal Ambulance Specification KKK-A-1822 revision F (2007):

Office of Motor Vehicle Management,
General Services Administration,
2200 Crystal Drive, Suite 1006
Arlington, VA, 22202
Internet: www.gsa.gov/automotive

For information about NFPA® standards:
National Fire Protection Association
1 Batterymarch Park
Quincy, MA, 02169-7471
Internet: www.nfpa.org

For information about SAE standards:
Warrendale, PA, USA - Headquarters
400 Commonwealth Drive
Warrendale, PA 15096
p: +1.724.776.4841
f: +1.724.776.0790
Internet: www.sae.org

For information in Alberta, Canada:
Internet: http://www.albertahealthservices.ca/

For information in British Columbia, Canada:
Internet: http://www.bcehs.ca/

How to Meet SAE J3027

U.S.A. SAE J3027 Recommended Practice requires all three elements to be present together:

1. Compliant ambulance cot or transport system *(POWER X1™ Cot)*

2. Compliant fastening system, also called cot/litter retention system *(PRO F1™ Fastening System)*

3. Compliant restraint system *(Ferno X-Restraint System)*

1.8 Installation Requirements

INSTALLER REQUIREMENTS

- To install the fastening system, a skilled professional who is familiar with ambulance construction is required.

- Install the fastening system to meet or exceed all applicable standards in your country. Each fastener and support structure must be able to withstand the forces associated with the appropriate national standards (see "Compliance" on page 5).

- Two people may be needed for some installation steps.

VEHICLE REQUIREMENTS

- Inspect the ambulance for anything that might interfere with the installation.

- The floor to which the mounting components are attached must have sufficient strength to hold the mounted fastening system and cot with patient. Consult the ambulance manufacturer for ambulance structural details and ambulance warranty information.

- Install a new fastening system when remounting an ambulance box.

- If the ambulance is involved in a traffic accident, inspect it. See the "Inspecting" section of the fastening system users' manual. Replace any damaged components. For additional information, refer to Ferno's Accident Policy. See "Ferno Customer Relations" on page 2.

- **Bumper step requirements:**
  - The depth of the bumper step must be between 5"-10" (127-254 mm). If the bumper step depth is more than 7" (178 mm), it must have the ability to fold.
  - The bumper step height must be equidistant between the ground and the ambulance deck (floor), ± 2" (51 mm).
  - The bumper step height must not exceed 22" (559 mm).

⚠ WARNING

Improper or inadequate installation can cause injury. The installer must test the fastening-system setup to meet or exceed all applicable guidelines before using the setup in an ambulance.

Improper installation can cause injury and damage. Install the fastening system only as described in this manual.

Failure to use protective equipment can allow injury. Use protective equipment as needed for installation.

NOTICE

Installation fasteners and support structure must be able to withstand the forces associated with the applicable standards within the country where the ambulance will be operated.

Inspect under the ambulance floor for anything (fuel tank, wiring, brake lines, fuel lines, oxygen lines or other items) that might interfere with the installation.

If the ambulance is involved in a traffic accident, inspect the fastening system.

2 - INSTALLATION

2.1 Installing the Safety Hook

Parts Needed:

1/4-20 x 5/8" Flat-head screw	2
Safety hook insert	1
Safety hook	1
Loctite® 242® (blue) threadlocker	Small amount

Tools Required:

5/32" Hex wrench	1

1. Orient and place the safety hook insert in the floor plate near the rear of the ambulance, with the milled side up as shown. Then, set the safety hook on top of the insert (Figure 1).

2. Position the hook exactly 3.75" (95 mm) from the edge of the door sill to the face of the hook. The face of the hook is the inner surface where the safety bar catches the hook (Figure 2).

3. Prepare the two 1/4-20 x 5/8" flat-head screws and receiving threads in the safety-hook insert:

   ○ Clean the threads of the screws, plus the receiving threads in the insert with acetone or an appropriate Loctite® cleaner/primer (not supplied). Allow the threads to dry completely.

   ○ Apply 1 drop of threadlocker to the threads of the screws. Install the screws immediately. Wipe off any excess threadlocker.

4. Use a 5/32" hex wrench and to install the screws to the hook and insert. Wipe off excess threadlocker.

5. Allow the Loctite threadlocker to dry for a minimum of one hour before use.

NOTICE

If the hook is installed too far inside the ambulance, you will not be able to properly extend or retract the cot legs.

Typical door sills are straight/square, or sloped. Begin the front-to-back measurement where the flat floor (ambulance deck) meets the door sill.

Always clean and prime screw threads before applying Loctite® threadlocker.

Allow the Loctite® threadlocker to dry for a minimum of one hour before use. Full cure time is eight hours.

Rear of Ambulance

1

2
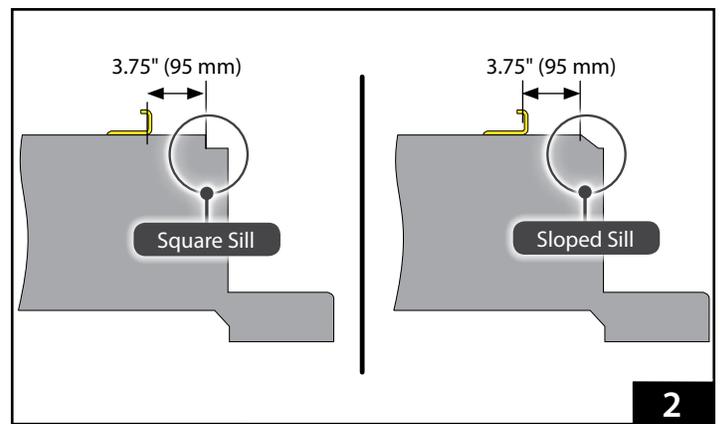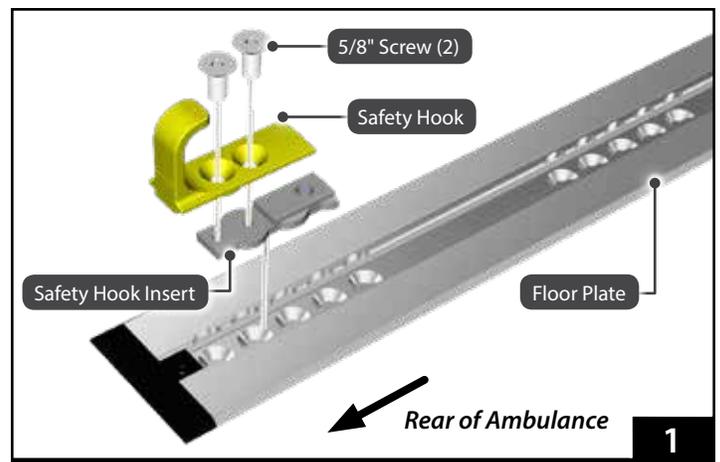
2.2 Positioning the Inserts

Parts Needed:

|	
Locator post	2
Long insert	2
Insert extender (may be needed)	1
Insert washer	4
1/4-20 x 3/8" Flat-head screw	4 or 6
Loctite® 242® (blue) threadlocker	Small amount

Tools Required:

7/8" Open wrench	1
5/32" Hex wrench	1
3/8" Hex wrench	1
Tape measure	1

1. Use an open wrench to install a locator post at the center of each insert (Figure 3). Do NOT completely tighten the locator posts.

