



**HUMAN CARE**  
Your Life. Your Way.



# Service manual

FloorLine-*i* Plus/FloorLine-*i*

Part no: 90500-90504, 90300-90303



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## Product Description

Human Care beds are designed & manufactured to provide many years of safe operation and use, when operated in accordance with these instructions.

This Service manual is valid for beds with part no:

Class 2: 90500, 90502, 90504, 90300, 90301 90303

Class 1: 90501, 90503, 90302

### ***WARNING!***

Service work contained in this manual should only be undertaken by Human Care trained and authorised service agents. Only Human Care supplied parts should be used. Failure to comply with the above two items will void warranty and could result in further unnecessary damage to the bed and possible extreme safety hazard to the person occupying the bed and/or caring staff.

### ***PURPOSE***

This document will be made available to Human Care staff, distributors, agents and authorised Human Care service providers. It is not for publication or distribution to the public or clients who may use the information to allow other companies or individuals to repair or modify Human Care products.

This document and its contents are intended to be used in the performance of service on Human Care produced products, i.e. Protean range series products. This document also serves as a reference for office and sales staff in the performance of their duties, i.e. collecting service call information to facilitate the expedient diagnosis of any problems and problem solutions.

This document should be read in conjunction with Human Care's Operating and Assembly Guides, Instruction Manuals and Spare Parts Catalogues. This document is copyright to Human Care Beds and must not be reproduced in any form without written permission of Human Care.

## 1. Maintenance

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Operators of hospital beds are obligated to keep medical products in a safe state throughout their entire service life. This also includes regularly carrying out expert, Human Care authorised maintenance and safety checks.

As a result of improper operation as well as long-time use, damage, defects, and signs of wear may occur. Such defects can present hazards if not promptly recognised and eliminated.

### **CAUTION!**

***If damage or a malfunction is suspected, the bed must be withdrawn from service immediately until repairs have been carried out or the defective parts have been replaced. Human Care suggests regular inspections by users.***

As a guideline, it is recommended that an annual inspection be carried out on all Human Care Beds. The protocol template for inspections is found on the following pages. Contact Human Care for information on the Safety and Condition Audit program.

### **Maintenance Checklist – Explanatory Notes**

#### **VISUAL CHECKS**

- Handset Cable – Check for cracks in plastic insulation, check for breaks in casing, cable holder and plugs.
- Mains Cable – as above
- Handset – Check that all functions work and ensure there is no damage.
- Chassis – Check the bed frame for bent or corroded pieces; ensure that all bolts and screws are tight.

- Head & Foot Covers/boards/caps – Check ABS covers have no cracks and are secured tightly, head and Foot boards are in place and ABS caps have no cracks and are secure.
- Castors – Check that each wheel will turn, test the brake and directional locking. Ensure that each castor is tightly secured.
- Paintwork/Corrosion – Ensure all metal parts have no flaking paint or signs of rust.
- Bed Extension (If Fitted) – Check this has been installed correctly and all bolts are tight.
- Accessories correctly fitted – Check that all accessories fitted to the bed have been correctly installed and that all the bolts are tight.
- Serial No. Label – Each bed has its own Serial Number and the label is found on the rail running underneath the mattress platform. Check that this is in place.

#### **MECHANICAL CHECKS**

- Bed to maximum low/high measurements – Check the height of the mattress platform (at all 4 corners) to ensure that they agree with the correct specifications for this product.
- Platform level – Measure from mattress platform to the floor at each corner and ensure that each measurement is the same
- Kneebreak Maximum up/down – Operate kneebreak to fullest height and check for any damage.
- Backrest Maximum up/down – Operate backrest to fullest height and check for any damage.
- Trendelenburg Maximum forward & reverse – Operate Trendelenburg to fullest height

- Quiet smooth Hi/Lo Function – Operate bed up and down checking that it is quiet and goes smoothly up and down
- End covers and fittings – Check all covers are fitted correctly and secured to frame of bed.
- Castors tight and lockable – check castor fixing bolts are tight, check directional castor (grey tab) x 1 and locking castors x 3 for correct function.
- Hilo drive mechanism – Check raise/lower actuators for excess noise or slow operation. Check nylon bushes for wear or damage.
- Side Rails (if fitted)– Check condition of side rails and brackets if fitted, ensure that the screws are tight.
- All bolts, screws, fasteners must be checked regularly before putting the beds into service and between patients/residents.

