

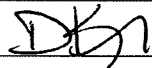
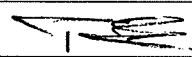
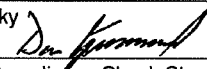

AIRBUS HELICOPTERS CANADA LIMITED
SUBJECT:

Required maintenance for the Left- Hand Litter Kit (P/N's 350- 200034 and 350- 200194).

APPLICABILITY :

Aircraft with the subject modification embodied in accordance with TCCA STC No. SH94- 29 or any relevant foreign approvals.

THE INFORMATION CONTAINED IN THIS DOCUMENT SHALL BE TREATED AS THE PROPERTY OF AIRBUS HELICOPTERS CANADA LIMITED (AHCA). THE RECIPIENT OF THIS DOCUMENT SHALL NOT DISCLOSE ANY INFORMATION CONTAINED HEREIN TO THIRD PARTIES WITHOUT THE WRITTEN PERMISSION OF AHCA, AND SHALL NOT USE OR REPRODUCE THIS DOCUMENT IN WHOLE OR IN PART FOR ANY PURPOSE OTHER THAN ITS ORIGINALLY INTENDED PURPOSE, OR TO EVALUATE ITS CONTENTS.

	NAME AND SIGNATURE	DATE	COMPANY DEPARTMENT
PREPARED BY:	D. Kerr 	7 April 2020	AHCA ENGINEERING
PREPARED BY:			
CHECKED BY:	P. Sharpe 	7 April 2020	AHCA ENGINEERING
CHECKED BY:	D. Kapuscinsky 	APRIL 7, 2020	AHCA QUALITY ASSURANCE
REV. 5 ACCEPTED (Civil A/W Authority)	(As per ICA Compliance Check Sheet)		TCCA
REV. 5 RELEASED BY:	P. Sharpe 	JUN 11 2020	AHCA ENGINEERING



AIRBUS HELICOPTERS CANADA LIMITED

INSTRUCTIONS FOR CONTINUED
AIRWORTHINESS
LEFT- HAND LITTER KIT
AS 350 / AS 355

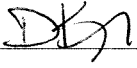



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REV. 5 RELEASED BY:	P. Sharpe 	JUN 11 2020	AHCA ENGINEERING

RECORD OF REVISIONS

Rev.	Pages at this Revision	Description, Reason Changed Pages	Prepared (name and date)	Checked (name and date)	App'd/Acc'd (Civil A/W Authority) (name and date)	Released (name and date)
0	1 through 9	Original Issue	D. Kerr 9 June 2004	C. Timmins 9 June 2004	TCCA E. Cheung 24 June 2004	R. Manson 24 June 2004
1	1 through 15	Format revised. More detail added to Sections 1, 3, 4, 6, 7, 8 and Weight and Balance Data incorporated as per FAA comments. (Pages 4, 5, 7 to 15)	D. Kerr 17 May 2005	C. Timmins 18 May 2005	TCCA E. Cheung 18 May 2005	R. Manson 18 May 2005
2	1 through 15	Text deleted from Sections 3 and 4. Corrections to Weight and Balance Data. (Pages 5, 7 and 13)	D. Kerr 8 June 2005	C. Timmins 8 June 2005	TCCA E. Cheung 8 June 2005	R. Manson 8 June 2005
3	1 through 13	Reduced envelope, FWD bracket incorporated for equipment clearance. Format updated, Weight and Balance chart corrected. (Pages 3 to 5, 7 to 13)	D. Kerr 10 April 2006	C. Timmins 10 April 2006	TCCA J. Palmer 14 July 2006	R. Manson 20 July 2006
4	1 through 16	Revised to incorporate both original and new FWD bracket assembly (short) design, Section 4 and format revised (Pages 3 to 6, 8 to 15)	D. Kerr 20 October 2006	C. Timmins 20 October 2006	DAO R. Manson 22 October 2012	R. Manson 1 November 2006
5	1 through 20 A1- A4 B1- B4	Standard and Alternative Installation replace Configuration 1 and 2. Figures revised to show relocation of bead chain tether attachment. Revised Airworthiness Limitations Section. New NOTE in Section 4, Maintenance Inspection intervals increased. Addition of two new "Before the first flight of each day" checks. Changed all EC abbreviations to AHCA. Template revised to incorporate company name change. Removed all references to AC43.13-1B. Weight and Balance chart revised. Addition of Appendix A and B. (Pages 4- 20)	D. Kerr 24 February 2017	D. Kapuscinsky 24 February 2017	TCCA G. David 27 February 2017	P. Sharpe 10 March 2017
6	1 through 20 A1- A4 B1- B4	Hardware correction in Figure 3. Appendix A and B revised. Minor text revision to Weight and Balance charts. (Pages 6, 11 and 17)	See page 1.	See page 1.	See page 1.	See page 1.

NOTE: Revisions to this document will be distributed to operators of this equipment by the STC holder.

NOTE: Revised portions of affected pages are identified by a vertical black line in the margin adjacent to the change.

NOTE: Minor changes are released in accordance with TCCA - ACCEPTED CAR 521-154 procedures (ref. DAPM-E-0001).

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AIRBUS HELICOPTERS CANADA LIMITED

INSTRUCTIONS FOR CONTINUED
AIRWORTHINESS
LEFT- HAND LITTER KIT
AS 350 / AS 355

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Appendix A	Users' Manual; Model 417- 1 Restraint, Documentation Number 234- 0231- 03 (4 pages)	
Appendix B	Users' Manual, Model 430 Restraints, Document Number 234- 3545- 00 (4 pages)	

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1. GENERAL

- A. The Left- Hand Litter Kit is located on the LH side of the cabin floor and is designed to carry one person on a portable stretcher loaded in the "feet forward" orientation with feet in the foot bag. The LH AFT seat is folded and secured against the bulkhead and the LH FWD seat is removed. The litter is then secured into the LH side of the cabin to the two mounting brackets. The RH AFT seat is available to carry medical personnel.

The Left- Hand Litter Kit installation (P/N 350- 200034) utilizes a FWD Bracket Assembly, with Toe Base, and a Toe Base Cover. Refer to Figure 1.

An alternate Left- Hand Litter Kit installation (P/N 350- 200194) utilizes a shorter FWD Bracket Assembly, and a corresponding Toe Base and Toe Base Cover. Refer to Figure 2. The alternate installation increases clearance for any equipment that may be located in the nose bay, for example: heating / air conditioning.

The Left- Hand Litter Installation consists of the following main components:

Fixed Provisions

- Heel Base Inboard
- Heel Base Outboard
- Heel Base Cover Inboard
- Heel Base Cover Outboard
- Stringer
- Toe Base (Standard Installation)
- Toe Base Cover (Standard Installation)
- Toe Base (Alternate Installation)
- Toe Base Cover (Alternate Installation)

Detachable Provisions

- Rear Bracket Assembly
- FWD Bracket Assembly (Standard Installation)
- FWD Bracket Assembly, Short (Alternate Installation)
- Locking Bar
- Litter

The Left- Hand Litter Kit is installed in accordance with drawings specified in Master Drawing List MDL- 99- 001.

- B. These Instructions for Continued Airworthiness are applicable to aircraft with the subject modification embodied.

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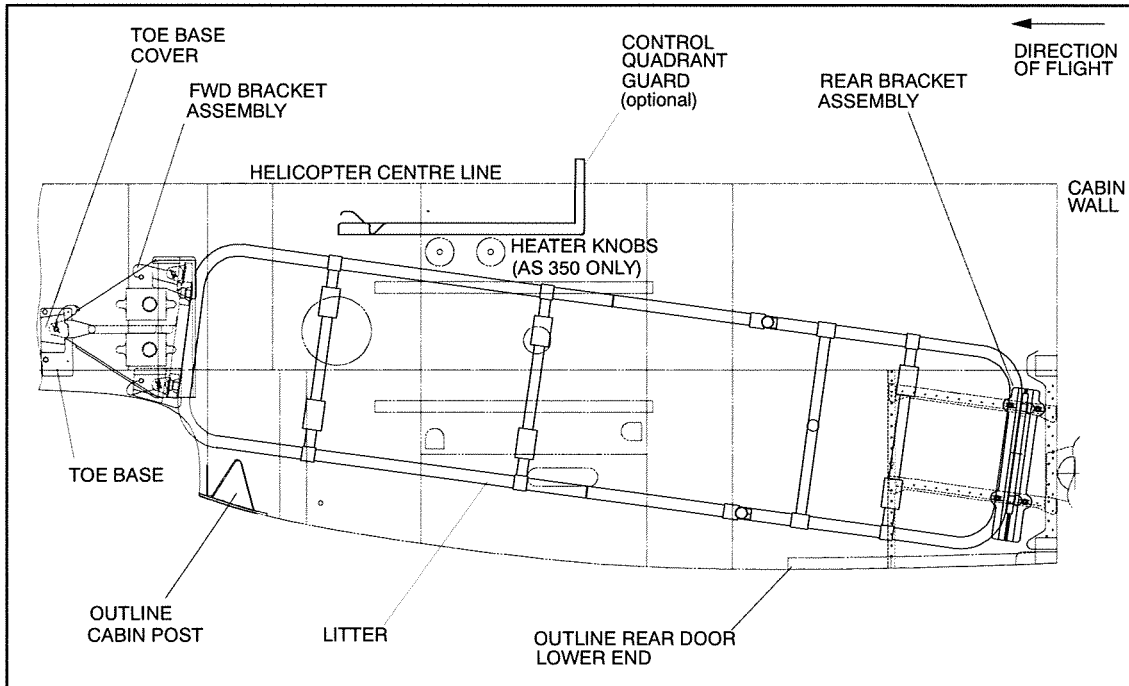


Figure 1 General Layout (Standard Installation)

