Invacare® **Auriga**

Service Manual

6 / 10 km/h version

CE

How to get in touch with Invacare

If you have any questions or need support, please contact your authorised Invacare® Dealer first. He has the necessary know-how and equipment plus the special knowledge concerning your Invacare® product which enables him to offer you all-round satisfactory service. Should you wish to contact us directly, you can reach us in Europe at the following:

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General Information

This Service Manual contains all the information necessary to service and repair the scooter.

- Please observe all safety instructions.
- Information about operation or general maintenance work can be found in the scooter Operating Manual.
- Information on ordering spare parts can be found in the spare parts catalogue.
- We reserve the right to make any alterations on the grounds of technical improvements.
- The Scooter may only be serviced and repaired by qualified personnel.
- - The minimum requirement for a maintenance technician is specialist training e.g. as bicycle or orthopaedic mechanic, or suitable long experience.
  - Experience and knowledge of electrical measuring devices (multimeters) is also required.
- Any alterations to the Scooter which occur as a result of incorrectly or improperly performed maintenance work will lead to the exclusion of all liability on the part of INVACARE.
- If you have any problems or questions please contact INVACARE TECHNICAL SERVICES

Technical Services: Tel: 01656 647327
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Notes on transport

- If the Scooter has to be shipped back to the manufacturer for major repairs, you should always use the original packaging for transport.
- You should also include as accurate a fault description as possible. The following symbols are used in this Service Manual:

Note:

This symbol indicates general information which highlights special points or simplifications in dismantling / reassembly.

Caution:

It is imperative that you observe all safety instructions indicated by this symbol.

This symbol identifies service work and corresponding tools.

Table of contents

1 Safety and assembly instructions

These safety instructions are intended to prevent accidents, and it is imperative that they are observed.

1.1 Before any inspection or repair work

- Read and observe this Service Manual and the associated operating manual.
- Observe the minimum qualification requirements for carrying out the work.

Caution:

- Please take into account the heavy weight of some components. This applies especially to removal of drive units and batteries.
- The Scooter must be switched off before removal of voltage-carrying components. To do this remove the batteries.
- When making measurements on voltage-carrying components, avoid short-circuiting the contacts.
- Danger of fire!
- Use tools that are in good condition.

1.2 During dismantling / reassembly

- Mark all current settings for the Scooter (seat, armrests, backrest etc.), and the cable connecting plugs associated, before any removals. This makes reassembly easier.

Caution:

- Support the Scooter when raised with suitable equipment before beginning removal or reassembly.
- Never use “standard” nuts instead of self-locking nuts.
- Always use correctly dimensioned washers or spacers.

Note:

- All plugs are fitted with mechanical safety devices which prevent release of the connecting plugs during operation.
- To release the connecting plugs the safety devices must be pressed in.
- When reassembling ensure that these safety devices are correctly engaged.
- Cable binders which have been cut off during disassembly should be replaced by new ones during reassembly.

1.3. Before operation / after completion of work

Caution:

- Check all fixings for tight fit.
- Check all parts for correct interlocking.
- Only operate Scooter with correct tyre pressure (2.5 bar).
- Check electrical components for correct functioning.

As a last check always perform a test drive.

2 Tool list

You will need a standard tool set with at least the following:

- Set of open and ring spanners
- Set of Allen-keys
- Torque wrench
- Socket spanner set
- Set of screwdrivers
- Oblique pliers
- Flat-nosed pliers
- Circlip pliers
- Pointed pliers
- Cable lug pliers
- Wooden or plastic hammer
- Tyre repair kit (commercial)
- Tyre pressure indicator
- Valve removal tool
- Wheel bearing puller
- Multimeter with probes and various cable clips
- Soldering iron 30W
- Front wheel hub puller
- Pop riveting tool
- Stepped mandril

3 Layout of modules, components, displays and controls

The following figures show the layout of scooter modules. Removal and reassembly of spare parts is described in Chapter 9.

1) De-clutching lever
2) Release lever for swivelling and removing seat (under the seat on the right)
3) Release lever for seat sliding rail adjustment (under the seat on the right in the front)
4) Primary Charging Socket
5) Key switch (ON/OFF)
6) Throttle
7) Control panel
8) Lever for adjusting the angle of the steering column

5 Inspection plan

Component	Check	Remedy	Chapter	✓
Wheel suspension and wheels	- Check drive wheels for tight fit and side play	⇨ Adjust, replace wheels	9.6.4	
	- Check steering wheels for tight fit, float and side play	⇨ Replace wheels, wheel fork or wheel bearings	9.5	
	Check castor fork bearings	⇨ Replace	9.5.2 9.6.2	
	- Check tyres	⇨ Fit new		
Lighting System	- Check cabling	⇨ Replace cables if necessary		
	- Check function	⇨ Replace cable or bulbs if necessary	9.9.5	
Drive Unit	- Check functions in drive and push modes	⇨ Replace motor if necessary / replace brushes	9.2.1	
Chassis	- Check fixings, welded seams	⇨ Tighten screws and nuts, adjust or replace components	9.1	
Batteries	- Damage to batteries and case, contact corrosion	⇨ Clean contacts, replace batteries or case	9.7.3	
	- Check contacts, terminals	⇨ Tighten, clean, replace if necessary		
	- Check battery voltage	⇨ Charge batteries / replace		
Control Panel	- Status display flashing	⇨ Replace cable, connector plug or control panel	9.9	
	- Cable, connecting plug	⇨ Tighten, replace		

6 Operational faults

6.1 Diagnostics and troubleshooting

The electronic system provides diagnostic information to help service personnel to locate and correct faults in the system. When a fault occurs the status display will flash in bursts, followed by a pause, then flash again. The type of fault that has occurred is indicated by the number of flashes, which also called a flash code.

Depending on the severity of the fault, and its effect on the safety of the user, the electronic system can react in several different ways. For example it can:

- simply display the flash code as a warning, and allow normal operation to continue
- display the flash code, and immobilise the scooter until the system is turned off and back on again
- display the flash code, immobilise the scooter, and prevent further operation of the scooter until the fault is corrected.

If an error occurs, please proceed as follows:

- Check the troubleshooting guide in chapter 7.
- Check the status display on the control panel, and compare any flash codes with the troubleshooting guide in chapter 7.
- Perform any checks and repairs that are necessary.

7 Error codes

Before assessing the error codes, carry out the following test:

- Turn the remote on and off several times. Before you switch on wait approx. 5 seconds.

The test checks whether the error can be automatically rectified by the electronics, and if necessary deactivates the flashing status display on the control panel. If this is not the case, you can locate the fault using the flash codes as follows:

- Turn the control panel on and off.
- Check which flash code is showing.
- Wait for the flash code pause (approx. 2-3 seconds).
- Re-count the code.

Flash Code	Fault	Impact on Scooter	Remarks
1 x	Battery needs to be charged	No impact	• Battery charge is running low. Charge the batteries as soon as possible.
2 x	Battery voltage too low	Drive inhibited	• The batteries are depleted. Charge the batteries. • If the scooter is left turned off for a time, then the batteries may recuperate enough to allow it to be driven for a very short period again.
	Seat lifter is raised	Reduced driving speed	• Lower the seat lifter completely.
3 x	Battery voltage too high.	Drive inhibited	• Battery voltage is too high. If a charger is connected, disconnect it. • The electronic system charges the batteries when driving downhill and when braking. This fault is caused by the battery being over-charged because of this. Turn the scooter off and back on again.
4 x	Current time-out	Drive inhibited	• The scooter has drawn too much current for too long, possibly because the motor has been over-worked, jammed or stalled. Turn the scooter power off, leave it off for a few minutes, and then turn the power back on again. • The controller has detected a short-circuited motor. Check the cable harness for short and check the motor: Contact your authorised Invacare® Dealer.
5 x	Brake Fault	Drive inhibited	• Check that the de-clutching lever is in the engaged position.

Flash Code	Fault	Impact on Scooter	Notes:
			• The park brake coil or wiring is faulty. Check the park brake and wiring for open or short circuits. Contact your authorised Invacare® Dealer.
6 x	Out Of Neutral At Power Up	Drive inhibited	• Throttle is not in neutral position when turning key switch on. Return throttle to neutral, turn power off, and back on again. • Throttle may need to be re-calibrated. Contact your authorised Invacare® Dealer.
7 x	Speed Pot Error	Drive inhibited	• The throttle or its wiring may be faulty or incorrectly set up. Contact your authorised Invacare® Dealer.
8 x	Motor Volts Error	Drive inhibited	• The motor or its wiring is faulty. Contact your authorised Invacare® Dealer.
9 x	Other Internal Errors	Drive inhibited	• Contact your authorised Invacare® Dealer.