2. Place one insert in the floor plate drop-in zone near the front of the ambulance, then slide the insert near the rear of the ambulance (Figure 3). The center of the locator post must be a minimum of 13.5" (342 mm) from the face of the safety hook (Figure 4).

Note: *If the insert does not slide easily inside the floor plate, loosen the locator post.*

3. Use additional help as needed to orient the fastening system over the floor plate with the alignment hole over the locator post (Figure 5). Carefully set the fastening system in place on the floor plate.

4. Take care to avoid damaging the ICS charging wire as you slide the fastening system toward the rear-facing seat to position the cot at a good ergonomic working distance for the attendant.

   ○ For installation in the U.S.A., adjust the fastening system on the floor plate so the end is a minimum of 25" (635 mm) from the face of the attendant's seat back and a minimum of 10" (254 mm) from the rear doors (Figure 6).

   ○ For other countries, follow the requirements in your area for proper positioning.
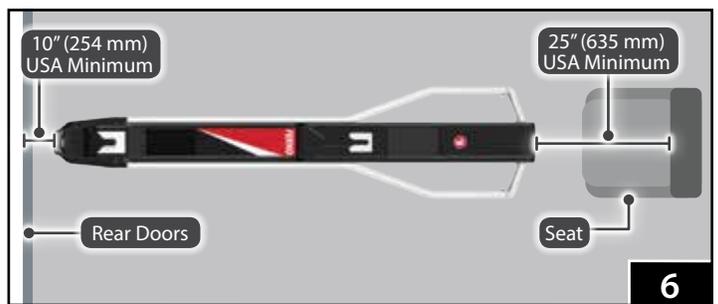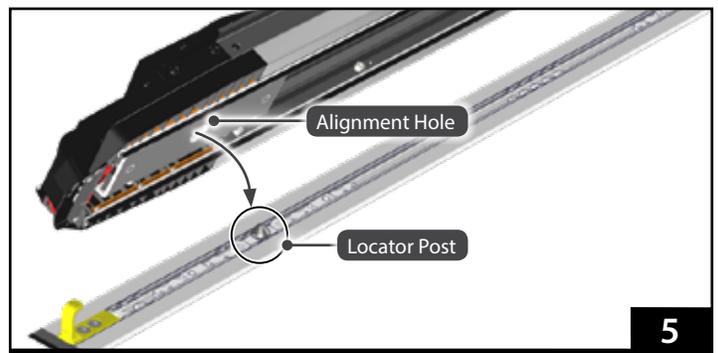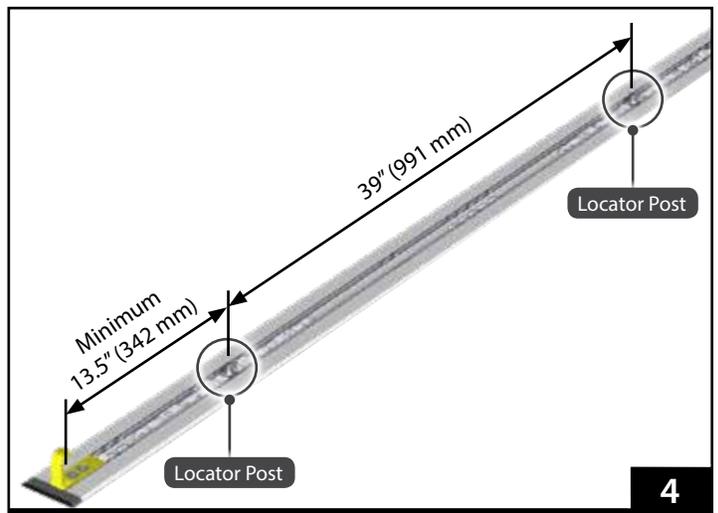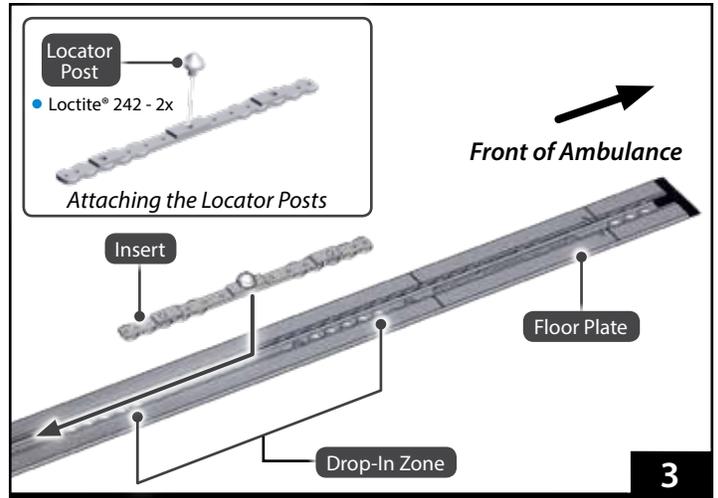
NOTICE

To prevent damage to the ICS charging wire, monitor the position of the wire as you attach the fastener to the floor plate.

Tip

Drop-In Zone

The drop-in zone is located on the end of the floor plate closest to the front of the ambulance. This is the only area where the long inserts can be placed into the floor plate.

Attaching the Locator Posts — Locator Post, Loctite® 242 - 2x, Insert, Drop-In Zone, Floor Plate, Front of Ambulance

3

39" (991 mm), Minimum 13.5" (342 mm), Locator Post

4

Alignment Hole, Locator Post

5

10" (254 mm) USA Minimum, 25" (635 mm) USA Minimum, Rear Doors, Seat

6

5. Use additional help as needed and lift the fastening system straight up and off the floor plate.

6. Place two washers (countersunk-side up) into the insert to hold the position (Figure 7). Adjust the insert slightly if needed to ensure the washers fit into the cutouts molded into the floor plate.
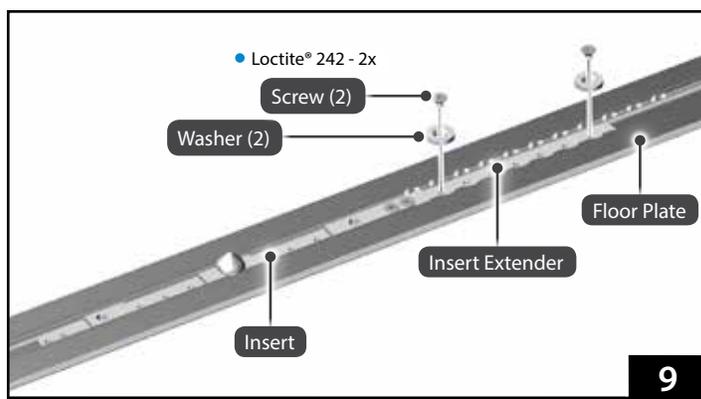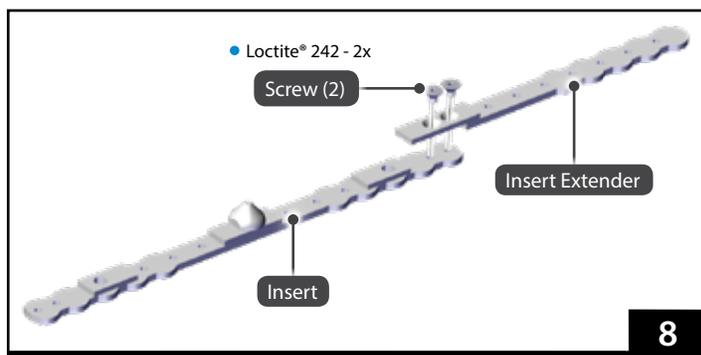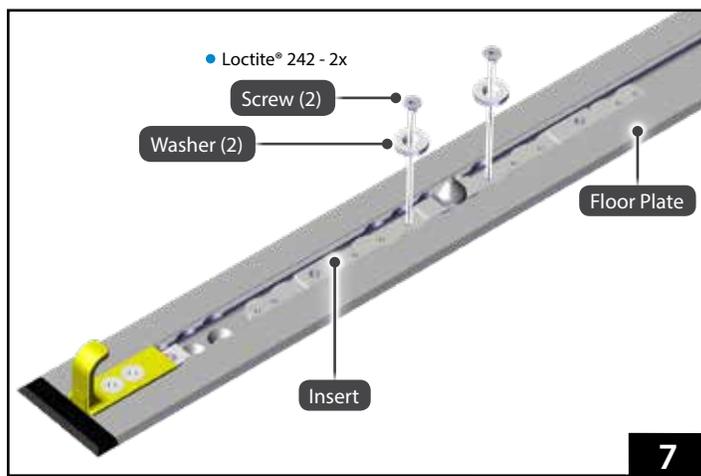
Note: *Washers may be placed in any of the available floor plate cutouts.*

