Invacare® Pronto® 31

EN **Power Wheelchair**
User Manual

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

INVACARE®

Yes, you can.®

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1 General

1.1 Symbols

Signal symbols and/or words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. See the information below for definitions of the signal words.

DANGER!
– Danger indicates a imminently hazardous situation which, if not avoided, could result in death or serious injury.

WARNING!
– Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION!
– Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage or minor injury or both.

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

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

1.2 General Guidelines

The safety section contains important information for the safe operation and use of this product.

WARNING!
– 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 owner's manuals, service manuals or instruction sheets supplied with this product or optional equipment. If you are unable to understand the warnings, cautions or instructions, contact a health care professional or dealer before attempting to use this equipment - otherwise, injury or damage may occur.

WARNING!
Risk of injury or damage
Incorrect repair and/or servicing of this wheelchair performed by users/caregivers or unqualified technicians can result injury or damage.
– Users/Caregivers — DO NOT attempt to repair and/or service this wheelchair.
– Repair and/or service of this wheelchair MUST be performed by a qualified technician. Contact a dealer or Invacare technician.

DANGER!
– DO NOT connect any medical devices such as ventilators, life support machines, etc. directly to the batteries used to power the wheelchair. This could cause unexpected failure of the device and the wheelchair.

WARNING!
Risk of injury or damage
Use of non-Invacare accessories may result in injury or damage.
– Invacare products are specifically designed and manufactured for use in conjunction with Invacare accessories. Accessories designed by other manufacturers have not been tested by Invacare and are not recommended for use with Invacare products.
– DO NOT use non-Invacare accessories.
– To obtain Invacare accessories, contact Invacare by phone or at www.invacare.com

Risk of 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 wheelchair serial number to assist in ordering the correct replacement parts.

THE INFORMATION CONTAINED IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.

Check all parts for shipping damage and test before using. In case of damage, DO NOT use. Contact Invacare/Carrier for further instruction

As a manufacturer of wheelchairs, Invacare endeavors to supply a wide variety of wheelchairs to meet many needs of the end user. However, final selection of the type of wheelchair to be used by an individual rests solely with the user and his/her healthcare professional capable of making such a selection. Invacare recommends working with a qualified rehab technology provider, such as an ATP, (Assisstive Technology Professional).

1.2.1 Operation Information

Setup

WARNING!
Risk of injury or damage
Incorrect set up of this wheelchair performed by users/caregivers or unqualified technicians can result in injury or damage.
- Users/Caregivers- DO NOT attempt to set up this wheelchair.
- Initial setup of this wheelchair MUST be performed by a qualified technician.

Risk of injury or damage
Continued use of the wheelchair that is not set to the correct specifications may cause erratic behavior of the wheelchair resulting in 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 wheelchair has been set-up/adjusted, check to make sure that the wheelchair performs to the specifications entered during the set-up procedure. If the wheelchair does not perform to specifications, IMMEDIATELY turn the wheelchair Off and reenter set-up specifications. Contact Invacare, if wheelchair still does not perform to correct specifications.

WARNING!
Risk of injury or damage
Moving the seating system from the factory setting may reduce driver control, wheelchair stability, traction and increase caster wear.
- Move the seating system ONLY when necessary to fit the wheelchair to the user.
- If the seating system must be moved, ALWAYS Inspect the wheelchair to ensure the front rigging DOES NOT interfere with the front casters.
- If the seating system must be moved, ALWAYS Inspect to ensure the wheelchair DOES NOT easily tip forward or backward.

WARNING!
Risk of injury or damage
Operating the wheelchairs outdoors or in areas of poor lighting may cause injury or damage.
Operating the wheelchair near motor vehicles may cause injury or damage.
- DO NOT operate on roads, streets or highways.
- Use caution when operating the wheelchair outdoors at night or in areas with poor lighting.
- ALWAYS be aware of motor vehicles when using the wheelchair.

Transport

WARNING!
- DO NOT transport an occupied wheelchair in a moving vehicle.
- As of this date, the Department of Transportation has not approved any tie-down systems for transportation of a user while in a wheelchair, in a moving vehicle of any type. It is Invacare's position that users of wheelchairs should be transferred into appropriate seating in vehicles for transportation and use be made of the restraints made available by the auto industry. Invacare cannot and does not recommend any wheelchair transportation systems.

Stairways and Escalators

WARNING!
- DO NOT attempt to move an occupied power wheelchair between floors using a stairway. Use an elevator to move an occupied power wheelchair between floors.
- If moving a power wheelchair between floors by means of a stairway, the occupant MUST be removed and transported independently of the power wheelchair.
- Extreme caution is advised when it is necessary to move an unoccupied power wheelchair up or down the stairs. Invacare recommends using two assistants and making thorough preparations. Make sure to use ONLY secure, non-detachable parts for hand-hold supports.
- DO NOT use an escalator to move a wheelchair between floors. Serious bodily injury may occur.
- DO NOT attempt to lift the wheelchair by any removable (detachable) parts. Lifting by means of any removable (detachable) parts of a wheelchair may result in injury to the user or damage to the wheelchair.
- The weight of the wheelchair without the user and without batteries is between 166 and 322 lbs. Use proper lifting techniques (lift with your legs) to avoid injury.

Follow this procedure for moving the wheelchair between floors when an elevator is NOT available:

When using a stairway to move the wheelchair and any accessories, move all wheelchair components away from the stairway prior to reassembly.

1. Remove the occupant from the wheelchair.
2. Remove the batteries from wheelchair. Refer to 8.6 Removing/Installing the Batteries, page 47
3. Bend your knees and keep your back straight.
4. Using non-removable (non-detachable) parts of the wheelchair, lift the wheelchair off of the ground and transfer the wheelchair up or down the stairs.
5. The wheelchair should not be lowered until the last stair has been negotiated and the wheelchair has been carried away from the stairway.

Repair and Service Information — Dealers and/or Qualified Technicians

WARNING!

– DO NOT service or operate this equipment without first reading and understanding (1) the owner's operator and maintenance manual, (2) the service manual (if applicable) and (3) the seating system's manual (if applicable). if you are unable to understand the warnings, cautions and instructions, contact Invacare technical support before attempting to service or operate this equipment - otherwise, injury or damage may result.

WARNING!

– Set-up of the Electronics Control Unit is to be performed only by a qualified technician. The final adjustments of the controller may affect other activities of the wheelchair. Damage to the equipment could occur if improperly set-up or adjusted.
– Except for programming, DO NOT service or adjust the wheelchair while occupied, unless otherwise noted.
– Before adjusting, repairing or servicing the wheelchair, Always turn the wheelchair power Off, otherwise, injury or damage may occur.
– Wheelchairs should be examined during maintenance for signs of corrosion (water exposure, incontinence, etc.). Electrical components damaged by corrosion should be replaced immediately.
– Wheelchairs that are used by incontinent users and/or are frequently exposed to water may require replacement of electrical components more frequently.
– DO NOT overtighten hardware attaching to the frame. This could cause damage to the frame tubing.

2 Safety Handling

2.1 Safety/Handling

"Safety and Handling" of the wheelchair requires the close attention of the wheelchair user as well as the assistant. This manual points out the most common procedures and techniques involved in the safe operation and maintenance of the wheelchair. It is important to practice and master these safe techniques until you are comfortable in maneuvering around the frequently encountered architectural barriers.

Use this information only as a "basic" guide. The techniques that are discussed on the following pages have been used successfully by many.

Users and assistants must be aware that the handling and maneuverability characteristics of front wheel drive wheelchairs are inherently different from center and rear wheel drive wheelchairs. Handling and maneuverability differences will be most noticeable when traveling down inclines (Example: ramps and slopes) or over obstacles and rough terrain as this may shift the users center of mass forward resulting in decreased stability. ALWAYS reduce speed and wear the seat positioning strap when driving under these conditions.

Individual wheelchair users often develop skills to deal with daily living activities that may differ from those described in this manual. Invacare recognizes and encourages each individual to try what works best for him/her in overcoming architectural obstacles that they may encounter. However all warnings and cautions given in this manual MUST be followed. Techniques in this manual are a starting point for the new wheelchair user and assistant with "safety" as the most important consideration for all.

Invacare strongly recommends that initial use of front wheel drive wheelchairs be supervised by an assistant.

WARNING!
Risk of injury or damage
Misuse of the wheelchair may cause the wheelchair to start smoking, sparking, or burning.
– DO NOT use the wheelchair other than its intended purpose. If the wheelchair starts smoking , sparking, or burning, discontinue using the wheelchair and seek service IMMEDIATELY.

WARNING!
Risk of injury or damage
Disengaged motor lock levers while on incline could result in the wheelchair rolling down the incline on its own.
– DO NOT disengage the motor lock levers while on an incline without the presence of an attendant.

WARNING!
- ALWAYS wear your seat positioning strap. The seat positioning strap is a positioning belt only. It is not designed for use as a safety device withstanding high stress loads such as auto or aircraft safety belts. If signs of wear appear, belt must be replaced IMMEDIATELY.
- DO NOT leave the power button On when entering or exiting your wheelchair.
- DO NOT go up or down ramps greater than 6°.
- DO NOT traverse slopes greater than 3°.
- DO NOT attempt to drive in reverse down an incline. This may cause the wheelchair to tip over.
- NEVER leave an unoccupied wheelchair unattended on an incline.
- DO NOT attempt to move up or down an incline with water, ice or oil film.
- DO determine and establish your particular safety limits by practicing bending, reaching and transferring activities in the presence of a qualified healthcare professional before attempting active use of the wheelchair.

WARNING!
- DO NOT attempt to reach objects if you have to move forward in your seat.
- ALWAYS shift your weight in the direction you are turning. Do not shift your weight in the opposite direction of the turn. Shifting your weight in the opposite direction of the turn may cause the inside drive wheel to lose traction and the wheelchair to tip over.
- DO NOT shift your weight or sitting position toward the direction you are reaching as the wheelchair and/or seating system (if any) may tip over.
- ALWAYS keep hands and fingers clear of moving parts to avoid injury.
- DO NOT use with a broken or missing joystick knob.
- DO NOT use if joystick does not spring back to the neutral position or becomes sticky or sluggish.
- DO NOT use if joystick boot is torn or damaged.
- DO NOT attempt to stop a moving wheelchair with the wheel locks. Wheel locks are not brakes.
- DO NOT engage or disengage the motor locks until the power is in the off position.

2.1.1 A Note to Wheelchair Assistants

When assistance to the wheelchair user is required, remember to use good body mechanics. Keep your back straight and bend your knees whenever tilting wheelchair or traversing curbs or other impediments.

WARNING!
– Also, be aware of detachable parts such as arms or legrests. These must NEVER be used to move the wheelchair or as lifting supports, as they may be inadvertently released, resulting in possible injury to the user and/or assistant(s).

When learning a new assistance technique, have an experienced assistant help you before attempting it alone.

2.1.2 Stability and Balance

To assure stability and proper operation of your wheelchair, you must at all times maintain proper balance. Your wheelchair has been designed to remain upright and stable during normal daily activities as long as you DO NOT move beyond the center of gravity. DO NOT lean forward out of the wheelchair any further than the length of the armrests.

WARNING!
– To determine and establish your particular safety limits, practice use of this product on various sloping surfaces in the presence of a qualified healthcare provider before attempting active use of this wheelchair. Other general warnings listed within this document also apply
– DO NOT use on inclines greater than 6°.
– DO NOT traverse slopes greater than 3°.
– Do not use on inclines with wet, slippery, icy or oily surfaces. Traction will be diminished/nonexistent on a slippery surface. This may include certain painted or otherwise treated wood surfaces.
– DO NOT traverse down ramps at high speed. Doing so will reduce traction and increase stopping distance. Also, some seat/back positions will cause the wheelchair to feel unstable.
– ALWAYS traverse down ramps at a reduced, constant speed to maintain stability and to avoid hard braking or sudden stops.
– The end user's weight can materially affect traction on sloped surfaces. Great care should be taken when traversing such slopes.
– ALWAYS reduce speed when traveling up or down an incline or over obstacles and rough terrain. Traveling under these conditions may shift the users weight forward resulting in reduced stability.
– Exercise caution and avoid sudden stops when traveling up or down an incline or over obstacles and rough terrain. If stopping becomes necessary under these driving conditions, release the joystick and allow the wheelchair to come to a full stop. Then proceed at a slower speed.

WARNING!
Risk of Injury or Damage
Carrying heavy objects on your lap while occupying the wheelchair may adversely affect the stability of the wheelchair.
– DO NOT carry heavy objects on your lap while occupying the wheelchair.

WARNING!
Risk of Injury or Damage
This wheelchair has been designed to accommodate one individual. If more than one individual occupies the wheelchair this may adversely affect the stability of the wheelchair resulting in serious bodily injury to the user, passenger, and/or damage to the wheelchair and surrounding property.
– DO NOT have more than one individual occupy the wheelchair.
– DO NOT have anyone stand on the frame at any time.