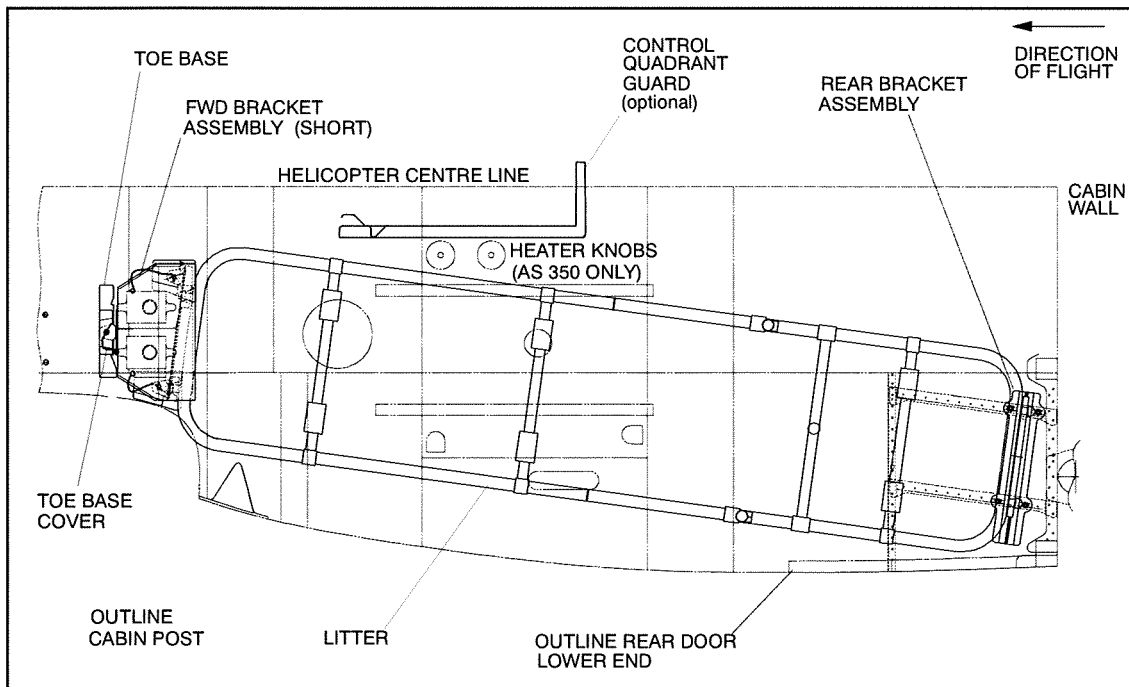
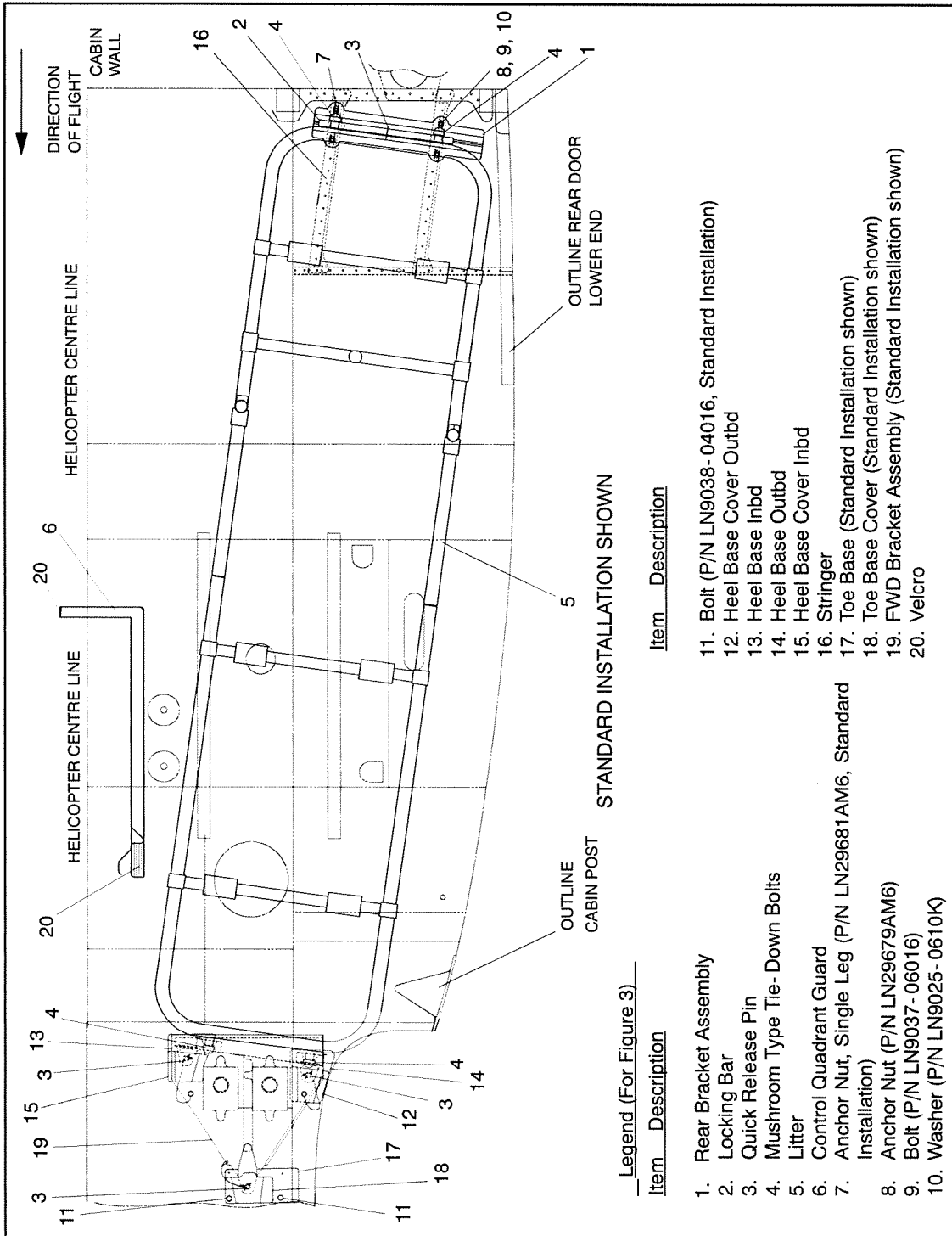


Figure 2 General Layout (Alternate Installation, Short FWD Bracket)

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Legend (For Figure 3)

Item	Description	Item	Description
1.	Rear Bracket Assembly	11.	Bolt (P/N LN9038-04016, Standard Installation)
2.	Locking Bar	12.	Heel Base Cover Outbd
3.	Quick Release Pin	13.	Heel Base Inbd
4.	Mushroom Type Tie-Down Bolts	14.	Heel Base Cover Outbd
5.	Litter	15.	Heel Base Cover Inbd
6.	Control Quadrant Guard	16.	Stringer
7.	Anchor Nut, Single Leg (P/N LN29681AM6, Standard Installation)	17.	Toe Base (Standard Installation shown)
8.	Anchor Nut (P/N LN29679AM6)	18.	Toe Base Cover (Standard Installation shown)
9.	Bolt (P/N LN9037-06016)	19.	FWD Bracket Assembly (Standard Installation shown)
10.	Washer (P/N LN9025-0610K)	20.	Velcro

Figure 3 Mounting Hardware

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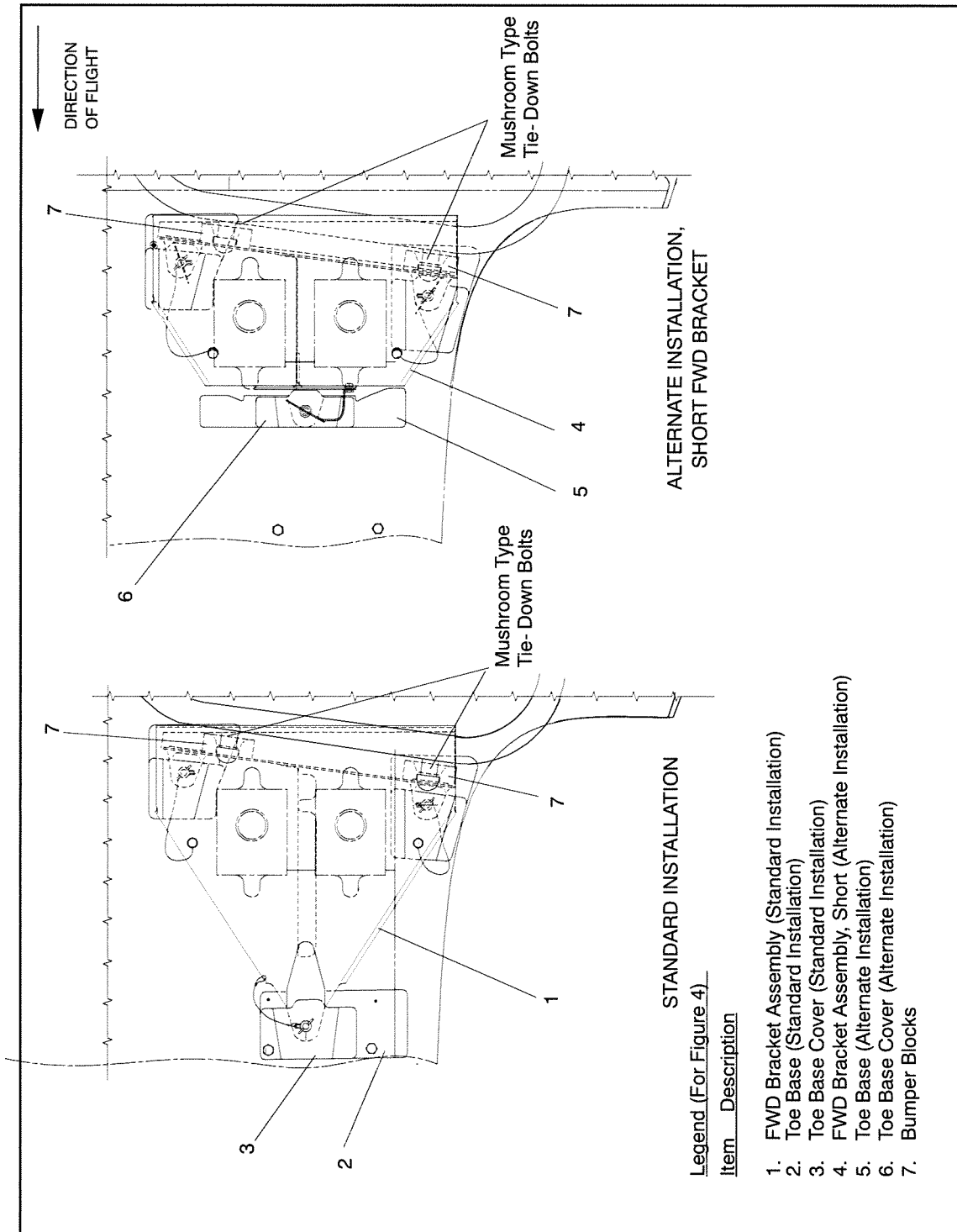


