Invacare® Comet® Series

Comet^{PRO}, Comet$^{ALPINE+}$, Comet^{ULTRA}

en **Scooter**
User Manual

This manual MUST be given to the user of the product.
BEFORE using this product, this manual MUST be read and saved for future reference.

INVACARE®

Yes, you can.®

Contents

1 General

1.1 Introduction

This user manual contains important information about the handling of the product. To ensure safety when using the product, read the user manual carefully and follow the safety instructions.

Only use this product if you have read and understood this manual. Seek additional advice from a healthcare professional who is familiar with your medical condition and clarify any questions regarding the correct use and necessary adjustment with the healthcare professional.

Note that there may be sections in this document, which are not relevant to your product, since this document applies to all available models (on the date of printing). If not otherwise stated, each section in this document refers to all models of the product.

The models and configurations available in your country can be found in the country-specific sales documents.

Invacare reserves the right to alter product specifications without further notice.

Before reading this document, make sure you have the latest version. You find the latest version as a PDF on the Invacare website. Previous product versions may not be described in this Manual's current revision. If you require assistance, please contact Invacare.

If you find that the font size in the printed document is difficult to read, you can download the PDF version from the website. The PDF can then be scaled on screen to a font size that is more comfortable for you.

For more information about the product, for example product safety notices and product recalls, contact your Invacare distributor. See addresses at the end of this document.

In case of a serious incident with the product, you should inform the manufacturer and the competent authority in your country.

1.2 Symbols in This Manual

Symbols and signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. This document is printed in greyscale. For your information, the safety messages have the following colour coding according to ANSI Z535.6: Danger (Red), Warning (Orange), Caution (Yellow) and Notice (Blue). See the information below for definitions of the signal words.

DANGER!
Indicates a hazardous situation that will result in serious injury or death if it is not avoided.

WARNING!
Indicates a hazardous situation that could result in serious injury or death if it is not avoided.

CAUTION!
Indicates a hazardous situation that could result in minor or slight injury if it is not avoided.

NOTICE!
Indicates a hazardous situation that could result in damage to property if it is not avoided.

Tips and Recommendations
Gives useful tips, recommendations, and information for efficient, trouble-free use.

Tools
Identifies required tools, components and items which are needed to carry out certain work.

Other Symbols

UKRP **UK Responsible Person**
Indicates if a product is not manufactured in the UK.

1.3 Compliance

Quality is fundamental to the company's operation, working within the disciplines of ISO 13485.

This product features the CE mark, in compliance with the Medical Device Regulation 2017/745 Class I.

This product features the UKCA mark, in compliance with Part II UK MDR 2002 (as amended) Class I.

We are continuously working towards ensuring that the company's impact on the environment, locally and globally, is reduced to a minimum.

We only use REACH compliant materials and components.

We comply with the current environmental legislations WEEE and RoHS.

1.3.1 Product-Specific Standards

The product has been tested and conforms to EN 12184 (Electrically powered scooters, scooters and their chargers) and all related standards.

When equipped with an appropriate lighting system, the product is suitable for use on public roads.

For further information about local standards and regulations, contact your local Invacare distributor. See addresses at the end of this document.

1.4 Usability

Only use a scooter when it is in perfect working order. Otherwise, you might put yourself and others at risk.

The following list does not claim to be exhaustive. It is only intended to show some of the situations that could affect the usability of your scooter.

In certain situations, you should immediately stop using your scooter. Other situations allow you to use the scooter to get to your provider.

You should immediately stop using your scooter if its usability is restricted due to:

- Unexpected driving behaviour
- brake failure

You should immediately contact an authorised Invacare provider if the usability of your scooter is restricted due to:

- the lighting system (if fitted) failing or being defective
- reflectors falling off
- worn thread or insufficient tire pressure
- damage to the armrests (e.g. torn armrest padding)
- damage to the legrest hangers (e.g. missing or torn heel straps)
- damage to the postural belt
- damage to the joystick (joystick cannot be moved into the neutral position)
- cables that are damaged, kinked, pinched or have come loose from the fixation

- the scooter drifting when braking
- the scooter pulling to one side when moving
- unusual sounds developing or occurring

Or if you have the feeling that something is wrong with your scooter.

1.5 Warranty Information

We provide a manufacturer's warranty for the product in accordance with our General Terms and Conditions of Business in the respective countries.

Warranty claims can only be made through the provider from whom the product was obtained.

1.6 Service Life

We estimate a service life of five years for this product, provided it is used in strict accordance with the intended use as set out in this document and all maintenance and service requirements are met. The estimated service life can be exceeded if the product is carefully used and properly maintained, and provided technical and scientific advances do not result in technical limitations. The service life can also be considerably reduced by extreme or incorrect usage. The fact that we estimate a service life for this product does not constitute an additional warranty.

1.7 Limitation of Liability

Invacare accepts no liability for damage arising from:

- Non-compliance with the user manual
- Incorrect use
- Natural wear and tear
- Incorrect assembly or set-up by the purchaser or a third party
- Technical modifications
- Unauthorised modifications and/or use of unsuitable spare parts

2 Safety

2.1 General Safety Notes

WARNING!
Risk of Serious Injury or Damage
Improper use of this product may cause injury or damage.
- If you are unable to understand the warnings, cautions or instructions, contact a health care professional or provider before attempting to use this equipment.
- Do not use this product or any available optional equipment without first completely reading and understanding these instructions and any additional instructional material such as user manual, service manual or instruction sheet supplied with this product or optional equipment.

DANGER!
Risk of Death, Serious Injury, or Damage
Lighted cigarettes dropped onto an upholstered seating system can cause a fire resulting in death, serious injury, or damage. Power scooter occupants are at particular risk of death or serious injury from these fires and resulting fumes because they may not have the ability to move away from the scooter.
- DO NOT smoke while using this scooter.

WARNING!
Risk of Serious Injury or Damage
Storing or using the scooter near open flame or combustible products can result in serious injury or damage.
- Avoid storing or using the scooter near open flame or combustible products.

WARNING!
Risk of damage or injury if scooter is accidentally set into motion
- Switch the scooter off before you get in, get out or handle unwieldy objects.
- When the drive is disengaged, the brake inside the drive is deactivated. For this reason, pushing the scooter by an attendant is only recommended on flat surfaces, never on gradients. Never leave your scooter on a gradient with its motors disengaged. Always re-engage the motors immediately after pushing the scooter (refer to *6.6.1 Disengaging / Engaging Motor, page 40*).

WARNING!
Risk of Injury, Damage or Death
Improper monitoring or maintenance may cause injury, damage or death due to ingestion or choking on parts or materials.
- Closely supervise children, pets, or people with physical and/or mental disabilities.

WARNING!
Risk of Death, Serious Injury or Damage
Risk of entrapment and strangulation when loose personal belongings (e.g. jewellery, scarfs) get caught by moving or protruding parts.
- Make sure that any loose items are clear of moving parts of the scooter, e.g. wheels or powered seating components.
- Keep your hands, clothing and all other objects away from wheels or powered seating components when they are in operation.
- Power off scooter immediatley to stop any movement.

WARNING!
Risk of Death, Serious Injury or Damage
Improper routing of cables may cause a tripping entanglement or strangulation hazard that may result in death, serious injury or damage.
- Ensure all cables are routed and secured properly.
- Ensure there are no loops of excess cable extending away from the scooter.

WARNING!
Risk of injury if the scooter is driven when ability to operate a vehicle is impaired by medication or alcohol
- Never drive the scooter under the influence of medication or alcohol. If necessary, the scooter must be operated by an attendant who is physically and mentally able.

WARNING!
Risk of injury if the scooter is switched off while driving, for example by pressing the On/Off Button or disconnecting a cable, due to it coming to an abrupt, sharp stop
- If you have to brake in an emergency, simply release the joystick which will bring you to a halt (refer to the remote user manual for more information).

WARNING!
Risk of injury if the scooter is transported into a vehicle with the user sitting in it
- Never transport the scooter with the user sitting in it.

WARNING!
Risk of falling out of the scooter
- If a posture belt is installed, it should be correctly adjusted and used each time you use the scooter.

CAUTION!
Risk of injury if maximum permissible load is exceeded
- Do not exceed the maximum permissible load (refer to *12.1 Technical Specifications, page 57*).
- The scooter is only designed for use by a single occupant whose maximum weight does not exceed the maximum permissible load of the device. Never use the scooter to transport more than one person.

CAUTION!
Risk of injury due to wrong lifting or dropping of heavy components
— When maintaining, servicing or lifting any part of your scooter, take into account the weight of the individual components especially the batteries. Be sure at all times to adopt the correct lifting posture and ask for assistance if necessary.

CAUTION!
Risk of injury by moving parts
— Make sure that no injury is incurred by moving parts of the scooter, like wheels or one of the lifter modules (if fitted), especially when children are around.

CAUTION!
Risk of injury from hot surfaces
— Do not leave the scooter in direct sunlight for prolonged periods. Metal parts and surfaces such as the seat and armrests can become very hot.

CAUTION!
Risk of fire or breaking down due to electric devices being connected
— Do not connect any electric devices to your scooter that are not expressly certified by Invacare for this purpose. Have all electrical installations done by your authorised Invacare provider.

2.2 Safety Information for the Electrical System

WARNING!
Risk of death, serious injury or damage
Misuse of the scooter may cause the scooter to start smoking, sparking, or burning. Death, serious injury, or damage may occur due to fire.
— DO NOT use the scooter other than its intended purpose.
— If the scooter starts smoking, sparking, or burning, discontinue using the scooter and seek service IMMEDIATELY.

WARNING!
Risk of death or serious injury
Electric shock can cause death or serious injury
— To avoid electric shock, inspect plug and cord for cuts and/or frayed wires. Replace cut cords or frayed wires immediately.

WARNING!
Risk of death or serious injury
Failure to observe these warnings can cause an electrical short resulting in death, serious injury, or damage to the electrical system.
— The POSITIVE (+) RED battery cable MUST connect to the POSITIVE (+) battery terminal(s) / post(s).
— The NEGATIVE (-) BLACK battery cable MUST connect to the NEGATIVE (-) battery terminal(s) / post(s).

- NEVER allow any of your tools and/or battery cable(s) to contact BOTH battery post(s) at the same time. An electrical short may occur and serious injury or damage may occur.
- Install protective caps on positive and negative battery terminals.
- Replace cable(s) immediately if cable(s) insulation becomes damaged.
- DO NOT remove fuse or mounting hardware from POSITIVE (+) red battery cable mounting screw.

WARNING!
Risk of death, serious injury, or damage
Corroded electrical components due to water or liquid exposure can result in death, serious injury, or damage.
- Minimize exposure of electrical components to water and/or liquids.
- Electrical components damaged by corrosion MUST be replaced immediately.
- Power scooters that are frequently exposed to water / liquids may require replacement of electrical components more frequently.

WARNING!
Risk of fire
Switched on lamps produce heat. If you cover the lamps with fabrics such as clothes, there is a risk that the fabric may catch fire.
- NEVER cover the light system with fabric.

WARNING!
Risk of death, serious injury or damage when carrying along oxygen systems
Textiles and other materials that normally would not burn are easily ignited and burn with great intensity in oxygen enriched air.
- Check the oxygen tubing daily, from the cylinder to the delivery site, for leaks and hold away from electrical sparks and any source of ignition.

