

SECTION 7

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7.1.5 SPARK ARRESTER

Cleaning the Spark Arrester

⚠ CAUTION

After operating the engine, do not touch any part of the exhaust system until it has had sufficient time to cool!

1. Keep a record of the number of hours of engine use. The spark arrester should be removed, cleaned and inspected every 150 hours of operation.
2. Remove the tail pipe assembly by disconnecting the springs from the muffler attached to the tail pipe.
3. The screen-type spark arrester assembly is located inside the tail pipe, closest to the muffler. The spark arrester fits inside the tail pipe and a flared adapter fits inside the spark arrester.
4. Remove the spark arrester from the tail pipe and the adapter from the spark arrester.
5. Shake loose particles out of the screen assembly.
6. Clean the screen with a wire brush. (Soak it in oil solvent if necessary.)
7. If any breaks in the screen or weldments are discovered, replace the assembly with Part No. 607-171.
8. Insert the screen assembly into the tail pipe and the adapter back into the spark arrester. Reconnect the tail pipe assembly to the muffler with the tension springs.

7.2 DRIVE SYSTEM & TIRES

⚠ WARNING

Do not attempt to adjust, repair or replace the drive belt, clutches or any moving part while the engine is running. Doing so will cause injury. Before servicing the vehicle, disconnect the battery to prevent accidentally starting the engine.

Keep the engine compartment hood, clutch guard and firewall securely in place when the engine is running. Severe injury can result if the drive belt, clutch components or other moving parts come loose.

If engine compartment inspection is necessary while the engine is running, use EXTREME CAUTION! Keep engine RPM low. Avoid standing directly in line with moving components. Use a mirror to view the components.

7.2.1 DRIVE BELT

The drive belt transmits power from the driver clutch (on the engine) to the driven clutch (on the transmission). These components are located on the left side of the engine compartment (Figure 7-2).

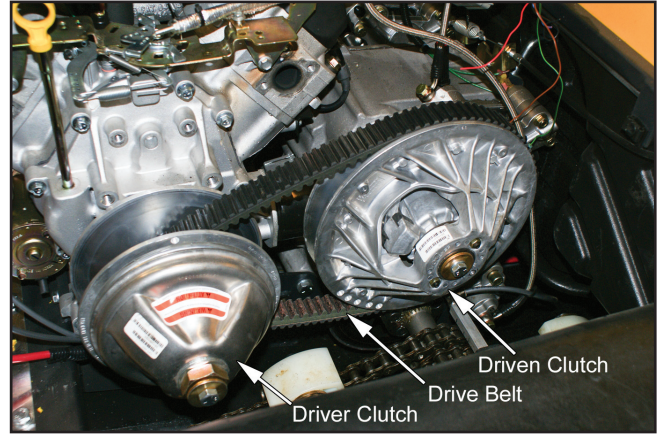


Figure 7-2. Location of drive clutches and drive belt.

Check the drive belt after every 25 hours of operation, or whenever there is a noticeable reduction in clutch performance. Replace the belt when:

- the top width of the belt has worn to 1-1/16" (27mm)
- cracks, fraying or shredding is apparent
- it becomes contaminated with oil or some other fluid

Replace the belt with Part No. 127-137HD.

Drive Belt Adjustment

To extend the life of the drive belt, the INVANCE driven clutch allows for some adjustment to reset the belt height if necessary. If belt wear causes the belt to start sitting below the sheaves at idle, adjustment can be made to bring the belt back up to flush or 1/10" above the sheaves.

1. Remove the driven clutch from the vehicle and move to a clean work bench.
2. Loosen both jam nuts located on the fixed face of the clutch. Figure 7-2a.

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Figure 7-2a. Loosen jam nuts.

- Using an allen wrench, turn the adjustment set screw either in (to lower the belt) or out (to raise the belt) between the clutch sheaves. Figure 7-2b.

IMPORTANT

Loosen set screws uniformly 1/2 turn at a time. It is crucial that the clutch faces remain true and parallel to each other around the entire circumference of the sheaves.

- After adjustment, check belt level by placing a drive belt between the sheaves. Belt position should be anywhere from flush with the top of the sheaves, to 1/10" above. Re-tighten jam nuts and torque to 60-75 in. lbs. (7.5 +/- 1 Nm)



Figure 7-2b. Turn the adjustment set screw.

Drive Belt Removal

The Invince Driven Clutch (transmission clutch), is manufactured with a 6mm x 1.0 threaded hole in the clutch face. This hole is provided to assist in spreading the driven clutch pulleys apart by threading a 6mm x 1.0 thread bolt in through the face. This bolt should be a least 2" in length with full thread. Spreading the pulleys allows for easy removal and installation of the 127-137HD drive belt. Figure 7-2c.

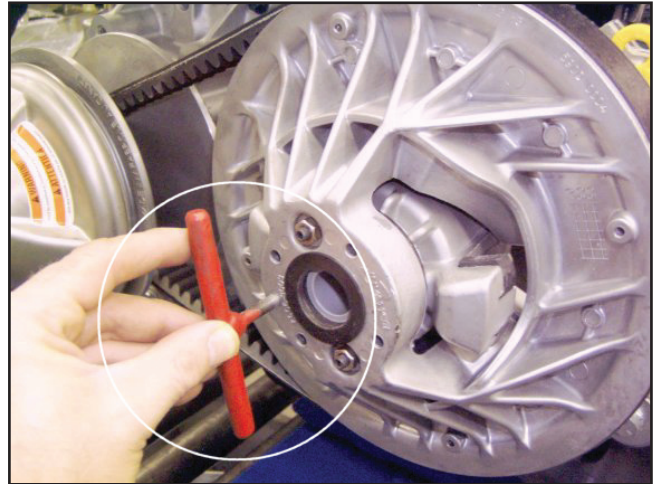


Figure 7-2c. Drive belt removal.

Drive Belt Installation

⚠ CAUTION

If this procedure is not carried out as described, the edge of the fixed face may cut or damage the drive belt.

- Position the belt around the driver clutch first.
- Ease the belt over the edge of the fixed face on the driven clutch and at the same time, turn the inside, movable face clockwise.

Drive Belt alignment and tension are pre-set at the factory and are not adjustable. They are critical for proper operation of the drive system. Return the vehicle to an ARGO dealer if rapid belt wear occurs.

7.2.2 CLUTCH MAINTENANCE

Disassembly and repair of the driver and driven clutch requires special tools. Return the vehicle to an authorized ARGO dealer if the clutch units need servicing. The following indicates that clutch service might be required:

- a drop in vehicle performance
- the clutch does not shift smoothly

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- the clutch sticks during vehicle operation
- the drive belt wears rapidly
- the vehicle vibrates severely during operation
- the vehicle does not accelerate when the engine speed is increased with the transmission in gear
- transmission will not shift smoothly into gear at engine idle.

Clutch Inspection

Inspect the nylon sliders every 50 hours. The nylon sliders are mounted in the driven clutch moveable pulley. (Figure 7-3). When the clutch shifts, the cam moves on the nylon sliders.

Replace the nylon sliders *before* there is aluminum to aluminum contact between the cam and the movable pulley. Driven clutch disassembly is required to replace the nylon sliders properly. Return the vehicle to an ARGO dealer for service.

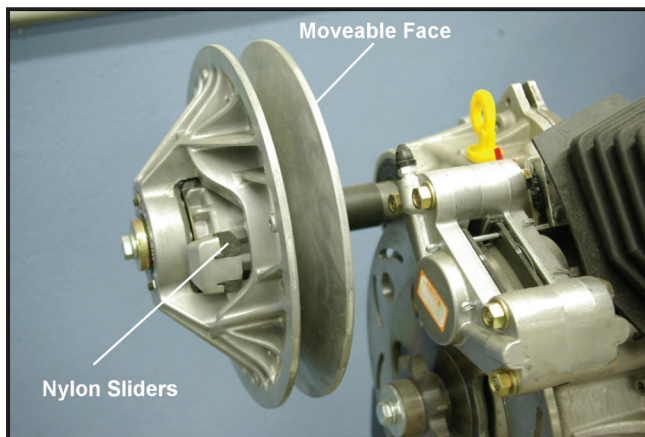


Figure 7-3. Location of the sliders.

7.2.3 DRIVE CHAINS

Roller chain “stretch” results from wear to the chain pins and bushings because of the loss of lubricant. Roller chain stretch is normal and expected. Chain stretch is accelerated from lack of proper / routine lubrication.

To prevent sprocket damage and unnecessary breakdowns, replace the chains when:

- the chain tensioners can no longer take up the chain slack.
- the chain is seized due to rust and lack of lubrication.
- the chain climbs the sprocket teeth, especially noticeable when turning.

Drive Chain Removal

1. Place the gearshift in the neutral position.

2. Remove the floor pans.
3. Remove the chain tensioner torsion springs.
4. Roll the vehicle until the connecting link on one of the chains is visible.
5. Remove the cotter pins from the connecting link. Remove the outside plate and tap out the connecting link.
6. Remove the chain from the vehicle.
7. Repeat steps 3 to 6 until all drive chains are removed.

Drive Chain Installation

1. Feed the chain around each sprocket and clamp the free end with a modified vice grip (ODG part # 658-08). Figure 7-4.
2. Install the connecting link (from the outside in). Replace the outside plate and cotter pins. Always use new cotter pins. Bend cotter pins as shown in Figure 7-5.
3. Repeat steps 1 and 2 until all chains are replaced.

NOTE

Use a pair of modified 7R Vice Grips to hold the ends of the chain together while inserting the connecting link. Some drive chains have no slack, and replacement of the connecting link is difficult without this tool. Modified Vice Grips can be ordered from your ARGO dealer (Part No. 658-08) or refer to Appendix 1 for modification information.

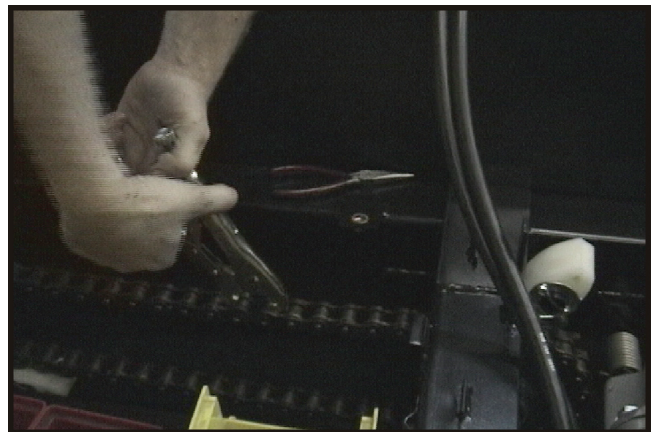


Figure 7-4. Holding chain together to insert connecting link

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Figure 7-5. Chain connection link components.

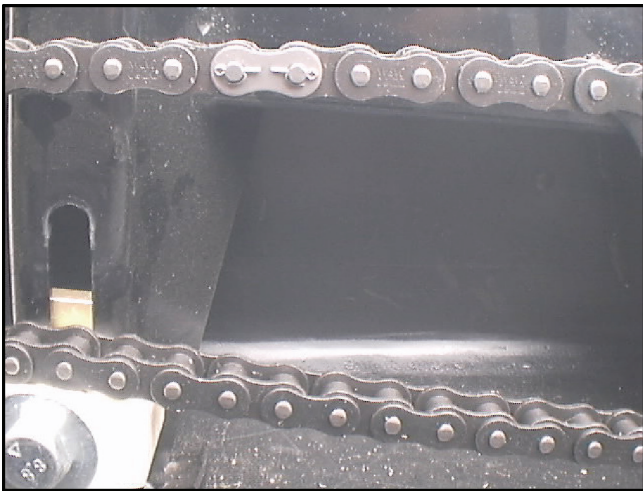


Figure 7-6. Installing the connecting link.

7.2.4 SLIDER BLOCK REPLACEMENT

1. Remove the floor pans.
2. Pull up on the tensioner arm until slider block is not contacting chain.
3. Remove the cotter pin, washer and slider block from the tensioner arm. Figure 7-7.
4. Re-install new slider block, washer and cotter pin.
5. Replace the floor pans.