2.1.3 Coping with Everyday Obstacles

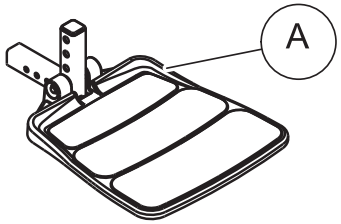
Coping with the irritation of everyday obstacles can be somewhat alleviated by learning how to manage your wheelchair. Keep in mind your center of gravity to maintain stability and balance.

While the wheelchair is designed for use primarily in and around the home, the provider should determine whether this wheelchair is suitable for the actual environment in which the wheelchair will be used.

WARNING!
Risk of injury or damage
Driving over Curbs and obstacles greater than 3 inches may cause your wheelchair to turn over and cause bodily harm or damage to the wheelchair.
– DO NOT attempt to drive over curbs or obstacles greater than 3 inches.
– Always stop before climbing an obstacle.
– Approach slowly until front anti-tip wheels are approximately 18 inches away from the obstacle. Slowly apply power to move forward, over the obstacle.

2.1.4 Pinch Points

WARNING!
Risk if injury
Pinch Point
– Be aware that a pinch point may occur when rotating the footboard assembly Ⓐ.



2.1.5 Footboard

WARNING!
Risk of injury or damage
Operating the wheelchair with a ground clearance of less than 3 inches between the footboard and the ground/floor may cause injury or equipment/property damage.

– ALWAYS maintain a minimum of 3 inches between the bottom of the footboard and ground/floor to ensure proper ground clearance while the wheelchair is in motion. If necessary, adjust the footboard height to achieve proper ground clearance. After footplates height adjustment, if the wheelchair dips forward and the footplates touch the ground while in motion, please contact your dealer for an inspection and avoid use of the wheelchair if possible. Otherwise, injury or equipment/property damage may occur.

Risk of injury or damage

– Using the footplates as a platform may cause injury or damage.
– DO NOT use the footplates as a platform. When getting in or out of the wheelchair, make sure that the footplates are in the upward position.

2.1.6 Reaching, Leaning and Bending - Forward

Many activities require the wheelchair user to reach, bend and transfer in and out of the wheelchair. These movements will cause a change to the normal balance, center of gravity, and weight distribution of the wheelchair. To determine and establish your particular safety limits, practice bending, reaching and transferring activities in several combinations in the presence of a qualified healthcare professional before attempting active use of the wheelchair.

WARNING!
Risk of injury
Improper positioning while leaning or bending could cause the wheelchair to tip forward resulting in injury.

– To assure stability and proper operation of your wheelchair, you must at all times maintain proper balance. Your wheelchair has been designed to remain upright and stable during normal daily activities as long as you DO NOT move beyond the center of gravity. DO NOT lean forward out of the wheelchair any further than the length of the armrests.
– DO NOT attempt to reach objects if you have to move forward in the seat or pick them up from the floor by reaching down between your knees.

Engage motor locks and turn power off before reaching, leaning or bending only as far as your arm will extend without changing your sitting position. Position the casters so that they are extended away from the drive wheels and engage wheel locks/motor locks/clutches.

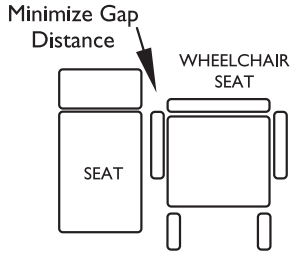
2.1.7 Reaching, Bending - Backward

WARNING!
Risk of injury
Leaning backward over the top of the seat back will change your center of gravity and may cause you to tip over resulting in injury.
– Proper positioning is essential for your safety. DO NOT lean over the top of the seat back.

Position wheelchair as close as possible to the desired object. Position the casters so that they are extended away from the drive wheels to create the longest possible wheelbase, engage the motor locks and turn power off. Reach back only as far as your arm will extend without changing your sitting position.

2.1.8 Transferring To and From Other Seats

WARNING!
Risk of injury or damage
Improper transfer techniques may cause injury or damage.
– Before attempting transfers, consult a health care professional to determine proper transfer techniques for the user and type of wheelchair.
– Reduce gap between transfer surface and wheelchair seat to the minimum distance necessary to perform transfer.
– Align casters parallel to the drive wheels to improve stability during transfer.
– ALWAYS turn the wheelchair power off.
– ALWAYS engage both motor locks/clutches and free wheel hubs (if equipped) to prevent the wheels from moving before transferring into or from the wheelchair.



Adequate mobility and upper body strength is required to perform this activity independently.

1. Position the wheelchair to minimize the gap distance between the personal transporter seat and the seat to which you are transferring.
2. Ensure the casters are aligned parallel with the object.
3. Ensure footboard is in up position.
4. Unless being used for support, place armrests in vertical position.
5. Engage motor locks.
6. Shift body weight into seat with transfer.

During independent transfer, little or no seat platform will be beneath you. Use a transfer board if at all possible.

2.1.9 Storage

WARNING!
Risk of injury or damage
– Avoid storing or using the wheelchair near open flame or combustible products. Serious injury or damage to property may result.

WARNING!
Risk of damage
Operating the wheelchair in rain or dampness will cause the wheelchair to malfunction electrically and mechanically; may cause the wheelchair to prematurely rust or may damage the upholstery.
– DO NOT leave wheelchair in a rain storm of any kind.
– DO NOT use wheelchair in a shower.
– DO NOT leave wheelchair in a damp area for any length of time.
– Check to ensure that the battery covers are secured in place, joystick boot is NOT torn or cracked where water can enter and that all electrical connections are secure at all times. DO NOT use if the joystick boot is torn or cracked. If the joystick boot becomes torn or cracked, replace IMMEDIATELY.

Invacare has tested its power wheelchairs in accordance with ISO 7176 “Rain Test”. This provides the end user or his/her attendant sufficient time to remove his/her power wheelchair from a rain storm and retain wheelchair operation.

2.1.10 Electrical - Grounding Instructions

WARNING!
– DO NOT under any circumstances cut or remove the round grounding plug from the charger AC cable plug or the extension cord plug.

WARNING!

– DO NOT, under any circumstances, cut or remove the round grounding prong from any plug used with or for Invacare products. Some devices are equipped with three-prong (grounding) plugs for protection against possible shock hazards. Where a two-prong wall receptacle is encountered, it is the personal responsibility and obligation of the customer to contact a qualified electrician and have the two-prong receptacle replaced with a properly grounded three-prong wall receptacle in accordance with the National Electrical Code. If you must use an extension cord, use only a three-wire extension cord having the same or higher electrical rating as the device being connected. In addition, Invacare has placed RED/ORANGE warning tags on some equipment. DO NOT remove these tags.

2.1.11 Electrical - Batteries

The warranty and performance specifications contained in this manual are based on the use of deep cycle gel cell batteries. Invacare strongly recommends their use as the power source for this unit.

Carefully read battery/battery charger information prior to installing, servicing or operating your wheelchair.

2.1.12 Electrical - Charging Batteries

DANGER!

– When using an extension cord, use an extension cord having at least 16 AWG (American Wire Gauge) wire and the same or higher electrical rating as the device being connected. Use of improper extension cord could result in fire and electric shock.

WARNING!

– NEVER attempt to recharge the batteries by attaching clamps or cables directly to the battery terminals or clamps. ALWAYS use a proper charger connected to the recharging plug located on the front of the joystick.
– DO NOT attempt to recharge the batteries and operate the wheelchair at the same time.
– DO NOT operate wheelchair with extension cord attached to the AC cable.
– DO NOT attempt to recharge the batteries when the wheelchair has been exposed to any type of moisture.
– DO NOT attempt to recharge the batteries when the wheelchair is outside.
– DO NOT sit in the wheelchair while charging the batteries.
– READ and CAREFULLY follow the manufacturer's instructions for each charger (supplied or purchased). If charging instructions are not supplied, consult a qualified technician for proper procedures.
– Ensure the pins of the extension cord plug are the same number, size, and shape as those on the charger.
– During use and charging, unsealed batteries will vent hydrogen gas which is explosive in the right concentration with air.

2.1.13 Weight Training

WARNING!
Risk of Injury or Damage
Invacare DOES NOT recommend the use of its wheelchairs as a weight training apparatus. Invacare wheelchairs have NOT been designed or tested as a seat for any kind of weight training. Using said wheelchair for weight training could result in serious bodily injury to the user, damage to the wheelchair and surrounding property. Also, if occupant uses said wheelchair as a weight training apparatus, Invacare shall NOT be liable for bodily injury and the warranty is void.

– DO NOT use the wheelchair as a weight training apparatus.

2.1.14 Weight Limitation

WARNING!

– Refer to Technical Data on page 25 to determine the weight limit (total combined weight of user and any attachments) of your wheelchair model. Do not exceed the limit - otherwise, injury or damage may result.

2.1.15 Electromagnetic Interference (EMI) From Radio Wave Sources

Powered wheelchairs may be susceptible to external sources of electromagnetic interference (EMI), which is interfering electromagnetic energy (EM) emitted from sources such as radio stations, TV stations, amateur radio (HAM) transmitters, two way radios, and cellular phones. The interference (from radio wave sources) may cause the powered wheelchair to release its brakes, move by itself, or move in unintended directions. It can also permanently damage the powered wheelchair's control system. The intensity of the interfering EM energy can be measured in volts per meter (V/m). Each powered wheelchair can resist EMI up to a certain intensity. This is called its "immunity level." The higher the immunity level, the greater the protection. At this time, current technology is capable of achieving at least a 20 V/m immunity level, which would provide useful protection from the more common sources of radiated EMI.

There are a number of sources of relatively intense electromagnetic fields in the everyday environment. Some of these sources are obvious and easy to avoid. Others are not apparent and exposure is unavoidable. However, we believe that by following the warnings listed below, your risk to EMI will be minimized.

The sources of radiated EMI can be broadly classified into three types:

1. Hand-held Portable transceivers (transmitters receivers with the antenna mounted directly on the transmitting unit. Examples include: citizens band (CB) radios, “walkie talkie”, security, fire and police transceivers, cellular telephones, and other personal communication devices).

   Some cellular telephones and similar devices transmit signals while they are ON, even when not being used.

Medium-range mobile transceivers, such as those used in police cars, fire trucks, ambulances and taxis. These usually have the antenna mounted on the outside of the vehicle; and

Long-range transmitters and transceivers, such as commercial broadcast transmitters (radio and TV broadcast antenna towers) and amateur (HAM) radios.

Other types of handheld devices, such as cordless phones, laptop computers, AM/FM radios, TV sets, CD players, cassette players, and small appliances, such as electric shavers and hair dryers, so far as we know, are not likely to cause EMI problems to your powered wheelchair.

2.1.16 Powered Wheelchair Electromagnetic Interference (EMI)

Because EM energy rapidly becomes more intense as one moves closer to the transmitting antenna (source), the EM fields from handheld radio wave sources (transceivers) are of special concern. It is possible to unintentionally bring high levels of EM energy very close to the powered wheelchair's control system while using these devices. This can affect powered wheelchair movement and braking. Therefore, the warnings listed below are recommended to prevent possible interference with the control system of the powered wheelchair.

Electromagnetic interference (EMI) from sources such as radio and TV stations, amateur radio (HAM) transmitters, two-way radios, and cellular phones can affect powered wheelchairs and motorized scooters.

Following the warnings listed below should reduce the chance of unintended brake release or powered wheelchair movement which could result in serious injury.

WARNING!
- DO NOT operate handheld transceivers (transmitters receivers), such as citizens band (CB) radios, or turn ON personal communication devices, such as cellular phones, while the powered wheelchair is turned ON;
- Be aware of nearby transmitters, such as radio or TV stations, and try to avoid coming close to them;
- If unintended movement or brake release occurs, turn the powered wheelchair OFF as soon as it is safe;

WARNING!
- Be aware that adding accessories or components, or modifying the powered wheelchair, may make it more susceptible to EMI (Note: There is no easy way to evaluate their effect on the overall immunity of the powered wheelchair); and
- Report all incidents of unintended movement or brake release to the powered wheelchair manufacturer, and note whether there is a source of EMI nearby.

WARNING!
Important Informnation
- 20 volts per meter (V/m) is a generally achievable and useful immunity level against EMI (as of May 1994) (the higher the level, the greater the protection);
- This device has been tested to a radiated immunity level of 20 volts per meter.
- The immunity level of the product is unknown.
- Modification of any kind to the electronics of this wheelchair from Invacare may adversely affect the EMI immunity levels.

3 Warranty

3.1 Global Limited Warranty

PLEASE NOTE: THE WARRANTY BELOW HAS BEEN DRAFTED TO COMPLY WITH FEDERAL LAW APPLICABLE TO PRODUCTS MANUFACTURED AFTER JULY 4, 1975.

