



Argo
8x8
XTI

OPERATOR'S MANUAL

*Do not remove this
manual from this vehicle.*

Safety!
...always in Season!

A MESSAGE FROM THE PEOPLE WHO BUILT YOUR ARGO

Thank you for selecting an **ARGO** amphibious, off-road utility vehicle!

Ontario Drive & Gear Limited has been building **ARGO** vehicles since 1967. By listening carefully to our customers and responding to their needs, we have been constantly improving the **ARGO** and will continue to do so.

Over thirty thousand **ARGO** vehicles have provided reliable service all over the world. From Britain to the Far East, Alaska to the Antarctic, and from the tropical forests of South America to the deserts of Saudi Arabia. We are proud to provide you with a vehicle that represents the ultimate in amphibious, all-terrain transportation.

Your safety and the safety of all **ARGO** users is of the greatest concern to us. You will find numerous safety statements in this manual. Please read and follow them carefully. Always be safety conscious when you operate your **ARGO** and remember it is a motorized vehicle.

The **ARGO** is easy to drive and you will soon be tempted to take on new challenges. Please take the time to develop your driving skills before doing so. Observe the recommendations outlined in this Operator's Manual and remember; some things are just impossible, even with an **ARGO**.

WELCOME TO THE WORLD WIDE ARGO FAMILY!

673-12 Argo XTI Service Manual

673-12CD Argo XTI Service Manual on CD-ROM

Ontario Drive & Gear has produced resources which provide the Argo owner with step-by-step instructions on how to perform general service procedures on vehicles produced since 1992. Everything from removal and replacement of brake pads to rebuilding the transmission. It's all there. Removal and replacement of engines is included, however, engine overhaul is not. A separate overhaul manual is available for the EFI engine from an authorized Kohler or Argo dealer.

NOTE

Read this manual *before* you operate your ARGO. It contains safe operating instructions and warns the user about potential hazards that can result in personal injury.

Warnings are identified in the text by the following symbol:



Warning text warns the user about potential hazards that can result in personal injury or death.

Cautions are identified in the text by the following symbol:



Caution text contains cautions that can prevent damage to the vehicle.

This manual is based on the latest product information available at the time of printing. Ontario Drive & Gear Limited reserves the right to make changes at any time and without obligation.

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PREFACE

This manual describes the controls, operation and basic maintenance procedures for the XTI model of the ARGO from date of printing. Please take the time to read this manual carefully, for your safety and that of others. By following these instructions, you will ensure extended, trouble free operation of your vehicle.

For maintenance and adjustment of the engine, refer to the engine manufacturer's operation and maintenance manual included in your vehicle's information package.

Before you drive your ARGO, make sure you understand how to use all controls, particularly the brakes and steering system. Learn how to drive your vehicle in an open level area, away from buildings, trees and other obstacles, until you are completely familiar with its operating characteristics. Drive very slowly until your driving skills improve, and drive with caution and consideration at all times. The risk of accident or injury is greatest during the first few weeks of use. Take special care during this period. ALWAYS RESPECT OUR ENVIRONMENT.

CAUTION TO THE ARGO OWNER/OPERATOR

- Make sure everyone who drives this vehicle receives proper operating instructions and reads this Operator's Manual.
- No one under the age of 16 should be allowed to operate the ARGO. 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.
- Never allow anyone under the influence of alcohol or any other intoxicating substance to drive or ride in the vehicle.
- Wear an approved safety helmet and eye protection when driving or riding in the vehicle.
- Special operating and safety procedures described in this manual must be observed before and during water operation as outlined in Section 5.
- When operating your vehicle for extended periods of time, we recommend the use of approved hearing protection.
- Equip your vehicle with a fire extinguisher and a first aid kit.
- Equip your vehicle with basic tools for emergency repairs.
- Before starting your engine, check for spilled fuel and wipe any up immediately. Any fuel is a potentially explosive substance that can cause serious personal injury when ignited.
- Keep the floor pans secured in place at all times. Fingers, feet, animal tails or paws can be injured in the drive components beneath the floor pans. The floor pans also help keep damaging debris out of the drive components.
- Make sure all passengers remain seated while the vehicle is in motion. Advise your passengers to hold onto the vehicle at all times.
- Wear seatbelts when riding in a vehicle equipped with a ROPS.
- Never overload your vehicle. 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.
- Do not drive the vehicle at high speeds over unfamiliar or rough terrain. Personal injury or vehicle damage may result.
- Certain terrain and steep hills cannot be traversed safely with the ARGO or any other vehicle. Do not attempt to drive over terrain that is questionable.
- Use common sense at all times when driving your vehicle.
- The ARGO engine hood is designed to stay fastened in place while the vehicle is being driven. If the ARGO is transported by truck or trailer, the hood should be removed and carried in the transport vehicle or secured in place on the ARGO with rope or tie down straps. Wind or turbulence at road speeds could result in the loss of the hood.

IMPORTANT

Operate this vehicle with safety constantly in mind. Off-road vehicles face unpredictable and often hazardous terrain conditions. It is ultimately the operator's responsibility to handle the vehicle safely within its limitations and to decide when and where to travel.

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SECTION 1

GENERAL INFORMATION

1.1 AMPHIBIOUS OPERATION

All models of the ARGO are amphibious and capable of traversing calm water. Special operating procedures and safety precautions must be observed before entering the water and during amphibious operation. Do not drive your vehicle into water until you have read Section 5.6 Amphibious Operation.

Operators with disabilities need to take certain precautions in the interest of their own safety. Refer to Section 2.4 of this manual for more details.

1.2 MAINTENANCE PROCEDURES

Maintenance procedures described in this manual can be carried out by the operator. These procedures include:

1. checking fluid levels
2. changing the engine and transmission oil
3. cleaning and replacing filters
4. preventative maintenance
5. inspections, adjustments, repairs and trouble-shooting

If you perform your own maintenance, carefully follow the lubrication and preventative maintenance schedule (Page 33). By following this schedule, you will receive trouble free, long term service from your vehicle. The following comprehensive ARGO service information is available:

- 673-12 XTI Service Manual

Your Argo dealer will perform regular maintenance and lubrication for a reasonable service charge.

The trouble-shooting chart (Section 8) contains information for locating and correcting mechanical problems. In many cases, potential problems can be identified by unusual noises, sluggishness or vibration, before they result in a breakdown. Refer to the chart to identify these symptoms. Take immediate corrective action or take the vehicle to an Argo dealer for service.

This manual does not provide detailed maintenance or servicing information for the engine. Refer to the engine manufacturer's manual (supplied with each Argo) for important warranty, service and operating information.

If the engine requires servicing, take the vehicle to an authorized engine service outlet.

1.3 WIND CHILL FACTOR

Why does it feel much colder outdoors on a windy day than when there's no wind, especially in winter?

The cooling effect of the wind makes it feel that it's colder than it really is. This combined effect of wind and low temperature is known as the "wind chill factor".

Argo operators should be aware of the wind chill factor. Dress warmly and make sure exposed skin is protected. Pay particular attention that young passengers are properly "bundled up" with their hands and faces well protected.

WIND CHILL										
Wind Speed										
km/h	8	16	24	32	40	48	56	64		
Actual Temp.(C)										
0	-2	-8	-11	-14	-16	-17	-19	-19	Increasing	Gradually
-5	-7	-14	-18	-21	-23	-25	-26	-27	Danger	
-10	-12	-20	-25	-28	-31	-33	-34	-35	Dangerous	
-15	-18	-26	-32	-35	-38	-40	-42	-43		
-20	-23	-32	-38	-43	-46	-48	-50	-51		
-25	-28	-38	-45	-50	-53	-56	-57	-59	Extremely	
-30	-33	-45	-52	-57	-61	-63	-65	-67	Dangerous	
-35	-39	-51	-59	-64	-68	-71	-73	-75		
-40	-44	-57	-65	-71	-75	-79	-81	-83		
-45	-49	-63	-72	-78	-83	-86	-89	-90		
-50	-54	-69	-79	-85	-90	-94	-96	-98		

1.4 MODEL IDENTIFICATION

Vehicles are identified by a 17 digit vehicle identification number located on the lower dash in front of the front left seat - see Section 1.6 for exact location. The model and serial numbers are stamped into it. The last 6 digits of this number begin with the letter K.

SECTION 1 GENERAL INFORMATION

Carefully observe the maximum load capacity for your vehicle on land and in water as listed in the following:

8x8 XTI

Engine: Kohler 748 cc (31 h.p.) V-twin 4 cycle, liquid cooled
 Transmission: Forward, neutral and reverse with high/low range
 Clutch: Variable speed torque converter
 Fuel Capacity: 36 Litre (9.5 U.S Gal.)
 Steering/Brakes: Hydraulic steering disc brakes with hydraulic disc stopping brakes
 Drive Chains: Single RS60-HT-1 Roller chains
 Electrical: 12 volt D.C. battery, 775 cranking amps at 0 F; 40 Amp charging system, electronic ignition
 Speed: Land - 27 km/hr (17 mph)
 Water - 5 km/h (3 mph)
 Load Capacity: Land - 590kg (1300 lbs)
SEE SECT.1.4.1 Water - 4 adults or 454kg (1000 lbs)
 Tires: 25x12.00-9NHS, 4 ply
 Dry Weight: 725kg (1600 lbs)

WARNING

Do NOT use an Argo on water when equipped with a snow plow. The increased weight of the snow plow out front will make the Argo unstable and could cause the vehicle to capsize, causing injury or drowning to the driver and passengers.

1.4.1 Argo Vehicle Capacity

CAUTION

Vehicle capacity includes occupants, cargo, fuel, and all accessories. Capacity for occupants and cargo is reduced by the weight of accessories as shown in the following chart.

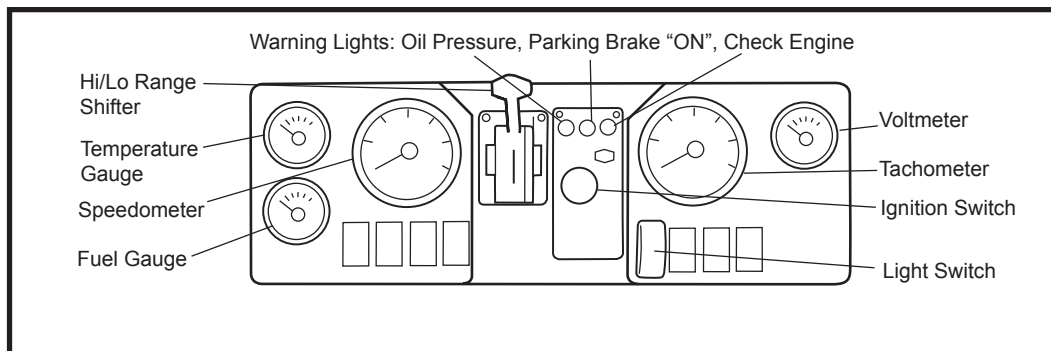
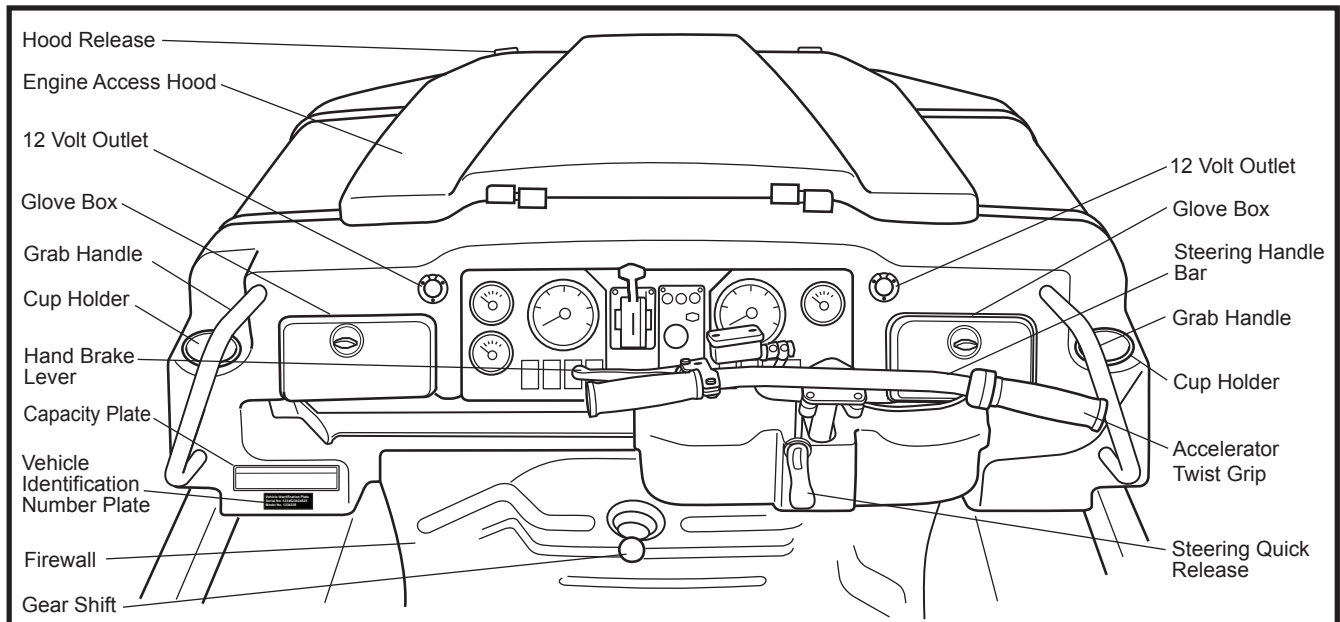
Available vehicle capacity must be reduced if your vehicle is equipped with any accessories. Reduce the available capacity by the total weight of accessories fitted to your vehicle.