Figure 4 FWD Bracket Assembly Configurations

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Legend (For Figure 5)

Item Description

- 1. Combination Chest/Waist Strap
- 2. Leg Restraints
- 3. Foot Bag
- 4. Buckle

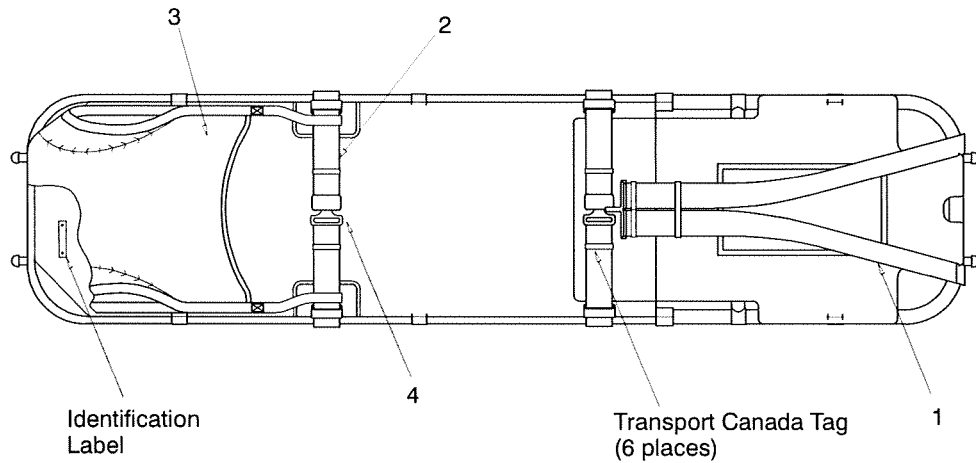


Figure 5 Straps and Foot Bag for Litter

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C. REFERENCES

DOCUMENT	DOCUMENT TITLE
MTC	Standard Practices Manual

D. ABBREVIATIONS & DEFINITIONS

ABBREVIATION	DEFINITION
Acc'd	Accepted
AHCA	Airbus Helicopters Canada Limited
App'd	Approved
A/W	Airworthiness
CAR	Canadian Aviation Regulations
DAPM	Design Approval Procedures Manual
FAA	Federal Aviation Administration
FWD	Forward
ICA	Instructions for Continued Airworthiness
Inbd.	Inboard
LH	Left- Hand
MDL	Master Drawing List
Outbd.	Outboard
P/N's	Part Numbers
ref.	reference
Rev.	Revision
STC	Supplemental Type Certificate
TCCA	Transport Canada Civil Aviation

E. UNITS OF MEASUREMENT

ABBREVIATION / SYMBOL	UNIT OF MEASUREMENT
hrs	hours
in	inch
kg	kilogram
lb	pound
m	meter
mm	millimeters
§§	Sections
D	Days
FH	Flight Hours
M	Months

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AIRBUS HELICOPTERS CANADA LIMITED

**INSTRUCTIONS FOR CONTINUED
AIRWORTHINESS
LEFT-HAND LITTER KIT
AS 350 / AS 355**

2. AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations Section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

The Airworthiness Limitations Section is FAA approved and specifies inspections and other maintenance required under §§43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

The Airworthiness Limitations Section is approved and variations must also be approved.

No Airworthiness Limitations associated with this installation.

Transport Canada Approved

AIRBUS HELICOPTERS CANADA LIMITED
3. CONTROL AND OPERATION

Apart from the following, control and operation of the aircraft remain unchanged:

Prepare cabin: fold LH AFT seat and remove LH FWD seat. Secure the front mounting bracket with three quick release pins, and secure the rear bracket assembly with bolts. The litter is then positioned onto the brackets and secured with a locking bar. Refer to Figures 3 and 4.

4. INSPECTION SCHEDULE AND MAINTENANCE ACTION

Refer to Section 8 if removing or replacing any parts.

For information on maintenance of the Harness Restraint, refer to the "Ferno" Users' Manual, Model 417-1 Series Harness Restraint (combination chest/waist strap), Document Number 234-0231-03, dated September 2013 (or latest version). Refer to Appendix A of this document.

For information on maintenance of the Restraints, refer to the "Ferno" Users' Manual, Model 430, 430 P, 439 Restraints (leg restraints), Document Number 234-3545-00, dated February 2014 (or latest version). Refer to Appendix B of this document.

NOTES Use torque per MTC, Chapter 20-02-05-404, unless otherwise specified.

4.1. INSPECTION SCHEDULE
4.1.1. Before the first flight of each day:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	- Visually inspect the LH Litter Kit installation, in Figure 3, for: a. general condition	a. Ensure there is no cracking, deformation or corrosion on any of the mounting brackets.
B	- Visually inspect litter combination chest/waist strap, item 1 and leg restraints, items 2 in Figure 5 for: a. damage or excessive wear (chafing, cuts, fraying and fading) b. operation of buckles (item 4) (proper releasing and engagement)	a. Damage or excessive wear are not permitted. If damage or excessive wear are evident, contact AHCA for replacement parts. b. If buckles do not operate correctly, contact AHCA for replacement parts.
C	- Visually inspect foot bag, item 3 in Figure 5 for: a. damage or excessive wear (chafing, cuts, fraying and fading)	a. Damage or excessive wear are not permitted. If damage or excessive wear are evident, contact AHCA for replacement parts.

Table 1 Inspection Schedule and Maintenance Action
 Before the first flight of each day

NOTE: The "Before the first flight of each day" task can be carried out by a suitably trained pilot or maintenance personnel.

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4. INSPECTION SCHEDULE AND MAINTENANCE ACTION (continued)
4.1. INSPECTION SCHEDULE
4.1.2. Pre-Flight Check:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	- Visually inspect the LH Litter Kit installation, in Figure 3, for: a. secure installation	a. Secure as required.

 Table 2 Inspection Schedule and Maintenance Action
 Pre-Flight Check

NOTE: The "Pre-Flight Check" task can be carried out by a suitably trained pilot or maintenance personnel.

4.1.3. Every 150 FH or 12 M (Margin: 15 FH or 36 D) to coincide with the 150 FH or 12 M helicopter inspection, whichever occurs first:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
A	- Visually inspect mounting hardware, items 7, 8, 9, 10 and 11 (item 11 on Standard installation only), in Figure 3, for: a. security b. corrosion	a. Secure as required. b. No corrosion is allowed. If corrosion is found, replace item.
B	- Check locking bar, item 2 in Figure 3 for: a. security b. wear c. corrosion d. cracks or deformation	a. Secure as required. b. Wear is not permitted, if wear is evident, contact AHCA for replacement part. c. No corrosion is allowed. If corrosion is found, contact AHCA for replacement part. d. No cracks or deformation are allowed. If cracks or deformation are found, contact AHCA for replacement part.
C	- Check quick release pins, item 3 in Figure 3 for: a. security b. function - proper releasing and engagement/locking c. corrosion	a. Re-seat pin in mounting hole. b. If not properly functioning, contact AHCA for replacement parts. c. No corrosion is allowed. If corrosion is found, contact AHCA for replacement parts.

 Table 3 Inspection Schedule and Maintenance Action
 Every 150 FH or 12 M, to coincide with the 150 FH or 12 M helicopter inspection, whichever occurs first
 (continued on following page)

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4. INSPECTION SCHEDULE AND MAINTENANCE ACTION (continued)
4.1. INSPECTION SCHEDULE (continued)

4.1.3. Every 150 FH or 12 M (Margin: 15 FH or 36 D) to coincide with the 150 FH or 12 M helicopter inspection, whichever occurs first:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
D	- Check Control Quadrant Guard, item 6, in Figure 3, for: a. security	a. Secure mounting hardware and velcro.
E	- Inspect velcro, item 20, on the Control Quadrant Guard, item 6, in Figure 3 for: a. wear (tears, areas that have become worn)	a. Wear is not permitted, if wear is evident, replace Velcro in accordance with MTC, Chapter 20-03-04-406.
F	- Visually inspect LH Litter, item 5, and mushroom type tie-down bolts, item 4, in Figure 3, for: a. cracks or deformation b. corrosion c. scoring d. security (mushroom type tie-down bolts, item 4 only)	a. No cracks or deformation are allowed. If cracks or deformation are found, contact AHCA for replacement parts. b. No corrosion is allowed. If corrosion is found, contact AHCA for replacement parts. c. No scoring is allowed. If scoring is found, contact AHCA for replacement parts. d. Secure as required.
G	- Visually inspect items 1, 12, 13, 14, 15, 16, 17, and 18, in Figure 3 for: a. cracks or deformation b. corrosion c. scoring	a. No cracks or deformation are allowed. If cracks or deformation are found, contact AHCA for replacement parts. b. No corrosion is allowed. If corrosion is found, contact AHCA for replacement parts. c. No scoring is allowed. If scoring is found, contact AHCA for replacement parts.

