

Language: English
Geographic Region: All
Serial Number Range: SN All



RCV

Operation and Maintenance Manual

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Introduction



Thank you for purchasing an ASV Rubber Track Loader. With this machine, you will be able to perform tasks faster and more efficiently than with any other machine its size.

The RCV is a rugged and agile machine capable of working on a variety of challenging terrains. It is designed to be very safe, but safe operation also

requires caution and attentiveness on the part of the operator.

There are many hazards that can be encountered during operation of an off highway utility vehicle such as the RCV. With this in mind, it is the responsibility of each operator to read and fully understand this manual before attempting to operate the machine.

Machine damage, bodily injury, or even death may result if the procedures and precautions described in this manual are not followed closely.


Terms like *front*, *rear*, *left*, and *right* are used throughout this manual to describe portions of the machine. They are to be understood from the perspective of an operator seated inside the machine.

Right: The operator's right.

Left: The operator's left.

Front: In front of the operator.

Rear: Behind the operator.



This manual contains the words **Warning**, **Caution** and **Note** to emphasize important information.

!WARNING! identifies information related to your personal safety.

!CAUTION! identifies unsafe practices that may result in machine damage.

NOTE: identifies supplementary information that requires special attention.

Limited Warranty

The warranty herein set forth applies solely to the ASV Rubber Track Loaders manufactured by ASV, Inc. and is in lieu of all other warranties, expressed or implied. No person, agent, or dealer is authorized or empowered to give any other warranty or to assume other liability on behalf of ASV, Inc. Warranty of ASV Rubber Track Loaders is extended to the original purchaser, however, the balance of the unused warranty may be transferred to a second party.

ASV Inc. warrants only the products it manufactures or sells and does not warrant that other products will function properly or will not cause damage when used on an Rubber Track Loader. ASV does not assume liability for indirect, incidental or consequential damages.

ASV will repair or replace, free of charge to the holder of the warranty, any parts defective in material or workmanship under normal use and service and related labor charges. Warranty work must be performed by the selling ASV authorized dealer or agent. The owner is responsible for getting the machine to that selling authorized dealer or agent. ASV will not reimburse transportation, rental or inconvenience costs. ASV reserves the right to

inspect the part prior to any decision involving a warranty claim. In no case shall ASV grant a remedy that exceeds the purchase price of the component or part.

The warranty validation form should be completed at the time of purchase by the dealer and customer. This form should be sent to ASV Inc. by the dealer (by mail or at www.asvi.com) as soon as possible to prevent any delays in warranty claims.

The warranty periods are as follows:

1. For Rubber Track Loaders purchased by a retail customer: One year from date of purchase, with no hour limit.
2. Machines purchased for rental: One year from date of first rental, with no hour limit.
3. Six months from date of sale on batteries, and 50% exchange on remaining six months.
4. Ninety days from date of sale on dealer installed parts and accessories.
6. Engine: warranty for the Perkins diesel engine is separate from ASV Inc's warranty and is described in the separate engine warranty information.
7. Original rubber tracks are covered by a warranty period of 24 months or 1,000 operating hours, whichever occurs first,

starting from date of delivery to the first user; tracks are pro-rated after the first 300 hours.

The following will VOID the warranty:

- a. Failure to perform proper maintenance, service, or operating procedures as recommended in the Operators Manual.
- b. Repair by anyone other than an authorized ASV dealer or agent.
- c. Use of improper hydraulic fluid.
- d. Misuse, abuse, neglect, or improper adjustment, accident, or improper application.
- e. Any modification or removal of parts, unless authorized by ASV, Inc.
- f. Removal or mutilation of the Product Identification Number (PIN).
- g. Exceeding the G.V.W. of the machine.

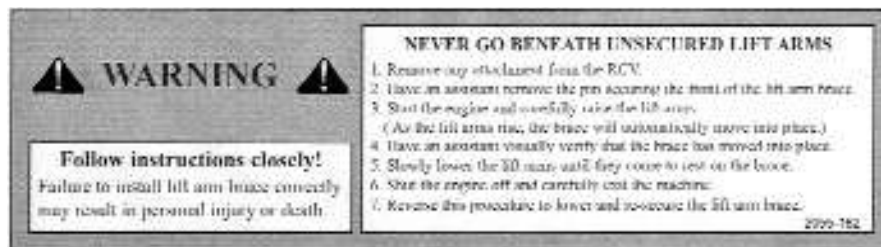
No other warranty or guarantee of any kind is made by ASV, Inc. expressed or implied, statutory, by operation or law, or otherwise, including merchantability and fitness for a particular purpose.

Machine PIN and Safety



Product ID Number

The machine PIN is located in the cab on the firewall to the left of the seat (fig. 1). This number must be provided to ensure proper service when contacting your dealer regarding parts, service, warranty or accessories. Warranty claims will not be processed unless the machine PIN has been provided.



The RCV rubber track loader is equipped with many safety features to reduce the possibility of injury to the operator during operation.

These features include:

A. Seat belt

The seat belt is designed to keep the operator securely fastened in the seat should the RCV encounter uneven terrain or come to a sudden stop during operation. Always fasten your seat belt prior to operating your RCV. Serious injury or even death could result if your seat belt is left unfastened during operation.

B. Lap bar restraint

The lap bar restraint is designed to act in conjunction with the seat belt to keep the operator securely fastened in the seat. It is also equipped with a safety switch that is activated when the lap bar is pulled into position over a seated operator. This switch has been included

to ensure that the lap bar restraint is in place before any motion is allowed to take place.

C. Operator presence safety switch

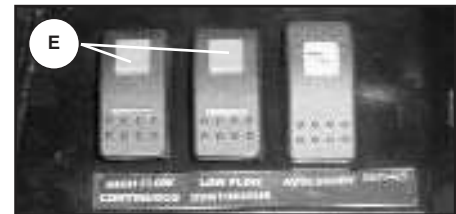
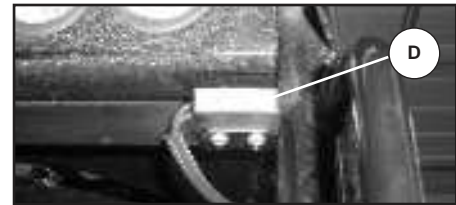
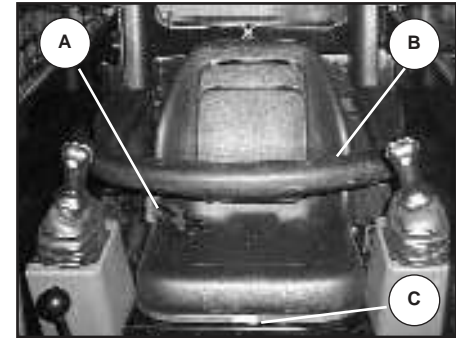
The purpose of this switch is to ensure that the operator is seated in the RCV before any motion is allowed to take place. This safety switch is activated when an operator is seated in the RCV.

D. Door safety switch

The purpose of this switch is to prevent the cab and front door from being damaged should the lift arms be activated with the door in the open position. This safety switch is activated when the front door on the RCV is securely closed.

E. Auxiliary hydraulic safety switches

These switches have been included to ensure that attachments do not engage when the RCV is started. They must be locked into their neutral positions in order for the machine to start.



Safety

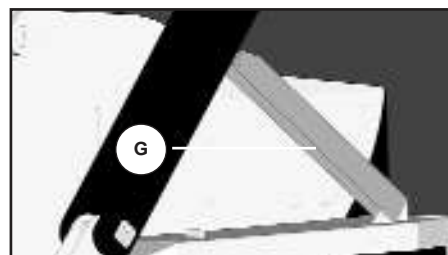
F. Power quick-attach safety switch

The purpose of this switch is to ensure attachments are securely fastened to the RCV prior to operation. The machine will not start unless this switch is in the locked position. When installing an attachment, always perform a visual check to ensure that it is locked in place prior to use.

***Note:** Items E and F are equipped with small orange locking devices. In order to move these switches, you must first disengage the locking devices by sliding them downward. The switches may then be moved into the desired positions.*

G. Lift arm Braces

The braces are there to ensure your safety during service work or maintenance. Prior to performing any service or maintenance that requires the lift arms to be in the raised position, follow the lift arm brace installation procedure located on page 29.



H. Escape hatches

The front and rear windows on the RCV serve as escape hatches in an emergency situation. They are identified by bright orange triangular tags attached to the rubber molding surrounding the windows. To exit through either of these openings, grab hold of the tag and pull to remove the molding. This will allow the window to be pushed out. Then carefully crawl out of the opening to safety.



Rated Operating capacity

The rated operating capacity (ROC) is a measurement of weight that is a certain percentage of the tipping load weight. While still and on level ground, the tipping load is measured with a standard dirt bucket curled, and raised to the point furthest from the machine. The tipping load is the amount of weight applied to the center of gravity of the bucket that causes the machine to begin

tipping forward. The ROC is then determined by taking 35% of the tipping load for traditional track loaders, or 50% of the tipping load for wheeled skid steer loaders. For reference and comparison we publish both the 35% and the 50% rating.

The ROC applies only to the bucket. Pallet forks or other attachments often move the center of gravity further away from the machine reducing the ROC.

Do not exceed the rated operating capacity for your machine. Doing so could result in serious injury to the operator and or damage to the machine. The operating capacity ratings for the RCV are located on page 49.

***Note:** SAE J818 standards define operating capacity ratings for rubber tired skid steer loaders (50% tipping load) and tracked loaders (35% tipping load). There are no standards defining the operating capacity of machines equipped with suspended undercarriages or rubber tracks.*



Gross Vehicle Weight

The G.V.W. of the RCV should never exceed 14,800 lbs. during operation. This weight excludes an operator, but does include any accessories, attachments or material being moved. Operating the RCV in excess of the the G.V.W. will void the warranty.