Accessory <u>On Vehicle</u>	<u>Reduce By</u>			
	<u>On Land</u>		<u>On Water</u>	
18" Rubber Track 8x8	310 lbs. (140 kg)		185 lbs. (85 kg)	
15" Multi-Purpose Track	310	(140)	500	(225)
Winch Kit	50	(23)	50	(23)
Brush Guard	15	(7)	15	(7)
Windshield	33	(15)	33	(15)
ROPS (2 person)	130	(60)	130	(60)
ROPS (4 person)	180	(80)	180	(80)
Snow Plow	190	(85)	SEE WARNING	
Dump Box	165	(75)	165	(75)
Suspension Seats	110	(50)	110	(50)
Rear Bench Seat	45	(20)	45	(20)
Hard Roof (2 person)	22	(10)	22	(10)
Hard Roof (4 person)	44	(20)	44	(20)
Mud Flaps (3/4 length)	22	(10)	22	(10)
Mud Flaps (full length)	75	(35)	75	(35)

SECTION 1

GENERAL INFORMATION

1.5 IDENTIFICATION AND LOCATION OF CONTROLS



1.6 INFORMATION LABELS

WARNING

IMPROPER USE OF THIS VEHICLE CAN RESULT IN SERIOUS INJURY OR DEATH.
LOCATE AND READ OPERATOR'S MANUAL. FOLLOW ALL INSTRUCTIONS AND WARNINGS.



**ALWAYS USE APPROVED
HELMET AND EYE
PROTECTION**



**ALWAYS WEAR AN
APPROVED PERSONAL
FLOTATION DEVICE (PFD)
AND CARRY A PADDLE**



**NEVER DRIVE
ON PUBLIC ROADS**



**NEVER USE
WITH DRUGS OR
ALCOHOL**

NEVER OPERATE:
 If you are under age 16
 Without proper training and instruction
 At speeds too fast for your skills or the conditions
 On public roads - a collision can occur with another vehicle
 Without all guards, shields, floor pans and hood in place
 Without checking throttle twist grip for proper operation/return

ON LAND, ALWAYS:
 Use proper driving techniques to avoid vehicle overturns on hills, rough terrain and in turns
 Avoid paved surfaces - pavement may seriously affect handling and control

IN WATER, ALWAYS:
 Use vehicle in calm water only as vehicle may sink if it fills with water
 Secure drain plugs and keep convertible top doors free for unrestricted exit
 Observe capacity limitations and keep load low and evenly distributed
 Enter and exit water on gradual terrain slope

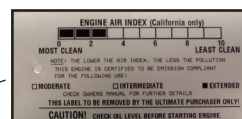
Argo Operator's Manual posted on website www.argoatv.com.
 For replacement manual call 1-800-ARGOATV



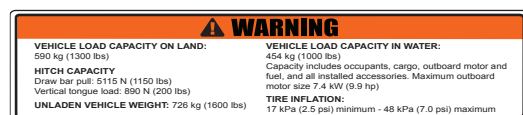
Ignition Label



Hot Muffler - Warning



Emissions Labels



Capacity Plate

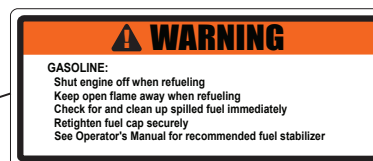


Figure 1-1 Location of Information Labels

SECTION 2

GENERAL OPERATING INFORMATION

2.1 NEW VEHICLE “BREAK-IN” PROCEDURE

To obtain long term, trouble free service from your vehicle, observe the following break-in guidelines:

1. Vary the speed of the vehicle for the first tank of fuel. Avoid full throttle operation during break-in period.
2. Check engine and transmission oil levels daily during break-in period.
3. Change the transmission oil after initial 20 hours of operation. Failure to do so can result in damage to the transmission bearings or gear surfaces. Refer to Section 6.2.1 and 6.2.2 for transmission oil changing instructions.
4. Change the engine oil in the engine after the first 20 hours of operation. Refer to Section 6.1.3 of this manual and the oil change section of each engine owner’s manual for oil change information.
5. Never overload your vehicle. 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 the vehicle can lead to premature brake system failures and costly damage to drive chains, axles or bearings. Follow the recommended load capacity for the vehicle listed in Section 1.4.
6. Do not allow the brakes to drag, particularly during the first 10 hours of operation. To maximize brake pad life, start by making several low speed turns to both sides. Allow the brakes to cool by driving in a straight line. Repeat the low speed turns. Allow the brakes to cool again. This procedure will properly seat the brake pad friction material to the brake disc. The handlebar should be kept centered during straight ahead operation. Dragging the brakes will cause overheating of the brake components and result in brake fade.

2.2 PRE-OPERATION CHECKS

Carefully follow the engine manufacturer’s recommended pre-operation/daily checks as well as the following:

1. Check the fuel level on the gauge.
2. Check the air pressure in all tires. All tires should be the same pressure. For light use with low payloads pressurize to 5 psi (24 kPa). For heavy use with high loads use up to 7 psi (48 kPa.)
3. Test the operation of the twist grip throttle control by

turning it to the fully open position and releasing it. The throttle must operate smoothly and return automatically to the fully closed position. Take the vehicle to an ARGO dealer if the twist grip requires adjustment.

4. Check hand operated brake lever on left hand steering bar for braking capability. Check steering handle bar travel to the left and to the right for steering capability. See Section 7.3.6 for Plunger Pin Adjustment.
5. Check the engine intake and exhaust screen for obstructions. Clear any debris that has accumulated.

2.3 CARRYING PASSENGERS AND CARGO

1. Keep cargo as low as possible and evenly distributed.
2. Use extreme CAUTION when negotiating inclines with a loaded vehicle. Heavy loads and high loads decrease the stability of the vehicle and may cause it to roll. Be prepared to shift occupant weight and load forward or have passengers get out of the vehicle to climb an incline.
3. Secure cargo to prevent it from shifting while driving.

WARNING

Make sure all passengers riding in an ARGO equipped with tracks and 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.

2.4 OPERATORS WITH DISABILITIES

WARNING

The information below pertains to safety procedures, which, if not followed, can result in personal injury or death or damage to the Argo vehicle.

We advise persons with disabilities who operate Argo vehicles, to take certain precautions in the interest of their own safety. Since the nature of disabilities can vary widely, it is impossible to give complete instructions that apply to every specific case. Therefore, it is the responsibility of the Argo driver to take steps beyond the ones suggested in the following that take the special nature of his/her disability into account in order to operate the vehicle safely.

Please read this Operator’s Manual thoroughly BEFORE OPERATING YOUR NEW ARGO VEHICLE.

SECTION 2

GENERAL OPERATING INFORMATION

Equipment

For mobility-impaired drivers, the following additional equipment should be installed in the Argo vehicle:

- roll-over protection
- a special seat assisting the driver in maintaining his/her seating position
- four-point safety harness
- fire extinguisher within reach of the driver

Maximum Payload

Due to the additionally installed equipment, including any other ARGO accessories, the maximum available payload of the vehicle must be reduced accordingly; refer to Section 1 in your ARGO Operator's Manual under Argo Vehicle Capacity. Never exceed the maximum load capacity of the vehicle.

General

Ensure that the on-board fire extinguisher is fully charged at all times and have it inspected on a regular basis by qualified personnel.

We recommend that you do not venture out in your Argo without being accompanied by an able-bodied person to assist you in case you encounter difficulty. If this is not possible, make sure that adequate communications equipment (eg. cell phone, two-way radio) with an independent power supply is on-board and communication lines are open at all times to call for help if necessary. Remember, a simple technical failure could leave you stranded.

If parts of your body are pain insensitive, please take extra care to ensure that your skin does not touch components of the Argo that may be hot. Also, be aware of hot air exhaust outlets and moving parts.

If your vehicle is equipped with an optional wheelchair swing-arm lift, make sure that the lift line and the swing arm are secured. An unsecured lift arm or line could injure bystanders or property and can also result in loss of control over the vehicle if it gets caught while driving.

If your vehicle is equipped with a transfer board, ensure that the board is removed from the body support bracket when not in use and safely stored in a spot convenient to reach.

Water Operation

Carefully read Section 5 of the Operator's Manual covering water operation.

Enter the water from a firm gradual slope. If the water is deep enough for the vehicle to float, unlatch all safety belts and restraining devices, including the operator's. In shallow water be prepared to free yourself from restraining devices quickly. If an emergency arises, you and your passengers may have to leave the vehicle quickly.

If the vehicle is equipped with an optional ROPS (2 or 4 person), hard top and fabric sides, roll the sides up to allow for a quick exit in case the vehicle submerges and to reduce the surface exposed to the wind.

Be aware that the weight of the ROPS makes the vehicle more likely to rollover in water than an un-accessorized vehicle.

We do not recommend the use of your Argo on frozen water surfaces because of the danger of breaking through the ice and the risk of exposure in cold water. (Refer to Section 5 of the Operator's Manual.) If you must cross ice-covered bodies of water, take along an able-bodied person to assist if difficulties are encountered.

Land Operation

When your vehicle is equipped with a ROPS and operating on land, make sure all occupants including yourself are wearing the seat belts and you are strapped in your seat firmly at all times. Loss of seating position could result in loss of control of the vehicle.

Be constantly aware of the overall height and width of your Argo vehicle equipped with the ROPS. Watch out for low objects, eg. brush, branches, etc. which could strike the ROPS and cause the vehicle to stop abruptly, rollover, or go out of control.

Due to the weight of the ROPS, your vehicle is more likely to rollover on land than a standard Argo vehicle. Ensure passengers and operator remain seated at all times and keep all cargo low and evenly distributed.

Seat belts must be properly adjusted and worn by all occupants at all times EXCEPT when the vehicle is floating in water.

We have provided this information because we want you to enjoy your mobility in the outdoors safely. However, please keep in mind that all the warnings and instructions in the world cannot replace common sense. You've got it – please use it.

SECTION 2

GENERAL OPERATING INFORMATION

2.5 FUELING THE VEHICLE

WARNING

Gasoline is extremely flammable and can explode under certain conditions. Do not add fuel while the engine is running or hot. If fuel is spilled in, on or around the vehicle, wipe it up immediately. Flush out any fuel spilled in the vehicle with water and allow it to drain out through the drain plug holes. Do not smoke when filling the fuel tank.

Use clean, fresh, unleaded gasoline in your ARGO. Minimum 87 octane fuel is recommended.

Leaded gasoline can be used as a substitute fuel. However, if leaded gasoline is used, the engine will require more frequent servicing.

Never use gasoline containing methanol or white gas since engine or fuel system damage could occur.

The Argo is equipped with a 36 litre (9.5 U.S. Gal.) polyethylene fuel tank located under the driver's seat. Depending on loading and driving conditions, an ARGO can be driven for 7 to 12 hours on one tank of fuel. Verify your vehicle's actual fuel consumption *before* attempting any long trips. Never travel in remote areas or set out on long trips *without* a full tank of fuel and adequate spare fuel stored in approved watertight fuel containers.

The fuel filler neck and fuel cap are located on the right side of the vehicle behind the driver's seat. Replace the fuel cap if fuel leakage occurs, or if moisture is detected in the fuel. Use ARGO Part No. 126-100 fuel cap.

Never fill the tank to the point where the fuel level rises into the filler neck. If the tank is overfilled, heat may cause the fuel to expand and overflow through the vent.

Portable fuel containers may contain contaminants (dirt, water, etc.) that will cause engine operating problems. Use only clean, approved gasoline containers.

After filling the fuel tank, be sure the fuel cap is replaced securely. Do not drive the vehicle unless the fuel cap is properly in place.

CAUTION

Never use untreated gasoline that has been stored for more than 45 days. Stale gasoline can cause

deposits to form in the fuel lines and fuel system. These deposits clog the fuel system and cause engine starting and operating problems.

When storing the ARGO for 45 days or more, use ARGO Part No. 127-77 Fuel Stabilizer to treat fuel in the fuel tank and fuel containers.

2.6 VENTED FUEL SYSTEM

The XTI has a fuel system that is vented through a special hose connected to the filler neck assembly that runs along the frame to a fitting at the engine.

SECTION 3

OPERATING INSTRUCTIONS

3.1 BRAKES AND STEERING

⚠ CAUTION

Do NOT oversteer. Avoid the tendency to push or pull harder on the steering system if the vehicle is not responding as expected. Once the steering brakes have been locked, pushing or pulling harder on the steering system will not increase the turning capacity of the vehicle. Damage may occur to the steering system as a result of oversteering.

The moto-cross style steering handle bar is used to turn the vehicle when it is moving in forward or reverse. Pulling back on the right side of the steering handle bar while pushing on the left side of the handle bar, causes the vehicle to turn right. Pulling back on the left side of the steering handle bar while pushing on the right side causes the vehicle to turn left. (Figure 3-1). To stop the vehicle, pull back on the hand brake lever located on the left handle bar.

The ARGO is a skid steer vehicle. During a turn, the rear of the vehicle swings outward as the vehicle pivots on the front tire on the inside of the turn. To make a right hand turn, the rear of the vehicle skids out to the left. To make a left hand turn, the rear of the vehicle skids out to the right.

⚠ WARNING

When turning, the back of the vehicle swings to the opposite direction of the turn. Always take care to avoid hitting persons or objects with the rear of the vehicle! Serious injury or death can result!

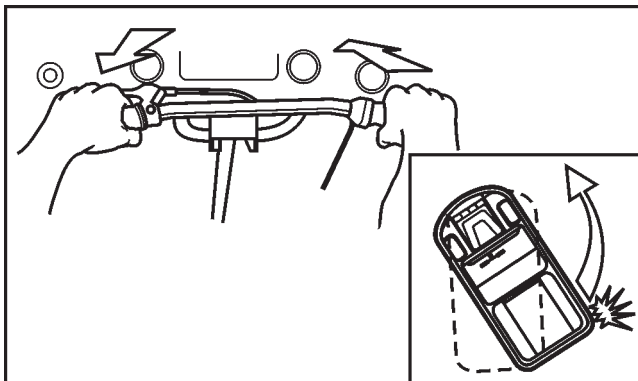


Figure 3-1. Making a left hand turn.

3.2 STEERING POSITION ADJUSTMENT

The Argo XTI is equipped with adjustable position steering controls. To relocate the handle bar assembly to a different

position, lift UP on the steering quick release lever, away from the control cover. (Figure 3-2). Once loose, slide the whole assembly left or right to a new position and secure by pushing the quick release down and against the cover.