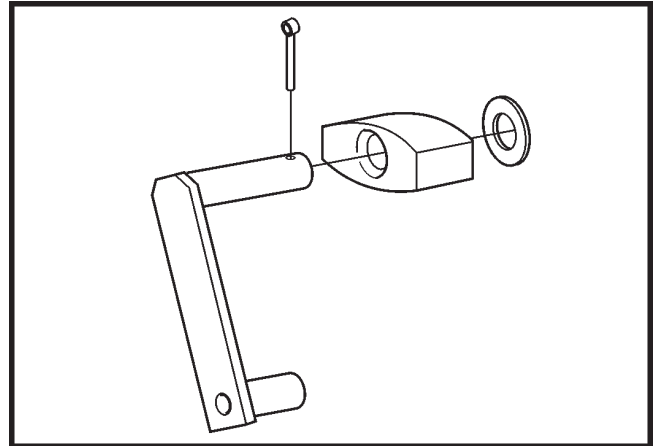


Figure 7-7. Chain tensioner components.

7.2.5 TIRE INFLATION

Improperly inflated tires can cause the vehicle to pull to one side, requiring constant steering correction. Suggested inflation for the Argo 25x12.00-9 and Argo HEAT 25x12.00-9 is between 2.5 to 6.0 psi (17 to 41 kPa). Maximum operating pressure is 7 psi (48 kPa).

A special low pressure tire gauge (ARGO Part No. 619-10) is available from your ARGO dealer.

CHANGING TIRE PRESSURE FOR DIFFERENT TERRAIN CONDITIONS

The tire pressure should be adjusted between 2.5 and 7.0 psi according to differences in terrain. Observance of these guidelines will lead to less wear & tear on both vehicle and tires. The operator should equip the vehicle with a low pressure tire gauge (Part No. 619-10) and with a hand pump.

RECOMMENDED GUIDELINES for TERRAIN

Soft Ground:

Low Pressure

- On soft terrain, use lower pressure.

Hard Ground:

Higher Pressure

- On hard terrain and water, use higher pressure.

Rocky Ground:

Highest Pressure

- On rough or rocky terrain, fill to, but not more than the recommended range indicated on the tire sidewall.

This will reduce the possibility of tires and rims being damaged during heavy duty applications.

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It is also important to observe the recommended load capacities of your vehicle when travelling on different kinds of terrain. For load capacities of your particular vehicle, see Section 1 of General Information in this operators guide.

IMPORTANT

It is **ultimately the responsibility** of the operator to determine a **SAFE MAXIMUM load capacity in accordance with the driving terrain, conditions and vehicle specifications.**

7.2.6 TIRE REPAIR AND REPLACEMENT

Repair a flat tire by removing the tire completely from the rim. Proper tire changing equipment is necessary to remove and remount the tire. Your authorized ARGO dealer will have the necessary tools.

Apply a radial tire patch on the inside of the tire over the puncture or hole.

Remount the tire on the rim using a bead lubricant such as Murphy's Tire & Tube Mounting Compound. Spoon the tire onto the rim to prevent tire bead area damage. **THE TIRE MAY EXPLODE IF OVER-INFLATED.** Place the tire and rim assembly in a protective cage to inflate and to seat the beads. Never inflate over 32 psi (220 kPa) to seat the bead. Once both beads are seated, deflate to 2.5 to 6.0 psi (17 to 41 kPa), 7 psi (48 kPa) maximum operating pressure. A special, low pressure tire gauge (ARGO Part No. 619-10) is available from your ARGO dealer.

Replace badly worn or damaged tires with original equipment Argo tires. Consult your ARGO dealer if in doubt. Any other tires (size, type or tread pattern), will affect the skid steering characteristics of the vehicle and may cause vehicle damage.

ARGO track systems are designed for use **ONLY** with original equipment Carlisle or ARGO tires.

7.3 HYDRAULIC BRAKES

7.3.1 GENERAL

Although the hydraulic brake system is self adjusting, the following require periodic attention:

7.3.2 BRAKE FLUID LEVEL

After every 50 hours of operation, check the brake fluid level by removing the master cylinder covers.

IMPORTANT

Thoroughly clean the master cylinder cover and surrounding area before removal.

These are accessed by removing the Steering Assembly Cover Figure 7-8. The fluid level should be less than 5/8" (16 mm) from the top edge. If below this level:

1. Add only fresh clean SILICONE - DOT 5 BRAKE FLUID (ARGO Part No. 126-19) to 5/8" (16 mm) from the top edge or half way on sight glass (Figure 7-9).



Figure 7-8. Hydraulic brake cylinder and fluid level

2. Replace the cover on each master cylinder, making sure the rubber gaskets are properly seated before tightening the cover screws. Tighten snug by hand only.

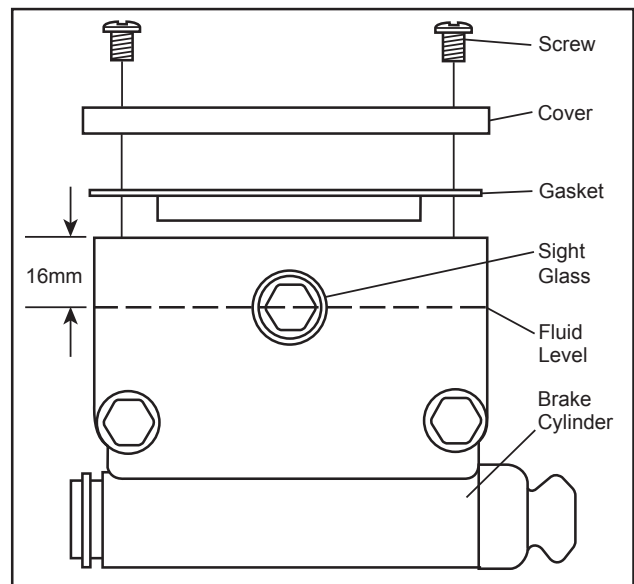


Figure 7-9. Hydraulic brake cylinder and fluid level

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CAUTION

Do not overfill the brake master cylinders. Overfilling can cause seal damage.

Use only SILICONE - DOT5 BRAKE FLUID. Other brake fluid is not compatible with ARGO brake components and operating temperatures. Use of other fluids will void the warranty and may cause loss of brakes or steering.

7.3.3 CHANGING BRAKE FLUID

The inherent stability of Silicone DOT 5 Brake Fluid reduces the need for frequent brake fluid replacement. Inspect the fluid for degradation (discolouration or particles) during normal fluid level inspections. If discolouration has occurred, the brake fluid system should be drained, flushed and refilled with fresh brake fluid. If particles are evident in the fluid, drain the system, overhaul the master cylinder and the brake caliper before flushing and refilling. An ARGO dealer will perform these operations for you.

NOTE

Spilled brake fluid is environmentally damaging. Proper disposal is required.

7.3.4 BRAKE PAD INSPECTION - Steering Brakes

Inspect the brake pads after every 50 hours of operation. Worn, glazed or contaminated brake pads affect the efficiency of the steering system. To inspect the pads, first remove the firewall.

Firewall Removal

1. Unthread the knurled fastener at the back of the aluminum floor pan and lift the floor pan out of the Argo.
2. Turn the firewall release catch(es) (located at the top of the firewall) counter-clockwise 1/4 turn.
3. Pull the bottom of the firewall rearward. Push the rubber gear shift boot back into the engine compartment.
4. Lift the firewall clear of the driving compartment.

Brake Pad Inspection Procedure

With the firewall removed, both hydraulic brake calipers are visible. Each steering caliper has 2 brake pads which are secured by cotter pins (Figure 7-10). Inspect all 4 brake pads.

Replace the pads when:

- the brake lining material molded to each metal backing plate is worn to 0.10" (2.5mm) thickness. (Figure 7-11).
- the pads are glazed and brake performance is affected.
- the pads are contaminated with lubricant, and brake performance is affected.

Re-installation of Brake Pads

Brake pads are easily replaced by removing the 2 cotter pins securing them within the brake caliper assembly and pulling each pad up and out of the caliper. See Figure 7-10. Pistons have to be pushed back in first, to allow clearance for the new pads. Slip the new pads into the caliper and install 2 new cotter pins bending the ends over to secure the pads in position. Pump the steering handle bar a few times to the left and to the right to build up proper pressure and to locate the pads in the caliper assembly.

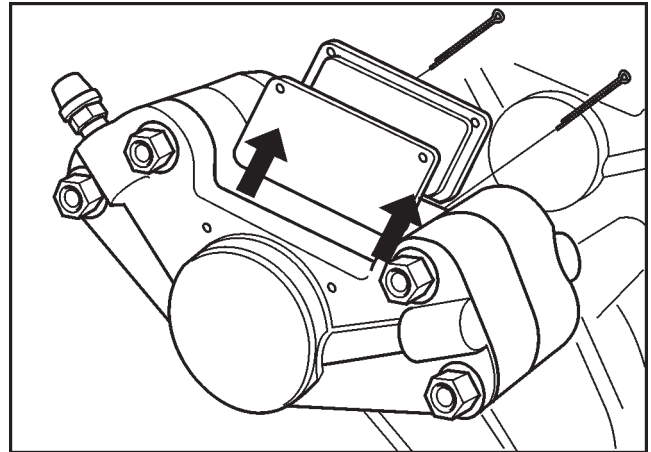


Figure 7-10. Removing the brake pads from the brake caliper.

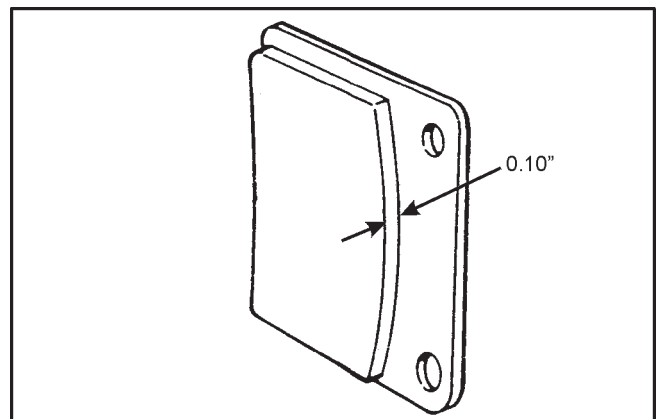


Figure 7-11. Brake pad wear; hydraulic brakes.

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Handbrake Inspection

The ARGO is equipped with a hydraulic handbrake system. This consists of an independent set of hydraulic brake calipers and brake discs. The master cylinder is mounted on the left side steering bar. Figure 7-12.

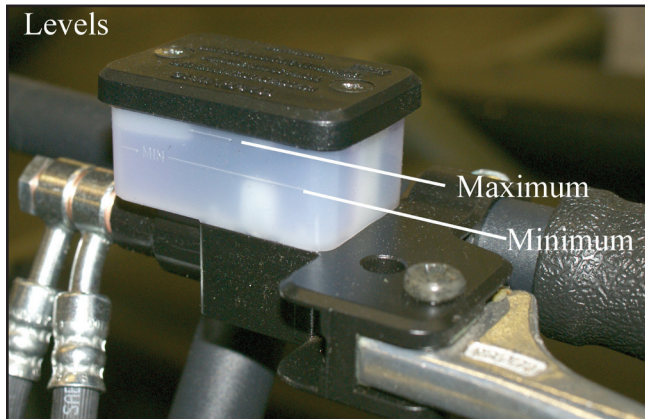


Figure 7-12. Hydraulic handbrake levels

Monitor the hand brake fluid on a regular basis. The master cylinder reservoir is translucent and the fluid level is visible to the eye without removing the cover. Ensure the level is to the “top” level mark. Figure 7-12.

Inspect all brake hoses and brake fittings at both hand brake and hydraulic calipers for any signs of brake fluid leaks.