7. Place the second insert into the floor plate drop-in zone. Measure 39" (991 mm) between the centers of two locator posts (Figure 4 on page 8).

8. If the floor plate does not have cutouts for the washers at the required position, attach the insert extender to the second insert.

9. If using the insert extender, prepare two 1/4-20 x 3/8" flat-head screws and receiving threads in the extender (Figure 8).

   ○ Clean the threads of the screws, plus the receiving threads in the extender with acetone or an appropriate Loctite® cleaner/primer (not supplied). Allow the threads to dry completely.

   ○ Apply 1 drop of threadlocker to the threads of the screws. Install the screws immediately. Wipe off any excess threadlocker.

10. Use a 5/32" hex wrench to install the screws in the extender and insert.

11. Place two washers into the second insert/extender (Figure 9).

12. Remove the two locator posts from the inserts.

13. Prepare the two locator posts, four 1/4-20 x 3/8" flat-head screws and the receiving threads in the inserts.

   ○ Clean the threads of the screws, plus the receiving threads in the inserts with acetone or an appropriate Loctite® cleaner/primer (not supplied). Allow the threads to dry completely.

   ○ Apply 1 drop of Loctite to the threads of the posts and screws. Install the screws immediately. Wipe off any excess threadlocker.

14. Install the two locator posts in the center hole of each insert using an open wrench. Tighten completely. Wipe off excess threadlocker.

15. Install the four flat-head screws and washers to the inserts (Figure 7 and Figure 9) using a 5/32" hex wrench. Wipe off excess threadlocker.

16. Attach the fastening system to the floor plate. See "Attaching the Fastening System to the Ambulance Floor" on page 10.

17. Allow the Loctite threadlocker to dry for a minimum of one hour before use.

NOTICE

Always clean and prime screw threads before applying Loctite® threadlocker.

Allow the Loctite® threadlocker to dry for a minimum of one hour before use. Full cure time is eight hours.

● Loctite® 242 - 2x
Screw (2)
Washer (2)
Floor Plate
Insert

7

● Loctite® 242 - 2x
Screw (2)
Insert Extender
Insert

8

● Loctite® 242 - 2x
Screw (2)
Washer (2)
Floor Plate
Insert Extender
Insert

9

2.3 Attaching the Fastening System to the Ambulance Floor

1. If equipped, carefully connect the ICS charging wire to the floor connector (Figure 10). Center any excess cable in the middle of the floor plate where it will not be kinked or damaged.

2. Use additional help as needed to orient the fastening system over the floor plate with the alignment holes over the locator posts (Figure 10). Carefully set the fastening system in place on the floor plate.

3. Verify the fastening system is properly seated on the floor plate and floor without obstructions.

> ⚠ **WARNING**
>
> An improperly-secured fastening system can fail in a crash. Confirm all mounting screws are fully tightened and the fastening system is properly secured to the floor.

> **NOTICE**
>
> To prevent damage to the ICS charging wire, monitor the position of the wire as you attach the fastener to the floor plate.

Placing the Fastener on the Locator Posts

Alignment Hole

Locator Post

Locator Post

ICS Charging Wire

Floor Plate

Locator Post

10
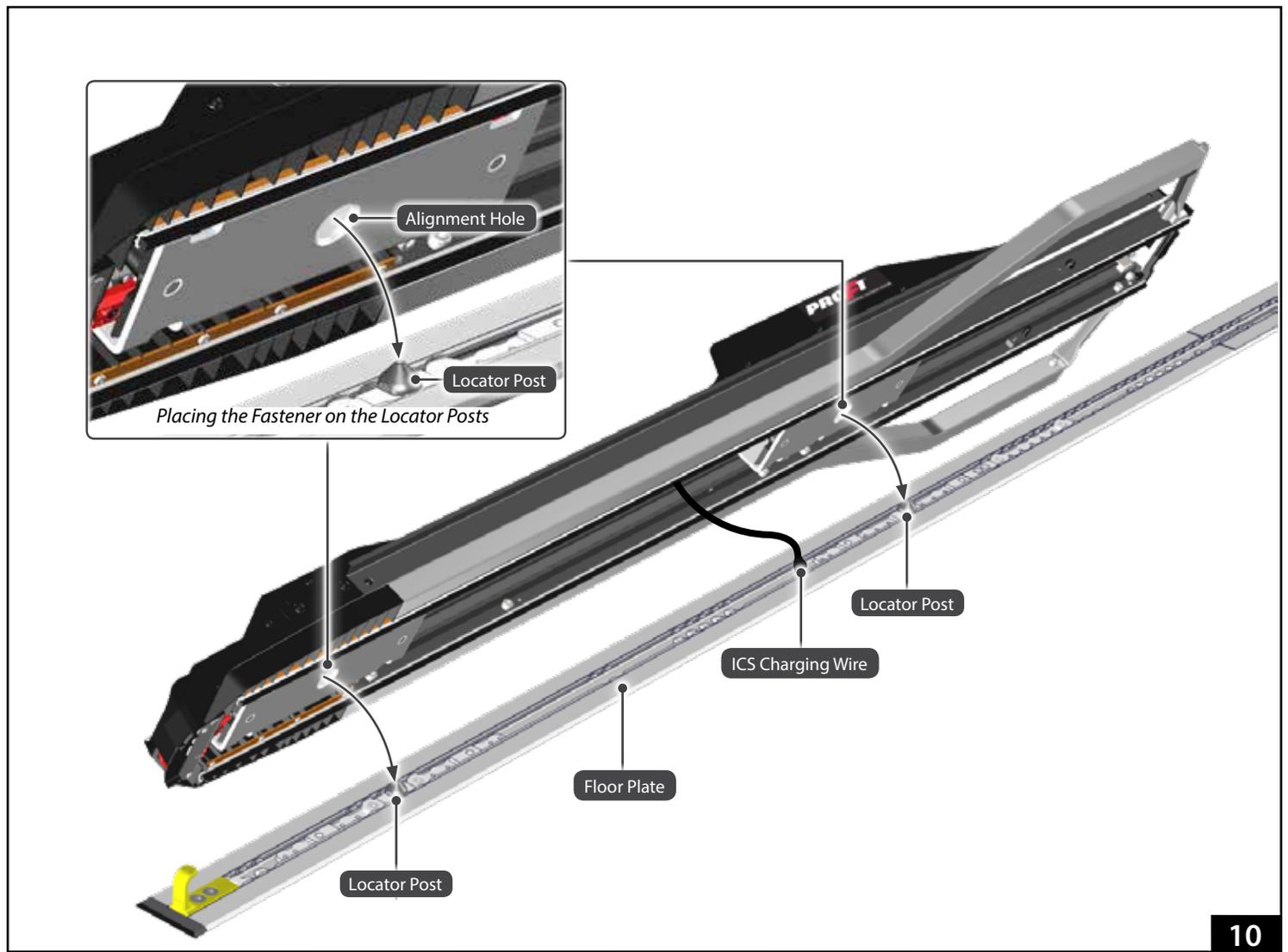
4.   If necessary, open the four mounting screw access covers (Figure 11).