- All Actuators secured & working – Check for excessive noise, vibration or cracks in casing.

## REPLACEMENT PARTS

In order to maintain operational safety and the right to claim under warranty, only original Human Care replacement parts may be used! Please quote part numbers for each item as per the Human Care Spare Parts Catalogue.

## ELECTRICAL COMPONENTS

The corresponding replacement parts can be obtained from Human Care. When ordering please specify – TYPE & ITEM. The necessary details are found on the type plate (as shown below) on each electrical component.

## Safety information on replacing electrical components

***CAUTION! Before commencing any work on electrical equipment, always unplug the mains cable from the electrical socket.***



- Any work and/or repairs to the electrical equipment may only be carried out by service engineers, qualified technicians or authorised electricians in compliance with all the relevant country of use safety standards.
- All electrical drive system components (actuators, handset, and control box) are maintenance-free and must not be opened.
- In the event of a malfunction, the corresponding component must always be replaced in full.
- When replacing individual components,

## STRUCTURAL

- Visible distortion of frame – Check frame for bent or cracked metal parts.
- Visible serious client damage – Check for damage caused by bed lifters etc. and report to client.
- Structural Fractures – Check for cracks or tears in steel frame
- Hinges/mounts not bent – Check all the hinges on platform, actuator fixing points and platform fixing points for damage.

## ELECTRICAL

- Battery backup working/condition – Disconnect mains cable from power point and operate bed.
- Handset buttons all working – Check all functions on handset
- Cables secure and in good condition – Check that all cables are secured correctly, not hanging loose.

# 1. Maintenance

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always ensure that the plugs, outfitted with undamaged O-rings (seals), are inserted into the control unit as far as possible. Only then can reliable sealing and perfect operation be guaranteed.

- The component plugs are connected to the corresponding port in control box.

To prevent the plugs from inadvertently disconnecting, they are secured with a locking device. When necessary, this device can be carefully lifted off using a screwdriver. The locking device must always be properly refastened.

# 2. Mechanical checklist/checks to perform

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Checked		OK	Not ok	Description of fault
<b>Visual check of the electrical components</b>				
Handset cable	Damage, routing			
Mains cable	Damage, routing			
Handset	Damage, membrane			
<b>Visual check of the mechanical components</b>				
Mattress Platform is parallel to floor (ie level)	Damage			
chassis	Damage, deformations			
Mattress platform covers	Damage			
Check for rust or corrosions	Damage			
Castors	Damage			
Bed extension	Damage			
<b>Performance check of the electrical components</b>				
Backrest	Adjustment, secure retention			
Kneebreak	Adjustment, secure retention			
Platform Hi/lo	Adjustment, secure retention			
Battery backup	Check fully charged & operational			
Handset	Adjustment, secure retention			
Accessories	Fastening, damage			
Signature of the inspector		Name of the inspector		
Inspection result:		date:		

# 3. Electrical components

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**WARNING! Before commencing any work on electrical equipment, always unplug the mains cable from the electrical socket.**

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All electrical drive system components (actuators, handset, and control box) are maintenance-free and must not be opened. In the event of a malfunction, the corresponding component must always be replaced in full.

When replacing individual components, always ensure that the plugs, outfitted with undamaged O-rings (seals), are inserted into the control unit as far as possible. Only then can reliable sealing and perfect operation be guaranteed.

The component plugs are connected to the corresponding port in control box.

To prevent the plugs from inadvertently disconnecting, they are secured with a locking device. When necessary, this device can be carefully lifted off using a screwdriver. The locking device must always be properly refastened.

## How to fit a mini fit plug when assembling bed

Pic 1. Lightly lubricate seal on the plug and insert firmly into the socket ensuring that the key and keyways are aligned (Pic 2.)