IMPORTANT: If the cover needs to be removed to replenish or service the system, thoroughly clean the cover and surrounding area before removing to avoid any contamination to the brake system.

Brake Pad Inspection Procedure

Inspect the brake pads after every 50 hours of operation. Worn, glazed or contaminated brake pads affect the efficiency of the brake system. To inspect the pads, first remove the firewall.

Firewall Removal

1. Unthread the knurled fastener at the back of the aluminum floor pan and lift the floor pan out of the Argo.
2. Turn the firewall release catch(es) (located at the top of the firewall) counter-clockwise 1/4 turn.
3. Pull the bottom of the firewall rearward. Push the rubber gear shift boot back into the engine compartment.
4. Lift the firewall clear of the driving compartment.

With the firewall removed, both handbrake hydraulic brake

calipers are visible. Each caliper has 2 brake pads which are secured by (2) 3/8” Socket Head bolts. Inspect all 4 brake pads.

Replace the pads when:

- the brake lining material molded to each metal backing plate is worn to 0.03" (0.8 mm) thickness. (Figure 7-13).
- the pads are glazed and brake performance is affected.
- the pads are contaminated with lubricant, and brake performance is affected.

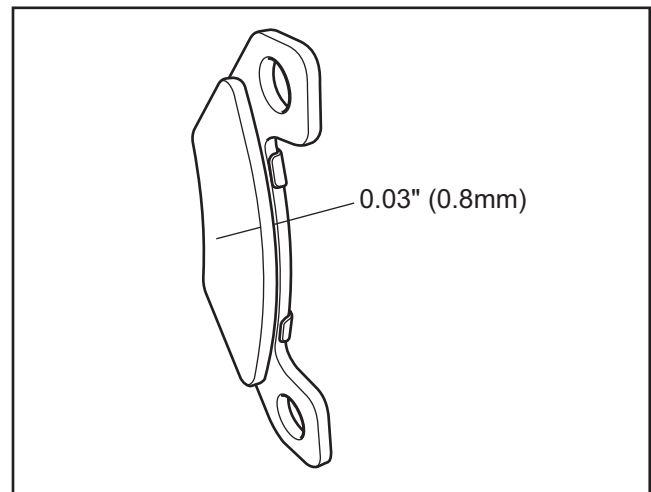


Figure 7-13. Brake pad wear, HDi handbrake pads

Re-installation of Firewall

1. Position the firewall in the driving compartment.
2. Push in the top of the firewall first and pull the shift boot into position.
3. Push in the bottom of firewall up against the stops located on the left and right hand side of the frame.
4. Line up the firewall release catch with the mounting clasp on the frame and turn clockwise 1/4 turn to lock.

WARNING

Do NOT operate the ARGO with the firewall removed.

7.3.5 EMERGENCY/PARKING BRAKE ADJUSTMENT

Adjusting the Emergency/Parking Brake

There are 8 positions on the hand brake lever. The cable should be adjusted to have the 5th position (click) as fully engaged with normal firm effort (extra effort required for 6th). Reaching into the vehicle to the band brake (with the

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lever fully down), you should be able to grab the bottom of the band and wiggle it back and forth on the drum. It shouldn't feel tight. You should also be able to grab the metal "J" bend at the end of the cable where the adjusting nut is and move it up and down, essentially moving the band and pins in the mounting bracket slots. This shouldn't feel tight either. If the band is too tight it will drag and the operator may experience a sluggish vehicle and notice smoke coming from the engine compartment and an unpleasant smell, as the band brake rubs against the drum. This will cause the band to wear out prematurely. If the 5th position (click) does not provide the full engagement with normal firm effort (extra effort for the 6th) after checking the band brake as described above, adjust the cable accordingly. Loosen jam nut at cable and thread out as needed. Figure 7-14.

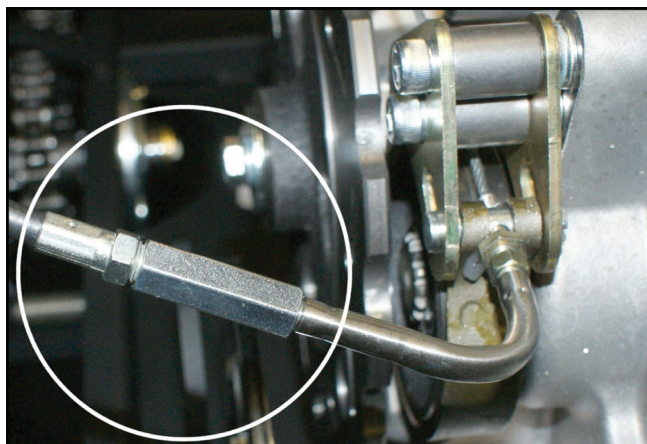


Figure 7-14. Adjusting the parking brake.

7.3.6 BRAKE PLUNGER ADJUSTMENT

IMPORTANT

It is critical that the master cylinder pistons are adjusted properly when the steering handlebars are in the centered position. Overheating of the brake system could occur due to the piston being adjusted too far in. This could cause a drag on the system and a possible brake lockup or brake fade. On the other hand, the piston being adjusted too far out increases the distance the piston is required to travel to provide brake pressure. This can result in the steering arm contacting and/or bending the plunger pin guide tab resulting in compromised system operation.

1. Remove the steering assembly cover (Figure 7-8) .
2. Pull back the rubber boot at both master cylinder plunger pins and check each piston location relative to the face of the master cylinder casting as illustrated in Figure 7-15. Use a straight edge against the face of the casting to ensure

the piston is between zero and 0.020" (0.5 mm) depth in the master cylinder.

3. If adjustment is needed, loosen the jam nut and thread the adjustable plunger pin either in or out as necessary.
4. Loosen the set screw on each of the plunger pin collars and push them up against the plunger pin guide tabs. Apply Loctite # 242 to the set screw threads and re-secure the set screws.

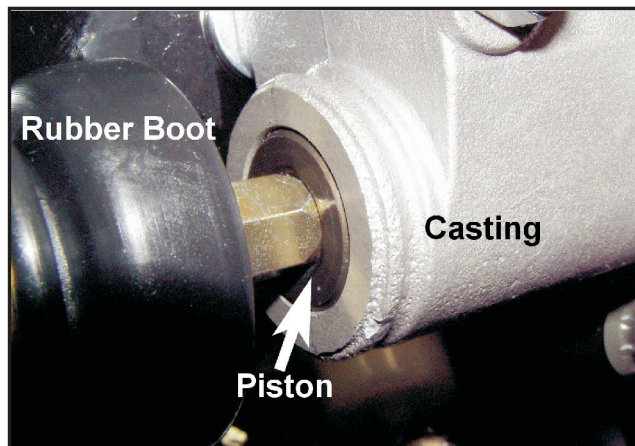


Figure 7-15. Location of piston.

7.3.7 ENGINE COOLING & EXHAUST SYSTEM

Engine cooling air is drawn in on the right side of the engine compartment and expelled with the exhaust on the left side. Keep all ducting and screening in place.

Coolant Recommendations - Kohler Aegis

Use equal parts of ethylene glycol (anti-freeze) and water only. Distilled or deionized water is recommended, especially in areas where the water contains a high mineral content. Propylene glycol based anti-freeze is **not** recommended.

This mixture will provide protection from -37° C (-35° F) to 108° C (226° F). For protection and use outside the indicated temperature limits, follow the anti-freeze manufacturers instructions on the container, but do not exceed 70% anti-freeze.

DO NOT use anti-freeze with stop-leak additive(s), or put any other additives in the cooling system.

Type: Permanent type of anti-freeze; green coloured
Mixed Ratio: 50% mixed
Freezing Point: -35° C (-31° F)

Coolant Capacity

LH775 2 L (2.18 U.S. qt)

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WARNING

If the vehicle is equipped with an enclosed cab of any sort, make sure there is plenty of ventilation to avoid exposure to exhaust and engine fumes. Engine exhaust contains carbon monoxide; an odourless, colourless toxic gas that will cause serious personal injury or death. Inspect the exhaust system periodically for worn or damaged components. Listen for a change in exhaust or engine noise that may indicate a dangerous exhaust leak. If a leak is detected, have the exhaust system repaired immediately before further use.

Check the area around the exhaust system periodically for accumulated debris, particularly when travelling through dry vegetation. Failure to inspect and clean the exhaust system on a regular basis may create a fire hazard.

The tail pipe exiting through the left side of the upper body becomes very hot when the vehicle is operated. DO NOT ALLOW ANYONE TO TOUCH THE EXHAUST COMPONENTS. A SEVERE BURN CAN RESULT.

NOTE

An annual complete check over of your ARGO vehicle is recommended. This will reduce maintenance costs over the life of your vehicle and ensure it will function properly during use periods.

7.4 DAILY CHECKLIST - Minimum Recommendation

DAILY OR BEFORE EACH USE	COMPLETE	REQUIRES ATTENTION	Section
Check coolant level			
Check fan belt and alternator belt tension			
Check fuel level			2.2
Check tire inflation			7.2.5
Check twist grip throttle operation			2.2
Check handlebar travel			2.2
Check hand / parking brake operation			3.3
Check engine intake, exhaust and hood scoop for obstructions			2.2
Check that drain plugs are in place			5.6
Check engine oil level			6.1.1
Check transmission oil level			6.2.1
Check service brake fluid level			7.3.4
Check the drive belt			7.2.1
Check auto-lube oil level (if equipped)			6.4.4
Check / inspect hi-lo shifter and cable			3.9.1
Check lower body for holes or punctures			

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AFTER INITIAL 20 HOURS OF OPERATION	COMPLETE	REQ. ATTENTION	Section
Change engine oil & filter			6.1.3
Change transmission oil			6.2.2
Tighten axle assemblies			

A-SERVICE MAINTENANCE TO BE PERFORMED EVERY 50 HOURS OF OPERATION	COMPLETE	REQUIRES ATTENTION	Section
Lubricate output shafts			6.4.7
Lubricate output shaft bearings			6.4.7
Check battery fluid level (if required)			7.1.2
Check nylon sliders - driven clutch			7.2.2
Check sliders - chain take-up system			7.2.4
Inspect brake pads			7.3.4
Inspect / adjust emergency / parking brake			7.3.5
Inspect steering hydraulic brake fluid level / condition			7.3.2
Inspect / clean auto lube blocks			
Inspect alternator belt			

B-SERVICE MAINTENANCE TO BE PERFORMED EVERY 150 HOURS OF OPERATION (To include 50 hour service)	COMPLETE	REQUIRES ATTENTION	Section
Change engine oil and oil filter			6.1.3
Change transmission oil			6.2.2
Check clean / replace air filter			6.3.1
Service driver and driven clutch			6.4.2
Check / change axle assembly oil			6.4.6
Check battery fluid level and caps for lead acid batteries			7.1.2
Clean battery, terminals and connections			7.1.2
Clean, adjust / replace spark plugs			7.1.4
Clean out spark arrester			7.1.5
Tighten axle assemblies			
Check voltage regulator, charge output			7.1.2

C-SERVICE MAINTENANCE TO BE PERFORMED EVERY 300 HOURS OF OPERATION (To include 50 hour & 150 hour service)	COMPLETE	REQUIRES ATTENTION	Section
Replace fuel filter			6.3.2
Inspect fuel tank condition / lines			
Inspect all wire harnesses			
Clean battery			7.1.2

The intervals shown on the schedule are based on average operating conditions. Vehicles which are subjected to severe use and wet or dusty conditions will require more frequent servicing. Use only Argo replacement parts to ensure safe operation of the vehicle and to comply with the warranty coverage.

We strongly recommend that an Argo Dealer perform a complete check-over of your vehicle after the initial 20 hours of operation, then once each year. This will reduce maintenance costs over the life of your vehicle.