Table 3 Inspection Schedule and Maintenance Action
 Every 150 FH or 12 M, to coincide with the 150 FH or 12 M helicopter inspection, whichever occurs first
 (continued on following page)

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AIRBUS HELICOPTERS CANADA LIMITED
4. INSPECTION SCHEDULE AND MAINTENANCE ACTION (continued)
4.1. INSPECTION SCHEDULE (continued)

4.1.3. Every 150 FH or 12 M (Margin: 15 FH or 36 D) to coincide with the 150 FH or 12 M helicopter inspection, whichever occurs first:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
H	- Visually inspect items 5 and 6 in Figure 4, for: a. cracks or deformation b. corrosion c. scoring	a. No cracks or deformation are allowed. If cracks or deformation are found, contact AHCA for replacement parts. b. No corrosion is allowed. If corrosion is found, contact AHCA for replacement parts. c. No scoring is allowed. If scoring is found, contact AHCA for replacement parts.
I	- Visually inspect FWD Bracket Assembly, item 1, or FWD Bracket Assembly, Short, item 4, in Figure 4, for: a. cracks or deformation b. corrosion c. scoring	a. No cracks or deformation are allowed. If cracks or deformation are found, contact AHCA for replacement parts. b. No corrosion is allowed. If corrosion is found, contact AHCA for replacement parts. c. No scoring is allowed. If scoring is found, contact AHCA for replacement parts.
J	- Visually inspect bumper blocks, item 7, in Figure 4, for: a. wear b. security	a. Wear is not permitted. If wear is evident, contact AHCA for replacement parts. b. Secure as required.
K	- Visually inspect litter combination chest/waist strap, item 1, and leg restraints, item 2, in Figure 5 for: a. damage or excessive wear (chafing, cuts, fraying and fading) b. operation of buckles (item 4) (proper releasing and engagement)	a. Damage or excessive wear are not permitted. If damage or excessive wear are evident, contact AHCA for replacement parts. b. If buckles do not operate correctly, contact AHCA for replacement parts.

Table 3 Inspection Schedule and Maintenance Action
 Every 150 FH or 12 M, to coincide with the 150 FH or 12 M helicopter inspection, whichever occurs first

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4. INSPECTION SCHEDULE AND MAINTENANCE ACTION (continued)
4.1. INSPECTION SCHEDULE (continued)

4.1.3. Every 150 FH or 12 M (Margin: 15 FH or 36 D) to coincide with the 150 FH or 12 M helicopter inspection, whichever occurs first:

ITEM	INSPECTION OR MAINTENANCE WORK	CORRECTIVE ACTION
L	- Visually inspect foot bag, item 3 in Figure 5 for: a. damage or excessive wear (chafing, cuts, fraying and fading)	a. Damage or excessive wear are not permitted. If damage or excessive wear are evident, contact AHCA for replacement parts.
M	- Check placards and markings in Figures 6, 7 & 8 (Section 10) for: a. legibility b. secure mounting	a. If placard has become illegible, contact AHCA for replacement parts. b. Secure, reattach placards as required.

Table 3 Inspection Schedule and Maintenance Action
 Every 150 FH or 12 M, to coincide with the 150 FH or 12 M helicopter inspection, whichever occurs first

5. REPLACEMENT COMPONENTS AND REPAIR / OVERHAUL INFORMATION

Contact AHCA for replacement parts. No overhaul information required for this installation.

For replacement components:

Airbus Helicopters Canada Limited
 1100 Gilmore Road, P.O. Box 250
 Fort Erie, Ontario L2A 5M9 Canada
 Telephone: (905) 871-7772
 www.airbushelicopters.ca

6. TROUBLESHOOTING

There are no unique characteristics which require special troubleshooting techniques.

7. SPECIAL TOOLING

No special test equipment or tools are required. Standard tools are adequate.

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8. REMOVAL AND REPLACEMENT**A. REMOVAL**

- 1) Left- Hand Litter Installation (Refer to Figures 3 and 4)
 - a) Open left side door (s).
 - b) Release the AFT litter mushroom type tie- down bolts (4) from the rear bracket assembly (1) by removing the quick release pin (3) and removing the locking bar (2). Refer to Figure 3.
 - c) Move Litter AFT to disengage the mushroom type- tie- down bolts (4, refer to Figure 3) from the FWD bracket assembly (1, Standard Installation) or the FWD bracket assembly, short (4, Alternate Installation) mounting holes. Refer to Figure 4.
 - d) Remove the litter (5) from the aircraft. Refer to Figure 3.
 - e) Secure the locking bar (2) onto the rear bracket assembly (1) using the quick release pin (3) for storage. Refer to Figure 3.
 - f) To remove the FWD bracket assembly (1, Standard Installation) or the FWD bracket assembly, short (4, Alternate Installation), remove the three quick release pins (3). Refer to Figures 3 and 4.
 - g) Slide FWD bracket assembly AFT to remove from toe base cover (18) and heel base covers (12 & 15). Refer to Figure 3.

B. REPLACEMENT

NOTES Use torque per MTC, Chapter 20- 02- 05- 404,
unless otherwise specified.

- 1) Left- Hand Litter Installation (Refer to Figures 3 and 4)
 - a) Open left side door (s). Remove quick release pin (3) securing locking bar (2) onto rear bracket assembly (1).
 - b) If removed, reinstall the FWD bracket assembly (1, Standard Installation) or the FWD bracket assembly, short (4, Alternate Installation), with the three quick release pins (3). Refer to Figures 3 and 4.
 - c) Load the litter (5) into the aircraft. Refer to Figure 3.
 - d) Engage the FWD mushroom type tie- down bolts (4, refer to Figure 3) into the FWD bracket assembly (1, Standard Installation) or the FWD bracket assembly, short (4, Alternate Installation). Refer to Figure 4.

NOTE The foot bag must be loaded forward.

- e) Slide AFT litter mushroom type tie- down bolts (4) into rear bracket assembly (1) and secure with locking bar (2) and quick release pin (3). Refer to Figure 3.



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9. WEIGHT AND BALANCE DATA

NOTE: This Weight and Balance Chart is applicable to Standard Installation.

A. <u>Removed Items</u>						
DESCRIPTION	WEIGHT		ARM		MOMENT	
	kg	lb	m	in	m kg	in lb
LH FWD Seat	- 10.6	- 23.4	1.61	63.4	- 17.1	- 1484.0
Total	- 10.6	- 23.4	1.61	63.4	- 17.1	- 1484.0

B. <u>Added Items</u>						
DESCRIPTION	WEIGHT		ARM		MOMENT	
	kg	lb	m	in	m kg	in lb
LH Litter	11.00	24.3	1.50	59.1	16.50	1436.1
FWD Bracket Assembly	0.75	1.6	0.72	28.3	0.54	45.3
Rear Bracket Assembly	0.95	2.1	2.60	102.4	2.48	215.0
Fixed Provisions	0.51	1.1	0.98	38.4	0.50	42.2
Control Quadrant	0.30	0.7	1.66	65.4	0.50	45.8
Total	13.51	29.8	1.52	59.9	20.51	1784.5

NOTE: This Weight and Balance Chart is applicable to Alternate Installation, Short FWD Bracket.

A. <u>Removed Items</u>						
DESCRIPTION	WEIGHT		ARM		MOMENT	
	kg	lb	m	in	m kg	in lb
LH FWD Seat	- 10.6	- 23.4	1.61	63.4	- 17.1	- 1484.0
Total	- 10.6	- 23.4	1.61	63.4	- 17.1	- 1484.0

B. <u>Added Items</u>						
DESCRIPTION	WEIGHT		ARM		MOMENT	
	kg	lb	m	in	m kg	in lb
LH Litter	11.00	24.3	1.50	59.1	16.50	1436.1
FWD Bracket Assembly, Short	0.51	1.1	0.75	29.5	0.38	32.5
Rear Bracket Assembly	0.95	2.1	2.60	102.4	2.48	215.0
Fixed Provisions	0.51	1.1	1.00	39.4	0.51	43.3
Control Quadrant	0.30	0.7	1.66	65.4	0.50	45.8
Total	13.28	29.3	1.53	60.5	20.37	1772.7

NOTE The LH FWD seat must be removed to enable installation of the LH Litter Installation. If litter is removed the seat does not need to be re-installed.