WARNING!
Risk of injury or damage due to electrical shorts
Connector pins on cables connected to the power module can still be live even when the system is off.
- Cables with live pins should be connected, restrained or covered (with non-conductive materials) so that they are not exposed to human contact or materials that could cause electrical shorts.
- When cables with live pins have to be disconnected, for example, when removing the bus cable from the remote for safety reasons, make sure to restrain or cover the pins (with non-conductive materials).

NOTICE!
A failure in the electric system can lead to unusual behavior such as continuous light, no light, or noises from the magnetic brakes.
- If a failure exists, switch off the remote and switch it on again.

! — If a failure still exists, then disconnect or remove the power source. Depending on the scooter model, you can either remove the battery packs or disconnect the batteries from the power module. If in doubt which cable to disconnect, contact your provider.
— In any case, contact your provider.

2.3 Safety Information for Electromagnetic Interference

This powered scooter was successfully tested in accordance with International standards as to its compliance with Electromagnetic Interference (EMI) regulations. However, electromagnetic fields, such as those generated by radio and television transmitters, and cellular phones can influence the functions of powered scooters.

Also, the electronics used in our scooters can generate a low level of electromagnetic interference, which however will remain within the tolerance permitted by law. For these reasons we ask you to please observe the following precautions:

⚠ **WARNING!**
Risk of malfunction due to electromagnetic interference
— Do not switch on or operate portable transceivers or communication devices (such as radio transceivers or cellular phones) when the scooter is switched on.
— Avoid getting near strong radio and television transmitters.
— In case the scooter should be set in motion unintentionally or the brakes are released, switch it off immediately.

⚠ — Adding electrical accessories / options and other components or modifying the scooter in any way can make it susceptible to electromagnetic interference. Keep in mind that there is no sure way to determine the effect such modifications will have on the overall immunity of the electronic system.
— Report all occurrences of unintentional movement of the scooter, or release of the electric brakes to the manufacturer.

2.4 Safety Information for Driving and Freewheel Mode

⚠ **WARNING!**
Risk of injury if the scooter tips over
— Inclines and declines can only be travelled up to the maximum safe slope (refer to *12.1 Technical Specifications, page 57*).
— Only ever drive downhill at a maximum of 2/3 of the top speed.
— Avoid abrupt braking or accelerating on gradients.
— If at all possible, avoid driving on wet, slippery, icy, or oily surfaces (such as snow, gravel, ice etc.) where there is a risk of you losing control over the vehicle, especially on a gradient. This may include certain painted or otherwise treated wood surfaces. If driving on such a surface is inevitable, then always drive slowly and with the utmost caution.
— Never attempt to overcome an obstacle when on an uphill or downhill gradient.
— Never attempt to drive up or down a flight of steps with your scooter.

- When overcoming obstacles, always observe the maximum obstacle height and information about overcoming obstacles (refer to *12.1 Technical Specifications, page 57*).
- Never use the scooter to transport more than one person.
- Do not exceed the overall maximum permissible load (refer to *12.1 Technical Specifications, page 57*).
- When loading the scooter, always distribute the weight evenly. Always try to keep the center of gravity of the scooter in the middle, and as close to the ground as possible.
- Note that the scooter will brake or accelerate if you change the driving mode whilst the scooter is in motion.

WARNING!
Risk of injury if you collide with an obstacle when driving through narrow passages such as doorways and entrances

- Drive through narrow passages in the lowest driving mode and with due caution.

WARNING!
The center of gravity of the scooter is higher than that of a power wheelchair.

There is an increased tipping risk when negotiating bends.

- Reduce speed before negotiating bends. Only accelerate when you have come out of the bend.
- Be aware that the seat height strongly influences the center of gravity. The higher the seat height, the higher the risk of tipping.

WARNING!
Risk of tipping

Antitippers (stabilizers) are only effective on firm ground. They sink in on soft ground such as grass, snow or mud if the scooter rests itself on them. They lose their effect and the scooter can tip over.

- Only drive with extreme care on soft ground, especially during uphill and downhill journeys. In the process pay increased attention to the tip stability of the scooter.

2.5 Safety Information for Care and Maintenance

WARNING!
Risk of death, serious injury, or damage
Incorrect repair and/or servicing of this scooter performed by users/caregivers or unqualified technicians can result in death, serious injury, or damage.
- DO NOT attempt to carry out maintenance work that is not described in this user manual. Such repair and/or service MUST be performed by a qualified technician. Contact a provider or Invacare technician.

CAUTION!
Risk of accident and loss of warranty if maintenance is insufficient
- For reasons of safety and in order to avoid accidents which result from unnoticed wear, it is important that this scooter undergoes an inspection once every year under normal operating conditions (see inspection plan contained in service instructions).
- Under difficult operating conditions such as daily travel on steep slopes, or in the case of use in medical care cases with frequently changing scooter users, it would be expedient to carry out intermediate checks on the brakes, accessories / options and running gear.
- If the scooter is to be operated on public roads, the vehicle driver is responsible for ensuring that it is in an operationally reliable condition. Inadequate or neglected care and maintenance of the scooter will result in a limitation of the manufacturer's liability.

2.6 Safety Information for Changes and Modifications to the Scooter

CE marking of the scooter:

- The conformity assessment / CE marking was carried out according to the respective valid regulations and only applies to the complete product.
- The CE marking is invalidated if components or accessories / options are replaced or added that have not been approved for this product by Invacare.
- In this case, the company that adds or replaces the components or accessories / options is responsible for the conformity assessment / CE marking or for registering the scooter as a special design and for the relevant documentation.

WARNING!
Risk of serious injury or damage
Use of incorrect or improper replacement (service) parts may cause injury or damage
- Replacement parts MUST match original Invacare parts.
- Always provide the scooter serial number to assist in ordering the correct replacement parts.

CAUTION!
Risk of injuries and damage to scooter due to unapproved components and accessories / options
Seating systems, additions and accessories / options which have not been approved by Invacare for use with this scooter can affect the tipping stability and increase tipping hazards.
— Only ever use seating systems, additions and accessories / options which have been approved by Invacare for this scooter.
Seating systems which are not approved by Invacare for use with this scooter do not, under certain circumstances, comply with the valid standards and could increase the flammability and the risk of skin irritation.
— Only use seating systems that have been approved by Invacare for this scooter.

CAUTION!
Risk of injuries and damage to scooter due to unapproved components and accessories / options
Electrical and electronic components which have not been approved by Invacare for use with this scooter can cause fire hazards and lead to electromagnetic damage.
— Only ever use electrical and electronic components which have been approved by Invacare for this scooter.
Batteries which have not been approved by Invacare for use with this scooter can cause chemical burns.
— Only ever use batteries which have been approved by Invacare for this scooter.

Important information about maintenance work tools
Some maintenance work which is described in this manual and can be carried out by the user without problems require the correct tools for proper work. If you do not have the correct tool available we do not recommend that you try to carry out the relevant work. In this case, we urgently recommend that you contact an authorised specialist workshop.

3 Components

3.1 Intended Use

3.1.1 Product Description

The Invacare Comet Series is made with powerful outdoor capabilities, combined with advanced safety features, comfort and options. This ensures a quick, robust, and reliable drive. For more information about the specific characteristics of the respective model, refer to *12.1 Technical Specifications, page 57*.

3.1.2 Intended User

This scooter was designed for adults and adolescents whose ability to walk is impaired, but who are still in terms of their eyesight and physically and mentally able to operate an electric scooter.

3.1.3 Indications

The use of this scooter is recommended for the following indications:

- whose ability to walk is impaired, or
- whose balance is impaired, or
- who cannot walk long distances, or
- who cannot drive vehicles such as cars, bikes or mopeds.

The user must have enough upper body strength to sit on a scooter seat. The user must be able to properly operate an electromotive drive unit.

Contraindications

There are no contraindications known.

3.2 Type Classification

This vehicle has been classified according to EN 12184 as a **class C mobility product** (outdoors). Because of its size it is less suitable for use in indoor environments, but has a longer driving range and the ability to overcome larger and more difficult obstacles in outdoor settings.

3.3 Main Parts of the Scooter

Ⓐ	Disengaging lever
Ⓑ	Sliding seat rail lever (right below seat)
Ⓒ	Seat lock lever (left below seat)
Ⓓ	Transport fixation hooks

Ⓔ	Keyswitch (ON/OFF)
Ⓕ	Operating console
Ⓖ	Brake lever (right handed)
Ⓗ	Steering column adjustment lever

3.4 Operating Console Arrangement (LED Console)

For more information about using the operating console, refer to *6.5.2 Using Operating Console, page 38*.

Ⓐ	Status display, refer to *3.5.1 Status Display, page 18*
Ⓑ	Switching on/off curve control (reduction of speed when driving in a curve)
Ⓒ	Hazard lights
Ⓓ	Horn
Ⓔ	Left-hand direction indicator
Ⓕ	Speed control dial
Ⓖ	Right-hand direction indicator
Ⓗ	Lighting
Ⓘ	Low speed mode
Ⓙ	Drive lever

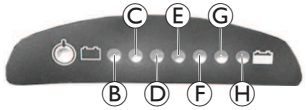
3.4.1 Status Display

The ON/OFF LED Ⓐ is used as a fault display (status display). It will flash if there is a problem with the scooter. The number of flashes indicates the type of error, refer to *10.1.2 Error Codes and Diagnostic Codes, page 54*.

3.4.2 Battery Indication Gauge

Low battery indication: Every time the scooter is activated or at work when battery capacity is lower than 25%, the electronic system will beep three times.

Overdischarge protection: After a certain drive time on reserve battery power the electronic system switches the drive off automatically and brings the scooter to a standstill. If you do not drive your scooter for a while the batteries will "recuperate" and allow a further, but short, journey. However, after a very brief journey the battery reserve symbol will illuminate again and the electronic system will beep three times. This procedure leads to battery damage and should be avoided if possible!



Battery Capacity	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ
>80 %	☼	☼	☼	☼	☼	☼	☼
<80 %	☼	☼	☼	☼	☼	☼	
<65 %	☼	☼	☼	☼	☼		
<50 %	☼	☼	☼	☼			
<35 %	☼	☼	☼				
<25 %	☼	☼					
<20 %	☼						

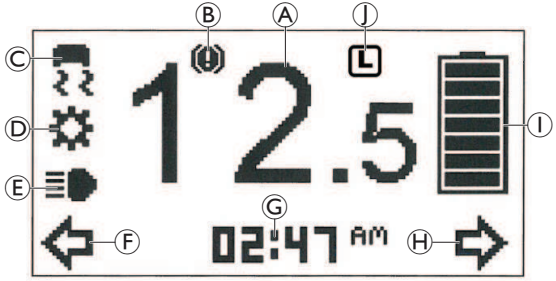
Battery capacity: <25 %	Reduced driving range. Recharge the batteries at the end of your journey
Battery capacity: <20 %	Battery reserve = severely restricted driving range. Recharge batteries immediately!

3.5 Operating Console Arrangement (LCD Console)

For more information about using the operating console, refer to *6.5.2 Using Operating Console, page 38*.