SECTION 8

TROUBLE SHOOTING

MALFUNCTION (SYMPTOM)	PROBABLE CAUSE	CORRECTIVE ACTION
Electric starter inoperative	<ol style="list-style-type: none"> 1. Loose electrical connections 2. Battery charge low or dead 3. Faulty starter motor 4. Faulty ignition switch 	<ol style="list-style-type: none"> 1. Clean and re-tighten electrical connections 2. Recharge battery or replace as necessary 3. Return the vehicle to an Argo dealer for servicing 4. Replace ignition switch
Engine turns over but will not start	<ol style="list-style-type: none"> 1. Fuel tank is empty 2. Blocked fuel or air filter 3. Spark plugs defective or fouled 4. Ignition system inoperative 5. Insufficient compression 	<ol style="list-style-type: none"> 1. Refill tank 2. Remove obstruction or replace filter as necessary 3. Clean and re-gap or replace 4. Have unit serviced by a properly trained and equipped mechanic 5. Take the vehicle to a factory authorized engine repair outlet
Engine will not run		<ol style="list-style-type: none"> 1. Refer to engine manual
Vehicle will not move or turn	<ol style="list-style-type: none"> 1. Transmission in neutral or not properly engaged in gear 2. Drive belt worn (see Section 7.2.1) 3. Clutch not engaging 4. Transmission failure 5. Brakes not functioning 	<ol style="list-style-type: none"> 1. Place gear shift properly in gear 2. Replace belt if worn excessively 3. Return the vehicle to an Argo dealer for servicing 4. Same as 3. above 5. Adjust caliper or replace brake pads
Vehicle pulls to right	<ol style="list-style-type: none"> 1. Right tire pressure too low 2. Left tire pressure too high 3. Right brake engaged 4. Right side drive chain broken 	<ol style="list-style-type: none"> 1. Inflate all tires to the correct pressure 2. Same as above 3. Make sure the handlebar is held parallel to the dash. Adjust brake assembly if required. 4. Repair or replace
Vehicle pulls to left	<ol style="list-style-type: none"> 1. See "Vehicle pulls to right" - substitute right with left 	
Vehicle does not shift into Hi from Low or Low from Hi	<ol style="list-style-type: none"> 1. Hi/Low shift cable adjustment 	<ol style="list-style-type: none"> 1. Take the vehicle to an Argo dealer for servicing
Handbrake failure	<ol style="list-style-type: none"> 1. Worn brake pads 2. Leaking caliper or brake lines or air in system 	<ol style="list-style-type: none"> 1. Change pads 2. Take the vehicle to an Argo dealer for servicing
Parking brake failure	<ol style="list-style-type: none"> 1. Brake cable adjustment 2. Worn brake band 	<ol style="list-style-type: none"> 1. Adjust brake cable 2. Change band

SECTION 8 TROUBLE SHOOTING

MALFUNCTION (SYMPTOM)	PROBABLE CAUSE	CORRECTIVE ACTION
Severe vibration when vehicle is operated	<ol style="list-style-type: none"> 1. Engine loose on mounts 2. Driver or driven clutch or engine defective 3. Axle bent 4. Wheel rim bent 5. Worn or damaged drive belt 	<ol style="list-style-type: none"> 1. Take vehicle to an Argo dealer for service. 2. Same as above. 3. Remove and straighten or replace. 4. Replace. 5. Replace. Clutch service may be required.
Water leaks into lower body	<ol style="list-style-type: none"> 1. Leak has developed at the axle assembly 2. Lower body is cut or punctured 3. Drain plugs not in place 	<ol style="list-style-type: none"> 1. Replace the flange seal. 2. Repair or replace vehicle lower body 3. Secure drain plugs.
Tire leaks air	<ol style="list-style-type: none"> 1. Tire is punctured 2. Tire is not properly seated on bead 3. Position of air leak is not obvious 4. Defective valve 	<ol style="list-style-type: none"> 1. Remove tire from rim and repair the hole with a radial tire patch or install a tube in the tire. 2. Deflate tire and carefully push tire bead off the rim. Clean the rim bead area to remove dirt and foreign matter. Re-inflate tire. 3. Submerge tire and rim in a water tank. Air may be escaping through the rim halves or the valve stem. Repair as required. 4. Replace defective valve.
Hydraulic brakes are spongy, or there is excessive handle bar travel	<ol style="list-style-type: none"> 1. Air in hydraulic system 2. Leak in system 3. Loose brakes 	<ol style="list-style-type: none"> 1. Have an Argo dealer bleed the brake 2. Have an Argo dealer check all fittings, hoses, calipers and seals for loose connections or leakage. Refill as needed. 3. Adjust or tighten.
Brakes ineffective	<ol style="list-style-type: none"> 1. Pads have overheated and glazed 2. Pads worn beyond 0.10" 3. Pads are contaminated with lubricant 	<ol style="list-style-type: none"> 1. Have the pads cleaned by an Argo dealer or replace pads. 2. Replace. 3. Have the pads cleaned by an Argo dealer or replace pads.
There is a loud bang when the vehicle is turned right or left	<ol style="list-style-type: none"> 1. Drive chains worn/loose 	<ol style="list-style-type: none"> 1. Adjust/replace drive chains as required.
Vehicle does not steer left or right	<ol style="list-style-type: none"> 1. Worn or contaminated brake pads 2. Leaking caliper or brake lines or air in system 	<ol style="list-style-type: none"> 1. Change pads 2. Take the vehicle to an Argo dealer for servicing

SECTION 9

CLEANING AND STORAGE

9.1 CLEANING THE VEHICLE

Wash the vehicle body with a household detergent and rinse with water. Flush dirt out of the lower body by using a high pressure sprayer or garden hose after removing the drain plugs. After the bottom of the vehicle is dry, lubricate the drive chains with ARGO chain lube or perform an "initial lubrication" with the Auto Lube System (see Section 6.4.4). Make sure the drain plugs are reinstalled.

9.2 STORING THE VEHICLE

When the vehicle is stored for an extended period, the following preparation is required:

Clean the Vehicle

Remove all dirt and water from the vehicle body as directed above.

Remove the drain plugs if the vehicle is not fully sheltered from the elements.

! CAUTION

Any water accumulation in the vehicle will, over time, destroy chains, sprockets and bearings. Grease all bearings and flanges (refer to Section 6.4).

Drain the Fuel System

Insert a siphon hose into the gas tank through the filler neck and drain the gasoline. Start the engine and run it until all fuel in the system is consumed.

OR

Add fuel stabilizer (ARGO Part No. 127-77) to the fuel tank and fill with fresh gasoline. Run the engine for a few minutes to allow the treated fuel to reach the carburetor / injectors.

Prepare the Battery for Storage

Remove the battery from the vehicle. Clean it and charge it with a battery charger. Coat the battery terminals with a multi-purpose grease to prevent corrosion. Store the battery in a cool dry place.

! WARNING

Do not store the battery near flames, sparks or any source of fire. Batteries can explode if exposed to flames or sparks, causing serious personal injury.

Recharge the battery monthly.

Protect the Electrical System

Spray the wiring harnesses and all the electrical connections with a silicone based lubricant (WD40 or equivalent) to prevent corrosion.

Carefully inspect the wiring for loose connections, bare wires or corrosion. Repair as necessary.

Raise the Vehicle

Place blocks under the front and rear axle assemblies of the vehicle to raise the tires off the ground. The blocks must be placed under the axle tubes to prevent body damage (Figure 9-1).













Figure 9-1. Correct placement of blocks

Preparing the Engine for Storage

Read the engine operator's manual and carry out all recommended storage procedures.










SECTION 10

POTENTIAL HAZARDS

	POTENTIAL HAZARD	WHAT CAN HAPPEN	HOW TO AVOID THE HAZARD
	Operating the Argo without reading and understanding the Operator's Manual	The risk of accident is greatly increased if the operator does not know how to operate the Argo properly in different situations and on different types of terrain.	New or inexperienced operators should read and understand the Operator's Manual. They should then regularly practice the operating techniques described in this Operator's Manual.
	Allowing anyone under age 16 to operate this vehicle.	Children under the age of 16 may not have the skills, abilities, or judgement needed to operate the Argo safely and may be involved in an accident causing severe injury or death.	No one under the age of 16 should be allowed to operate the Argo.
	Operating or riding as a passenger in the Argo without wearing an approved motorcycle helmet, eye protection, and protective clothing.	Operating or driving without an approved motorcycle helmet increases the chance of severe head injury or death in the event of an accident. Operating or driving without eye protection can result in an accident and increases your chances of a severe injury in the event of an accident.	Wear an approved safety helmet and eye protection when driving or riding in the vehicle.
	Operating the Argo after or while consuming alcohol or drugs.	Could seriously affect your judgement, cause you to react more slowly, and affect your balance and perception. This could result in an accident.	Never allow anyone under the influence of alcohol or any other intoxicating substance to drive or ride in the vehicle. Never use with drugs or alcohol.
	Carrying passengers in the dump box.	Riders can fall off and be killed.	No riders in the dump box.
	Carrying cargo when using the Argo in water.	Argo vehicles may sink if they fill with water, resulting in injury or drowning to driver and passengers. If the vehicle upsets or swamps, exposure in cold water significantly reduces the chance of survival.	Be especially cautious when operating a loaded vehicle (cargo and/or passengers) in water. Observe the capacity limits. Do not enter water if the vehicle is overloaded. Use extra caution when operating the Argo in cold water.
	Carrying cargo in the dump box when used in water.	Greatly reduces your ability to balance and control the Argo in the water. Could cause an accident, including capsizing and sinking, resulting in injury or drowning to driver and passengers.	Do not use the dump box equipped Argo in water.
	Operating the Argo in water without drain plugs properly installed.	Will cause the vehicle to fill with water and cause it to capsize or sink, which could result in injury or drowning to driver and passengers.	Always make sure the drain plugs are properly installed in the Argo as described in the Operator's Manual.
	Using the Argo to tow anything in the water other than an Argo amphibious trailer.	Greatly reduces your ability to balance and control the Argo in the water. Could cause an accident, including capsizing and sinking, which could result in injury or drowning to driver and passengers.	Never tow anything other than an Argo amphibious trailer when the Argo is used in water. Keep cargo low and centered in the trailer, especially if used in water.
	Operating the Argo in rough water.	Greatly reduces your ability to balance and control the Argo in the water. Could cause an accident, including capsizing and sinking, which could result in injury or drowning to driver and passengers.	Do not attempt to navigate any body of water with a strong current. Avoid water operation under windy conditions. Do not attempt to cross large bodies of water. Stay close to shore in case of emergency and you have to leave the water.












SECTION 10

POTENTIAL HAZARDS

	POTENTIAL HAZARD	WHAT CAN HAPPEN	HOW TO AVOID THE HAZARD
	Operating or driving the Argo in water without the occupants wearing an approved personal flotation device (PFD).	If you lose control of the Argo in water and it capsizes and sinks, the driver and passengers may be injured or drown.	All occupants must wear an approved personal flotation device (PFD) or life jacket while travelling in water.
	Operating the Argo in water without taking along a paddle.	If you run out of gas or have an engine failure the Argo will not be able to move under its own power and you may be stranded.	Equip the vehicle with a paddle and bailing can.
	Failure of driver and passengers to adjust positions so that the vehicle is floating level when operating the Argo in water.	Water may enter the vehicle and cause it to capsize or sink, which could result in injury or drowning to driver and passengers.	When using the Argo in water, adjust the position of cargo and passengers so the vehicle floats level.
	Failure to enter the water correctly.	You may cause waves, which will enter the Argo and cause it to capsize or sink, which could result in injury or drowning to driver and passengers.	The point of entry should be free of rocks, stumps and other obstacles. Enter the water from a firm, gradual slope whenever possible. Be careful not to submerge the bumper as you enter the water.
	Carrying more than specified number of people in an Argo, either on land or in water.	Greatly reduces ability to balance and control the Argo on both land and in the water and could cause an accident, resulting in injury or death to driver and passengers.	Never exceed the load capacity of the Argo as detailed in Section 1.4 of this manual.
	Overloading the vehicle.	Heavy loads and high loads decrease the stability of the vehicle and may cause it to roll. Trying to steer an overloaded vehicle can overheat the brakes. This will lead to brake fade which means loss of steering control and the ability to stop the vehicle. Overloading your vehicle can lead to premature brake system failures and costly damage to drive chains, axles or bearings.	Follow the recommended load capacity for your vehicle listed in Section 1.
	Failure to fasten seat belts if the Argo is equipped with rollover protection.	If the Argo overturns, the driver and passengers may be thrown from the vehicle and the roll bar or roll cage could strike them.	Seat belts must be properly adjusted and worn by all occupants at all times EXCEPT when operating in water.
	Failure to unfasten seat belts (if the Argo is so equipped) when the vehicle is in water.	If the Argo capsizes or sinks the driver and passengers may be unable to unfasten their seat belts and may drown.	Do not use seat belts or any passenger restraining device while operating an Argo in water.
	Failure to inspect the Argo before operating. Failure to properly maintain the Argo.	Increases the possibility of an accident or equipment damage.	Always inspect your Argo each time you use it to make sure it is in safe operating condition. Always follow the inspection and maintenance procedures and schedules described in this Operator's Manual.