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10. PLACARDS AND MARKINGS

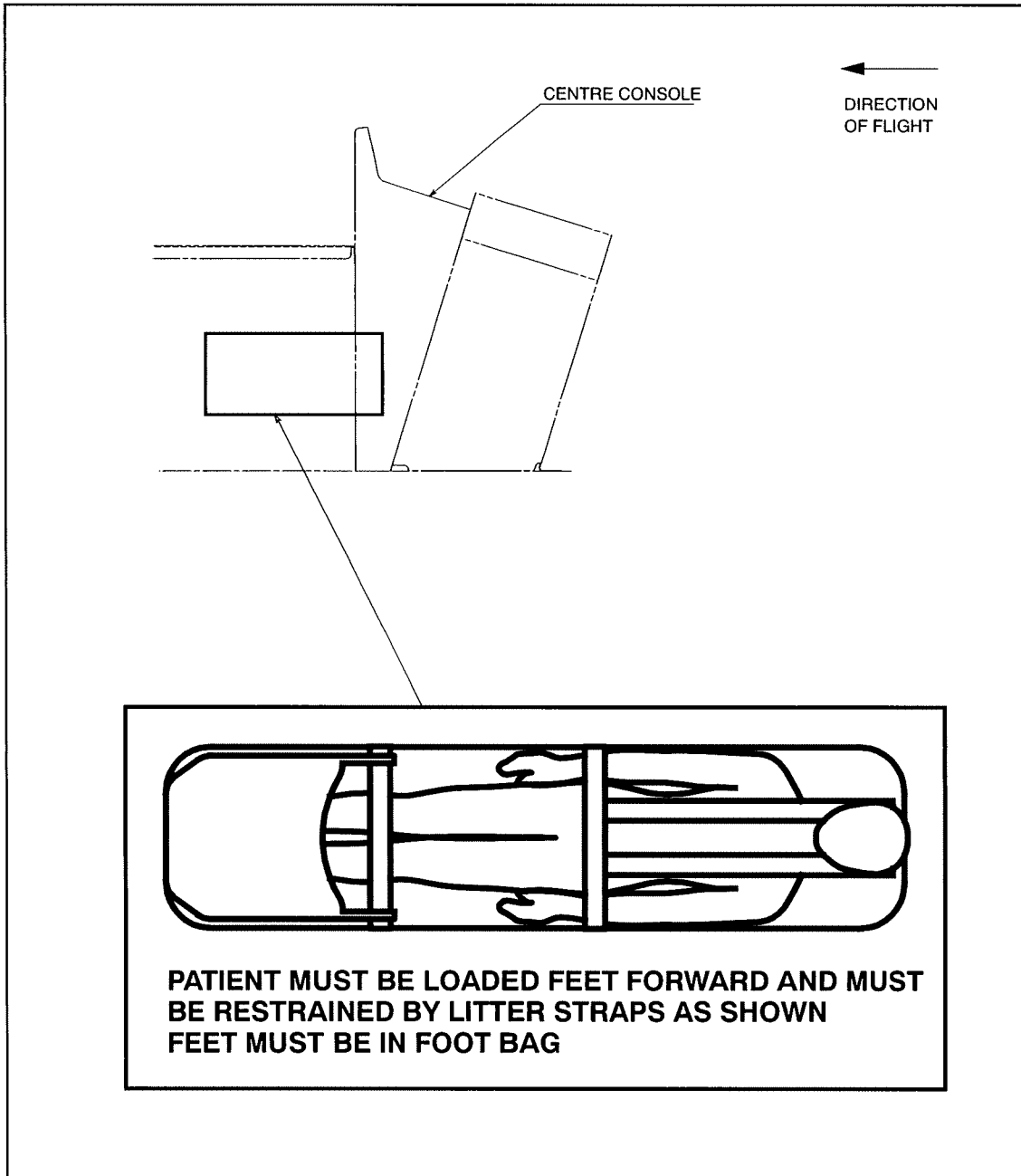


Figure 6 Placard location on LH Side FWD of the center console in the nosebay

Transport Canada Accepted

10. PLACARDS AND MARKINGS

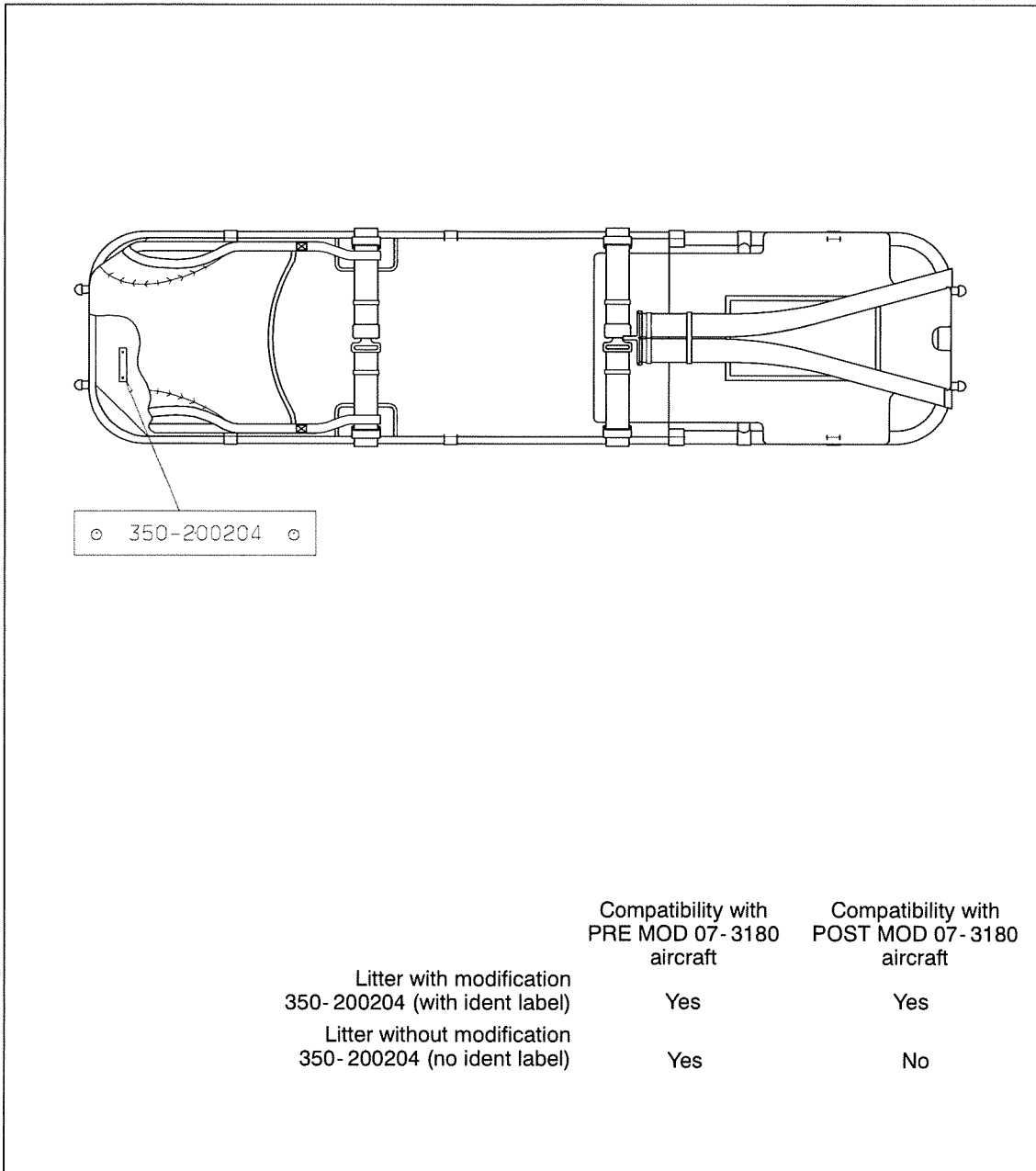


Figure 7 Identification label location on Litter

Transport Canada - Accepted

10. PLACARDS AND MARKINGS

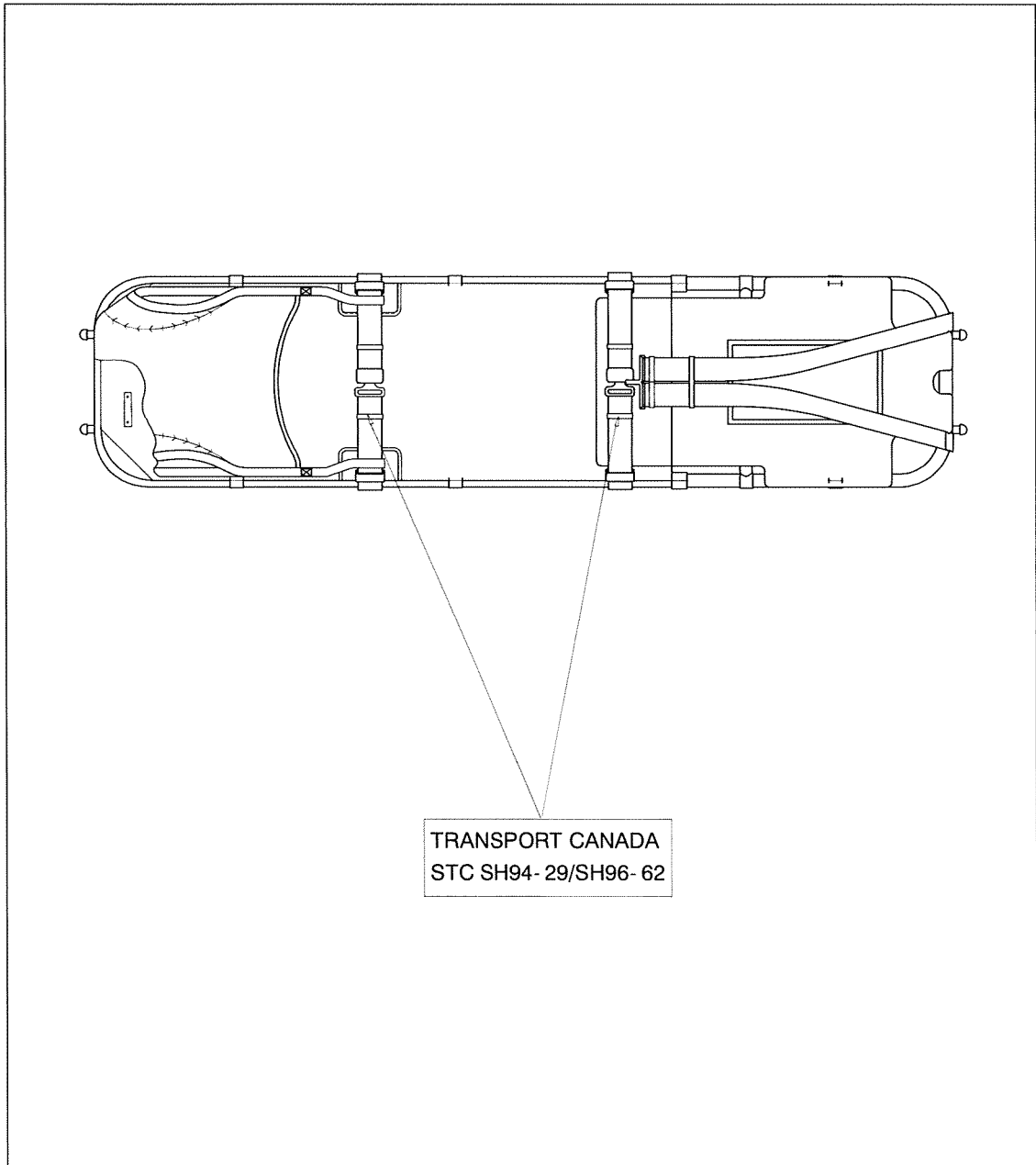


Figure 8 Identification tag located on each belt strap on Litter

Transport Canada - Accepted



Description

The Model 417-1 Harness Restraint ("restraint") is a combination shoulder and chest restraint designed to help secure a patient on an ambulance cot or stretcher (the "equipment") during transport.