This warranty is extended only to the original purchaser who purchases this product within any country excluding CANADA when new and unused from Invacare or a dealer. This warranty is not extended to any other person or entity and is not transferable or assignable to any subsequent purchaser or owner. Coverage under this warranty will end upon any such subsequent sale or other transfer of title to any other person. For product purchased in Canada, please refer to the Canada Limited Warranty.

This warranty gives you specific legal rights and you may also have other legal rights which vary from state to state.

Invacare warrants the base frame to be free from defects in materials and workmanship for a period of five (5) years and the seat frame for a period of three (3) years from the date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. Invacare warrants all electronics and electrical components (excluding batteries), motors, powered seating actuators and gearboxes to be free from defects in materials and workmanship for a period of thirteen (13) months from the date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. Invacare warrants all batteries to be free from defects in materials and workmanship for a period of six (6) months from the date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. Invacare warrants all remaining components (excluding ABS plastic shrouds, brake pads, motor brushes, fuses, all upholstered materials, padded materials, tires and wheels) to be free from defects in materials and workmanship for a period of thirteen (13) months from the date of purchase from Invacare or a dealer, with a copy of the seller's invoice required for coverage under this warranty. If within such warranty periods any such product component shall be proven to be defective, the product component shall be repaired or replaced, at Invacare's option. This warranty does not include any labor or shipping charges incurred in replacement part installation or repair of any such product. Invacare's sole obligation and your exclusive remedy under this warranty shall be limited to such repair and/or replacement.

For warranty service, please contact the dealer from whom you purchased your Invacare product. In the event you do not receive satisfactory warranty service, please write directly to Invacare at the address on the bottom of the back cover. Provide dealer's name address, date of purchase, indicate nature of the defect and, if the product is serialized, indicate the serial number. Do not return products to our factory without our prior consent.

Limitations and Exclusions: The foregoing warranty shall not apply to serial numbered products if the serial number has been removed or defaced, products subject to negligence, accident, improper operation, maintenance or storage, commercial or institutional use, products modified without Invacare's express written consent (including, but not limited to, modification through the use of unauthorized parts or attachments); products damaged by reason of repairs made to any component without the specific consent of Invacare, or to a product damaged by circumstances beyond Invacare's control, and such evaluation will be solely determined by Invacare. The warranty shall not apply to problems arising from normal wear and tear or failure to adhere to the product instructions. A change in operating noise, particularly relative to

motors and gearboxes does not constitute a failure or defect and will not be repaired; all devices will exhibit changes in operating noise due to aging.

The foregoing express warranty is exclusive and in lieu of any other warranties whatsoever, whether express or implied, including the implied warranties of merchantability and fitness for a particular purpose, and the sole remedy for violations of any warranty whatsoever, shall be limited to repair or replacement of the defective product pursuant to the terms contained herein. the application of any implied warranty whatsoever shall not extend beyond the duration of the express warranty provided herein and Invacare shall not be liable for any consequential or incidental damages whatsoever; SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGE, OR LIMITATION OF HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE EXCLUSION AND LIMITATION MAY NOT BE APPLICABLE.

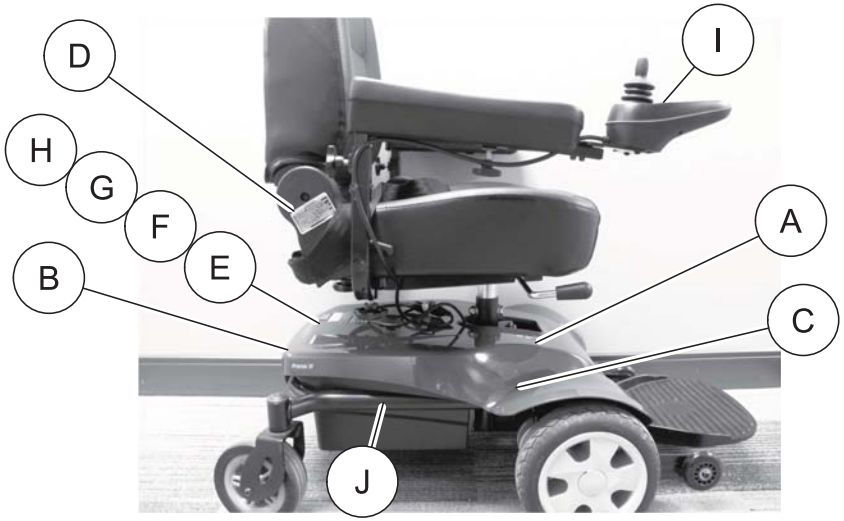
THIS WARRANTY SHALL BE EXTENDED TO COMPLY WITH STATE/PROVINCIAL LAWS AND REQUIREMENTS.

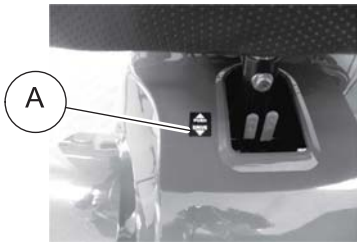
4 Overview

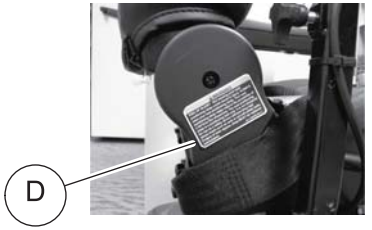
4.1 Component Identification

ITEM	DESCRIPTION	ITEM	DESCRIPTION
A	Headrest	G	Shroud
B	Back	H	Footrest
C	Joystick	I	Anti-Tipper
D	Joystick Adjustment Knob	J	Drive Wheel
E	Seat	K	Rear Caster
F	Seat Lock Handle	L	Armrest

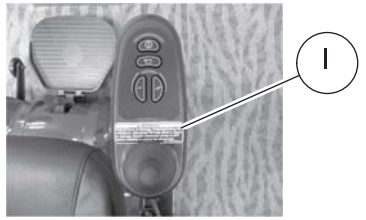
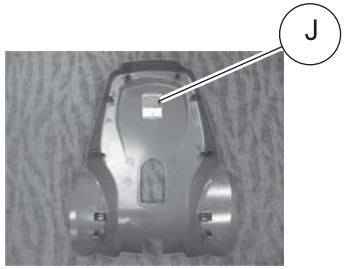
4.2 Label Location



ITEM/PART NUMBER	LABEL	LOCATION
A – 1183477		
B — 1095498		

ITEM/PART NUMBER	LABEL	LOCATION
C - 1183468		
D-1183428		

ITEM/PART NUMBER	LABEL	LOCATION
E-1183471	⚠ WARNING Risk of Injury Reduced stability of the wheelchair occurs when the wheelchair is operated with the back reclined in the lowest position. DO NOT operate the wheelchair with the back reclined to its lowest position. 1183471 Rev A	
F-1183420	⚠ WARNING Risk of Damage Interference between joystick cable and armrest may result in damage to the wheelchair. When locking the joystick mounting tube to the armrest, ensure the mounting tube is positioned as to avoid interference between joystick cable and armrest. p/n 1183420 Rev A	
G-1183421	Before using this product, read and understand the User Manual. The user manual provides proper operation and safe practices. Documentation can be obtained at: • www.invacare.com • ph (440) 329-6000 • One Invacare Way, Elyria OH 44035-2125 1183421 Rev A	

ITEM/PART NUMBER	LABEL	LOCATION
H - 1183476	WEIGHT CAPACITY 300 LBS (136 kgs) REFER TO USER MANUAL P/N 1183476 Rev A	
I - 1183419	⚠ WARNING Risk of Injury or Damage. Entering/Exiting the wheelchair with power ON may result in injury or damage. Ensure wheelchair power is OFF before entering or exiting the wheelchair. 1183419 Rev A	
J-1183469	⚠ WARNING	

4.3 Product Description

Pronto 31 wheelchair is battery powered, front wheel motor driven and controlled by the PG power wheelchair VR-2 50 amp controller. The user interface is a joystick. Pronto 31 is powered by two 12 VDC 34 ah (U1) batteries. The batteries are charged by a 4A off-boared charger connected with 3–pin connector to the charging socket on the joystick. The approximate driving range on fully charged batteries is up to 18 miles (28 km). The chair frame is a rived nut and welded steel construction and includes two front drive wheels with drive units (including motor, gear, brake), batteries and rear pivoting casters. Depending on users needs, the joystick motor control is mounted to the left or right armrest. When the user activates the joystick, the controller receives a signal to release the brakes. With the brakes released, the wheelchair is allowed to move in the direction the joystick is actuated. When the user releases the joystick, the chair slows to a stop and the brakes are automatically re-engaged. The solenoid electromechanical brakes allow the user to stop by letting go of the joystick. The upholstery of the device complies with UL CAI 117 (EN 1021–1/-2:2006): Furniture: Assessment of the ignite- ability of furniture: Ignition source: smoldering cigarette/ match flame equivalent. The device can be operated on dry, level surfaces composed of concrete, blacktop, or asphalt under normal driving conditions.

5 Technical Data

5.1 Typical Product Parameters

5.1.1 Overall Dimensions

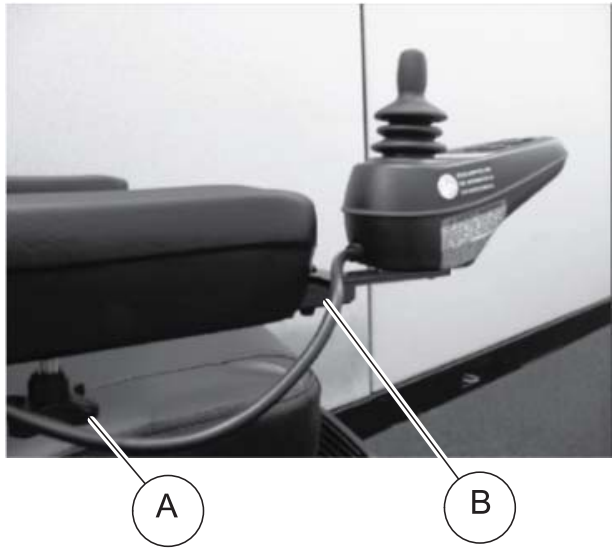
	MODELS P31BLACK, P31BLUE
Overall Length	38.75 inches (98.42 cm)
Overall Width	23.5 inches (59.69 cm)
Seat Width	18 inches (45.72 cm)
Seat Depth	18 inches (45.72 cm)
Seat Height (at Front Edge to Floor)	20.5 to 22 inches (52.1 to 55.88 cm)
Speed	4 mph (6.4 km/h)
Range	up to 13 mi (20.9 km)
Weight Capacity	300 lbs (136 kg)
Total Mass	153 lbs (69 kg)
Battery Weight (each)	26 lbs (12 kg)
Motors	DC24V (130W)
Brake	Intelligent regenerative electromagnetic brake
Controller	PG n VR2 50A
Battery	12V U1 2 pcs
Charger	4A off-board
Gradient	6° (300 lbs)
Caster Wheel	6 inch PU tire
Drive Wheel	9 inch PU tire
Recommended Storage and Shipping Temperature	Dry (15%~95% Non-Condensing), Well ventilated area -4° F to 140° F (22° C to 60° C)

All dimensions are ± .50 inches unless otherwise indicated.

6 Wheelchair Operation

6.1 Preparing the Joystick Assembly for Use

WARNING!
– After ANY adjustments, repair or service and before use, make sure that all attaching hardware is tightened securely - otherwise injury or damage may result.
– Set-up of the Electronic Control Unit is to be performed only by a qualified technician. The final adjustments of the controller may affect other activities of the wheelchair. Damage to the equipment could occur under these circumstances.



The joystick assembly is factory installed on the right side of the wheelchair. To reposition the joystick onto the left side of the wheelchair, refer to 8.9 Moving Joystick Assembly From One Armrest To The Other Armrest, page 50.

1. Turn the adjustment knob Ⓐ to release the joystick mounting tube Ⓑ.
2. Slide joystick mounting tube in or out to the desired position.
3. Turn the adjustment knob to secure the joystick mounting tube in place.

6.2 Turning the Power On/Off

1. Press the On/Off button Ⓐ to turn the power On.
2. Press the On/Off button again to turn the power Off.

6.3 Using the Joystick to Drive the Wheelchair

The joystick is located on the joystick housing and provides smooth control of speed and direction. It is equipped with 360 degrees of mobility for ease of operation. The joystick is spring-loaded, and automatically returns to the upright (neutral) position when released. Pushing the joystick in a given direction causes the wheelchair to move in that direction.