Pic 1. O ring seal



Pic 2 keyway

Pic 3. Fit the plastic circlip and ensure that the two locking tabs lock into the slots of the socket.



Pic 3



Pic 4 Locking



Pic 5 Locking slot

## How to remove covers—Inner/Outer cover

1. Pic 1. Remove headboard/footboard and raise the bed to highest position
2. Pic 2. Remove 2 outside Phillips head screws and 2 inside screws. (Note: some models may have different fastening method)
3. Pic 3. Remove 'snap latch' lug with Allen Key and one end cap which allows the cover to be removed.



Pic 1



Pic 2



Pic 3

## **CAUTION!**

**Beware of exposed chain & sprocket during the above repair.**

**NOTE: When repairing or replacing chains always take note of the assembly arrangements before removing from the bed so the same fitting can be repeated.**



Pic 1

## **How to repair jammed chain**

1. Disconnect mains cable from power point
2. Identify the jammed chain
3. Pic 1. Cotter pin, circlip, split pin & con link
4. Pic 2 Remove plastic cap via 4 Phillips head screws
5. Pic 3 Remove steel chain retainer via 4 Phillips head screws
6. Cog is free and then can be moved to free chain. A screwdriver may be used to lever chain free, ensure the bed is not damaged.
7. Pic 4 & 5 Repair chain if necessary ie: replace con link, cotter pin or re-seat chain on cog.
8. Plug bed into mains and test broken/jammed chain repair. Disconnect bed from power point and replace stainless steel chain retainer and plastic caps. Plug bed into mains again and fully test all bed functions. All bed fixings should be checked now to ensure bed is in 100% working order.



Pic 2



Pic 3



Pic 4



### **How to remove an Backrest Actuator** ***WARNING! DO NOT UNDERTAKE THE ABOVE WORK ON THE BED WHILE THE MAINS CABLE IS PLUGGED IN .***

1. Raise /lower the bed to a comfortable working height.
2. Disconnect the bed from mains power.
3. Manually lift the backrest platform, tilting back on its hinges, until platform is resting at over-extension angle exposing actuator, CPR handle assembly and actuator cradle.
4. (Only for FloorLine-i Plus) Follow actuator cable to control box, remove plastic cable retainer and remove backrest actuator plug from control box.
5. (Only for FloorLine-i Plus) Remove plastic locking clip from top of actuator to free CPR Release cable from the actuator. Squeeze clip legs together and push forward.
6. Remove circlips from retaining pins from top and bottom of actuator. Whilst supporting the actuator remove the retaining pins, check the plastic 'P' clips holding actuator cable to bed

frame. Actuator is now free from the bed.

How to install Backrest actuator—reverse the above process.

### **How to remove a Kneebreak Actuator**

1. Raise/lower bed to working height and disconnect bed from mains power.
2. Remove all plastic 'P' clips holding actuator cable to bed frame.
3. Follow actuator cable to control box.
4. Remove cable retainer from control box and disconnect actuator plug from control box.
5. Remove circlips from actuator retaining pins at top and bottom of actuator. While supporting actuator, remove retaining pins—actuator is now free from bed.

To install Kneebreak actuator—reverse the above process

### **How to add/remove a Battery Backup** ***WARNING! DO NOT UNDERTAKE THE ABOVE WORK ON THE BED WHILE THE MAINS CABLE IS PLUGGED IN .***

1. Install battery backup mounting box to bottom axle at head end of bed as per pic 1
2. Install battery backup unit into mounting box.
3. Remove cable retainer from control box.
4. Run battery backup cable behind the actuator to correct control box port and plug into control box.



pic 1.

To remove battery backup, reverse the process



# 3. Electrical components

## How to remove a Handset (Standard 11 Button Handset )

1. Remove cable retainer from control box.
2. Remove 'P' clips holding cable
3. Unplug old handset cable from control box.
4. Replace 'P' clips
5. Test the bed functions.