Ⓐ	Status display, refer to *3.5.1 Status Display, page 18*
Ⓑ	Switching on/off curve control (reduction of speed when driving in a curve)
Ⓒ	Hazard lights
Ⓓ	Horn
Ⓔ	Left-hand direction indicator
Ⓕ	Speed control dial
Ⓖ	Right-hand direction indicator
Ⓗ	Lighting
Ⓘ	Low speed mode
Ⓙ	Settings
Ⓚ	Drive lever

3.5.1 Status Display



Ⓐ	Speed indication
Ⓑ	Fault indication
Ⓒ	Curve control indication
Ⓓ	Maintenance indication[1]
Ⓔ	Head light indication
Ⓕ	Left turn indication
Ⓖ	Modes shown: ODO, TRIP, TEMP, TIME
Ⓗ	Right turn indication
Ⓘ	Battery status
Ⓙ	Low speed selection indication

1 If this symbol starts flashing for one minute every time the scooter is switched on, contact your provider.

3.5.2 Battery Indication Gauge

Low battery indication: Every time the scooter is activated or at work when battery capacity is lower than 25%, the electronic system will beep three times.

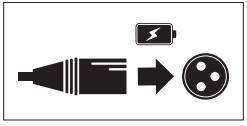
Overdischarge protection: After a certain drive time on reserve battery power the electronic system switches the drive off automatically and brings the scooter to a standstill. If you do not drive your scooter for a while the batteries will "recuperate" and allow a further, but short, journey. However, after a very brief journey the battery reserve symbol will illuminate again and the electronic system will beep three times. This procedure leads to battery damage and should be avoided if possible!

						
>80 %	<80 %	<65 %	<50 %	<35 %	<25%	<20 %

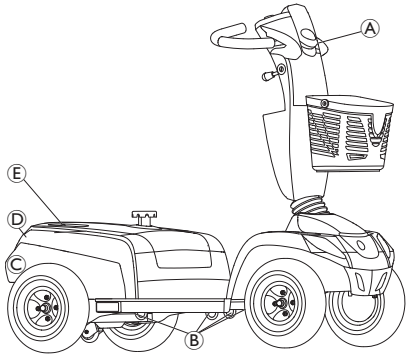
Battery capacity: <25 %	Reduced driving range. Recharge the batteries at the end of your journey
Battery capacity: <20 %	Battery reserve = severely restricted driving range. Recharge batteries immediately!

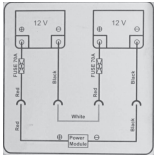
Charging Overlay

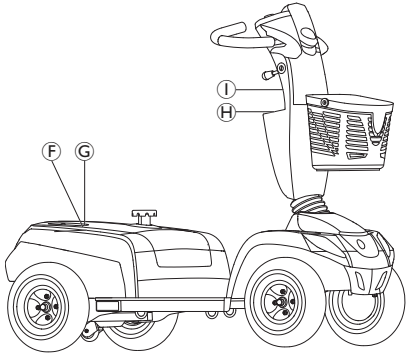
As soon as the battery capacity is under 25% and the scooter is switched off, an overlay appears for several seconds on the status display as a reminder to charge the scooter.



3.6 Labels on the Scooter



Ⓐ		Identification of charger socket (left-hand side of steering column, not visible in picture).
Ⓑ	 *The colour of the symbol background is yellow on product labels.*	The product needs to be tied down at indicated anchor points with a lashing system during transport..
Ⓒ		Battery label under shroud.
Ⓓ		Identification label sticker. For details see below.
Ⓔ		Disengaging lever label indicating “Push” and “Drive” position of lever. For details see below.



Ⓕ	Comet HD	Identification of HD version (CometHD only).
Ⓖ		Identification of the position of the springs on the chassis at the rear (CometHD only).
Ⓗ	 *The colour of the symbol background is blue on product labels.* *The colour of the circle with diagonal bar is red on product labels.*	Warning that the scooter may not be used as a vehicle seat. This scooter does not satisfy the requirements of ISO 7176-19.
Ⓘ	 *The colour of the rectangle and diagonal bars is red on product labels.*	Warning that the lever for adjusting the steering column may not be used as a hook.
Ⓘ	zeta Connectivity Ready *The color of the symbol is blue on product labels.*	The scooter is compatible with the Zeta™ connectivity kit from Invacare.

Explanation of Symbols on Labels

	This symbol indicates the “Drive” position of the coupling lever. In this position the motor is engaged and the motor brakes are operational. You can drive the scooter.		Medical device
	This symbol indicates the “Push” position of the coupling lever. In this position the motor is disengaged and the motor brakes are not operational. The scooter can be pushed the wheels turn freely.		Date of manufacture
	Manufacturer		European Representative
	Unique Device Identifier		Swiss Representative
	Maximum speed		European Conformity
	Rated slope		Read the user manual
	Maximum user weight		UK Conformity Assessed
	Unladen weight		Caution

4 Accessories / Options

4.1 Posture Belts

A posture belt is an option which can either be fixed to the scooter ex-works or can be retrofitted by your specialist provider. If your scooter is fitted with a posture belt, your specialist provider will have informed you about fitting and usage.

The posture belt is used to help the scooter user keep an optimum seating position. Correct use of the belt assists the user in sitting securely, comfortably and well-positioned in the scooter, especially for such users who do not have such a good sense of balance while sitting.

We recommend using the posture belt whenever the scooter is used.

4.1.1 Types of Posture Belts

Your scooter can be fitted with the following posture belt types ex-works. If your scooter has been fitted with a different belt to those listed below, please ensure that you have received the manufacturer's documentation with regard to correct fitting and use.

Belt with Metal Buckle, Adjustable One Side

The belt can only be adjusted on one side which can result in the buckle not sitting centrally.

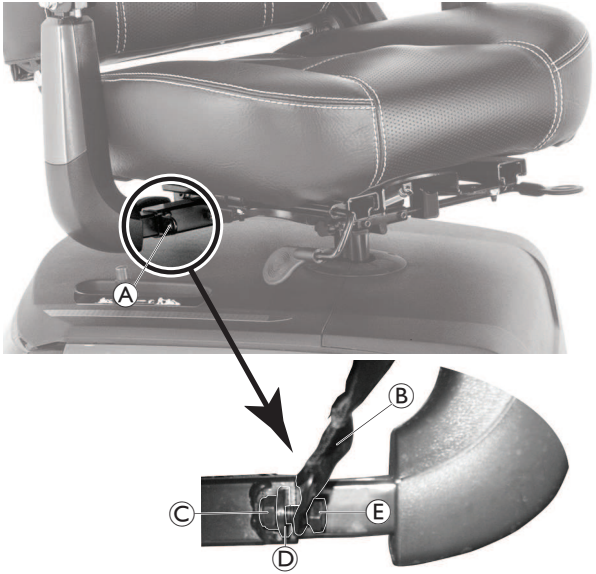
4.1.2 Adjusting Posture Belt Correctly

The belt should be tight enough to ensure that you are sitting comfortably and that your body is in the correct sitting position.

1. Ensure that you are sitting correctly, which means that you are sitting right at back of seat, your pelvis is positioned erect and as symmetrically as possible, not to front, to side or at one edge of seat.
2. Position posture belt so that your hipbones can be easily felt above belt.
3. Adjust belt length using one of adjustment aids described above. The belt should be adjusted so that you can fit a flat hand between belt and your body.
4. Buckle should be positioned as centrally as possible. In doing so, carry out adjustments on both sides as much as possible.
5. Check your belt every week to ensure that it is still in good working condition, to ensure it has no damage or wear, and that it is fixed properly to scooter. If belt is only fastened with a bolted connection, ensure that connection has not loosened or come undone. You can find more information about maintenance work on belts in the service manual, which is available trough Invacare.

4.1.3 Installing Posture Belt

- 12 mm wrench



1. Locate the mounting bracket Ⓐ below the seat on the seat frame near the armrest.
2. Secure one side of the posture belt Ⓔ to the mounting bracket, using the bolt Ⓕ and nut Ⓖ.

   The nut should point towards the centre of the scooter.
3. Repeat STEPS 1 and 2 on the opposite side of the seat.

4.2 Rollator Bracket

Your scooter can be fitted with an optional rollator bracket. The maximum permitted rollator weight is 9 kg.

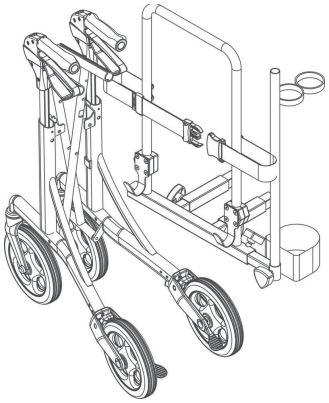
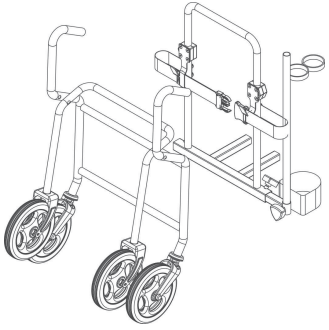
NOTICE!
Transporting anything but a rollator can damage the rollator bracket.
— Transport only rollators and nothing else.

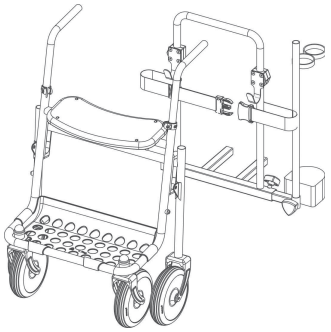
Only the following rollators have been approved by Invacare to be transported, using this rollator bracket:

- Dolomite Jazz 600
- Dolomite Legacy 600
- Invacare Banjo P452E/3

CAUTION!
Risk of tipping as a result of altered center of gravity
The center of gravity of the scooter shifts towards the back as a result of attaching the rollator. The maximum safe angle of incline is thereby reduced by up to 2°.
— Note that gradients that you would normally be able to negotiate may now be too steep and the scooter could tip. Do not attempt to climb or descend such gradients.

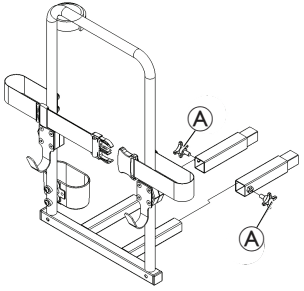
4.2.1 Attaching the Rollator

Dolomite Jazz 600 	
Dolomite Legacy 600 	

Invacare Banjo P452E/3 	

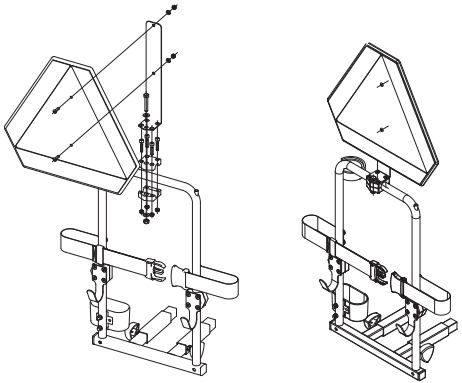
4.2.2 Removing Rollator Bracket

1. Loosen the hand screws Ⓐ.
2. Pull the rollator bracket out of the seat frame.



4.2.3 Positioning the Rear Reflector

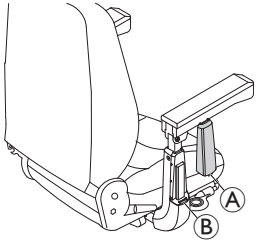
CAUTION!
Risk of accident due to poor visibility
If you wish to use your scooter on public roads and a rear reflector is required by national legislation, then the rollator bracket may not cover the rear reflector.
— Make sure that the rear reflector is mounted in such a way that a sufficient amount of the reflective area is visible.



