Mobility scooter



Fortress Calypso

TECHNICAL MANUAL





2 | Fortress Calypso

Fortress Calypso | 3

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4 | Fortress Calypso

Table of content

1	Intro	oduction	6
	1.1	This manual	6
	1.2	Identification of the product	6
	1.3	Symbols used in this manual	6
	1.4	Intended use	7
2	Safe	ety	8
	2.1	Personnel qualification	8
	2.2	Identification on the product	8
	2.3	Temperature	8
	2.4	Electromagnetic radiation and interference	8
	2.5	Markings on the scooter	9
	2.6	Transportation	10
	2.7	Technical specifications	10
	2.8	Modifications / Adaptations	10
3	Tools	s	11
	3.1	Tools	11
	3.2	Programmer	11
4	Spar	re parts	
	4.1	Use of the parts lists	12
		A Overview 3W	13
		B Overview 4W	15
		01 Wheel front assy	17
		02 Wheel rear assy	18
		03 Bumper rear assy	19
		04 Top console assy	20
		05 Bottom console assy	21
		06 Tiller assy	22
		07 Tiller strut assy	23
		08 Cover battery assy	24
		09 Cover motor assy	25
		10 Frame front 3W assy	26
		11 Front fork assy	27
		12 Cover front 3W assy	28
		13 Frame front 4W assy	29
		14 Swing arm right assy	30
		15 Swing arm left assy	31
		16 Cover front 4W assy	32
		17 Rear frame top assy	33
		18 Rear frame assy	34
		19 Rear frame bottom assy	35
		20 Transaxle assy	36
		21 Captain seat assy	37
		22 Armrest adjustable assy	38
	4.2	Options	39
5		vice instructions	
	5.1	Maintenance plan	40
	5.2	Batteries	40
	5.3	Tyres	41
	5.4	Adjustment options and repairs	41

Fortress Calypso | 5

6	Troubleshooting	42
7	Technical product information	43
	7.1 CE Declaration and standards	43
	7.2 Technical specifications	43
	7.3 Driving programs	44
	7.4 Scooter settings	45
	7.5 Electrical diagram	46
8	Warranty	47
	8.1 Definitions of terms	47
	8.2 Warranty period table	48

6 | Introduction Fortress Calypso

1 Introduction

1.1 This manual

This manual contains the instructions for repairs and general maintenance of the Fortress Calypso electrical scooter.

Mechanics who do repairs on this scooter must be well trained and familiar with the repair methods and the maintenance of the Fortress Calypso scooter.

Always make sure that the work is carried out safely, particularly with respect to procedures requiring the scooter to be lifted up. We advise that you contact our service department before doing repair work on a scooter that has been involved in an accident. The following specifications are important when ordering parts:

- Model
- · Year of manufacture
- Colour
- · ID-number
- Part number
- Name of the part concerned

This information is provided on the identification plate. See 1.2 'Identification of the product'

Available documentation

The following technical documentation is available / required to service this scooter:

- · Technical manual
- Owner manual

References from the technical to the owner manual are indicated as: Scooter

Service and technical support

For information concerning specific settings, maintenance or repair works please contact the Sunrise Medical HCM Customer Service department. They are always prepared to help you. Ensure you have at hand:

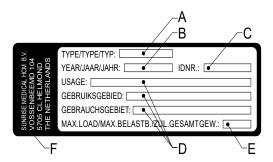
- Model
- Year of manufacture
- ID-number

This information can be found on the information plate.

1.2 Identification of the product

The identification plate contains the following data:

- A. Model
- B. Year of manufacture
- C. ID-number
- D. Usage: indoor, outdoor or both
- E. Maximum load in kg
- F. Manufacturers address



See for the location of the identification plate '2.5 markings on the scooter'.

1.3 Symbols used in this manual

Note!

Pointing out possible problems to the user of this manual.

Advice for the user of this manual to prevent damage to the product.

⚠ Warning!

Warnings for the user of this manual to prevent personal injury.

Not following these instructions may result in physical injury, damage to the product or damage to the environment!

Fortress Calypso Introduction | 7

Reference symbol

When necessary this service manual refers to other manuals as shown below:

Battery charger: refers to the user manual of the battery charger

Scooter: refers to the general user manual of the scooter

1.4 Intended use

The Fortress Calypso scooter was developed for:

- · The transportation of people weighing up to 125 kg
- · Use on pavements, footpaths and cycle paths
- · Use in and around the house

The dealer must give clear instructions before the user starts operating the product independently. The first test drives of the scooter are best carried out under the supervision of an experienced dealer.

The scooter is not classified as a road vehicle and therefore may not be used on the road (crossing over the road being the only exception).

The scooter has a maximum speed of 10 or 12 km/h (6 or 7,5 mph).

For more information and a definition of the intended use see the owner manual (Scooter 'Use for intended purposes')

⚠ Warning!

Ensure that you are fully acquainted with the contents of this manual before starting to drive the scooter.

Note!

If you use the scooter in a dangerous fashion, or use the scooter for purposes other than those intended, Sunrise Medical HCM will accept no liability for any personal injury or damage to property caused by such misuse.

For more information about the disposal of used scooters see the owner manual (Scooter 'Used scooters and the environment')

8 | Safety Fortress Calypso

2 Safety

2.1 Personnel qualification

Repairs may only be carried out by trained and authorised service technicians.

During the execution of their work, they are at all times fully responsible for the fulfilment of locally applicable safety guidelines and standards.

Temporary employees and persons in training may only carry out repair and replacement work under the supervision of an authorised service technician.

2.2 Identification on the product

Safety

Safety information is indicated with the warning symbol.

Follow the instructions carefully next to these warning symbols! Not paying careful attention to these instructions could result in physical injury or damage to the scooter or the environment. Wherever possible, safety information is also provided in this manual in the relevant chapter.

2.3 Temperature

Avoid physical contact with the scooter's motor. The motor is continuously in motion during use and can reach high temperatures. After use, the motor will cool down slowly. Physical contact may cause burns.

Ensure that the scooter is not exposed to direct sunlight for extended periods of time. Certain parts of the scooter, such as the seat, the backrest, the armrests and the steering device become hot if exposed to the sun for too long. This may cause burns or skin irritation.

2.4 Electromagnetic radiation and interference

The scooter has been tested for compliance with the applicable requirements regarding electromagnetic radiation (EMC requirements).

The Fortress Calypso's immunity level is 20 volt/metre.

Note!

It cannot be excluded that electromagnetic radiation emanating from mobile telephones, medical apparatus and other sources, may have an influence on the scooter.

It cannot be excluded that the scooter will interfere with the electromagnetic fields of, for example, shop doors, burglar alarm systems and/or garage door openers.

In the unlikely event that such problems do occur, you are requested to notify your dealer immediately.

Powered wheelchairs and scooters can be affected by sources of radio waves, such as radio and TV transmitters, amateur radio stations, lifts, transmitting equipment, stereo radios and mobile telephones If the scooter's electronics are not well shielded, sensitive electrical devices, such as shop alarm systems and garage door openers, can be affected. The scooter has been tested for such interference. Please report any problems of this nature to your dealer immediately.

The following advices are intended to prevent the electric scooter from being driven unintentionally, which could lead to serious injury.

- 1. Do not turn on any manually controlled equipment for personal communication, such as a radio transmitter or mobile telephone, while the electric scooter is switched on.
- 2. Keep at a distance from transmitter equipment, such as radio and TV stations.
- 3. If the scooter starts making unintended movements, or if the brake goes into freewheel / neutral mode, turn off the powered wheelchair or scooter by removing the ignition key from the lock.
- 4. Be aware of the fact that any accessories, components or adaptations installed on the scooter may increase the effect of radio waves.

Note:

There is no easy way of testing the effects of radio waves on the general immunity of powered wheelchairs or scooters.

5. All cases of unintended movements of the scooter spontaneously going into freewheel / neutral mode should be reported to your dealer or to the scooter manufacturer. When reporting, please indicate whether a source of radio waves was nearby at the time.

Fortress Calypso Safety | 9

2.5 Markings on the scooter

Never remove or cover up the markings, symbols and instructions affixed to the scooter. These safety measures must remain present and clearly legible throughout the entire lifestam of the scooter.

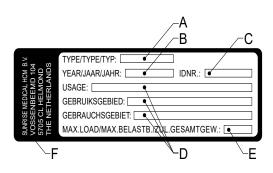
Replace or repair any markings, symbols or instructions that have become illegible or damaged immediately. Please contact your dealer for assistance.