SECTION 10

POTENTIAL HAZARDS

	POTENTIAL HAZARD	WHAT CAN HAPPEN	HOW TO AVOID THE HAZARD
	Operating the Argo with improper tires or with improper or uneven tire pressure.	Use of improper tires on the Argo, or operation of the Argo with improper or uneven tire pressure may cause loss of control increasing your risk of an accident.	Always use the size and type tires specified in this Operator's Manual for this Argo. Always maintain proper tire pressure as described in this Operator's Manual.
	Operating the Argo with improper modifications.	Improper installation of accessories or modification of the Argo may cause changes in handling which in some situations could lead to an accident.	Never modify the Argo through improper installation or improper use of accessories. All parts and accessories added to this Argo should be genuine Argo components designed for use on the Argo and should be installed and used according to instructions. If you have questions, consult an authorized Argo dealer or contact Ontario Drive & Gear Limited at 1-519-662-4000
	Applying brakes suddenly when going downhill.	Sudden braking can cause the vehicle to roll over forward.	Gently apply the brakes to control downward vehicle speed. Do not jam on the brakes while travelling downhill.
	Operating the Argo on paved surfaces.	Pavement may seriously affect handling and control.	Do not drive your vehicle on asphalt or concrete roadways.
	Operating Argo on public streets, roads or highways.	A collision can occur with another vehicle.	Never drive on public roads.
	Operating at excessive speeds.	Personal injury or vehicle damage may result.	Do not drive the vehicle at high speeds over unfamiliar or rough terrain. Never operate at speeds too fast for your skills or the conditions.
	Failure to use extra care when operating the Argo on unfamiliar terrain.	Personal injury or vehicle damage may result.	Do not drive the vehicle at high speeds over unfamiliar or rough terrain.
	Failure to use extra care when operating on rough, slippery or loose terrain.	Could cause loss of traction or vehicle control, which could result in an accident, including an overturn.	Do not operate on rough, slippery or loose terrain until you have learned and practised the skills necessary to control the Argo on such terrain.
	Turning improperly.	When turning, the back of the vehicle swings to the opposite direction of the turn, creating a risk of hitting persons or objects. Sharp turns, especially at high speeds or when heavily loaded, may cause the vehicle to roll over.	Always take precautions when making turns to avoid rolling the vehicle or hitting persons or objects. Slow the vehicle down before making a turn. Do not apply the brakes too suddenly.
	Driving on inclines with a loaded vehicle.	Heavy loads and high loads decrease the stability of the vehicle and may cause it to roll.	Use extreme CAUTION when negotiating inclines with a loaded vehicle. Be prepared to shift occupant weight and load forward or have passengers get out of the vehicle to walk up an incline.
	Going downhill improperly.	Sudden braking can cause the vehicle to roll over forwards.	Avoid steep declines when possible. When a steep decline cannot be avoided, shift occupant weight to the rear of the vehicle to prevent the vehicle from rolling over.

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POTENTIAL HAZARDS

	POTENTIAL HAZARD	WHAT CAN HAPPEN	HOW TO AVOID THE HAZARD
	Improperly crossing hills or turning on hills.	Side slope operation greatly increases the risk of rolling the vehicle over sideways. Prolonged side slope operation may cause engine damage.	Do not drive your vehicle across the side of a hill. Observe the engine angle of operation limitations in Section 5.2.
	Stalling or rolling backwards while climbing a hill.	Could cause loss of control which could lead to an accident including an overturn.	Try to avoid steep hills. Maintain steady speed when climbing a hill. If you lose all forward speed: - keep weight uphill - lean toward the hill - slowly coast backwards down the hill using the handlebar brake
	Improperly operating over obstacles.	Personal injury or vehicle damage may result.	Before operating in a new area, check for obstacles. Never attempt to drive over large obstacles such as large rocks or fallen trees. When you go over obstacles always follow proper procedures as described in this Operator's Manual.
	Skidding or sliding.	You may lose control of the Argo. You may also regain traction unexpectedly which may cause the Argo to overturn.	Learn to safely control skidding or sliding by practising at slow speeds and on level, smooth terrain. On extremely slippery surfaces, such as ice, go slowly and be very cautious in order to reduce the chance of skidding or sliding out of control.
	Improperly operating in reverse.	You could hit an obstacle or person behind you resulting in serious injury.	Carefully practice backing up and turning in an open area until you become accustomed to this procedure. Take precautions to avoid hitting persons or objects.
	Use of the holding brake as a parking brake.	The holding brake system (if equipped) is not a parking brake, and therefore is not designed to hold the vehicle in place for long periods of time. The holding brake is for short term use only. The hydraulic brake pressure could drop over time, releasing the brakes, allowing the vehicle to roll into persons or objects, causing serious injury.	When parking on an incline, apply the emergency/parking brake, leave the vehicle in gear, turn the engine off and block the vehicle's wheels.
	Using the firewall to brace your knees.	Damage to the firewall and serious personal injury can result from the driven clutch wearing through the firewall.	Do not push against the firewall with your knees.
	Running the engine in a closed building or confined area.	Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odourless, colourless and can cause serious injury or death.	Never start or run the engine in a closed building or confined area.
	Adding fuel while the engine is running or hot.	Gasoline is extremely flammable and can explode under certain conditions, causing serious injury or death.	Do not add fuel while the engine is running or hot.
	Filling outboard motor fuel tanks while they are in the Argo.	Gasoline is extremely flammable and can explode if ignited, causing serious injury or death.	Fill outboard motor fuel tanks outside of the vehicle. Wipe up any spilled fuel immediately. Do not carry or store fuel tanks in a vehicle equipped with a cab or convertible top unless adequate ventilation is provided.

SECTION 11

ACCESSORY INFORMATION

11.1 GENERAL

This section deals with accessories that have been specifically designed for the ARGO and can be purchased separately from your dealer. Special operating procedures and safety precautions must be observed before operating or using certain accessories.

11.2 REAR CARGO TIE DOWN BARS (Part No. 849-116)

Rear cargo tie down bars are mounted to the rear upper frame. They provide points to secure your load.

! CAUTION

Never attempt to raise the vehicle by using the tie down bars as lifting points.

! WARNING

Never exceed gross vehicle weight. Never exceed the maximum rear compartment weight for Argos.

11.3 ARGO TRACK SYSTEMS (All Season Track Kit & Rubber Track Kit)

There are two different types of track systems available for use with the XTI, the all-season track system, and the rubber track system. Rubber tracks are wider than all-season tracks and require axle extensions and studs assembled to each wheel hub.

The track systems spread the weight of the vehicle over a larger area than the tires, thereby reducing the ground pressure and allowing the vehicle to stay on top of, rather than sinking into, soft terrain.

All Season Track Kit (Part No. 849-150)

Available in a 15" wide multi-purpose track, this rubber track system will allow for ultimate all terrain performance.

11.3.1 Track Installation

1. Tires must be checked for size to ensure that equal size pairs are installed in each track. If this is not done, chain windup will happen causing damage to the drive system components. Tires can be sized this way:
 - a. With the tires still off the machine, inflate them all to 10 psi. If the tires were just installed on rims or were left set under 5 psi, it is very important that the tires have a chance to sit for at least 24 hours while pressurized. Re-check the tire pressure and re-set to 10 psi if required.

- b. Measure the circumference of each tire using a suitable tape measure, being sure to measure around the center-line of the tire. Figure 11-1. Write down the measurement on each tire.



Figure 11-1. Measuring the tire.

- c. Try to put matched tire sizes in each track; i.e. From the eight tires, pair them off so each two tires in a pair have a circumference within 1/2" of each other and then put the smaller of these two toward the front and the larger one toward the back of each track. Do the same for all 4 pieces of rubber track.

*Two tires that measure the same circumference when at 10 psi, should always be the same circumference when at equal pressure. **Check tire pressure every 10 hours and adjust so that front and rear tires have equal pressure.***

2. If tire sizing is strictly adhered to, all drive chains should be left connected to the drive train for optimum performance. If you are experiencing frequent drive chain windup, remove tracks and recheck tires to ensure that front and rear tire circumference is equal with equal tire pressure.
3. Release air pressure in the Multi Trac XT tires.
4. Put two deflated tires into the track (Figure 11-2).
5. Manoeuvre the assembly into position on two wheel hubs and secure the wheel nuts (Figure 11-3).

SECTION 11 ACCESSORY INFORMATION

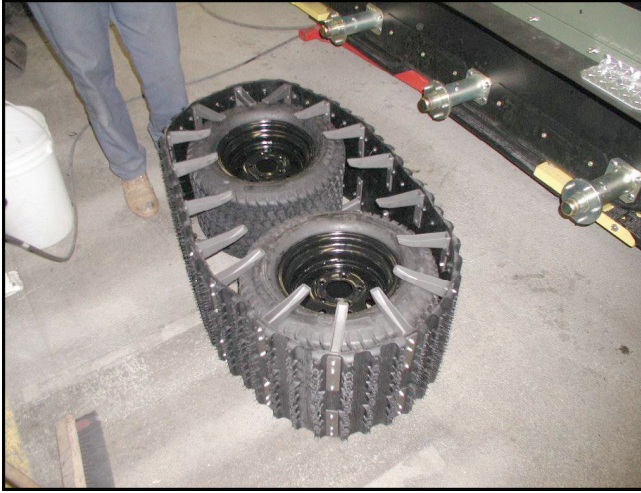


Figure 11-2. Deflated tires into track



Figure 11-4. Re-inflating tires.



Figure 11-3. Positioning on wheel hubs.

6. Re-inflate tires (to between 10 and 20 psi) until tracks are no longer loose. (But no less than 10 psi tire pressure.) (Figure 11-4).
7. These tires grow fairly dramatically with increased air pressure:

The circumference of the tire is:

68.5"	0 psi
70.2"	5 psi
71.5"	10 psi
72.4"	15 psi
74.5"	20 psi

⚠ CAUTION

DO NOT OVER INFLATE! Too much track tension can damage bearings and axle housings.

11.3.2 Operating Precautions

An Argo XTI equipped with rubber tracks (958-88) has a reduced capacity when operating in water or over frozen bodies of water and when equipped with All-Season tracks (849-150), load capacity is significantly reduced in water or over frozen bodies of water. Tracked Argo models have a reduced capacity on land. Refer to Section 1.4.1 of this manual for additional information on operating capacities.

⚠ CAUTION

CAUTION should be observed when operating in winter conditions and a drop in temperature occurs. Snow and slush accumulation in the track could freeze, resulting in damage to the track system. Slush, snow and ice accumulation should be cleared from the axles and track periodically to prevent build-up.

CAUTION should be observed when using any track system on an Argo. Make sure the guides and backing plates are properly secured in each track. Failure to secure them can result in lower body damage.

⚠ WARNING

EXTREME CAUTION must be observed when using the track systems on icy surfaces. Steering and braking effectiveness will be reduced. Reduce speed.

EXTREME CAUTION must be observed when crossing ice-covered water. The vehicle will sink if it breaks through the ice surface and fills with water. Make sure drain plugs are securely in place and do not overload the vehicle. Ice must be thick enough to support the fully loaded vehicle.