## How to remove main bed actuators (hi-lo)

***WARNING! DO NOT UNDERTAKE THE ABOVE WORK ON THE BED WHILE THE MAINS CABLE IS PLUGGED IN.***

1. Remove plastic inner cover
2. Lower pedestal end onto two blocks of timber (not supplied) approximately 250-390mm in length.
3. Remove 'P' clips (cable retainers) with a Phillips head screwdriver.
4. Remove 2 x Phillips head screws holding control box to actuator.
5. Place actuator gently on the floor.
6. Remove circlip and pin from base of actuator anchor point.
7. Remove counter-sunk screw from the top of the actuator

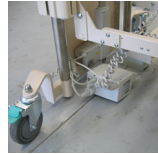


To replace or install an actuator reverse these steps.

## How to remove a control box



Pic 1. Remove 'P' clips (cable retainers) with a Phillips head screwdriver



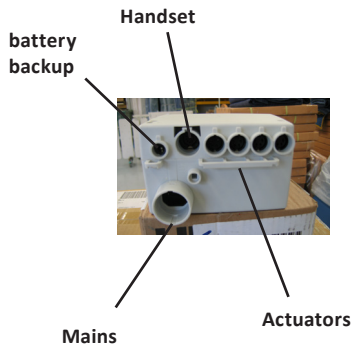
Pic 2. Lift Control Box up, then out to remove it—then carefully place it on the floor beside the bed to ensure no damage to cables.



Pic 3. Remove the cable retainer from the Control Box with a small flat screwdriver