Safety and Fire Prevention

Fire Prevention

The RCV has many components that operate at high temperatures. Steps must be taken to make sure that flammable items are kept clear of these components during operation. Failure to do so may result in a fire.



The main heat sources in the vehicle are the engine and the exhaust system. The electrical system could also be a source of heat/sparks if damaged or poorly maintained.

The RCV is designed to keep most items away from these heat sources. However, in some work environments, flammable items such as leaves, straw and brush cutting debris may still come in contact with them. It is very important that these flammable items be removed often from areas close to hot components. If debris is allowed to accumulate, a fire may result posing a risk to the operator and the machine. A fire can cause machine damage, severe injury or even death.

Listed are a set of precautionary tasks that should be performed daily or more often if necessary. Repair or replace worn or damaged components as needed to ensure safe machine operation.

Precautionary Tasks:

- With the engine off and cool, remove any debris present in the engine compartment and chassis area (under cab). Remove belly pans and pressure wash to properly clean these areas.
- Check the battery, fuse box, electrical wiring and connection points for damage or looseness.
- Check fuel lines for leaks or damage. Never allow open flame near fuel or fuel system components.
- Check hydraulic lines, hoses and fittings for damage or leaking fluid. Never use bare hands to check for leaks. Pressurized fluid can penetrate skin and cause injury or death.

!WARNING!

- Do not use ether or any other aerosol type starting aid to start the engine.
- Always stop the engine and allow the machine to cool prior to adding fuel.
- Do not smoke or allow open flame near the machine while refueling.

Instruments and Controls

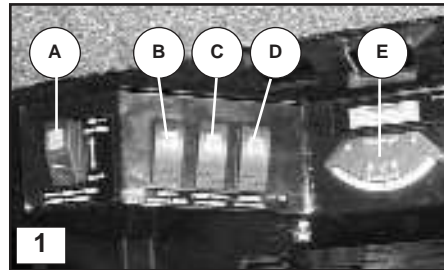
There are many instruments and controls involved in the safe operation of your RCV. Make sure to learn the location, function and proper operation technique for each of these items prior to operating your machine.

Instrument Panel

The instrument panel (fig. 1, 2) has been configured for visibility and ergonomic function.

The instrument panel includes:

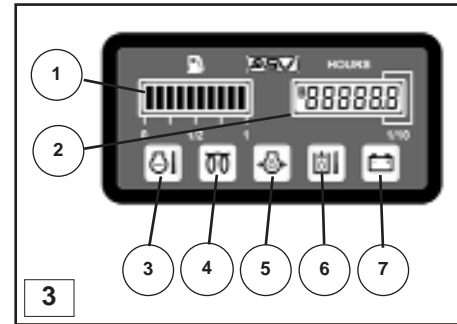
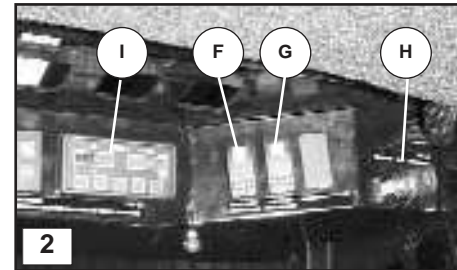
- A. Power quick attach switch
- B. Light switch, front and rear
- C. Front wiper switch (optional)
- D. Beacon/Accessory switch (optional)
- E. Slope indicator gauge
- F. High flow continuous switch
- G. Low flow continuous switch
- H. Ignition/glow plug switch
- I. Gauge/warning light display (fig. 3)
 - 1. Fuel level gauge
 - 2. Service hour meter
 - 3. Engine coolant temp. light



- 4. Glow plug operation light
- 5. Engine oil pressure light
- 6. Hydraulic oil temp. light
- 7. Battery low-voltage light.

The fuel level gauge and service hour meter operate at all times. The glow plug operation light should illuminate only when the ignition switch is turned to the pre-heat position. The warning lights should illuminate only when a problem has occurred indicating that diagnosis and repair are needed.

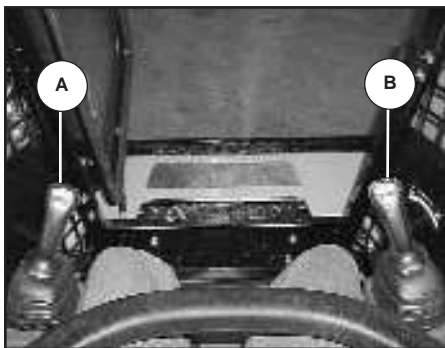
Pay close attention to the display during operation to ensure that all systems are functioning properly.



!CAUTION!

If a warning light illuminates during operation, shut the machine down immediately! Diagnose and make repairs before resuming operation.

Instruments and Controls



Lift arm and drive controls

The RCV is equipped with two hydraulic pilot joystick controls. The left joystick (A) is used to control track motion. Simply move the joystick in the direction you would like to go.

- To move the RCV forward, move the stick forward.
- To rotate the RCV to the left, move the stick to the left.
- To rotate the RCV to the right, move the stick to the right.

- To move the RCV in reverse, move the stick rearward.
- To **STOP** the RCV, release the left joystick and it will return to its neutral position, stopping the machine.

The right joystick (B) is used to control the lift arms and bucket or attachment movements.

- To raise the lift arms, move the stick to the rear.
- To lower the lift arms, move the stick forward to the first position.
- To curl the bucket or attachment upwards, move the stick to the left.
- To dump or curl the bucket or attachment downward, move the stick to the right.

The RCV is also equipped with a "float" function that allows the lift arms to rest in the lowered position with only their own weight acting as down force

on the bucket or attachment. Once engaged, there are no hydraulic forces acting on the lift arms; they are essentially floating. This function enables the bucket or attachment to follow the contours of the ground.

- To engage the "float" function, quickly move joystick (B) to the forward most position. Once float is engaged, the joystick will be held in place by a strong magnet acting as a detent.
- To disengage the float function, pull back quickly on the joystick.

Drive control options

The RCV is available with a "Case" control configuration that utilizes joysticks similar to those found in other ASV machines. However, they operate with a different control pattern. In this configuration, the right joystick (B) controls the right track and the bucket or attachment curl and dump functions.

Instruments and Controls

- To move the right track forward, move the stick forward.
- To move the right track in reverse, move the stick rearward.
- To curl the bucket or attachment, move the stick to the left.
- To dump the bucket or attachment, move the stick to the right.

The left joystick (A) controls the left track and the lift arm up and down functions.

- To move the left track forward, move the stick forward.
- To move the left track in reverse, move the stick rearward.
- To raise the lift arms, move the stick to the left.
- To lower the lift arms, move the stick to the right.
- To **STOP** the machine, release both joysticks.

The float function is still present with this control setup, but does not have a magnetic detent feature to retain the joystick in place during operation.

- To engage the float function, move the left joystick to the rightmost position and **hold manually in place**.
- To disengage the float function, move the left joystick back to the center position.

Throttle controls

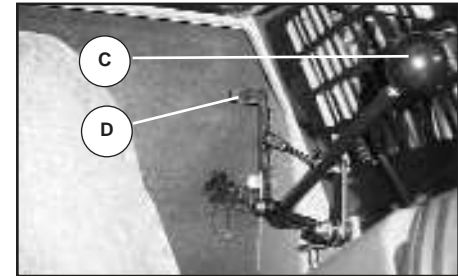
The throttle controls engine RPM. When performing work that requires delicate, precise movements, use a lower RPM. When more speed, horsepower, or flow is required, use a higher RPM. The RCV is equipped with hand operated lever type throttle mechanism.

- To increase RPM, move the hand lever (C) towards the front of the vehicle.

- To decrease RPM, move the lever towards the rear of the vehicle.

The RCV is also equipped with a foot operated throttle mechanism. It works much like the gas pedal in a car.

- To increase engine RPM, press the foot pedal (D) slowly towards the floor.
- To decrease RPM, release the foot pedal slowly to its idle position.

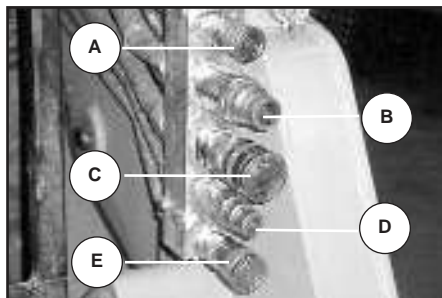


Instruments and Controls

Auxiliary hydraulic controls

The RCV is equipped with high and low flow auxiliary hydraulic circuits that allow for the use of hydraulic attachments. The RCV comes standard with a load sensing, variable displacement piston pump that displaces 20 G.P.M. in the low flow setting, and 38 G.P.M. in the high flow setting.

Caution: *It is very important to match G.P.M. ratings when utilizing attachments. If you use an attachment that is rated for more G.P.M. than is available in an auxiliary circuit, attachment performance will suffer. If you use an attachment that is rated for less G.P.M. than is available in an auxiliary circuit, you will overheat your hydraulic system and most likely damage your machine/attachment. ASV recommends using only attachments that are designed to work with your RCV.*

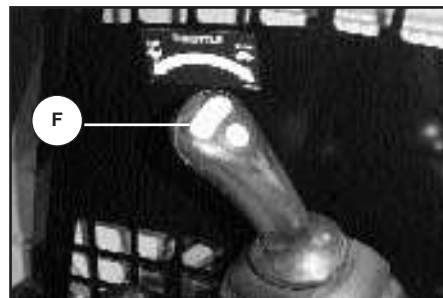


The couplers for the auxiliary circuits are located on the left side of the lift arms near the front of the machine. They are positioned from top to bottom as such:

- A. Case drain
- B. High flow
- C. High flow
- D. Low flow
- E. Low flow

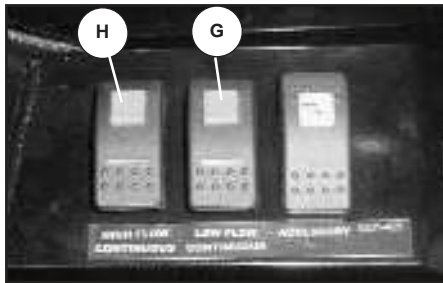
Low flow intermittent

The low flow auxiliary circuit can be utilized intermittently or continuously.