Figure 3-2. Steering position adjustment.

If it is still not secure, cam adjustment may be required. This is done by adjusting the slotted screw at the cam end of the clamp lever (Figure 3-3).



Figure 3-3. Adjustment on cam lever.

After each change to the steering position, left, right or center, you should inspect the steering and throttle brake lines for proper routing behind the control cover and inside the engine compartment. Failure to do so may cause the brake lines to pinch, causing fluid restriction, damage to the brake lines or interference with master cylinder / plunger operation.

3.3 EMERGENCY/PARKING BRAKE SYSTEM

When in use, the emergency/parking brake system keeps the wheels locked in the full braking position.

To apply the emergency/parking brake system:

1. Pull the hand brake lever up firmly so the ratchet mechanism engages.

SECTION 3

OPERATING INSTRUCTIONS

To release the emergency/parking system:

1. Pull up on the hand brake lever and press the button on the end to release the ratchet mechanism.

3.4 THROTTLE CONTROL

Vehicle speed is controlled by the throttle twist grip. To increase vehicle speed, turn the twist grip as shown in Figure 3-4. To decrease vehicle speed, release the twist grip so the engine returns to idle.

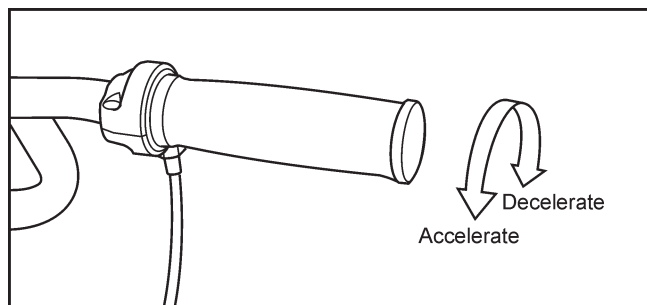


Figure 3-4. Operation of the throttle twist grip

3.5 STARTING PROCEDURE

! WARNING

Never start or run 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 personal injury or death.

The ARGO is equipped with a key operated, electric start system. To start the vehicle, proceed as follows:

1. Place the gearshift in the neutral (N) position.
2. Apply the emergency/parking brake system.
3. Open the accelerator twist grip control 1/8 turn.
4. Turn the key to the "START" position. (See Figure 3-5).

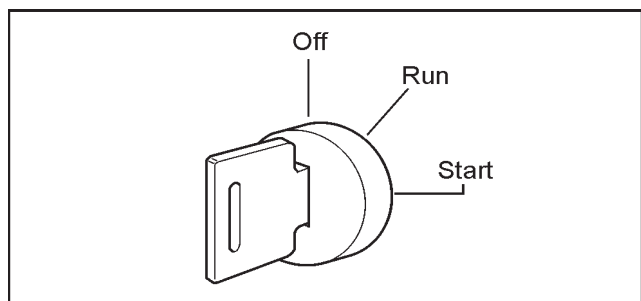


Figure 3-5. Ignition Switch.

! CAUTION

Do not operate the starter continuously for more than 5 seconds or the starter may overheat. Wait 30 seconds between each operation of the starter to let it cool and the battery power to recover. Never attempt to restart the engine until the engine completely stops. Always remove key from switch when leaving vehicle unattended or when vehicle is not in use.

5. Release the key as soon as the engine starts: the key will automatically return to the "RUN" position.
6. Release the twist grip control and allow the engine to come to an idle.
7. Release the parking brake only when you are ready to drive the vehicle.
8. If the engine fails to start, refer to the troubleshooting chart in Section 8 for corrective action.

3.6 NEUTRAL START SWITCH

If the vehicle will not start in neutral, the battery has a charge, and the electrical connections to the neutral start are all ok, find the two green wires labelled "override" and unplug them from the wire harness. (Open the hood and locate them below the fuse block.) Connect the 2 wires that are labelled "override" together. This bypasses the neutral start switch on the transmission. Have the problem corrected by your Argo dealer ASAP. Connect these two wires together and start the unit. **Make sure that the neutral start device is repaired and reconnected at the earliest convenience.**

3.7 PRIMING PROCEDURE

If the vehicle has run out of fuel, follow the procedure below to prime the fuel system to restart.

1. Turn the key switch to the "ON" position for one minute. Allow the fuel pump to cycle and prime the system. Turn the key switch "OFF".
2. Turn the key switch to the "START" position, crank and start engine.
3. If the engine fails to start, repeat steps 1 and 2. If the engine does not start after two priming intervals, contact your Kohler Engine Service Dealer for further assistance.

3.8 STOPPING THE ENGINE

Release the throttle twist grip. Let the engine speed return to idle and turn ignition switch to the "OFF" position. Always remove key from ignition switch when leaving the vehicle unattended.

SECTION 3

OPERATING INSTRUCTIONS

3.9 SELECTING AND CHANGING TRANSMISSION GEARS

DO NOT CHANGE TRANSMISSION GEARS WHILE THE VEHICLE IS MOVING. To change gears, bring the vehicle to a complete stop, let the engine idle down completely, engage hand brake and move the shift lever to the selected gear.

3.9.1 Changing Transmission Gears

The ARGO XTI is equipped with two shift levers. One gearshift lever extends through the firewall and moves left and right. Forward gear is located to the left of neutral and reverse gear to the right of neutral. (See Figure 3-6.) PLEASE OBSERVE CAUTIONS. There is a second shift lever located on the dash. High range is selected when the lever is in the up position and should be used for most driving conditions. Low range is selected when the lever is in the down position. (See Figure 3-7.)

⚠ CAUTION

Do not shift from HI to LOW, Forward or Reverse or vice versa while vehicle is in motion. Ensure vehicle is at a complete stop before placing the lever into the desired range.

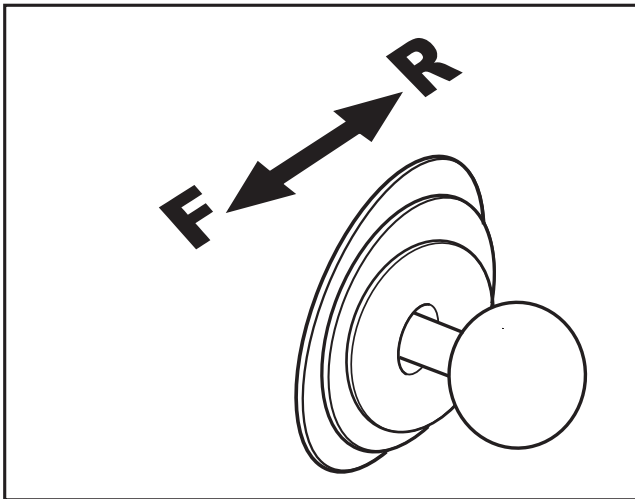


Fig 3-6. Gear shift travel and gear positions.

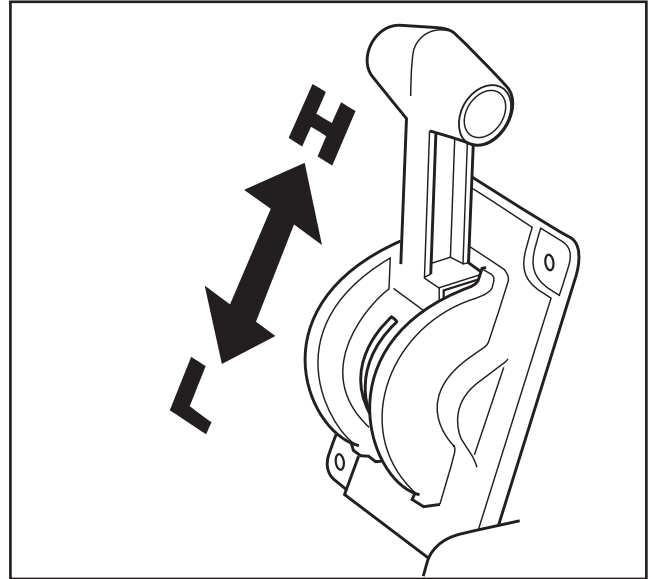


Fig 3-7. Hi/Low range positions.

⚠ CAUTION

Do not attempt to move the gearshift from the neutral (N) starting position until the engine idles down completely. The ARGO is equipped with an automatic clutch that is activated by engine speed. If the engine idle speed is too high, the transmission will grind during gear engagement.

3.10 HEADLIGHTS

The ARGO is equipped with 2 headlights that are operated through the dash mounted light switch. To turn the lights on, push the switch.

⚠ CAUTION

Do not leave the lights on for any length of time when the engine is not running. Leaving them on will drain the battery.

Always turn the ignition switch to the 'OFF' position when turning off the engine.

Avoid frequent starting of the engine and extensive idling. Both will lead to a drain of the battery because the electrical draw may be greater than the charging rate at engine idle.

SECTION 4

DRIVING PROCEDURES

4.1 DRIVING STRAIGHT AHEAD

The Moto-Cross style steering bar is spring loaded to return to a centered position. (See Figure 4-1). At this location, no braking is applied to either of the calipers. It is at this position that the steering bar should be when driving straight ahead. Turn the throttle twist grip slowly until the clutch system engages and the vehicle moves forward.

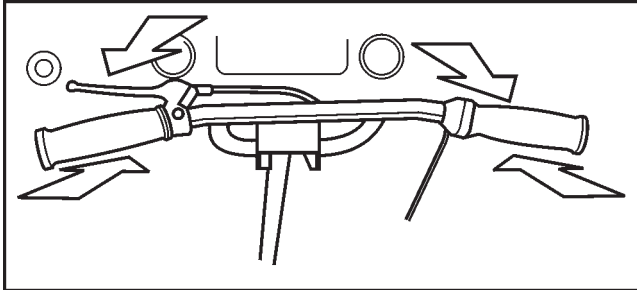


Figure 4-1. Position of moto-cross style steering bar in straight ahead operation.

4.2 STOPPING THE VEHICLE

Allow the throttle grip to return to the idle position. Squeeze the handle mounted brake lever with your left hand.

4.3 TURNING THE VEHICLE

The ARGO is a skid steer vehicle. The rear of the vehicle swings outward during a turn. Always take precautions when making turns to avoid hitting persons or objects. The proper way to make a wide turn is illustrated in Figure 4-2. Make a series of short turns. Centre the steering handle bar. Riding the brakes while making turns will result in excessive heat, brake fade and lead to premature brake wear.

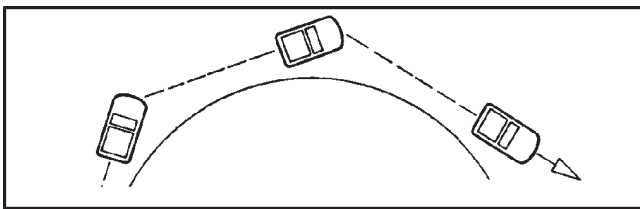


Figure 4-2. Correct method of making a wide turn

⚠ WARNING

Sharp turns, especially at high speeds or when heavily loaded, may cause the vehicle to roll over. Slow the vehicle down before making a turn. Do not apply the brakes too suddenly.

4.3.1 Left Turn

⚠ CAUTION

Do NOT oversteer. Avoid the tendency to push or pull harder on the steering system if the vehicle is not responding as expected. Once the vehicle's brake disc has been locked, pushing or pulling harder on the steering system will not increase the turning ability of the vehicle. Damage may occur to the steering system as a result of oversteering.

To make a left turn, pull back on the left steering bar while at the same time pushing on the right. When the turn has been completed, return the steering bar to the centre position.

4.3.2 Right Turn

To make a right turn, pull back on the right steering bar while at the same time pushing on the left. When the turn has been completed, return the steering bar to the centre position.

4.4 BACKING THE VEHICLE UP

With the engine at idle, shift the transmission into reverse. Ensure that the steering handle bar is centred. Turn the throttle twist grip slowly until the clutch engages and the vehicle moves backwards. Increase speed by gradually turning the accelerator twist grip. It is recommended that the Hi/Low shift be set in the Low position when operating in reverse.

4.4.1 Turning The Vehicle While Backing Up

Pull on the right bar and push on the left to turn right. Pull on the left bar and push on the right to turn left. When turning the vehicle while backing up, the rear of the vehicle swings in the direction of the turn. This is unusual for most people who are not familiar with skid steer vehicles. 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.

⚠ WARNING

Do not push against the firewall with your knees. Damage to the firewall and serious personal injury can result from the driven clutch wearing through the firewall.

SECTION 4

DRIVING PROCEDURES

4.5 ADMIRAL Operating Advantage

The XTI is equipped with the ADMIRAL steering transmission. The ADMIRAL is a triple differential transmission with unique steering characteristics not found in prior Argo models or traditional skid steer vehicles. The ADMIRAL features two distinct modes of operation, HIGH range for most driving and LOW range when tight turns are required. This transmission allows the ARGO to tackle a wider range of terrain and operating conditions.

When operating in HIGH range, a **full lock right steering input** will cause the right side wheels to turn forward at a lower rate (approximately 1/3 the speed) compared to the left side wheels and vice versa when **full lock left steering input** is applied. While this does not allow for zero radius turns, it does greatly increase efficiency, reduces engine, transmission & brake temperatures and reduces driver steering effort.

When operating in LOW range, a **full lock right steering input** will cause the right side wheels to turn backwards slightly. This will result in a tighter turn and should only be used for slow speed operation when tight turning is required.

NOTE: Extended use of Low range at higher speeds may result in increased engine, transmission and brake temperatures. This mode of operation should be avoided unless the terrain or obstacles warrants its use.

4.5.1 Selecting Forward, Neutral, Reverse, High or Low

The ADMIRAL transmission uses dog clutches to engage internal gears. The dog clutch is not synchronized to allow for shifting-on-the-fly. To avoid personal injury, transmission, vehicle or property damage, always bring the vehicle to a complete stop, allow the engine to return to idle, compress and hold the hydraulic hand brake, then select the appropriate gear function. Once selected, release the hydraulic hand brake and accelerate to desired speed.