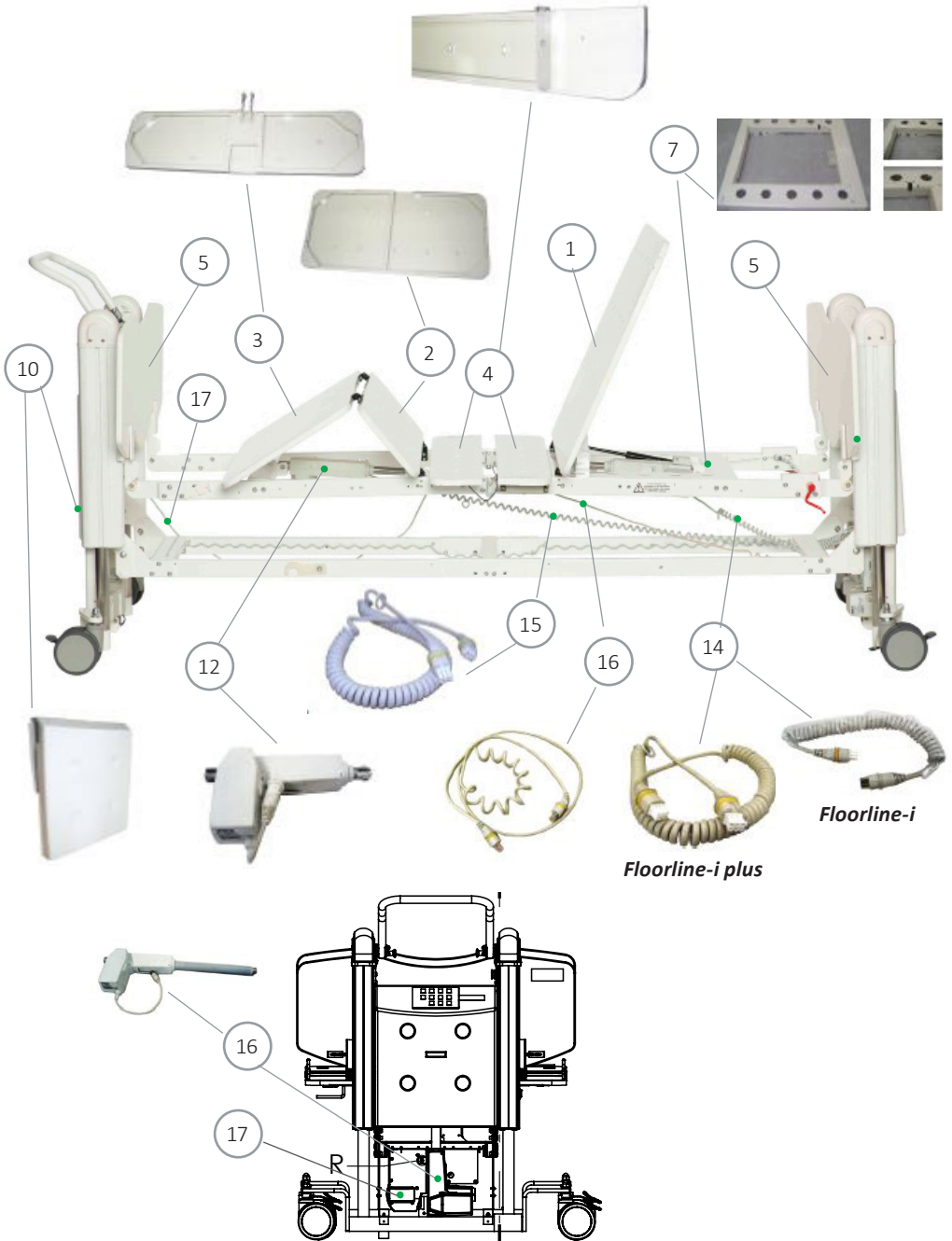
## How to remove a mains cable

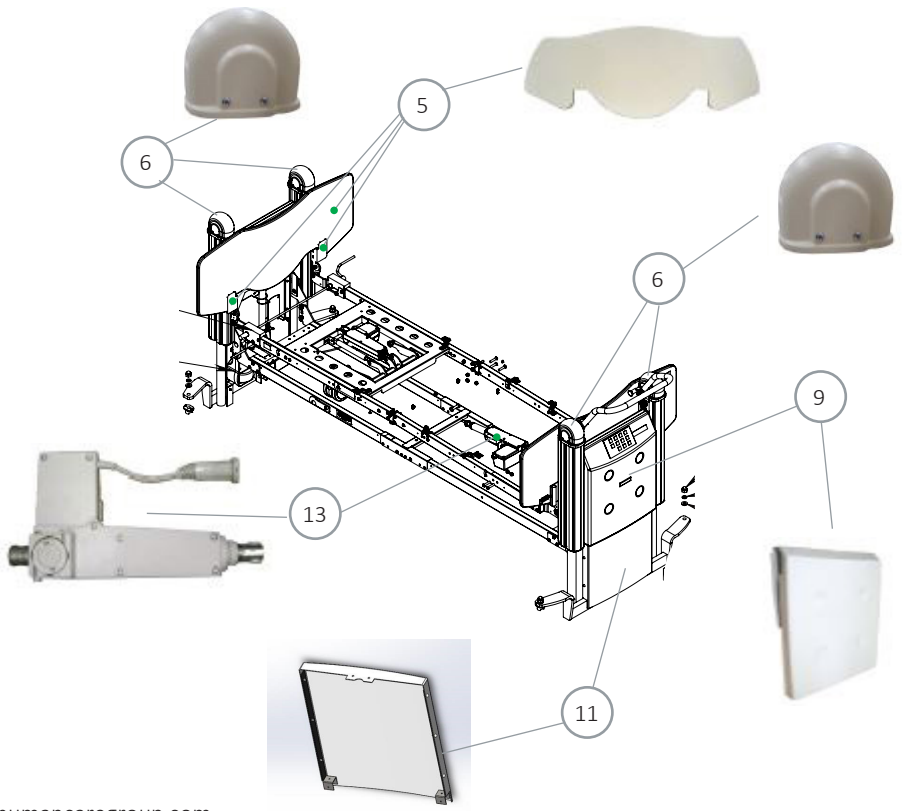
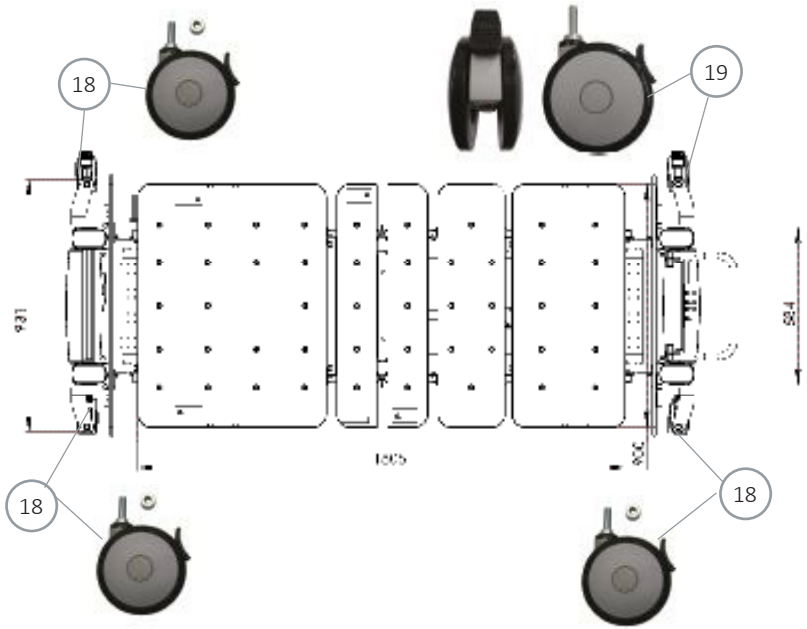
- Remove 'P' clips via 8mm nut
- Remove cable container from Control box with small flat head screwdriver
- Using flat head screwdriver release red locking tabs from mains cable and pull cable at the same time.
- Reverse these steps to install a mains cable



