

Invacare® Alu Lite

SERVICE MANUAL

(MAINTENANCE AND ADJUSTMENT)

The procedures in this manual **MUST** be performed by a qualified technician.



1638512-A

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Yes, you can.®

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SECTION 1—TROUBLESHOOTING AND MAINTENANCE GUIDELINES

General Information

User manual and pre-sales information:

For pre-sales information and user manual related to this wheelchair, please consult the www.invacare.eu.com website.

NOTE: Please recommend the user to follow the rules mentioned in the User Manual about Maintenance Schedule, Cleaning and Troubleshooting sections.

Troubleshooting:

Fault	Possible cause	Action
The wheelchair does not travel in a straight line	Front wheel bearings are dirty or damaged	Clean or replace the bearings, → authorized dealer
The brakes are gripping poorly or asymmetrically	Brake setting incorrect	Correct the brake setting, → authorized dealer
Rolling resistance is very high	Rear wheels not parallel	Ensure the rear wheels are parallel, → authorized dealer
The front wheels wobble when moving fast	Too little tension in front wheel bearing block	Tighten the nut on the bearing block axle slightly, → authorized dealer
	Front wheel has worn smooth	Change front wheel, → authorized dealer
The front wheel is stiff or stuck	Bearings are dirty or faulty	Clean or replace the bearings, → authorized dealer
The wheelchair is very difficult to unfold	Folding mechanism setting incorrect	Correct the folding mechanism setting, → authorized dealer

 CAUTION

It is compulsory to use original Invacare spare parts which you can obtain from any Invacare subsidiaries. A list of spare parts is available at www.invacare.eu.com

 WARNING

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

 CAUTION

DO NOT over tighten hardware attaching to the frame. This could cause damage to could cause damage to the frame tubing.

Tightening torques

The tightening torques stated in the following table are dependent on the thread diameters for the nuts and bolts for which no special values are determined. All values apply to dry and grease-free threads.

Thread	M4	M5	M6	M8	M10/12
Tightening torque in Nm mini/max	1,5/3 Nm	3/6 Nm	7/12 Nm	10/20 Nm	20/30 Nm

Caution: All other nuts not noted here must be tightened FINGERTIGHT!

Suggested Maintenance Procedures

1. Before using your wheelchair, make sure all nuts and bolts are tight. Check all parts for damage or wear and replace. Check all parts for proper adjustment.
 2. Keep ball bearings free of dirt and lint to ensure proper operation.
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 WARNING

DO NOT use WD-40, 3-in- 1 oil, or other penetrating lubricants on ball bearings. Otherwise, binding and/or damage to the wheelchair may occur.

3. Clean ball bearings once a month with a Teflon lubricant.
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 CAUTION

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

4. The wheels, castors and tires should be checked periodically for cracks and wear, and should be replaced when necessary.
5. Periodically check castor wheel bearings to make sure they are clean and free from moisture. Use a Teflon[®] lubricant if necessary.
6. Check upholstery for sagging, rips or tears.
7. Clean upholstery with mild soap and water.

SECTION 2—FRONT HANGERS

WARNING

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

A 50 mm clearance between the bottom of the footplate and the ground/floor **MUST** be maintained at all times.

Adjusting Footrest Height

NOTE: For this procedure, refer to FIGURE 2.1.

1. Remove calf strap, if so equipped.
2. Untighten Locking Screw (13 mm Spanner).
3. Position the footrest assembly to the desired height.

*NOTE: A 50 mm clearance between the bottom of the footplate and the ground/floor **MUST** be maintained at all times.*

4. If the distance between the bottom of footplate and the ground/floor is not 50 mm minimum, adjust footrest tube accordingly.
5. Using the locking screw with 13 mm Spanner, secure the footrest tube to the footrest support.
6. Securely tighten (10 Nm).
7. If necessary, repeat STEPS 2-6 to adjust remaining footrest.
8. Reinstall the calf strap, if so equipped.