Note: *Do not tighten the mounting screws until all four are threaded. The fastener may need to be moved slightly to align the mounting screws properly. Then tighten the mounting screws in the order shown in Figure 11.*

5.   Starting at the nose end, use a driver or 3/8" hex wrench to thread the mounting screw at each position. Follow the order shown in Figure 11. Do not tighten until all four mounting screws are threaded.

6.   Completely tighten the four mounting screws in the order shown in Figure 11.

7.   Verify the fastener is still properly seated on the floor.

8.   Close the four mounting screw access covers.
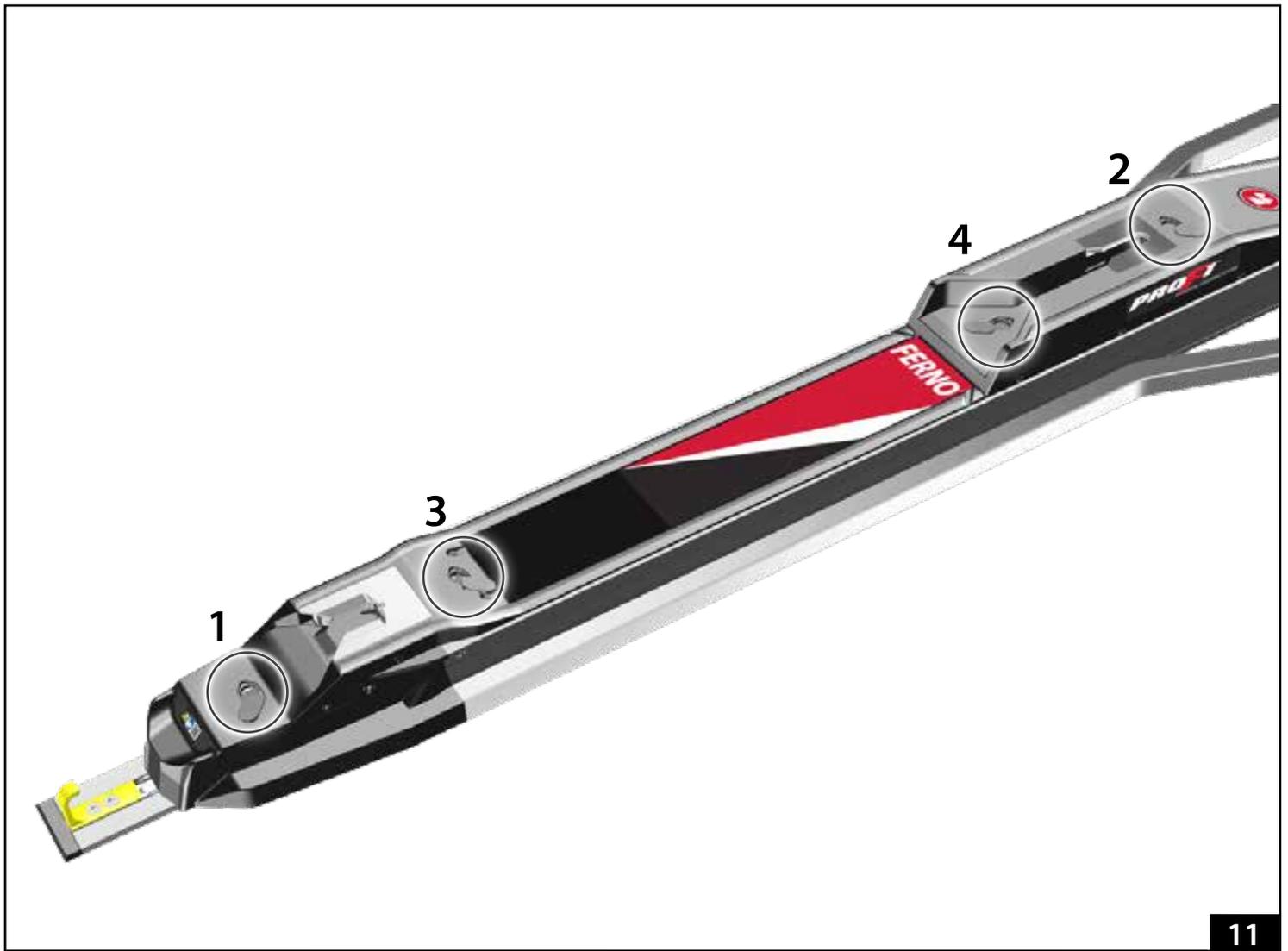
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3 - OPERATOR FOCUS

3.1 Operator Training

Operators using the fastening system:

- must read and understand this manual.

- must have training on proper use of the fastening system.

- must have a training on emergency-medical service and emergency patient-handling procedures.

- must have the physical ability to assist the patient.

- must practice with the fastening system before using it with a patient.

- must keep training records. For a sample training record sheet, see "Training Record" on page 22.

3.2 Terms

The following terms are used in this manual.

- **FASTENING SYSTEM:** The fastening system is a generic term for a device that secures a compatible ambulance cot or transport system inside an ambulance for ground-based transport.

- **INTEGRATED CHARGING SYSTEM (ICS):** The ICS is the system of cables and connections from the battery charger to the fastening system. The ICS delivers charging power to the POWER X1 cot when the power to the charger is ON and the cot is secured in the fastening system.

- **INTERACTIVE CONTENT:** For training videos and proper use of the PRO F1, scan a QR code in this manual, click a link in an electronic version of this manual or visit our website at www.ferno.com.

- **NOSE:** The nose is located at the end of the fastening system nearest the rear ambulance doors (or furthest from the ambulance driver.)

⚠ **WARNING**

Untrained operators can cause injury or be injured. Permit only trained personnel to operate the fastening system.

4 - OVERVIEW

4.1 Description

The **Ferno® PRO F1™ Fastening System** is a device designed to secure a manufacturer-approved ambulance cot inside a ground-based ambulance. See "Compatible Ferno Products" below.

The fastening system is for professional use only by trained Emergency Medical Service operators. See "Operator Focus" on page 12.