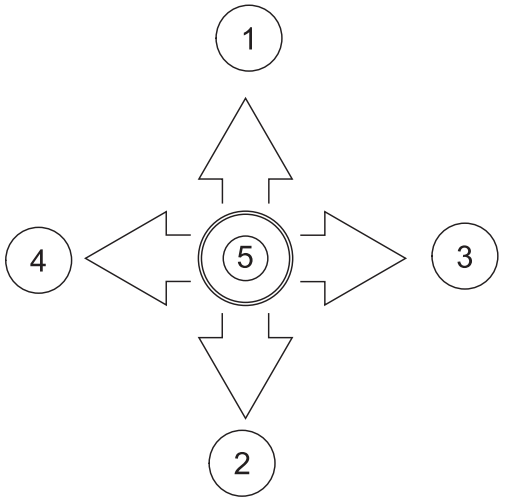
The joystick has proportional drive control, meaning that the further it is pushed from the upright (neutral) position, the faster the wheelchair moves. The maximum speed, however, is limited by the setting of the speed-control knob.

To slow the wheelchair to a stop, simply release the joystick. The wheelchair has automatic speed and direction compensation to minimize corrections.

When first learning to drive, select a slow speed and try to drive the wheelchair as slowly as possible by pushing the joystick slightly forward. This exercise will help you learn to utilize the full potential of the proportional control and allow you to start and stop smoothly.

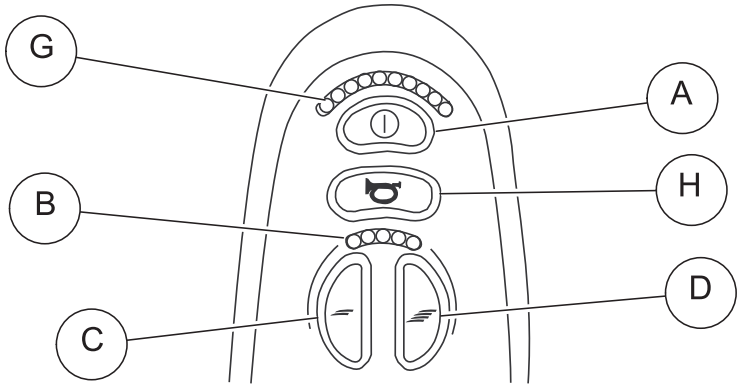
To drive the wheelchair, perform the following:

1. Adjust speed control knob to the appropriate setting.
2. Turn the power On.
3. Maneuver the joystick in the following manner:



POSITION	MOVEMENT	ACTION
1	FORWARD	Push joystick forward, towards the front of the wheelchair.
2	REVERSE	Pull joystick back, towards the rear of the wheelchair.
3	Turn RIGHT	Move joystick toward the right side of the wheelchair.
4	Turn LEFT	Move joystick toward the left side of the wheelchair.
5	STOP	Release the joystick and the wheelchair will slow to a stop.

6.4 Joystick Assembly, Switches, and Indicators



ITEM	DESCRIPTION
A	On/Off Button
B	Speedometer
C	Decrease Speed Control Button
D	Increase Speed Control Button
E	Joystick
F	Charger/Programming Input
G	Information Gauge Display
H	Horn

6.4.1 On/Off Button

The On/Off button Ⓐ is located at the front of the joystick housing. It is used to turn the wheelchair power On and Off.

6.4.2 Speedometer

The speedometer Ⓑ is used to show the maximum speed. The right-most LED indicates current maximum speed setting.

6.4.3 Speed Control Buttons

The speed control buttons, decrease speed button Ⓒ and increase speed button Ⓓ, are used to set and adjust the maximum speed. The speed can be adjusted in 20% increments.

1. Perform one of the following:
   - Press the decrease speed button Ⓒ to decrease the speed in 20% increments.
   - Press the increase speed button Ⓓ to increase the speed in 20% increments.

6.4.4 Joystick

The joystick Ⓔ has proportional drive control, meaning that the further the joystick is pushed from the upright, center (neutral) position, the faster the wheelchair or seat moves. Your top speed, however, is limited by the programmed settings. The wheelchair has automatic speed and direction compensation to minimize corrections.

To slow the wheelchair to a stop, simply release the joystick. The joystick will return to upright, center position bringing the speed back to zero and stopping the wheelchair.

6.4.5 Charger/Programming Input

The charger/programming input Ⓕ is located at the front of the joystick housing. This provides easy access for charging the wheelchair batteries. This port also serves as the Remote Programmer Communication connection. Driving is prevented while an external charger is connected for battery charging.

6.4.6 Information Gauge Display

The information gauge display Ⓖ is located on the front of the joystick housing and provides the following information to the user on the status of the wheelchair:

1. Power is On.
2. True state-of-battery-charge, including notification of when the battery requires charging:
   - Green LEDs are lit, indicating well charged batteries.
   - Amber LEDs are lit, indicating batteries are moderately charged. Recharge batteries before taking a long trip.
   - Red LEDs are lit, indicating batteries are running out of charge. Recharge batteries as soon as possible.

The Information Gauge display also serves as a system diagnostic device when a fault is detected by the control module. A specific number of flashes of the LEDs indicate the type of fault detected.

Horn

The horn Ⓗ is used to signal bystanders of your presence.

6.5 When to Charge Batteries

Keep Batteries charged. When possible, DO NOT allow battery charge to go to empty.

If battery charge becomes so low that no battery indicators are lit, allow the batteries to charge overnight.

The Information Gauge Display located on the front of the joystick housing, it provides the state-of-battery charge, including notification of when the battery requires charging. It also provides the following information to the user on the status of the wheelchair:

- Green LEDs are lit, indicating well charged batteries.
- Amber LEDs are lit, indicating batteries are moderately charged. Recharge batteries before taking a long trip.
- Red LEDs are lit, indicating batteries are running out of charge. Recharge batteries as soon as possible.

6.6 Charging Batteries

DANGER!

– When using an extension cord, use an extension cord having at least 16 AWG (American Wire Gauge) wire and the same or higher electrical rating as the device being connected. Use of improper extension cord could result in fire and electric shock.

WARNING!
- NEVER attempt to recharge the batteries by attaching clamps or cables directly to the battery terminals or clamps. ALWAYS use a proper charger connected to the recharging plug located on the front of the joystick.
- DO NOT attempt to recharge the batteries and operate the power wheelchair at the same time.
- DO NOT operate wheelchair with extension cord attached to the AC cable.
- DO NOT attempt to recharge the batteries when the wheelchair has been exposed to any type of moisture.
- DO NOT attempt to recharge the batteries when the wheelchair is outside.
- DO NOT sit in the wheelchair while charging the batteries.
- READ and CAREFULLY follow the manufacturer's instructions for each charger (supplied or purchased). If charging instructions are not supplied, consult a qualified technician for proper procedures.
- Ensure the pins of the extension cord plug are the same number, size, and shape as those on the charger.
- During use and charging, unsealed batteries will vent hydrogen gas which is explosive in the right concentration with air.

New batteries MUST be fully charged prior to initial use of the wheelchair.

As a general rule, batteries should be recharged daily to assure the longest possible life and minimize the required charging time. Plan to recharge the batteries when it is anticipated the wheelchair will not be used for a long period of time.

The range per battery charge using recommended batteries should be approximately 5 to 9 hours of typical operation. Extensive use on inclines may substantially reduce per charge mileage.

6.6.1 Description and Use of Battery Chargers

The charger automatically reduces the charge from an initially high rate to a zero reading at a fully charged condition. If left unattended, the charger should automatically shut-off when full charge is obtained or enter a trickle charge mode to maintain the batteries depending on charger model.

There are some basic concepts which will help you understand this automatic process. They are:

Once the charger has been connected to the wheelchair and wall outlet and, if necessary, the charger has been turned on, the battery charger indicator lights will flash and light to show the battery charger status and condition of batteries to be charged. Refer to owner's manual shipped with battery charger.

WARNING!
- NEVER leave the charger unattended when the breaker has tripped. A fault condition exists. Unplug and discontinue using immediately. Contact an Invacare dealer.

If performing the charging procedures, READ and CAREFULLY follow the individual instructions for each charger (supplied or purchased).

If charging instructions are not supplied, consult a qualified service technician for proper procedures.

Required Items:

TOOL	QTY	COMMENTS
Battery Charger	1	Supplied

1. Attach the battery charger connector to the charger port Ⓐ on the joystick assembly.
2. Plug the charger's AC power cord, or extension, into the grounded 120 VAC wall outlet.
3. When charge is complete, disconnect charger from electrical outlet.
4. Disconnect output cable from charger port.

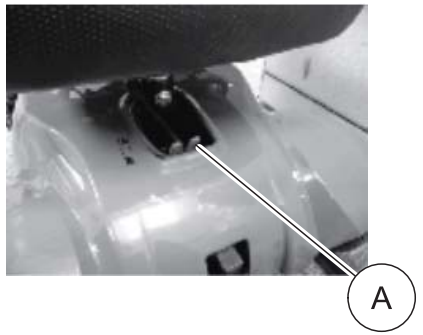
Allow eight hours for normal charging. Larger batteries (greater than 55 ampere-hours) or severely discharged batteries may require up to sixteen hours to be properly charged and equalized.

It is advantageous to recharge frequently rather than only when necessary. A battery's life is extended if a high charge level is maintained.

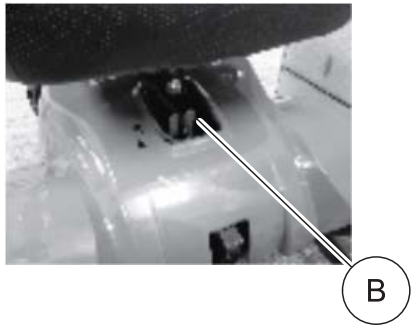
If the batteries need to be charged more often, your usage time is greatly reduced, or take longer to charge than normal, they may need to be replaced. Contact an Invacare dealer for service.

6.7 Disengaging/Engaging the Motor Lock Levers

Drive Mode



Push Mode



WARNING!
– DO NOT engage or disengage motor lock levers until the power is in the OFF position.

WARNING!
Risk of injury or damage
Disengaged motor lock levers while on an incline could result in the wheelchair rolling down the incline on its own.
– DO NOT disengage the motor lock levers without the presence of an attendant.

Motor lock Ⓐ disengagement allows for free-wheeling. Free-wheeling is the ability for an assistant to maneuver the wheelchair without power by disengaging the drive wheels from the motors.

Motor lock Ⓑ engagement allows for joystick control. Joystick control is the ability for the user to maneuver the wheelchair with the joystick under its own power by engaging the drive motors to drive wheels.

Motor lock levers are located in the cutout of the shroud toward the front of the wheelchair.

1. Perform one of the following as if viewing the motors from in front of the wheelchair (Detail “A”):
   - Disengage (PUSH) - Move the motor lock levers REARWARD (toward the seat post) to disengage the motors and push the wheelchair.
   - Engage (DRIVE) - Move the motor lock levers FORWARD (away from the seat post) to engage the motors and drive the wheelchair.

7 Component Adjustment

7.1 Adjusting the Back Angle

WARNING!
Risk of Injury
The Back is spring loaded. When the Back is in the upright position and the wheelchair is unoccupied, lifting up on the release lever causes the Back to rapidly fold down toward the seat which may result in injury.
– Hold the Back in place with one hand while lifting the release lever with the other hand to avoid injury.

WARNING!
Risk of Injury
Reduced stability of the wheelchair occurs when the wheelchair is operated with the back reclined in the lowest position.
– DO NOT operate the wheelchair with the back reclined to its lowest position.

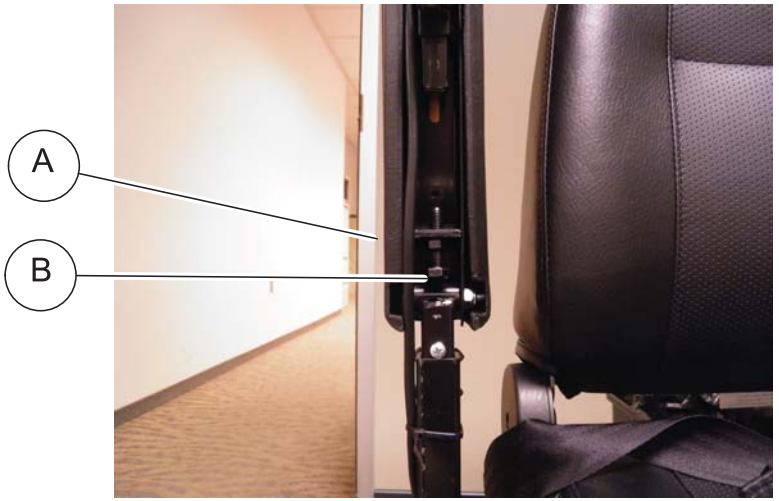
1. While seated in the wheelchair, lift up on the release handle Ⓐ and adjust the Back Ⓑ to desired angle.
2. Let go of the release handle Ⓐ to lock the Back Ⓑ at desired angle.