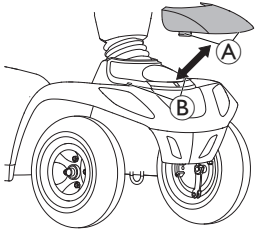
1. Position the rear reflector as shown in the graphic.

4.3 Changing Coloured Shrouds

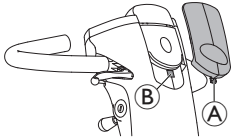
It is possible to change the color of your scooter by replacing the colored shrouds.



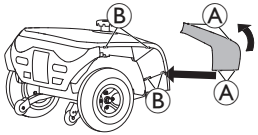
Changing the armrest shroud



Changing the front shroud



Changing the head shroud



Changing the rear side shroud

1. Remove the existing shrouds carefully.
2. Place the plastic nose Ⓐ into the intended holes Ⓑ and click in the new shrouds.

5 Setup

5.1 General Setup information

WARNING!
Risk of death, serious injury, or damage
Continued use of the scooter that is not set to the correct specifications may cause erratic behavior of the scooter resulting in death, serious injury, or damage.
- Performance adjustments should only be made by professionals of the healthcare field or persons fully conversant with this process and the driver's capabilities.
- After the scooter has been set-up/adjusted, check to make sure that the scooter performs to the specifications entered during the set-up procedure. If the scooter does not perform to specifications, IMMEDIATELY turn the scooter Off and re-enter set-up specifications. Contact Invacare, if scooter still does not perform to correct specifications.

WARNING!
Risk of death, serious injury, or damage
Attaching hardware that is loosely secured or missing could cause instability resulting in death, serious personal injury, or property damage.
- After ANY adjustments, repair or service and before use, make sure that all attaching hardware is present and tightened securely.

WARNING!
Risk of injury or damage
Incorrect set up of this scooter performed by users / caregivers or unqualified technicians can result in injury or damage.
- DO NOT attempt to set up this scooter. Initial set up of this scooter MUST be performed by a qualified technician.
- Adjustment by the user is only recommended after they have been given appropriate guidance by the healthcare professional.
- DO NOT attempt to carry out the work if you do not have the listed tools available.

CAUTION!
Damage to scooter and accident hazard
It is possible that collisions can occur between scooter components due to various combinations of adjustment options and their individual settings
- The scooter is fitted with an individual, multiply adjustable seating system including adjustable legrests, armrests, a headrest or other options. These adjustment options are described in the following chapters. They are used to adapt the seat to the physical requirements and the condition of the user. When adapting the seating system and the seat functions to the user, ensure that no scooter components collide.

Initial setup should always be done by a healthcare professional. Adjustment by the user is only recommended after they have been given appropriate guidance by the healthcare professional.

Note that there may be sections in this user manual, which are not relevant to your product, since this manual applies to all existing modules (on the date of printing).

5.2 Adjusting the Seat

5.2.1 Adjusting Seat Position

The seat position lever is located on the right side of the seat.

1. Pull the seat position lever Ⓐ to disengage the seat.
2. Slide the seat forward or rearward into the desired position.
3. Release the lever to lock the seat in the desired position.

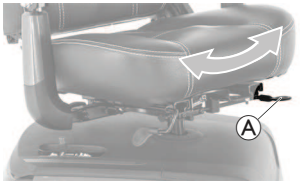
5.2.2 Swivel Seat

WARNING!
Risk of injury or damage
— Ensure that seat is locked into the forward position before and during operation of the scooter. Otherwise, injury to the user and/or damage to the scooter may result.

NOTICE!
— Use the seat swivel option with caution when accessories are installed (such as safety flag, crutch/cane holder, etc.). Otherwise, damage to the scooter or property may occur.

1. Pull up the seat lock lever Ⓐ upwards to disengage the seat.
2. Swivel the seat Ⓑ to the desired position.
3. Release the seat lock lever to lock the seat in the desired position.

   Ensure that the seat is locked in the forward facing position before operating the scooter.



5.2.3 Removing / Installing the Seat

WARNING!
Risk of falling from the scooter
— Before use, ensure that the seat is in the locked position. The seat lever must be pulled up all the way to allow the seat to drop into the locked position. Otherwise, a fall from the scooter could occur causing bodily injury and/or damage to the scooter.

Removing

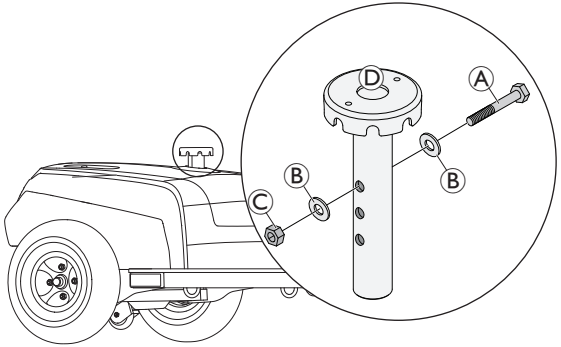
1. Pull up the seat lock lever Ⓐ upwards to disengage the seat.
2. Hold the seat firmly by the backrest and front edge and remove it upwards.

Installing

1. Lower the seat assembly onto the seat post.
2. Allow the seat to drop into the locked position.
3. Lift up on seat assembly to ensure the seat is secure.

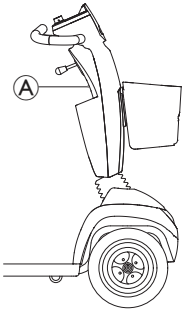
5.2.4 Adjusting the Seat Height

- 2x 17 mm open-ended spanner



1. Remove the seat, refer to *5.2.3 Removing / Installing the Seat, page 28*.
2. Remove the rear shroud by pulling it up to expose the seat post Ⓓ and mounting hardware.
3. Remove the locking bolt Ⓐ, washers Ⓑ and nut Ⓒ.
4. Pull the seat post Ⓓ out of the chassis to adjust the seat height with the three adjustment hole Ⓔ.
5. Replace the securing bolt and tighten.
6. Replace parts in reverse order.

Adjusting Seat Height via Lifter (Optional)



The rocker switch Ⓐ for adjusting the seat lifter is located on the steering column.

1. Press the switch up or down. The seat lifter raises or lowers.

5.3 Adjusting the Armrests

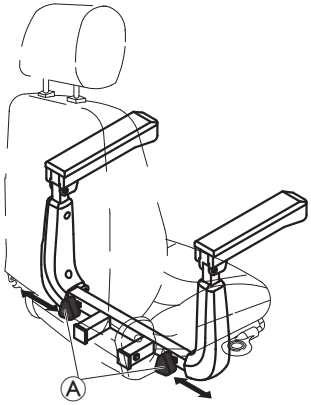
5.3.1 Adjusting the Armrest Width

WARNING!
Serious injury hazard if one of the armrests falls out of its bracket because they have been adjusted to a width which exceeds the permissible value

— The width adjustment is fitted with small stickers with markings and the word "STOP". The armrests must never be pulled out further than the point at which the word "STOP" is completely legible.

— Always tighten the fixing screws properly once adjustments have been completed.

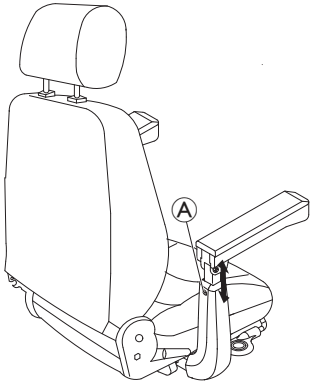
1. Turn the knobs Ⓐ to loosen the fixing for the armrest Ⓑ.
2. Adjust the armrests to the required width.
3. Retighten the knobs.



5.3.2 Adjusting Armrest Height

- Phillips screwdriver

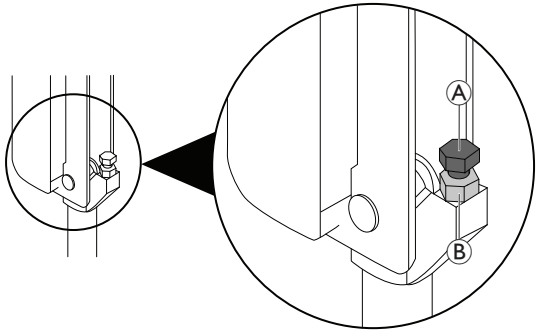
1. Loosen and remove the armrest fixing screw Ⓐ.
2. Adjust the armrests to the required height.
3. Insert the screw and tighten again.



5.3.3 Adjusting the Armrest Angle

CAUTION!
Pinch point may occur when adjusting the arm angle
— Pay attention to your fingers.

- 1/2” (13 mm) open-ended wrench

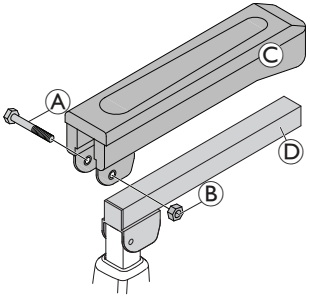


1. Lift up the armrest.
2. Loosen the jam nut Ⓐ.
3. Adjust the socket screw Ⓑ up or down to the desired angle.
4. Tighten the jam nut.
5. To determine the same angle for the opposite armrest, count the exposed threads after the jam nut has been tightened.
6. Repeat STEPS 1-4 for opposite armrest, if necessary.

5.3.4 Replacing Armrest Pads

- 2x 1/2” (13 mm) open-ended wrench

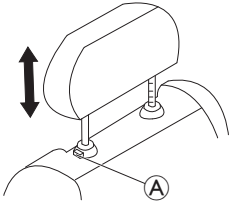
1. Remove screw Ⓐ and nut Ⓑ.
2. Remove the old armrest pad Ⓒ from the armrest tube Ⓓ.
3. Install the new armrest pad and securely tighten.
4. If necessary, repeat STEPS 1-3 to replace the other armrest pad.



5.4 Adjusting the Backrest

5.4.1 Adjusting the Headrest

1. To raise headrest, push the release button Ⓐ and lift headrest up to desired position.
2. To lower headrest, push the release button and lower headrest to the desired position.

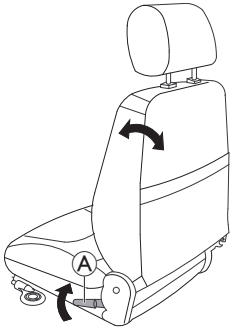


5.4.2 Adjusting the Backrest Angle

Comfort and Premium Seat

The lever Ⓐ for adjusting the backrest angle is located on the left of the seat.

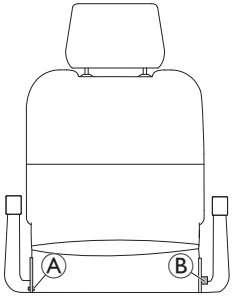
1. Pull lever and adjust backrest to desired angle by leaning forwards or backwards.



Standard Seat

- 5 mm Allen key
- 10 mm wrench

1. Remove screw Ⓐ on one side of the seat.
2. Set backrest to desired angle by selecting one of two holes in metal fixation plate.
3. Insert screw and tighten it.
4. Pull out pin Ⓑ and move backrest to desired angle. Pin snaps into place automatically.