To activate the low flow auxiliary hydraulic circuit intermittently, depress the toggle type switch (F) located on the rearward side of the right joystick.

- To pressurize the upper low flow quick coupler, press the left side of the switch.
- To pressurize the lower low flow quick coupler, press the right side of the switch.
- To de-activate low flow intermittent operation, release the toggle switch and flow will cease.



Low flow continuous

To activate the low flow auxiliary hydraulic circuit continuously, depress the rocker type switch (G) located on the instrument panel.

- To pressurize the upper low flow quick coupler, press the top of the switch.
- To pressurize the lower low flow quick coupler, press the bottom of the switch.
- To de-activate low flow continuous operation, move the switch into the middle (neutral) position.

High flow

To activate the high flow auxiliary hydraulic circuit, depress the rocker type switch (H) located on the instrument panel.

- To pressurize the upper high flow quick coupler, press the top of the switch.
- To pressurize the lower high flow quick coupler, press the bottom of the switch.
- To de-activate high flow continuous operation, move the switch into the middle (neutral) position.

Note: The high and low flow auxiliary hydraulic switches are equipped with small orange locking devices. Their purpose is to lock the switches in their respective neutral positions when not in operation. These locking devices must be disengaged prior to use. To disengage, slide the locking device

downward. The switch can then be moved into the desired position.

Note: When connected to an attachment, the various auxiliary switches have the effect of reversing flow through their respective circuits when switched from one position to the other.

Instruments and Controls

Power quick-attach control

The RCV is equipped with a power quick-attach feature that allows the operator to fasten and unfasten attachments without exiting the machine.

- To lock the power quick-attach, depress the rocker-type switch (A) located on the instrument panel into the lock position.
- To unlock the quick-attach, move the switch to the unlock position.

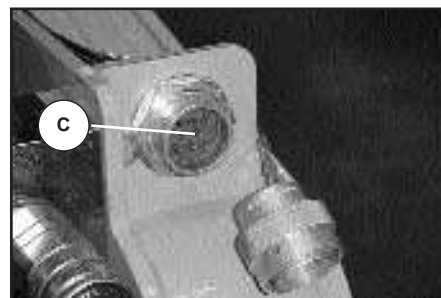
Note: The power quick attach control is equipped with a small orange locking device. The locking device must be disengaged in order to unlock the quick attach. To disengage, slide the locking device downward. The switch can then be moved into the unlocked position.



Electric attachment control

Most attachments for the RCV are controlled hydraulically, but some require electrical input as well. When electrical input is required, the four buttons (B) on the left drive control joystick can be utilized to send electrical current to the receptacle (C) located on the upper left side of the lift arms.

Note: ASV receptacle style and pin designation may differ from those utilized by other manufacturers. To ensure proper function, use only ASV approved attachments.



Pre-operation safety check

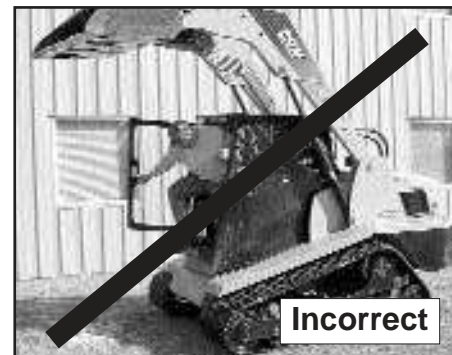
Before operating your RCV, perform a pre-operation safety check. Inspect the machine for any items that may affect safe operation.

Check to make sure:


1. Engine compartment, chassis and coolers are clean and free of debris. (see pages 8, 44)
2. Windows and lights are clean and unobstructed.
3. Tracks are in good condition.
4. Track tension is set correctly.
5. All fluids are filled to appropriate levels.
6. Battery cables are in good condition and securely fastened.
7. Fan belt is in good condition and properly tensioned.
8. Hydraulic hoses and fittings are in good condition. (No visible wear or leaks)



9. Joysticks and high/low flow auxiliary switches are in their neutral positions.
10. Power quick-attach is in locked position. (Visually verify)
11. Hood is closed and bystanders are clear of any moving parts.
12. All grease points have been lubricated.



!WARNING!

 **Entering or exiting the machine under raised lift arms can cause serious injury or even death. Never allow anyone to go beneath unsecured lift arms.**

Note: The parking brake is engaged automatically when:

- The engine is turned off.
- The lap bar restraint is in the raised position.
- The operator seat is vacant.

Starting and Operating

Starting procedure

Upon completion of the pre-operation safety check, if all items are in compliance, you are ready to start your RCV.

To start your RCV:

1. Enter the machine (lift arms in lowered position) from the front while maintaining at least 3-point contact with the machine at all times to ensure your safety. (2-hands, one foot or vice-versa)
2. Sit down into the operator seat, fasten the seat belt securely around your lower abdomen and lower the lap bar restraint into position.
3. If equipped, make sure the front door is closed securely.
4. From the SLOW position, move the throttle to 1/3 open by moving the hand lever forward approximately 1/3 of its travel.

5. Insert the key into the ignition switch and turn it to the left for approximately 6 seconds to pre-heat the engine. During this time, the glow plug operation light will illuminate.
6. Once the engine has been pre-heated, turn the key to the right and

!WARNING!



Failure to fasten your seat belt could result in serious injury or death.

!CAUTION!



Do not crank the engine for more than 20 seconds. Allow the starter to cool for two minutes before cranking again.

!WARNING!



Do not use aerosol type starting aids such as ether. Explosion may result.

hold to start the engine. Release the key as soon as the engine fires.

7. Once running, reduce throttle to a low idle by pulling back slowly on the throttle lever. Allow the engine to idle for 3-5 minutes to reach operating temperature.
8. Once the engine has reached operating temperature, set desired RPM by moving the hand lever into position.

Your RCV is now ready for operation.

!CAUTION!



Do not operate the lift arms while the hood is open. Machine damage will result.

Starting and Operating

Operating your RCV

Operating an ASV rubber track loader is intended to be as safe and simple as possible. The instruments and controls section of this manual covers the various controls used to operate the RCV. Each operator should take the time necessary to familiarize him/herself with the instruments and controls section prior to attempting to operate the machine.

This section covers safe operation procedures and some basic do's and don'ts to keep in mind while operating the RCV. In order to learn to operate the RCV correctly, it is very important that each operator read and understand this manual thoroughly. It is also very important to take the time necessary to become skilled in operating the RCV in accordance with its instructions. Do this in an open area that is free of potential hazards and bystanders to allow the operator space to practice without worry

of injuring people or damaging property including him/herself and the machine.

Dirt work

The RCV is a rubber track loader and although similar in design to a wheeled loader, there are some significant differences in operation technique that operators need to be aware of.

Tracks distribute machine weight throughout significantly larger contact areas than tires. The additional traction and floatation present with this design enable you to fill the bucket by slowly driving into a pile of dirt without having to depend on vehicle momentum to plunge into the pile.



Starting and Operating

Machine weight is more evenly distributed throughout the chassis as well providing significantly more down pressure at the front of the machine. This provides improved cutting and back dragging performance over competitive wheeled machines without the need to force the front of the machine off of the ground. Using the bucket to push the front of the machine off of the ground is not beneficial and will reduce traction and component life.

The lift arms on the RCV are meant to rest against the frame while leveling or digging. Utilizing your machine in this manner will minimize stress on components and maximize machine performance and efficiency.

To dig properly: (fig. 1)

1. Lower the lift arms until they rest on the frame.
2. Tilt the bucket forward until the cutting edge engages the ground.



3. Begin moving the machine forward making slight bucket angle adjustments as necessary to vary cut depth.

Caution: Never push dirt with the bucket tilted completely forward into the “dump” position as if using a dozer. Damage to the machine may result.

To back drag properly: (fig. 2)

1. Tilt the bucket forward until the bottom surface of the bucket is at the desired angle (45° or less) to the ground.



2. Lower the lift arms until the cutting edge of the bucket engages the soil.
3. Engage the float function and begin moving backward making slight bucket angle adjustments as necessary to vary surface finish.

Caution: Never back drag with the bucket tilted completely forward into the “dump” position. Bucket angle should not exceed 45° from the bottom surface of the bucket to the ground during back drag.

Operating on inclines

Extreme caution must always be used when operating on inclines. The RCV works well on inclines, however you should never operate the RCV on a slope in excess of 15°. Do not make any sudden changes in direction when operating on an incline. Use caution, go slowly and carry loads low.

Fastening attachments

To fasten an attachment:

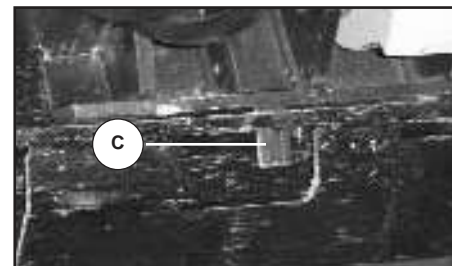
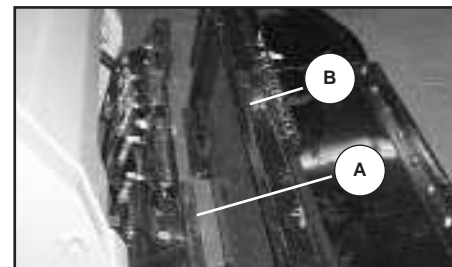
1. Move the power quick-attach switch into the “unlock” position.
2. Drive the RCV to the attachment and hook the top edge of the quick-attach (A) under the upper lip of the attachment (B).
3. Curl the quick-attach slowly upward by moving the right drive control joystick to the left until the attachment is properly mated with the quick-attach mechanism on the RCV. (Curl all the way to be sure)

4. Once the attachment is properly mated, move the power quick-attach rocker switch located on the instrument panel to the “lock” position. This will activate the locking cylinders and lock the attachment securely to the quick-attach mechanism.