# 4. Spare part list and exploded view

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Number in exploded view	Part no.	Description	Product	Old Part no.
1	90401	F1 panel assembly - Back rest	-i, i-plus	90728
2	90402	F3 panel assembly - Thigh section	-i, i-plus	90729, F3ASSY
3	90403	F4 panel assembly - Calf section	-i, i-plus	90730
4	90404	F7 panel Ass - Centre sect (split)	-i, i-plus	90731
5	89613	End board w latches	-i, i-plus	90732
6	90405	Leg cap (white)	Floorline-i,Floorline i-plus	90734
7	90406	P5 Cradle for backrest Actuator	p3, p5, -i, i-plus	90736
9	90408	Top Inner/outer cover P5 Foot end	p5, i-plus	90740
10	90409	Top Inner/outer cover P5 Head end	p3, p5, -i, i-plus	90742
11	75862	Floorline-i/iPlus bottom cover	Floorline-i,Floorline i-plus	90744
12	75797	Knee break actuator, Linak	p3, LTC	90754
13	75799	Quick release backrest actuator, Linak	p5, Floorline-i plus	90755
14	75809	200mm coiled mini fit (openb-Backr), Linak	p5, Floorline-i plus	90757
14	75807	200mm coiled mini fit - Din cable, Linak	p3, Floorline-i, LTC	90758
15	75810	400mm coil m fit(openb-foot end&kn), Linak	p5, Floorline-i plus	90759
15	75808	400mm coiled cable - mini fit, Linak	p3, Floorline-i	90760
16	75812	1200mm modular cable (CB6-UBL-1), Linak	p5, Floorline-i plus	90762
17	0964043-1800-B	iPlus, cable (control panel-4BC)	p5, Floorline-i plus	90763 0964043-1800
18	70779	Twin castor	Floorline-i plus	90766
19	70780	Twin castor w directional lock	Floorline-i plus	90768
18	70927	Caster	p3, p5 (old beds)	90780
19	70928	Caster directional lock	p3, p5 (old beds)	90781

Image	Part no.	Description	Product	Old Part no.
	75820	Power cable EUR, Linak	All beds	90770 C30043
	75828	Power cable AUS class 1, Linak	All beds	90771
	75816	Power cable AUS, Linak	All beds	90772
	75826	Power cable USA class 1, Linak	All beds	90773
	75827	Power cable USA class 1, Linak	All beds	90774
	75823	Power cable UK, Linak	All beds	90775 C30042 75822
	75846	HL75 Handset, Linak	Floorline-i Floorline LTC	90764
	75847	Hand set for P5, Linak	Floorline-i plus	P5HSBL