7.2 Armrest Adjustment — Width, Height, and Angle

7.2.1 Adjusting the Armrest Width and Height

- To adjust the width:
  1. Loosen the adjustment knob Ⓐ, adjust armrest tube Ⓑ in or out to desired position.
  2. Retighten adjustment knob securely
- To adjust the height:
  1. Loosen the adjustment knob Ⓒ, adjust armrest tube Ⓓ up or down to desired position.
  2. Retighten adjustment knob securely

7.2.2 Adjusting Armrest Angle



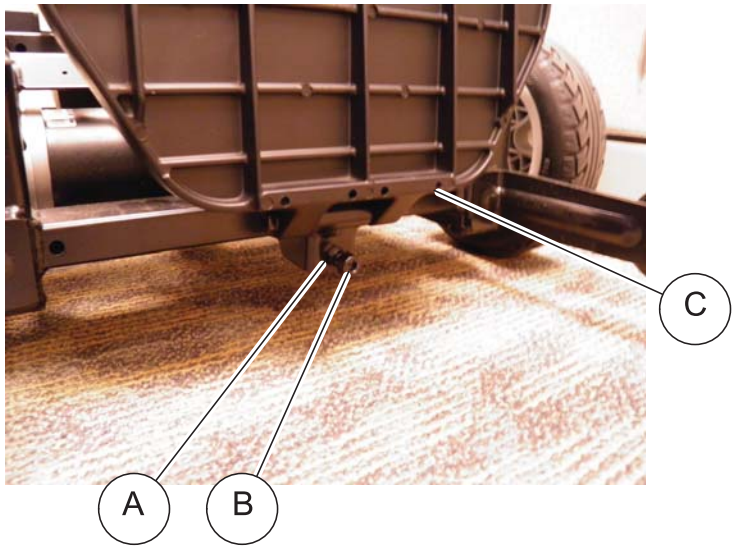
1. Flip up armrest Ⓐ for access to set screw.
2. Perform one of the following:
   - Turn set screw Ⓑ counter clockwise to raise armrest.
   - Turn set screw Ⓑ clockwise to lower armrest.
3. Lower armrest down into position.

7.3 Adjusting the Footboard Assembly

7.3.1 Adjusting The Footboard Angle

WARNING!

- After any adjustments, repair or service and before use, make sure that all attaching hardware is tightened securely - otherwise injury or damage may result.
- Before performing any maintenance, adjustment or service verify that on/off switch on the joystick is in the off position.
- DO NOT stand on the flip-up footboard. When getting in or out of the wheelchair, make sure that the flip-up footboard is in the upward position.
- Limited Clearance Between Footboard and Caster - The user's feet MUST remain centered on the footboard, away from the footboard sides, while operating the wheelchair. If the user's feet are allowed to rest off the side of the footboard they may come in contact with the caster possibly resulting in injury.



1. Loosen the jam nut Ⓐ and set screw Ⓑ located underneath on the backside of the footboard Ⓒ.
2. Adjust the set screw in or out to obtain the desired footboard assembly angle.
3. Thread the jam nut and washer inward until it is flush with the footboard bracket.
4. Securely tighten the jam nut and washer to secure the mounting screw in place.

7.3.2 Adjusting the Footboard Height

1. Remove the seat. Refer to 8.1 Removing/Installing the Seat Assembly, page 39.
2. Remove the top shroud. Refer to8.2 Removing/Installing the Shroud, page 41
3. Remove the two mounting screws Ⓐ and locknuts Ⓑ that secure the footboard Ⓒ to the support bracket Ⓓ on the base frame Ⓔ.
4. Adjust footboard to desired height and align with corresponding mounting holes on the footboard support bracket.
5. Secure the footboard to the support bracket with two mounting screws Ⓐ and locknuts Ⓑ. Tighten securely.

7.4 Adjusting the Headrest

1. To adjust the headrest Ⓐ (raise or lower), push the release tab Ⓑ “In”. Raise/Lower the headrest to one of four preset height adjustment.

   The four preset height adjustments are indicated by the notches Ⓒ found in the upright

7.5 Adjusting the Seat Direction

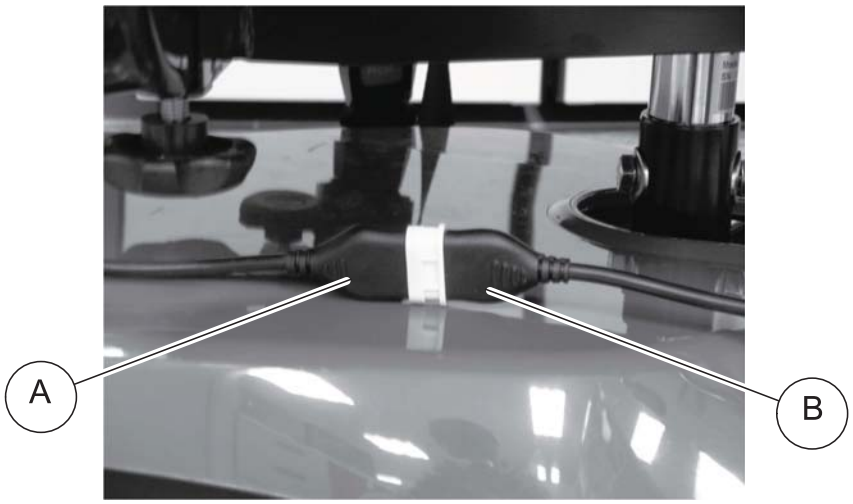
WARNING!
Risk of injury or damage
Serious injury or property damage can result if the seat is not facing forward while driving.
– DO NOT operate the wheelchair without the seat facing forward. Ensure the seat is facing forward BEFORE operating the wheelchair.

The seat can rotate 360° and it locks into place at each 45° rotation.

1. Lift up on release lever Ⓐ and rotate seat Ⓑ in either direction until it locks into place.
2. Repeat STEP 1 until desired direction is achieved.

8 Setup

8.1 Removing/Installing the Seat Assembly



8.1.1 Removing the Seat Assembly

WARNING!
Risk of Injury
The Back is spring loaded. Lifting up on the release lever, when not seated in the wheelchair, causes the Back to rapidly fold down toward the seat which may result in injury.
– Hold the Back in place with one hand while lifting the release lever with the other hand to avoid injury.

1. Verify that the power to the wheelchair is Off.

   The joystick cable connector/controller connector is located beneath the seat on top of the shroud.

2. Disconnect the joystick cable connector Ⓐ from the controller cable connector Ⓑ.
3. While holding the Back Ⓒ in place with one hand, lift up and hold the release lever Ⓓ with the other hand.
4. Gently lower the Back down onto the seat.
5. Lift the seat assembly Ⓔ up and away from the seat post Ⓕ of the base Ⓖ and set aside.

8.1.2 Installing the Seat Assembly

When performing STEP 1, ensure the seat is facing forward upon installation.

1. Grab and hold the release lever Ⓓ with one hand and rotate the lever backwards to disengage the seat locking mechanism.
2. Grab the opposite side of the seat assembly Ⓔ with the other hand.
3. Lift the seat assembly up and insert the seat support Ⓗ into the seat post Ⓕ of the base Ⓖ.
4. Let go of the release lever.

WARNING!
Risk of injury or damage
Loss of control due to unexpected seat swiveling.
– DO NOT operate the Pronto 31 without the seat locking mechanism fully engaged into the seat post. Unexpected seat swivel may occur if seat locking mechanism is not engaged.

5. Swivel the seat from side to side and listen for the locking mechanism to engage into the seat post.

   An audible “click” will be heard when the locking mechanism engages into one of the slots Ⓘ in the seat post Ⓕ. If locking mechanism does not engage, repeat steps 3–5 again until seat locks into position.

6. Rotate the back into the upright position
7. Connect the joystick cable connector Ⓐ to the controller cable connector Ⓑ.

8.2 Removing/Installing the Shroud

8.2.1 Removing the Shroud

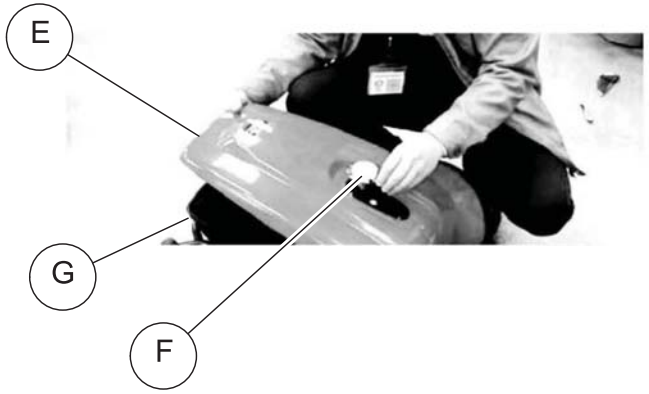
1. Using both hands to hold the shroud rear Ⓐ, slightly pull up the rear end of the shroud to release the rear hooks from the bracket on the battery tray.

2. With one hand on the shroud rear Ⓐ and one hand on the shroud front Ⓑ, slightly move the shroud backward. This will release the front hooks from the bracket on base frame.
3. After both hooks are released from the front frame and rear battery tray, lift shroud up off of base frame.

8.2.2 Installing the Shroud

1. Note that there are two hooks Ⓐ at the front end of the shroud for aligning with the brackets Ⓑ on the front of the base frame

2. Note that there are two hooks Ⓒ at the rear end of the shroud for aligning with the brackets Ⓓ on the battery tray.

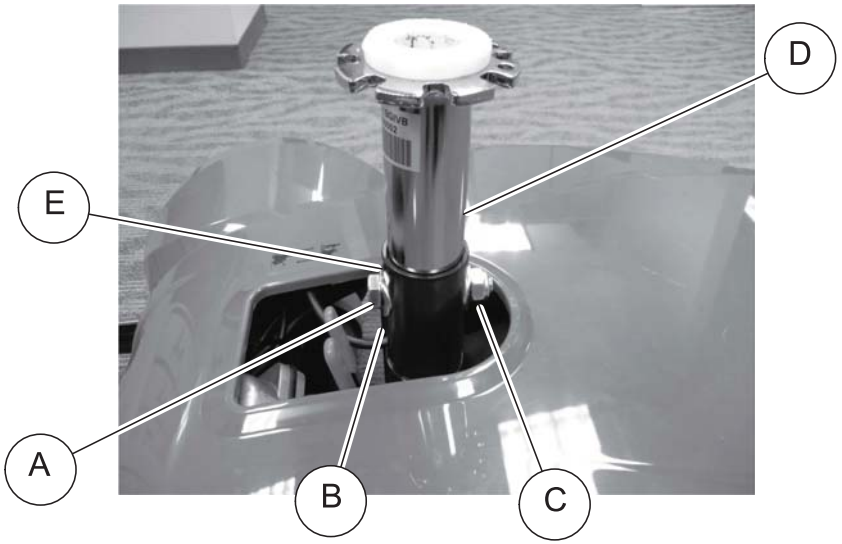


3. Holding the front end and rear end of the shroud Ⓔ and aligning opening with seat post Ⓕ, lower shroud onto base frame Ⓖ.

4. With the rear end of the shroud raised slightly, align the front shroud hooks with the brackets of the base frame.
5. Slightly move the shroud forward to ensure the hooks engage the brackets.

6. Push down on the rear of the shroud to make the rear hooks engage into the brackets.

8.3 Adjusting the Seat Height



1. Remove the seat. Refer to 8.1 Removing/Installing the Seat Assembly, page 39
2. Remove the mounting screw Ⓐ, washers Ⓑ, and locknut Ⓒ that secures the seat post Ⓓ to the base frame Ⓔ.

3. Adjust the seat post Ⓓ to one of three mounting positions Ⓕ.
4. Secure the seat post to the base frame in the desired mounting position with the mounting screw, washers, and locknut. Tighten securely.
5. Install the seat. Refer to 8.1 Removing/Installing the Seat Assembly, page 39.

8.4 Batteries

WARNING!

- After any adjustments, repair or service and before use, make sure that all attaching hardware is tightened securely - otherwise injury or damage may result.
- Before performing any maintenance, adjustment or service verify that On/Off switch on the joystick is in the Off position.
- Most batteries are not sold with instructions. However, warnings are frequently noted on the cell caps. Read them carefully, otherwise serious injury or damage may occur.
- Invacare strongly recommends that battery installation and battery replacement always be done by a qualified technician.
- Always transport the battery pack/box in an upright and secure manner. To prevent damage, do not transport the battery pack/box with other objects that could suddenly shift during transportation, unless they are secured or in a different vehicle area. Do not transport battery pack/box with gas cans or similar containers in the same vehicle area.
- Do not tip the batteries. Keep the batteries in an upright position.
- never allow any of your tools and/or battery cable(s) to contact both battery posts at the same time. An electrical short may occur and serious personal injury or damage may occur.
- The positive (+) red battery cable must connect to the positive (+) battery terminal, otherwise serious damage will occur to the electrical system.