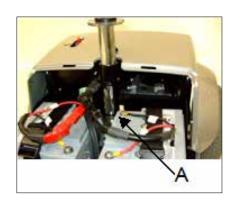
Product labels

The following sticker/label can be found on the product:



1. Identification plate (in battery compartment)





The identification plate can be found in the battery compartment, as shown in the figure. The plate contains the following data:

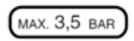
- A. Model
- B. Year of manufacture
- C. ID-number
- D. Usage: indoor, outdoor or both
- E. Maximum load in kg
- F. Manufacturer address

2. Circuit breaker



The scooter is equipped with a fuse which interrupts the electric current on overload. See owner manual (Scooter 7.2 'Automatic circuit breaker').

3. Tyre pressure



See 7.2 'technical specifications' for the correct tyre pressure.

10 | Safety Fortress Calypso

4. Neutral position

1

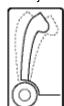
Lever fully forward ("BRAKE applied"):

When the motor drive is engaged the scooter can be driven electrically and the brakes are also applied when the scooter is switched off.

Lever in lowest position:

When the lever is in the lowest position the motor drive is disengaged. The scooter can then be pushed manually.

5. Adjustment of steering column angle



The steering column can be adjusted to the position you find most comfortable when driving. See owner manual (Scooter 'Changing the steering column').

6. Charging point

See owner manual for how to charge the batteries (Scooter 'Charging the batteries').



2.6 Transportation

See the owner manual (Scooter 'Dismantling the scooter for storage and/or transportation' and 'Transporting the scooter in its entirety').

\triangle Warning!

The scooter is not intended to be used as seat in motor vehicle.

2.7 Technical specifications

No changes may be made to the technical specifications.

2.8 Modifications / Adaptations

Modifications, not executed by Sunrise Medical HCM, to components and electronics of this product are not permitted.

Fortress Calypso Tools | 11

3 Tools

3.1 Tools

The tools below are needed for various mechanical settings and maintenance:

Quantity	Description
1	Screwdriver, crosshead PH1
1	Screwdriver, crosshead PH2

Use only high-quality tools for the adjustment(s) described.

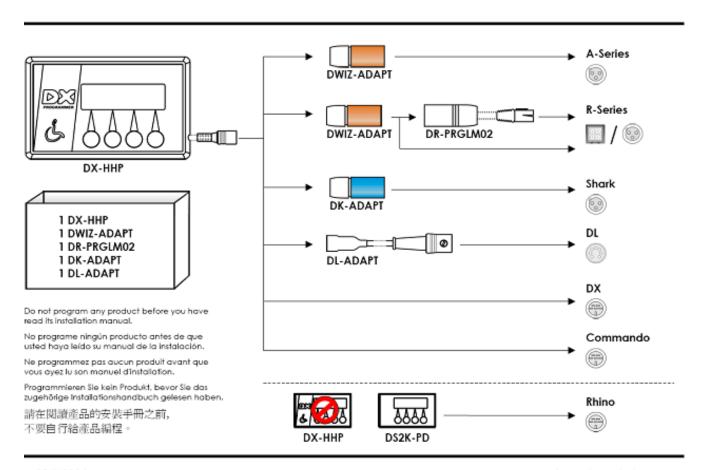
Make sure that the hexagon of the spanner is attached securely to the hexagon of the fastening article. This prevents the 'rotation' of hexagons of fastening articles and spanners that may affect proper adjustment.

3.2 Programmer

The scooter can be programmed with both the DX-HHP Hand-Held-Programmer and the Wizard. In both cases, use the orange DWIZ adaptor and connect to the charger socket of the scooter. The DWIZ adaptor (DWIZ-ADAPT) can be ordered with article number 1009567.

For the standard settings of the programmer, see the R series DR-50 and DR-90 installation manual that can be downloaded on www.dynamiccontrols.com.

If you wish to order parts for your programmer, please contact Sunrise Medical HCM.



GBK60084 www.dynamiccontrols.com

4 Spare parts

4.1 Use of the parts lists

This document is meant as a reference book to be used to order parts for the scooter that is shown on the front cover (3-wheel and 4-wheel version).

How to order

When ordering parts, please specify:

- ID-number (see the identification plate)
- Group (to which the relevant part belongs)
- · Article number
- Number of parts required
- Description (in the relevant language)
- Dimensions (if applicable)

Remark

- If a part does not have an article number, it means that the part concerned cannot be purchased separately. The part
 concerned is part of the assembly shown. This assembly must be ordered as one piece. It has to be replaced in its entirety.
- · Boxed position numbers refer to the relevant drawing.

Order address

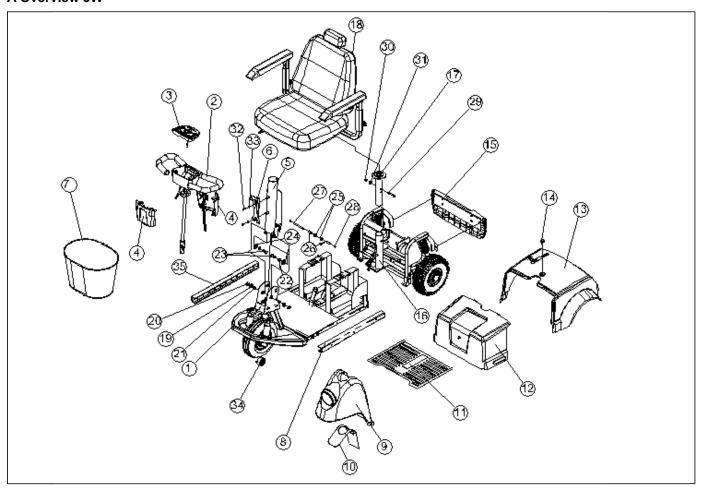
Please mail or fax your orders to your supplier.

Service technicians

Repairs may only be carried out by trained and authorised service technicians. During the execution of their work they are at all times fully responsible for the fulfilment of locally applicable safety guidelines and standards.

Temporary employees and persons in training may only carry out repair and replacement work under the supervision of an authorised service technician.

A Overview 3W

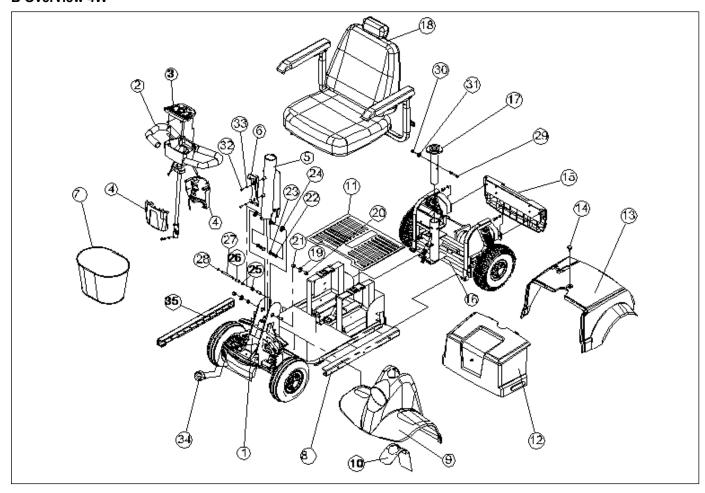


Pos	Qty	Article number	Description
1	1	See list 010	Frame front assy 3W
2	1	See list 006	Tiller assy
3	1	See list 004	Top console assy
4	1	See list 005	Bottom console assy
5	1	See list 007	Tiller strut assy
6	1	1009235	Bracket basket support
7	1	C91001	Basket front
8	1	1009237	Side board plastic left
9	1	See list 012	Cover front 3W assy
10	1	1009239	Tiller protect plastic
11	1	1009240	Mat floor 3W
12	1	See list 008	Cover battery assy
13	1	See list 009	Cover motor assy
14	1	1009242	Knop M5
15	1	See list 003	Bumper rear assy
16	1	See list 018	Rear frame assy
17a	1	1009243	Seat post Captain Seat
17b	1	9001495	Seat post Master Seat
18a	1	1009244	Captain Seat
18b	1	1002241	Master Seat
19	2	No spare part	Flat washer
20	2		Lock nut M10xP1,25
21	2	No spare part	Bushing 9,2mm
22	2	No spare part	Flat washer
23	2	No spare part	Hex bolt M10x25mm
24	2	1009245	Bushing shoulder 4,7mm
25	2	1009246	Bushing shoulder 11mm
26	2	1009247	Bushing 20,5mm
27	1	1009248	Shaft 85mm
28	2		Retaining ring
29	1	No spare part	Hex bolt M8x50mm
30	1	No spare part	Lock nut M8xP1,25

Continued from A Overview 3W

Pos	Qty	Article number	Description
31	1	No spare part	Flat washer
32	2	No spare part	Screw M6x20mm
33	2	No spare part	Spring washer
34	1	1009249	Horn
35	1	1009238	Side board plastic right