Image	Part no.	Description	Product	Old Part no.
	P5136	P5 Cradle lift assembly arms	All beds	90783
	ZZ174-CH	Mattress retainer - top mounted	All beds	90784
	HINGEASSYBR	Hinge assembly backrest (F1 to F7)	All beds	90785
	HINGEASSYKBF	Hinge assembly kneebreak, front (F7 to F3)	All beds	90786
	HINGEASSYKBM	Hinge assembly kneebreak, middle (F3 to F4)	All beds	90787
	HINGEPFM	Center hinge assembly - Large	All beds	90788
	75813	300mm straight cable(openb-headend), Linak	Floorline-i plus	P5MFC300S
	75811	800mm modular cable (UBL-UBL), Linak	p5, Floorline-i plus	90761
	75790	Hand set lock out key (Linak), Linak	Floorline-i, Floorline LTC	90792
	75791	Mini fit locking ring ( Linak)	Floorline-i Floorline-i plus, p3, p5, Floorline LTC, LC600	90793 C30907

Image	Part no.	Description	Product	Old Part no.
	75849	Junction box with Under Bed Light	Floorline-i plus	P54B P514JB0121010-102
	75854	Port plug (2 in UBL-1 & 1 in UBL-2)	Floorline-i plus	C30925 90795
	75798	Pedestal lift actuator, Linak	p5, Floorline-i plus	P5MLACT 90750
	75794	Head end pedestal lift actuator, Linak	p3, Floorline-i	90751 C30002
	75796	Backrest actuator, Linak	p3, Floorline-i	90756 C30025
	75804	Attendant control key pad (Linak)	p5, Floorline-i plus	90745 P5KEYPAD
	75838	Control box (AUS, EU, UK), Linak	p5, Floorline-i plus	P5CB6A 90746
	75840	Control box (USA), Linak	p5, Floorline-i plus	P5CB6A-US 90747
	75835	Control box (AUS, EU, UK), Linak	p3, Floorline-i	C30030 90748
	75837	Control box (USA), Linak	p3, Floorline-i	90749


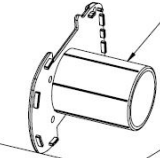
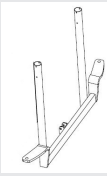





Image	Part no.	Description	Product	Old Part no.
	75805	Battery backup, Linak	p3, p5, -i, i-plus	90753 BBU
	A10071	Bush Endcap Al leg	Floorline-i, Floorline-i plus	90789
	76076	Lower leg assembly	Floorline-i, Floorline-i plus	90988
	75608	Pin with lanyard	All beds	A10178
	75780	Caster - Standard 125mm - Braked	Floorline-i, Floorline-i plus	
	75781	Caster - Std 125mm-Directional lock	Floorline-i, Floorline-i plus	
	89613	End board	Floorline-i, Floorline-i plus	89612
	91317	P2 chain Replace Simplex Chain & Fi	protean 2, 3 and 4, Floorline-i, Floorline-i plus	B20009
	B20052	SS Chain retainer	Floorline-i, Floorline-i plus	
	B20112	Simplex chain connecting Links	Floorline-i, Floorline-i plus	



Image	Part no.	Description	Product	Old Part no.
	LCB-001-017-018	Nylon Bush for slider plate pivot	Floorline-i, Floorline-i Plus	
	ZZ1751	Snap Latch	Floorline-i, Floorline-i plus	
	ZZ691	Lower beam	All beds	ZZ091
<b><u>The following spare parts fit only discontinued beds</u></b>				
	89613	Head board 2-52 compliant w. latch (Two end board (head/foot) for P3 and P5 incl. latch, compliant to 2-52 standard, replaced by 90733)	p3 and p5	EBCHL
	75791	Mini fit locking clip		C30907
	90410	Side Rails Mounting Bracket Set (SRBS with RAL9016)	For SRPC and SRPC2 side rails.	

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