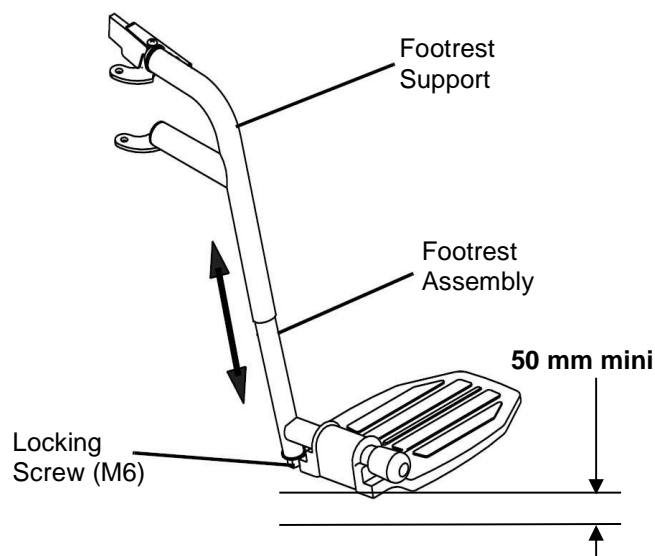


FIGURE 2.1 Adjusting Footrest Height

Replacing Heel Straps

NOTE: For this procedure, refer to FIGURE 2.2.

1. Remove the locking screw (13 mm Spanner) that secure the footrest tube to the footrest support. Refer to Adjusting Footrest Height paragraph.
2. Remove the lower footrest assembly.
3. Remove the mounting screw, strap pin that secure the heel strap to the footplate.
4. Slide heel strap over footrest tube.

NOTE: When securing the heel strap to the footrest assembly, tighten the mounting screw and strap pin until they are secure.

5. Using the mounting screw, strap pin, secure the heel strap to the footplate.
6. Using the locking screw with 13 mm Spanner, secure the footrest tube to the footrest support.
7. Securely tighten (10 Nm).

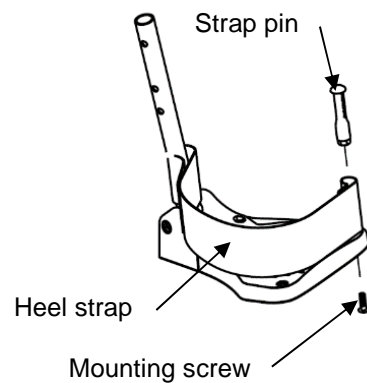


FIGURE 2.2 Replacing Heel Strap

SECTION 3—ARMRESTS

 **WARNING**

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Replacing Armrest Arm pad

NOTE: For this procedure, refer to FIGURE 3.1.

1. Remove the mounting screws that secure the arm pad to the armrest assembly.
2. Replace arm pad and securely tighten with the existing mounting screws (M5).
3. Repeat STEPS 1-2 for the opposite side if necessary.