5.4.3 Adjusting the Lordosis Support (Comet^{ULTRA} only)

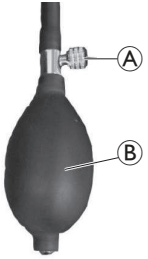
The lordosis support is the outward swell of the backrest which supports the lumbar region of the spine. You can regulate the strength of the outward swell using an air pump to fit it individually.

Increase Support

1. Ensure that the air vent screw Ⓐ is closed fully clockwise.
2. Pump air into the lordosis support using the rubber ball Ⓑ. The lordosis support will swell outwards more.

Decrease Support

1. Undo the air vent screw Ⓐ anticlockwise and allow air to escape out of the lordosis support. The lordosis support will swell outwards less.



5.5 Adjusting the Tiller Angle

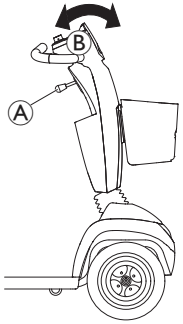
WARNING!
Risk of serious injury or damage

- Before performing any maintenance, adjustment or service, turn power Off and remove key from ignition.
- DO NOT hang items off of the tiller adjustment lever.
- Ensure that the tiller is properly adjusted before driving the scooter.
- After making any tiller angle adjustments and before use, the tiller MUST be securely locked into position. Otherwise, a fall from the scooter could occur causing bodily injury and/or damage to the scooter. Gently push or pull against tiller to ensure that the tiller is securely engaged into the adjustment plate.

The angle of the steering column can be adjusted to your personal requirements to ensure a good seating position while driving the scooter.

1. Push the tiller adjustment lever Ⓐ downwards.
2. Hold the tiller adjustment lever and move the tiller Ⓑ to the desired position.
3. Release the tiller adjustment lever.

The tiller adjustment lever automatically switches back to its position. The moment you release the tiller adjustment lever, the tiller is fixed.



5.6 Adjusting the Operating Console

The scooter controls can be programmed to emit an acoustic signal in the following situations:

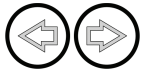
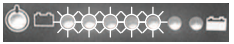
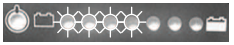
- Using the horn,
- battery capacity low (activated in delivery status),
- direction indicators activated (activated in delivery status),
- hazard lights activated (activated in delivery status) and
- reverse gear activated (both reverse gear and acoustic signal are activated in delivery status).

How to activate or deactivate the acoustic signals depends on the operating console type.
For more information about the LED console, refer to *5.6.1 Adjusting LED Console, page 33*.
For more information about the LCD console, refer to *5.6.2 Adjusting LCD Console, page 34*.

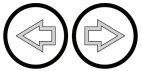
5.6.1 Adjusting LED Console

The volume of acoustic signals for turning, low battery, reversing and turned-on hazard lights can be adjusted.

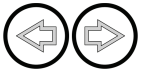
The Horn signal cannot be turned off.

Function	Reverse	Low Battery	Turn Indication	Hazard Lights Indication	Horn
Volume Setup Button					
Volume Indication	100%				
	80%				
	60%				
	40%				
	OFF				

Proceed as follows to adjust an acoustic signal for a particular function:

1. Turn off controls.
2. 

   Press and hold both direction indicator buttons.
3. Turn on controls.
4. 

   After two seconds LED Ⓐ flashes. Release both direction indicator buttons within ten seconds to enter setup mode.
5. Press depending Volume setup button (see *Volume Setup Button* in table).
   Acoustic signal is on.
6. Press Volume setup button to adjust volume (see *Volume Indication* in table).
7. 

   Press and hold both direction indicator buttons for two seconds to save settings.

   Alternative: Do not press any button for ten seconds to save settings.

5.6.2 Adjusting LCD Console

Adjusting Acoustic Signals

If your scooter is fitted with an LCD console, you can either activate, deactivate or change the volume of the acoustic signals.

1. Turn off controls.
2. 

   Press and hold both direction indicator buttons Ⓐ and Ⓑ.
3. Turn on controls.
4. The Buzzer Volume setup page illuminates after two seconds.
   a. Press Direction indicator buttons Ⓐ or Ⓑ for buzzer selection.
   b. Press Lighting button Ⓒ for decreasing volume.
   c. Press Low speed button Ⓓ for increasing volume.
   d. Press Setting button Ⓔ for saving and enter next setup page.

Adjusting Display Backlight

1. 

   Press Direction indicator buttons Ⓐ or Ⓑ to adjust display backlight intensity.
2. Press Setting button Ⓔ for saving and enter next setup page.

Adjusting Time Setup

1. 

   Press Direction indicator buttons Ⓐ or Ⓑ to adjust time setup.
2. Press Setting button Ⓔ for saving.

Adjusting Modes

You can adjust the modes to your requirement. For more information about the different modes, refer to *Switching between Modes (LCD Console only)* in *6.5.2 Using Operating Console, page 38*.

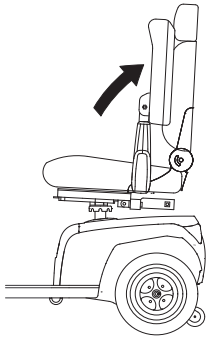
1. 

   Press the Setting button Ⓔ to choose the mode you want to adjust.
2. Press both Direction indicator buttons Ⓐ and Ⓑ for two seconds. Depending on the mode do one of the following:
   a. ODO mode: Press left Direction indicator button Ⓐ to select mile>>km>>hour.
   b. TRIP mode: Press both Direction indicator buttons Ⓐ and Ⓑ to reset last trip.
   c. TEMP mode: Press left Direction indicator button Ⓐ to select °C or °F.
   d. TIME mode: Press right Direction indicator button Ⓑto select hour or minute.
      Press left Direction indicator button Ⓐ to change time.
3. Wait 15 seconds or press any other button except for the Direction indicator buttons to save the settings.

6 Usage

6.1 Getting In and Out

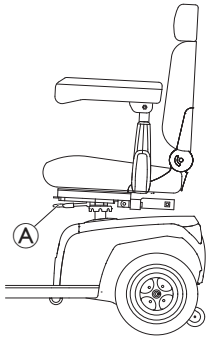
The armrest can be swiveled upwards to assist getting in and out.



The seat can also be rotated to assist getting in and out.

1. Pull up the seat lock lever Ⓐ upwards to disengage the seat.
2. Turn the seat to one side.

The seat lock lever automatically engages again in eighth-turns.



6.2 Before Driving for First Time

Before you take your first trip, you should familiarise yourself well with the operation of the scooter and with all operating elements. Take your time to test all functions and driving modes.

If installed, make sure to properly adjust and use the posture belt each time you use the scooter.

Sitting comfortably = Driving safely

Before each trip, make sure that:

- You are within easy reach of all operating controls.
- The battery charge is sufficient for the distance you intend to travel.
- The posture belt (if installed) is in perfect order.
- The rear mirror (if installed) is adjusted so you can look behind at all times without having to bend forward or shift your seating position.

6.3 Taking Obstacles

6.3.1 Maximum Obstacle Height

The maximum obstacle height is:

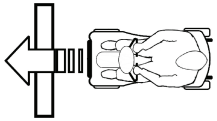
- 100 mm

For more information, refer to *12.1 Technical Specifications, page 57*.

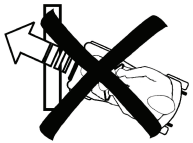
6.3.2 Safety Information when Ascending Obstacles

WARNING!
Risk of tipping over
- Never approach obstacles at an angle but at 90 degrees as shown below.
- Put your backrest into an upright position before climbing an obstacle.

6.3.3 The Correct Way to Overcome Obstacles



Right



Wrong

Ascending

1. Approach the curb or obstacle slowly head-on. Shortly before the front wheels touch the obstacle, increase the speed and reduce only after the rear wheels have also climbed the obstacle.

Descending

1. Approach the curb or obstacle slowly head-on. Before the front wheels touch the obstacle, reduce speed and keep it until also the rear wheels have come down off of the obstacle.

6.4 Driving Up and Down Gradients

The rated slope is 10° (17.6 %). For information concerning the rated slope, refer to *12.1 Technical Specifications, page 57*.

WARNING!
Risk of tipping over
- Only ever drive downhill at a maximum of 2/3 of the top speed.
- Avoid abrupt braking or accelerating on gradients.
- If at all possible, avoid driving on wet, slippery, icy, or oily surfaces (such as snow, gravel, ice etc.) where there is a risk of you losing control over the vehicle, especially on a gradient. This may include certain painted or otherwise treated wood surfaces. If driving on such a surface is inevitable, then always drive slowly and with the utmost caution.
- Avoid trying to get out of the scooter on an incline or a gradient.
- Always drive in a straight direction along the road or path you are travelling on, rather than attempting to zigzag.
- Never attempt to turn around on an incline or a slope.

CAUTION!
Braking distance is much longer on a downhill slope than on even terrain
- Never drive down a slope that exceeds the rated slope (refer to *12.1 Technical Specifications, page 57*).

6.5 Driving the Scooter

WARNING!
Risk of injury from the unintended rolling of the vehicle
When stopping the vehicle, the drive lever needs to return entirely to the middle position to activate the electromagnetic brakes. If there is any obstruction stopping the lever from returning to the middle position, the electromagnetic brakes cannot be activated. This can lead to the vehicle rolling unintentionally.
— Ensure that the drive lever is in the middle position, if the vehicle is to remain stationary.

1. Switch the power supply on (keyswitch).
   The operating console display illuminates. The scooter is ready to drive.

If the scooter is not ready to drive after switching on, check the status display (refer to *3.4.1 Status Display, page 16*, *3.5.1 Status Display, page 18* and *10.1.2 Error Codes and Diagnostic Codes, page 54*).

2. Set the required speed with the speed controller.
3. Pull the right-hand drive lever carefully to travel forwards.
4. Pull the left-hand drive lever carefully to travel in reverse.

The control system is programmed with standard values in the works. Your Invacare provider can carry out programming tailored to fit your requirements.

WARNING!
Any changes to the drive program can affect the driving characteristics and the tipping stability of the vehicle.
— Changes to the drive program may only be carried out by trained Invacare specialist providers.
— Invacare supplies all mobility products with a standard drive program ex-works. Invacare can only give a warranty for safe vehicle driving behavior - especially the tipping stability - for this standard drive program.

To brake quickly, simply let go of the drive lever. It will then automatically return to the middle position. The scooter will brake.
To brake in an emergency, follow the above and pull the handbrake lever until the scooter comes to a halt.

6.5.1 Use on Public Roads

The wheels may bear the note *Not For Highway Use*. However, the scooter may be used on all traffic routes for which it is approved in accordance with the relevant national legislation.

6.5.2 Using Operating Console

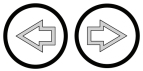
Switching Lights on and off

1. Press the Lighting button.
   The light is switched on or off.

When the light is switched on, the LED beside the button and the Light symbol in the LCD status display (if fitted) illuminate.

Switching Direction Indicators on and off

1. Press the left or right Direction indicator button. The depending direction indicator is switched on or off.



When the direction indicator is switched on, the LED beside the button and the Direction indicator symbol in the LCD status display (if fitted) illuminate. According to the setup an acoustic signal sounds. The direction indicator switches itself off automatically after 30 seconds.