B Overview 4W

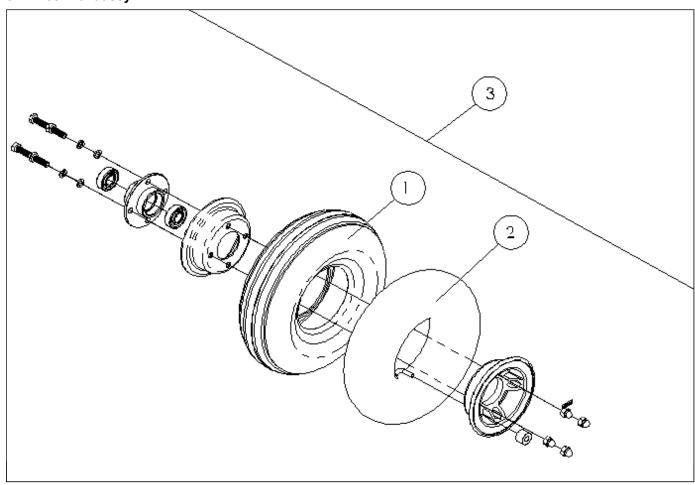


Pos Qty Article number		Article number	Description
1	1	See list 013	Frame front assy 4W
2	2 1 See list 006		Tiller assy
3	1	See list 004	Top console assy
4	1	See list 005	Bottom console assy
5	1	See list 007	Tiller strut assy
6	1	1009235	Bracket basket support
7	1	C91001	Basket front
8	1	1009237	Side board plastic left
9	1	See list 016	Cover front 4W assy
10	1	1009239	Tiller protect plastic
11	1	1009241	Mat floor 4W
12	1	See list 008	Cover battery assy
13	1	See list 009	Cover motor assy
14	1	1009242	Knop M5
15	1	See list 003	Bumper rear assy
16	1	See list 018	Rear frame assy
17a	1	1009243	Seat post Captain Seat
17b	1	9001495	Seat post Master Seat
18a	1	1009244	Captain Seat
18b	1	1002241	Master Seat
19	2	No spare part	Flat washer
20	2	No spare part	Lock nut M10xP1,25
21	2	No spare part	Bushing 9,2mm
22	2	No spare part	Flat washer
23	2	No spare part	Hex bolt M10x25mm
24	2	1009245	Bushing shoulder 4,7mm
25	2	1009246	Bushing shoulder 11mm
26	2	1009247	Bushing 20,5mm
27	1	1009248	Shaft 85mm

Continued from B Overview 4W

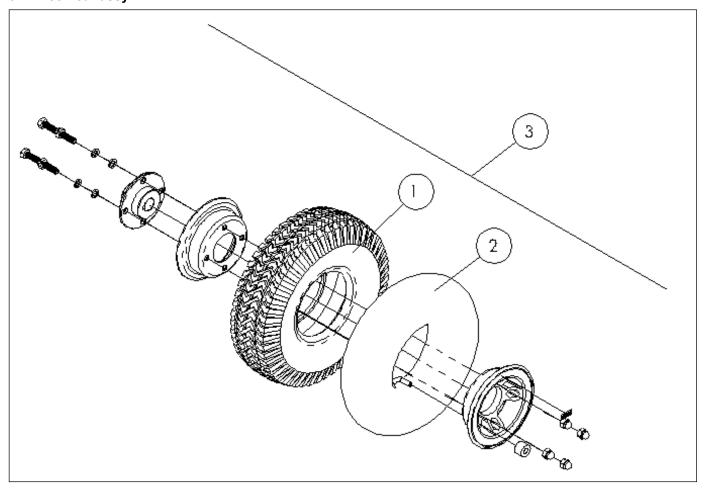
Pos	Qty	Article number	Description
28	2	No spare part	Retaining ring
29	1	No spare part	Hex bolt M8x50mm
30	1	No spare part	Lock nut M8xP1,25
31	1	No spare part	Flat washer
32	2	No spare part	Screw M6x20mm
33	2	No spare part	Spring washer
34	1	1009249	Horn
35	1	1009238	Side board plastic right

01 Wheel front assy



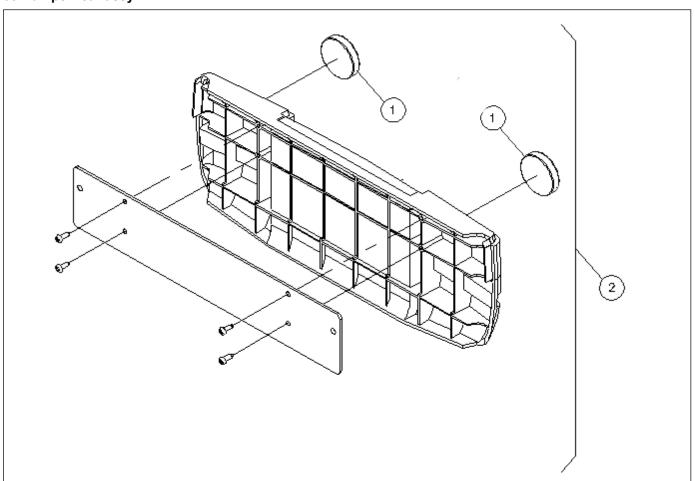
Pos	Qty	Article number	Description
1	1	50.104.100	Tyre front 10"
2	1	50.104.000	Tube inner 10"
3	1	1008951	Wheel front 10" assy

02 Wheel rear assy



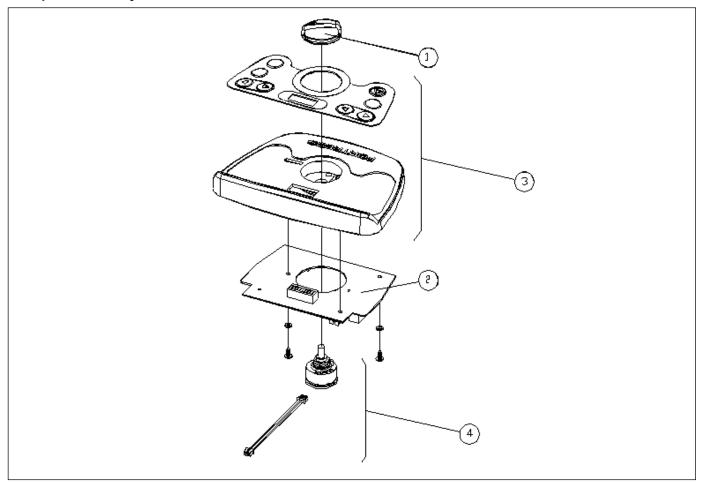
Pos	Qty	Article number	Description
1	1	1008952	Tyre rear 10"
2	1	50.104.000	Tube inner 10"
3	1	1008953	Wheel rear 10" assy

03 Bumper rear assy



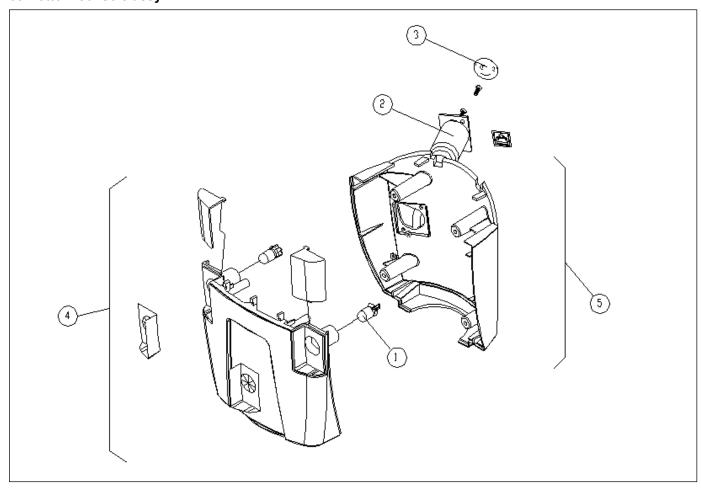
Pos	Qty	Article number	Description	
1	2	1008954	Reflector rear	
2	1	1008955	Bumper rear assy	

04 Top console assy



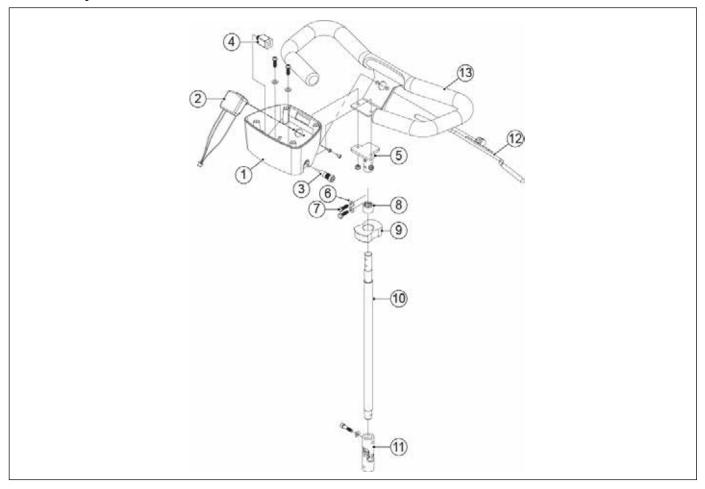
Pos	Qty	Article number	Description
1	1	1001341	Knob speed selector
2	1	1008958	PCB board with battery indicator
3	1	1009156	Console speed plastic key pad membrane
4	1	1008956	Switch speed selector