Primary-Use Restraint

Ferno defines this restraint as a **Primary-Use Restraint**. When properly attached and used in conjunction with additional restraints (not supplied), it is suitable for use to transport a patient on an ambulance cot in a ground-based ambulance.

FERNO DEFINITIONS

- **Primary-Use Restraints** are suitable for securing a patient on compatible equipment during transport in a motor vehicle.
- **Secondary-Use Restraints** ARE NOT suitable for securing a patient during transport in a motor vehicle. They are for temporary use to secure a patient on a backboard, hand-carried stretcher, scoop stretcher, stair chair, or extrication device. Transfer the patient onto an ambulance cot or other device with primary restraints before transport in a motor vehicle.
- **Transport Restraint System** is defined by Ferno as a set of Primary-Use restraints used together to properly restrain a patient in an ambulance.

Specifications

The restraint is constructed with nylon webbing and a metal buckle. The shoulder straps have a metal link. All straps have adjustable slide bars. A guide strap is included to help keep the shoulder straps on the patient's shoulders.

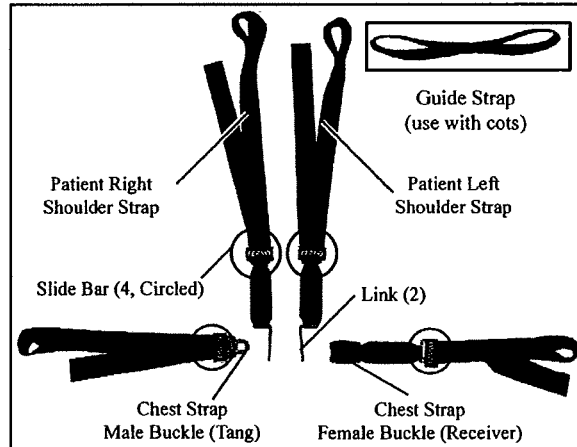
Load Limit

When properly attached and used in conjunction with additional restraints (not supplied) as specified in the equipment users' manual, the restraint is capable of securing a patient weighing the maximum allowable load limit of the equipment. Do not exceed the load limit of the equipment.

Important

Do not exceed the load limit of the equipment on which the restraint is used. Refer to the equipment users' manual for the equipment load limit.

Model 417-1 Series Harness Restraint



General Guidelines for Use

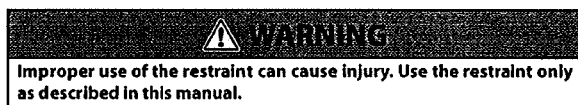
- For transport in an ambulance, Ferno requires a **Transport Restraint System** composed of the Model 417-1 harness plus two additional Ferno Model 430 primary, metal-buckle restraints.
- Use the guide strap (provided) to help keep the shoulder straps from sliding off the patient's shoulders. Thread the shoulder straps through the guide strap and position the guide strap near the backrest frame, not over the patient (See page 2).
- For placement on a patient, follow local protocols.
- Adjust restraints to safely secure the patient to the equipment without causing discomfort or impairing circulation.
- Keep restraints fastened when not in use to prevent interference with equipment operation.
- The Model 417-1 is not approved by the United States Federal Aviation Administration for use in aircraft. Please contact Ferno Aviation at 1.770.521.1005 for FAA-approved patient restraints and shoulder harness assemblies.



Improper use of the restraint can cause injury. Attach and use the restraint only as described in this manual.

Improper operation can cause injury. Operate the restraint only as described in this manual.

Improper maintenance can cause injury. Maintain the restraint only as described in this manual.

Model 417-1 Harness Restraint**Before Using the Restraint**

- Personnel who will work with the restraint need to read this manual.
- Confirm that the restraint operates properly (See *Inspection Checklist*, page 4).

Attaching the Restraint

Attach the restraint to the equipment at points that ensure strong anchorage and proper patient restraint. Verify that restraint placement will not interfere with use of the equipment or accessories.

ATTACHING THE CHEST STRAPS

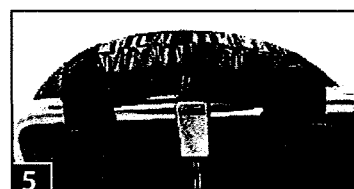
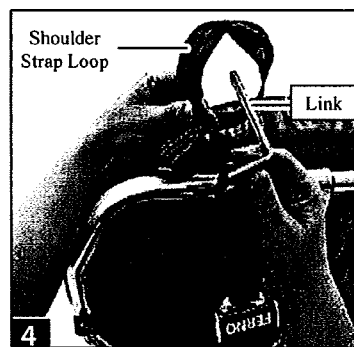
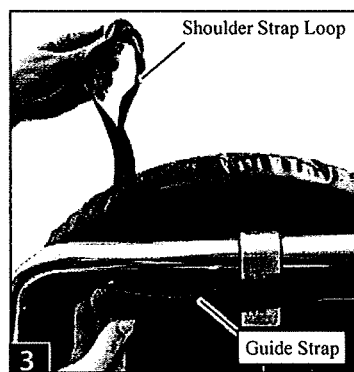
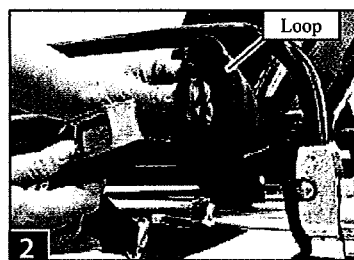
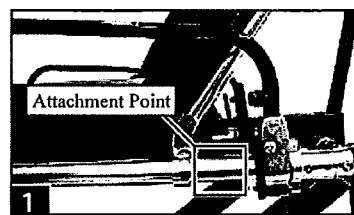
1. Unbuckle the restraint and separate the straps.
2. Wrap the loop end of a chest strap around the equipment main frame. An example attachment point for an ambulance cot is shown in Figure 1. **Do not attach the chest strap to moveable areas of equipment such as a cot drop frame or backrest.**
3. Thread the male buckle/tang or female buckle/receiver (Figure 2) through the loop and pull the webbing through the loop until the loop is snug around the attachment point.
4. Repeat Steps 2 and 3 to attach the other chest strap to the main frame on the opposite side of the equipment.
5. Confirm that the straps are attached securely.

ATTACHING THE SHOULDER STRAPS AND GUIDE STRAP

- When using the restraint on an ambulance cot, attach the guide strap to both shoulder straps. For other equipment, use the guide strap only if appropriate. Follow local protocols.
 - Arrange the shoulder straps so the links will lay against one another when the restraint is buckled (see Figures 6-7 on page 3).
1. If using the guide strap, thread the shoulder strap through one loop of the guide strap.
 2. Wrap the loop end of the shoulder strap around the selected attachment point on the equipment (Figure 3). **Do not wrap the shoulder strap around equipment control handles.**
 3. Thread the link through the loop (Figure 4) and pull the webbing through the loop until the loop is snug around the attachment point.
 4. Repeat Steps 1-3 to attach the other shoulder strap to the opposite side of the equipment.
 5. Confirm that the shoulder straps are attached securely and do not interfere with use of the equipment.
 6. If the guide strap is used, confirm that it properly holds the straps in position without interfering with equipment operation (Figure 5).

Removing the Restraint

To remove the restraint from the equipment, first unbuckle it. Then, feed the buckle, tang, and link ends backward through the loops and remove the restraint straps from the equipment.



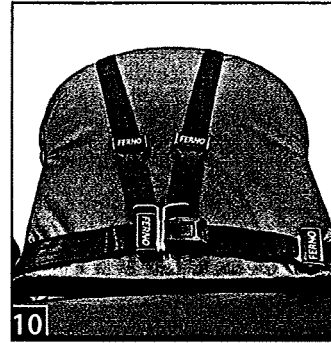
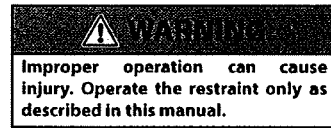
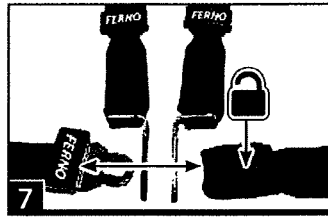
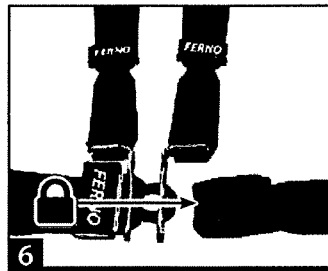
Model 417-1 Harness Restraint

Buckling/Unbuckling

To buckle the restraint:

1. Lay the shoulder straps over the patient's shoulders. Lay the chest straps across the patient's high diaphragm/ribcage.
2. Evenly adjust the length of each shoulder and chest strap to position the buckle at the patient's breastbone. Adjust the shoulder straps so they are against the patient's shoulders.
3. Insert the male buckle/tang through both shoulder-strap links and into the female buckle/receiver until it locks into place (Figure 6).
4. Always confirm that the buckle is securely fastened.