FEATURES

- **Easy to Clean:** The exterior is impact-resistant and easy to clean.
- **Automatic Charging with ICS (optional):** If equipped, the charging system is integrated into the fastening system and charges or maintains the charge in the POWER X1 battery whenever the POWER X1 cot is secured in the fastening system.
- **Cot Power Lockout:** The POWER X1 power is disabled when it is secured in a powered ICS.
- **Automatic Switching (Charging):** If the ambulance electrical system allows automatic switching, the ICS can use the ambulance electrical system when the ambulance is running, or utility power when the ambulance is parked and connected to utility power.
- **Safety Hook:** The safety hook functions as a safety stop to hold the cot secure inside the ambulance while operators raise and lower the legs during the loading and unloading process.
- **Release Button:** Single-press button unlocks the cot for unloading.
- **Tested and Certified for Worldwide Standards Compliance:** See "Compliance" on page 5.
- **IP56 Rating:** The fastening system is resistant to dust and water infiltration.

4.2 Compatible Products

When used in conjunction with the manufacturer supplied floor plate system and safety hook, the fastening system is compatible only with manufacturer-approved cots. Contact your Ferno representative for the most recent cross compatible cot, cot fastener and patient restraint system information.

> ⚠️ **WARNING**
>
> **Improper use can cause injury. Use the fastening system only for the purpose described in this manual.**
>
> **An improper cot can cause injury. Use only a manufacturer-approved cot designed or properly modified for use with the fastening system.**

Installation Overview

To install the fastening system, follow the instructions in the Universal Floor Plate installation manual. For a manual, contact Ferno. See "Ferno Customer Relations" on page 2.

As a user, be aware of the following:

- The ambulance must comply with the standards of the country in which it is used. See "Compliance" on page 5 for a list of standards met by the fastening system.
- Inspect under the ambulance for obstructions and for suitable support structure. Install support structure if needed.
- Inspect the fastening system regularly to ensure it meets all required standards required by your local government. See "Inspecting the Fastening System" on page 17.
- Install a new fastening system when remounting an ambulance box. Removing and reinstalling an old fastening system can weaken the fastening system.
- If the ambulance is involved in a traffic accident, inspect it. See "Inspecting the Fastening System" on page 17. Replace any damaged components.

4.3 General Specifications

Specifications for the fastening system are shown in the table at right. General specifications are rounded. Metric conversions are calculated before rounding the Imperial measurement.

Ferno reserves the right to change specifications without notice. For more information, contact Ferno Customer Relations or your Ferno distributor (page 2).

Dimensions	Imperial	Metric
(A) Length	81"	2047 mm
(B) Overall Width	19"	471 mm
(C) Height	6"	151 mm
Weight	60.8 lb	27.6 kg
Construction	Aluminum, Steel, Plastic	

4.4 Components

Fastening Post Retainer

Cot Guide (2)

Fastening Post Lock

Integrated Charging System

Mounting Screw (4)

Release Button

Safety Hook

Rear of Ambulance
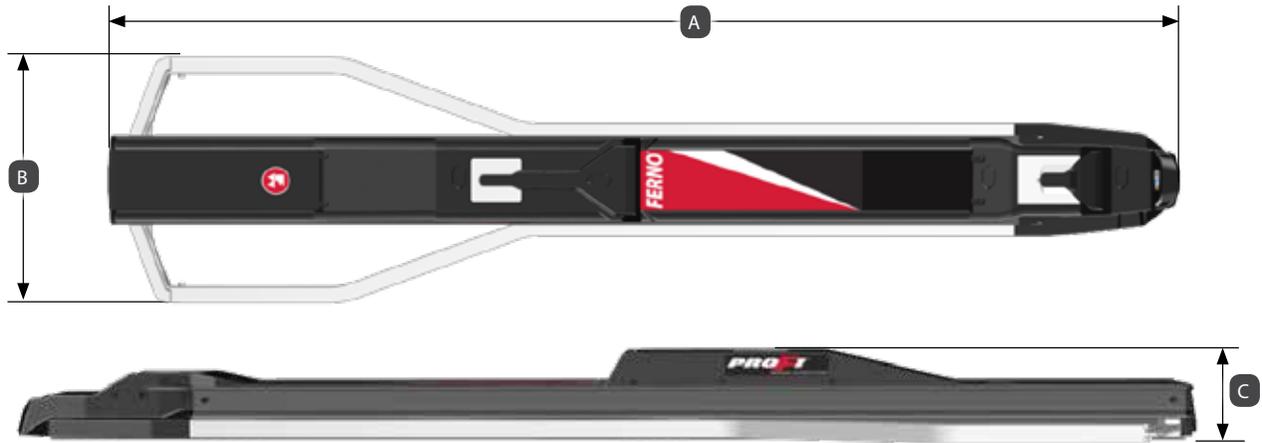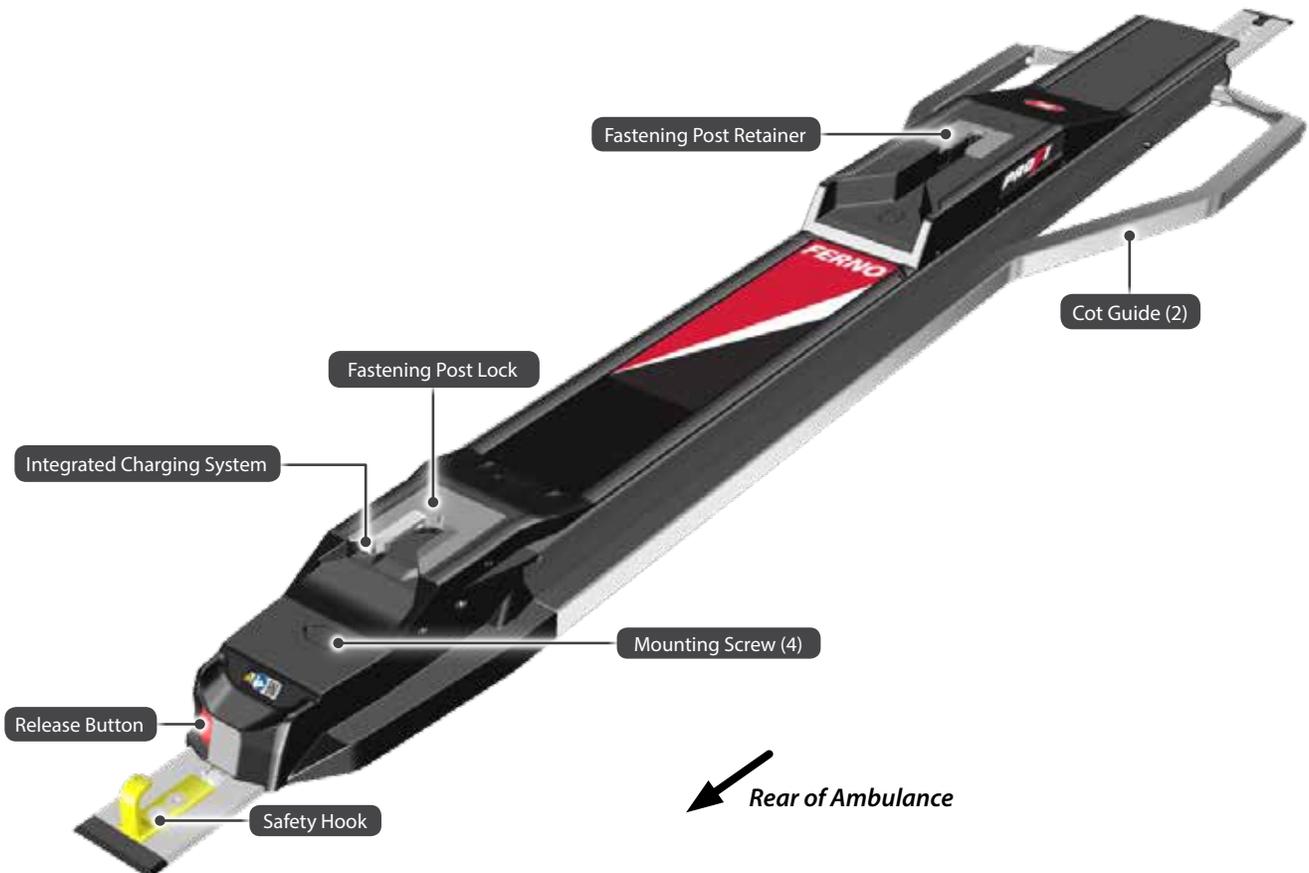
5 - FEATURES