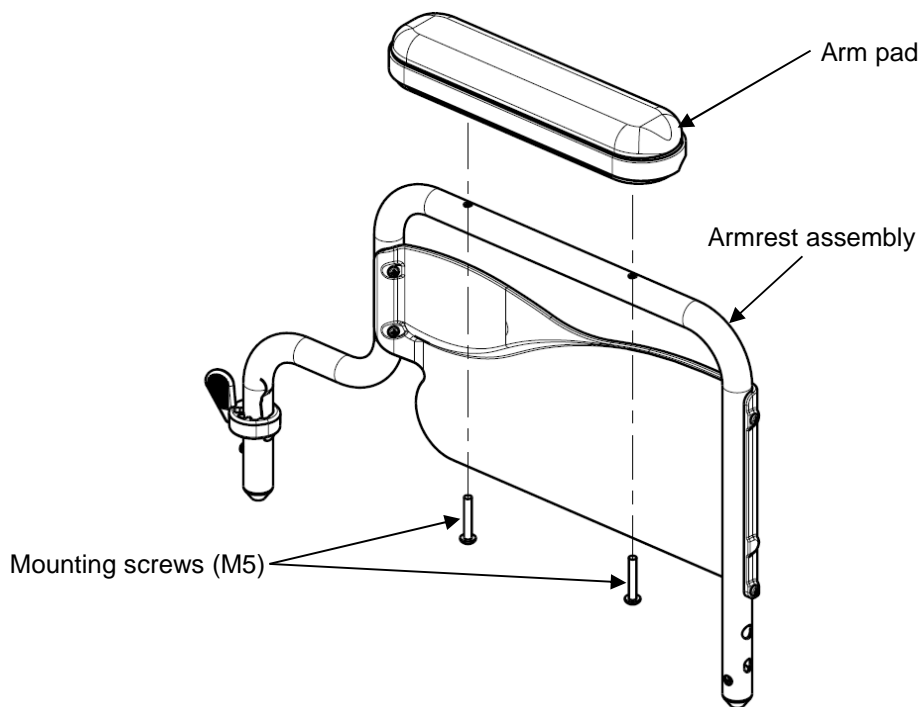


FIGURE 3.1 Replacing Armrest Arm Pad

SECTION 4—SEAT/BACK

WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Removing/Installing Seat Upholstery

NOTE: For this procedure, refer to FIGURE 4.1.

Removing Seat Upholstery

NOTE: To install the seat upholstery, reverse this procedure.

1. Fold the wheelchair.
2. Remove the height mounting screws and washers that secure the existing seat upholstery to the cross braces.
3. Remove the existing seat upholstery from the cross braces.
4. Install new seat upholstery by reversing STEPS 1-3.

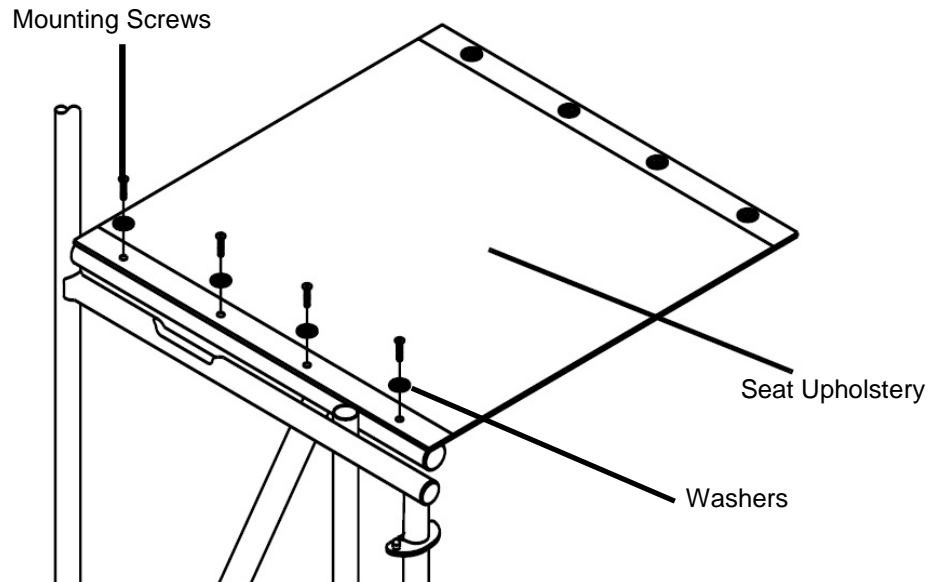


FIGURE 4.1 Removing/Installing Seat Upholstery

Removing/Installing Back Upholstery

NOTE: For this procedure, refer to FIGURE 4.2.

Removing Back Upholstery

NOTE: To Install the Back Upholstery, reverse this procedure.

1. Remove the mounting screw that secures the back upholstery to the back canes.
2. Remove the back upholstery from the back canes.
3. Install new/existing Back Upholstery to the back canes, reverse STEPS 1-2.