Note: When fastening an attachment, always perform a visual check to verify that the attachment is locked in place prior to use (C).

To unfasten an attachment

1. Lower the lift arms so that the attachment is just barely off of the ground.
2. Move the power quick attach switch to the “unlock” position.
3. Lay the attachment gently onto the ground by moving the right drive control joystick slowly to the right.
4. Once the attachment is in contact with the ground, move the right



drive control joystick gently to the right until the quick-attach is clear of the attachment.

5. Back the RCV away from the attachment.

Maintenance

Precautions

Your RCV requires periodic maintenance to ensure proper performance and prevent costly down time. When service is required, ASV recommends that all work be done by an authorized ASV Dealer.

If you perform maintenance on your own machine, you should familiarize yourself with the information provided in this section on general maintenance for your RCV. Incorrect or incomplete service may cause improper or unsafe vehicle operation.

Problems caused by incomplete or improper maintenance are not eligible for warranty coverage.

Safety warnings

Take extreme caution when performing service work on your RCV. Serious injury may result if the following guidelines are not followed.

- Always select a safe area to perform maintenance on your RCV.
- Always select the proper tools for the work to be performed.
- Never work on a machine supported only by a jack. Always use ASV approved jack stands to support vehicle weight while performing service work.
- Never work under raised lift arms unless supported by ASV approved lift arm braces.
- Always remove attachments prior to working underneath your RCV.
- Never run the engine in a poorly ventilated area. Exhaust fumes are fatal when inhaled in sufficient quantities.
- Never smoke or allow open flame near flammable liquids or the battery. Fire or explosion may result.
- Always allow the engine to cool before performing service work. Engine parts become very hot during operation and may cause burns if not allowed to cool sufficiently.
- Do not spill flammable liquids on hot engine parts. Fire may result.
- Do not perform maintenance on your RCV with the engine running unless instructed to do so by your ASV service manual. Moving engine parts pose a safety risk and can cause injury or death if proper precautions are not taken.

Air cleaner

Your RCV rubber track loader is equipped with two air filter elements to remove contaminants from the air your engine uses for combustion. Regular inspection and replacement of the filter elements is necessary to ensure proper performance and to prolong engine life.

To remove and inspect your air cleaner elements:

1. Turn the engine off.
2. Open the hood at the rear of the RCV to gain access to the engine compartment.
3. Locate the black plastic air cleaner enclosure near the top left of the engine compartment (when viewed from the rear).
4. Remove the cover by pulling out on the yellow slide-lock (A) located near the top of the air cleaner enclosure. Then rotate the cover counter-clockwise approximately

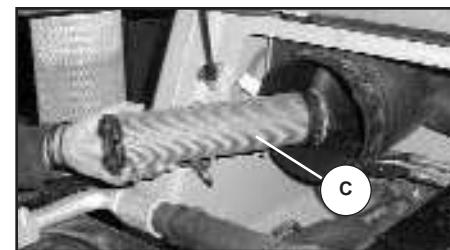
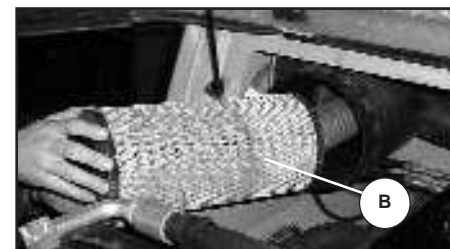
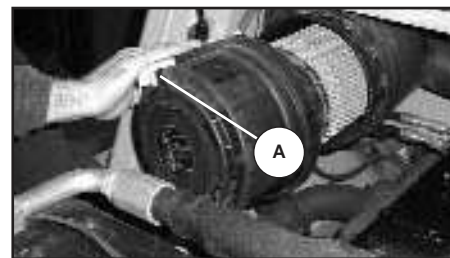
1/8 turn and remove. The primary element (B) should be exposed.

5. Remove the primary element and inspect it. If it appears damaged in any way, replace it. If the element is heavily soiled, replace it. If it appears to be in good condition, clean if necessary and re-install.
6. Once the primary element has been removed, the secondary element (C) should be visible. Remove and inspect it. If the element is damaged or heavily soiled replace it.

Note: The secondary element is not serviceable. It should be replaced after every three cleanings of the primary filter.

Note: The primary element may be cleaned and reused up to five times if properly maintained, but should be replaced at least once a year.

(continued on page 22)



Maintenance

7. Once the inspection has been performed, install the new secondary filter element into the enclosure as found upon disassembly.
8. To ease installation, insert the primary element into the cover and then install the cover/primary element assembly by sliding it into place in the enclosure as found upon disassembly.
9. Then secure the cover by turning it clockwise approximately 1/8 turn and pushing the yellow slide lock in until flush with the outside of the cover. Gently wiggle the cover to make sure it is secure.




To clean your primary filter element:

1. Remove loose dirt from the filter element with compressed air or water hose.
Compressed air: 100 P.S.I. max. 1/8" diameter nozzle at least 2" away from filter.
Water: 40 P.S.I. max. without nozzle.
2. Soak the filter in a non-sudsing detergent solution for at least 15 minutes moving it gently through the solution to further clean the element. (Never soak for more than 24 hours.)
3. Rinse the filter thoroughly with a gentle stream of water to remove all dirt and remaining detergent.
4. Allow the filter to dry completely before re-installing it into the RCV.

Caution: Do not use any heat source other than warm air at less than 160°F to dry the filter.

!CAUTION!

 Do not clean air filter elements while engine warranty is in effect. During the warranty period, ASV recommends replacing air filter elements instead of cleaning them. Heavy-duty air filter manufacturers will not warrant the air filter once it has been cleaned.

Grease fittings

The RCV is equipped with grease fittings at hinge and pivot points throughout the machine. The illustration below shows the location of all fittings

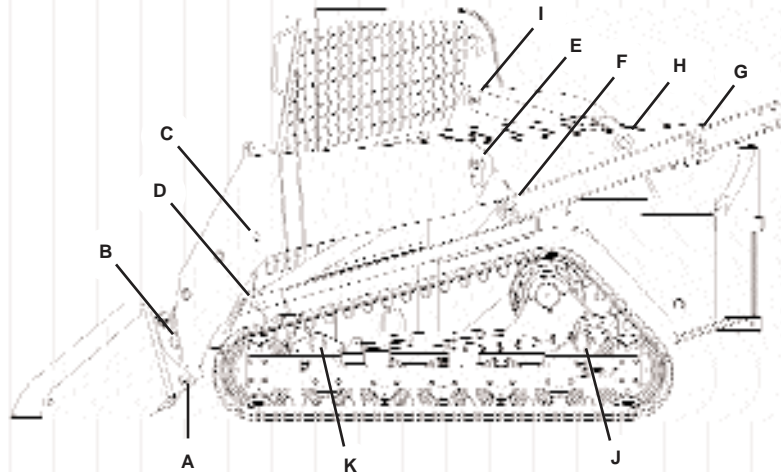
on the left side of the machine. An identical fitting exists on the right side of the machine for each identified in the illustration. Lubricate all fittings daily or after every 10 hours of operation to

ensure proper operation and maximize component life.

Grease Fitting Locations

- A - Quick-Attach Hinge Point (2)
- B - Lower Quick-Attach Cylinder Pivot (2)
- C - Upper Quick-Attach Cylinder Pivot (2)
- D - Lower Lift Cylinder Pivot (2)
- E - Upper Lift Cylinder Pivot (2)
- F - Lower Torque Arm Hinge Point (2)
- G - Upper Torque Arm Hinge Point (2)
- H - Lower Control Arm Hinge Point (2)
- I - Upper Control Arm Hinge Point (2)
- J - Rear Axle Pivot (2)
- K - Front Axle Pivot (2)

Grease Fittings Daily



Maintenance

Undercarriages

The undercarriage assemblies in the RCV typically operate in harsh working conditions. They work in mud, gravel, debris and various other abrasive materials during operation. ASV recommends a daily inspection of the undercarriage assemblies and cleaning if necessary.

Materials that are particularly sticky or abrasive like clay, mud, or gravel should be cleaned from the undercarriages more often to minimize component wear. A pressure washer works well for cleaning materials from the undercarriages. At times when a pressure washer is not available, use a bar, shovel or similar device to remove foreign materials.

When cleaning, pay particular attention to the drive motors/sprockets and the front and rear wheels where debris is likely to accumulate. If

working in scrap or debris, inspect more often and remove foreign objects that may wrap around or lodge themselves between components causing premature wear and damage.

Operating the RCV in loamy sand or on turf or other finished surfaces may require less frequent cleaning, but daily inspection is still advised.

Track Tension

Proper track tension must be maintained for optimal performance and track/undercarriage life. Running a track that is too loose may cause the track to misfeed possibly causing damage to the track and or undercarriage components. Running a track that is too tight may cause track stretch, premature bearing failure, or other preventable damage to the machine. As a rule, a track should only be tightened to the point where there is no visible sag. Never tighten your tracks beyond this point.