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ACCESSORY INFORMATION

⚠ CAUTION

Rubber track kit, Part No. 958-88, requires the assembly of axle extensions and extension studs to each wheel hub before installation of the tracks. Failure to install these components will cause severe damage to the lower body.

Note: Axle extensions are recommended for use only with tracks and should be removed for tire-only use.

Rubber Track Kit (Part No. 958-88)

11.3.3 Installing the Axle Extension

1. Raise the vehicle off the ground and remove the wheels.
2. Install the extension studs on all of the vehicle wheel studs and tighten securely. See Figure 11-5.
3. Place the axle extension collars onto the extension studs and seat firmly against the axle hub plate. The small hole must face away from the hub plate.

NOTE

The extension studs have hexagonal sides and must sit properly within the slots on the axle extension (See Fig. 11-6). If the extension studs are misaligned with the slots of the axle extension collar when tightened, adjust each stud as necessary by tightening them further (never by loosening them), until alignment allows for the extension collar to slide on easily (by hand), up against the axle hub. Torque to a minimum of 40 ft lbs. Once the extension studs are tightened and aligned correctly, they will not require re-tightening unless they are removed. However, it is very important that with the Rubber Tracks installed, the wheel nuts of the Argo are tightened to 65 ft. lbs. (88 N.m) initially, re-torqued after the first 10 hours of operation, then again after the next 10 hours, followed by re-torquing every 25 hours of operation.

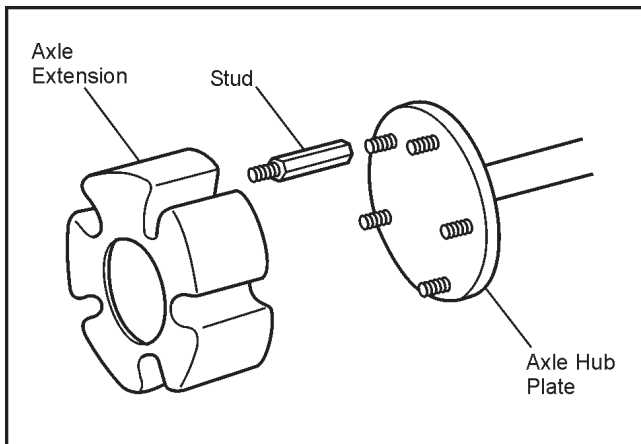


Figure 11-5. Installing the Axle Extensions.

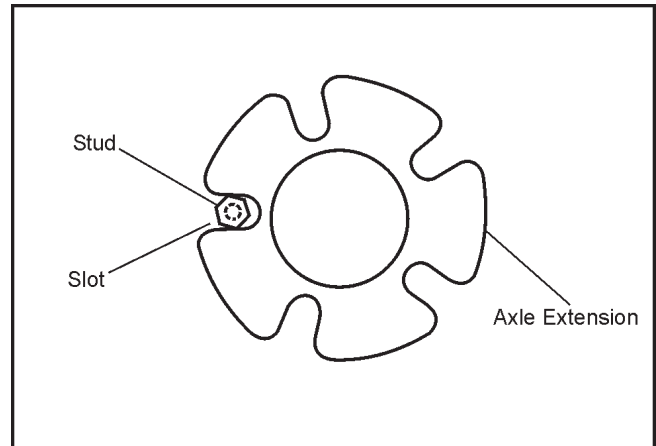


Figure 11-6. Check Stud Position in Axle Extension.

⚠ CAUTION

Damage to the extension studs, bolts, or axle extension may occur if the extension studs are not tightened correctly. Use good judgement when installing.

4. Tires must be checked for size and installed in a specific order as shown in the chart, Figure 11-9. If this is not done, chain windup will happen causing damage to drive system components. Tires should be sized this way:
 - a. With the tires still off the machine, inflate them all to 5.0 psi.
 - b. Measure the circumference of each tire using a suitable tape measure, being sure to measure around the center-line of the tire. Figure 11-7. Write down the measurement on each tire. Figure 11-8.
 - c. Install the tires as shown in the chart (Figure 11-9).



Figure 11-7. Measuring the tire.

SECTION 11

ACCESSORY INFORMATION

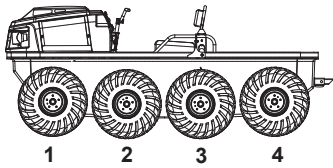


Figure 11-8. Marking the tire.

NOTE

Two tires that measure a certain difference in circumference when at 5 psi, will always be the same difference in circumference when at equal pressure. **Check tire pressure every 10 hours and adjust to the pressures shown in the chart.**

Wheel Position



	Wheel #1	Wheel #2	Wheel #3	Wheel #4
Measured Size	Smallest	Largest	Second Largest	Second Smallest
Tire Pressure	5 psi	7 psi	7 psi	6 psi
Tire Direction *	Standard	Reversed	Reversed	Standard

*Note: Standard = Standard Argo tire installation
 Reversed = Opposite to the normal Argo tire installation
 Tire tread direction is not as important as tire size/position or tire pressure. It has some benefit in lowered chain loads but should be considered only if tire size/position requirements are met.

Figure 11-9. Tire Sizing Chart.

IMPORTANT

BEFORE INSTALLING THE RUBBER TRACK SYSTEM, IT IS CRITICAL THAT TIRE SIZING IS PERFORMED AND THE TIRES INSTALLED AS SHOWN IN THE CHART (Figure 11-9). PLEASE REVIEW AND ENSURE YOU HAVE FOLLOWED THE PREVIOUS INSTRUCTION BEFORE PROCEEDING WITH THE FOLLOWING:

5. Install the wheels. Use extreme care and allow extra instal-

lation time to protect the axle extensions from damage. Torque the wheel nuts to 65 ft. lbs. (88 N.m).

CAUTION

DO NOT over inflate tires. Lower body damage could result from track segments rubbing against the polyethylene body material. Pay special attention to the tracks during the first few "run-in" hours of use.

Over inflation of the tires will cause excessive and premature wear of the tires and ARGO track system, and may cause axle and/or axle bearing damage. Under inflation of the tires may allow them to slip in the track or may cause the tire to pop off the wheel rim. Under certain conditions, the tires may climb out of the track system during a turn or side hill operation. Check that all tires are correctly inflated, and avoid sharp high speed turns when the Argo is heavily loaded.

11.3.4 Operating Precautions (All Track Systems)

An Argo equipped with tracks has a reduced carrying capacity in water (See Section 1.4.1). Refer to Section 5.6 of this manual for additional information on safe operation in water.

Do not use the Argo in water when equipped with tracks unless it is also equipped with an outboard motor. The tracks do not propel the Argo in water.

CAUTION

CAUTION should be observed when operating in winter conditions and a drop in temperature occurs. Snow and slush accumulation in the track could freeze, resulting in damage to the track system. Slush, snow and ice accumulation should be cleared from the axles and track periodically to prevent build-up.

WARNING

EXTREME CAUTION must be observed when using the track systems on icy surfaces. Steering and braking effectiveness will be reduced. Reduce speed.

EXTREME CAUTION must be observed when crossing ice-covered water. The vehicle may sink if it breaks through the ice surface and fills with water. Make sure drain plugs are securely in place and do not overload the vehicle. Should the vehicle break through the ice, attempt to back the vehicle out, taking care that water does not enter the engine compartment. Refer to section 5.7.1 of this manual for additional information on safe operation on ice-covered water.

SECTION 11

ACCESSORY INFORMATION

11.3.5 Rubber Tracks

Rubber tracks are a highly durable belt track design constructed of rubber. This system has low rolling resistance.

Installation Instructions - Rubber Track Systems

1. Install the Hinge Assembly as described in the Rubber Track Kit instructions.
2. Install axle extension and extension studs to the wheel hubs following the guidelines as described in 11.3.3 of this section.
3. Tires must be checked for size and installed in a specific order as shown in section 11.3.3 step 4.
4. Remove the air from the front and rear tires.

Installing the Tracks to the Vehicle

IMPORTANT

BEFORE INSTALLING THE RUBBER TRACK SYSTEM, IT IS CRITICAL THAT TIRE SIZING IS PERFORMED AND THE TIRES INSTALLED AS SHOWN IN THE CHART (Figure 11-9). PLEASE REVIEW AND ENSURE YOU HAVE FOLLOWED THE PREVIOUS INSTRUCTION BEFORE PROCEEDING WITH THE FOLLOWING:

5. Lay the two assembled tracks on the floor.
6. Drive the vehicle forward onto the tracks leaving approximately 8" extending past the front tires.
7. Pull the remaining track around the rear tire and forward to the front of the vehicle.
8. Deflate the front and rear (or all tires) for easier installation of the final track pin.
9. Join the two ends of the track and secure them in place with C-Clamps as shown in Figure 11-10, so that the holes of the hinge lacing line up.

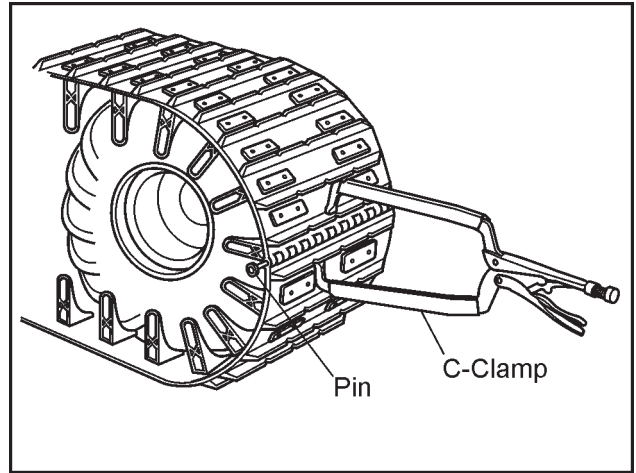


Figure 11-10. Securing with C-clamps.

10. Insert the 825-56 Track Pin through one of the 108-23 washers and then through the hinge lacing. **Be sure to install the pin from the outside edge of the track so the end with the cotter pin hole ends up nearest the vehicle lower body.**
11. Secure the Track Pin in the hinge with a 108-23 washer and 100-100 cotter pin at end closest to the vehicle body.
12. Re-inflate the tires as shown in the chart. With the tires installed and inflated as shown in the chart, there should be 2 to 3 inches between the bottom of the second (or third) tire and the inside surface of the track when the vehicle is elevated. See Figure 11-11 and Figure 11-12. This may require the installation of a track extension or additional hinge kit. The extension can be easily removed if the wheels slip within the track during winter use. **NOTE: Putting too much tension in the track will severely stress the axles, bearings and frame.**

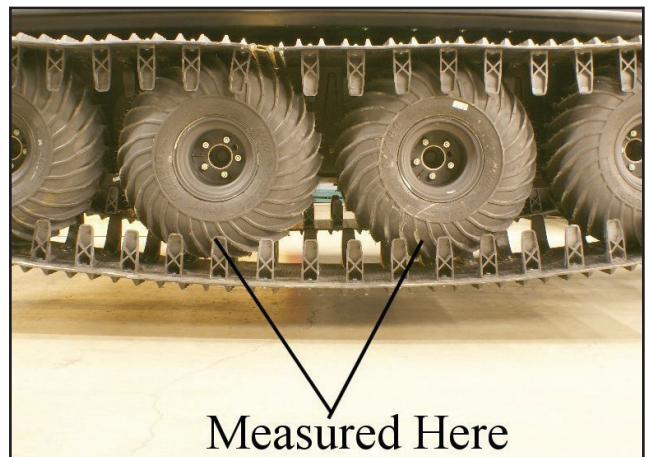


Figure 11-11. Measuring the gap of the mid tires

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ACCESSORY INFORMATION



Figure 11-12. Measuring the gap of the mid tires.

11.3.6 Removal of Argo Rubber Track Systems

1. Use a "C" clamp style vise grip to take the tension off the pin. Remove the flat washer and cotter pin. With a drift punch and hammer, tap the pin until it can be grabbed and pulled from the hinge lacing.