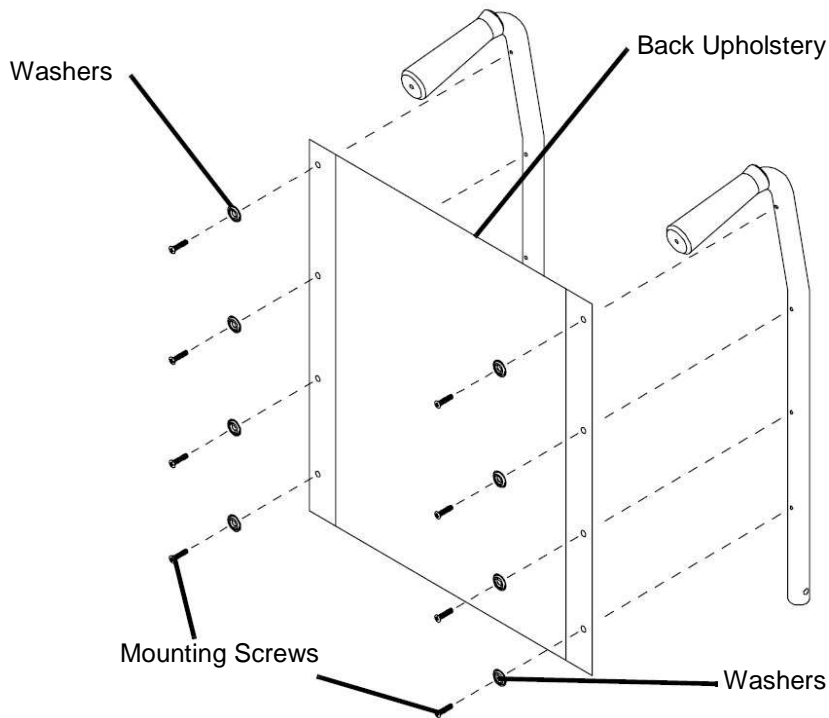


FIGURE 4.2 Removing/Installing Back Upholstery

SECTION 5—REAR WHEELS/FRONT CASTORS

 **WARNING**

After **ANY** adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Removing/Installing Rear Wheels

Fixed Axles

Removing/Installing rear wheels

1. Remove the dust cap (if applicable), fixed axle, axle spacer and locknut that secure rear wheel to the axle mounting hole.
2. Remove existing rear wheel from the wheelchair.
3. Repeat STEP 1 to 2 for the opposite rear wheel.
4. Install new/existing rear wheel onto wheelchair, reverse STEPS 1-3.

NOTE: Make sure the axle spacer is between the rear wheel and the wheelchair frame.

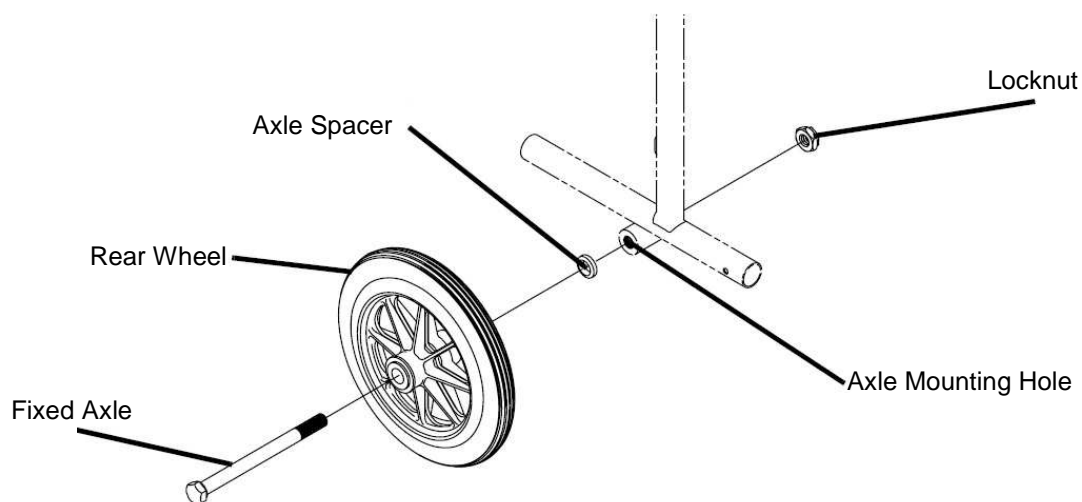


FIGURE 5.1 Removing/Installing Rear Wheels

Replacing/Repairing Rear Wheel & Front Caster Tire

 CAUTION

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

Adjusting Front Fork

 WARNING

After ANY adjustments, before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

NOTE: Both front casters MUST be the same size. For this procedure, see FIGURE 5.2.