WARNING!

– If there is battery acid in the bottom of the battery tray or on the sides of any battery, apply baking soda to these areas to neutralize the battery acid. Before reinstalling the existing or any new battery, clean the baking soda from the battery tray or any battery being sure to avoid contact with skin and eyes. Determine source of contamination. Never install/reinstall a battery with a cracked or otherwise damaged case.

8.5 Using the Proper Batteries

WARNING!

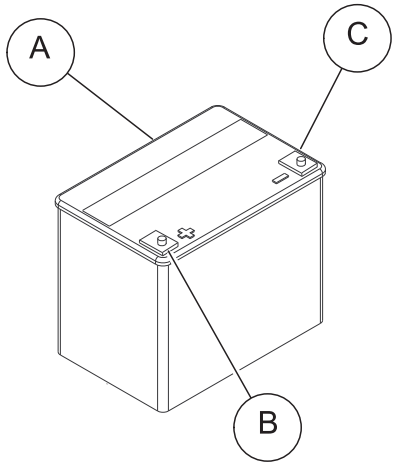
Risk of injury or damage

Batteries that have the reverse terminal configuration must not be used, otherwise injury and damage may occur.

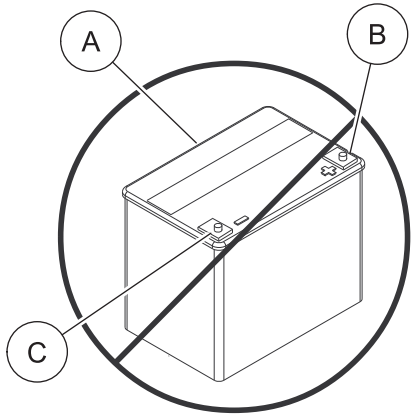
– Batteries with terminal configuration as shown below must be used.

ITEM	DESCRIPTION
A	U1 Battery
B	Positive Battery Terminal
C	Negative Battery Terminal

Use this Configuration



DO NOT use this configuration



1. Place battery on ground/flat surface.
2. Visually draw a horizontal and vertical center line through the middle of battery.
3. Position the battery so that the terminals are above the horizontal center line.
4. Visually inspect the battery to ensure the correct position of the positive and negative terminals.

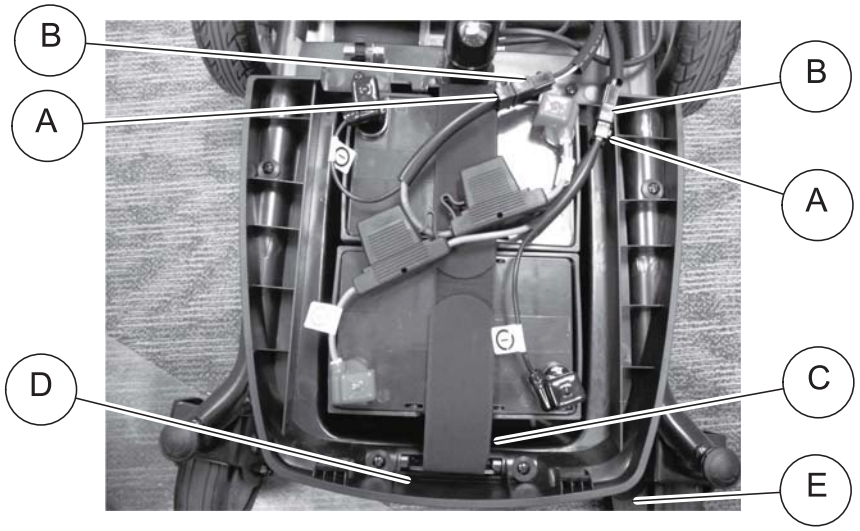
Recommended battery type is spill proof and requires no maintenance except routine charging.

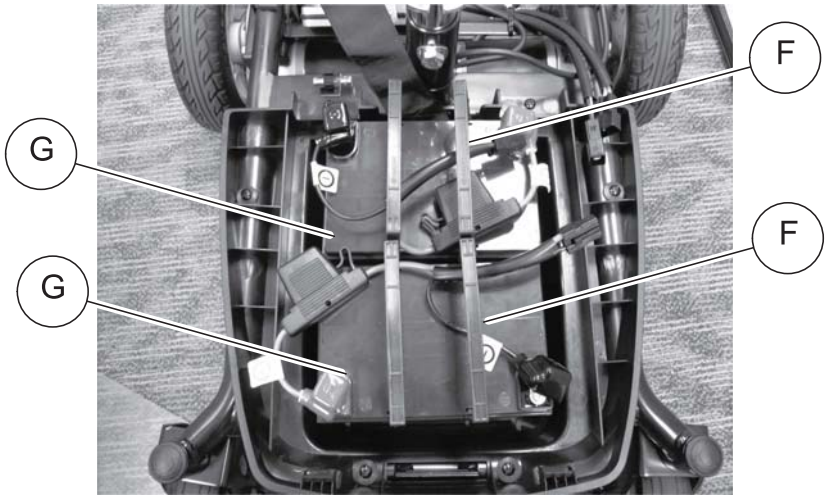
Charge batteries daily. Do not allow batteries to completely discharge. To charge batteries, refer to 6.6 Charging Batteries, page 30

Invacare recommends that both batteries be replaced if one battery is defective.

8.6 Removing/Installing the Batteries

8.6.1 Removing the Batteries





1. Disconnect the joystick.
2. Remove the seat. Refer to 8.1 Removing/Installing the Seat Assembly, page 39.
3. Remove the top shroud. Refer to 8.2 Removing/Installing the Shroud, page 41.
4. Disconnect one battery cable connector Ⓐ from the controller connector Ⓑ.
5. Disconnect remaining battery cable connector Ⓐ from the controller connector. Ⓑ
6. Disconnect hook and loop fastener Ⓒ.
7. Remove the hook and loop fastener from the slot in the anchor plate Ⓓ located in the rear of the battery tray Ⓔ.
8. Raise the handles Ⓕ located on the both sides of each battery Ⓖ.

   Batteries are also secured in place by hook and loop fastener located on the bottom of each battery and the bottom of the battery tray.

9. Lift one battery (with battery cables) out of the battery tray.
10. Lift remaining battery (with battery cables) out of the battery tray

8.6.2 Installing the Batteries

WARNING!
- Install protective caps on POSITIVE (+) and NEGATIVE (-) terminals.
- All battery terminal covers (two on each battery) must be installed prior to use.

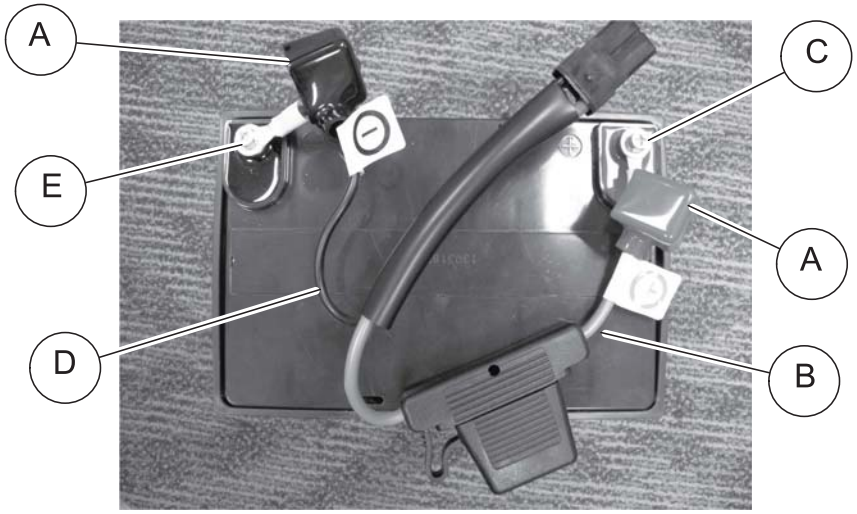
1. Position one battery (with battery cables) Ⓖ in the battery tray Ⓔ.
2. Position remaining battery in the battery tray.

   Ensure that both batteries are properly seated and resting on the battery tray.

3. Lower the handles Ⓕ down to the side of each battery.

4. Thread the hook and loop fastener Ⓒ through the slot in the anchor plate Ⓓ located in the rear of the battery tray.
5. Connect the hook and loop fastener.
6. Connect one battery cable connector Ⓐ to the controller connector Ⓑ.
7. Connect the remaining battery cable connector Ⓐ to the controller connector Ⓑ.
8. Install top shroud. Refer to 8.2 Removing/Installing the Shroud, page 41.
9. Install the seat. Refer to 8.1 Removing/Installing the Seat Assembly, page 39.
10. Connect joystick.

8.7 Connecting/Disconnecting Battery Cables



8.7.1 Disconnecting Battery Cables

WARNING!
- The use of rubber gloves is recommended when working with batteries.
- NEVER allow any of your tools and/or battery cable(s) to contact BOTH battery terminal(s)/post(s) at the same time. An electrical short may occur and serious personal injury or damage may occur.

1. Remove the seat. Refer to 8.1 Removing/Installing the Seat Assembly, page 39.
2. Remove the shroud. 8.2 Removing/Installing the Shroud, page 41.
3. Remove the batteries. Refer to 8.6.1 Removing the Batteries, page 47
4. Slide terminal caps Ⓐ UP on the battery cables.
5. Disconnect POSITIVE (+) RED battery cable Ⓑ from the POSITIVE (+) battery terminal Ⓒ.
6. Disconnect Negative (-) BLACK battery cable Ⓓ from NEGATIVE (-) battery terminal Ⓔ.

8.7.2 Connecting Battery Cables

WARNING!
– NEVER allow any of your tools and/or battery cable(s) to contact both battery terminal(s)/post(s) at the same time. An electrical short may occur and serious personal injury or damage may occur.
– The use of rubber gloves is recommended when working with batteries.
– Always use U1 batteries with the correct battery terminal configuration. Refer to...
– All battery terminal covers (two on the front battery and two on the rear battery) must be installed prior to use. Ensure protective caps are installed on POSITIVE (+) and NEGATIVE (-) terminals. If the caps are not present, contact your dealer.

1. Connect NEGATIVE (-) BLACK battery cable Ⓓ to NEGATIVE (-) battery terminal Ⓔ.
2. Connect POSITIVE (+) RED battery cable Ⓑ to POSITIVE (+) battery terminal Ⓒ.
3. Secure the battery cables/ring terminals to the battery terminals, BLACK to NEGATIVE (-) and RED to POSITIVE (+), with the provided washer, lock washer, and mounting screw. Securely tighten.
4. Verify all battery cables/ring terminals are correctly installed and securely tightened.
5. Slide terminal caps Ⓐ down battery cables and onto battery clamps.
6. Install the batteries into the wheelchair. 8.6.1 Removing the Batteries, page 47

New Battery(ies) MUST be fully charged before using, otherwise the life of the battery(ies) will be reduced.

7. If necessary, charge the batteries.
8. Install the shroud. 8.2 Removing/Installing the Shroud, page 41.
9. Install the seat. 8.1 Removing/Installing the Seat Assembly, page 39.

8.8 Disconnecting/Connecting the Joystick

8.8.1 Disconnecting

1. Hold the joystick connector Ⓐ with one hand and the controller connector Ⓑ in the other hand.
2. With your thumb, press the release tab Ⓒ and disconnect y pulling them apart.

8.8.2 Connecting

WARNING!
– The joystick connector and controller connector fit together in one way only. DO NOT force them together.

1. Hold the joystick connector Ⓐ with one hand and the controller connector Ⓑ in the other hand.
2. Align the connectors.
3. Lightly push to engage the tab Ⓒ on joystick connector with ridge Ⓓ on the controller connector.
4. Try to pull apart without pressing on the tab to ensure they are locked together.