5.1 Nose-End Features

RELEASE BUTTON

The release button is located on the nose of the fastening system (Figure 12). Push the cot toward the front of the ambulance and then press the release button to unlock the cot for unloading. See "Using the Fastening System" on page 16.

SAFETY HOOK

The safety hook is installed into the floor plate (Figure 12).

During both the loading and unloading processes, the safety hook holds the cot securely inside the ambulance while the operators raise and lower the undercarriage legs. See "Using the Fastening System" on page 16.

FASTENING-POST LOCK

The fastening-post lock is located near the nose of the fastening system (Figure 12). It captures the control-end post of the cot during the loading process and securely locks it in the fastening system during vehicle transport. See "Using the Fastening System" on page 16.

INTEGRATED CHARGING SYSTEM (ICS®, OPTIONAL)

If equipped, the Ferno® Integrated Charging System (ICS®) is located near the nose of the fastening system (Figure 13). When a Ferno® POWER X1 cot is locked in the fastening system and the ICS is connected and powered, the ICS will:

- disable powered operation of the cot
- charge the cot battery

The ambulance ignition, inverter, and/or outlet switch may need to be turned ON to supply electrical power to the ICS.

A remote charging indicator is located on the end of the fastening system (Figure 13). The cot battery is charging if the LED light is flashing. The cot battery is fully charged if the LED light is on and not flashing. Service is needed if the wrench icon is illuminated.

Fastening Post Lock
ICS Charging Contacts
Release Button
Safety Hook
Nose
Floor Plate

12

Remote Indicator
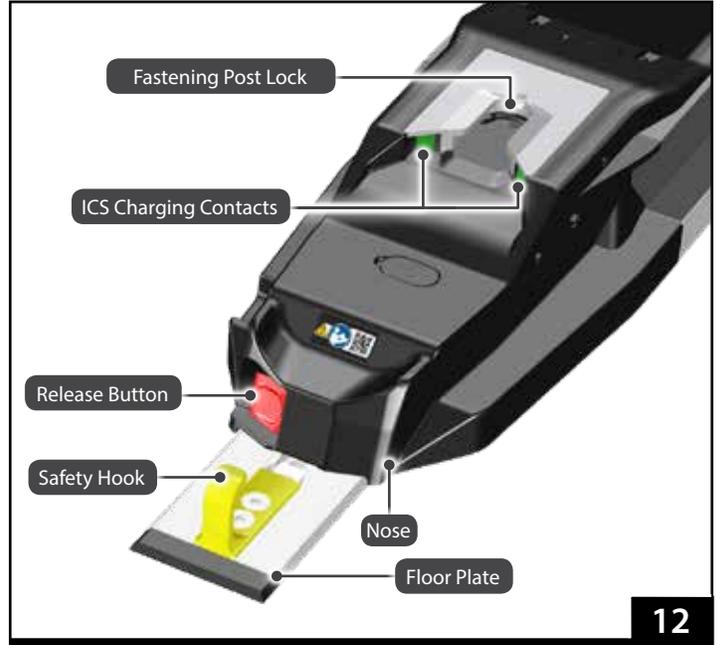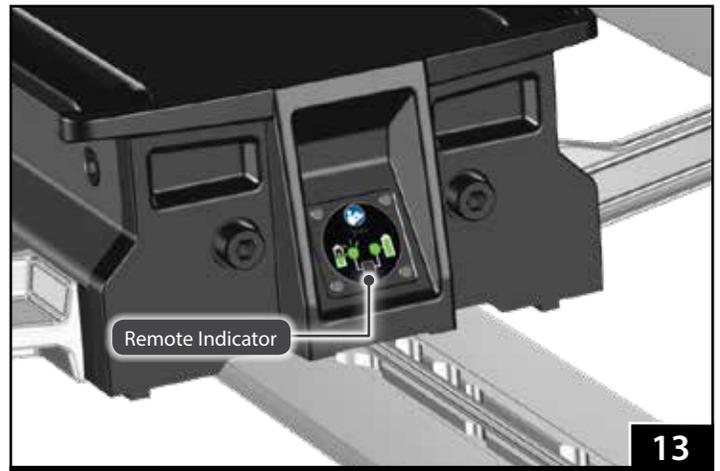
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5.2 Fastening-Post Retainer

The fastening-post retainer is located near the center of the fastening system (Figure 14).

The fastening-post retainer captures the loading-end post of the cot and helps to hold it in the fastening system during vehicle transport.

Fastening Post Retainer

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6 - USING THE FASTENING SYSTEM

6.1 Before Placing the Fastening System in Service

- Before use, personnel who will work with the fastening system must read and understand this manual. Appropriate skills and training are also required. See "Operator Focus" on page 12.

- Confirm that the fastening system operates properly and the fastening system is securely locked to the floor. See "Inspecting the Fastening System" on page 17.

- The fastening system is for use with manufacturer-approved products only. See "Compatible Products" on page 13.

6.2 General Guidelines for Use

- Medical advice is beyond the scope of this manual.

- It is the users' responsibility to ensure safe practices for the patient and themselves.

6.3 Using the Fastening System

Note: *Refer to the cot users' manual for specific loading and unloading instructions. For additional manuals, contact Ferno. See "Ferno Customer Relations" on page 2.*

1. Always fully engage the yellow safety hook with the cot safety bar (Figure 15).

2. During the loading process, roll the cot into the fastening system until it engages the locking mechanism (Figure 12).

   ○ The control-end fastening post slides into the retainer channel.

3. Verify the cot is locked in the fastening system by attempting to roll it out of the ambulance. If the lock has engaged, the cot will remain locked in the fastening system.

4. To remove the cot from the fastening system, push the cot toward the front of the ambulance and then push the red release button (Figure 16) to unlock the cot.

> **⚠ WARNING**
>
> **Improper operation can cause injury. Operate the fastening system only as described in this manual.**
>
> **An improper cot can cause injury. Use only a manufacturer-approved cot designed for use with the fastening system.**

Cot Safety Bar   Safety Hook

15

Release Button

16

> **Tip**
>
> **Engaging the Safety Hook**
>
> The safety hook holds the cot secure while the operators raise or lower the undercarriage legs during loading and unloading.
>
> Operators should roll the cot firmly against the safety hook and verify it is held securely by the hook **before** raising or lowering the undercarriage legs.