***Note:** During the first 50 hours of operation the tracks will "break-in" and will most likely require adjustment.*

To check track tension:

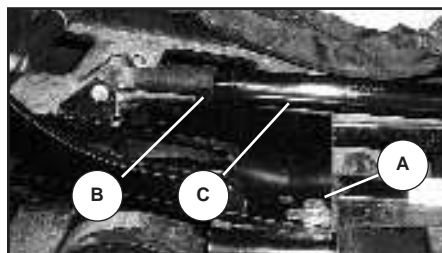
1. Drive the machine forward 5 feet to remove belt slack from the lower and rearward portions of the track.
2. Lay a straight edge along the top of the track bridging the drive sprocket and front idler wheel.
3. Apply 90 lbs. of down force to the track by either placing weight on top or hanging it using rope or wire midway between the drive sprocket and front idler.
4. Measure from the bottom of the straight edge to the lug surface (top) of the track. The deflection should measure between $\frac{3}{4}$ " and 1" if properly adjusted. (fig. 1)



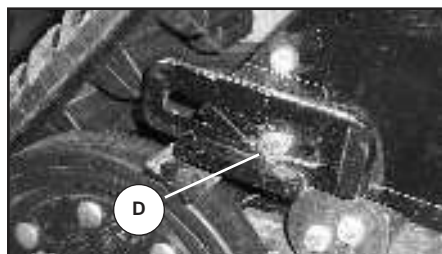
To adjust track tension:

1. Loosen the two bolts (A) securing the front of the drive table.

***Note:** If the mounting slots in the drive table do not provide enough adjustment to achieve proper track tension, the bolts may be relocated to one of three pairs of threaded mounting holes located in the undercarriage directly beneath the drive table.*



2. Once these bolts have been loosened or relocated, loosen the lock nut (B) on the turnbuckle (C) and adjust by turning the turnbuckle itself.



3. Once proper tension has been achieved, tighten the turnbuckle lock nut and the two bolts securing the front of the drive table to complete the procedure.
4. Repeat the adjustment procedure on the other side of the machine if necessary.

***Note:** The two bolts (D) securing the rear of the drive table do not need to be loosened to adjust track tension. They support the rear of the drive table via bushings that follow their respective slots as the track is tightened or loosened.*

***Note:** Tensioning can also be performed during track installation prior to installing the turnbuckle. Do this by pushing the drive table (all four bolts installed, but front two loose) backward with a port-a-power until proper track tension is achieved. Once in place, measure the track deflection to check tension and then install the turnbuckle, turning as needed to align mounting sleeves and bracket holes. Install pins and clips to secure the turnbuckle in place and then tighten the turnbuckle lock nut and the two front drive table bolts. Repeat procedure on the other side of the machine if necessary.*

Maintenance

Drive sprocket rollers

ASV rubber track loaders utilize rollers on the drive sprockets to drive the track. These rollers help minimize friction between the track and the drive sprocket to prolong track life.

The rollers rotate around hardened steel pins and usually wear on their inside surfaces. As they wear, the rollers become thinner, but will continue to function as long as they rotate freely

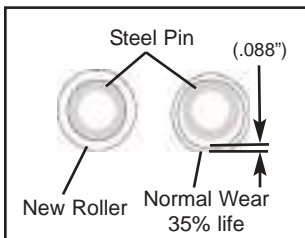
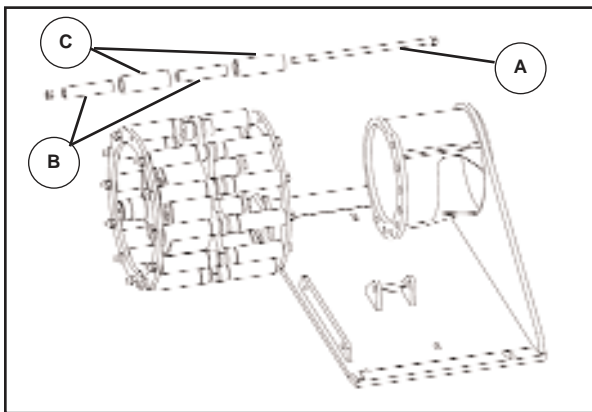
around the pins. Sprocket rollers should be inspected every 50 hours of operation and replaced if cracked or worn to less than 35% of original thickness. (.088")

To replace worn rollers:

1. With the machine turned off and parked in a safe working area, follow steps 5-11 in the track removal procedure on page 30 and 31 to expose the sprocket for roller replacement.

2. Remove the bolt (A) holding the steel pins (B) and rollers (C) in place. The pins and rollers will then fall free from the sprocket.
3. Install the new rollers over the pins.
4. Slide the bolt back through the sprocket and pins and tighten.
5. Repeat this procedure as necessary throughout the sprocket.
6. Follow steps 10-14 in the track installation procedure on page 34 to re-install the drive table and prepare the machine for track tension adjustment.
7. Repeat steps 1-6 on the other side of the machine if necessary.
8. Perform the track tension adjustment procedure on page 25 to complete the procedure.

***Note:** ASV recommends replacing rollers as a set to simplify inspection and maintain proper sprocket function.*



!WARNING!

Turn machine off, remove key and disconnect battery prior to performing this procedure.

Tilt-up canopy

The ROPS/FOPS approved canopy (A) tilts up to allow easier access while performing service work. It features a gas spring assist and a brace mechanism to hold it in place while tilted.

To tilt the canopy:

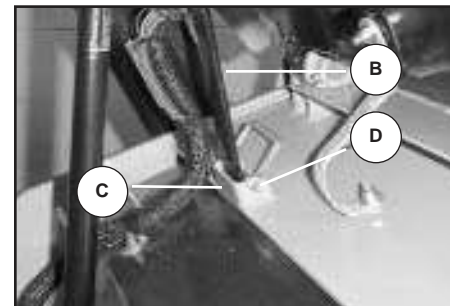
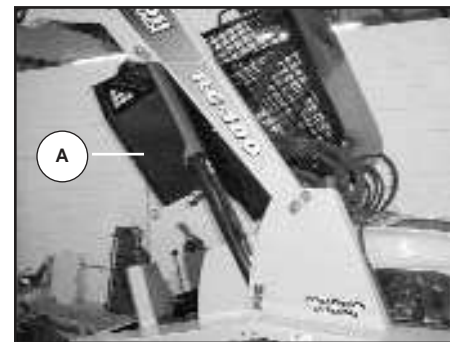
1. Remove any attachments that may be fastened to the machine.
2. Raise the lift arms and secure them with the lift arm braces.
(See page 29.)
3. Remove the four bolts that fasten the canopy to the frame. They are located along the lower edge of the canopy, two on each side.
4. Once the bolts have been removed, tilt the canopy slowly upwards. The canopy brace (B) should fall against the bracket (C) located directly below the canopy.

5. Remove the pin (D) from its stowed position.
6. Install the pin into the bracket behind the brace to lock the brace in position.

The canopy is now secure.

To lower the canopy:

1. Remove the locking pin to free the brace from the bracket.
2. Push the brace back against the bottom of the canopy and re-stow the pin in the sleeve for later use.
3. Keep pressure on the brace and pull the canopy down until the brace is angled back enough to slide and allow the canopy to be lowered.
4. Lower the canopy completely and then fasten it to the frame with the four bolts removed previously.
Tighten to specification.



Maintenance

Jacking procedure

Occasionally, your machine may need to be suspended off of the ground to perform maintenance. Use extreme caution when jacking your RCV. Always use a jack that is capable of lifting your machine and support its weight with ASV approved jack stands while suspended. Never work on a machine supported only by a jack.

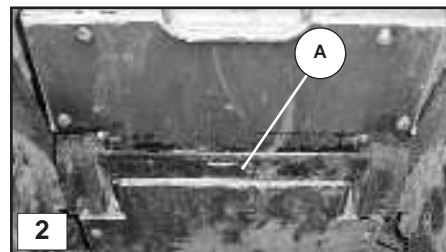
To safely jack your RCV:

1. Remove any attachments that may be fastened to the machine and raise the lift arms.
2. Install the lift arm braces as instructed on page 29.
3. Once the lift arms are secured, carefully exit the machine.
4. Roll or slide your jack under the front of the RCV and center the lifting pad directly under the middle of the front torsion axle (A). (fig. 1,2)

5. Once in place, jack the machine upward making sure it remains stable until it has reached sufficient height to install an ASV jack stand beneath the machine.
6. Slide the jack stand into place making sure it is centered under the machine (left to right when viewed from the front) and far enough back for the machine to remain stable when the jack is lowered and the front of the machine rests on the stand. (fig. 3)
7. Once the stand is in place, slowly lower the machine onto the stand and then remove the jack.

Repeat steps 4-7 at the rear of the machine should both ends of the loader need to be off of the ground for service.

Caution: Lift your RCV under the torsion axles only! Jacking the machine in any other place will cause damage.



Lift arm brace installation

The lift arm braces (A) are intended to keep service personnel safe when it is necessary to work on a machine with the lift arms in the raised position. It is not safe to rely on the hydraulic system to hold the lift arms in the raised position just as it is not safe to crawl under a machine supported only by a jack. The lift arm braces are used to support the weight of the lift arms much like jack stands are used to mechanically support vehicle weight. **Do not work on or near the RCV with the lift arms in the raised position unless both lift arm braces have been correctly installed.**

To install the lift arm braces:

1. Park the RCV on level ground in a safe area for performing service work.
2. Remove any attachments that may be fastened to the quick attach.

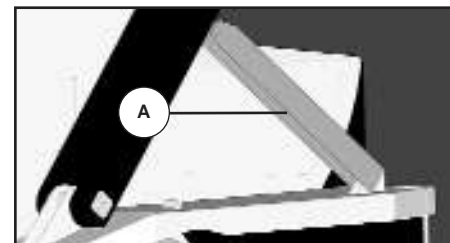
3. Have an assistant remove the front retaining pins (B) securing the lift arm braces to the RCV. The shocks will then force the braces upward against the torque arms.
4. Make sure bystanders are clear of the lift arms, then raise them to the upper limit. The braces will follow the torque arms and automatically set themselves into position.
5. Have an assistant verify that the lift arm braces are in position.
6. Lower the lift arms slowly until they come to rest on the braces.
7. It is now safe to shut the engine off and exit the machine.

To remove the lift arm braces:

1. Start the machine and raise the lift arms until they are clear of the braces.
2. Once clear, have an assistant push the braces back into their stowed

positions on the machine and install the retaining pins to secure them in place.

3. Once the braces have been stowed and the assistant is clear of the lift arms, lower the arms to the ground and shut the engine off to complete the procedure.