1. Remove the dust cover from the caster head tube.
2. Adjust locknuts to appropriate torque (10/15 Nm) with a 19 mm socket wrench; do not over tight the locknut, you may risk to damage the bearings.
3. Test wheelchair for manoeuvrability.
4. Snap dust cover into the caster head tube.
5. Perform STEPS 1 to 4 on the other side.

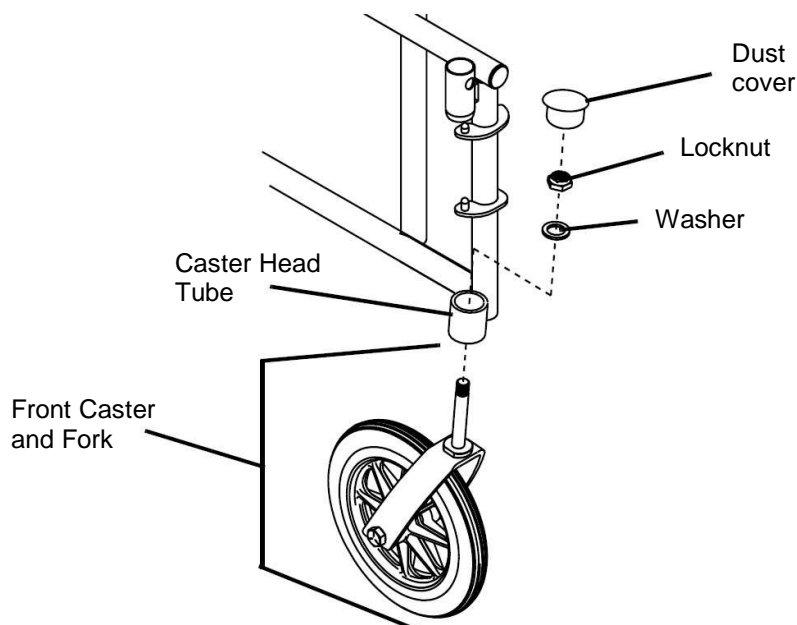


FIGURE 5.2 Adjusting Front Fork

Removing/Installing Front Caster Assemblies

NOTE: Both front casters MUST be the same size. For this procedure, refer to FIGURE 5.3.

Removing Front Caster

1. Remove the mounting bolt and locknut (13 mm spanner) that secure the front wheel to the fork.
2. Remove the wheel from the fork.

Installing Front Caster

1. Using the mounting bolt and locknut (13 mm spanner), secure the front wheel to the fork.
2. Ensure fork stem is perpendicular to the flat surface.
3. Repeat STEPS 1-2 for the opposite front caster if necessary.