Switching Hazard Lights on and off

1. Press the Hazard lights button. The hazard lights are switched on or off.

When the hazard lights are switched on, the LEDs beside the Direction indicator buttons and the Hazard light symbol in the LCD status display (if fitted) illuminate. According to the setup an acoustic signal sounds.

Using the Horn

1. Press the Horn button. An acoustic signal sounds.

Switching Low Speed Mode on and off

Your scooter is fitted with a low speed mode. This function lowers the scooter's speed.

1. Press the Low speed button. The low speed mode is switched on or off.

When the low speed mode is switched on, the LED beside the button and the Low speed symbol in the LCD status display (if fitted) illuminate.

Switching Curve Control on and off

If your scooter is fitted with automatic curve control it is activated as standard when the scooter is switched on. This function lowers the scooter's speed as soon as you start driving round a bend. It is primarily designed for inexperienced users who may feel unsure of the scooter's dynamic driving behavior in a bend. If, however, you are an experienced user, you may wish to deactivate this function. The system saves the last setting made.

You need to be aware that deactivating this function will lead to a different dynamic driving behavior. Be careful when driving round a bend.

Switching Curve Control off

1. Press the Curve control button for five seconds.

The LED beside the button and the Curve control symbol in the LCD status display (if fitted) illuminate. Curve control is deactivated.

Switching Curve Control on

1. Press the Curve control button.

The LED beside the button and the Curve control symbol in the LCD status display (if fitted) go out. Curve control is activated.

Switching between Modes (LCD Console only)

In the LCD status display you can switch between four different modes.

- ODO mode: Displays the total distance driven by the scooter.
- TRIP mode: Displays the distance, driven since the last reset.
- TEMP mode: Displays the surrounding temperature.
- TIME mode: Displays the time.

1. Press the Setting button to switch between the modes, shown in the display.

For more information about adjusting the modes, refer to *5.6.2 Adjusting LCD Console, page 34*.

6.6 Pushing Scooter by Hand

CAUTION!
Risk of Injury
The backrest may be freely movable and move forward unexpectedly when pushing the scooter.
— Do not use the backrest to push the scooter.

The motors of the scooter are fitted with automatic brakes, preventing the scooter from rolling away out of control when the power supply is turned off. When pushing the scooter, the magnetic brakes must be disengaged.

6.6.1 Disengaging / Engaging Motor

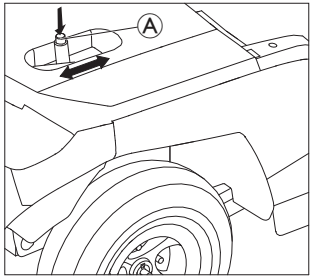
CAUTION!
Risk of the scooter rolling away
— When the motors are disengaged (for push operation whilst freewheeling), the electromagnetic motor brakes are deactivated. When the scooter is parked, the levers for engaging and disengaging the motors must without fail be locked firmly into the "DRIVE" position (electromagnetic motor brakes activated).

The motors may only be disengaged by an attendant, not by the user. This ensures that the motors are only disengaged if an attendant is available to secure the scooter and prevent unintended rolling.

The lever for engaging and disengaging is located on the right-hand side at the rear. For explanation of the symbols, refer to *3.6 Labels on the Scooter, page 19*.

Disengaging

1. Switch off the scooter (keyswitch).
2. Press the unlocking knob on the disengaging lever Ⓐ.
3. Push the disengaging lever forwards.
   The motor is now disengaged.



Engaging

1. Pull the lever to the rear.
   The motor is now engaged.

6.7 Parking and Stationary

If you park your vehicle, or leave it idle or unattended for a longer period:

1. Make sure, scooter is engaged and magnetic brakes are activated to prevent rolling away. For more information, refer to *6.6.1 Disengaging / Engaging Motor, page 40*.
2. Switch off the power supply (keyswitch) and remove key.

7 Control System

7.1 Electronics Protection System

The scooter electronics is fitted with an overload protection.

If the drive is severely overloaded over a long period of time (for example, when driving up a steep hill) and especially when the ambient temperature is high, the electronic system could overheat. In this case the scooter performance is gradually reduced until it comes to a halt. The status display shows a corresponding error code (refer to *10.1.2 Error Codes and Diagnostic Codes, page 54*). By switching the power supply off and back on again, the error code is cleared and the electronics is switched back on. It can however take up to five minutes until the electronics has cooled down enough for the drive to restore full performance again.

If the drive is stalled by an insurmountable obstacle, for example, a curb or similar which is too high, and the driver attempts driving for more than 20 seconds against this obstacle, the electronics automatically switches off to prevent the motors from being damaged. The status display shows a corresponding error code (refer to *10.1.2 Error Codes and Diagnostic Codes, page 54*). By switching off and back on again, the error code is cleared and the electronics is switched back on.

7.1.1 The Main Fuse

The entire electrical system is protected against overload by two main fuses. The main fuses are mounted on the positive battery cables.

A defective main fuse may be replaced only after checking the entire electrical system. A specialised Invacare provider must perform the replacement. You can find information on the fuse type in *12.1 Technical Specifications, page 57*.

7.2 Batteries

Power is supplied by two 12 V batteries. The batteries are maintenance-free and only need regular charging.
In the following, you find information on how to charge, handle, transport, store, maintain, and use batteries.

7.2.1 General Information on Charging

New batteries should always be fully charged once before their first use. New batteries will be at their full capacity after having run through approx. 10 - 20 charging cycles (break-in period). This break-in period is necessary to fully activate the battery for maximum performance and longevity. Thus, range and running time of your scooter could initially increase with use.

Gel/AGM lead acid batteries do not have a memory effect as NiCd batteries.

7.2.2 General Instructions on Charging

Follow the instructions listed below to ensure safe use and longevity of the batteries:

- Charge 18 hours prior to initial usage.
- We recommend charging the batteries daily after every discharge even after partly discharge, as well as each night over night. Depending on the level of discharge, it can take up to 12 hours until the batteries are fully charged again.
- When the battery indicator reached the red LED range, charge the batteries for 16 hours minimum, neglecting the charge complete display!
- Try to provide a 24 hour charge once a week to make sure that both batteries are fully charged.
- Do not cycle your batteries at a low state of charge without regularly recharging them fully.

- Do not charge your batteries under extreme temperatures. High temperatures above 30 °C are not recommended for charging as well as low temperatures below 10 °C.
- Use only charging devices in Class 2. This class of chargers may be left unattended during charging. All charging devices which are supplied by Invacare comply with these requirements.
- You cannot overcharge the batteries when using the charger supplied with your scooter, or a charger that has been approved by Invacare.
- Protect your charger from sources of heat such as heaters and direct sunlight. If the battery charger overheats, charging current will be reduced and the charging process delayed.

7.2.3 Charging Batteries

Make sure you read and understand the battery charger's user manual, if supplied, as well as the safety notes on the front and rear panels of the charger.

WARNING!
Risk of injury if using the scooter during charging
- — DO NOT attempt to recharge thteries and operate the scooter at the same time.
- — DO NOT sit in the scooter while charging the batteries.

WARNING!
Risk of fire
- — Only charge the scooter in a well-ventilated environment to prevent the accumulation of flammable gas.
- — During the charging process explosive gases occur. Keep the scooter and the charger away from sources of ignition such as flames and sparks.

WARNING!
Risk of explosion and destruction of batteries if the wrong battery charger is used
- — Only ever use the battery charger supplied with your scooter, or a charger that has been approved by Invacare.
- — Never charge 12 Ah batteries with a 5 A battery charger. Always use a 2 Ah battery charger.

WARNING!
Risk of electric shock and damage to the battery charger if it gets wet
- — Protect the battery charger from water.
- — Always charge in a dry environment.

WARNING!
Risk of short circuit and electric shock if the battery charger has been damaged
- — Do not use the battery charger if it has been dropped or damaged.

WARNING!
Risk of electric shock and damage to the batteries
- — NEVER attempt to recharge the batteries by attaching cables directly to the battery terminals.

WARNING!
Risk of fire and electric shock if a damaged extension cable is used
— Only ever use an extension cable if it is absolutely necessary. In case you must use one, make sure it is in good condition.

The charging socket is located on the left of the tiller.

1. Switch off scooter.
2. Fold up charging socket protective cap.
3. Connect battery charger to charging socket.
4. Connect battery charger to power supply.

The batteries are equipped with safety vents that allow for the evaporation of gas which is generated during the charging process. If the safety vents cannot release the gas properly, the batteries may overheat and permanently deform. An unpleasant smell and reduced function of the batteries may be noticed. However, the batteries remain safe. Stop charging immediatley and let the scooter cool down. Please contact your provider to exchange the batteries.

7.2.4 How to Disconnect Batteries after Charging

1. Disconnect the battery charger from the power supply.
2. Disconnect the battery charger from the charging socket.
3. Close the charging socket protective cap.

7.2.5 Storage and Maintenance

Follow the instructions listed below to ensure safe use and longevity of the batteries:

- Always store the scooter fully charged.
- Do not leave the batteries in a low state of charge for an extended length of time. Charge a discharged battery as soon as possible.
- In case your scooter is not used for a longer period of time (that is more than two weeks), the batteries must be charged at least once a month to maintain a full charge and always be charged before use.
- Avoid hot and cold extremes when storing. We recommend to store scooter at a temperature of 15 °C.
- Gel and AGM batteries are maintenance-free. Any performance issues should be handled by a properly trained scooter technician.

7.2.6 Instructions on Using the Batteries

CAUTION!
Risk of damaging the batteries.
— Avoid ultra-deep discharges and never drain your batteries completely.

- Pay attention to the Battery Charge Indicator! Charge the batteries when the Battery Charge Indicator shows that battery charge is low. How fast the batteries discharge depends on many circumstances, such as ambient temperature, condition of the surface of the road, tyre pressure, weight of the driver, way of driving and utilisation of lighting.
- Try to charge the batteries always before you reach the red LED range. The last 2 LED (one red and one orange) mean a remaining capacity of 20 — 30 %.
- Driving with blinking red LED means an extreme stress for the battery and should be avoided under normal circumstances.

- When only one red LED is blinking, the Battery Safe feature is enabled. From this time, speed and acceleration is reduced drastically. It will allow you to move the scooter slowly out of a dangerous situation before the electronic finally cuts off. This is deep discharging and should be avoided.
- Be aware that for temperatures below 20 °C, the nominal battery capacity starts to decline. For example, at -10 °C the capacity is reduced to about 50 % of the nominal battery capacity.
- To avoid damaging the batteries, never allow them to be fully discharged. Do not drive on heavily discharged batteries if it is not absolutely necessary, as this will strain the batteries unduly and shorten their life expectancy.
- The earlier you recharge the batteries, the longer they live.
- The depth of discharge affects the cycle life. The harder a battery has to work, the shorter is its life expectancy.Examples:
  - One deep discharge stresses the same as 6 normal cycles (green /orange display off).
  - The battery life is about 300 cycles at 80 % discharge (first 3 LED off), or about 3000 cycles at 10 % discharge.
- Under normal operation, once a month the battery should be discharged until all green and orange LED are off. This should be done within one day. A 16 hour charge afterwards is necessary as reconditioning.