05 Bottom console assy



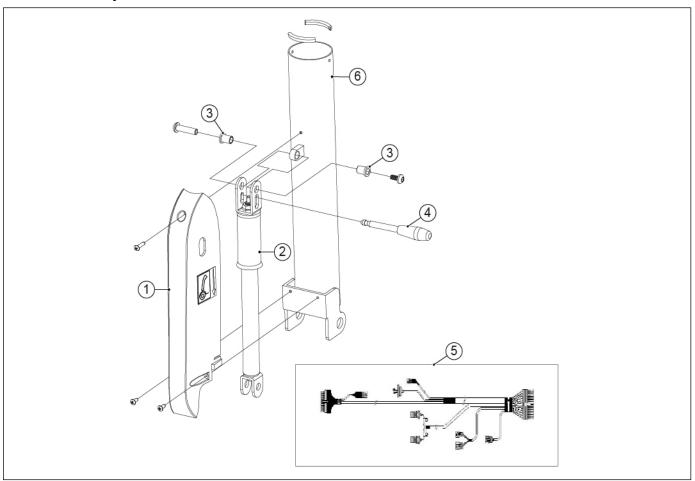
Pos	Qty	Article number	Description
1	2	1008974	Light bulb amber 24v 5w
2	1	1009159	Charger port assy
3	1	-	Cover charger port
4	1	1009157	Shroud front assy
5	1	1009158	Shroud rear assy

06 Tiller assy



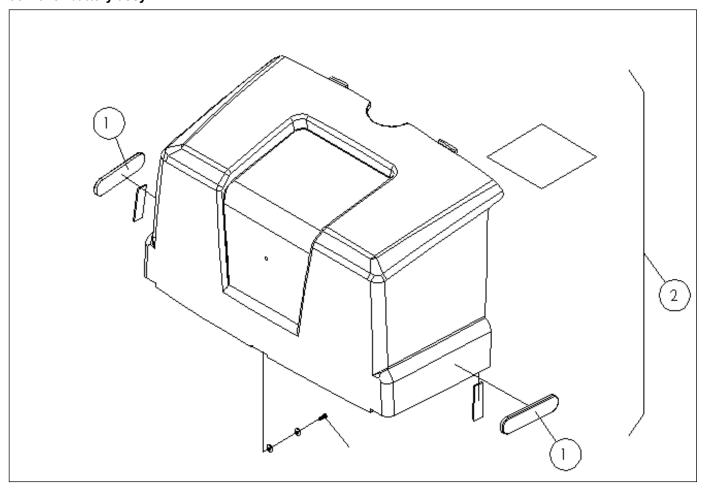
Pos	Qty	Article number	Description
1	1	1008959	Shroud top tiller
2	1	1008960	Potmeter throttle
3	1	1008961	PCB fuse assy
4	1	1008962	Jack plug receptacle
5-11	1	1009160	Steering rod assy
12	1	9003722	Finger control assy
13	1	1014751	Steering wheel
-	1	1001372	Contact key

07 Tiller strut assy



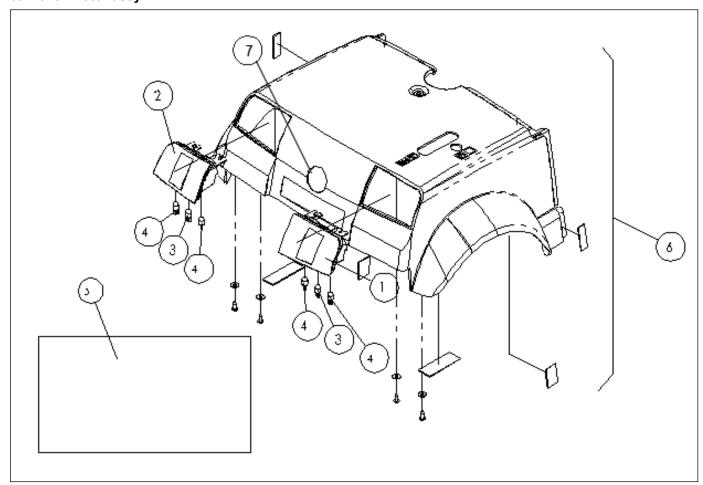
Pos	Qty	Article number	Description
1	1	1008965	Shroud tiller strut
2	1	1008966	Strut tiller
3	2	1008967	Bushing plastic
4	1	1008968	Adjustable tiller handle
5	1	1015177	Main harness + controller harness
6	1	1014750	Tiller tube

08 Cover battery assy



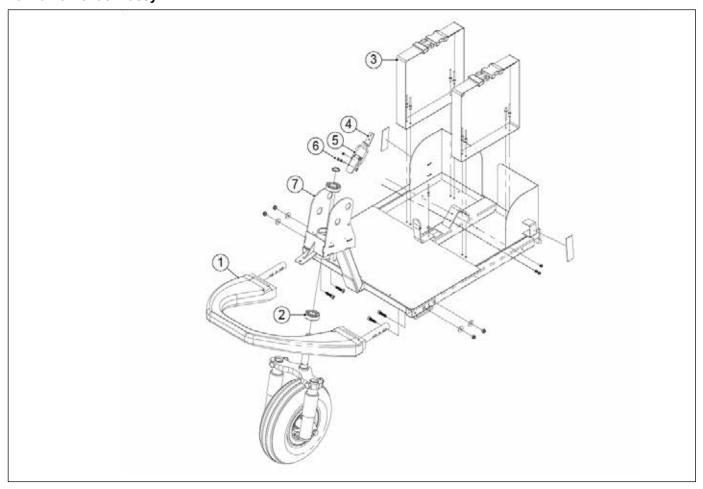
Pos	Qty	Article number	Description
1	2	5.100.031.000	Reflector yellow
2	1	1008971	Cover battery assy

09 Cover motor assy



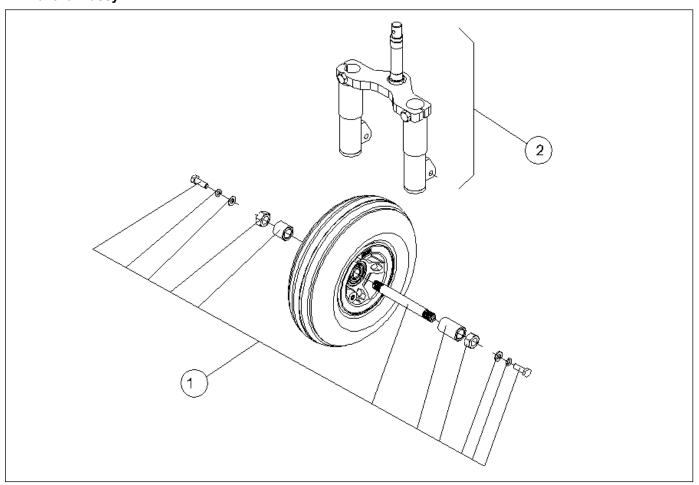
Pos	Qty	Article number	Description
1	1	1008972	Light rear assy – right
2	1	1008973	Light rear assy – left
3	2	1008974	Light bulb amber 24v 5w
4	4	1001281	Light bulb clear 24v 5w
5	1	1008976	Harness rear light assy
6	1	1008977	Cover motor assy
7	1	1012522	Logo Sterling

10 Frame front 3W assy



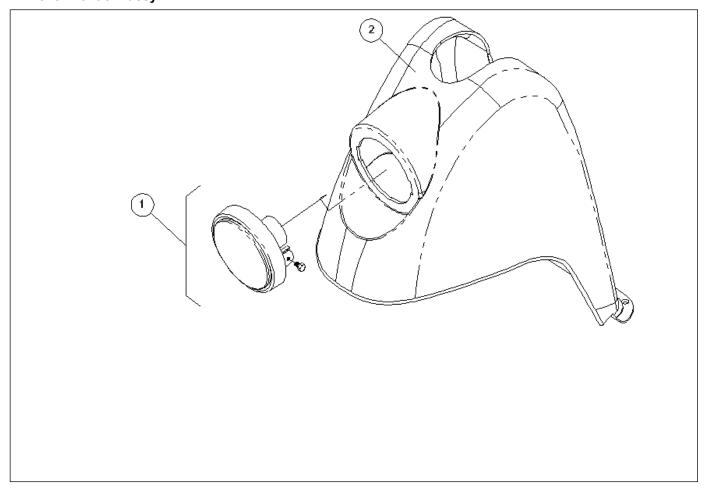
Pos	Qty	Article number	Description	
1	1	1008978	Bumper front	
2	2	1008979	Bearing 20MMx42MMx12MM	
3	2	1008980	Strap battery with buckle	
4-6	1	1009161	Latch assy	
7	1	1014743	Front frame Fortress Calypso 3 wheel	