8 Module combinations / variations

The Auriga can be supplied in the following options from start of production:

Colour:

- Ruby Red
- Saphire Blue

Batteries :

- 30 Ah (Standard)
- 40 Ah

Accessories :

- Basket, rear
- Rear view mirror (right or left)
- Cane holder

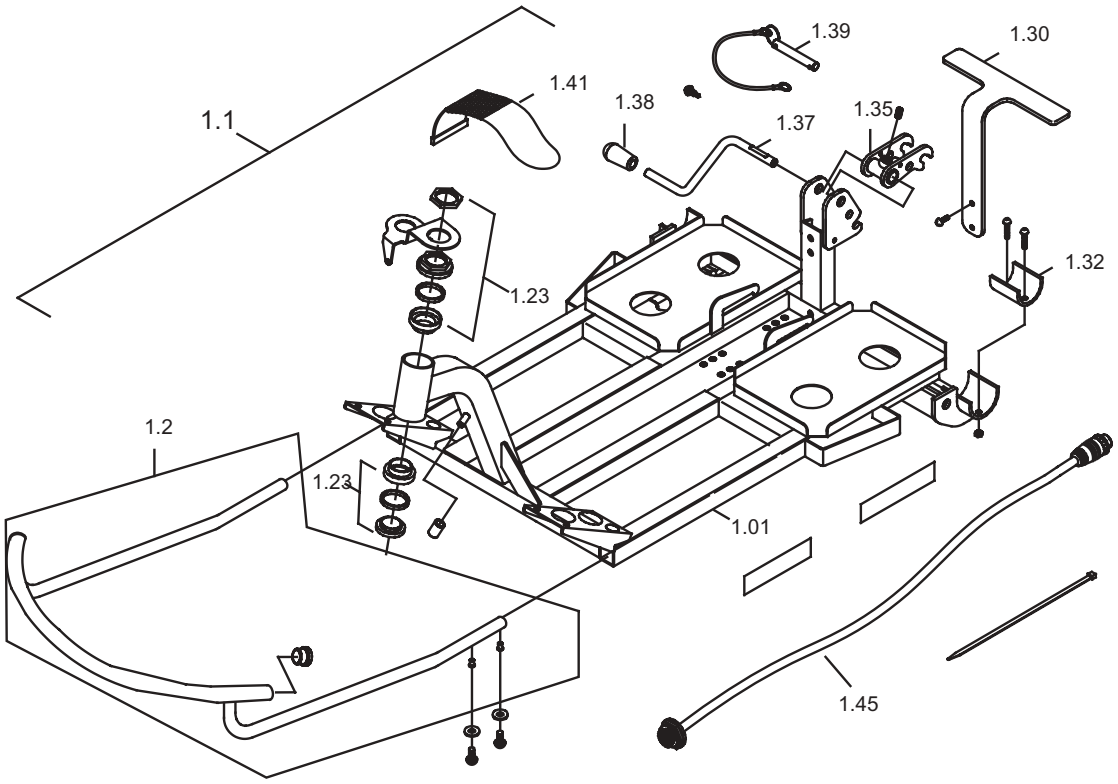
9 Maintenance and repair

9.1. Chassis

9.1.1 Front wheel frame (3-wheeler)

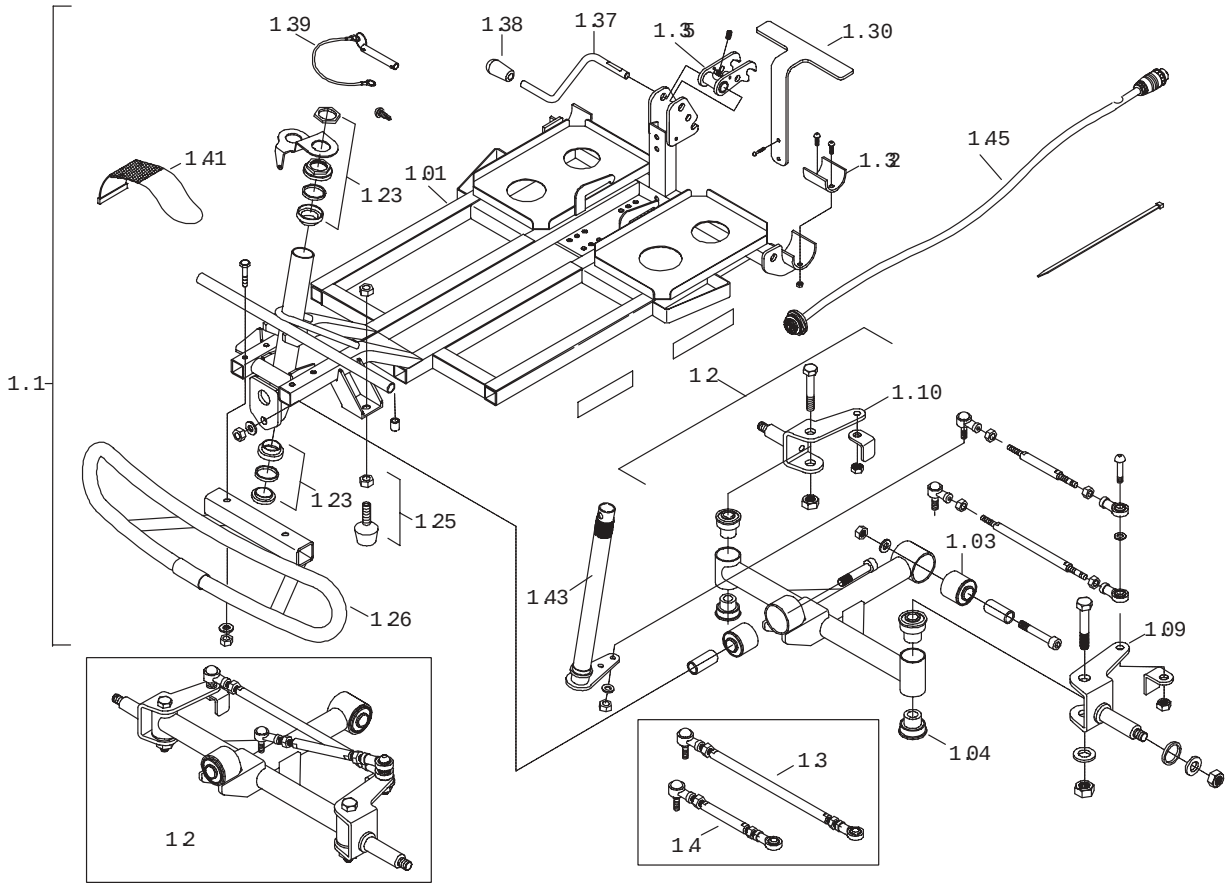
✓ Note:

When servicing the chassis, if deformations or faulty welding seams are found, then the complete chassis should be replaced.



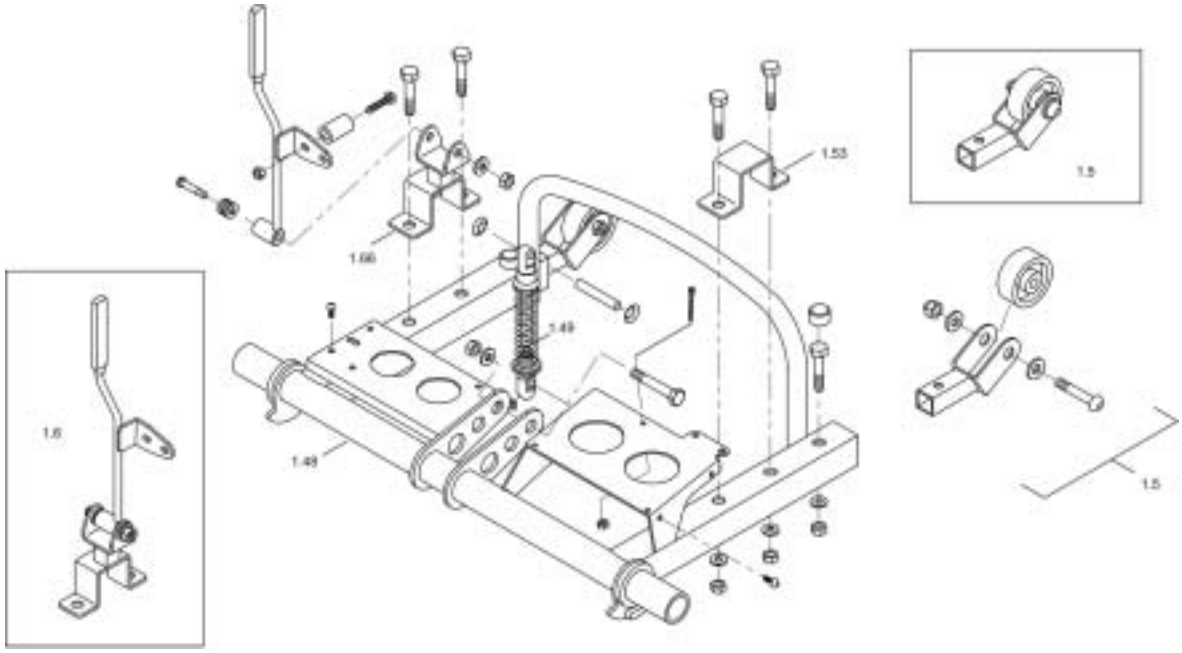
Pos	Qty	Part-No.	Part Description
1,1	1	1421011	FRONT FRAME ASSY., (3 WHEELER)
1,01	1	1421012	FRONT FRAME, (3 WHEELER)
1,2	1	1421013	FRONT BUMPER ASS'Y.,3W
1,23	1	1421014	FORK BEARING SET, 8 PCS/SET
1,30	1	1421015	SUPPORTING BRACKET, REAR SHROUD
1,32	2	1421016	SPACER, FRONT FRAME AND REAR FRAME ASSEMBLY
1,35	1	1421017	ASSEMBLY HOOK, FRAME, 3W/4W
1,37	1	1421019	ASSEMBLY LEVER, FRAME
1,38	1	1421020	BLACK TIP
1,39	1	1421024	PIN WITH TIE, RD. 8x50L
1,41	2	1421027	BATTERY STRAP, 50x660L
1,45	1	1421029	MAIN LOOM, FRAME, 3W/4W