NOTE: When selecting from HI to LOW or LOW to HI, the dog clutch may not automatically engage its mating gear. This is normal and expected. The HI and LOW selector is spring-loaded and will lock into place once engine RPM rises and clutches begin to engage. A slight, but normal, “clunk” noise may be heard during this procedure.

4.5.2 Recommended Gear Selections

Trails and higher speed driving: Recommended gear selection HIGH range: In High range, the XTI will turn as tight as most ATV's and UTV's, which is ideal for trail riding. Compared to previous braked skid steer vehicles, the XTI

will corner with minimal loss of speed or engine power. The increased efficiency results in cooler running temperatures for the engine, transmission and steering system.

Towing: Recommended gear selection HIGH range: With increased efficiency and positive all-wheel drive in high range, the operator is able to maintain momentum, traction and control while under load. Engine power and smooth steering is maintained, point-turn operation is eliminated, allowing for smooth operation and towing. The elimination of point-turn while in high range reduces the likelihood of a “jackknife” situation.

Climbing hills: Recommended gear selection HIGH range: Similar to a towing situation, climbing hills successfully means maintaining traction and momentum. It is usually unwise (and unsafe) to perform sharp turns while climbing hills, so Low range, if required, should be used with caution in these situations.

Mud and Snow (including track use): Recommended gear selection HIGH or LOW range: Low traction situations are usually handled best in high range due to the fact that any turning inputs will “lock the differential” and force all 8 wheels to drive. If tightly spaced obstacles are present, low range will provide added maneuverability, albeit at a cost in both traction and efficiency.

Water / Amphibious use: Recommended gear selection HIGH or LOW range: While operating the vehicle in deep water, either range selection may be appropriate. In High range, the operator may notice a lack of maneuverability, especially at full throttle. In Low range, the inside, or steered, tires can counter rotate thereby providing greater maneuverability and control when turning the vehicle. There is a slight reduction of top speed when selecting Low range for water / amphibious use.

Low speed (with obstacles): Recommended gear selection Low range: While traversing a rock field or a wooded area, increased maneuverability available in Low range is a valuable asset. Switching back to High is highly recommended when the terrain clears and tight / sharp turning is not required.

SECTION 5

DRIVING PROCEDURES IN UNUSUAL CONDITIONS

5.1 REMOTE AREA USE

When traveling in remote areas or when traveling long distances, the following items are essential:

- a first aid kit
- a complete survival kit
- protective clothing and footwear
- waterproof safety matches
- candles
- emergency flares
- communications equipment
- adequate fuel supply in approved, watertight containers
- fire extinguisher
- back-up battery
- basic mechanic's tools and Argo spare parts

Before venturing into remote areas, carry out all inspections, adjustments and lubrication checks detailed in this manual. Do not proceed unless your vehicle is in good working condition.

Inform someone of your departure and return plans and your route so that help can be dispatched if you do not return as scheduled. Do not travel into a remote area alone.

Choose your equipment and supplies to meet the climate and terrain conditions that you may encounter.

Practice safe driving habits when traveling in remote areas. Avoid terrain that may be impassable.

5.2 ANGLE OF OPERATION

When operating any Argo vehicle on an angle, (up and down hills or across uneven terrain that causes the vehicle to tilt in any direction) the engine oil level and fuel delivery to the engine is affected.

If the engine oil level falls below the oil pump intake, damage can occur because of inadequate lubrication. To avoid engine damage and costly repairs:

- Do not operate your engine continuously on angles or inclines that are greater than 30 degrees in any direction.
- Make sure the engine oil level is near the "full" mark (However, do not overfill.)

5.3 UPHILL OPERATION

WARNING

Never accelerate or brake suddenly while driving up or down a hill. Sudden acceleration or braking can cause the vehicle to roll over, causing serious personal injury or death.

Never attempt to turn the vehicle around on a steep hill or grade. Turning the vehicle around on a hill can result in the vehicle rolling over.

Approach the hill head on to minimize the possibility of sliding sideways or rolling over. Accelerate slowly to prevent loss of traction. When traction is lost, the vehicle may slide sideways or backwards. If this occurs, apply the brakes gently and evenly to stop the slide. Allow the vehicle to coast to the bottom of the hill by carefully releasing the brakes.

Try to avoid steep hills. When a steep hill can't be avoided, be prepared to shift occupant weight forward, or have them get out of the vehicle to prevent the vehicle from rolling over. As a general rule, driving up a steep hill greatly increases the possibility of rolling over.

5.4 DOWNHILL OPERATION

Always approach the hill head on to minimize the possibility of sliding sideways, or rolling over. Gently apply the brakes to control downward vehicle speed. Do not abruptly or forcefully apply the brakes while traveling downhill. Sudden braking can cause the vehicle to roll over frontwards.

An alternative to applying the brakes while going down a gentle decline is to use engine braking. Select low range and keep the engine speed up just enough to keep the clutch engaged.

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. As a general rule, driving the vehicle down a steep decline greatly increases the possibility of rolling over.

5.5 SIDE SLOPE OPERATION

Do not drive your vehicle across the side of a hill. Side slope operation greatly increases the risk of rolling the vehicle over sideways.

Prolonged side slope operation may cause engine damage. Observe the engine angle of operation limitations in Section 5.2.

SECTION 5

DRIVING PROCEDURES IN UNUSUAL CONDITIONS

Operation on side slopes will require frequent use of the brakes for steering correction since the vehicle tends to head downhill. This may cause brake overheating or fade.

5.6 AMPHIBIOUS OPERATION - GENERAL

⚠ WARNING

ARGO vehicles may sink if they fill with water. If water starts entering the vehicle, head to the nearest shore immediately. Be prepared to abandon the vehicle if it appears that the vehicle will fill with water before you reach the shore. Be especially cautious when operating a loaded vehicle (cargo and/or passengers) in water. Observe the capacity limits.

It is not recommended to drive in remote areas alone or without first planning your route and informing people of your location.

Use caution and good judgement when entering water. Drowning can occur even in shallow water. Watch for obstacles under the water that could destabilize or upset the vehicle and may cause occupants to be ejected from the vehicle. Make sure all persons in the vehicle are wearing approved life jackets or Personal Flotation Devices.

All ARGO vehicles are self-propelled, amphibious vehicles, capable of navigating calm water, provided the following precautions are observed:

1. Do not enter water if the vehicle is overloaded. Refer to Section 1.4 of this manual for recommended load capacity in water.
2. Do not use seat belts or any restraining device while the ARGO is floating in water. In shallow water, be prepared to free yourself from restraining devices quickly. If an emergency arises, you and your passengers may have to leave the vehicle quickly.
3. Do not attempt to cross large bodies of water. Stay close to the shore in case an emergency arises and you have to leave the water.
4. Do not attempt to navigate any body of water with a strong current. Avoid water operation under windy conditions.
5. 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.
6. Use extra caution when operating the ARGO in cold water. If the vehicle upsets or swamps, exposure in cold water significantly reduces the chance of survival.

7. Be prepared to adjust the position of cargo and passengers so the vehicle floats level.
8. Care must be taken when encountering submerged obstacles that may upset the vehicle.

Observe the following safety precautions BEFORE entering the water:

1. All occupants must wear an approved personal flotation device (PFD) or life jacket while traveling in water.
2. Equip the vehicle with a paddle and bailing can for water operation. An optional bilge pump kit (ARGO Part No. 638-40) is available from your ARGO dealer and is recommended in addition to the onboard bailing can.

Drain Plugs

1. Drain Plugs are accessible from the outside of the vehicle. Make sure both drain plugs in the rear of the lower body (Figure 5-1) are in place and properly tightened. To install, locate the drain plugs at the rear of the vehicle and thread each drain plug in a clockwise direction into the plug fitting ensuring a snug fit. Check the O-ring on drain plug periodically. When removed, each drain plug remains attached to the hole opening to prevent loss or misplacement of the plug while the vehicle is draining. (Figure 5-2).



Figure 5-1. Location of rear drain plugs.



Figure 5-2. Removing and Installing the drain plug.

SECTION 5

DRIVING PROCEDURES IN UNUSUAL CONDITIONS

2. Visually check the lower body of the vehicle for cuts, punctures or holes that will allow water to enter the vehicle.
3. Make sure that any cargo in the rear of the vehicle is evenly distributed.
4. Periodically inspect the fit of the axle housings to the lower body to ensure they are water tight. If there are signs of water leaking into the lower body, take corrective action before crossing shallow water again.

NOTE

Always observe the recognized rules of boating while traveling in water.

5.6.1 Entering the Water

The point of entry should be free of rocks, stumps and other obstacles. Enter the water from a firm, gradual slope whenever possible. With the wheels partially submerged but still in contact with the bottom, stop and check thoroughly for water entering the lower body.

If a leak is detected, drive back onto shore. Drain the vehicle and repair the leak before re-entering the water.

If the body of water must be entered from a steep slope or uneven terrain, back the vehicle into the water. With the engine and transmission weight concentrated in the front of the vehicle, the rear is lighter and floats higher.

Be careful not to submerge the bumper as you enter the water. With the bumper submerged, water can enter through the openings in the upper body. If long water operation / use is expected, Argo recommends installing the dual bilge pumps to evacuate any water that may collect in the lower body.

5.6.2 Driving Procedures in Water

After the vehicle is floating evenly on the water, turn the throttle twist grip to increase speed. (**Note: If the vehicle is equipped with a ROPS, unlatch all seatbelts.**) Use only part throttle when traveling through water. Full throttle only results in excessive turbulence, not higher speeds.

The vehicle is steered by a combination of pulling on the right bar and pushing on the left to steer right or vise-versa to travel left. The turning radius is somewhat greater in water, and the vehicle does not respond to changes in direction as quickly as it does on land. Turning in water may be more effective in Low gear.

The vehicle is propelled forward through the water by the

web of the tires as they rotate. To back up in water, release the throttle, shift the transmission into neutral, and use a paddle.

Avoid rocks, stumps or other obstacles that are below the surface of the water. Striking these obstacles may damage the bottom or upset the vehicle.

If your vehicle begins to fill with water, immediately head to the nearest shore. Get the vehicle out of the water and drain it by removing both rear drain plugs. Correct the leak before entering the water again.

CAUTION

Do not leave the vehicle in water for extended periods of time. Water could enter the axle seals or lower body and cause damage to the axle bearings, chains or sprockets.

5.6.3 Driving Out of Water

When driving out of water, choose an area of the shore that is reasonably flat and free of rocks, stumps and other obstacles. Steer the vehicle so that both front wheels reach the shore at the same time. Accelerate slowly until the vehicle is out of the water. If vehicle is equipped with a ROPS system, re-fasten seatbelts.

5.7 WINTER OPERATION

Follow these precautions when operating the ARGO in winter conditions:

- Equip the vehicle for remote area use, as listed in Section 5.1.
- Keep the battery fully charged and in good condition.
- Use the recommended winter grade of engine oil.
- Do not allow water or snow to accumulate in the vehicle. Snow may melt during operation of the vehicle, collect in the lower body and freeze around the chains and final drive components, immobilizing the vehicle.
- Store the vehicle indoors or under cover.
- Equip your vehicle with snow tracks for travel over deep snow.
- **Steep, snow-covered or icy hills may be more difficult to ascend. Ice cleat kits (Argo Part No. 825-21) are available for Rubber Track systems.**
- Never travel alone into a remote area. Leave your route and arrival plans with someone who can send help if you fail to arrive as planned.

SECTION 5

DRIVING PROCEDURES IN UNUSUAL CONDITIONS

5.7.1 Use on Ice Covered Bodies of Water

WARNING

Using the ARGO on ice-covered bodies of water is potentially hazardous. Use extreme caution. Exposure to cold water reduces a person's chance of survival. Protective clothing, such as a marine survival suit will significantly decrease the effect of exposure in frigid water.

Before venturing out onto ice-covered bodies of water, it is extremely important to:

- Check the ice thickness and condition to be sure it will support the vehicle.
- Take all precautions as in Section 5.6, particularly paragraph 3 referring to drain plugs.
- Take along a cellular telephone or similar device to call for help in case of emergency.

If the vehicle breaks through the ice, it will float in the water, provided that there are no leaks in the body, the drain plugs are in place and vehicle is not taking on water through any body openings. However, there is a risk of the vehicle tipping, particularly if the load is unbalanced. Be prepared to shift occupants' weight for balance.

Getting back onto safe ice depends on various conditions and the expertise of the driver. Be especially careful to prevent water from entering the vehicle.

- Balance the cargo and passenger load.
- Keep openings, like air intakes/exhaust, etc. above the water line.
- Keep the bilge pump running.
- Winch the vehicle out.
- Back onto ice, as the back end is lighter and floats higher in the water.
- Avoid getting the wheels on only one side onto the ice surface as water could enter over the opposite side of the vehicle.
- Avoid turning as the Argo is climbing out to avoid vehicle tip-over.
- Break the thin ice around the vehicle with the paddle until there is firm ice for the vehicle to climb onto.
- Be wary of currents which may pull the vehicle under the ice.

If you feel that you may not be able to get the vehicle back onto safe ice or land, you might consider staying put to await rescue. This may be safer than trying to leave the vehicle to walk over thin ice.

SECTION 6

OIL, FILTER AND LUBRICATION INFORMATION

6.1 ENGINE OIL INFORMATION

⚠ WARNING

Detailed information on standard workshop and safety procedures and general installation practices is not included here. ODG assumes no responsibility or liability for PERSONAL INJURY or VEHICLE DAMAGE which results from any procedure performed, including those procedures outlined here. Before performing any procedure, an individual must have determined to his/her satisfaction that personal injury or vehicle damage will not result from the procedure, working environment or tools selected.

6.1.1 Checking the Engine Oil Level

Check the engine oil level each day before operating the engine.

To check the oil during an operating period, shut the engine off, let it cool down and allow the oil time to drain into the sump before checking the oil level. Position the vehicle so the engine is level.

The Kohler engine (Figure 6-1) is equipped with a dipstick and a separate oil filler tube. To check the oil level, clean the area around the dipstick before removing. Remove the dipstick and wipe it with a clean cloth. Re-insert the dipstick and push it all the way into the tube. Remove the dipstick and check the oil level. The oil level should be between the ADD and FULL marks. If the level has dropped, add oil to bring the level up to the FULL mark. **DO NOT OVERFILL.**

⚠ CAUTION

Do not run the engine if the oil level is above the FULL mark or below the ADD mark. Premature engine damage or total engine failure can occur when the oil level is not properly maintained.