To unbuckle the restraint: Press the release button in the center of the buckle (Figure 7) and separate the pieces.



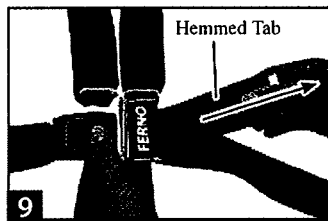
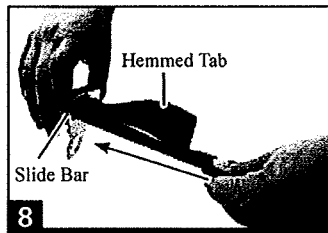
Adjusting the Restraint

To lengthen a strap:

1. Unfasten the restraint.
2. Grasp the strap slider bar and turn it perpendicular to the webbing (Figure 8).
3. Pull the slider bar outward, away from the strap attachment point until the strap is the desired length (Figure 8).
4. Adjust the straps to an even length so the buckle will be centered on the patient when fastened.

To shorten a strap: Grasp the hemmed tab and pull the webbing through the slide bar assembly until the strap is the desired length (Figure 9).

Properly-fastened cot-mounted restraints will match Figures 10 and 11.



Model 417-1 Harness Restraint

 WARNING
Improper maintenance can cause injury. Maintain the restraint only as described in this manual.

Important

Metal buckles and slide bars can be damaged by immersion in liquids or by washing-machine action. Disinfect and clean only as described in this manual.

Important

Disinfectants and cleaners containing bleach, phenolics, or iodines can cause damage. Do not use products containing these chemicals.

Maintenance Schedule

The restraint requires regular maintenance. Set up and follow a maintenance schedule. Conduct maintenance as follows:

- **Inspecting:** Inspect the restraint as needed, following the Inspection Checklist below. At minimum, inspect monthly.
- **Disinfecting:** Disinfect the restraint after each use.
- **Cleaning:** Clean the restraint as needed.

Inspection Checklist

- Are all components present?
- Is restraint webbing in good condition (no cuts/frayed edges)?
- Are restraint buckles and slide bars free of visible damage?
- Do buckles open and close smoothly and properly?
- Can strap length be adjusted smoothly and properly?
- If used on a cot, is the guide strap properly attached and located so it will not interfere with equipment function?

If inspection indicates damage or excessive wear, take the restraint out of service and destroy it.

Disinfecting the Restraint

1. Remove the restraint from the equipment.
2. Spray the metal buckles and slide bars with a disinfectant cleaner, following the disinfectant manufacturer's instructions for application method and contact time. **Do not immerse the buckles or slide bars in liquid.**
3. Hang the restraint to air-dry if needed. Attach only dry restraints to the equipment.

Cleaning the Restraint

1. Immerse the restraint webbing in a solution of mild soap and water. **Do not immerse the buckles or slide bars in the solution.**
2. Repeatedly dip the webbing in clear water to rinse. **Do not immerse buckles or slide bars in liquid.**
3. Hang the restraint to air-dry. Attach only clean, dry restraints to the equipment.

Restraint Versions	
031-3914	417-1 Restraint, Orange
031-3915	417-1 Restraint, Black
031-3945	Guide Strap, Black (only)

Note: Only restraints shipped with Ferno® cots include the guide strap. For replacement, order a restraint plus a guide strap.

Ferno Technical Support

Customer service and product support are important aspects of each Ferno product. For technical support questions:

Telephone (Toll-free)	1.800.733.3766 ext. 1010
Telephone	1.937.382.1451 ext. 1010
Email	quality.products@ferno.com

Ferno Customer Relations**CANADA AND THE U.S.A.**

Telephone (Toll-free)	1.877.733.0911
Telephone	1.937.382.1451
Fax (Toll-free)	1.888.388.1349
Fax	1.937.382.1191
Internet	www.ferno.com

ALL OTHER LOCATIONS

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

Telephone	+1.937.382.1451
Fax	+1.937.382.6569
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70 Weil Way
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**EUROPEAN REPRESENTATIVE**

EC	REP	Ferno (UK) Limited Stubs Beck Lane, Cleckheaton West Yorkshire BD19 4TZ, United Kingdom
Telephone		+44 (1274) 851999
Fax		+44 (1274) 851111
Internet		www.ferno.co.uk

Limited Warranty Statement

The products sold by Ferno are covered by a limited warranty, which is printed on the invoice you received when you purchased the product. Please refer to the warranty terms as printed on your invoice. 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.



Description

Ferno® Models 430 and 430P Series Restraints (“the restraint”) provide a variety of strapping options to help secure a patient on an ambulance cot, stretcher, or other piece of emergency-medical equipment (the “equipment”).

Model 430 Series are metal-buckle, primary-use restraints. Model 430P Series are plastic-buckle, secondary-use restraints. Select the restraint that matches the intended use.

FERNO DEFINITIONS

- **Primary-Use Restraints** are suitable for securing a patient on compatible equipment during transport in a motor vehicle.
- **Secondary-Use Restraints** ARE NOT suitable for securing a patient during transport in a motor vehicle. They are for temporary use to secure a patient on a backboard, hand-carried stretcher, scoop stretcher, stair chair, or extrication device. Transfer the patient onto an ambulance cot or other device with primary restraints before transport in a motor vehicle.
- **Transport Restraint System** is defined by Ferno as a set of Primary-Use restraints used together to properly restrain a patient in an ambulance.

Specifications

All restraints provide length-adjustment. Restraints are available with black or orange webbing, and in a variety of lengths. See the chart at right.

- **Model 430** are primary-use restraints. These restraints feature a metal buckle and tang and are made of 51 mm (2") nylon webbing
- **Model 430P** are secondary-use restraints. These restraints feature a plastic buckle and tang and are made of 51 mm (2") polypropylene webbing.
- **Model 439** is a set of three, 1-piece, 7' (2134 mm) Model 430 metal-buckle restraints in a vinyl carrying bag.

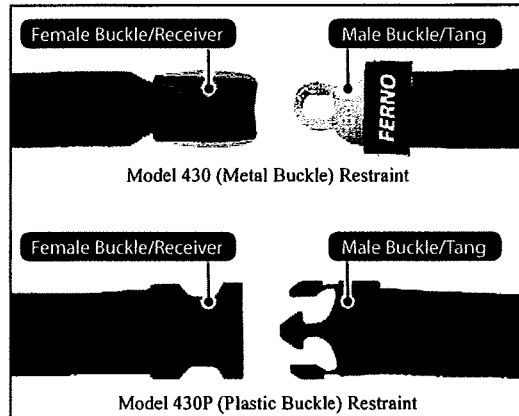
Load Limit: Model 430 (Metal Buckle)

When properly attached and used in conjunction with additional restraints (not supplied) as specified in the equipment users' manual, the restraint is capable of securing a patient weighing the maximum allowable load limit of the equipment. Do not exceed the load limit of the equipment.

Load Limit: Model 430P (Plastic Buckle)

When properly attached and used in conjunction with additional restraints (not supplied) as specified in the equipment users' manual, the restraint is capable of securing a patient until transfer to an ambulance cot or other device with primary restraints. Do not exceed the load limit of the equipment.

Models 430, 430P, 439 Restraints



WARNING

Improper use of the restraint can cause injury. Attach and use the restraint only as described in this manual.

Improper operation can cause injury. Operate the restraint only as described in this manual.

Improper maintenance can cause injury. Maintain the restraint only as described in this manual.

Important

Do not exceed the load limit of the equipment on which the restraint is used. Refer to the equipment users' manual for the equipment load limit.

Model 430 (Metal Buckle) Restraint		
Style	Black	Orange
2 pc., 5' (1524 mm)	031-3892	031-3891
2 pc., 7' (2134 mm)	031-3911	031-3912
2 pc., 9' (2743 mm)	031-3305	031-4013
1 pc., 7' (2134 mm)	031-3910	031-3887
1 pc., 9' (2743 mm)	031-3899	031-3889
Model 430P (Plastic Buckle) Restraint		
Style	Black	Orange
2 pc., 5' (1524 mm)	031-3797	031-3917
2 pc., 7' (2134 mm)	031-3801	031-3919
1 pc., 7' (2134 mm)	031-3894	031-4011
Model 439 (Metal Buckle) Restraints, Set of Three		
Style	Black	Orange
1 pc., 7' (2134 mm)	031-3083	031-2660

Models 430, 430P, 439 Restraints

General Guidelines for Use

- For placement on a patient, follow local protocols.
- Adjust restraints to safely secure the patient to the equipment without causing discomfort or impairing circulation.
- Keep restraints fastened when not in use to prevent interference with equipment operation.

MODEL 430 (METAL BUCKLE)

- For transport in an ambulance, Ferno requires a Transport Restraint System composed of a Ferno harness plus one or two additional Ferno Model 430 primary, metal-buckle restraints. See the users' manual for the product on which the restraint system is used for specific requirements.
- The Model 430 Series is not approved by the United States Federal Aviation Administration for use in aircraft. Please contact Ferno Aviation at 1.770.521.1005 for FAA-approved patient restraints and shoulder harness assemblies.

MODEL 430P (PLASTIC BUCKLE)

- Secondary-use restraints are not suitable for use in a motor vehicle.
- Secondary-use restraints are identified with a label (Figure 1).