9.1.2 Front wheel frame (4-wheeler)



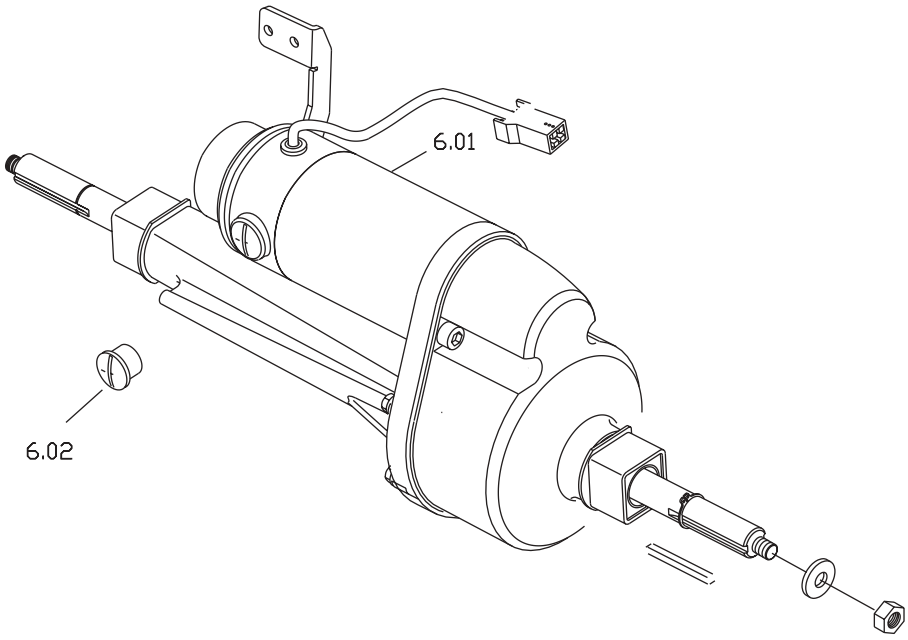
Pos	Qty	Part-No.	Part Description
1,1	1	1421031	FRONT FRAME ASS'Y.,(4 WHEELER)
1,01	1	1421030	FRONT FRAME ONLY, 4W
1,2	1	1421032	FRONT SUSPENSION SYSTEM, 4W
1,03	2	1421033	BUFFER, RUBBER BUSHING
1,04	4	1421034	BALL BEARING, STEM
1,09	1	1421035	FRONT AXLE SET, LH
1,10	1	1421036	FRONT AXLE SET, RH
1,3	1	1421037	CONNECTING ROD SET, LONG RD. 10 X 350 L
1,4	1	1421038	CONNECTING ROD SET, RD. 10 X 150 L, SHORT
1,23	1	1421014	FORK BEARING SET, 8 PCS/SET
1,25	2	1421040	BUFFER, RUBBER BLOCK, M10 X 30 L
1,26	1	1421241	FRONT BUMPER, 4W
1,30	1	1421015	SUPPORTING BRACKET, REAR SHROUD
1,32	2	1421016	SPACER, FRONT FRAME AND REAR FRAME ASSY
1,35	1	1421017	ASSEMBLY HOOK, FRAME, 3W/4W
1,37	1	1421019	ASSEMBLY LEVER, FRAME
1,38	1	1421020	BLACK TIP
1,39	1	1421024	PIN WITH TIE, RD. 8 X 50 L
1,41	2	1421027	BATTERY STRAP, 50 X 660 L
1,43	1	1421249	STEERING PEDESTAL ASS'Y.
1,45	1	1421029	MAIN LOOM, FRAME, 3W/4W

9.1.3 Rear frame assembly (3+4-wheelers)



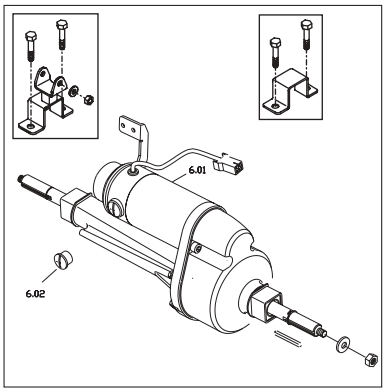
Pos	Qty	Part-No.	Part Description
1,48	1	1421251	REAR FRAME ONLY, 3W/4W
1,49	1	1426314	SHOCK ABSORBERS
1,53	1	1421253	MOUNTING CLAMP, TRANSAXLE
1,5	2	1421254	ANTI-TIPPER WHEEL ASS'Y
1,6	1	1421255	RELEASE LEVER ASS'Y., TRANSAXLE, 3W/4W
1,66	1	1421256	MOUNTING BASE

9.2 Drive Unit



Pos	Qty	Part-No.	Part Description
6,01	1	1416109	TRANSAXLE ASS'Y., M33D
6,02	2	1421275	CARBON BRUSH

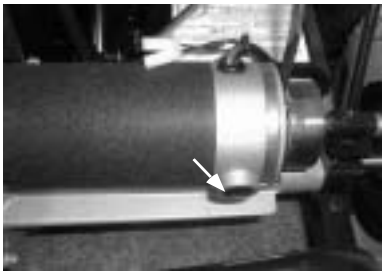
9.2.1 Replacing the drive unit



- Remove the seat and the rear shroud (see chapter 9.3.5).
- Pull the de-clutching lever and jack up the vehicle.
- Remove the screw that connects the release lever to the drive unit.
- Loosen the bolts that hold the wheels and remove them, if necessary using a special tool to remove wheels (see notes on page 24).
- Release the clamps that hold the drive unit.
- Disconnect the cable that connects the drive unit and the electronic system, and remove the drive unit.

Reassembly is done in reverse order.

9.2.2 Replacing the carbon brushes

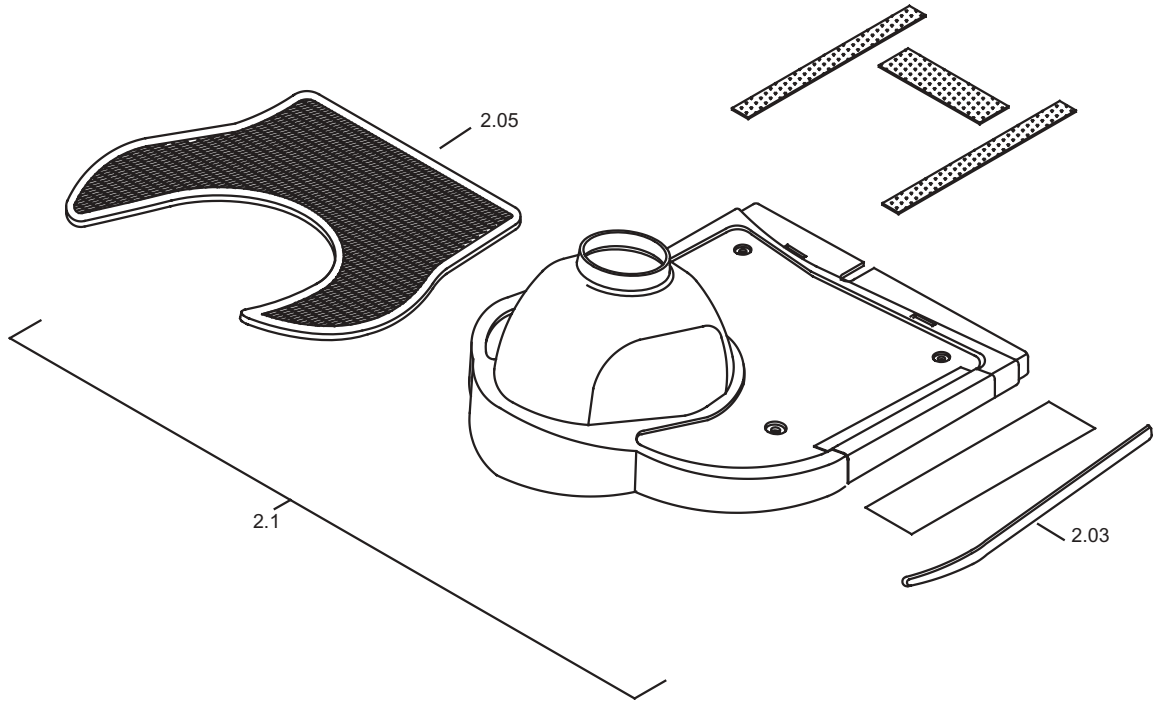


- Remove the seat and the rear shroud (see chapter 9.3.5).
- Remove the spray guard of the charger.
- Remove all four screws on the charger and remove the charger.
- Remove both plastic screws from the drive unit and replace the brushes.

Reassembly is done in reverse order.