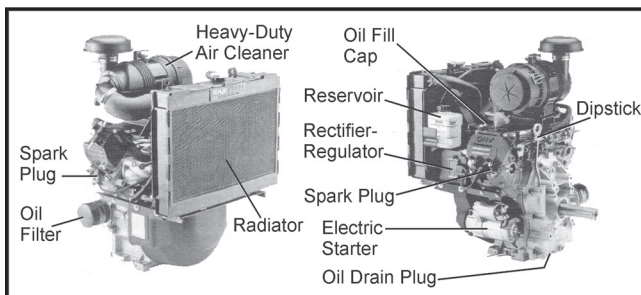


Figure 6-1. Oil fill and level location Kohler Aegis engine.

6.1.2 Recommended Engine Oil

Use a high quality detergent oil of API (American Petroleum Institute) service class as listed in chart. Choose the correct viscosity of oil for seasonal driving conditions. Using the proper type and weight of oil in the crankcase is extremely important. So is checking oil daily and changing oil regularly. Failure to use the correct oil, or using dirty oil, causes premature engine wear and failure.

Viscosity Table - Kohler Aegis Engine

RECOMMENDED SAE VISCOSITY GRADES										
The chart features a horizontal axis with two temperature scales: Fahrenheit (°F) at the top and Celsius (°C) at the bottom. The Fahrenheit scale ranges from -20 to 100 in increments of 20. The Celsius scale ranges from -30 to 40 in increments of 10. Three oil grade ranges are indicated by arrows: 5W-20 and 5W-30 are shown as a single left-pointing arrow from -20°F to 32°F; 10W-30 is shown as a right-pointing arrow from 32°F to 100°F. There is an overlap between the two ranges from 32°F to 40°F. Two asterisks (**) are placed below the -20°F mark, and one asterisk (*) is placed below the 32°F mark.										
*F	-20	0	20	32	40	60	80	100		
*C	-30	-20	-10	0	10	20	30	40		
TEMPERATURE RANGE EXPECTED BEFORE NEXT OIL CHANGE										
*Use of synthetic oil having 5W-20 or 5W-30 rating is acceptable, up to 4°C (40°F). **Synthetic oils will provide better starting in extreme cold below -23°C (-10°F).										



6.1.3 Changing Engine Oil

During the initial engine break-in period, change the oil after the first 20 hours of operation for the Kohler Aegis engine. After the break-in period, change the engine oil every 150 operating hours, or more frequently if the vehicle is operated in dusty or dirty conditions.

Draining the Engine Oil

Each engine is equipped with a drain plug for draining the oil. The drain plug location is shown in Figure 6-1. Drain the oil from the engine as follows:

1. Start and warm up the engine so the oil will drain easily.
2. Level the vehicle so the oil will drain completely.
3. Place a suitable container under oil drain of engine and remove drain plug with a 5/16" Allen socket wrench.

NOTE

As an alternative to draining the engine oil from the drain plug you can use a vacuum pump and remove the oil through the dipstick tube. A pump suitable for this is available through your Argo dealer, Part No. 638-02.

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OIL, FILTER AND LUBRICATION INFORMATION

PLEASE DISPOSE OF WASTE OIL PROPERLY TO CONSERVE OUR ENVIRONMENT.

4. When all the oil has been drained from the engine, clean and replace the drain plug. **MAKE SURE** it is properly tightened before refilling the engine.

Refilling the Engine

Refill the engine through the oil fill port with 2.0 qts. (1.9 L) of oil. Make sure the appropriate grade of oil is used (Section 6.1.2). As you add oil, frequently check the level with the dipstick. Do not overfill. Start engine. Check for leaks. Stop the engine. Check the oil level. Add oil only to the "Full" mark on the dipstick.

6.2 TRANSMISSION OIL INFORMATION

6.2.1 Checking the Transmission Oil Level

Check the transmission oil level daily or before each use.

The transmission in the XTI does not have an oil dipstick. Check for correct oil level by viewing the site glass installed to the lower portion of the transmission housing (Figure 6-2). To view this site glass, remove the quick release firewall. Oil filling half the site glass indicates correct oil level.

Add 80 W 90 Gear Lube HYPOY-C through the transmission oil fill vent hole until the transmission is filled to the correct level. **DO NOT OVERFILL.**

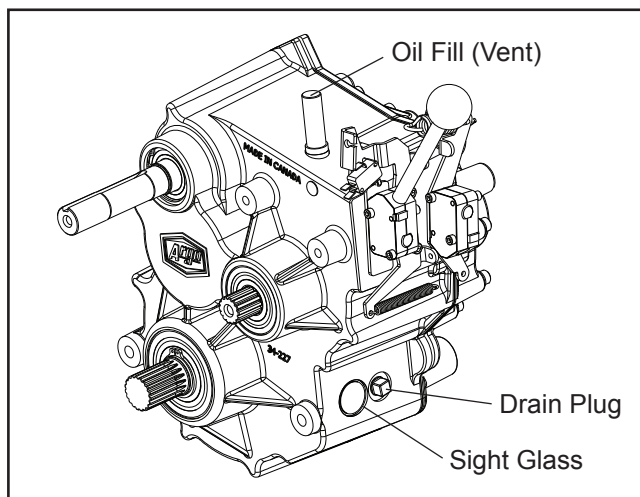


Figure 6-2. HDi transmission.

6.2.2 Changing the Transmission Oil

Change the transmission oil after the first 20 hours of operation. After this, change the transmission oil every 150 operating hours. Start and warm up the engine so the oil will drain easily.

Remove firewall to access the drain plug located at the bottom of the transmission. Drain the transmission oil into a suitable container and dispose of the oil at a disposal site.

While draining the transmission oil, be sure to clean off any metal particles that are on the magnet of the drain plug. These fine metal particles are a result of the transmission gears meshing during the initial break-in period. Re-install the plug and tighten it securely.

Removing the oil from the ADMIRAL transmission requires the use of a vacuum style pump such as the 638-02 Big Boy, Top Sider (available from Ontario Drive and Gear). Due to the design of the ADMIRAL transmission, the majority of the oil in the case will be below the drain plug.

Remove the drain plug (Figure 6-2) and drain the oil until the flow stops. Insert the vacuum tube of the Big Boy Vacu-Pump into the drain plug hole and remove the remaining oil from the transmission sump.

Refilling the Transmission

Install the drain plug. Remove the fill/vent plug located on the top of the transmission. Fill the transmission with 80W90 Gear Lube HYPO-C. Fill the transmission until the sight glass is half full. Oil capacity is 1.27 qts. (1.2 L).

6.3 FILTER INFORMATION

6.3.1 Air Filter

The Kohler Aegis engine is equipped with a heavy duty high density paper air cleaner element surrounding a canister style inner element. Cleaning is not recommended, each element should be replaced when dirty. See Figure 6-3.

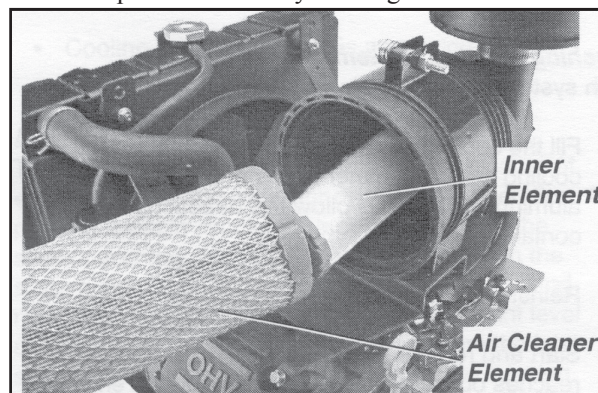


Figure 6-3. Air Cleaner Element and Inner Element.

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For instructions to remove, clean and replace the air filter components, refer to the air cleaner section of the engine Owner's Manual.

6.3.2 Fuel Filter

The XTI is equipped with an in-line fuel filter (Part No. 24 050 03). Figure 6-4.

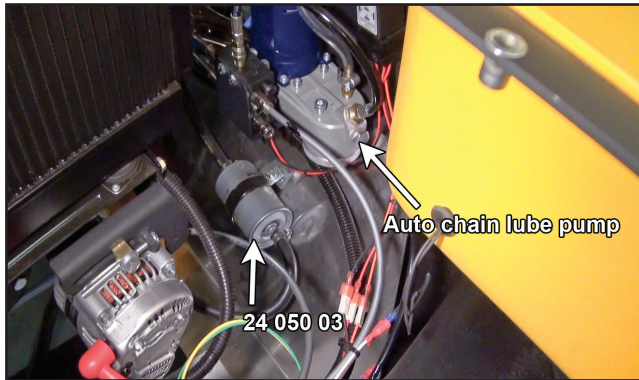


Figure 6-4. Fuel filter location.

Replace the Kohler high pressure fuel filter after every 300 hours of operation or once a year. To replace the filter, loosen the gear clamps with a standard screw driver and pull the rubber fuel lines off of the filter. Install the new filter with the flow arrow pointing toward the engine. Tighten the clamps securely. Start the engine and check for fuel leaks.

6.4 LUBRICATION INFORMATION

6.4.1 General

The following parts and components require regularly scheduled lubrication to prevent premature wear and replacement.

1. Spline Couplings
2. Drive Chains
3. Bearings

Use the recommended lubricants listed in this section and carefully observe the recommended lubrication intervals.

6.4.2 Clutch Lubrication

No lubrication is required for either the driven clutch or driver clutch. They are designed to run dry. If lubricant is used, use of the vehicle will attract dirt and cause damage to the clutch components. Contamination by dust and dirt can cause poor performance, premature wear or failure.

A complete service of the clutch units is required after every 150 hours of operation. To perform this procedure, the clutches must be disassembled. Special tools are required to disassemble the clutch units. We recommend that you return your vehicle to an authorized ARGO dealer to have the clutch

units serviced.

6.4.3 Drive Chain Lubrication

Your ARGO vehicle is equipped with roller chains to each axle. If the optional automatic chain oiler system (see Section 6.4.4) is not installed, then lubricate the chains every 10 hours with Aerosol Chain Lube (ARGO Part No. 125-86), or more frequently in dirty or wet conditions.

After every 100 hours of operation, or for extended periods of storage, remove all the drive chains from the vehicle and clean them thoroughly in a suitable solvent, i.e. degreaser.

! WARNING

Never use gasoline as a cleaning solvent. Gasoline is extremely flammable and can explode if ignited, causing serious personal injury.

Allow the chains to dry thoroughly, re-lubricate generously with ARGO Chain Lube and re-install.

Refer to Section 7.2.3 of this manual for drive chain removal and re-installation instructions.

6.4.4 Automatic Chain Oiler System (if equipped)

NOTE

Proper lubrication of the chain drive components greatly increases their service life. Keeping chains out of water and dirt will also improve the effectiveness of chain lubrication.

Operation:

The automatic chain oil system operates on a timed circuit that starts as soon as the key is turned to the run position. The system starts with a 15 minute off cycle followed by a 5 second on cycle when the pump runs and supplies oil to the oil drip tubes. The drip tubes, direct the drips to land between each inner and outer plate of the chain.

The override switch on the dash bypasses the timer and will run the pump for as long as the switch is pressed (switch does not interrupt the timer program). The switch is meant to be used to run the pump for initially priming the system, checking drip tube alignment, or manually re-lubricating the chains after cleaning them.

Recommended Oil:

Any good quality oil of the proper viscosity (based on temperature, see chart) can be used. The oil must be able to penetrate into the bushings and side plates to be effective. **Do not use** used oils, high tack oils (i.e. chainsaw bar oil), heavy oil, or grease.

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If the Argo needs to be used in environmentally sensitive areas, consider using a biodegradable oil of the proper viscosity as shown in the chart.

TEMPERATURE	-40 ~ 0 C (-40 ~ 32 deg. F)	0 ~ 40 C (32 ~ 104 deg. F)	40 ~ 50 C (104 ~ 122 deg. F)
OIL VISCOSITY	SAE 10	SAE 20	SAE 30

First time operation:

1. Fill the reservoir with appropriate oil.
2. Remove the front floor pan, firewall, and rear floor pan.
3. Turn the key to run position, press and hold the override switch. You will hear the pump.
4. With the pump running watch below the drip tubes to see when the oil begins to drip. It may take close to 2 minutes of continuously holding the switch before the system is primed. The oil will start dripping on the front chains several seconds before it drips on the rear.
5. Once the oil starts dripping watch the drips to make sure they are falling onto the side plates of the chain.
6. Loosen the bolt holding the drip tube and adjust the position as required.

System may require priming if reservoir is run dry or after extended periods of non use.

Maintenance:

- Check the level in the reservoir prior to daily operation.
- For optimum pump and chain life, do not let the reservoir run dry.
- Periodically check to make sure all holes are dripping oil correctly.
- Wiping the bottom of the drip tubes with a rag will remove any larger deposits of dirt.
- A full reservoir of oil should last approx 40 hrs of run time.

6.4.5 Axle Bearing Lubrication

The XTI axle assemblies are filled with 200ml of 80W90 Gear Lube HYP0Y-C. At 20 hours:

1. The oil level should be checked by removing the side plug on each axle housing. Fill the axle assembly until the oil is level with this hole.
2. The bottom plug should be removed to check for water contamination. If water runs out or the oil has a milky appearance, drain the oil and replace with 200 mL (6.7 ozs.) of 80W90 Gear Lube HYP0Y-C.