Maintenance

Track removal/installation

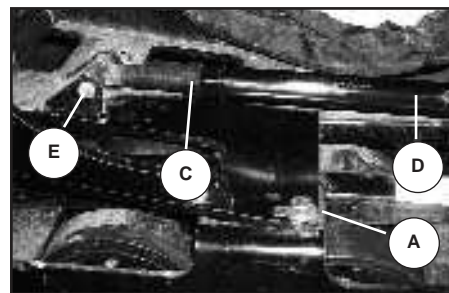
Tracks may need to be removed periodically to inspect undercarriage components or for replacement if worn or damaged. This section covers the procedure to remove and install a track on your RCV.

Tools required:

- Socket/impact wrench
- Ratchet strap
- Heavy duty hydraulic jack
- Combination wrench
- Long pry bar(s)
- ASV approved jack stands (2)
- Spray lubricant
- Hammer
- Punch
- Port-a-Power
- Track installation tool (P/N: 0703-138)

Track removal

1. Remove any attachments that may be fastened to the machine and raise the lift arms.
2. Install the lift arm braces as instructed on page 29 to secure the lift arms in the raised position.
3. Once the lift arms are secured, carefully exit the loader.
4. Jack the machine following the jacking procedure on page 28 to allow sufficient clearance for track removal.
5. Remove the two bolts (A) that fasten the drive table to the undercarriage frame rail.
6. Remove the two drive table alignment bolts (B) located on both sides of the rear of the drive table.
7. Loosen the lock nut (C) on the turnbuckle (D) and relieve tension on the turnbuckle mounting pins by turning (loosening) the turnbuckle.



8. Remove the two mounting pins (E) securing the turnbuckle to the undercarriage frame and drive table and then remove the turnbuckle.
9. Now that the drive table is unfastened, attach a ratchet strap to the drive sprocket and

undercarriage frame and carefully pull the drive table forward until the pivot hole in the outer front corner is directly beneath the hole in the drive table pivot bracket. (fig. 1)

10. Once the drive table is in position, insert a long bolt through the pivot bracket, drive table pivot hole and frame rail. (fig. 2)

11. Once the bolt is in place, insert a pry bar between the drive sprocket and track and lift the track drive lugs clear of the sprocket. Then use a second bar to pivot the drive table out from underneath the track until it is perpendicular (90°) to the undercarriage. (fig. 3, 6)

12. Now that the drive table is clear of the track, lubricate the front and rear most idler wheels with a spray lubricant to aid in sliding the track over them during removal.



13. Working from the inside of the track (as shown), wedge a pry bar under the upper portion of the track and over the top of the inside front idler wheel and peel the track over each wheel towards the outside of the machine. (fig. 4, 5)

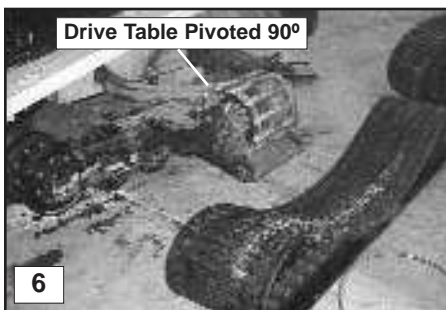
***Note:** It may be helpful to have an assistant take up the slack beneath the undercarriage by lifting or prying it up to the idler wheels. This will create more slack in the front of the machine to help the track clear the idler wheels.*

(continued on page 32)



Maintenance

14. Once the track has been pulled clear of the front idler wheels it should easily clear the rest of the undercarriage. Remove the track from the machine. (fig. 6)



Track installation

1. Lift the top portion of the track over the drive table and sprocket towards the undercarriage then slide the rest of the track up to the undercarriage.
2. Once in position, remove the two wheel shaft keeper bolts retaining the second wheel assembly from the front. These two bolt holes will be the mounting locations for the track installation tool. (fig. 7)
3. Install the track installation tool pivot base by placing it against the outer side of the wheel plate. Then install the two long bolts supplied with the tool through the wheel plate and into the threaded wheel shaft keeper plate. (fig. 8)

Note: The wheel shaft keeper plate may fall out from between the wheel and outer wheel plate when the bolts are removed. If this occurs, reinstall it, holding it in place and lift up under the

wheel to aid in aligning the holes when installing the pivot base.

Note: The mounting holes on the track installation tool pivot base are slotted. This allows the technician to angle the base slightly upward to achieve the proper angle for the track lugs to clear the idler wheels during installation.



4. Lubricate the front and rear most idler wheels with a spray lubricant. You may also want to lubricate the inside of the track drive lugs to make installation easier. (fig. 9)



5. Install the half moon and lever portion of the installation tool with the supplied bolt and nut.
6. Set the half moon inside of the track and pull on the lever until the lugs clear the wheel and the track slips over. (fig. 10)

Note: If you are having difficulty, check to see if the drive lugs are contacting the idler wheels on either the top or bottom when you are prying with the lever. If they are, you may need to adjust the angle of the pivot base to help ease the track over.

7. Once the first set of drive lugs in the front are over the idler wheel, remove the track installation tool from the front of the machine and repeat steps 2,3,5 and 6 at the rear of the machine to work the rear portion of the track over the idlers. (fig. 11)

Note: The track installation tool is reversible and mounts similarly on either end of the undercarriage.

8. At this point the track is about half way on. Remove the track installation tool once again and re-install it in the front following steps 2,3,5 and 6 to finish working the front of the track into place.
9. Once the front of the track is completely on, remove the track installation tool and re-install it in the rear. Follow steps 2,3,5 and 6 once again to finish working the rear of the track into place.



Maintenance

10. Now that the track is in place, use a pry bar to pivot the drive table up to the point that it will enter the track.
11. Insert a second pry bar between the top of the drive sprocket and the inside of the track to lift the drive lugs clear of the sprocket. Then resume pivoting the drive table into place. (fig. 12)
12. Once the drive table is in place under the track, remove the pivot bolt and push the drive table back to its operating position using a port-a-power. You may have to re-position the port-a-power several times to accomplish this. (fig. 13)



13. Now that the drive table is in its operating position, install the rear drive table alignment bolts and the front mounting bolts to secure the drive table in place. Do not tighten the front mounting bolts completely to allow for the track adjustment procedure.
14. At this point you are ready to re-install the turnbuckle. Do this by aligning the turnbuckle mounting sleeves with the brackets in the undercarriage and installing the mounting pins and retaining clips. (fig. 14)



If the other track needs to be installed, repeat this process on that side of the machine. Once both tracks are installed and ready for tension adjustment, perform the track tension adjustment procedure on page 25. (See note in the track tension adjustment procedure for the quickest tensioning method while installing the tracks.)

Engine oil/filter change

Regular oil changes are necessary to maintain a strong running engine. The normal interval between oil changes is 250 hours or six months. Machines that are operated under severe conditions should have their oil changed more frequently. ASV recommends oil change intervals of 100 hours or every three months for these machines. Severe conditions may include: continuous high load applications, operation in high temperatures or abnormally dusty/dirty conditions.

To change the oil and filter:

1. Start and run the engine for a few minutes to warm the oil. Then turn the engine off before proceeding.
2. Place a suitable container under the engine oil drain plug to catch the used oil as it drains.



3. Remove the access hole cover in the belly pan beneath the engine. (fig. 1)
4. Then remove the drain plug from the oil pan and allow the used oil to drain completely from the engine. Make sure to use the correct size combination/socket wrench to keep the drain plug in reusable condition. (fig. 2)
5. Remove the engine oil filter by hand or with strap if necessary. (fig. 3)



(continued on page 36)

Maintenance



Caution: If the old filter gasket (A) is not removed from the filter head and the new filter is installed on top of it, an oil leak will result when the engine is started. If unnoticed, the engine can run itself out of oil causing engine failure.

6. Once the filter has been removed, check to make sure the rubber gasket has come off of the filter head with the old filter. If it is not on the old filter, check the filter head. If it is still on the filter head, remove it prior to installing the new filter. (fig. 4)

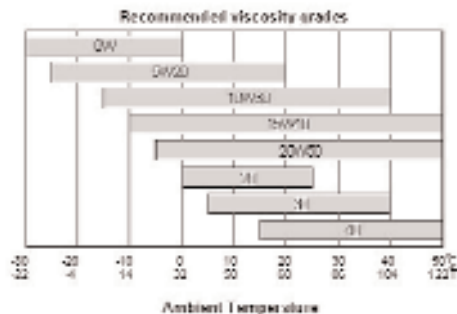


7. Prepare new filter for installation by rubbing fresh oil on the exposed surface of the filter gasket.
8. Thread the new filter onto the filter head. Tighten the filter **by hand** as instructed by the label located on the filter or filter box.
9. Re-install the oil drain plug into the pan and tighten to 50 +/- 10 lb ft.
10. Remove the oil filler cap and fill the engine crankcase with ASV Posi-Lube™ 10W-30 Heavy Duty Engine Oil (capacity: 8.5 U.S. quarts including filter). (fig. 5)
11. Install the oil filler cap and tighten.

12. Perform a visual inspection to make sure the drain plug, filter and oil filler cap are in place and tight.
13. Start the engine and watch the oil pressure indicator light located on the display panel. It should illuminate when the key is turned to the on position and go out shortly after the engine is started. If it stays on, turn the engine off immediately and look for any problems. If it goes out as expected, oil pressure has been achieved.
14. Once the engine is running, perform a visual inspection to make sure there are no leaks or other visible problems.
15. If everything looks like it should, shut the engine down and exit the machine.
16. Re-install the access hole cover.
17. Perform the oil level check procedure on page 37.

Engine Oil Specifications

ASV recommends using Posi-Lube 10W-30 Heavy Duty Engine Oil for most conditions. In the event of an alternate working environment, the following chart may be used as a guide to oil viscosity grades.