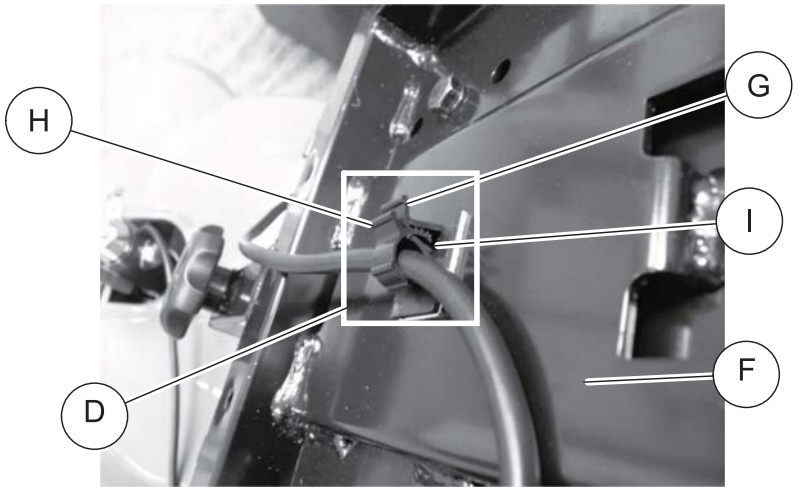
8.9 Moving Joystick Assembly From One Armrest To The Other Armrest

8.9.1 Removing Joystick Assembly from Existing Armrest

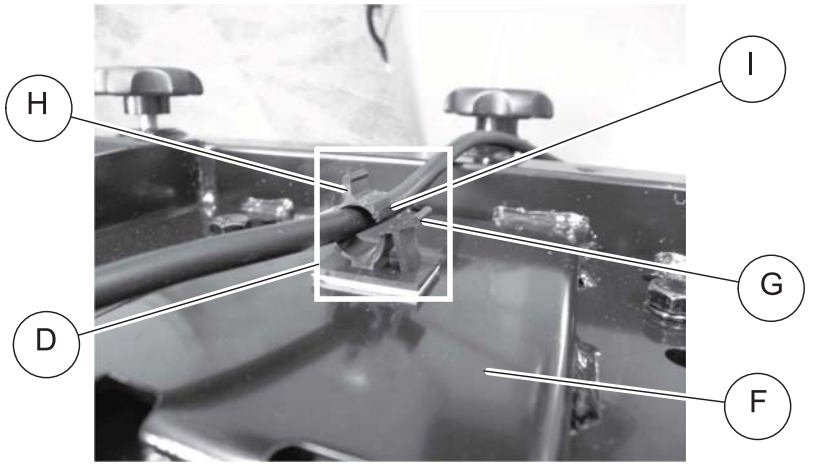
1. Cut tie-wrap Ⓐ
2. Loosen adjustment knob Ⓑ.

3. Remove the joystick cable Ⓒ from the mounting clip Ⓓ located on the back of the seat frame Ⓔ and, if necessary, from the mounting clip on the bottom of the seat plate Ⓕ.

LOCKED



UNLOCKED



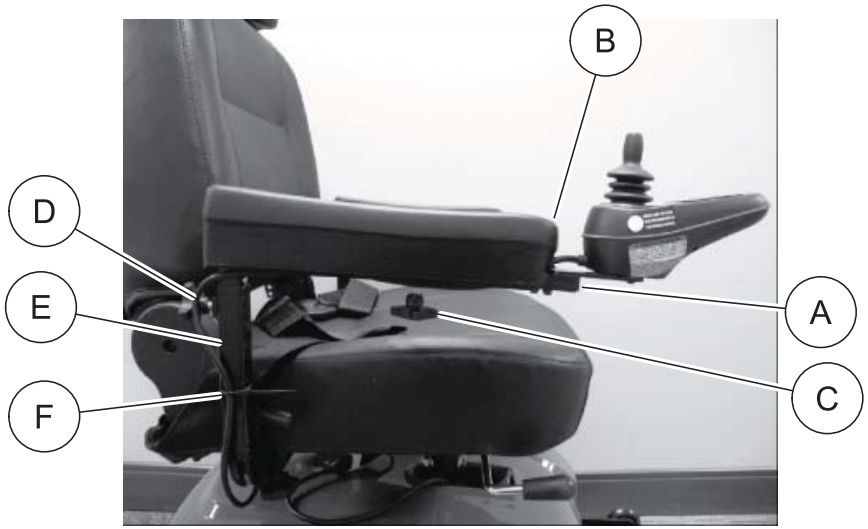
Unlock each mounting clip Ⓓ by pressing outward on the locking tab Ⓖ and away from the ring tab Ⓗ. This will disengage the teeth Ⓘ of the ring tab from the locking tab.

The mounting clip shown is located on the bottom of the seat plate Ⓕ.

4. Remove joystick assembly from armrest.

8.9.2 Installing Joystick Assembly Onto Other Armrest

CAUTION!
Risk of damage to wheelchair and/or surrounding property
Joystick cable that is not routed properly may result in damage to wheelchair and/or surrounding property
– Ensure that there is not any excess joystick cable sticking out beyond the armrest in any direction. Otherwise, the cable may catch on passing objects resulting in damage to the wheelchair and/or surrounding property.



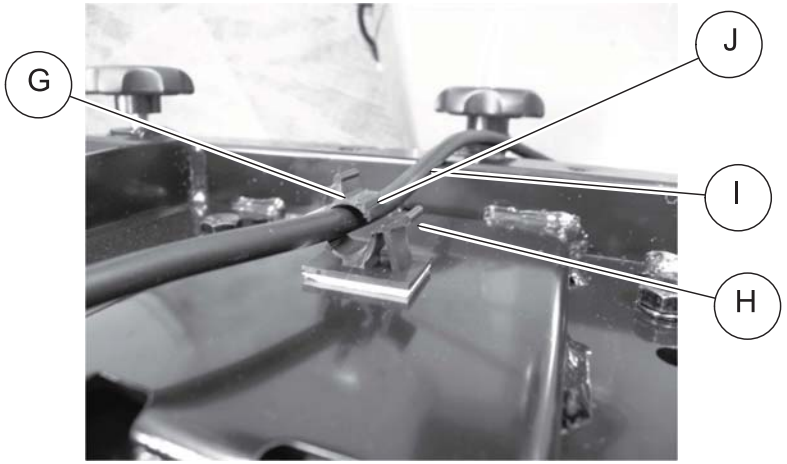
1. Install joystick mounting tube Ⓐ into desired armrest Ⓑ.
2. Adjust joystick mounting tube in/or out to desired position.
3. Tighten adjustment knob Ⓒ.
4. Route joystick cable Ⓓ along and under the armrest and back toward vertical support tube Ⓔ.

   When performing STEP 5, ensure to leave some slack in the cable before securing in place to allow for mounting tube to be adjusted in or out if necessary.

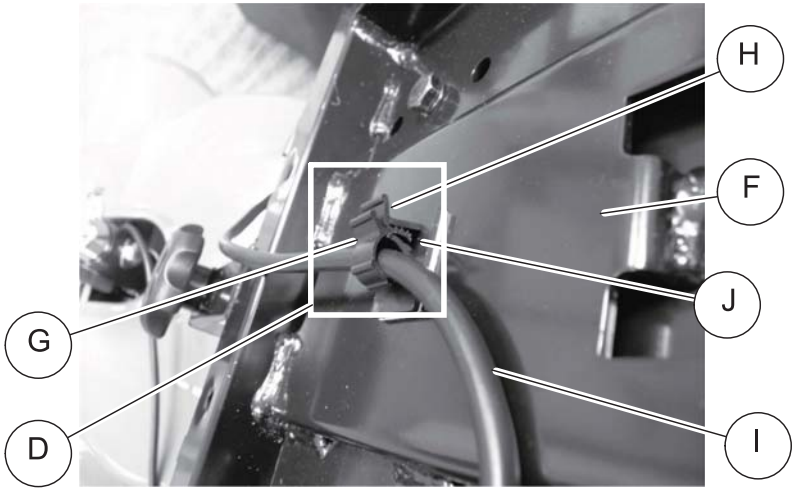
5. Route joystick cable down vertical support tube.

6. Secure joystick cable to vertical support tube with tie wrap Ⓕ.

UNLOCKED



LOCKED



7. Install joystick cable Ⓘ into mounting clip Ⓓ located on back side of the seat frame and, if necessary, install cable into the mounting clip located on bottom of the seat plate.
8. Lock each mounting clip by performing the following:
   a. Pull the ring tab Ⓖ away from locking tab Ⓗ creating a gap large enough to insert the joystick cable Ⓘ.
   b. Insert the joystick cable into the mounting clip.
   c. Insert the teeth Ⓙ of the ring tab into the locking tab.
   d. Squeeze ring tab and locking tab together to lock mounting clip around cable.

   The mounting clip shown is located on the bottom of the seat plate Ⓕ.

9 Maintenance

9.1 Setup/Delivery Inspection

Setup/delivery inspection should be performed by dealer at time of delivery/set up.

Initial adjustments should be made to suit your personal body structure needs and preference. Thereafter weekly, monthly and periodic inspections should be performed by user/attendant between the six month service inspections.

Every six months, and as necessary, have a qualified technician perform a thorough inspection and servicing on your wheelchair.

- ❑ Check all parts for shipping damage. In case of damage, DO NOT use.
- ❑ Ensure wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Ensure arms are secure but easy to release and adjustment knobs engage properly.
- ❑ Ensure arms are positioned at correct height and locked securely.
- ❑ Ensure axle nut or bolt and wheel mounting nuts are secure on drive wheels.
- ❑ Ensure caster/anti-tipper wheels are free of debris, and all mounting hardware is secure and not damaged/missing.
- ❑ Check that cables are routed and secured properly to ensure that cables do NOT become entangled and damaged during normal operation of wheelchair.

9.2 User/Attendant Inspection Checklists

Every six months, and as necessary, have a qualified technician perform a thorough inspection and servicing on your wheelchair.

Weekly, monthly and periodic inspections should be performed by user/attendant between the six month service inspections.

Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair must be cared for just like any other vehicle. Routine maintenance will extend the life and efficiency of your wheelchair.

CAUTION!

– As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced.

9.2.1 Inspect/Adjust Weekly

- ❑ Ensure that the casters are free of debris.
- ❑ Inspect tires for flat spots and wear.
- ❑ Inspect all fasteners.
- ❑ Ensure proper operation of the drive powered function.

9.2.2 Inspect/Adjust Monthly

- ❑ Clean upholstery and armrests.
- ❑ Clean dirt and lint from axles.
- ❑ Clean dirt and lint from bearings.
- ❑ Ensure that the casters are free of debris.
- ❑ Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.

9.2.3 Inspect/Adjust Periodically

- Ensure wheelchair rolls straight (no excessive drag or pull to one side).
- Inspect all operator (user/attendant) adjustable fasteners including the back pan, back cane and angle adjustment fasteners, and the arm support, flip back and height adjustment fasteners. Ensure fasteners are securely tightened.
- Ensure arms are secure but easy to release and adjustment knobs engage properly.
- Ensure arms are at correct height and are locked securely.
- Ensure upholstery does not have any rips or tears.
- Armrest pad sits flush against arm tube.
- Ensure that the casters are free of debris.
- Check footplate for loose fasteners. Replace /tighten if necessary.
- Check that all labels are present and legible. Replace if necessary.

9.3 Service Inspection

Every six months, and as necessary, have a qualified technician perform a thorough inspection and servicing on your wheelchair.

Service inspections MUST be performed by a qualified technician.

WARNING!
– After ANY adjustments, repair or service and before use, make sure that all attaching hardware is tightened securely - otherwise injury or damage may result.

CAUTION!
– As with any vehicle, the wheels and tires should be checked periodically for cracks and wear and should be replaced.

The following are recommended items to inspect during regular service inspections performed by a qualified technician. Actual items to be inspected during the service inspection may vary according to the specific wheelchair:

9.3.1 Six Month Inspection

- ❑ Clean upholstery and armrests.
- ❑ Clean dirt and lint from axles.
- ❑ Clean dirt and lint from bearings.
- ❑ Check that all labels are present and legible. Replace if necessary.
- ❑ Ensure arms are positioned at correct height and are locked securely.
- ❑ Ensure upholstery does not have any rips or tears.
- ❑ Ensure armrest pad sits flush against arm tube.
- ❑ Ensure arms are secure but easy to release and adjustment knobs engage properly.
- ❑ Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.
- ❑ Ensure wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Ensure that there is no excessive side movement or binding when drive wheels are lifted and spun when disengaged (free-wheeling).
- ❑ Ensure axle nut or bolt and wheel mounting nuts are secure on drive wheels.
- ❑ Inspect tires for flat spots and wear.
- ❑ Ensure that the casters are free of debris.

- ❑ Ensure wheels/casters have proper tension when wheels/casters are spun (when free-wheeling). Wheels/casters should come to a gradual stop.
- ❑ Loosen/tighten caster locknut if wheel wobbles noticeably or binds to a stop.
- ❑ Ensure all caster/wheel/fork/headtube fasteners are secure and not damaged/missing.
- ❑ Check footplate for loose fasteners. Replace /tighten if necessary.
- ❑ Check that cables are routed and secured properly to ensure that cables do NOT become entangled and damaged during normal operation of wheelchair.
- ❑ Ensure proper operation of drive function.
- ❑ Inspect electrical components (connections/termianls) for signs of corrosion. Replace if corroded or damaged.
- ❑ Inspect battery terminals for loose cable connection. Tighten if necessary.

9.3.2 Inspect/Adjust Every 18 Months

Replace motor brushes and gearbox coupling.

10 Accessories

10.1 Accessory Warnings and Information

WARNING!
– After any adjustments, repair or service and before use, make sure that all attaching hardware is tightened securely. Otherwise, injury or damage may result.
– Before performing any maintenance, adjustment or service, verify that on/off switch on the joystick is in the off position.