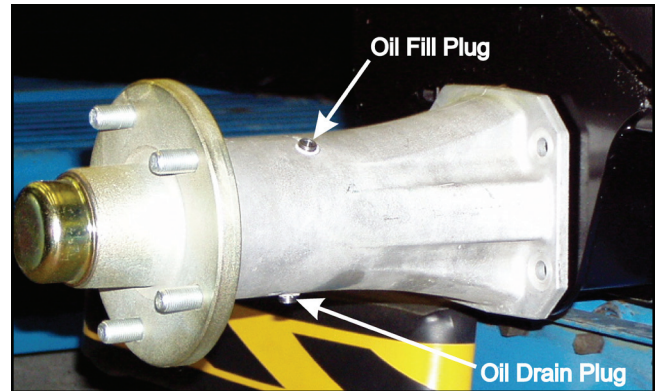


Figure 6-5. Axle Assemblies

The oil in the axle housings should be replaced each 150 hours of operation. Check bolts for tightness.

6.4.6 Output Shaft Lubrication

Output shaft spline couplers are equipped with a grease fitting (Figure 6-6) to allow lubrication to the spline of the shaft and coupling connector. Lubricate every 25 hours with a lithium based, NLGI #2 or 3 mineral oil based grease, (such as Shell Alvania #3). Wipe off excess.

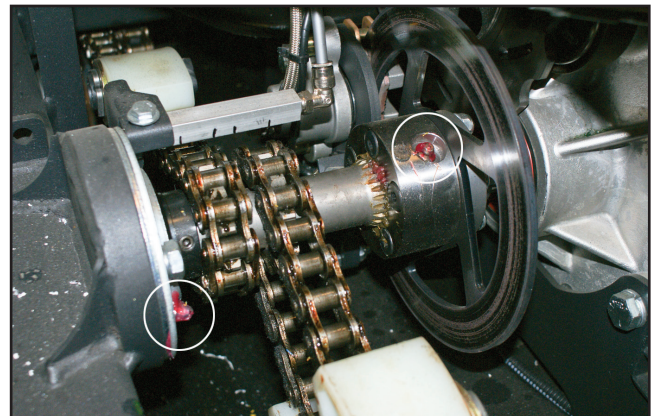


Figure 6-6. Output shaft grease fitting.

! CAUTION

Do NOT apply excessive amounts of grease as this could contaminate brake discs when vehicle is in operation and output shafts are turning at a high rate of speed.

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MAINTENANCE INFORMATION

7.1 ELECTRICAL SYSTEM

⚠ WARNING

Detailed information on standard workshop and safety procedures and general installation practices is not included here. ODG assumes no responsibility or liability for PERSONAL INJURY or VEHICLE DAMAGE which results from any procedure performed, including those procedures outlined here. Before performing any procedure, an individual must have determined to his/her satisfaction that personal injury or vehicle damage will not result from the procedure, working environment or tools selected.

7.1.1 General

To prevent damage to the electrical system:

- Never weld on the vehicle. If welding is required, take your vehicle to an authorized Argo dealer.
- Connect battery booster cables properly, positive to positive and negative to negative. Connect negative cable last, disconnect first. **It is not a recommended practice to boost your Argo if the battery is dead. If possible, avoid the use of booster cables from an external battery source. Damage can occur to the engine ignition system.**
- Connect switch terminals properly, especially the ground wire.

7.1.2 Battery - Deka Battery, ARGO Part No. 126-108

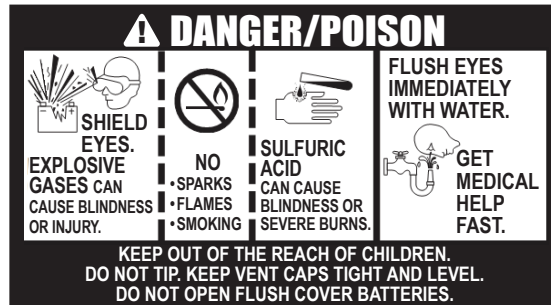
The Argo XTI standard specification includes a maintenance free absorbed glass mat (AGM) battery, although customers may choose to supply their own battery.

The battery is located beneath the drivers bench seat, along side the fuel tank, to the right side of the driver.

The AGM battery is a sealed battery. Never attempt to pry open an AGM battery. If AGM battery failure is suspected, please take your vehicle to an authorized Argo dealer for service.

SAFETY PRECAUTIONS

California Proposition 65 Warning: Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the state of California to cause cancer, birth defects and reproductive harm. **Wash hands after handling!**



⚠ WARNING

Follow all safety instructions when handling batteries! Always wear safety glasses and a face shield when working on or near batteries.

All batteries generate explosive hydrogen gas. Keep sparks, flames and cigarettes away from batteries at all times. Do not connect or disconnect "live" circuits. To avoid creating sparks, always turn charging and testing equipment off before attaching or removing clamps.

ALWAYS DISCONNECT GROUNDED CABLE FIRST AND CONNECT IT LAST TO PREVENT DANGEROUS SPARKS.

Perform all work in a well ventilated area. Never lean directly over a battery while boosting, testing or charging it. **PROTECT YOUR EYES!**

Batteries contain corrosive sulfuric acid that can destroy clothing and burn the skin. Neutralize acid spills with a paste made of baking soda and water or battery cleaner spray. **BE CAREFUL!**

Checking the Fluid Level (If equipped with a wet-cell lead acid battery)

Check the fluid level every 50 hours of operation. Remove the pod vents and make sure each cell is filled to the fluid level as shown in Figure 7-1. If the fluid has dropped below the fill well, add distilled water until the cell is filled to correct level. **DO NOT OVERFILL.**

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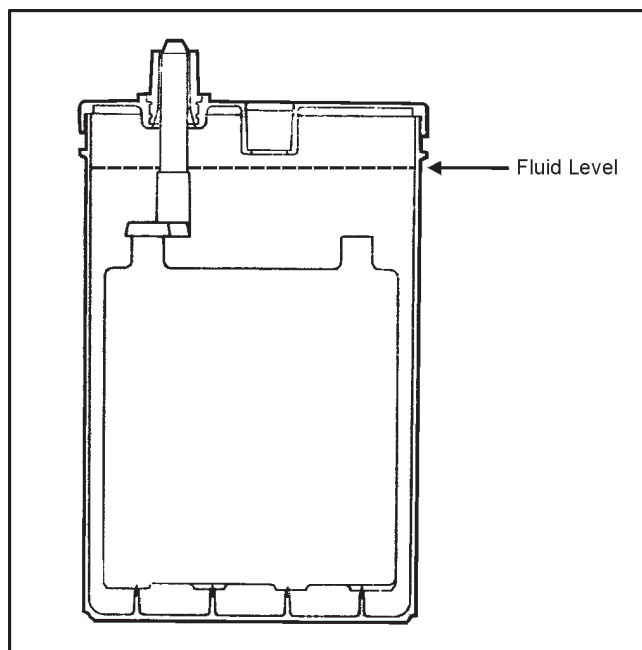


Figure 7-1. Battery fluid level

In-Vehicle Service and Testing

Follow safety precautions:

WEAR PROPER EYE PROTECTION!

Prior to any testing, visually inspect the battery. Look for:

- Cracked or broken case or cover
- Loose cable connections
- Leaking case-to-cover seal
- Corrosion
- Damaged or leaking terminals

Neutralize any corrosion with a baking soda/water paste or battery cleaner spray. Scrape or brush off the residue and wash the area with clean water. Following your visual inspection, check the battery's state of charge with a voltmeter.

You must boost charge a weak battery before load testing. (See charging chart under "Charging Tips" section.) If fully charged, perform a load test. **PROTECT YOUR EYES!**

Safe Installation

Follow safety precautions:

WEAR PROPER EYE PROTECTION!

1. Before removing old battery, mark the positive (+) and negative (-) cables for proper connection to the new battery.
2. Always disconnect the ground cable first [usually negative (-)] to avoid any sparking around battery. Then disconnect the positive (+) cable and carefully remove the old battery.
3. Clean and inspect. Cable ends must be clean and corrosion free. Cable must not be frayed or bare.

4. Install new battery in same position as old one and tighten hold-down.
5. Connect positive (+) cable first. Connect ground cable last. If side terminal connection, use a special side terminal torque tool to tighten side terminal cables to avoid damage. Never overtighten or hammer cables onto terminals.

Check the Charging System

The voltage regulator should be checked every time you change oil. It should be checked immediately if the battery is hot to the touch, if electrolyte is bubbling or spewing from the vents, or if the open circuit voltage is below 12.4 volts or above 12.9 volts.

Charging Tips

Follow safety precautions:

WEAR PROPER EYE PROTECTION!

- To avoid a battery explosion, never attempt to charge a frozen battery. Allow it to warm up to room temperature before placing on charge.
- **Warning:** Gel and AGM (Absorbed Glass Mat) batteries require a voltage-limited charger. Charging a Gel or AGM battery on a typical shop charger – even one time – may greatly shorten its life.
- **Important:** Never overcharge batteries. Excessive charging will shorten battery life.
- Prior to charging, read the manufacturer's instructions for proper charger hook-up and use.
- Turn charger off prior to hook-up to avoid dangerous sparks. **PROTECT YOUR EYES!**
- The maximum charge rate in amperes should be no more than 1/3 of the battery's reserve capacity minute rating. If the terminal voltage exceeds 16.0 volts while charging, reduce the charge rate.
- Continue charging and reduce the rate as needed until a two-hour period results in no increase in voltage or decrease in current.
- If violent gassing or spewing of electrolyte occurs, or the battery case feels hot to the touch, temporarily reduce or halt charging.

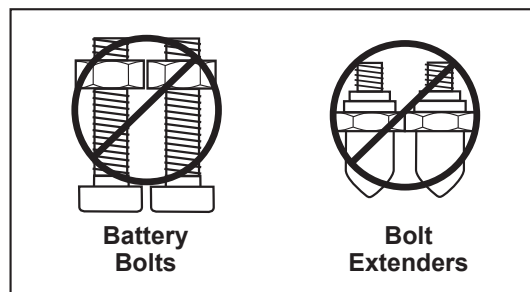


Figure 7-1a. Battery Bolts.

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DO NOT USE Battery Bolt Extenders or Battery Bolts (Figure 7-1a) for testing or charging batteries. They do not provide the necessary lead-to-lead contact, and can reduce your cold cranking amperage (CCA) and state of charge readings. Batteries should be boost charged if the open circuit voltage (voltmeter) reading is below 12.4 volts. See charging chart Figure 7-1b.

VOLTAGE	STATE OF CHARGE	APPROX. BATTERY CHARGING TIME * TO FULL CHARGE AT 80°F/27°C			
		Maximum Rate at			
		50 Amps	30 Amps	20 Amps	10 Amps
12.6	100%	— FULL CHARGE —			
12.4	75%	20 min.	35 min.	48 min.	90 min.
12.2	50%	45 min.	75 min.	95 min.	180 min.
12.0	25%	65 min.	115 min.	145 min.	280 min.
11.8	0%	85 min.	150 min.	195 min.	370 min.

* Charging time depends upon battery capacity, condition, age, temperature and efficiency of charger.

Figure 7-1b. Charging Chart.

Battery Storage Tips

Batteries should be stored in a cool, dry area in an upright position. Never stack batteries directly on top of each other unless they're in cartons. Do not stack more than 3 high (2 high if battery type is heavy commercial).

Always test and charge if necessary before installation.

(See "Charging Tips" sections.)

Jump Starting

Shield eyes and face at all times...Never lean directly over battery when testing, jump starting or performing other maintenance.

Be sure vent caps are tight and level. Place a damp rag over the vent caps of both batteries. Be sure vehicles do not touch each other.

1. Connect one end of positive (+) booster cable to positive (+) terminal of discharged battery, wired to starter or solenoid.
2. Connect other end of positive (+) booster cable to positive (+) terminal of assisting battery.
3. Connect one end of negative (–) booster cable to negative (–) terminal of assisting battery, wired to ground.
4. Complete hook-up by connecting other end of negative (–) booster cable to engine block of stalled vehicle — as far away from battery as possible...AWAY FROM MOVING FAN AND GAS LINES.
5. Start both vehicles and remove cables in reverse order of connection. Discard the rags. See Figure 7-1c for proper hookup.

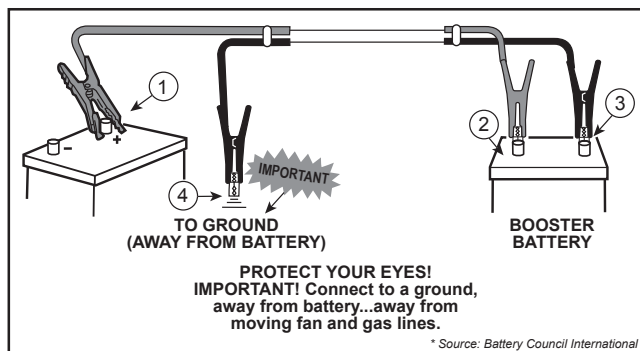


Figure 7-1c Jump Starting.

Cleaning the Battery Terminals and Cable Connections

Clean the battery terminals and cable connections every 150 hours. Remove the black NEGATIVE (–) cables first. Make sure you reconnect the NEGATIVE (–) cables to the NEGATIVE (–) post and the red POSITIVE (+) cables to the POSITIVE (+) posts. Damage to the electrical system will occur if the cables are reversed.

Cleaning the Battery

Clean the top of the battery every 300 hours with a mixture of baking soda and water. Before cleaning the battery, remove it from the vehicle and make sure the pod vents are in place (non-sealed batteries only). Soak a cloth in the soda/water mixture and scrub the top of the battery. After the foaming has stopped, flush with clean water and dry with a clean cloth.

7.1.3 ELECTRICAL SYSTEM FUSES

All models of the ARGO are equipped with push-in type automotive fuses. The fuses protect the electrical circuits of the vehicle. They are located in the fuse block, inside the engine compartment. Replace any blown fuses. Return your vehicle to an ARGO dealer for inspection of the electrical circuit if a fuse blows repeatedly.

7.1.4 SPARK PLUGS

Remove and inspect the spark plugs after every 150 hours of operation. Clean the plugs and reset the gap as detailed in the engine owner's manual.

Replace the spark plugs if the electrodes are corroded or damaged or if the insulator is cracked. Use the correct plug for the engine as detailed in the engine owner's manual.

Re-install the spark plugs carefully, taking care to start the threads properly. Torque the plugs to 10 - 15 ft. lbs (14 to 20 N·m). Do not over tighten.

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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).