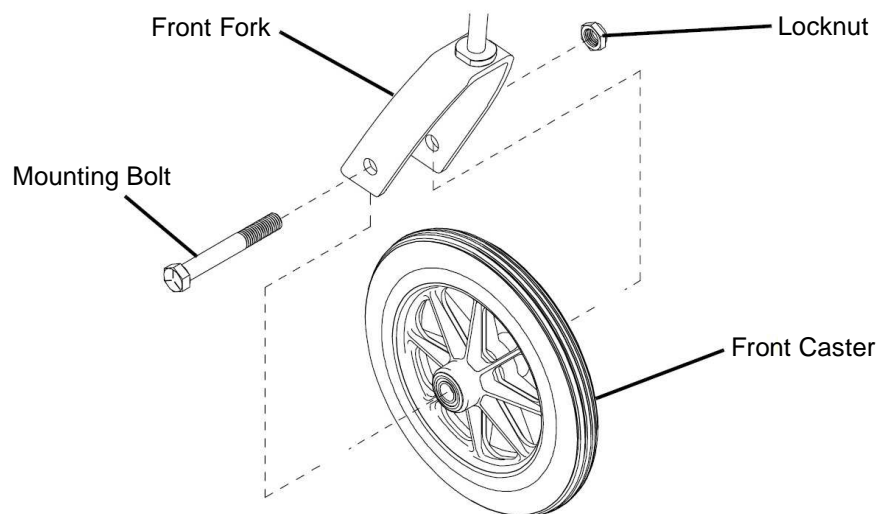


FIGURE 5.3 Removing/Installing Front Caster

SECTION 6—WHEEL BRAKES

WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Adjusting Wheel Brakes

Adjusting Brake Handle

NOTE: For this procedure, refer to FIGURE 6.1.

Test the brake handle. Observe how the brake lever engages the wheel. If the tension of the brake is too loose or too tight, adjust using the following steps:

1. Loosen the brake handle adjustment nut by turning clockwise.
2. Perform one of the following:
 - Loosen brake handle tension - Turn the brake handle nut clockwise.

NOTE: If the brake lever is scraping the rear wheel, the brake handle must be loosened.

- Tighten brake handle tension - Turn the brake handle nut counter clockwise.
3. Turn the brake handle adjustment nut counter clockwise to secure in place.
4. Do one of the following:
 - Acceptable tension - Repeat STEPS 1 - 3 for the opposite side, if necessary.
 - Unacceptable tension - Refer to Adjusting Cable Adjuster Unit, next page.

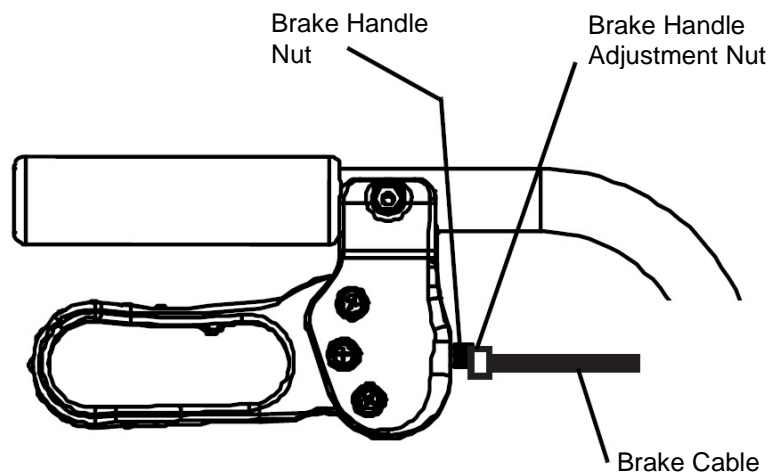


FIGURE 6.1 Adjusting Brake Handle

Adjusting Cable Adjuster Unit

NOTE: For this procedure, refer to FIGURE 6.2.

Test the brake with the brake handle. Observe how the brake lever engages the wheel. If the tension of the brake handle is still too loose or too tight, adjust using the following steps:

1. Ensure brake handle is not locked.
2. Do one of the following:
 - To Loosen: Brace the jam nut while turning the adjustment screw clockwise.
 - To Tighten: Brace the jam nut while turning the adjustment screw
3. Repeat STEPS 1-2 for the opposite wheel brake.