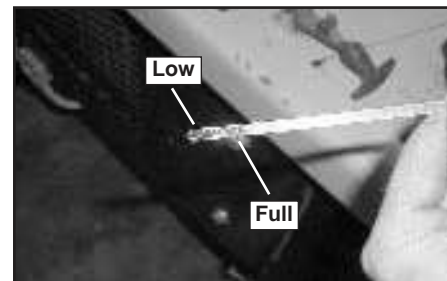
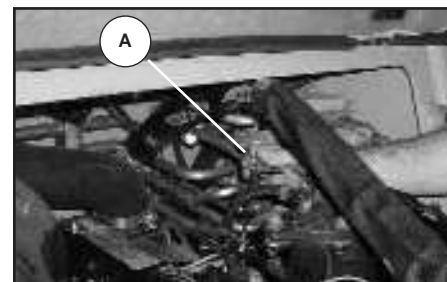
You may also use a quality engine oil substitute meeting the following minimum specification:

- API CH-4 multigrade engine oil.

Oil level check

To check the oil level:

1. Park the RCV on level ground.
2. Open the hood to gain access to the engine compartment.
3. Locate and remove the engine oil dipstick (A) from its tube.
4. Wipe the dipstick with a clean shop cloth and re-insert it into the tube until it comes to rest in its seated position.
5. Remove the dipstick once again and inspect the end for oil on the level indicator.
6. Oil should be present on the dipstick up to, but not over the upper (full) level indicator notch. If the level is correct, re-install the dipstick and then close and latch the hood to complete the procedure.
7. If the level is low, add the proper grade and viscosity engine oil and



re-check as necessary until the proper level has been achieved. Then re-install the dipstick and filler cap and close and latch the hood to complete the procedure.

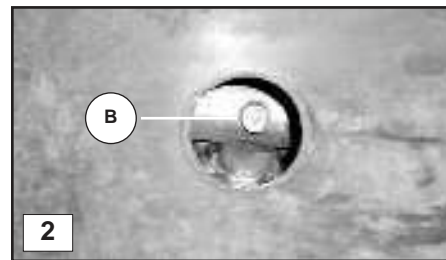
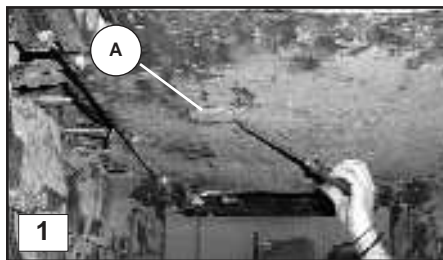
Maintenance

Hydraulic fluid/filter change

Hydrostatic components require extremely clean oil in order to have a long service life. Use extreme caution when changing the hydraulic oil. Introducing dirt or debris could be detrimental to the hydraulic system. ASV recommends service intervals of 500 hours for hydraulic fluid and 250 hours for hydraulic fluid filters.

To change the hydraulic fluid:

1. Remove the small cover (A) from the access hole located in the belly pan near the front of the RCV with a screwdriver or other prying device. (fig. 1)
2. Remove the drain plug (B) using the correct size allen type wrench or allen socket to avoid damaging the drain plug. (fig. 2)
3. Drain the hydraulic fluid into a suitable catch container.



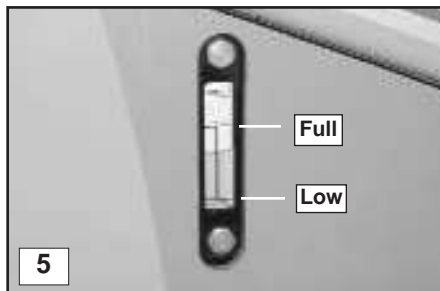
4. Locate the two hydraulic filters in the right rear corner of the engine compartment. (fig. 3)
5. Thoroughly clean around the filters to prevent dirt or debris from entering the system and remove the filters by hand or with a strap as required.
6. Check to make sure the filter gaskets are still present on the old filters. If not, check the filter heads to make sure they are free from old gasket material prior to installing the new filters.



7. Prepare the new filters by rubbing a small amount of fresh hydraulic oil onto the filter gasket surface and then threading them onto their respective filter heads. Tighten filters by hand as instructed by label located on the filter or filter box.



8. Install the hydraulic system drain plug and tighten.
9. Install the access hole cover into the belly pan.
10. Remove the hydraulic reservoir filler cap and fill the hydraulic system with ASV Posi-Lube Premium All Season MV Hydraulic Oil or equivalent until the full mark on the hydraulic fluid sight gauge has been reached. (fig. 4,5)
11. Install the hydraulic reservoir filler cap and tighten.



12. Start the RCV and operate all hydraulic circuits to work any trapped air out of the system.
 - Drive the RCV forward and backward.
 - Raise and lower the lift arms (unloaded).
 - Dump and curl bucket/quick attach.
13. Once you have purged the air from the system, check the level on the hydraulic fluid level sight gauge. If the level is low repeat step 10 and 11 to complete the procedure.



Case drain filter

The RCV is also equipped with a filter in the auxiliary circuit case drain line. It protects the main hydraulic system in the event of catastrophic failure in an attachment. This filter is designed to last the life of the vehicle. The only instance where this filter should be replaced is if an attachment equipped with a case drain has a drive motor failure during use. (fig. 6)

Maintenance

Fuel filter

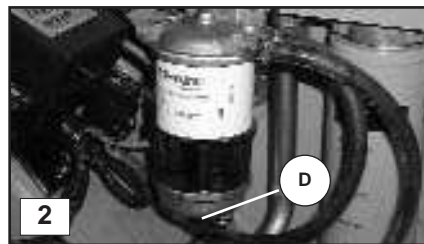
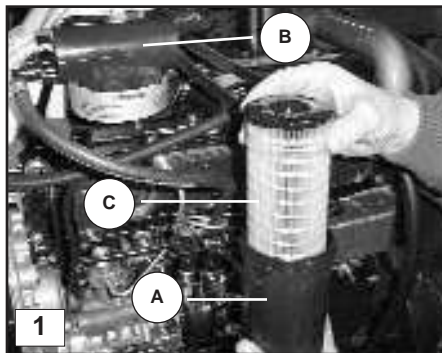
The fuel filter removes contaminants from the fuel as it enters the engine for combustion. Over time the filter can become plugged and cause the engine to lose power, run roughly or fail to start. The fuel filter should be changed every 500 hours or more often if needed to prevent these conditions from occurring.

To change the fuel filter:

1. Clean the outside of the filter housing (A) thoroughly to reduce the chances of contaminants being introduced into the fuel system.
2. Twist the housing counter clockwise (when viewed from the bottom) and remove it from the fuel pump (B).
3. Then remove the filter element (C) from the housing by holding the housing firmly in one hand and pushing down on the filter element while turning it (the filter) counter clockwise within the housing. Turn

approximately 90° and then remove the filter from the housing. (fig. 1)

4. Once removal is complete, insert a new filter element into the housing. Press down on the element and turn it clockwise approximately 90° to seat it.
5. Reinstall the filter/housing assembly onto the filter head by threading it onto the head until the housing shoulder contacts the head. Then turn ¼ turn (90°) past this point to seat the housing.



Water separator

The water separator removes water from the fuel supply as the engine runs. It collects the water in a bowl equipped with a drain valve. Drain the bowl daily to maintain proper function.

To drain the water separator:

1. Twist the drain valve (D), located at the bottom of the water separator counter clockwise (when viewed from the bottom) to allow the collected water to drain. (fig. 2)
2. Once all of the water in the bowl has been drained, twist the drain valve clockwise to close it.



Fuse panel

The electrical system in the RCV is equipped with fuses that protect the electrical components from damage. They are located in the fuse panel on the right side of the engine compartment. (fig. 3)

In the event of an electrical malfunction, the most logical place to start is at the fuse panel. Check the fuse related to the problem you are having and inspect it. If the fuse appears black and burned, it needs to be replaced. Replace fuses with the correct amperage replacement fuse only. Replacing a fuse

with one of a lower amperage rating may lead to premature fuse failure. Replacing a fuse with one of a higher amperage rating may burn out the electrical component the fuse was meant to protect. See the troubleshooting section in this manual for an additional resource to aid in tracking suspected electrical problems.

Belt Tension

Drive belts typically stretch and wear during their service life. The fan and A/C belts should be checked for tension, condition and presence daily prior to operating your machine.

To check fan and A/C belt tension:

1. With the engine cold and off, remove the key from the ignition to avoid accidental start.
2. Lift the hood at the rear of the machine and check to make sure the fan belts are present on the pulleys.



3. Lay a straight edge across the alternator and crank pulleys and apply a force of 10 lbs midway between the pulleys. (fig. 4)
4. Measure the distance from the bottom of the straight edge to the top surface of each belt (deflection). Belt deflection should measure (.39") if properly tensioned.
5. If the belts are loose or tight, adjust the tension until correct.
6. Also visually inspect the belts. If they appear excessively worn, or cracked, replace them.

Note: Replace the belts as a pair.

Maintenance

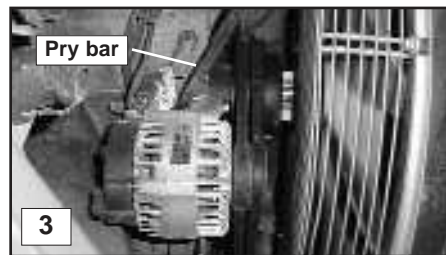
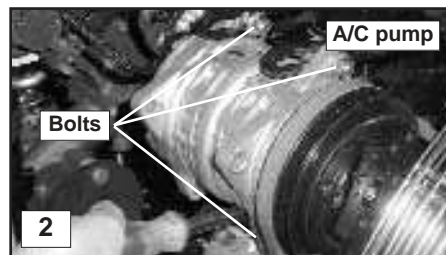
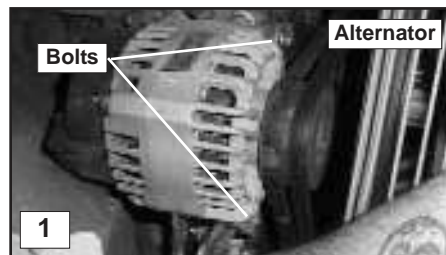
To adjust fan or A/C belt tension:

1. Make sure the engine is cold, off, and the key has been removed from the ignition to avoid accidental start.
2. Lift the hood at the rear of the machine and loosen the bolts securing the alternator or A/C pump slightly to allow the alternator or A/C pump to pivot. (fig. 1,2)
3. Once loose, use a small pry bar as a lever to force the alternator or A/C pump against the belt(s) to increase belt tension to appropriate level then tighten bolts to specification. (fig. 2, 3)
4. Check the tension by following the procedure listed on page 41.
5. Re-adjust belt tension as necessary until tension is correct.