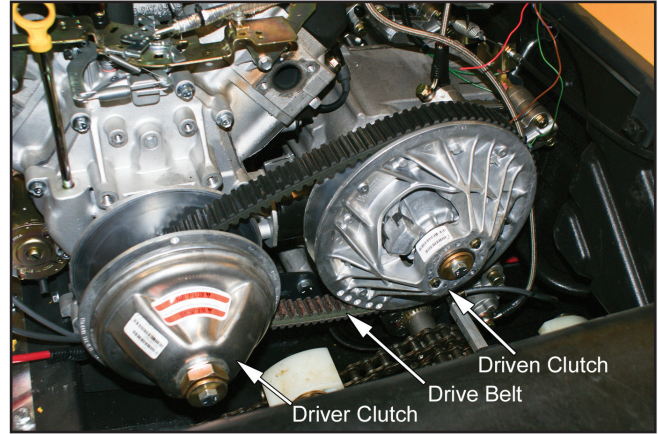


Figure 7-2. Location of drive clutches and drive belt.

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.

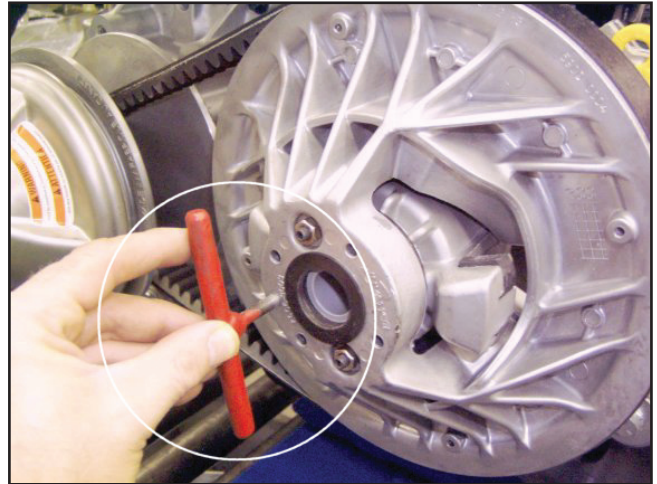


Figure 7-2c. Drive belt removal.

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.

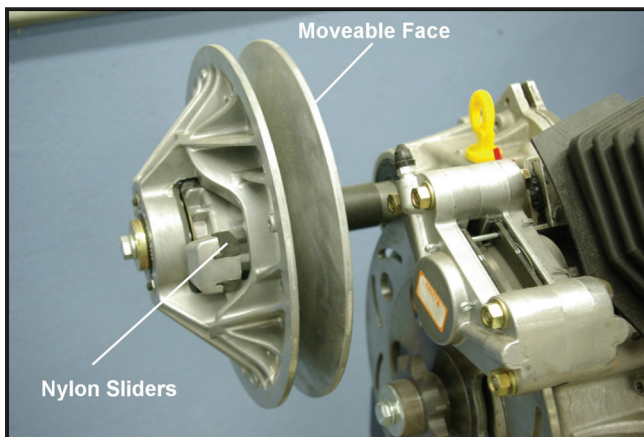


Figure 7-3. Location of the sliders.

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.

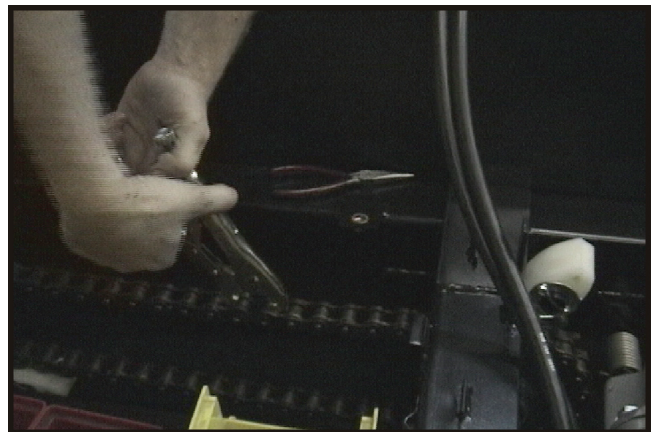


Figure 7-4. Holding chain together to insert connecting link

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Figure 7-5. Chain connection link components.

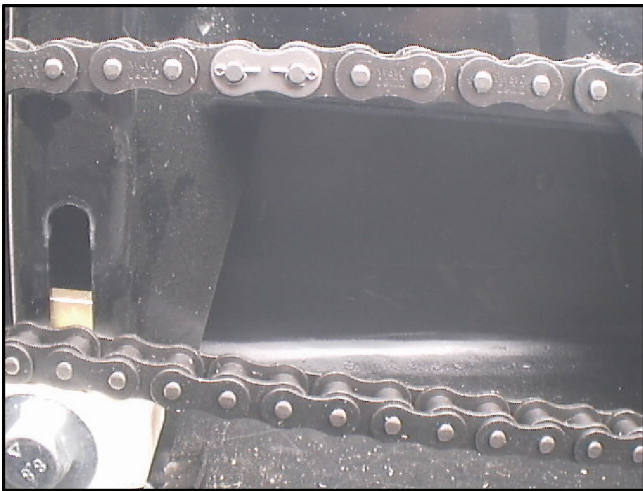


Figure 7-6. Installing the connecting link.

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.

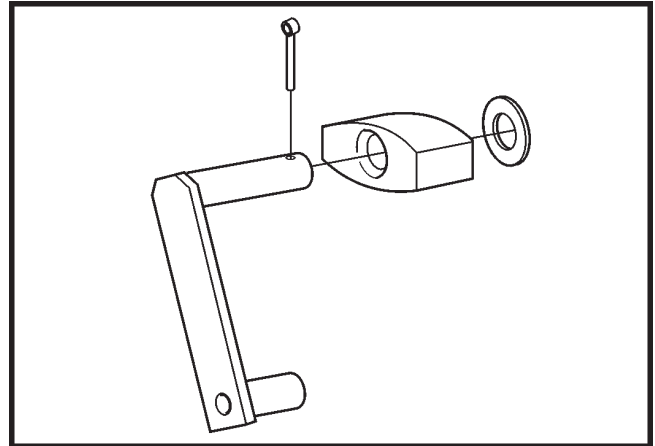


Figure 7-7. Chain tensioner components.

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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MAINTENANCE INFORMATION

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.

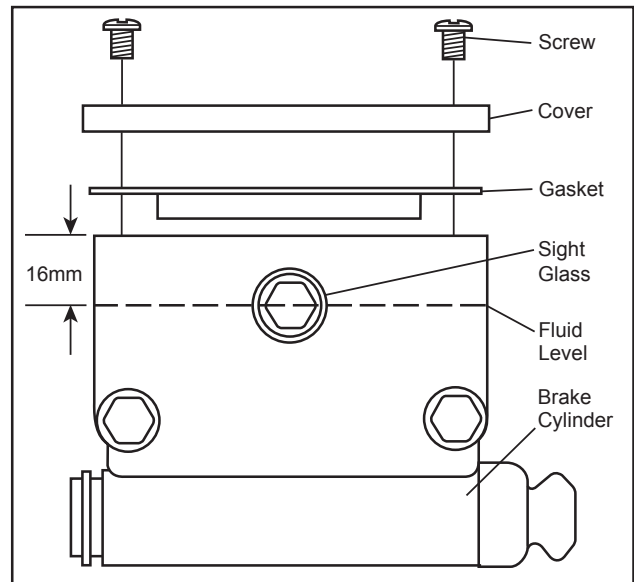


Figure 7-9. Hydraulic brake cylinder and fluid level

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MAINTENANCE INFORMATION

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.

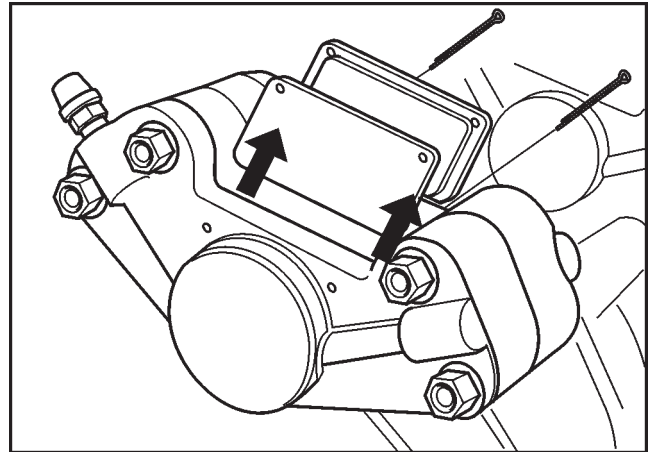


Figure 7-10. Removing the brake pads from the brake caliper.

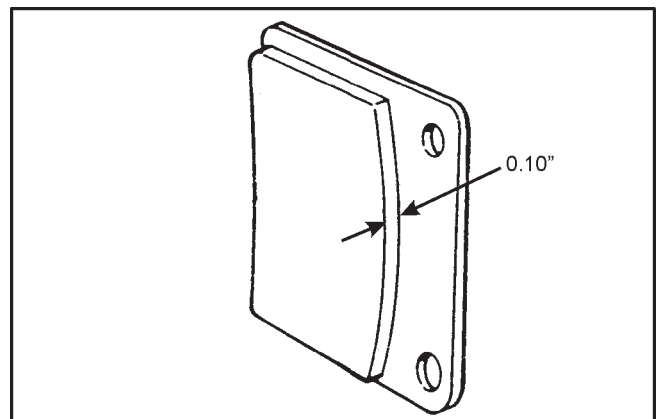


Figure 7-11. Brake pad wear; hydraulic brakes.

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MAINTENANCE INFORMATION

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.

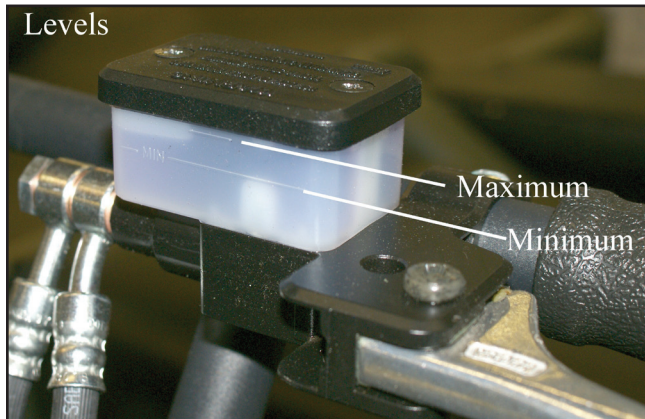


Figure 7-12. Hydraulic handbrake levels

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.

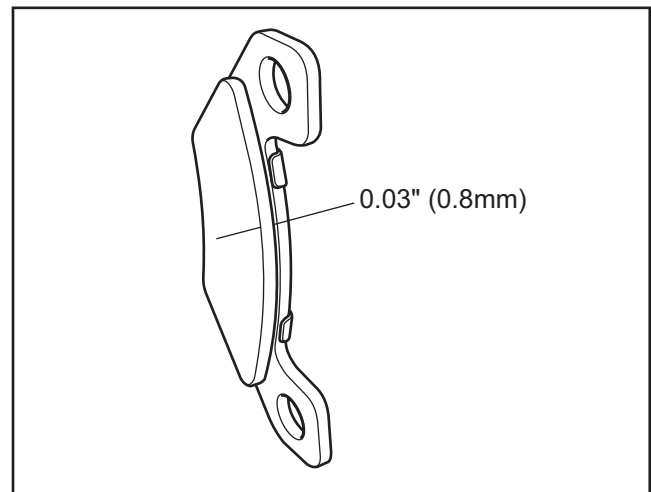


Figure 7-13. Brake pad wear, HDi handbrake pads

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

SECTION 7

MAINTENANCE INFORMATION

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.

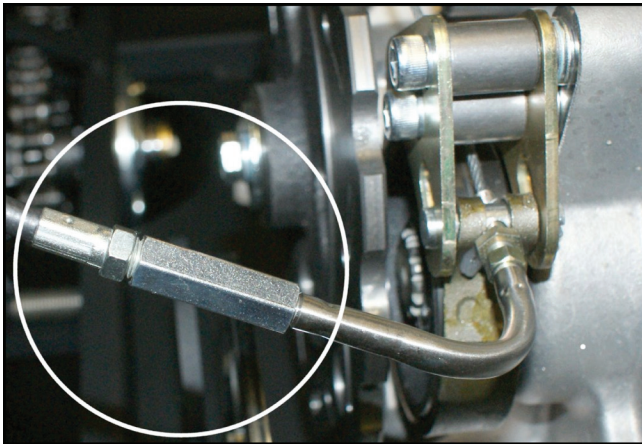


Figure 7-14. Adjusting the parking brake.

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.

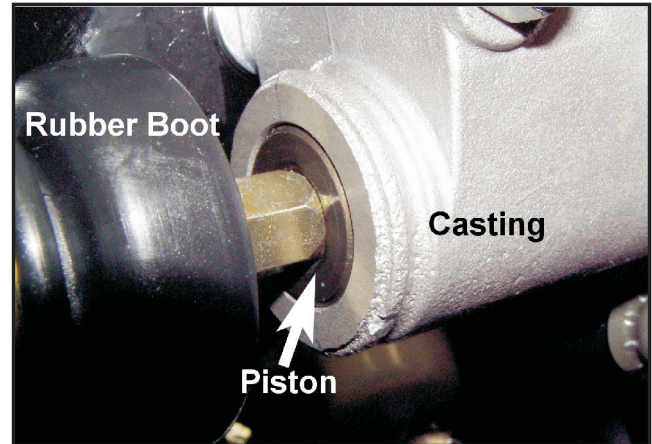


Figure 7-15. Location of piston.