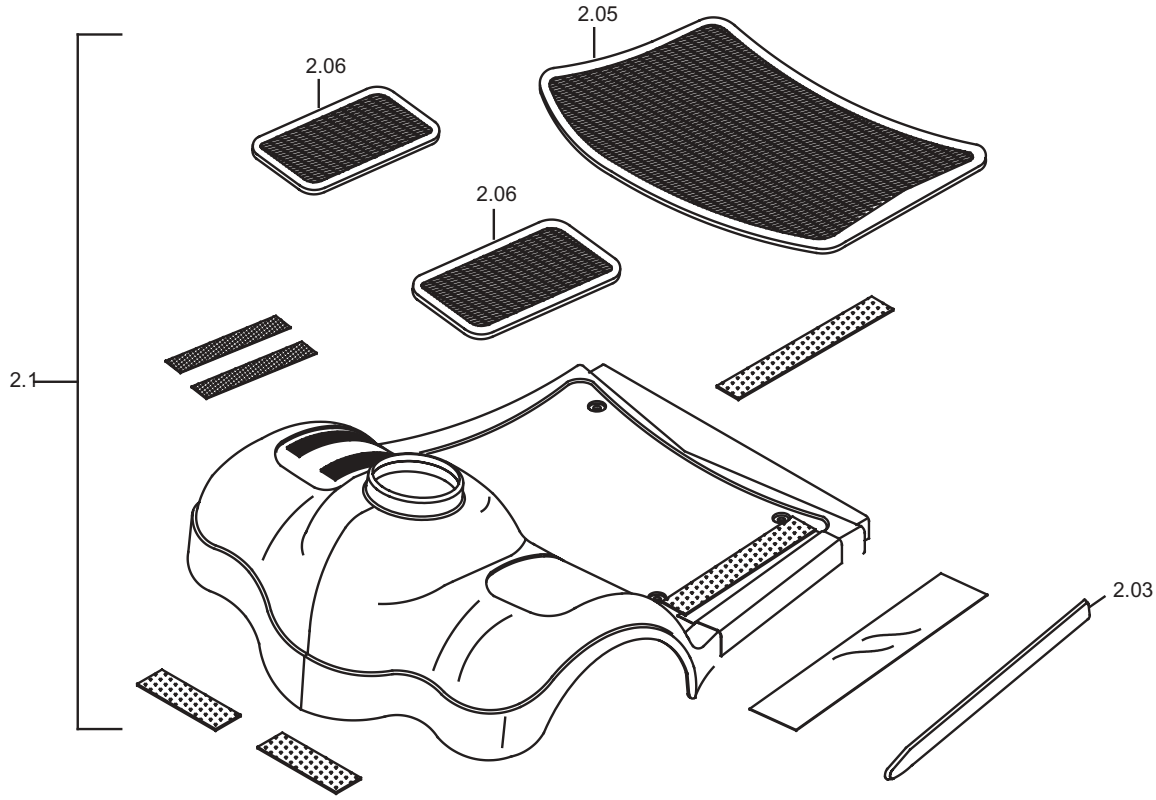
9.3 Shroud

9.3.1 Front shroud (3-wheeler)



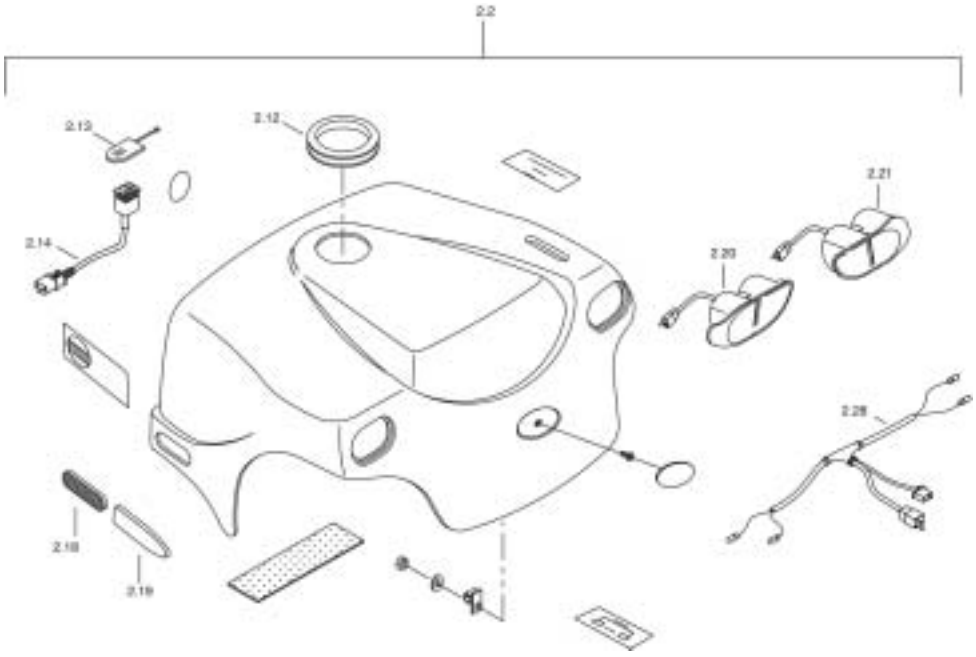
Pos	Qty	Part-No.	Part Description
2,1	1	1421257	FRONT SHROUD ASS'Y., RUBY RED, 3W
2,1	1	1421258	FRONT SHROUD ASS'Y., SAPPHIRE BLUE, 3W
2,03	2	1421259	SIDE TRIM, 16 X 640 L
2,05	1	1421260	CARPET, GREY, 3W

9.3.2 Front shroud (4-wheeler)



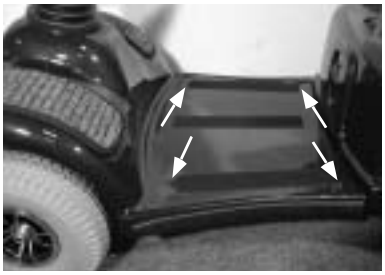
Pos	Qty	Part-No.	Part Description
2,1	1	1421261	FRONT SHROUD ASS'Y., RUBY RED, 4W
2,1	1	1421262	FRONT SHROUD ASS'Y., SAPPHIRE BLUE, 4W
2,03	2	1421263	SIDE BUMPER, 25 X 380 L
2,05	1	1421264	MAIN CARPET, GREY, 4W
2,06	2	1421265	SMALL CARPET, GREY, 4W

9.3.3 Rear shroud (3+4-wheelers)



Pos	Qty	Part-No.	Part Description
2,2	1	1421266	REAR SHROUD ASS'Y.,RUBY RED, 3W/4W
2,2	1	1421267	REAR SHROUD ASS'Y.,SAPPHIRE BLUE, 3W/4W
2,12	1	1421268	RUBBER BOOT, SEAT POST
2,13	1	1421269	CAP, CHARGER SOCKET
2,14	1	1421270	WIRE OF CHARGER PLUG
2,17	2	1421271	SIDE RUBBER PAD, 25 X 125 L
2,18	2	1421272	REFLECTOR, YELLOW
2,20	2	1421273	REAR LAMP / LH
2,21	1	1426324	REAR LAMP / RH
2,28	1	1421274	TAIL/INDICATOR LIGHT CONNECTING WIRE

9.3.4 Removing and re-fitting the front shroud (3+4-wheelers)



- Remove the seat and the rear shroud (see chapter 9.3.5).
- Tilt the steering column towards the rear.
- Roll up the rubber sleeve.
- Loosen and remove the clamping lever, and disconnect the cable.
- Remove the steering column by turning and pulling it upwards.
- Remove all four screws under the foot mat.
- Carefully detach the front shroud from the velcro strips, and remove by pulling upwards.

Reassembly is done in reverse order.

9.3.5 Removing and re-fitting the rear shroud

Note:

When removing the rear shroud, first detach the velcro fasteners on the sides, then pull the shroud up and off. When re-fitting the shroud, first position both of the openings for the seat post and the de-clutching lever. Then fit the two tabs on the front of the shroud into the corresponding slots, push the shroud down, and firmly press the velcro fasteners together.

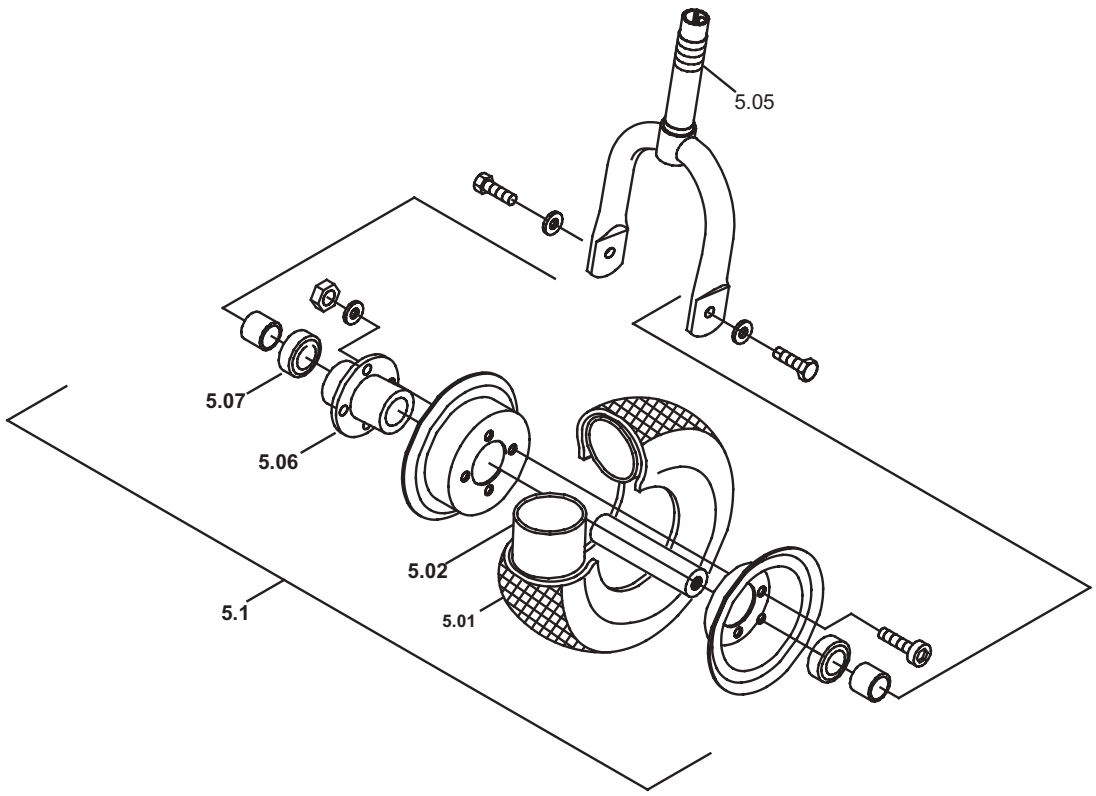
- Pull the lever that releases the seat.
- Rotate the seat a quarter of a revolution in either direction and remove the seat.
- Carefully release the rear shroud from the velcro fasteners.
- Disconnect the cables that go to the lighting system and the on-board charger, and remove the rear shroud.

Reassembly is done in reverse order.

9.4. Wheels

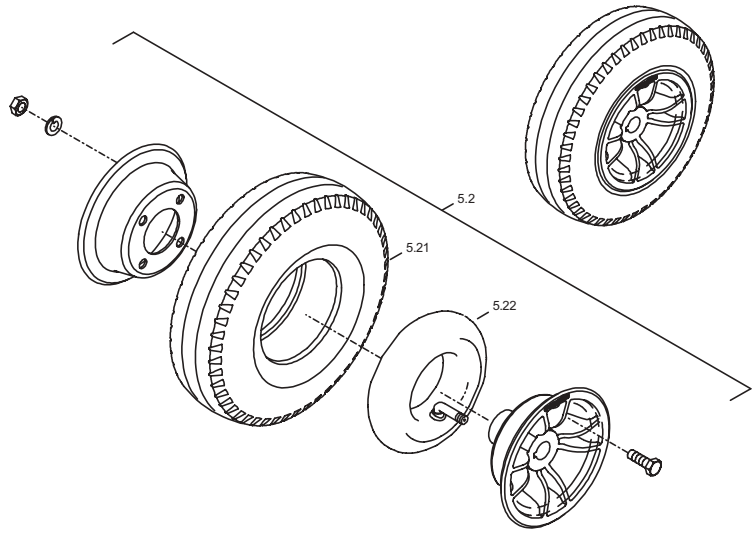
✓ Note:
When replacing worn or damaged wheels and / or tyres, you may need to use special tools, such as a wheel removal tool, or let the work be performed by an authorised dealer.