The walker holder, crutch/cane holder, rear basket, and oxygen holder all install into the accessory tube. Only one may be installed at a time.

There is limited recline function with the installation of the walker holder, crutch/cane holders, and oxygen holder.

There is no recline function with the installation of the rear basket.

10.2 Installing/Removing the Walker Holder

10.2.1 Installing the Walker Holder

WARNING!
Risk of Injury or Damage
Increased length of wheelchair due to installation of walker holder may result injury or damage
– When turning the wheelchair, be aware of your surroundings and the increased length of the wheelchair of up to 9 inches due to the walker holder.

1. Remove the end tube cap Ⓐ out of the accessory tube Ⓑ. Keep end tube cap for future use.
2. Loosen, but do not remove, the mounting knob Ⓒ on the accessory tube.
3. Install the walker holder Ⓓ into the accessory tube.
4. Securely tighten the mounting knob to secure walker holder in place.

10.2.2 Removing the Walker Holder

1. Loosen, but do not remove, the mounting knob Ⓒ.
2. Remove the walker holder Ⓓ from the accessory tube Ⓑ.
3. Tighten the mounting knob.
4. Insert end tube cap Ⓐ into the accessory tube.

10.2.3 Using the Walker Holder

Scooter shown is for reference only. Illustration shows how walker holder is used.

Walker MUST be folded before placing onto walker holder.

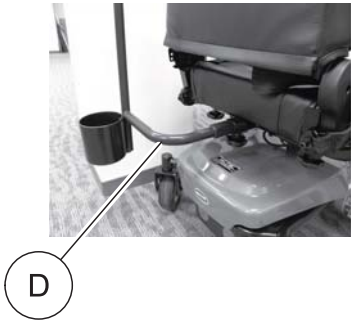
1. Fold the walker. Refer to instructions provided with the walker.
2. Place folded walker onto walker holder as shown.
3. Secure the mid-section of the walker with the hook and loop strap Ⓔ.

10.3 Installing/Removing the Crutch/Cane Holder

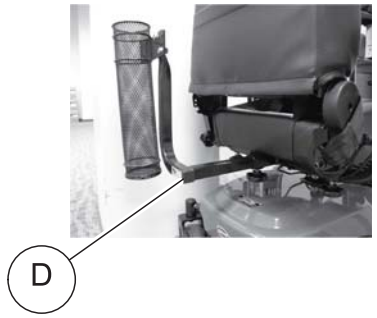
10.3.1 Installing the Crutch/Cane Holder

WARNING!
Risk of Injury or Damage
Increased length of wheelchair due to installation of crutch/cane holder may result in injury or damage
– When turning the wheelchair, be aware of your surroundings and the increased length of the wheelchair of up to 9 inches due to the crutch/cane holder.

MODEL P725



MODEL ACC200



1. Remove the end tube cap Ⓐ out of the accessory tube Ⓑ. Keep end tube cap for future use.
2. Loosen, but do not remove, the mounting knob Ⓒ on the accessory tube.
3. Install the crutch/cane holder Ⓓ into the accessory tube.
4. Securely tighten the mounting knob to secure crutch/cane holder in place.

10.3.2 Removing the Crutch/Cane Holder

1. Loosen, but do not remove, the mounting knob Ⓒ.
2. Remove the crutch/cane holder Ⓓ from the accessory tube Ⓑ.
3. Tighten the mounting knob.
4. Insert end tube cap Ⓐ into the accessory tube.

10.3.3 Using the Crutch/Cane Holder

MODEL P725

MODEL ACC200

ⓘ Scooter shown is for reference only. Illustration shows how crutch/cane holder is used.

1. Place crutch and/or cane into basket as shown.
2. Model P725 — Secure the top section of the crutch and/or cane with the hook and loop strap Ⓔ.

10.4 Installing/Removing the Rear Basket

10.4.1 Installing the Rear Basket

WARNING!
Risk of Injury or Damage
Increased length of wheelchair due to installation of the rear basket may result in injury or damage
– When turning the wheelchair, be aware of your surroundings and the increased length of the wheelchair of up to 9 inches due to the rear basket.

1. Remove the end tube cap Ⓐ out of the accessory tube Ⓑ. Keep end tube cap for future use.
2. Loosen, but do not remove, the mounting knob Ⓒ on the accessory tube.
3. Install the support tube Ⓓ into the accessory tube.

4. Securely tighten the mounting knob to secure support tube in place.

5. Install rear basket Ⓔ onto the three hooks Ⓕ of support tube.
6. Push down on basket to ensure basket is securely engaged into hooks.

10.4.2 Removing the Rear Basket

1. Remove the rear basket Ⓔ from the hooks of the support tube Ⓓ.
2. Loosen, but do not remove, the mounting knob Ⓒ.
3. Remove the support tube from the accessory tube.
4. Tighten mounting knob.
5. Insert end tube cap Ⓐ into the accessory tube.

10.5 Installing/Removing the Oxygen Holder

10.5.1 Installing the Oxygen Holder

WARNING!
Risk of Injury or Damage
Increased length of wheelchair due to installation of oxygen holder may result in injury or damage
– When turning the wheelchair, be aware of your surroundings and the increased length of the wheelchair of up to 9 inches due to the oxygen holder.

WARNING!
– Contact your oxygen supplier for instructions in the use of oxygen. Extreme care MUST be exercised when using oxygen in close proximity to electric circuits.
– The Invacare oxygen holder is designed to be used in conjunction with D size oxygen cylinders only.
– To maintain safety, use only Invacare oxygen cylinder accessories (i.e. regulator, oxygen demand devices).
– DO NOT use the oxygen holder for anything other than its intended purpose of supporting an oxygen cylinder. Otherwise, injury or damage may occur.
– DO NOT attempt to modify the oxygen holder to fit any other type of wheelchair. The oxygen holder is designed specifically for Invacare wheelchairs only.
– When using nasal or masked type administering equipment, oxygen or air tubing MUST be routed and secured properly to ensure that the tubing does not become entangled, kinked or severed.

1. Remove the end tube cap Ⓐ out of the accessory tube Ⓑ. Keep end tube cap for future use.
2. Loosen, but do not remove, the mounting knob Ⓒ on the accessory tube.
3. Install the oxygen holder Ⓓ into the accessory tube.
4. Securely tighten the mounting knob to oxygen holder in place.

10.5.2 Removing the Oxygen Holder

1. Remove the oxygen tank from the holder.
2. Loosen, but do not remove, the mounting knob Ⓒ.
3. Remove the oxygen holder Ⓓ from the accessory tube Ⓑ.
4. Tighten the mounting knob.
5. Insert end tube cap Ⓐ into the accessory tube.

10.5.3 Using the Oxygen Holder

1. Place oxygen tank Ⓔ into holder as shown.

11 Troubleshooting

11.1 Driving Performance

Wheelchair Veers Left or Right	Sluggish Turn or Performance	Casters Flutter	Solutions
X	X	X	Check for loose stem nuts/bolts, bearings or signs of wear.
X		X	Check for uneven tire wear, bent fork/frame or loose hardware.
X	X	X	If pneumatic, check tires for correct and equal pressure.

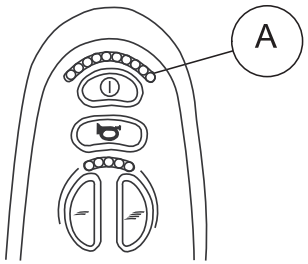
Squeaks and Rattles	Looseness in Wheelchair	Wheelchair 3 Wheels	Solutions
X	X	X	Check for uneven tire wear, bent fork/frame or loose hardware.
	X	X	If pneumatic, check tires for correct and equal pressure.

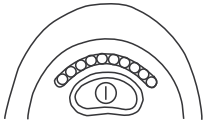
11.1.1 Electrical

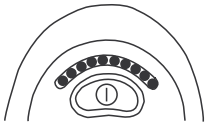
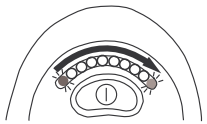
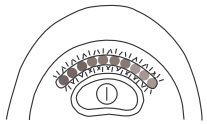
For additional troubleshooting information and explanation of error codes, refer to the individual Electronics Manual supplied with each wheelchair.

11.1.2 Information Gauge Display Diagnostics

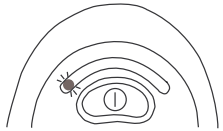
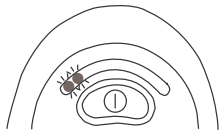
The information gauge display Ⓐ, found on the joystick, gives indications of the type of fault or error detected by the control module. When a fault is detected, the wheelchair may stop and not drive. The LEDs on the information gauge may flash in a particular pattern. The number or type of flashes indicates the nature of the error. If multiple errors are found, only the first error encountered by the control module will be displayed.

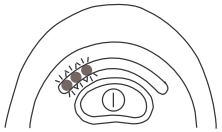
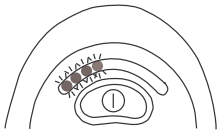


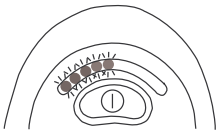
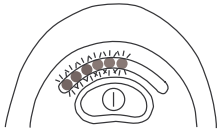
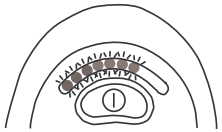
DISPLAY	DESCRIPTION	DEFINITION	COMMENTS
	All LEDs are off.	Power is off.	

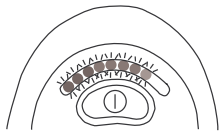
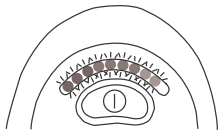
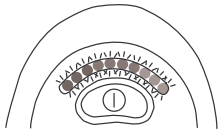
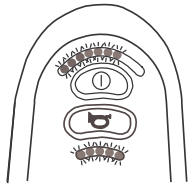
	All LEDs are on.	Power is on.	If there are fewer than three LEDs lit this indicates reduced battery charge. Batteries will need to be charged soon.
	Left to Right “chase”	Batteries are charging.	The wheelchair will not operate until the charger is disconnected. The power will need to be turned off and then back on again.
	All LEDs are flashing SLOWLY.	System operating correctly.	Charge batteries as soon as possible.

Service Diagnostics

	1 LED Flashing	The battery needs charging or there is a bad connection to the battery. Check the connections to the battery. If the connections are good, try charging the battery.
	2 LED Flashing	The left motor has a bad connection. Check the connections to the left motor. If the Motor Swap parameter is enabled then the connections to the right motor will need to be checked instead of the left motor.

	3 LED Flashing	The left motor has a short circuit to a battery connection. Contact your dealer or Invacare. If the Motor Swap parameter is enabled then the connections to the right motor will need to be checked instead of the left motor.
	4 LED Flashing	The right motor has a bad connection. Check the connections to the right motor. If the Motor Swap parameter is enabled then the connections to the right motor will need to be checked instead of the left motor.

	5 LED Flashing	The right motor has a short circuit to a battery connection. Contact your dealer or Invacare. If the Motor Swap parameter is enabled then the connections to the right motor will need to be checked instead of the left motor.
	6 LED Flashing	An external signal is preventing the wheelchair from operating. Battery charger may still be connected. Disconnect battery charger. Turn power off and on again.
	7 LED Flashing	A joystick fault is indicated. Make sure that the joystick is in the upright (neutral) position before switching on the control system.

	8 LED Flashing	A control system fault is indicated. Make sure that all connections are secure.
	9 LED Flashing	The parking brakes have a bad connection. Check the parking brake and motor connections. Make sure the control system connections are secure.
	10 LED Flashing	An excessive voltage has been applied to the control system. This is usually caused by a poor battery connection.
	7 Information Gauge LEDs and 5 Speedometer LEDs	A communication fault is indicated. Make sure that the joystick cable is securely connected and not damaged

11.1.3 Checking Battery Charge Level

The following “Do’s” and “Don’ts” are provided for your convenience and safety.

Don’t	**Do**
Don’t perform any installation or maintenance without first reading this manual.	Read and understand this manual and any service information that accompanies a battery and charger before operating the wheelchair.
Don’t perform installation or maintenance of batteries in an area that could be damaged by battery spills.	Move the wheelchair to a work area before cleaning terminals, or opening battery box.
Don’t make it a habit to discharge batteries to the lowest level.	Recharge as frequently as possible to maintain a high charge level and extend battery life.
Don’t use randomly chosen batteries or chargers.	Follow recommendations in this manual when selecting a battery or charger.
Don’t put new batteries into service before charging.	Fully charge a new battery before using.
Don’t tip or tilt batteries.	Use a carrying strap to remove, move or install a battery.
Don’t tap on clamps and terminals with tools.	Push battery clamps on the terminals. Spread clamps wider if necessary.
Don’t mismatch your battery and chargers.	Use only a gel charger for a gel battery.

11.2 Usability Survey

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Notes

Notes

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