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)

SECTION 7 MAINTENANCE INFORMATION

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			

SECTION 7

MAINTENANCE INFORMATION

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	1. Loose electrical connections 2. Battery charge low or dead 3. Faulty starter motor 4. Faulty ignition switch	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	1. Fuel tank is empty 2. Blocked fuel or air filter 3. Spark plugs defective or fouled 4. Ignition system inoperative 5. Insufficient compression	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		1. Refer to engine manual
Vehicle will not move or turn	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	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	1. Right tire pressure too low 2. Left tire pressure too high 3. Right brake engaged 4. Right side drive chain broken	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	1. See "Vehicle pulls to right" - substitute right with left	
Vehicle does not shift into Hi from Low or Low from Hi	1. Hi/Low shift cable adjustment	1. Take the vehicle to an Argo dealer for servicing
Handbrake failure	1. Worn brake pads 2. Leaking caliper or brake lines or air in system	1. Change pads 2. Take the vehicle to an Argo dealer for servicing
Parking brake failure	1. Brake cable adjustment 2. Worn brake band	1. Adjust brake cable 2. Change band

SECTION 8 TROUBLE SHOOTING

MALFUNCTION (SYMPTOM)	PROBABLE CAUSE	CORRECTIVE ACTION
Severe vibration when vehicle is operated	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	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	1. Leak has developed at the axle assembly 2. Lower body is cut or punctured 3. Drain plugs not in place	1. Replace the flange seal. 2. Repair or replace vehicle lower body 3. Secure drain plugs.
Tire leaks air	1. Tire is punctured 2. Tire is not properly seated on bead 3. Position of air leak is not obvious 4. Defective valve	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	1. Air in hydraulic system 2. Leak in system 3. Loose brakes	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	1. Pads have overheated and glazed 2. Pads worn beyond 0.10" 3. Pads are contaminated with lubricant	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	1. Drive chains worn/loose	1. Adjust/replace drive chains as required.
Vehicle does not steer left or right	1. Worn or contaminated brake pads 2. Leaking caliper or brake lines or air in system	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.

SECTION 10 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).

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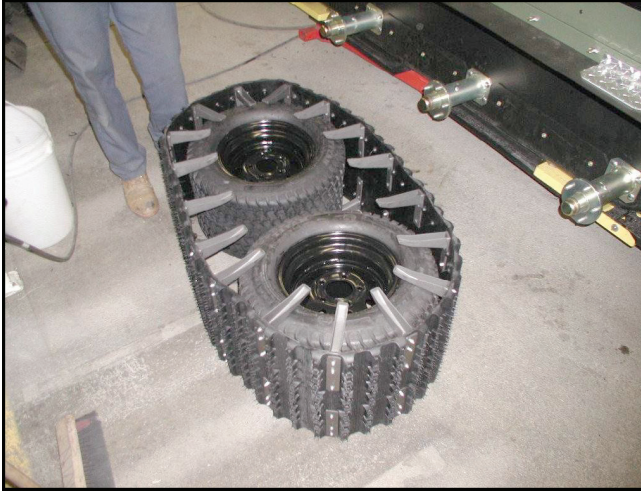


Figure 11-2. Deflated tires into track



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.

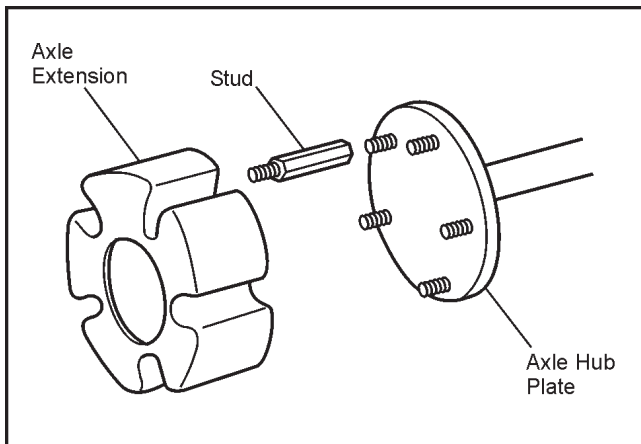


Figure 11-5. Installing the Axle Extensions.

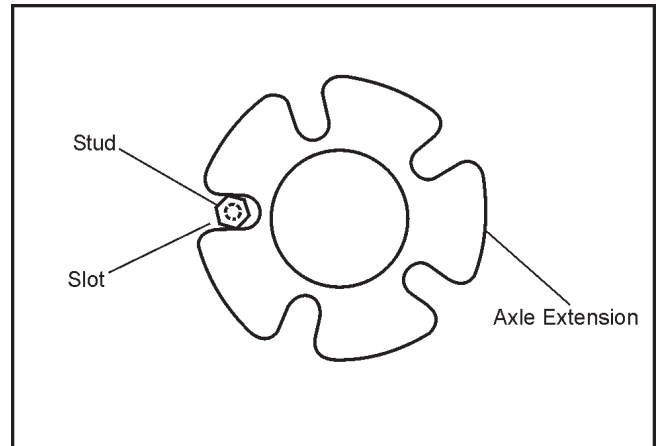


Figure 11-6. Check Stud Position in Axle Extension.

⚠ 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.

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ACCESSORY INFORMATION

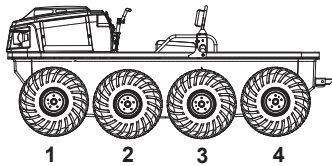


Figure 11-8. Marking the tire.

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

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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.

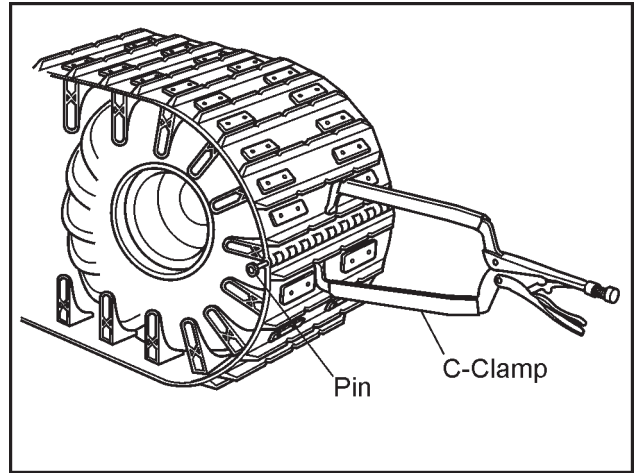


Figure 11-10. Securing with C-clamps.

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.**

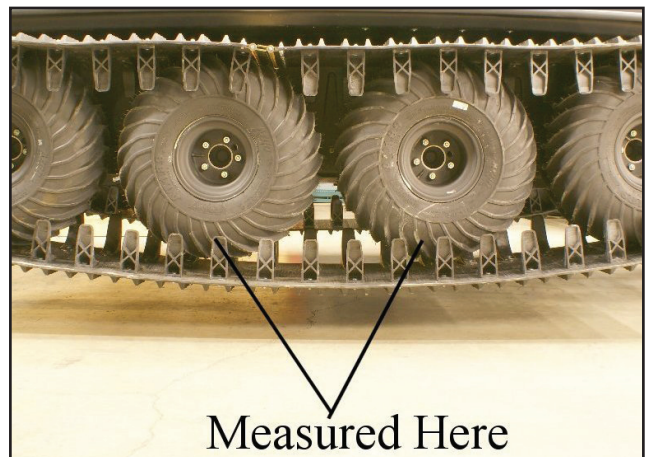


Figure 11-11. Measuring the gap of the mid tires

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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%.

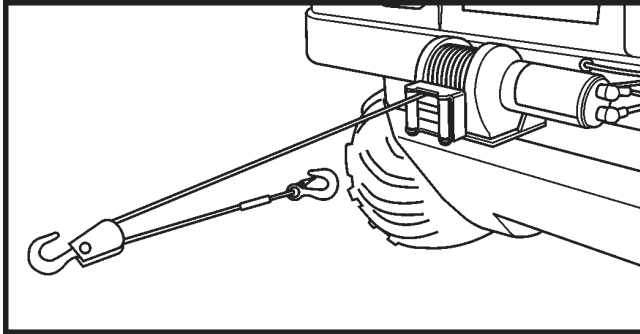


Figure 11-13. Double Line.

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.

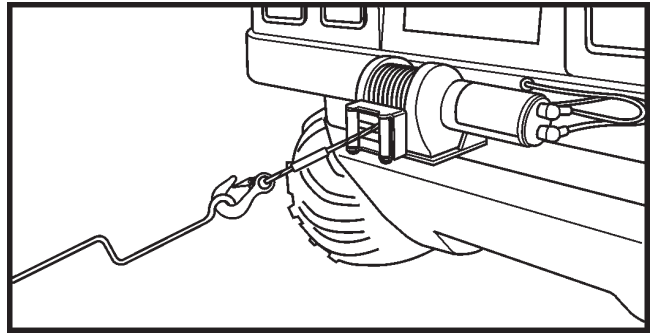


Figure 11-14. Using the Handsaver Bar.

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).

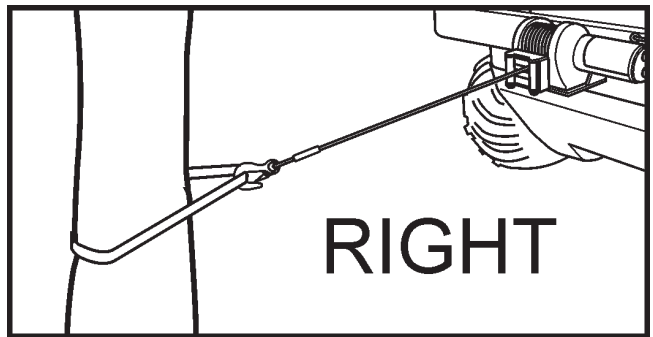


Figure 11-15. Correct hook-up.

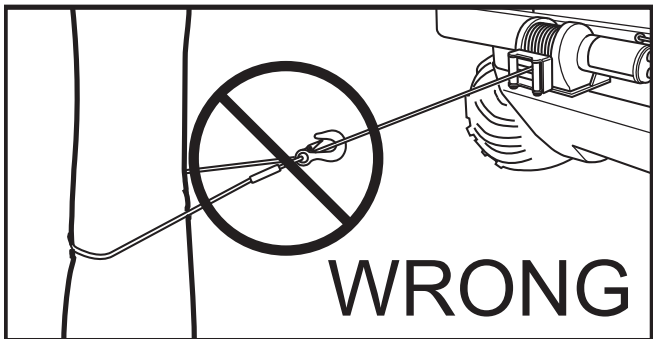


Figure 11-16. Incorrect hook-up.

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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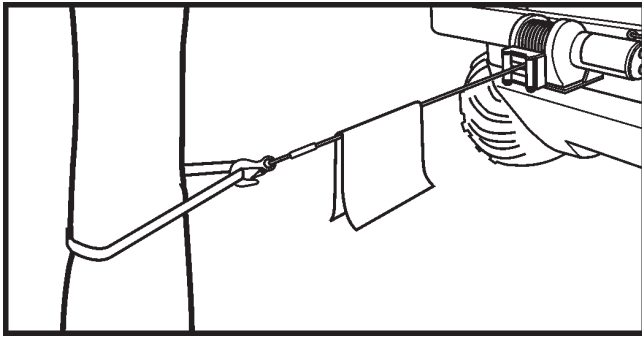


Figure 11-17. Using a cloth damper.

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.

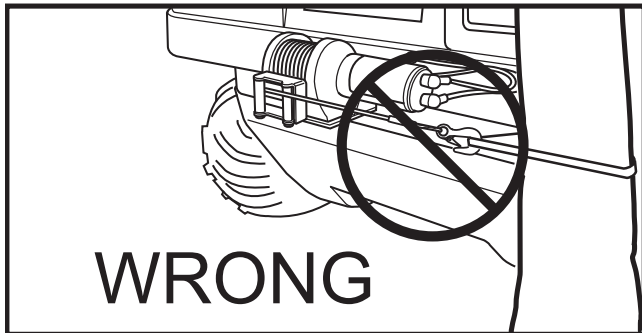


Figure 11-18. Incorrect positioning for continuous pulls.

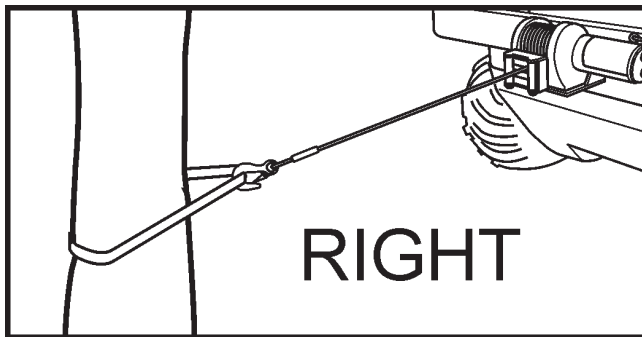


Figure 11-19. Correct positioning for continuous pulls.

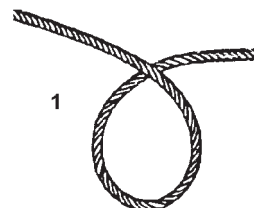
12. Always operate the winch with an unobstructed view of the winching operation.
13. Do not operate the winch when under the influence of drugs, alcohol or medication.
14. Never work on or around the fairlead or winch drum when

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

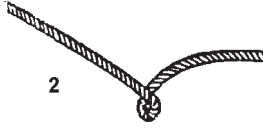
1. Keep a tightly and evenly wound wire rope drum. Do not allow the wire rope to become loosely wound. A loosely-wound spool allows a wire rope under load to work its way down into the layers of wire rope on the drum. When this happens, the wire rope may become wedged within the body of the windings 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

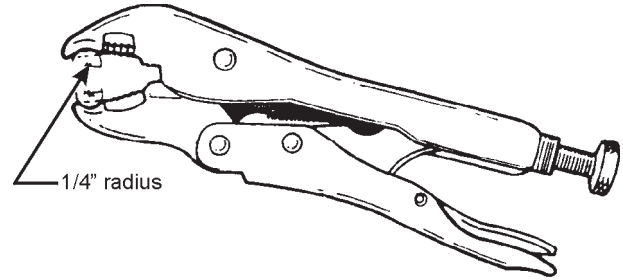
For use with Snow or Multi-Purpose Tracks. Mud flap extenders bolt onto the upper frame assembly and help to keep mud and snow out of the cargo compartment.

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@argoatv.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
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