9.4.1 Front wheel assembly (3-wheeler)



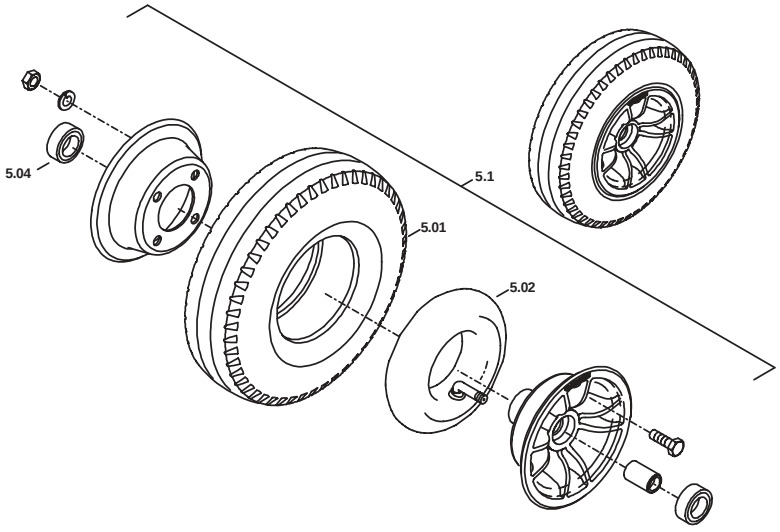
Pos	Qty	Part-No.	Part Description
5,1	1	1421276	FRONT WHEEL ASS'Y., 3.00-4 (260 X 85)
5,01	1	1421277	TYRE, 3.00-4
5,02	1	1421278	INNER TUBE, 3.00-4
5,05	1	1421279	FORK, 10" WHEEL
5,06	1	1421280	HUB, FRONT WHEEL
5,07	2	1421281	PRECISION BEARING, 6003 ZZ

9.4.2 Front wheel assembly (4-wheeler)



Pos	Qty	Part-No.	Part Description
5,2	2	1421284	REAR WHEEL ASS'Y., 3.00-4, W/INVACARE LOGO
5,21	1	1421277	TYRE, 3.00-4
5,22	1	1421283	INNER TUBE ONLY, 3.00-4

9.4.3 Rear wheel assembly (3+4-wheelers)



Pos	Qty	Part-No.	Part Description
5,1	2	1421282	FRONT WHEEL ASS'Y., 3.00-4, W/INVACARE LOGO
5,01	1	1421277	TYRE, 3.00-4
5,02	1	1421283	INNER TUBE ONLY, 3.00-4
5,04	2	1421281	PRECISION BEARING, 6003 ZZ

Caution:

Either jack up the vehicle, and use appropriate supports (such as blocks of wood) to prop it up, or tilt it over on its side. Make sure the front wheel(s) can revolve freely. Secure the vehicle against sliding or falling over. **Danger of injury!**

9.5 Assembling / disassembling the front wheel (3-wheeler)

- Pull the de-clutching lever, jack up the vehicle, and remove both bolts, which hold the wheel.
- Remove the wheel from the fork.

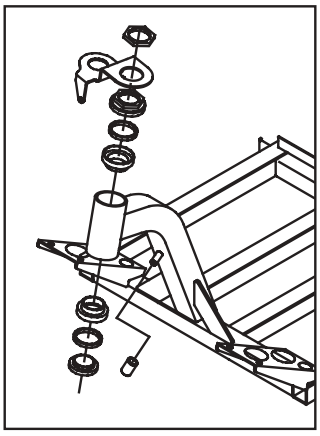
Reassembly is done in reverse order.

9.5.1 Assembling / disassembling the front fork (3-wheeler)

- Remove the seat and the rear shroud (see chapter 9.3.5).
- Remove the steering column (see chapter 9.3.4).
- Remove front shroud (see chapter 9.3.4).
- Remove the eight-sided nut, the metal Gusset, and the second eight-sided nut underneath it.
- Lift the crash guard and pull the fork down and out.

Reassembly is done in reverse order.

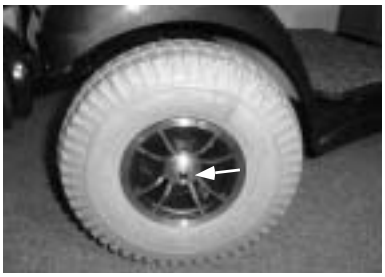
9.5.2 Replacing the bearings (3-wheeler)



- Remove the seat and the rear shroud (see chapter 9.3.5).
- Remove the steering column (see chapter 9.3.4).
- Remove the front shroud (see chapter 9.3.4).
- Remove the eight-sided nut, the metal Gusset, and the second eight-sided nut underneath it.
- Lift the crash guard and pull the fork down and out.
- Pull the fork down and out, and replace the bearings.

Reassembly is done in reverse order.

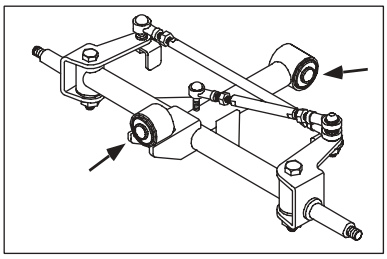
9.6 Assembling / disassembling the front wheel (4-wheeler)



- Pull the de-clutching lever and jack up the vehicle.
- Remove the nut and the washer underneath it, and remove the front wheel.

Reassembly is done in reverse order.

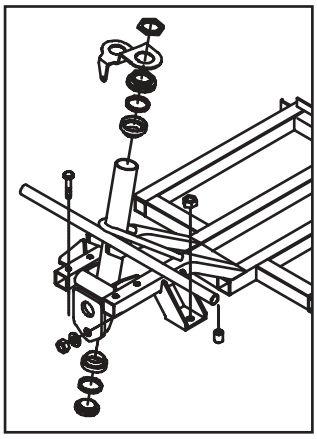
9.6.1 Assembling / disassembling the front suspension (4-wheeler)



- Remove the seat and the rear shroud (see chapter 9.3.5).
- Remove the steering column and the front shroud (see Chapter 9.3.4).
- Pull the de-clutching lever and jack up the vehicle.
- Remove the Allen screws and the nuts of the front wheel suspension from the chassis.
- Pull the front wheel suspension out towards the front.
- Remove both steering rods from the front wheel suspension.
- Remove the front wheel (see above).

Reassembly is done in reverse order.

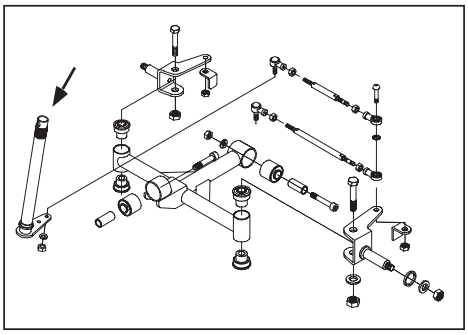
9.6.2 Replacing the bearings (4-wheeler)



- Remove the seat and the rear shroud (see chapter 9.3.5).
- Remove the steering column and the front shroud (see Chapter 9.3.4).
- Pull the de-clutching lever and jack up the vehicle.
- Remove the Allen screws and the nuts of the front wheel suspension from the chassis.
- Pull the front wheel suspension out towards the front.
- Remove the connecting nut and gusset
- Pull the fork down and out, and replace the bearings.

Reassembly is done in reverse order.

9.6.3 Assembling / disassembling the steering column tube (4-wheeler)



- Remove the seat and the rear shroud (see chapter 9.3.5).
- Remove the steering column and the front shroud (see Chapter 9.3.4).
- Pull the de-clutching lever and jack up the vehicle.
- Remove the Allen screws and the nuts of the front wheel suspension from the chassis.
- Pull the front wheel suspension out towards the front.
- Remove the connecting nut and gusset
- Remove the steering column tube from the steering rods.

Reassembly is done in reverse order.

9.6.4 Assembling / disassembling the rear wheels (3+4-wheelers)

- Pull the de-clutching lever and jack up the vehicle.
- Remove the nut in the centre of the wheel, and pull off the rear wheel, you may need to use a special wheel removal tool (see notes on p.24).