11 Front fork assy



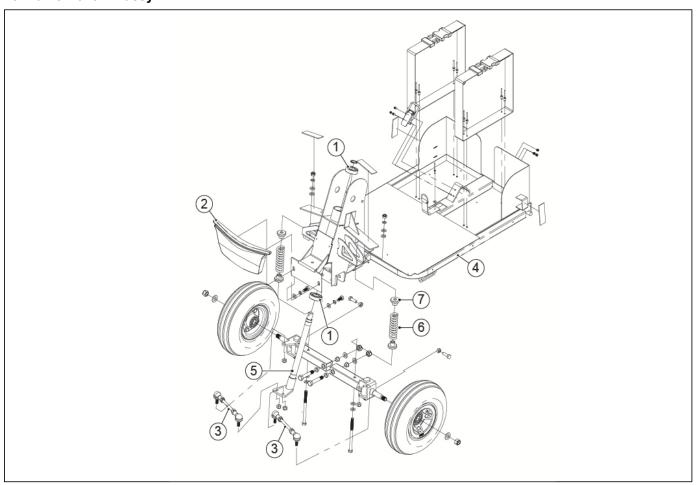
Pos	Qty	Article number	Description
1	1	1009162	Axle front wheel assy
2	1	1008982	Fork assy

12 Cover front 3W assy



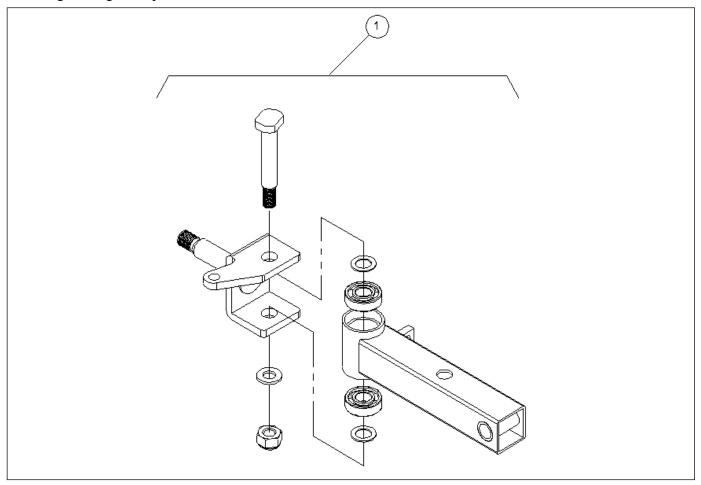
	Pos	Qty	Article number	Description
Ī	1	1	1009163	Headlight assy
	2	1	1008983	Cover front 3W assy

13 Frame front 4W assy



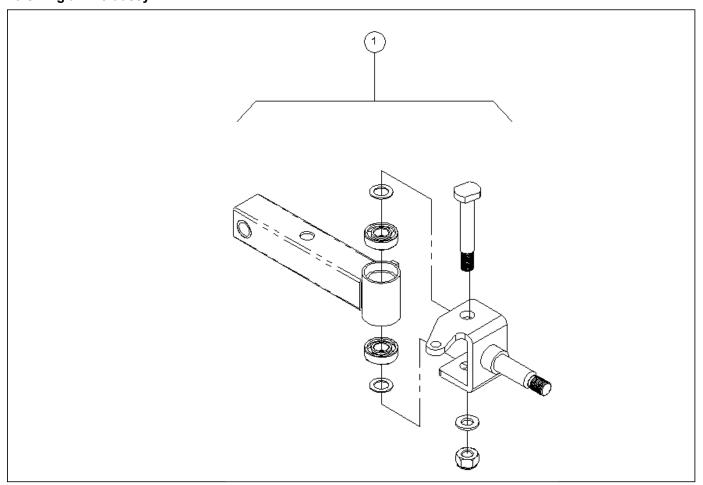
Pos	Qty	Article number	Description
1	2	1008979	Bearing 20MMx42MMx12MM
2	1	1008984	Bumper front 4W
3	1	1009164	Steering rod assy 4W
4	1	1014744	Front frame Fortress Calypso 4 wheel
5	1	1014747	Steering axle
6	2	1014748	Front spring
7	2	1014749	Front suspension bearing bush

14 Swing arm right assy



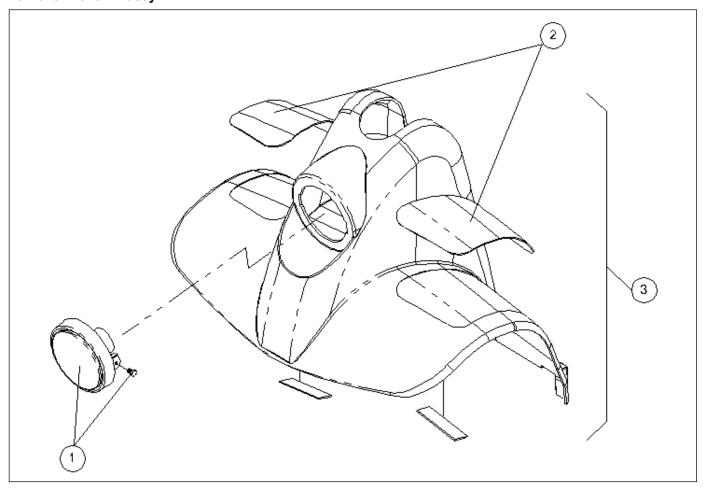
Pos	Qty	Article number	Description
1	1	1008985	Swing arm right assy

15 Swing arm left assy



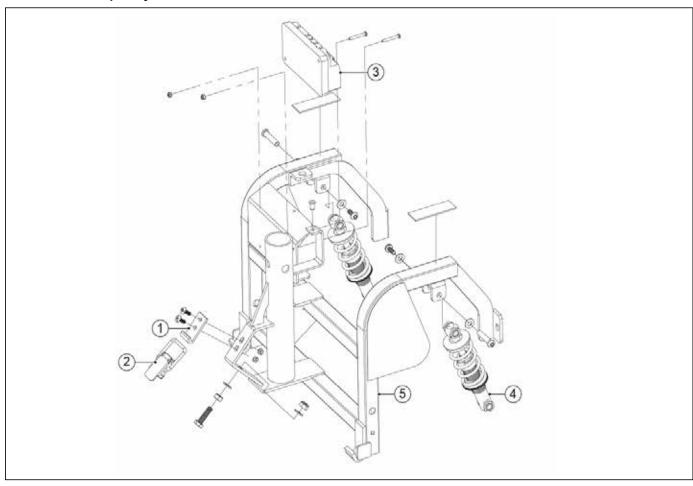
Pos	Qty	Article number	Description
1	1	1008986	Swing arm left assy

16 Cover front 4W assy



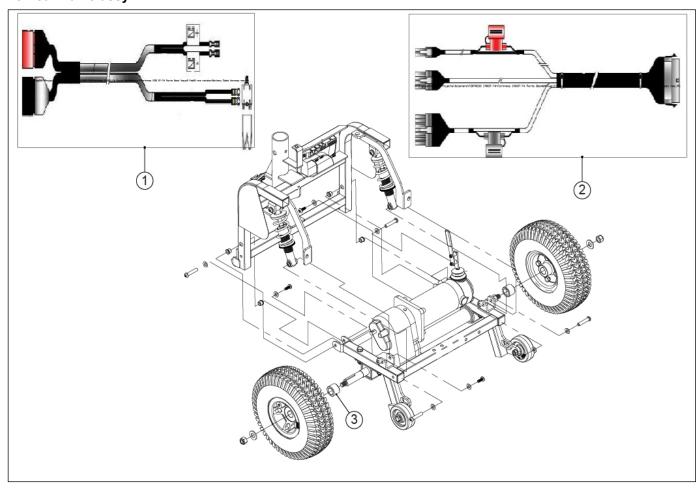
Pos	Qty	Article number	Description
1	1	1009163	Headlight assy
2	1	1009165	Mat foot 4w set
3	1	1008987	Cover front 4W assy