7 - MAINTENANCE

7.1 Maintenance Schedule

The fastening system requires regular maintenance. Set up and follow a maintenance schedule. The table at right represents minimum intervals for maintenance.

Keep maintenance records. For a sample record sheet, see "Maintenance Record" on page 23.

When using maintenance products, follow the manufacturers' directions and read the manufacturers' material safety data sheets.

7.2 Disinfecting the Fastening System

Wipe all surfaces with disinfectant. Follow the disinfectant manufacturer's instructions for application method and contact time. Ferno recommends you inspect the fastening system for damage as you disinfect.

7.3 Cleaning the Fastening System

The fastening system may be removed from the floor for cleaning if desired. See "Removing the Fastening System from the Floor for Cleaning" on page 19 and "Attaching the Fastening System to the Ambulance Floor" on page 10.

1. Hand clean all surfaces of the fastening system with warm water and a mild detergent.

2. Rinse with warm, clear water. Dry the fastening system with a towel or allow it to air-dry.

7.4 Inspecting the Fastening System

Have your service's equipment maintenance personnel inspect the fastening system regularly.

Follow the checklist at right and operate the fastening system through all its functions as described in this manual. See "Responsibility of User to Maintain a Safe Fastening System" on page 6.

If inspection shows damage or excessive wear, remove the fastening system from service until repair is made. See "Parts and Service, Accessories" on page 20.

⚠ WARNING
Improper maintenance can cause injury. Maintain the fastening system only as described in this manual.

Minimum Maintenance	Each Use	As Needed	Monthly
Disinfecting (this page)	●		
Cleaning (this page)		●	
Inspecting (this page)		●	●

NOTICE
Disinfectants and cleaners containing bleach, phenolics, or iodines can cause damage. Do not use products containing these chemicals.
Using abrasive cleaning compounds or applicators can cause damage. Do not use abrasive materials to clean the fastening system.
If the required backing plates are not present, take the fastening system out of service and have the backing plates installed immediately. Then, install a new fastening system.
Make sure all connections are tight, but **do not overtighten the hardware**. Overtightening, especially with powered tools, can cause the nut and bolt beneath the ambulance floor to pull through the backing plate.
If inspection indicates the components are pulling through the backing plate, take the fastening system out of service immediately and install a new fastening system with new backing plates.

Inspection Checklist

- Are all components present?
- Is the fastening system free of excessive wear?
- Are all parts in good condition (no cracks, corrosion, or damage)?
- Do all moving parts operate smoothly and properly?
- Does the fastening system lock properly to the floor plate?
- Does the cot load and unload properly?
- Does the cot lock properly into the fastening system?
- If fastening system has an ICS and the electrical power is on, does the POWER X1 charge when locked into the fastener?
- Monitor the ambulance floor, including beneath the ambulance, and check the integrity of the fastening system. Is the system worn? Has exposure to the environment caused noticeable damage?
- Are the required backing plates present, and are they securely welded to a primary structural member of the ambulance floor?
- Is all hardware tight? (Reminder: Do not overtighten the hardware.)

7.5 Lubrication-Free Product

The fastening system is constructed with lubrication-free materials. Do not lubricate the fastening system.

NOTICE
Lubricating parts that should not be lubricated allows dirt and foreign particles to collect on those parts, resulting in damage.

Do Not Lubricate

7.6 Pressure-Washing

Use caution when using pressurized water, spray-wands and equipment when cleaning the fastening system. Wear all safety equipment recommended by the pressure-sprayer manufacturer.

PREPARING TO PRESSURE-WASH

1. Remove the cot from the fastening system.

2. If you have removed the upper fastening system from the floor for cleaning, cover the end of the ICS cable with a plastic bag held closed by a rubber band. This will prevent water from entering a disconnected cable.

PRESSURE-WASHING THE FASTENING SYSTEM

1. Set the nozzle pressure at or below 3000 psi (20,684 kPa). Ferno recommends you use a nozzle with a wide angle of spray (25° or 40°). Keep the nozzle at least 18 inches (457 mm) away from the fastening system at all times. Do not spray directly into the ICS contacts.

2. Wipe the fastening system dry with a towel if desired.

3. Allow the fastening system to dry for 10 minutes. (If any water penetrates the case, this allows time for it to drain away under the ambulance.)

4. Reattach the ICS cable and fastening system to the floor if needed. See "Attaching the Fastening System to the Ambulance Floor" on page 10.

5. If you have the POWER X1, load the cot into the fastening system and verify the ICS charges and disables the POWER X1 powered mode.

6. When fully dry, return the fastening system to service.

NOTICE

The fastening system is water-resistant.
• **DO:** Keep the nozzle pressure setting **at or below** the listed pressure setting:
  ○ 3000 psi/20,684 kPa
  ○ 4 gallons per minute
  ○ 5 liters per minute
• **DO:** Keep the nozzle at least 18"/457 mm from the surface of the fastening system at all times.
• **DO:** Cover both ICS cable connectors if the upper fastening system has been removed from the floor.
• **DO NOT:** Spray water into the ICS port.

Ingress Protection Rating

The PRO F1 fastening system is rated **IP56.** IP stands for Ingress Protection, and indicates the fastening system has been tested in compliance with dust and water infiltration standards.

Solid Particle Protection (Rating: 5): Dust-protected

Liquid Ingress Protection (Rating: 6): Protected against water infiltration

The IP Rating system was developed by the European Committee for Electrotechnical Standardization (CENELEC) to show compliance of ANSI/IEC 60529, Degrees of Protection Provided by Enclosures (IP Code).

7.7 Removing the Fastening System from the Floor for Cleaning

The fastening system is removable for cleaning.

1. Use a medium flat-blade screwdriver to carefully pry up four mounting screw access covers. Rotate each cover to access the mounting screw inside the fastener (Figure 17).

2. Use a driver or 3/8" hex wrench to loosen the four mounting screws (Figure 18).

Note: *The screws are retained in the body of the fastening system and are not designed to be removed. There may be a loud clicking sound as the mounting screws are loosened. This is normal.*

3. Use additional help as needed and lift the fastening system straight up and off the floor plate. If equipped, the ICS charging wire is connected to the floor outlet under the fastener. Do not twist, stretch or damage the ICS charging wire (Figure 17).

4. Disconnect the ICS charging wire from the floor connector.

5. If power-washing with the fastener removed from the floor plate, cover each ICS connector with a plastic bag held closed by a rubber band.

NOTICE

To prevent damage to the ICS charging wire, monitor the position of the wire as you lift the fastener off the floor plate.