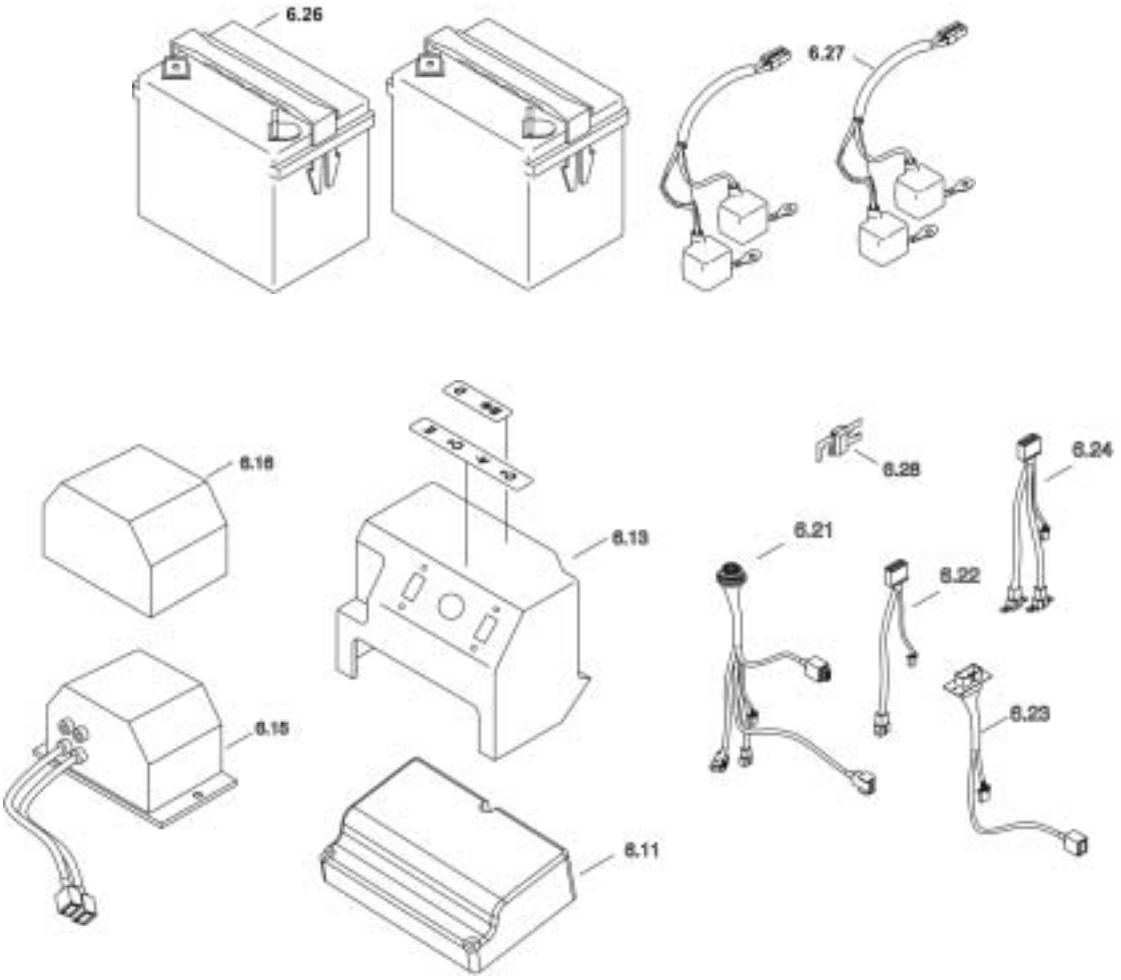
Reassembly is done in reverse order.

9.7. Electronic system

Caution:

Be careful not to short-circuit the battery poles with a tool!
Take into account the heavy weight of the batteries!
Danger of injury!

9.7.1 Batteries, electronic system, charger and connections



POS	Qty	Part-No.	Part Description
6,11	1	1421606	CONTROLLER, RHINO DS72K01
6,13	1	1421607	ELECTRONIC COVER
6,15	1	1421608	CHARGER, ON-BOARD, HAMPTON 24V/3A OB7
6,16	1	1421609	WATERPROOF COVER
6,21	1	1421610	MAIN LOOM, CONTROLLER
6,22	1	1421611	WIRE CONNECTING, MOTOR/CONTROLLER
6,23	1	1421612	CONNECTING WIRE, POWER SEAT
6,24	1	1421613	WIRE CONNECTING, CONTROLLER
6,26	2	P50029	BATTERY 12V / 31 AH
6,26	2	PG50988	BATTERY MK 12V / 40 AH
6,27	2	1421614	WIRE CONNECTING WITH 40A FUSE, BATTERY
6,28	2	1421615	FUSE, 60A

9.7.2 Replacing the charger

- Remove the seat and the rear shroud (see chapter 9.3.5).
- Disconnect the cable that goes from the electronics to the charger, and remove the charger spray guard.
- Remove all four screws and the charger.

Reassembly is done in reverse order.

Note:

Make sure that both batteries are charged (24V), if necessary, charge them completely. Check the charge levels of both batteries individually!

9.7.3 Replacing the batteries

- Remove the seat and the rear shroud (see chapter 9.3.5).
- Remove the battery cable (C) from the electronics.
- Open the belts that hold the batteries and remove the batteries.
- Disconnect the battery cable contacts from the batteries.
- After replacing with new or charged batteries, re-connect the contacts of the battery cables to the batteries.
  Make sure to connect the cables to the correct poles!

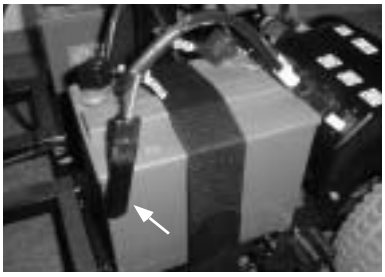
Reassembly is done in reverse order.

9.7.4 Replacing the electronics

- Remove the seat and the rear shroud (see chapter 9.3.5).
- Remove the battery cables (C), the main cable loom (A) of the steering column, and the drive unit cable (B) from the electronic system
- Remove all four screws from the charger shroud.
- Remove the 8, 6 and 4 pronged plugs from the electronic system.
- Remove the electronics box (see above).
- Remove all three screws and take out the electronics.

Reassembly is done in reverse order.

9.7.5 Replacing a fuse



- Remove the seat and the rear shroud (see chapter 9.3.5).
- Open the fuse holder on the battery cable and replace the fuse.

Reassembly is done in reverse order.

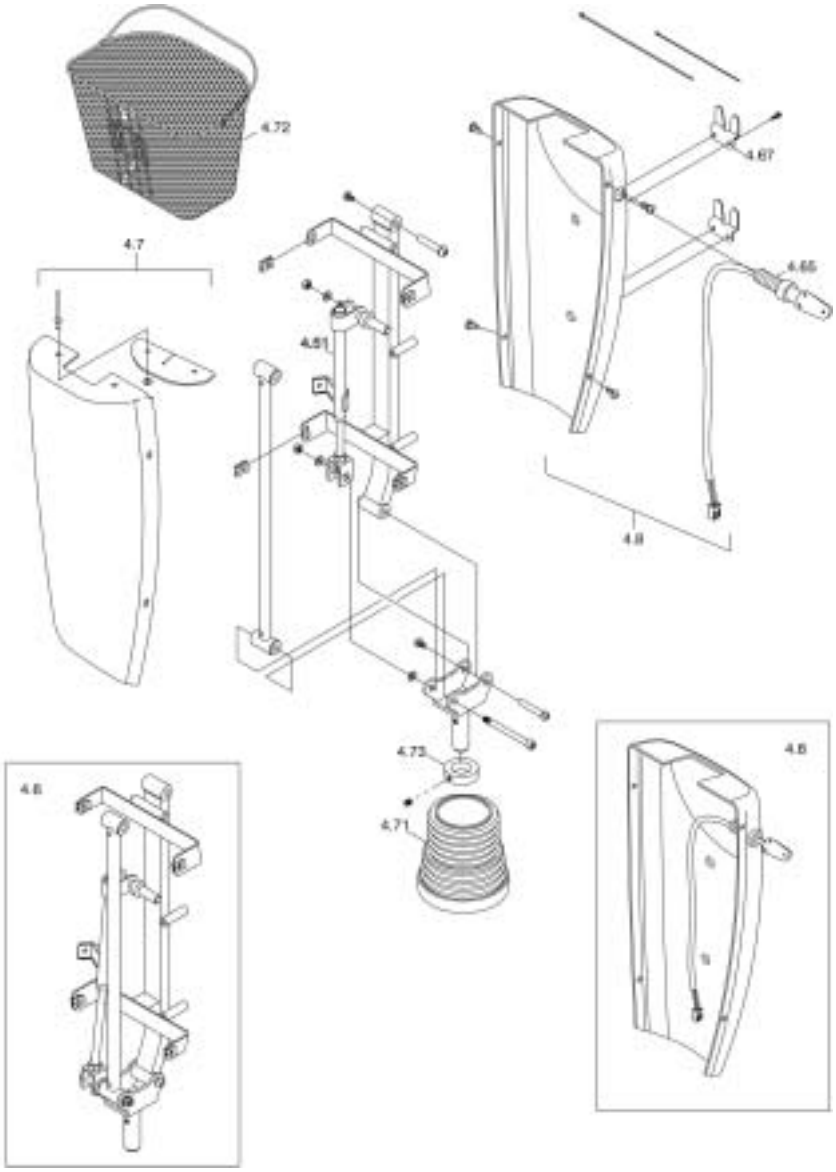
9.7.6 Hand-held programmer

- The hand-held programmer serves to diagnose faults, and to adjust driving parameters.
- The set consists of the hand-held programmer and an adapter cable.
- For more information on programming and fault diagnosis, please use the hand-held programmer's User Guide.