17 Rear frame top assy



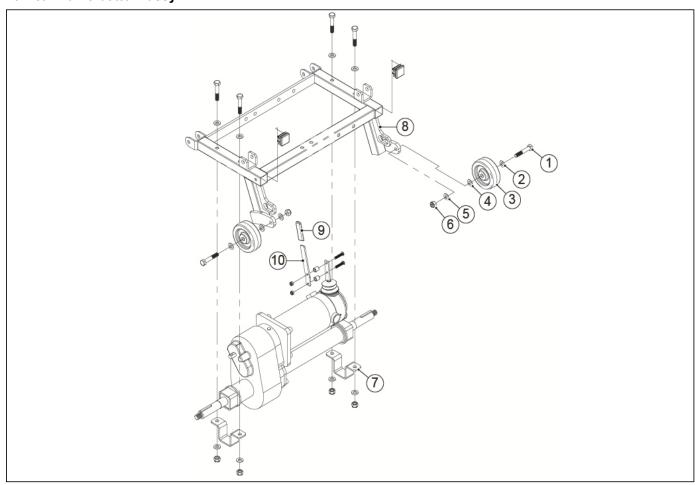
Pos	Qty	Article number	Description
1-2	1	1009161	Latch assy
3	1	1015727	Controller Dynamic DR-90 v2.07
4	1	1008989	Shock absorber rear
5	1	1014745	Rear frame upper part

18 Rear frame assy



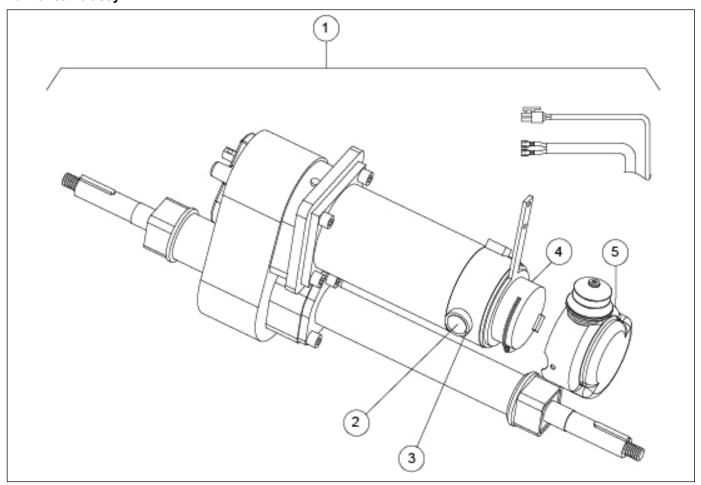
Pos	Qty	Article number	Description	
1	1	1008990	Cable battery harness	
2	1	1015177	Main harness + controller harness	
3	1	1014753	Rear wheel spacer	
-	2	9002752	Set battery connection covers	
-	1	1014125	Battery cable with red connector	
-	1	1014126	Battery cable with black connector	

19 Rear frame bottom assy



Pos	Qty	Article number	Description
1-6	1	1009167	Wheel anti tip assy
7	1	1008992	Bracket mount transaxle
8	1	1014746	Rear frame bottom
9-10	1	1014752	Freewheel lever

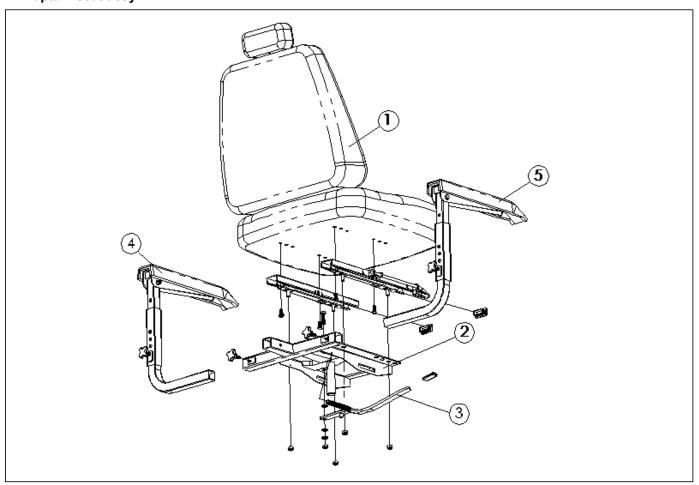
20 Transaxle assy



Pos	Qty	Article number	Description	
1a	1	1009166	Transaxle Assy 10K	
1b	1	9003576	Transaxle Assy 12K	
2	2	1008993	Brush motor	
3	2	1008994	Cap brush motor	
4	1	1015605	Motor brake	
5	1	1015606	Motor brake cover	
4-5	1	1015607	Motor brake kit	

Fortress Calypso Spare parts | 37

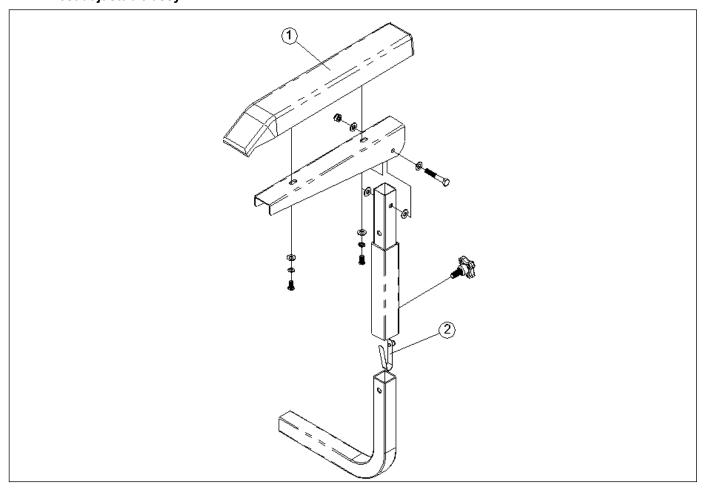
21 Captain seat assy



Pos	Qty	Article number	Description	
1	1	1008995	Seat Captain regular with headrest	
2	1	1008996	Seat plate weldment	
3	1	1008997	Lever seat weldment	
4	1	1008998	Armrest assy left adjustable	
5	1	1008999	Armrest assy right adjustable	

38 | Spare parts Fortress Calypso

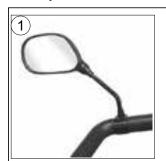
22 Armrest adjustable assy



P	os	Qty	Article number	Description
•	1	1	232103	Armpad foam captain
2	2	1	1009001	Detent button

Fortress Calypso Spare parts | 39

4.2 Options









Pos	Qty	Article number	Description
1	1	1009250	Mirror left
2	1	1009251	Mirror right
3	1	1009552	Cane holder assy
4	1	1009249	Rear basket assy

40 | Service instructions Fortress Calypso

5 Service instructions

5.1 Maintenance plan

In order to ensure its best performance, durability and lifespan, the scooter should undergo regular maintenance to be carried out by your dealer. The following table indicates what checks should be made, how often these checks should be made and who should make them.

Times	Description		To be carried out by	
Time			Dealer	
Daily	Charging the batteries, after each use	Х	-	
Weekly	Checking the tyre pressures	Х	-	
Monthly	Cleaning the scooter	Х	-	
Widiting	Cleaning the upholstery (if necessary)	X	-	
Every three months	Grease the seat's swivel mechanism: the seat needs to be removed for this. See owner manual (Scooter 'Removing the seat'). Lithium grease is recommended	x	x (Annually)	
	Inspecting the electrical system	-	х	
	Checking the batteries	-	х	
	Inspecting the transaxle (free wheel lever, leakage, etc.)	-	х	
Annually	Inspecting the mechanical parts	-	Х	
Ailliually	Inspecting the bearings	-	х	
	Inspecting the suspension	-	x	
	Checking the tyres (wear and tension)	-	х	
	Checking all fastenings and bolts: tighten if necessary	-	х	
	Checking / replacing the carbon brushes	-	х	

It is recommended that the dealer carries out a service on the scooter at least once a year or every 1000 km.

Maintenance requirement for re-use

Disinfect surfaces with commercially available disinfectants and clean the surfaces with damp cloths and cleaners tuned.

⚠ Warning

Do not use high pressure cleaners or similar to clean the product!

The following work most be carried out before re-use:

⚠ Warning

Pull the charge cable out of the battery charging connection of the scooter before carrying out any maintenance on the scooter.

5.2 Batteries

Always follow the instructions related to battery maintenance & storage as given by the battery manufacturer (Battery charger).

The scooter is equipped with gel batteries. These batteries are fully encased and sealed and require no maintenance. A sticker indicates how the batteries are to be connected. This sticker is located on the rear cover and on the battery cable.

⚠ Warning

Ensure that the batteries are always well charged.

Do not use the scooter if the batteries are almost flat. Doing so may damage the batteries and means you run the risk of coming to an unexpected standstill.

Ensure that the batteries are never completely flat. This can seriously damage the batteries and shorten their lifespan.

Only use gel-batteries

Replacing the batteries

If battery capacity is so low (after fully charging) that the scooter can only make short trips, or can not be driven at all, then the batteries have reached the end of their lifespan. Replace the batteries as soon as possible.