Before Use

- Personnel who will work with the restraint need to read this manual.
- Confirm that the restraint operates properly (See *Inspection Checklist*, page 4).

Attaching the Restraint

Attach the restraint to the equipment at points that ensure strong anchorage and proper patient restraint. Verify restraint placement will not interfere with use of the equipment or accessories.

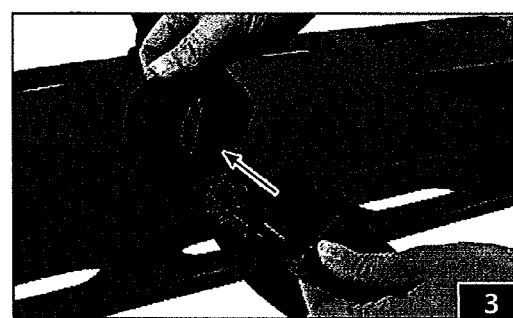
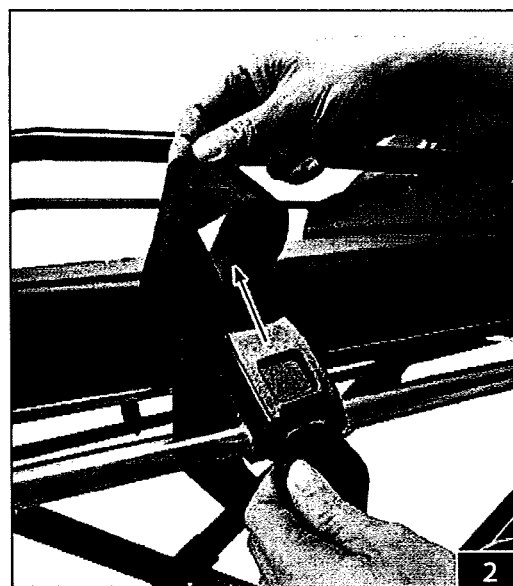
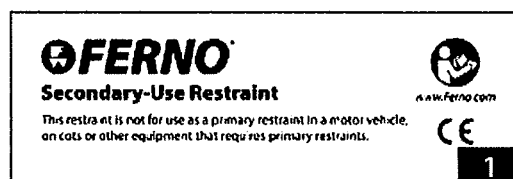
Attach one-piece restraints according to local protocols.

ATTACHING TWO-PIECE RESTRAINTS

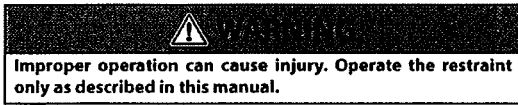
1. Unbuckle the restraint and separate the straps.
2. Wrap the loop end of a strap around the selected attachment point (Figure 2 or Figure 3).
 - Model 430 may be used on ambulance cots for transport in a motor vehicle. Do not attach to moveable areas of equipment such as a cot drop frame or backrest.
 - Do not attach Model 430P to equipment used in a motor vehicle.
3. Thread the male buckle/tang or female buckle/receiver through the loop (Figures 2-3) and pull the webbing through the loop until the loop is snug around the attachment point.
4. Repeat Steps 2 and 3 to attach the other strap to the selected attachment point on the opposite side of the equipment.
5. Attach additional restraints following steps 1-4.
6. Confirm that all straps are attached securely.

REMOVING TWO-PIECE RESTRAINTS

To remove the restraint from the equipment, first unbuckle it. Then, feed the buckles backward through the loops and remove the restraint straps from the equipment.



Models 430, 430P, 439 Restraints

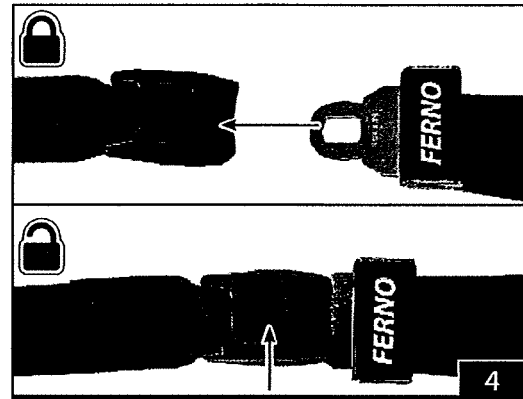


Buckling/Unbuckling

MODEL 430 (METAL BUCKLE)

To buckle the restraint, insert the male buckle/tang into the female buckle/receiver until it locks into place (Figure 4). Always confirm that the buckle is securely fastened.

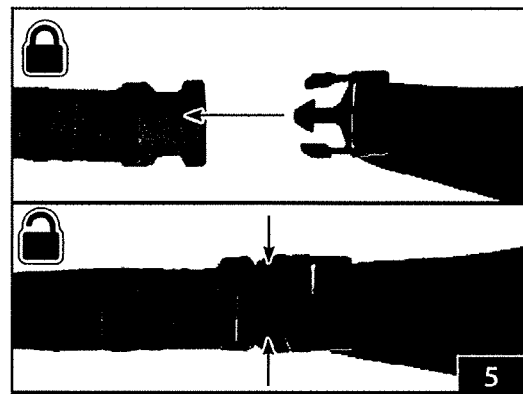
To unbuckle the restraint (Model 430): Press the release button in the center of the female buckle/receiver (Figure 4) and separate the straps.



MODEL 430P (PLASTIC BUCKLE)

To buckle the restraint, insert the prongs of the male buckle/tang into the female buckle/receiver until it locks into place (Figure 5). Always confirm that the buckle is securely fastened.

To unbuckle the restraint: Squeeze the outer prongs of the male buckle/tang until they release the female buckle/receiver (Figure 5) and separate the straps.

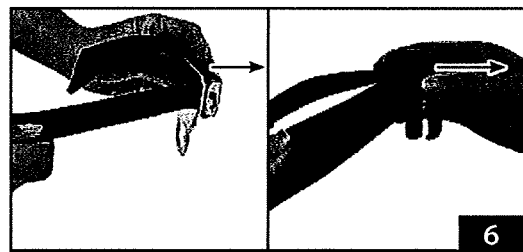


Adjusting the Restraint

To lengthen a strap:

1. Unbuckle the restraint.
2. Grasp the male buckle/tang and turn it perpendicular to the webbing and pull outward, away from the strap attachment point until the strap is the desired length (Figure 6).

To shorten a strap: Grasp the hemmed tab and pull the webbing through the male buckle/tang until the strap is the desired length (Figure 7).



Models 430, 430P, 439 Restraints

Maintenance Schedule

The restraint requires regular maintenance. Set up and follow a maintenance schedule. Conduct maintenance as follows:

- **Inspecting:** Inspect the restraint as needed, following the Inspection Checklist below. At minimum, inspect monthly.
- **Disinfecting:** Disinfect the restraint after each use.
- **Cleaning:** Clean the restraint as needed.

Inspection Checklist

- Are all components present?
- Is restraint webbing in good condition (no cuts/frayed edges)?
- Are the buckles free of visible damage?
- Do the buckles function smoothly and properly?
- Can strap length be adjusted smoothly and properly?

If inspection indicates damage or excessive wear, take the restraint out of service and destroy.

Disinfecting

All Models: Apply disinfectant to all restraint surfaces, following the disinfectant manufacturer's instructions for application method and contact time. Wipe with a clean cloth. **Do not immerse Model 430 metal buckles in liquid.**

Cleaning

MODEL 430 (METAL BUCKLE)

1. Remove the restraint from the equipment.
2. **Metal Buckle:**
 - Spray the metal buckle with disinfectant, following the disinfectant manufacturer's instructions for application method and contact time. Wipe with a clean cloth. **Do not immerse in liquid.**
3. **Webbing:**
 - Add a disinfectant cleaner to warm water, following the disinfectant manufacturer's instructions.
 - Immerse webbing in the solution for the time directed by the disinfectant manufacturer. **Do not immerse the metal buckle.**
 - Repeatedly dip the webbing in clear water to rinse. **Do not immerse the metal buckle.**
4. Hang the restraint to air-dry.
5. Attach only dry restraints to the equipment.

MODEL 430P (PLASTIC BUCKLE)

1. Remove the restraint from the equipment and buckle it.
2. Place the restraint inside a mesh bag (not provided) and place it in a washing machine.
3. Launder the restraint in warm water, using a disinfectant soap and gentle agitation. **Do not use bleach.**
4. Remove the restraint from the mesh bag and hang to air dry. **Do not put the restraint in a dryer.**
5. Attach only dry restraints to the equipment.



Improper maintenance can cause injury. Maintain the restraint only as described in this manual.

Important

Metal buckles can be damaged by immersion in liquids or by washing-machine action. Disinfect and clean only as described in this manual.

Important

Disinfectants and cleaners containing bleach, phenolics, or iodines can cause damage. Do not use products containing these chemicals.

Ferno Customer Relations

For ordering assistance or general information:

CANADA AND THE U.S.A.

Telephone (Toll-free)	1.877.733.0911
Telephone	1.937.382.1451
Fax (Toll-free)	1.888.388.1349
Fax	1.937.382.1191
Internet	www.ferno.com


ALL OTHER LOCATIONS

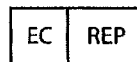
For assistance or information, please contact your Ferno distributor. If you do not have a Ferno distributor, please contact Ferno Customer Relations:

Ferno-Washington, Inc., 70 Weil Way
Wilmington, Ohio 45177-9371, U.S.A.

Telephone	+1.937.382.1451
Fax	+1.937.382.6569
Internet	www.ferno.com



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1.937.382.1451



Ferno (UK) Limited
Stubs Beck Lane, Cleckheaton
West Yorkshire BD19 4TZ, United Kingdom
44 (0) 1274 851999

Limited Warranty Statement

The products sold by Ferno are covered by a limited warranty, which is printed on the invoice you received when you purchased the product. Please refer to the warranty terms as printed on your invoice. 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.