If an Argo is taken outdoors into freezing temperatures after the track system has been installed indoors at normal room temperature, the tires will lose air pressure. After the tires have cooled down to the outdoor temperature where the vehicle is to be operated, the tire pressure should be rechecked and adjusted as required.

! CAUTION

Extreme CAUTION is advised when crossing ice covered water. The vehicle may sink if it breaks through the ice surface and fills with water. Make sure drain plugs are securely in place, and do not overload the vehicle. Should the vehicle break through the ice, attempt to back the vehicle out. During this maneuver, take care that water does not enter the engine compartment. Refer to the Argo operator's manual for additional information on safe operation in water.

Under certain winter conditions, such as a rapid drop in temperature after a mild period, slush can build up on the track to the point that the ARGO may be unable to move. Stop periodically to clean snow and ice from the axles and track components to prevent buildup.

! CAUTION

Observe all operating precautions as outlined in 11.3.4 of this Accessory Section.

11.4 ICE CLEAT KIT (Part Nos. 825-20 & 825-21)

Ice cleats are stamped steel cleats that bolt to the tracks to grip on hard pack snow and ice to improve traction and stopping. Order kit 825-20 for the All Season tracks or 825-21 for the full-length rubber tracks.

! WARNING

Make sure all passengers riding in an Argo equipped with ice cleats are informed to keep hands, feet and clothing inside the vehicle, well away from the tracks and ice cleats while the Argo is in motion. Serious injury or death could result from getting caught by the ice cleats.

! CAUTION

The Ice Cleats must be installed near the OUTSIDE edge of the track assemblies to prevent damage to the vehicle body.

11.5 WINCH KIT (Part No. 622-133)

The 4000 lbs. winch mounts permanently to the front of the Argo and can be used for self-recovery and to raise and lower the snowplow blade (Part No. 657-106). The winch has a free-wheeling feature that allows the 55 ft. steel cable to be pulled off the winch drum without using the winch's 12 volt electric motor.

The electrical components and the wiring design of the winch kit prevent the use of the winch motor unless the ignition key is turned to the 'on' position. This is a safety feature that prevents the unauthorized use of the winch when the vehicle is parked.

After the installation of the winch kit is completed, test the electrical connections by moving the toggle switch control from side to side with the ignition switch removed. If the winch DOES NOT operate, the connections are correct. If the winch starts during this test, have the installer correct the wiring connections immediately.

! CAUTION

11.6.1 Rules For Safe Operation

1. The winch is rated at 4,000 pounds (single-line) capacity. DO NOT OVERLOAD. DO NOT ATTEMPT PROLONGED PULLS AT HEAVY LOADS. DO NOT MAINTAIN POWER TO THE WINCH IF THE MOTOR STALLS. Overloads can damage the winch and/or the wire rope and create unsafe operating conditions. For heavy loads, we recommend the use of the optional pulley block and hook assembly (Warn Part No. 28881)

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to double line the wire rope. (Figure 11-13) This reduces the load on the winch and the strain on the wire rope by approximately 50%.

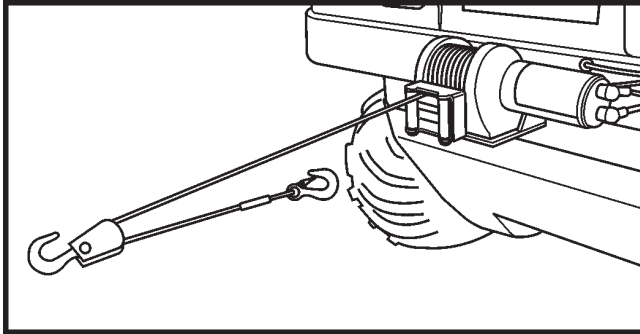


Figure 11-13. Double Line.

2. Periodically check the winch installation to assure that all bolts are tight.
3. DO NOT “move” your vehicle to assist the winch in pulling a load. The combination of the winch and vehicle pulling together could overload the wire rope and the winch itself.
4. KEEP WINCHING AREA CLEAR. Do not allow people to remain in the area during winching operations. Do not step over a taut wire rope or allow anyone else to do so. Do not stand between the winch and the load.
5. INSPECT WIRE ROPE AND EQUIPMENT FREQUENTLY. A frayed wire rope with broken strands should be replaced immediately. Always replace wire rope with the manufacturer’s identical replacement part, Warn Part No. 60076.
6. USE HEAVY LEATHER GLOVES when handling wire rope. Do not let wire rope slide through your hands. A broken strand could seriously injure your hands.
7. Keep clear of winch wire rope and hook when operating winch. Never put your fingers through the hook when reeling in the last few feet of line. If your finger should become trapped in the hook, you could lose your finger. Use the HANDSAVER BAR (Figure 11-14) to guide the hook within the last few feet. Never guide a wire rope onto the drum with your hand.

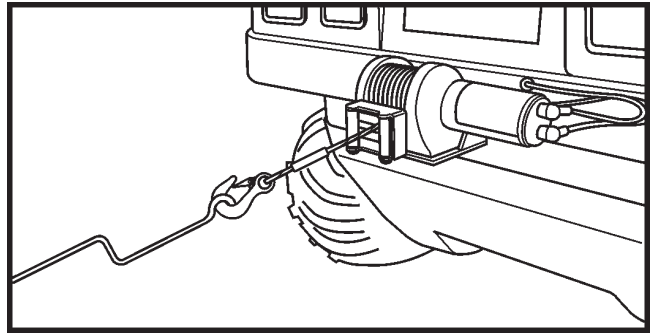


Figure 11-14. Using the Handsaver Bar.

8. NEVER HOOK THE WIRE ROPE BACK ONTO ITSELF. Use a nylon sling. (Figure 11-15). Hooking the wire rope onto itself can damage the rope (Figure 11-16).

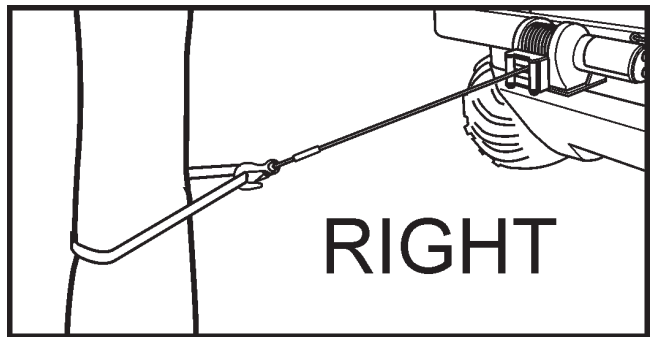


Figure 11-15. Correct hook-up.

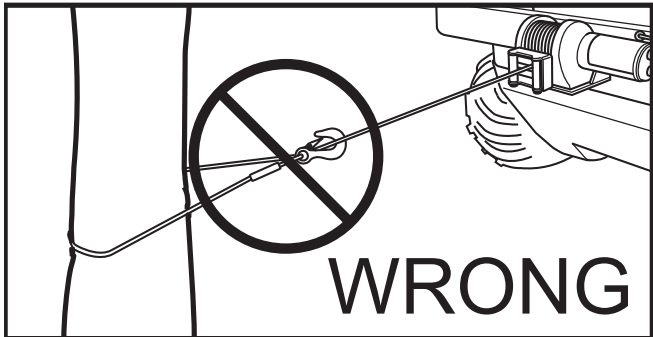


Figure 11-16. Incorrect hook-up.

9. It is a good idea to lay a heavy blanket or jacket over the wire rope near the hook end when pulling heavy loads (Figure 11-17). If a wire rope failure should occur, the cloth will act as a damper and help prevent the rope from whipping.

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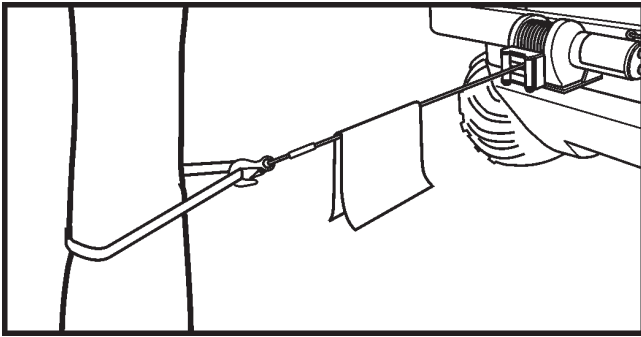


Figure 11-17. Using a cloth damper.

10. The winch and vehicle are not designed or intended for overhead hoisting operations. Never use your winch for lifting or moving people.
11. Avoid continuous pulls from extreme angles as this will cause the wire rope to pile up at one end of the drum (Figure 11-18 and figure 11-19). This can jam the wire rope in the winch causing damage to the wire rope or the winch itself.

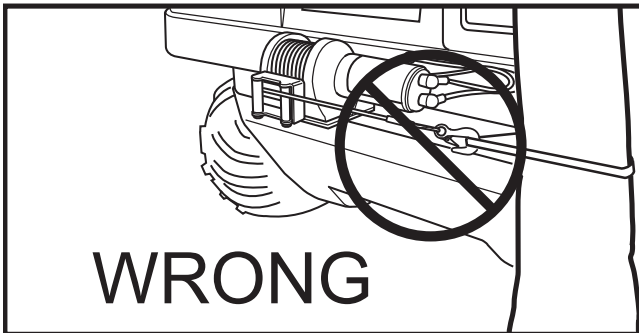


Figure 11-18. Incorrect positioning for continuous pulls.

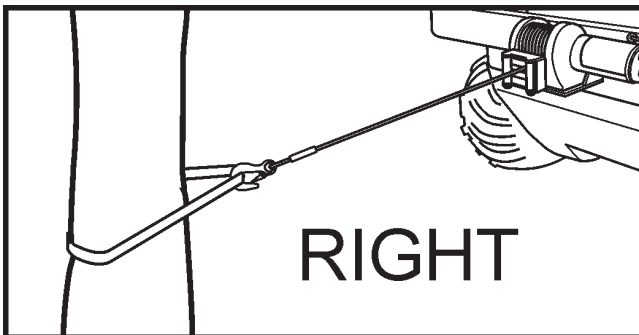


Figure 11-19. Correct positioning for continuous pulls.

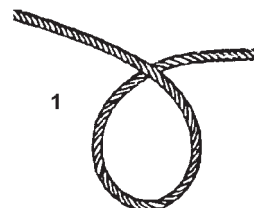
12. Always operate the winch with an unobstructed view of the winching operation.
13. Do not operate the winch when under the influence of drugs, alcohol or medication.
14. Never work on or around the fairlead or winch drum when

the winch is under load.

15. When using your winch to move a load, place the vehicle transmission in neutral, set vehicle parking brake, chock all wheels, and keep the engine running.
16. Do not use the winch to hold the vehicle in place during transportation. Use tie-down straps.
17. Maintain at least five turns of wire rope around wire rope drum to prevent the wire rope from pulling off under load.

11.5.2 Tips for Extending the Life of Your Winch

1. Keep a tightly and evenly wound wire rope drum. Do not allow the wire rope to become loosely wound. A loosely-wound spool allows a wire rope under load to work its way down into the layers of wire rope on the drum. When this happens, the wire rope may become wedged within the body of the windings damaging the wire rope. To prevent this problem, keep the wire rope tightly and evenly wound on the drum at all times. During winching, periodically check to see that the wire rope is winding on evenly. A good practice is to rewind the wire rope under tension after each use. One way to do this is to attach the hook to a stationary object at the top of a small hill or incline and winch your vehicle up the incline.
2. Do not allow motor to overheat. Remember, the winch is only for intermittent use. During long or heavy pulls the motor will get hot. The internal parts will be hotter than the case. To check the motor temperature, stop winching and carefully touch the end of the motor. If the motor is uncomfortably warm, allow the motor to cool before continuing — keep the engine running to recharge the battery during this break.
3. Use a pulley block for heavy loads. To maximize winch and wire rope life, use a pulley block (Warn Part No. 28881) to double line heavier loads.
4. The pull required to start a load moving is often much greater than the pull required to keep it moving. Avoid frequent stopping and starting during a pull.
5. Prevent kinks before they occur.
 - (1) This is the start of a kink. At this time, the wire rope should be straightened.