Part # 1421661

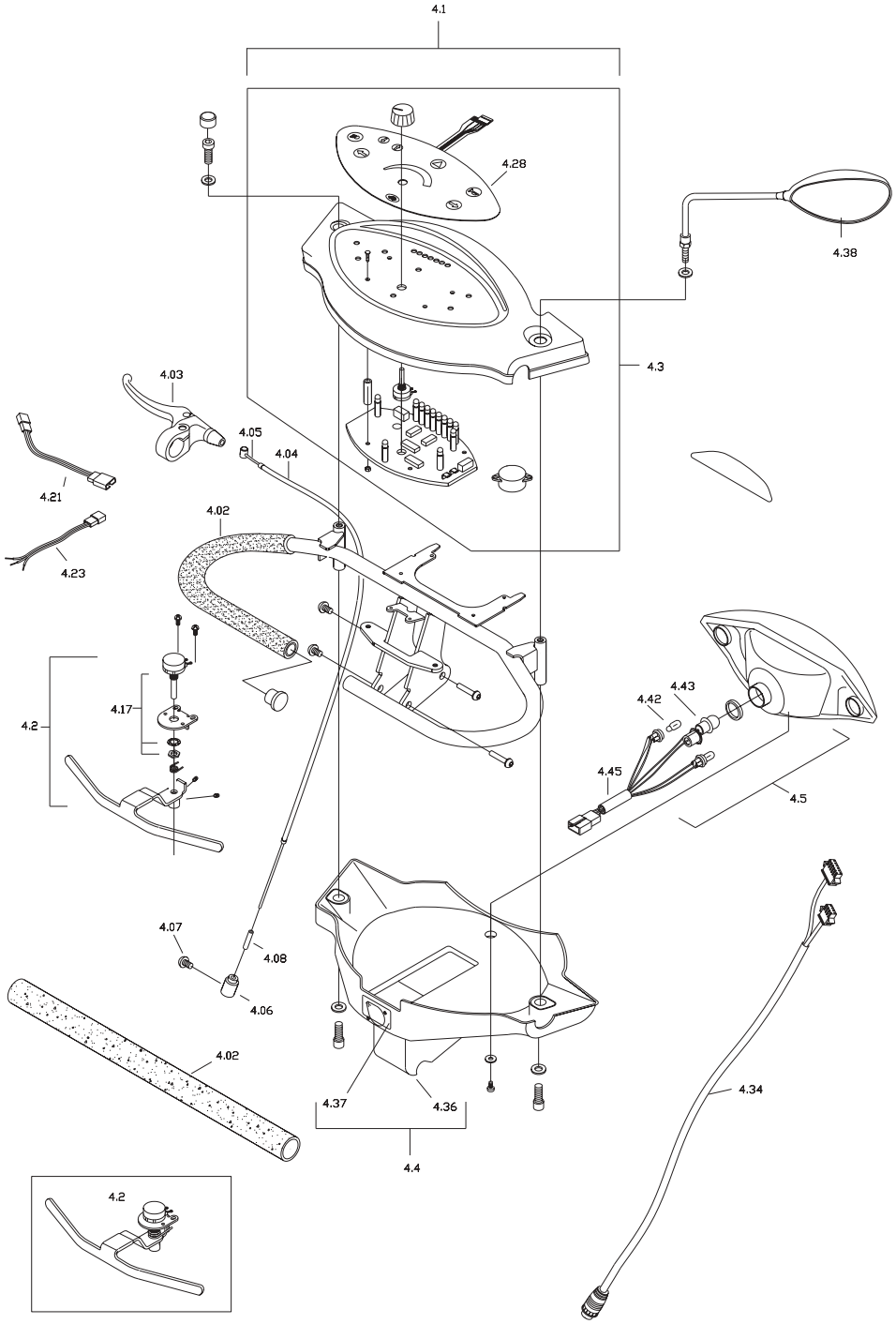
9.8 Tiller linking assembly / control panel

9.8.1 Steering column



Pos	Qty	Part-No.	Part Description
4,6	1	1421039	TILLER LINKING MECH. ASS'Y., 3W/840
4,51	1	1421242	HEIGHT ADJ. LOCK MECH., 230L
4,7	1	1421243	REAR TILLER SHROUD SET, CANDY APPLE RED, 3W/4W
4,7	1	1421244	REAR TILLER SHROUD SET, BLUE, 3W/4W
4,8	1	1421245	FRONT TILLER SHROUD SET, CANDY APPLE RED, 3W/4W
4,8	1	1421246	FRONT TILLER SHROUD SET, BLUE, 3W/4W
4,65	1	1421247	KEY SWITCH W/CONNECTING WIRE, 3W/4W
4,67	2	1421248	MOUNTING BASKET SPCC 2.5 T
4,71	1	1421250	LOWER RUBBER BOOT
4,72	1	1421616	BASKET, WIRE MESH
4,73	1	1426337	SET COLLAR

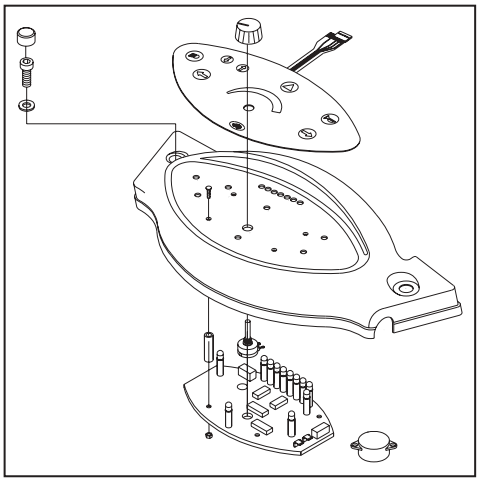
9.8.2 Tiller



Pos	Qty	Part-No.	Part Description
4.1	*1*	*1421619*	**TILLER ASS'Y RED, 3W/4W**
4,1	1	1421619	TILLER ASS'Y., BLUE, 3W/4W
4,02	2	1421620	FOAM SLEEVE, RD. 30 X 20 X 355 L
4,03	1	1421621	LEVER BRAKE, LH
4,04	1	1421622	CABLE CASING, 450L, LONG
4,05	1	1421623	WIRE, RD. 1.5 X 540 L
4,06	1	1421624	STOPPER

Pos.	Qty	Part-No.	Part Description
4,07	1	1421625	SCREW, M5 X 8 L
4,08	1	1421626	ALUM. WIRE END CAP
4,2	1	1421627	THROTTLE ASS'Y., 3W/4W
4,17	1	1421628	POTENTIOMETER
4,21	1	1421629	CONNECTING WIRE, POT
4,23	1	1421630	CONNECTING WIRE, SPEED POT
4,3	1	1421631	UPPER DASH BOARD SET, CANDY APPLE RED, 3W/4W
4,3	1	1421632	UPPER DASH BOARD SET, BLUE, 3W/4W
4,28	1	1421633	TOUCH PANEL, KEYPAD, 3W/4W
4,34	1	1421634	MAIN LOOM, TILLER, 3W
4,4	1	1421635	LOWER DASH BOARD SET, CANDY APPLE RED, 3W/4W
4,4	1	1421636	LOWER DASH BOARD SET, BLUE, 3W/4W
4,37	1	1421637	CHARGER SOCKET WITH WIRE
4,38	1	1421638	BACK MIRROR, RH
4,38	1	1421639	BACK MIRROR, LH
4,5	1	1421640	HEAD LIGHT WITH WIRE ASS'Y.
4,42	2	1421641	BULB, 24V/5W, INDICATOR LIGHT
4,43	1	1421642	BULB, 24V/18W
4,45	1	1421643	CONNECTING WIRE, HEAD LIGHT

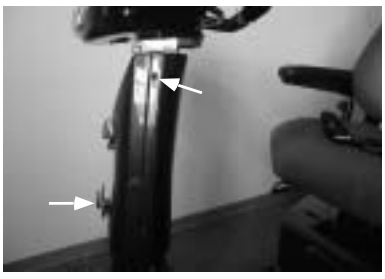
9.9 Replacing the keypad and the control panel



- Remove the plastic caps from the screws on the left and right sides on top of the control panel, remove the screws, and disconnect the circuit board.
- Remove the control panel.
- Remove the cap from the knob and remove the knob.
- Remove the control circuit board and disconnect and remove the keypad.
- Lift the 2-ply keypad on one corner with a flat tool and pull it off.
- Remove any remnants of adhesive left over after removing the foil.

Reassembly is done in reverse order.

9.9.1 Assembling / disassembling the steering column shroud



- Remove the screws that hold the basket.
- Remove the screws from the steering column shroud.
- Remove the control panel (see above).
- Disconnect the key switch with its cable from the control circuit board, and remove the shroud.

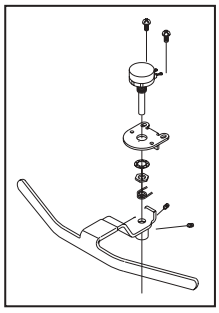
Reassembly is done in reverse order.

9.9.2 Replacing the Bowden cable

- Remove the rear shroud from the steering column.
- Remove the screw at the end of the Bowden cable from the stopper, and pull the Bowden cable out.
- Remove the screw on the steering column completely pull out the Bowden cable.

Reassembly is done in reverse order.

9.9.3 Replacing the throttle lever



- Remove the control panel (see chapter 9.9).
- Remove the screws from the potentiometer.
- Remove the Allen screws on both sides and pull the throttle lever down and out.

Reassembly is done in reverse order.

9.9.4 Replacing the potentiometer

- Remove the control panel (see chapter 9.9)
- Remove the screw from the potentiometer.
- Loosen the Allen screws on the side and pull the potentiometer up and out.
- Remove some of the insulation material from the wires that are connected to the potentiometer, and use a soldering iron to melt the soldered connections.
- Remove the spring, the nut and the washer.
- Fit the new potentiometer and centre it (see notes below).

Reassembly is done in reverse order.

Note:

When fitting a new potentiometer, it is of upmost importance to make sure the potentiometer, as well as the throttle lever are correctly centred. **Danger of accidents!** The potentiometer has a standard value of approximately 5 kOhm. Check the potentiometer with a digital multimeter to make sure that it returns exactly the same value from the right and left connections to the neutral centre position.

9.9.5 Replacing the light bulbs in the front

- Remove the control panel (see chapter 9.9).
- Remove the screw that holds the head light, located underneath the lens (see fig. 9.9.7).
- Tilt the head light upwards and take it out.
- Remove the fixture with the bulb from the rear of the head light by twisting and pulling it out. Replace the bulb.

Reassembly is done in reverse order.

9.9.6 Replacing the light bulbs in the rear

- Remove the seat and the rear shroud (see chapter 9.3.5).
- Remove the light fixture from the inside of the rear shroud by twisting it, and replace the bulb.

Reassembly is done in reverse order.