7.2.7 Transporting Batteries

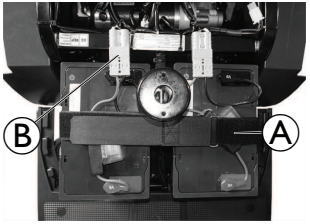
The batteries supplied with your scooter are not hazardous goods. This classification is based on the German GGVS Hazardous Goods Road Transport Ordinances, and the IATA/DGR Hazardous Goods Rail Transport / Air Transport Ordinances. Batteries may be transported without restrictions, whether by road, rail or by air. Individual transport companies have, however, guidelines which can possibly restrict or forbid certain transport procedures. Please ask the transport company regarding each individual case.

7.2.8 General Instructions on Handling Batteries

- Never mix and match different battery manufactures or technologies, or use batteries that do not have similar date codes.
- Never mix gel with AGM batteries.
- The batteries reach their end of life when the drive range is significantly smaller than usual. Contact your provider or service technician for details.
- Always have your batteries installed by a properly trained scooter technician or a person with adequate knowledge. They have the necessary training and tools to do the job safely and correctly.

7.2.9 Replacing Batteries

1. Remove seat, see *5.2.3 Removing / Installing the Seat, page 28*.
2. Remove rear cover.
3. Open the battery retaining strap Ⓐ.
4. Unplug battery connecting plug Ⓑ.
5. Remove battery. Repeat procedure for other battery.
6. Install parts in reverse order.



7.2.10 Handling Damaged Batteries Correctly

If the batteries are defective or damaged, the scooter must not be used under any circumstances. Contact your provider regarding a repair or exchanging the batteries.

Damaged batteries shall only be handles by a properly trained scooter technician.

WARNING!
Risk of burns
- Never touch or remove overheating batteries. Only unplug the charger.
- Never touch leaking batteries.

CAUTION!
Corrosion and burns from acid leakage if batteries are damaged
- Remove clothes that have been soiled by acid immediately.

After contact with skin:
- Immediately wash affected area with lots of water.

After contact with eyes:
- Immediately rinse eyes under running water for several minutes; consult a physician.

Disposing of Dead or Damaged Batteries Correctly

Batteries are following special disposal rules. Your provider has all information available to safely exchange and dispose the defect batteries.

8 Transport

8.1 Transport - General Information

WARNING!
Risk of severe or fatal injuries in the event of a traffic accident if this scooter is used as a vehicle seat! It does not fulfill the requirements of ISO 7176-19.
- Under no circumstances should this scooter be used as a vehicle seat or to transport the user in a vehicle.

WARNING!
Risk of death or serious injury to the scooter user and potentially any other nearby occupant of the vehicle, if a scooter is secured using a 4-point tie-down system available from a third party supplier and the unladen weight of the scooter exceeds the maximum weight for which the tie-down system is certified.
- Make sure the weight of the scooter does not exceed the weight for which the tie-down system is certified. Consult the tie-down manufacturer's documentation.
- If you are unsure how much your scooter weighs, then you must have it weighed using calibrated scales.

8.2 Transferring Scooter to Vehicle

WARNING!
Risk of injury and damage to scooter and vehicle
Risk of tipping over or uncontrolled movements of scooter if transferred to vehicle using a ramp.
- Transfer scooter to vehicle without user.
- Alternatively, a platform lift may be used. No other lifting equipment is permitted.
- Ensure that total weight of scooter does not exceed maximum permitted total weight for ramp or platform lift.

WARNING!
Risk of injury and damage to scooter
If scooter must be transferred to vehicle via lift, when power is turned on, there is a risk that device may act erratically and fall off lift.
- Before transferring scooter via lift, turn off product.

1. Drive or push your scooter into transport vehicle using suitable lifting set up.

8.3 Transporting Scooter Without Occupant

CAUTION!
Risk of injury

— If you are unable to fasten your scooter securely in a transport vehicle, Invacare recommends that you do not transport it.

Your scooter may be transported without restrictions, whether by road, rail or by air. Individual transport companies have, however, guidelines which can possibly restrict or forbid certain transport procedures. Please ask the transport company regarding each individual case.

- Before transporting your scooter, make sure the motors are engaged and that the scooter is switched off.
  Invacare strongly recommends that you additionally disconnect or remove the batteries, refer to *7.2.9 Replacing Batteries, page 44*.
- Invacare strongly recommends securing the scooter to the floor of the transporting vehicle.

9 Maintenance

9.1 Maintenance Introduction

The term “Maintenance“ means any task performed to ensure that a scooter is in good working order and ready for use as intended. Maintenance encompasses different areas, such as everyday care and cleaning, inspection checks, repair tasks and refurbishment.

It is recommended, to have your scooter checked once a year by an authorised Invacare provider to maintain its driving safety and roadworthiness.

9.2 Inspection Checks

The following tables list inspection checks that should be performed by the user within the indicated intervals. If the scooter fails to pass one of the inspection checks, refer to the chapter indicated or contact your authorized Invacare provider. A more comprehensive list of inspection checks and instructions for maintenance work can be found in the service manual for this device, which can be obtained from Invacare. That service manual, however, is intended to be used by trained and authorised service technicians, and describes tasks which are not intended to be performed by the user.

Before Each Use of the Scooter

Item	Inspection Check	If Inspection is not Passed
Signal horn	Check for correct function.	Contact your provider.
Batteries	Make sure the batteries are charged.	Charge the batteries (refer to *7.2.3 Charging Batteries, page 42*).
Lighting system	Check that all lights, such as turn indicators, front and rear lights, are functioning correctly.	Contact your provider.

Weekly

Item	Inspection Check	If Inspection is not Passed
Armrests / side parts	Check that armrests are firmly attached in their holders and do not wobble.	Tighten the screw or clamping lever that holds the armrest (refer to *5.3.1 Adjusting the Armrest Width, page 29*). Contact your provider.
Tyres (pneumatic)	Check that the tyres are undamaged and inflated to the correct pressure.	Inflate the tyre to the correct pressure (refer to *12.1 Technical Specifications, page 57*). If you have a damaged tyre, contact your provider.

Monthly

Item	Inspection Check	If Inspection is not Passed
Steering column adjustment lever	Check that the lever doesn't have too much clearance (wobbling).	Contact your provider.
Seat and backrest padding	Check for perfect condition.	Contact your provider.
All upholstered parts	Check for damage and wear.	Contact your provider.
Drive wheels	Check that the tyre pattern is 3 mm minimum. Check that the drive wheels rotate without wobbling. To do this, it is easiest to have someone standing behind the scooter and observe the drive wheels as you drive away from the person.	Contact your provider.
Electronics and connectors	Check all cables for damage and all connecting plugs for snug fit.	Contact your provider.

9.3 Wheels and Tyres

Dealing With Wheel Damages

In case of having a damaged wheel, contact your provider. Because of safety reasons do not have the wheel repaired by yourself or by not authorised persons.

Dealing With Pneumatic Tyres

NOTICE!
Never drive with too low tyre pressure, this could result in damage to tyre.
If tyre pressure is exceeded rim could be damaged.
— Inflate tyres to recommended pressure.

Use tyre gauge to check pressure.

Check weekly that the tyres are inflated to the correct pressure, refer to *9.2 Inspection Checks, page 48*.

For recommended tyre pressure see inscription on tyre/rim or contact Invacare. Compare table below for conversion.

psi	bar
22	1.5
23	1.6
25	1.7
26	1.8
28	1.9
29	2.0
30	2.1
32	2.2
33	2.3
35	2.4
36	2.5
38	2.6
39	2.7
41	2.8
44	3.0

9.4 Short-Term Storage

In case a serious fault is detected, a number of safety mechanisms are built into your scooter and will protect it. The power module prevents your scooter from driving.

When the scooter is in such a condition and while waiting for repair:

1. Switch off power.
2. Disconnect the batteries.
   Depending on the scooter model, you can either remove the battery packs or disconnect the batteries from the power module. Refer to the corresponding chapter about disconnecting the batteries.
3. Contact your provider.

9.5 Long-Term Storage

In case your scooter is not used for a longer period of time, you need to prepare it for storage to ensure a longer life for your scooter and batteries.

Storing Scooter and Batteries

- We recommend to store the scooter at a temperature of 15 °C, avoid hot and cold extremes when storing to ensure a long service life of the product and batteries.
- The components are tested and approved for greater temperature ranges as detailed below:
  - Allowable temperature range to store the scooter is -40° up to 65 °C.
  - Allowable temperature range to store batteries is -25° up to 65 °C.
- Even not being used, batteries discharge themselves. Best practice is to disconnect the battery supply from the power module if storing the scooter longer than two weeks. Depending on the scooter model, you can either remove the battery packs or disconnect the batteries from the power module. Refer to the corresponding chapter about disconnecting the batteries. If in doubt which cable to disconnect, contact your provider.
- Batteries should always be fully charged before storing.
- If storing the scooter longer than four weeks, check the batteries once a month and recharge as needed (before gauge reads half full) to avoid damage.
- Store in a dry, well-ventilated environment protected from outer influences.
- Slightly overinflate pneumatic tyres.
- Position the scooter on flooring that is not discoloured by contact with tyre rubber.

Preparing Scooter for Use

- Re-connect the battery supply to the power module.
- The batteries must be charged before use.
- Have the scooter checked by an authorised Invacare provider.

9.6 Cleaning and Disinfection

9.6.1 General Safety Information

CAUTION!
Risk of contamination
— Take precautions for yourself and use appropriate protective equipment.

CAUTION!
Risk of electric shock and product damage
— Switch off the device and disconnect from mains, if applicable.
— When cleaning electronic components consider their protection class regarding water ingress.
— Make sure that no water splashes to the plug or the wall outlet.
— Do not touch the power socket with wet hands.

NOTICE!
Wrong fluids or methods can harm or damage the product.
— All cleaning agents and disinfectants used must be effective, compatible with one another and must protect the materials they are used to clean.

- Never use corrosive fluids (alkalines, acid etc.) or abrasive cleaning agents. We recommend an ordinary household cleaning agent such as dishwashing liquid, if not specified otherwise in the cleaning instructions.
- Never use a solvent (cellulose thinner, acetone etc.) that changes the structure of the plastic or dissolves the attached labels.
- Always make sure that the product is completely dried before taking into use again.

For cleaning and disinfection in clinical or long-term care environments, follow your in-house procedures.

9.6.2 Cleaning Intervals

NOTICE!
Regular cleaning and disinfection enhance smooth operation, increases the service life and prevents contamination.
Clean and disinfect the product:
- regularly while in use,
- before and after any service procedure,
- when it has been in contact with any body fluids,
- before using it for a new user.

9.6.3 Cleaning

NOTICE!
- The product does not tolerate cleaning in automatic washing plants, with high-pressure cleaning equipment or steam.

NOTICE!
Dirt, sand and seawater can damage the bearings and steel parts can rust if the surface is damaged.
- Only expose the product to sand and seawater for short periods and clean it after every trip to the beach.
- If the product is dirty, wipe off the dirt as soon as possible with a damp cloth and dry it carefully.

1. Remove any installed optional equipment (only optional equipment which does not require tools).
2. Wipe down the individual parts using a cloth or soft brush, ordinary household cleaning agents (pH = 6 - 8) and warm water.
3. Rinse the parts with warm water.
4. Thoroughly dry the parts with a dry cloth.