⚠ Warning

Once the new batteries have been put in place they will need to be charged and 'run in' (Battery charger)

For the correct way to dispose of batteries see owner manual (Scooter 'Used scooters and the environment')

Fortress Calypso Service instructions | 41

Cleaning the batteries

Gel batteries are maintenance-free. However, attention may be paid to the following matters:

Note:

Ensure that the batteries remain clean and dry: dirt and water can cause leaks, as a result of which battery capacity can be reduced.

Clean the battery terminals and then grease them using acid-free Vaseline.

5.3 Tyres

To ensure that your scooter performs well, it is of great importance for the tyres to be kept at the right pressure.

Inflating the tyres

The tyres are equipped with a car tyre valve. Remove the caps from the valves before inflating the tyres. If the tyres are not adequately inflated, the range of the scooter may be reduced and the tread may wear more quickly.

$oldsymbol{\Delta}$ Warning

When inflating tyres, never exceed the maximum recommended tyre pressure which is stated on the tyres (2.4 bar front and 2.2 bar rear).

Never forget to replace the valve cap after inflating the tyres. The valve cap prevents dirt and sand from getting into the valve. See the 'Maintenance table' regarding tyre checks.

5.4 Adjustment options and repairs

There are a number of adjustments which can be made to the scooter in order to improve its seating and driving comfort levels. For adjustments options that can be made by the user without the use of tools, such as seat depth, backrest angle, armrest width, armrest height, headrest, steering column, please refer to (Scooter)

Other adjustments need to be carried out by the dealer using tools:

- Adjusting the seat height The entire seat can be adjusted in height in order to obtain the optimal seating position.
- Adjusting the rear suspension The rear suspension of the scooter can be adjusted to provide optimal comfort.

⚠ Warning!

Make sure that the scooter is disconnected from the batteries before executing any repair work.

When replacing the transaxle, always reset the current free wheel lever.

(De-)activating of audible signal for indicator, alarm and reverse-beep.

These dip-switches are located at the botom-side of the Tiller PCB (004-2). First remove the shroud front assy (005-4) and the shroud rear assy (005-5) by unscrewing the 4x cross-head screws. Now you've acces to the 4 cross-head screws of the top console assy (004).



No signal



Only indicators and alarm signal (when contact is switched on)



Only reverse beep



All audible signals are activated (when contact is switched on)

42 | Troubleshooting Fortress Calypso

Troubleshooting 6

If the scooter doesn't function, while the batteries are fully charged, check the following points.

- A. Set the scooter off and then on again. Check if the problem is solved.B. Check if all the battery connectors are properly attached and firmly connected.
- C. Check whether the freewheel handle is in the DRIVE position.

Dealers can contact our service department for assistance with troubleshooting.

Fortress Calypso Technical product information | 43

7 Technical product information

7.1 CE Declaration and standards



This product complies with the regulations of the Medical Devices Directive and therefore bears the CE mark.

Standard	Definition/description	Weight test dummy
EU guideline 93/42 EEC	Applicable as mentioned in Appendix 1	N/A
NEN-EN 12182 (1999)	The requirements from EN12182 as mentioned in NEN-EN 12184 (1999): Technical aids for the handicapped – General requirements and test methods October 1997	125 kg
NEN-EN 12184 (1999) Class C	Electric wheelchairs, scooters and accompanying battery chargers – Requirements and test methods 2009	125 kg
ISO 7176-8	Requirements and test methods for static, impact and fatigue strengths July 1998	125 kg
ISO 7176-9	Climate tests for electric wheelchairs and scooters	N/A
ISO 7176-14	Requirements and test methods for control systems for electric wheelchairs 1997	N/A
ISO 7176-16	Requirements for resistance to ignition of upholstered parts May 1997	N/A

The product has been EMC-approved (for electromagnetic compatibility) in accordance with EN12184 (1999).

7.2 Technical specifications

Manufacturer	Sunrise Medical HCM®	
Model	Fortress Calypso 3 wheels (3W)	
	Fortress Calypso 4 wheels (4W)	
Maximum user weight	125 kg (19.7 stone)	

Description		3W	4W
Total length	mm (inches)	1207 (47.5)	1214 (47.8)
Total width	mm (inches)	622 (24.5)	622 (24.5)
Minimum height*	mm (inches)	710 (28)	710 (28)
Total weight excluding batteries:	kg (pounds)	70 (154.3)	75 (165.3)
Total weight including batteries:	kg (pounds)	100 (220.5)	105 (231.5)
Weight of heaviest component	kg (pounds)	27 (59.5)	32 (70.5)
Static stability in the downward direction	0	15 (27%)	15 (27%)
Static stability in the upward direction	0	15 (27%)	15 (27%)
Lateral static stability	0	15 (27%)	15 (27%)
Distance range (ISO 7176-4)**	km (miles)	40 (24.9)	40 (24.9)
Dynamic stability (max. safe slope)	0	9 (16%)	9 (16%)
Maximum speed forwards	km/h (mph)	12 (7,5)	12 (7,5)
		10 (6)	10 (6)
Back angle, Captain Seat	0	0-103-126	0-103-126
Seat depth, Captain Seat	mm (inches)	445 (17.5)	445 (17.5)
Seat width, Captain Seat	mm (inches)	457 (18)	457 (18)
Back height (excl. headrest), Captain Seat	mm (inches)	406 (16)	406 (16)
Seat height (to platform), Captain Seat	mm (inches)	432-490	min 420 - max 550 (min 16.5 - max 21.2)
(17-19.3)	432-490	min 150 - max 340 (min 5.9 - max 13.4)	min 150 - max 340 (min 5.9 - max 13.4)
(17-19.3)	mm (inches)	260 (10.3)	260 (10.3)
Armrest height, Captain Seat	mm (inches)	229-273	457 - 610 (18 - 24)
(9-10.8)	229-273	1250 (49.2)	1750
(9-10.8)	mm (inches)	1650 (65)	1940 (76.4)
Distance between armrests, Captain Seat	mm (inches)	457-610	100 (3.9)
(18-24)	457-610	70 (2.8)	70 (2.8)
(18-24)			
Back angle, Master Seat	0	85-180	85-180
Seat depth, Master Seat	mm (inches)	430 (16.9)	430 (16.9)

44 | Technical product information Fortress Calypso

Description		3W	4W
Seat width, Master Seat	mm (inches)	500 (19.7)	500 (19.7)
Back height (excl. headrest), Master Seat	mm (inches)	550 (21.7)	550 (21.7)
Seat height (to platform), Master Seat	mm (inches)	432-510	
(17-20.1)	432-510 (17-20.1)		
Armrest height, Master Seat	mm (inches)	150-340	
(5.9-13.4)	150-340		
(5.9-13.4)			
Distance between armrests, Master Seat	mm (inches)	500 (19.7)	500 (19.7)

Test data	
Test weight	125 kg (19.7 stone)

Description		3W	4W
Turning radius (ISO 7176-5)	mm (inches)	1170 (46.1)	1600 (63)
Obstacle height (max. user weight)	mm (inches)	76 (3)	76 (3)
Ground clearance (max. user weight)	mm (inches)	101 (4)	101 (4)

Operating force	
Drive lever operation	< 60 N
Resetting the automatic fuse (circuit breaker)	< 60 N
Electronic switches	< 15 N
Connecting the charger plug	< 60 N

Technical specifications for wheels				
Front wheel diameter (3W)	mm (inches)	260 x 85 (10.2 x 3.3)		
Front wheel diameter (4W)	mm (inches)	260 x 85 (10.2 x 3.3)		
Rear wheel diameter	mm (inches)	260 x 85 (10.2 x 3.3)		
Tyre pressure 4W, front wheel	bar (psi)	3.5 (50)		
Tyre pressure 4W, rear wheel	bar (psi)	3.5 (50)		
Tyre pressure 3W, front wheel	bar (psi)	3.5 (50)		
Tyre pressure 3W, rear wheel	bar (psi)	3.5 (50)		

Batteries			
Maximum dimensions of batteries (lxbxh)	mm (inches)	197x168x175	
(7.8x6.6x6.9)	197x168x175	86	
(7.8x6.6x6.9)	Ah	72	
Max. battery capacity	Ah	60 (C20)	60 (C20)
Maximum permitted charging current	Ampère	8	8

^{*} height of steering column, collapsed, excluding seat

7.3 Driving programs

The driving programs for Sunrise Medical products can be found on our Web IQ programming configurator website. To download driving programs:

- Open your web browser
- Go to http://www.sunmedwebig.com
- Enter your user name and password. Alternatively follow the instructions on the screen to request a customer login and password.
- You will be logged on
- · Accept the website terms of use
- In the navigation pane on the left, click 'Sunrise HCM Powerchairs'
- Download the .ZIP file and find the files that correspond to your product configuration.

For more information about the use of Web IQ, in the navigation pane on the left, click 'Support Documentation' and download the Web IQ Dealer manual (OM-QDELPHI-Web IQ...).