Mounting Screw

Mounting Screw Access Cover

17

Mounting Screw

Mounting Screw Location

ICS Charging Wire

Floor Plate

18
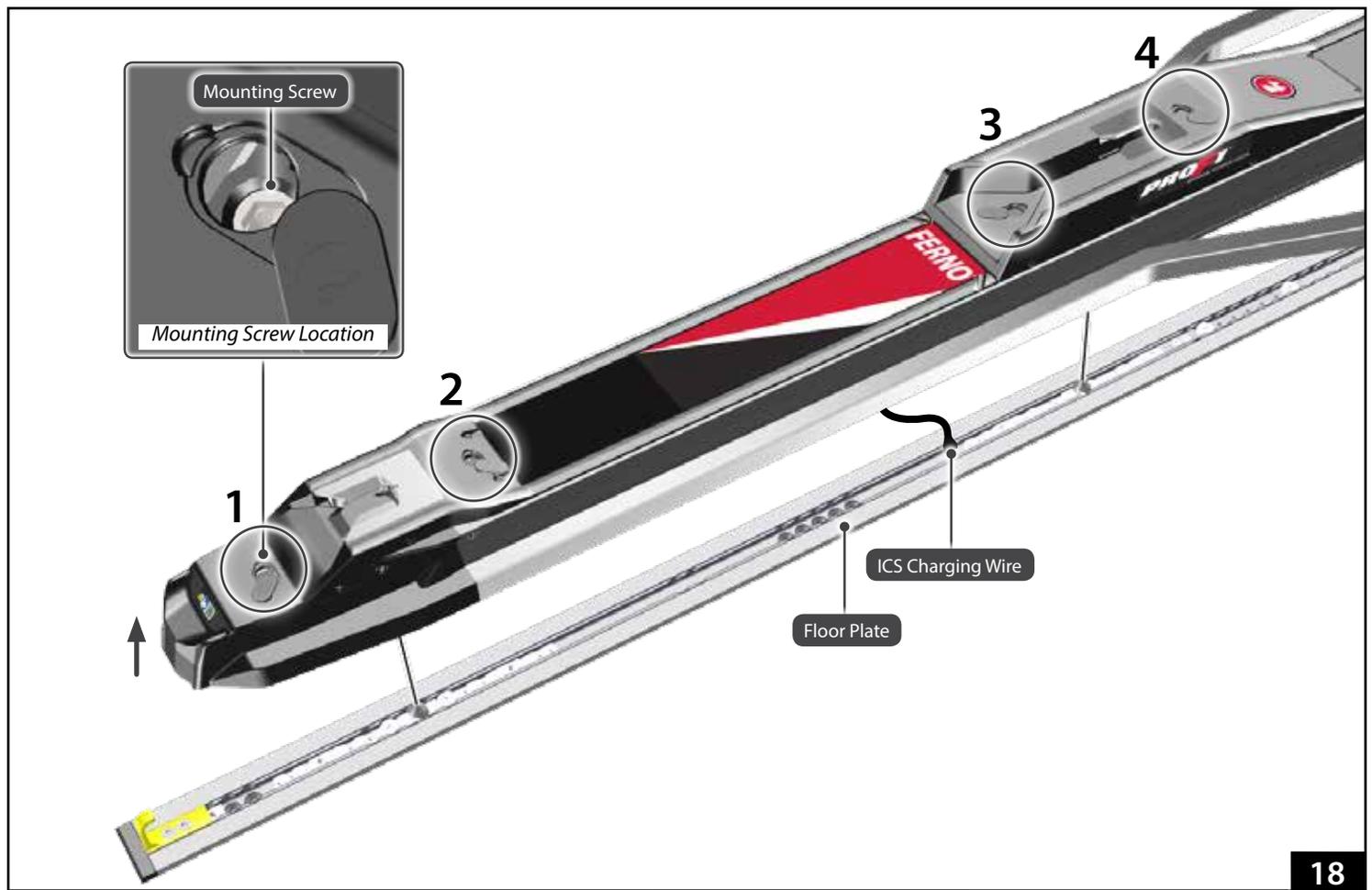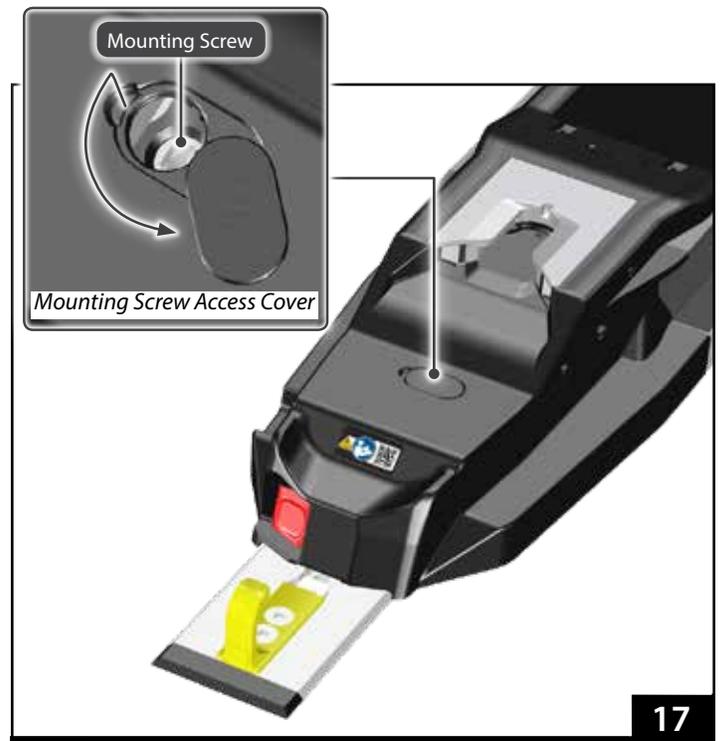
8 - PARTS AND SERVICE, ACCESSORIES

8.1 U.S.A. and Canada

In the United States and Canada, to order parts or for professional repairs, contact EMSAR® – the only agent authorized by Ferno to manage, service, and repair Ferno products.

Telephone (Toll-Free)	1.800.73.EMSAR
Telephone	1.937.383.1052
Fax	+1.937.383.1051
Internet	www.EMSAR.com

> ⚠ **WARNING**
>
> **Improper parts and service can cause injury. Use only Ferno parts and Ferno-approved service on the fastening system.**
>
> **Modifying the fastening system can cause injury and damage. Use the fastening system only as designed by Ferno.**

8.2 Australia

In Australia, contact Ferno to order parts or for professional repairs.

Ferno-Australia
11 Johnstone Road, Brendale, QLD 4500
Queensland, Australia

Telephone (Toll-Free)	+1.800.804.647
Telephone	+617.3881.4999
Fax	+617.3881.1125
Internet	http://www.ferno.com.au/

8.3 United Kingdom/EU Representative

In the European Union or in the United Kingdom, contact Ferno to order parts or for professional repairs.

Ferno (UK) Limited
Stubs Beck Lane, Cleckheaton
West Yorkshire BD19 4TZ, England, United Kingdom

Telephone	+44 (0) 1274.851999
Telephone (Service)	+44 (0) 1274.854511
Fax	+44 (0) 1274.851111
Internet	http://www.ferno.co.uk/

8.4 Worldwide

To order Ferno parts, and for professional repairs, contact your Ferno distributor. Your distributor is the only agent authorized by Ferno to manage, service, and repair Ferno products.

8.5 Accessories

Ferno offers a full line of accessories approved for installing the fastening system. Always follow the instructions packed with accessories. Keep the instructions with this manual.

Ferno also offers a full line of emergency products for the EMS professional. Contact Ferno or your Ferno distributor for product information. See "Ferno Customer Relations" on page 2.

NOTES

TRAINING RECORD

Date	Printed Name	Signature	Training Method			Trainer Initials
			Read Manual	Video/ Online	Hands-On	

MAINTENANCE RECORD

Date	Maintenance Performed	By

FERNO®

70 Weil Way
Wilmington, OH 45177

Aviation

Military

Mortuary

EMS

Rescue