Car polish and soft wax can be used on painted metal surfaces to remove abrasions and restore gloss.

Cleaning Upholstery

Only use damp cloth and a little soap to wipe the seat. Do not use abrasive cleaners as this will damage the seat.

9.6.4 Disinfection Instructions

Method: Follow the application notes for the used disinfectant and wipe-disinfect all accessible surfaces.

Disinfectant: Ordinary household disinfectant.

Drying: Allow the product to air-dry.

10 Troubleshooting

10.1 Diagnosis and Fault Repair

The electronic system offers diagnostic information to support the technician during the recognition and rectification of faults on the scooter.

If there is a fault, the status display flashes several times, pauses, then flashes again. The type of fault is displayed by the number of flashes in each group, which are also known as the "flash code".

The electronic system reacts differently depending on the seriousness of the fault and its effect on user safety. It can, for example:

- Show the flash code as a warning and allow both driving and normal operation to continue.
- Display the flash code, stop the scooter and prevent further travel until the electronic system has been switched off and switched on again.
- Display the flash code, stop the scooter and not permit further travel until the fault has been rectified.

You can find detailed descriptions of individual flash codes, including possible causes and fault repair, refer to *10.1.2 Error Codes and Diagnostic Codes, page 54*.

10.1.1 Error Diagnosis

If the scooter shows a failure, please use the following guide to locate the fault.

Before making any diagnosis, ensure that the scooter has been switched on at the keyswitch.

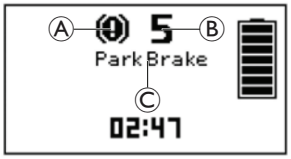
If the Status Display is OFF:

- Check whether the keyswitch is SWITCHED ON.
- Check whether all cables are correctly connected.

LED Console

If there is a fault, the status display Ⓐ flashes several times, pauses, then flashes again. The type of fault is displayed by the number of flashes which are also known as the "flash code". Count the number of flashes and then refer to *10.1.2 Error Codes and Diagnostic Codes, page 54*.

LCD Console



If there is a fault, the fault indication symbol Ⓐ, the number Ⓑ and the name of the fault Ⓒ are shown in the LCD display. Refer to *10.1.2 Error Codes and Diagnostic Codes, page 54*.

10.1.2 Error Codes and Diagnostic Codes

Flash Code	Fault	Consequence	Possible Action
1	Batteries must be charged	Continues to drive	The batteries are discharged. • Charge the batteries as soon as possible.
2	Battery voltage too low	Stops driving	The batteries are depleted. • Charge batteries. • If you switch the scooter off for a few minutes, the batteries can often recuperate to such a stage that a short journey is still possible. You should only do this in an emergency, however, because this causes the batteries to become excessively discharged.
3	Battery voltage too high	Stops driving	The battery voltage is too high. • If the battery charger is connected, disconnect it from the scooter. The electronic system charges the batteries when running downhill and when braking. This fault is caused when the battery voltage becomes too high during this process. • Switch the scooter off and on again.
4	Power time exceeded	Stops driving	The maximum current was exceeded over too long a period, probably because the motor was overloaded or has been working against an immovable resistance. • Switch the scooter off, wait a few minutes and then switch on again. The electronic system has determined a motor short-circuit. • Contact your Invacare provider.

Flash Code	Fault	Consequence	Possible Action
5	Brake failure	Stops driving	Disengaging lever not in engaged position • Ensure that the disengaging lever is in the engaged position. There is a defect in the braking coil or in the cabling. • Contact your Invacare provider.
6	No neutral position when switching scooter on.	Stops driving	Drive lever is not in neutral when the keyswitch was turned. • Put the drive lever in neutral, turn the power off and then turn on again. It may be necessary to replace the drive lever. • Contact your Invacare provider.
7	Fault in speed potentiometer	Stops driving	The drive lever controls could be faulty or incorrectly connected.Potentiometer is not correctly adjusted and must be replaced. • Contact your Invacare provider.
8	Motor voltage error	Stops driving	The motor or its cabling is defective. • Contact your Invacare provider.
9	Miscellaneous internal fault	Stops driving	• Contact your Invacare provider.
10	Push / freewheel mode error	Stops moving	The scooter has exceeded the permissible maximum speed during pushing or freewheeling. • Switch the scooter off and on again.

11 After Use

11.1 Reconditioning

This product is suitable for reuse. To recondition the product for a new user, carry out the following actions:

- Inspection
- Cleaning and disinfection
- Adaptation to the new user

For detailed information, refer to *9 Maintenance, page 48* and the service manual for this product.

Make sure that the user manual is handed over with the product.

If any damage or malfunction is detected, do not reuse the product.

11.2 Disposal

WARNING!
Environmental Hazard
Device contains batteries.
This product may contain substances that could be harmful to the environment if disposed of in places (landfills) that are not appropriate according to legislation.

- DO NOT dispose of batteries in normal household waste.
- DO NOT throw batteries into a fire.
- Batteries MUST be taken to a proper disposal site. The return is required by law and free of charge.
- Only dispose of discharged batteries.
- Cover terminals of batteries prior to disposal.
- For information about the correct handling of damaged batteries, refer to *7.2.10 Handling Damaged Batteries Correctly, page 45*.

Be environmentally responsible and recycle this product through your recycling facility at its end of life.

Disassemble the product and its components, so the different materials can be separated and recycled individually.

The disposal and recycling of used products and packaging must comply with the laws and regulations for waste handling in each country. Contact your local waste management company for information.

12 Technical Data

12.1 Technical Specifications

The technical information provided hereafter applies to a standard configuration or represents maximum achievable values. These can change if accessories /options are added. The precise changes to these values are detailed in the sections for the respective accessories / options.

Note that in some cases the measured values may vary up to ± 10 mm.

Permissible Operating and Storage Conditions	
Temperature range for operation according to ISO 7176-9:	• -25 °C … +50 °C
Recommended storage temperature:	• 15 °C
Temperature range for storage according to ISO 7176-9:	• -25 °C … +65 °C with batteries • -40 °C … +65 °C without batteries

Charging Device	
Output current	• 8 A ± 8 % • 10 A
Output voltage	• 24 V nominal (12 cells)

Tyres	
Tyre type	• 4.00 - 5 pneumatic • 12.8 x 4.00 - 5 pneumatic • 13" puncture-proof
Tyre pressure	The recommended maximum tyre pressure in bar or kpa is marked on the side wall of the tyre or the rim. If more than one value is listed, the lower one in the corresponding units applies. (Tolerance = -0.3 bar, 1 bar = 100 kpa)

Electrical System		
	Comet^{PRO}	Comet$^{ALPINE+}$ / Comet^{ULTRA}
Motor	• 10 km/h: S1: 1 x 550 W, Maxpeak 1 x 1300 W • 12.8 km/h: S1: 1 x 550 W, Maxpeak 1 x 1500 W • 15 km/h: S1: 1 x 550 W, Maxpeak 1 x 1600 W	• 10 km/h: S1 1 x 650 W, Maxpeak 1 x 1800 W
Batteries	• 2 x 12 V/73.5 Ah (C20) sealed VRLA gel • 2 x 12 V/75 Ah (C20) leakproof / AGM	
Main fuse	• 70 A	• 100 A
Degree of protection	• IPX4[1]	

1 IPX4 classification means that the electrical system is protected against spray water.

Driving Characteristics			
	Comet^{PRO}	Comet$^{ALPINE+}$	Comet^{ULTRA}
Speed	• 10 km/h • 12.8 km/h • 15 km/h	• 10 km/h	
Min. braking distance	• 1800 mm (10 km/h) • 3300 mm (12.8 km/h) • 4200 mm (15 km/h)		

Driving Characteristics			
	Comet[PRO]	Comet[ALPINE+]	Comet[ULTRA]
Rated slope[2]	• 10° (17.5 %)		
Max. climbable obstacle height	• 100 mm		
Turning diameter	• 2750 mm		
Reversing width	• 1950 mm		
Drive range in accordance with ISO 7176-4[3]	• 60 km (10 km/h) • 55 km (12.8 km/h) • 55 km (15 km/h)	• 58 km	• 49 km

2 Static stability according to ISO 7176-1 = 15° (26.8 %)
Dynamic stability according to ISO 7176-2 = 10° (17.6 %)

3 Note: The drive range of a scooter is strongly influenced by external factors, such as the speed setting of the scooter, the charging state of the batteries, surrounding temperature, local topography, road surface characteristics, tyre pressure, weight of user, drive style and use of batteries for lighting, servos etc. The specified values are theoretical maximum achievable values measured according to ISO 7176-4.

Dimensions according to ISO 7176–15			
	Comet[PRO]	Comet[ALPINE+]	Comet[ULTRA]
Total length	• 1450 mm		
Drive unit width	• 665 - 685 mm		
Total width (armrest adjustment range)	• 730 - 840 mm		
Total height	• 1255 mm		• 1290 mm
Stowage length	• 1450 - 1600 mm		
Stowage width	• 655 - 665 mm		

Dimensions according to ISO 7176–15			
	Comet[PRO]	Comet[ALPINE+]	Comet[ULTRA]
Stowage height	• 710 mm		
Seat height[4] (seatbase to floor pan distance)	• 475/500/525 mm (Comfort, Deluxe, Premium seat) • 450 mm (Deluxe Low seat)		
Seat surface height at front edge	• 560 - 635 mm		
Seat width	• 510 mm		• 660 mm
Seat depth	• 470 mm (Comfort, Deluxe seat) • 460 mm (Premium seat)		
Seat angle	• 4° - 8°		
Armrest height	• 200 - 245 mm		
Armrest depth[5]	• 360 - 520 mm		• 335 - 490 mm
Backrest height	• 500 mm (Comfort seat) • 490 mm (Deluxe seat) • 630 mm (Premium seat)		• 630 mm (Ultra seat)
Backrest angle	• 90° - 130°		

4 Measured without seat cushion

5 Distance between backrest reference plane and most forward part of armrest assembly

Weight			
	Comet^{PRO}	Comet$^{ALPINE+}$	Comet^{ULTRA}
Kerb weight	• 136 kg	• 143 kg	• 148 kg
Components Weight			
Chassis	• approx. 63 kg		
Seat unit	• approx. 21 kg		• approx. 26 kg
Batteries	• approx. 26 kg per battery		

Payload			
	Comet^{PRO}	Comet$^{ALPINE+}$	Comet^{ULTRA}
Max. payload	• 160 kg		• 220 kg

Axle Loads			
	Comet^{PRO}	Comet$^{ALPINE+}$	Comet^{ULTRA}
Max. front axle load	• 87 kg	• 90 kg	• 110 kg
Max. rear axle load	• 209 kg	• 212 kg	• 258 kg

13 Service

13.1 Inspections Performed

It is confirmed by stamp and signature that all jobs listed in the inspection schedule of the service and repair instructions have been properly performed. The list of the inspection jobs to be performed can be found in the service manual which is available through Invacare.

Delivery Inspection	1st Annual Inspection
Stamp of authorised provider / Date / Signature	Stamp of authorised provider / Date / Signature
2nd Annual Inspection	**3rd Annual Inspection**
Stamp of authorised provider / Date / Signature	Stamp of authorised provider / Date / Signature

4th Annual Inspection	5th Annual Inspection
Stamp of authorised provider / Date / Signature	Stamp of authorised provider / Date / Signature

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