^{**} range dependent on user weight, condition of tyres, type of terrain, condition of battery and weather conditions.

7.4 Scooter settings

The specific and optimised scooter settings are summarized as follows.		
User Personalisation	12 km/h (7.5 mph) / 10 km/h (6 mph) / 8 km/h (5 mph)	
Swap Throttle Direction	No	
Enable Beeper	Yes	
Flash Code Beeper	No	
Sleep Beeper	Yes	
Reversing Beeper*	Yes	
Beeper On Time (ms)	300	
Beeper Off Time (ms)	700	

^{*}These settings have no influence, are set via dip-switches on Tiller PCB (see Chapter 5.4)

Throttle Configuration	12 km/h (7.5 mph) / 10 km/h (6 mph) / 8 km/h (5 mph)
Throttle Type	Wig-wag
Throttle Input	Single
Throttle Neutral Offset (V)	0.00
Throttle Full Scale Deflectio	70
Throttle Response (%)	60
Throttle Dead-band (%)	25

Motor Management	12 km/h (7.5 mph) / 10 km/h (6 mph) / 8 km/h (5 mph)
Motor Reverse	No
Load Compensation (mOhm)	80
Current Limit (A)	50
Boost Current (A)	8
Boost Time (s)	8.0

Park Brake Management	12 km/h (7.5 mph) / 10 km/h (6 mph) / 8 km/h (5 mph)
Park Brake Neutral Delay (ms)	500.0
Park Brake Release Delay (ms)	0.0

Battery Management	12 km/h (7.5 mph) / 10 km/h (6 mph) / 8 km/h (5 mph)
Battery Resistance (mOhm)	15
Fuel Gauge High Warning (V)	29.0
Fuel Gauge Low Warning (V)	23.4

System Options	12 km/h (7.5 mph) / 10 km/h (6 mph) / 8 km/h (5 mph)
Service Scheduler	No
Service Period (hours)	5000

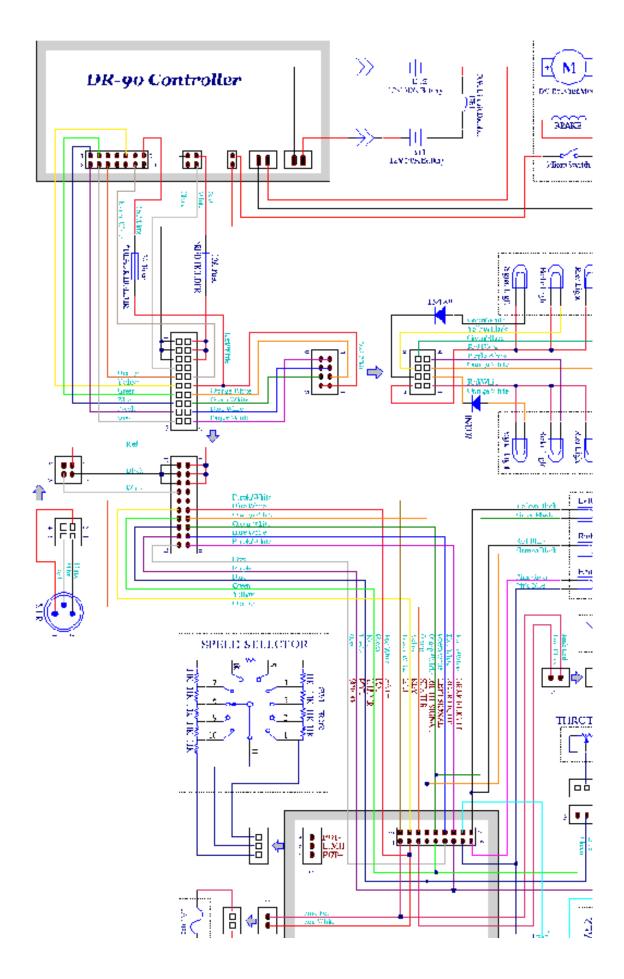
Input Pin	Function	Active	Slows to	Latches
Pin 4 Function	None	Low	100	No
Pin 6 Function	None	Low	100	No
Pin 12 Function	None	Low	100	No
Pin 14 Function	None	Low	100	No
Prog/Inh Pin Function	Charger Inhi	Low	100	No

Multi-function Outputs configuration	
Flash Code Type	Scooter
Pin 3 Function	Beeper
Pin 10 Function	Status High
Pin 11 Function	Status

Transaxle power		3W	4W
Transaxle power (for a duration of 2 hours)	Watt	450	450
Transaxle power (at 24V)	A	20	20

46 | Technical product information Fortress Calypso

7.5 Electrical diagram



Fortress Calypso Warranty | 47

8 Warranty

8.1 Definitions of terms

Definitions of terms used in this warranty:

• After sales service part: Part purchased after the intial product that is durable and may be subjected to natural wear and tear or natural contamination during normal operation within the lifetime of the product.;

- Consumable part: Part that is subjected to natural wear and tear or natural contamination during normal operation within the lifetime of the product (section 9 of Sunrise Medical HCM B.V.'s general terms and conditions of sale);
- · Client: Those who purchase the product directly from Sunrise Medical;
- · Corrective action: Repair, replace or refund of the product;
- Dealer: Those who re-sell the product to the User;
- Defect: Any circumstance due to which the product is not sound or fit to use, caused by a lack of quality of the material used to manufacture the product as well as the quality of the manufacturing process;
- · Option: An accessory delivered with the initial product by Sunrise Medical to extend the standard product model;
- Product: Product that is delivered according to brochure or contract (e.g. wheelchair, scooter, battery-charger etc.);
- Part: Part of product that can be exchanged or replaced. This can be an option, accessory, service part or consumable part;
- Returns: Product or part that needs to be returned;
- RMA-process user: Process to return goods, contact your dealer;
- RMA-process client: Process to return goods, contact Sunrise Medical's Customer Service;
- User: Those who use the product;
- · Warranty: The rights and obligations set forth in this document;
- Warranty period: The period of time during which the warranty is valid;
- Warranty provider: Sunrise Medical HCM B.V., Vossenbeemd 104, 5705 CL Helmond, The Netherlands (also referred to as Sunrise Medical).

Notwithstanding the rights and obligations of Sunrise Medical, Client and User set forth in Sunrise Medical's general terms and conditions of sale, the rights of the Client and/or User towards Sunrise Medical in case of defects are limited to the provisions set forth in this warranty. For the duration of the warranty period Sunrise Medical guarantees that the product is without defects. In case of any defects the User is required –within two weeks after discovery of the defect- to contact the dealer. He has to complete a return form and return the product or part via the RMA-process. Sunrise Medical will, at its sole discretion, take the corrective action it seems fit under the given circumstances within a reasonable period of time (depends on nature of claim) from receipt of the completed return form. The warranty period will not be extended after a corrective action.

48 | Warranty Fortress Calypso

8.2 Warranty period table

Scooters

Scoolers		
Description	Warranty period	Examples include, but are not limited to the parts mentioned below
Frame	2 years	Weldment/frame
Drive system*	1 year	Transaxle, motor, motor brake
Electronics*	1 year	Controller, controlling mechanism, wiring harness, electronic components
After sales service parts	New: 1 year after invoice Repaired: 90 days after invoice	Brakes
Consumable parts	40 days after invoice	Carbon brushes, etc.
Options/Accessories	2 years	Mirror, mudguards etc. Delivered with the initial product

* also in case of after sales service part delivery

Sunrise Medical will only accept shipment costs and corrective costs related to warranty on equipment during the warranty period.

This warranty will void in case of:

- · The product and/or its parts being modified;
- · Changes in cosmetic appearance by use;
- Failure to observe the instructions for use and maintenance, use other than normal use, wear and tear, negligence, collateral
 damage by neglect of earlier symptoms, overloading, third-party accidents, non-original parts used and defects not caused by
 the product;
- · Circumstances beyond our control (flood, fire, etc.).

This warranty does not cover:

- Tyres and inner tubes
- · Batteries (covered by the battery manufacturer's warranty).

Clients and/or Users have legal (statutory) rights under applicable national laws relating to the sale of consumer products. This warranty does not affect statutory rights you may have nor those rights that cannot be excluded or limited, nor rights against the entity from whom the product was purchased. Clients may assert any rights they have at their sole discretion.

Fortress Calypso | 49

Version list

Version	Page	Draw	Changes
Rev.1.0.	-	-	Updated cover layout and manual layout
	6	-	Updated image identification plate
	11	-	Updated reference to article number 1009567
	19	03	Updated quantity article number 1008954
	25	09	Added article number 1012522 Logo Sterling

50 | Fortress Calypso

Fortress Calypso | 51

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Dealer / distributor:

Serial number:

TM_Fortress_Calypso_EU_INT_Rev.1.0_2016_10_12



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