9.9.7 Replacing the head light

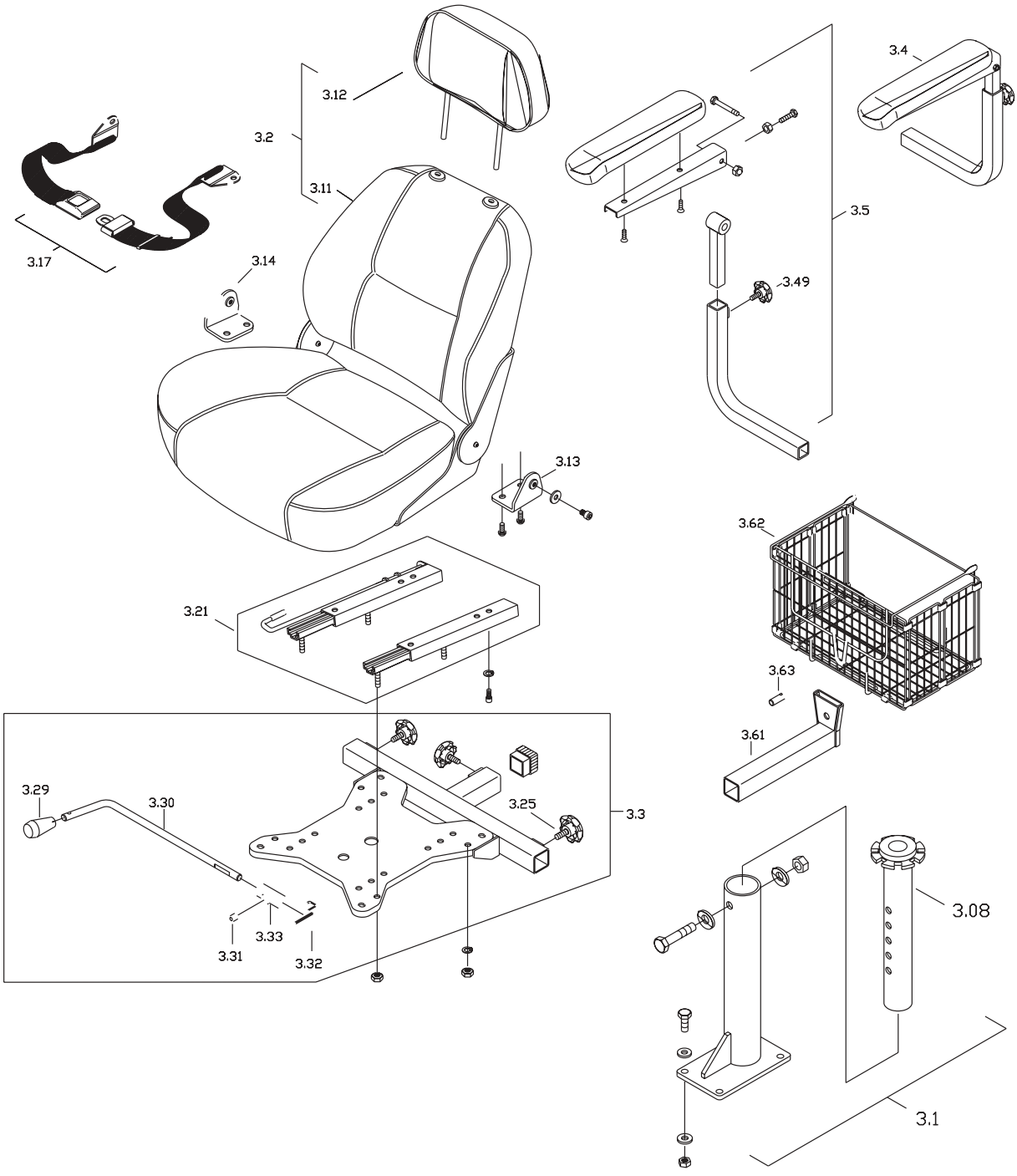
- Remove the control panel (see chapter 9.9).
- Remove the screw that holds the head light, located underneath the lens (see fig. 9.9.7).
- Tilt the head light upwards and take it out. Remove the light fixture from the rear of the head light.

Reassembly is done in reverse order.

10 Seating unit

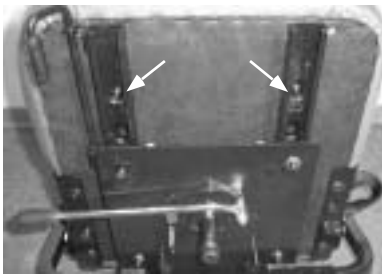
Caution:

The adjustment options of the seat, such as seat depth, seat height, backrest angle, width of the armrests or the adjustment of the steering column are all individually adjusted to suit the needs of the user. After servicing the vehicle, these adjustments need to be re-established.



Pos	Qty	Part-No.	Part Description
3,1	1	1421285	SEAT TUBE ASS'Y.
3,08	1	1421286	UPPER SEAT TUBE ASS'Y.
3,2	1	1421287	SEAT WITH HEADREST, 18W X 16D X 18H
3,12	1	1421288	HEADREST, SEAT,
3,13	1	1421589	MOUNTING PLATE, SAFETY BELT, LH
3,14	1	1421590	MOUNTING PLATE, SAFETY BELT, RH
3,17	1	1421591	SAFETY BELT,
3,21	2	1421592	SLIDE MECH. ASS'Y., SEAT
3,3	1	1521593	SEAT BASE WITH RELEASE LEVER ASS'Y.
3,25	3	1421594	KNOB, M10 X 13 L
3,29	1	1421595	BLACK TIP
3,30	1	1421596	RELEASE LEVER, "L" TYPE
3,31	1	1421597	SET SCREW, M8 X 8 L
3,32	1	1421598	TORQUE SPRING, RELEASE LEVER
3,33	1	1421599	BLOCK, RELEASE LEVER
3,4	1	1421600	ARMREST ASS'Y, LH
3,5	1	1421601	ARMREST ASS'Y, RH
3,49	1	1421602	KNOB, M8 X 12 L
3,61	1	1421603	REAR BASKET HOLDER SET
3,62	1	1421604	REAR BASKET
3,63	1	1421605	PIN, REAR BASKET

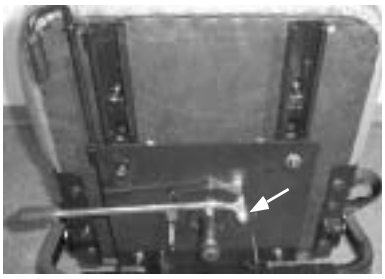
10.1 Replacing the slide mechanism



- Remove the seat and the rear shroud (see chapter 9.3.5).
- Tilt the seat back onto the backrest.
- Loosen the knob and remove the the armrest supports and the armrests by pulling them outwards.
- Remove the four nuts that hold the seat support and remove the seat support.
- Remove the screws that hold the slide mechanism, so it can be replaced.

Reassembly is done in reverse order.

10.1.1 Replacing the release lever



- Remove the seat and the rear shroud (see chapter 9.3.5).
- Tilt the seat back onto the backrest.
- Remove the nut from the release lever under the seat, unhook the spring, and replace the lever.

Reassembly is done in reverse order.

10.1.2 Replacing the upper seat support tube

- Remove the seat and the rear shroud (see chapter 9.3.5).
- Remove the bolt and nut from the seat support, pull the tube out, and replace.

Reassembly is done in reverse order.

10.1.3 Removing the armrests

- Loosen the knob underneath the armrest, and pull the armrest up and out.

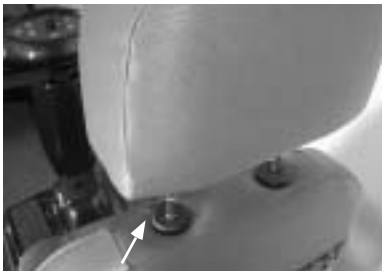
Reassembly is done in reverse order.

10.1.4 Removing the armrest supports

- Loosen the knob underneath the seat and remove the armrest supports by pulling them outwards.

Reassembly is done in reverse order.

10.1.5 Removing the headrest

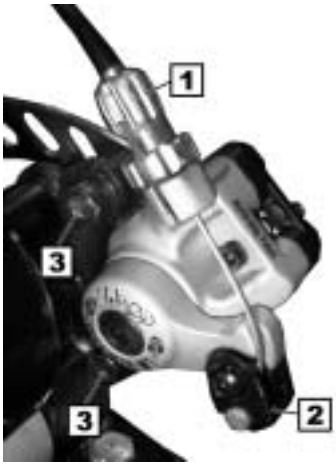


- Press and hold the release button indicated by the arrow and pull the headrest up and off.

Reassembly is done in reverse order.

11.0 Handbrake

11.1 Removing the caliper / replacing the brake disk



- Remove the seat and rear shroud (see chapter 9.3.5).
- Disassemble the right-hand rear wheel (see chapter 6.6.4).
- Disconnect the Bowden cable at the set screw(1) and and at the caliper (2)
- Looosen the Allen bolt (3, size 5 mm) and remove the caliper.
- Pull the brake disk off the drive shaft.

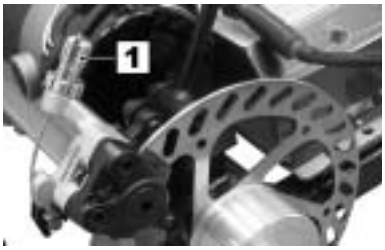
Reassembly takes place in reverse order.

11.2 Replacing the brake lining

- Remove the caliper (see chapter 11.1).
- Remove the safety clip (1) and unscrew the guide screw (2, size 3 mm).
- Pull the break lining with the spring element downwards out of the caliper.
- Put the brake lining (3) and spring element (4) together and insert into the caliper.
  Ensure the spring is seated correctly!
- Screw in the guide screw (2), clip on the safety clip (1) and assemble the caliper.
  Always use a new safety clip!

Reassembly takes place in reverse order to that given in chapter 11.1.

11.3 Adjusting the handbrake



Handbrake adjustment takes place using the set screws on the caliper (1) and on the handle (2).
Carry out basic adjustments using the set screw on the caliper (1).
The top part of the operating unit must be removed in order to adjust the set screw on the handle (see chapter 9.9).

Checks after adjustment:
- Correct brake lever locking function (see operating manual).
- Free movement of drive wheels when handbrake released.
- Correct braking effect of handbrake.