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- (2) The wire rope was pulled and the loop has tightened to a kink. The wire rope is now permanently damaged and must be replaced.



- (3) The result of kinking is that each strand pulls a different amount, causing the strands under greatest tension to break and reduce load capacity of the wire rope. The wire rope must be replaced.



11.6 RECEIVER WINCH KIT

The receiver option incorporates front and rear receiver mounting brackets and quick disconnect cables.

11.7 BILGE PUMP KIT (Part No. 849-146)

The bilge pump kit is recommended when the vehicle will be used to cross shallow ponds, streams or rivers. The Argo utilizes two forward mounted pumps to quickly remove water. It includes a dash mounted switch and wire harness.

⚠ CAUTION

The pump is not designed to run dry. Use only when water has collected in the vehicle.

11.8 SNOW PLOW KIT (Part No. 657-106)

The snow plow assembly attaches to the front mainframe assembly of the Argo. The plow blade is an 81" (2 m) steel blade suitable for straight or angled use. The power winch option is required to raise and lower the snow plow blade.

⚠ WARNING

DO NOT STAND BETWEEN THE PLOW BLADE AND THE FRONT OF THE ARGO. Injury could result if the blade is raised.

The vehicle operator must observe caution when operating the vehicle and snow plow in the presence of others. Injury could result if a bystander is struck when the vehicle swings to turn or the blade is lowered onto someone's foot. Always be aware of the area being plowed. Although there is a blade trip mechanism feature of the blade, damage or operator injury could result from hitting rocks, stakes or curbs hidden under the snow being plowed.

11.8.1 Operating Guidelines

1. Do NOT operate the Argo on open or frozen bodies of water with the snow plow installed.
2. For quick removal of the snowplow unit, disconnect the rear hitch points of the upper boom from the mounting brackets, unhook and rewind the winch cable.
3. The knives are specially designed to be reversible and interchangeable with each other once the leading edge has worn.

11.9 UTILITY TRAILER (Part No. 695-80BL)

The Argo Four Wheel Utility Trailer has been designed for use as an additional cargo carrier with any Argo Off Road Vehicle. ***It is NOT intended for transporting people.***

Become familiar with the trailer's handling characteristics, especially in hilly conditions, BEFORE using it in unfamiliar terrain or fully loaded.

The trailer tongue is designed to swivel, much like a universal joint, even in the roughest terrain.

⚠ CAUTION

DO NOT exceed maximum load capacity for your specific application.

Exceeding the load capacity could cause trailer or tow vehicle to damage and personal injury could be incurred.

11.9.1 Operating Precautions

Observe the following recommendations for safe and trouble free operations:

- Trailer load capacity - 600 lbs. (270 kg.). Trailer weight - 385 lbs. (175kg.)
- Keep tire pressure at 4 psi.
- Cargo must be kept low and centered in the trailer at all times. Be aware that loads may shift when trailer is operated in uneven terrain.
- Keep both drain plugs in place and tightly sealed. Drain plugs are accessible from the outside of the trailer. To install, thread in clockwise until snug. To remove, turn counter clockwise.
- Caution - Asphalt or concrete surfaces will cause excessive tire wear.

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- Do not use in fast flowing or rough water. Operator discretion is advised.
- Do not stop suddenly when pulling a loaded trailer down hill as it may run ahead or into the back of the vehicle pulling it.

WARNING

Keep fingers clear of tongue swiveling components.

- Do not step on or place loads on the edge of the body over the trailer wheels. This area of the trailer body is intended only as a mud guard.
- Keep the outer axle bearing flanges and inner bearings filled with Shell Alvania #2 grease, or equivalent, as this provides extra protection for the bearings from dirt and water.
- Remove water and debris from the trailer frequently. This will prevent premature rusting of the frame and contamination of the bearings.

11.10 ROLL OVER PROTECTIVE STRUCTURES

The optional Roll Over Protective Structure, also referred to as a ROPS, provides additional protection for the occupants in case the vehicle overturns, *provided all occupants wear seatbelts.*

However, ROPS also introduce additional hazards that have to be carefully weighed against the safety benefits of these devices:

- If your vehicle is equipped with a ROPS, always remember that your vehicle is now more top heavy. This reduces the vehicle's stability both on land and in the water. Therefore, *always* wear your seatbelt when driving on land, but *never* when driving in the water. The increased instability and weight may mean that you will no longer be able to maneuver some slopes with either a rollbar or ROPS installed. Follow all weight restrictions and, as always, drive slowly and carefully.
- Be particularly careful when driving under trees, as low-hanging branches can upset your vehicle.
- Never place or carry anything on top of the ROPS.

The ROPS design provides reasonable protection from injury in the event of a rollover. DO NOT rely on it to protect the occupants from irresponsible driving.

WARNING

Seat belts must be properly adjusted and worn by all occupants at all times EXCEPT when operating in water. Articles must not be placed on top of the ROPS. Use caution when travelling on uneven ground; the ROPS reduces vehicle stability. No part of the ROPS shall be drilled, welded or altered in any way without the manufacturer's authorization. Use caution when travelling tree-lined trails. Branches could be knocked down, causing injury to the vehicle occupants. FAILURE TO COMPLY WITH THE ABOVE COULD RESULT IN PERSONAL INJURY OR DEATH.

CAUTION

DO NOT use the ROPS as an attachment point for towing or winching the Argo. Check fastener tightness annually. Inspect for and replace any damaged or worn parts of the ROPS and the seat belts.

11.11 FOUR POINT LIFT KIT - (Part No. 848-121)

Designed for remote firefighting, search and rescue and surveying. This optional retrofitable kit mounts to all Centaur and XTI models.

WARNING

- Do not lift the vehicle with people aboard.
- Maximum lift weight of the vehicle is 2500lbs (1134kg) which is equivalent to the shipping weight + approximately 500lbs. (227kg)
- Brackets are designed to be used with four equal length straps a minimum length of 12 ft. (3.66m) each and shackles. Each strap and shackle should be rated for 2000lbs (907.2kg) minimum.

11.12 MUD FLAP EXTENDERS

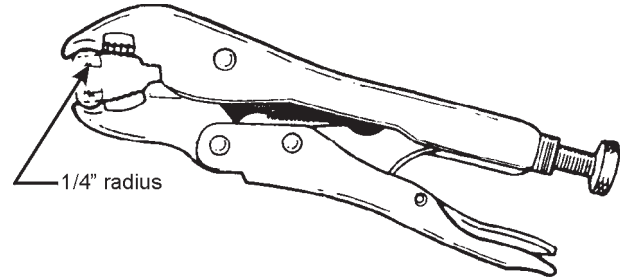
For use with Snow or Multi-Purpose Tracks. Mud flap extenders bolt onto the upper frame assembly and help to keep mud and snow out of the cargo compartment.

APPENDIX 1

SPECIAL TOOLS

7R VICE GRIP MODIFICATION (Part No. 658-08)

As detailed in Section 7, a pair of modified 7R Vice Grips is required to hold the ends of the drive chain together while inserting the connecting link. This tool can also be used to hold the ends of the idler chain together while inserting the connecting link. Grind the undercut and sides of the vice grip jaw to fit over 2 chain rollers. The undercut is approximately 1/4" radius as shown.



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ARGO and CENTAUR New Vehicle Limited Warranty

The warranty period is limited to 12 months for ARGO models and 12 months or 750 hours for CENTAUR models from the date of the original retail sale, with the following exceptions:

- Briggs & Stratton Engine – 24 months from the date of retail sale separately by the engine manufacturer's service network.
- Kohler Engine – 36 months from the date of retail sale separately by the engine manufacturer's service network.
- Exide Battery – Factory installed Exide batteries are warranted for 12 months free consumer replacement from date of installation from Ontario Drive & Gear Limited.
- Optima Battery – Argo – Factory installed Optima batteries are warranted for 36 months free replacement from date of installation by authorized Optima Battery service network.
- Optima Battery – Centaur – Factory installed Optima batteries are warranted for 24 months free replacement from date of installation by authorized Optima Battery service network.
- Warn and Superwinch Winches (not installed by dealer at time of purchase) – 12 months from the date of retail sale separately by the authorized winch manufacturer's service network.
- Tires - 3 months from the date of retail sale. Depending on sales area, tire Environmental/disposal charges may apply.

Genuine ARGO or CENTAUR accessories purchased and installed by the factory or authorized dealer at the time of purchase are covered under the 12 month ARGO and CENTAUR New Vehicle Limited Warranty. Only those accessories listed on the original warranty registration form will be covered.

Ontario Drive & Gear Limited hereby warrants to the original retail purchaser that each new and unused ARGO or CENTAUR is free from any defect in material or workmanship for the warranty period specified, under normal use and service by the original purchaser.

This warranty is void unless the vehicle has been properly warranty registered and the pre-service checklist has been completed by an authorized dealer.

This warranty is not transferable unless approved by Ontario Drive & Gear Limited.

This warranty is void immediately upon the ARGO or CENTAUR being used in any speed contest (racing, dragging, etc.).

This warranty does not cover the following items:

1. Machines or parts lost or damaged during shipment.
2. Normal maintenance, as outlined in the maintenance schedule found in the Operator's Manual, or adjustments after initial pre-servicing is completed.
3. Normal replacement of service items, as outlined in the maintenance schedule found in the Operator's Manual.
4. Accessory items other than genuine ARGO or CENTAUR accessories.
5. Damages resulting from:
 - misuse, accident, theft or fire
 - use of improper or insufficient fuel, fluids or lubricants
 - use of parts other than genuine ARGO or CENTAUR replacement parts
 - modifications, alteration, tampering or improper repair performed by parties other than an authorised ARGO or CENTAUR dealer or distributor
 - any device or accessories installed by parties other than an authorised ARGO or CENTAUR dealer or distributor
6. Batteries that fail due to improper charging or installation; broken container, cover or terminal sulphation or dehydration; damage caused by fire, excessive heat, wreckage, explosion, freezing, the addition of any chemical or solution other than the battery grade sulphuric acid.

This shall constitute the complete and only warranty given by Ontario Drive & Gear Limited, and, except as specifically set forth in the foregoing, Ontario Drive & Gear Limited shall not, in any event, be liable for any losses, damages or costs; to include travel, transportation, pick up, delivery, towing cost, loss of use, whether special, incidental, consequential or otherwise, in any way related to any vehicle or its sale. No warranty, expressed, implied or statutory, as to merchantability, fitness for a particular purpose, description, quality or any other matter is given in connection with any ARGO or CENTAUR vehicle or its sale and no agent, employee or other person has any authority to vary any of the foregoing provisions. Provided, however, that this clause shall be severable where voided by application of the Consumer Protection Act.

Ontario Drive & Gear Limited, 220 Bergey Court, New Hamburg, Ontario, Canada, N3A 2J5
Sales Department 1-800-298-1118 x 374 sales@argosatv.com

ARGO RETAILER... Please complete this page at the time of sale to the new owner so your customer has all pertinent information that may be required.

ARGO MODEL _____

ARGO SERIAL NO. _____

ENGINE SERIAL NO. _____

TRANSMISSION SERIAL NO. _____

SOLD TO: _____

STREET ADDRESS: _____

CITY OR TOWN: _____ PROV/STATE: _____

POSTAL/ZIP: _____

DATE OF SALE: _____

WARRANTY PERIOD EXPIRES: _____

DEALER NAME: _____

PHONE: _____

ADDRESS: _____

CITY/TOWN: _____ PROV/STATE: _____

ARGO PRODUCTS MANUFACTURED BY:

**Ontario Drive & Gear Limited
220 Bergey Court
New Hamburg, Ontario
N3A 2J5 Canada
Phone: (519) 662-2840
Fax: (519) 662-2421
www.argoatv.com**