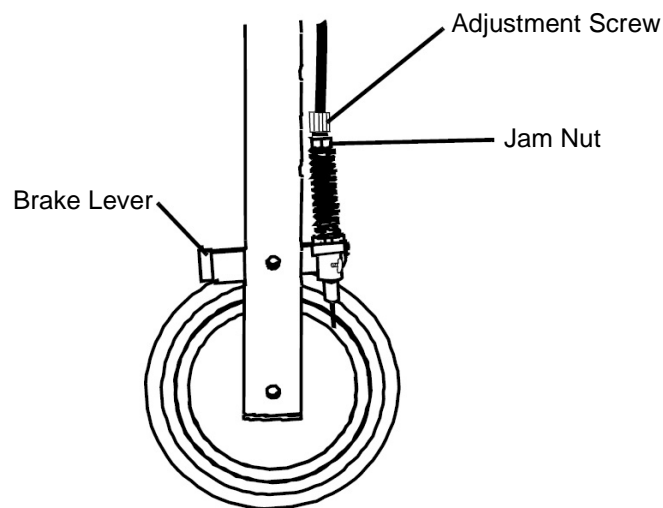


FIGURE 6.2 Adjusting Cable Adjuster Unit

SECTION 7—PERIODIC MAINTENANCE GUIDELINES

NOTE: Always clean the wheelchair before any inspection/adjustment. Regular cleaning will reveal loose or worn parts and enhance the smooth operation of the wheelchair.

Initial Inspection:

Initial adjustments should be made to suit the personal body structure needs and preferences of the user:

Inspect/Adjust Initially

- Wheelchair rolls straight (no excessive drag or pull to one side).
- Ensure all hardware is tight (see page 4).
- All fasteners on clothing guards are secure.
- Arms are secure but easy to release and locking systems engage properly.
- Armrest armpad sits flush against arm tube.
- Seat and/or back upholstery have no rips.
- Ensure hand grips are secure to backrest canes.
- Sealed bearings and axle nut tension are correct.
- No excessive side movement or binding when rear wheels are lifted and spun.
- Wheel/fork assembly has proper tension when caster is spun.
- Wheel bearings are clean and free of moisture.
- Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop.
- Ensure all castor/wheel/fork/head tube fasteners are secure.
- Wheel brakes do not interfere with tires when rolling.
- Wheel brakes pivot point are free of wear and looseness.
- Wheel brakes are easy to engage.
- Inspect tires/castors for flat spots and wear.
- Ensure axles are free from dirt, lint, etc.
- Ensure roller bearings are free from dirt, lint, etc.
- Adjust wheel brakes as tires wear.
- Clean and wax all parts.
- Clean upholstery and armrests.
- Ensure castors are free of debris.

Inspect/Adjust Weekly

- Wheelchair rolls straight (no excessive drag or pull to one side).
- Wheel/fork assembly has proper tension when caster is spun.
- Inspect tires/castors for flat spots and wear.
- Ensure castors are free of debris.

Inspect/Adjust Monthly

- 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.
- Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop.
- Wheel bearings are clean and free of moisture.
- Wheel brakes do not interfere with tires when rolling.
- Wheel brake pivot point are free of wear and looseness.
- Ensure all castor/wheel/fork/head tube fasteners are secure.
- Ensure all hardware is tight (see page 6).
- Ensure hand grips are secure to backrest canes.
- Ensure castors are free of debris.

Inspect/Adjust every twelve months

- Wheelchair rolls straight (no excessive drag or pull to one side).
- Arms are secure but easy to release and locking systems engage properly.
- Armrest armpad sits flush against arm tube.
- All fasteners on clothing guards are secure.
- Seat and/or back upholstery have no rips.
- Inspect the backrest attaching hardware and mechanisms are securely tightened.
- No excessive side movement or binding when rear wheels are lifted and spun.
- Inspect side frame and cross brace for signs of cracks, flaked paint or deformed metal work.
- Inspect tires/castors for flat spots and wear
- Wheel brake pivot point are free of wear and looseness.
- Clean upholstery and armrests.
- Sealed bearings and axle nut tension are correct.
- Wheel/fork assembly has proper tension when caster is spun.
- Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop.
- Wheel bearings are clean and free of moisture.
- Wheel brakes are easy to engage.
- Clean quick-release axles with a Teflon lubricant.
- Ensure axles are free from dirt, lint, etc.
- Ensure roller bearings are free from dirt, lint, etc.
- Adjust wheel brakes as tires wear.
- Clean and wax all parts.
- Ensure castors are free of debris.

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Invacare France Operations SAS
Route de St Roch
37230 Fondettes, France



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