Fan belt removal/installation

To remove the fan or A/C belt:

1. Follow steps 1 and 2 of the belt adjustment procedure.
2. Once loose, pivot the alternator or A/C pump towards the engine to increase the slack in the belts.
3. Then, remove the three bolts securing the fan cage (half) to the frame of the machine and remove the cage. This will expose the fan and allow the belts to be removed. (fig. 4, 5 and 6)
4. Slip the belts off of the engine pulleys one at a time and work them around the fan. Slide them in and out of the fan blades until they are clear of the fan. (fig. 7, 8)





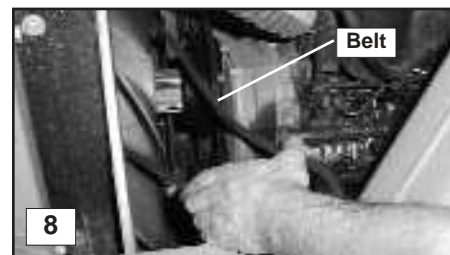
To install the fan belt:

Assuming the fan cage and belts have been removed, install the belts in the reverse manner of removal.

1. Work each belt around the fan by sliding it in and out of the fan blades until it has cleared the fan and can be installed. (fig. 8)
2. Once the belt is on the engine side of the fan, wrap the belt around the pulleys making sure to install the belt in the correct groove on each pulley to ensure alignment.
3. Repeat steps one and two to install the second belt.



4. Once the belts have been installed on the pulleys, pivot the alternator or A/C pump out against the belt(s) to keep them in place. Tighten bolts slightly if necessary.
5. Install the fan cage and fasten it to the frame by installing the three bolts and tightening them to specification.
6. Once the cage has been installed, perform the fan belt tension adjustment procedure located on page 42.



Maintenance

Radiator/oil cooler cleaning

The radiator and oil cooler must be clean to ensure proper operation. Engine and hydraulic system overheating, damage and even failure can result if the radiator/oil cooler is not kept clean. A pressure washer or compressed air nozzle work well to blow debris clear of the fins in the oil cooler and radiator.

***Note:** If hydraulic oil or engine coolant temperature lights illuminate during operation, increase cleaning intervals.*

***Note:** In brush cutting applications check and clean the coolers and chassis often to avoid overheating and prevent fires.*

To clean radiator and oil cooler:

1. Make sure engine is off, and cool during radiator/oil cooler cleaning procedure.
2. Thoroughly clean radiator/oil cooler prior to operation. Direct spray forward as shown. (fig. 1,2)

***Note:** Make sure water nozzle is at least 12" (8" for air) from the cooler and that the spray is directed straight through the cooler or the cooling fins may be damaged (bent over) which will decrease cooling performance.*

Chassis and engine cleaning

Periodic cleaning of the chassis area beneath the cab and engine compartment are also necessary to maintain safe operation. Clean as necessary. (fig. 3)

1. Remove the belly pans on the underside of the machine.
2. Tilt the ROPS canopy up and raise the hood at the rear of the machine.
3. Pressure wash any debris from the engine compartment and chassis area out through the lower opening.



The most effective way to prevent a malfunction from occurring is to closely follow the recommended maintenance schedule and instructions throughout the life of the machine. However, if a malfunction does occur, finding the problem and fixing it quickly are important. This section covers a select set of symptoms that may occur and suggests possible causes.

Problem:

Machine will not crank over.

Possible causes

1. Continuous high flow switch activated.
2. Continuous low flow switch activated.
3. Power quick-attach switch in unlocked position.
4. Battery cables loose or corroded.
5. Ignition fuse blown.
6. Main starter fuse blown.

7. Starter relay malfunctioning.
8. Weak or dead battery.
9. Faulty continuous hydraulic flow switch.
10. Faulty ignition switch.
11. Faulty starter.
12. Loose, broken or disconnected wiring at key, relay or starter.

Problem:

Machine cranks, but will not start.

Possible causes

1. Fuel tank empty, fuel filter plugged or fuel line restricted.
2. Battery discharged (engine rotates slowly).
3. Injection pump fuse blown.
4. Main power fuse (B) blown.
5. Faulty main power relay (B).
6. Loose, broken or disconnected wiring at injection pump or fuse.

7. Glow plugs not pre-heating (look for black smoke).
 - a) Main glow plug fuse blown.
 - b) Glow plug relay malfunctioning.
 - c) Loose, broken, or disconnected wiring at ignition switch, relay or glow plug ground strip.
 - d) Faulty glow plugs.
 - e) Faulty ignition switch.
8. Loose, broken or disconnected wiring in starting circuit.
9. Loose, broken or disconnected wiring at fuel shutdown solenoid.
- 10 Air in fuel system, or defective fuel injection pump.

Troubleshooting

Problem:

Machine starts, but hydraulics will not operate.

Possible causes

1. Operator not in seat.
2. Lap bar not pulled down over operator.
3. Front door (if equipped) not closed.
4. Safety fuse for lap bar and operator presence safety switch blown.
5. Faulty operator presence safety switch.
 - a) Test for continuity through seat, lap bar and door switches. Adjust or replace as necessary. Lap bar and door switches are magnetic and should be positioned within 1/16" from the bar and door in their lowered and closed positions to operate properly.

6. Loose, broken or disconnected ground wires (check ground connections on lower left rear corner of hydraulic reservoir.)
7. Safety relay is not activating.
8. Faulty safety solenoid or safety solenoid spool.
9. Loose, broken or disconnected wiring at fuse, relay, or safety solenoid.
10. Low charge pressure.

Problem:

Lift arm/bucket controls are operational, but tracks will not move.

Possible causes

1. Leak in feed line to drive control joystick (pilot control).
2. Loose, broken or disconnected wire to DA control solenoid.
3. Drive control joystick (pilot control) malfunction.
4. Low charge pressure.

Problem:

Tracks are operational, but lift arms will not move.

Possible causes

1. Continuous hydraulic flow switch activated, sending oil over relief.

If auxiliary flow hydraulics work check for:

- a) Leak in feed line to lift arm control joystick (pilot control).
- b) Lift arm control joystick (pilot control) malfunction.
- c) Hydraulic valve assembly malfunction.

If auxiliary flow hydraulics do not work check for:

- a) Main auxiliary relief malfunction.
- b) Faulty auxiliary pump.

Problem:

Lift arms are operational, but high/low flow auxiliary circuits are not.

Possible causes

1. Auxiliary hydraulic fuse blown.
2. Faulty ground in auxiliary hydraulic circuitry.
3. Faulty auxiliary hydraulic switch.
4. Faulty auxiliary hydraulic solenoid at pilot generation block.
5. Loose, broken or disconnected wire at fuse, auxiliary hydraulic switch, or pin connector P17.
6. Auxiliary hydraulic pilot generation spool stuck in closed position.
7. Faulty or improperly connected quick coupler.
8. Quick coupler block pressure release stuck in down (open) position.

Problem:

Multiple switches/electrical accessories are not operational in ON or RUN position.

Possible causes

1. Main power relay fuse blown (A or B).
2. Faulty main relay (A or B).
3. Faulty ignition switch.
4. Loose, broken or disconnected wiring at ignition switch, fuse or relay.

Problem:

Battery will not charge/maintain charge.

Possible causes

1. Loose alternator belt.
2. Alternator fuse blown.
3. Faulty alternator diode.
4. Faulty alternator resistor (behind fuse panel).

5. Loose, broken or disconnected wiring at battery, alternator, diode or fuse.
6. Excessive current draw with key in "off" position.
 - a) Fuel gauge and hour meter should draw only 0.01 amps in off position.
7. Faulty battery.
8. Faulty alternator.

Problem:

Lift arm control joystick will not lock into float position.

Possible causes

1. Float magnet fuse blown.
2. Loose, broken, or disconnected wiring at fuse, float detent magnet, or pin connector P18.
3. Faulty float detent magnet.

Troubleshooting

Problem:

Lift arms will not float, engine labors and lift arms create down pressure when float is engaged.

Possible causes

1. Engine RPM too low.
2. Low charge pressure.
3. Lift arm control joystick malfunction (pilot control).
4. Hydraulic valve assembly malfunctioning.

Problem:

Hydraulic oil temperature warning light illuminates; hydraulic system overheating.

Possible causes

1. Debris plugging oil cooler, limiting airflow.
2. Auxiliary hydraulic circuit activated sending oil over relief.
3. Low hydraulic oil level.
4. Loose or missing fan belt.

5. Damaged or missing cooling fan blades.
6. Incompatible attachment.
 - a) Attachment must match machine flow capabilities.
 - b) Attachment hose inside diameter must be at least ½" for low flow and ¾" for high flow.
 - c) Low flow attachment coupled to high flow circuit.
 - d) Faulty hydraulic oil temperature sending unit.

***Note:** Hydraulic oil temperature warning light should illuminate at 225°F.*

7. Faulty quick coupler.
8. Cooler bypass relief open.

***Note:** Cooler bypass should open at 80 PSI.*

Problem:

Engine coolant temperature warning light illuminates; engine overheating.

Possible causes:

1. Low coolant level.
2. Debris plugging radiator, limiting airflow.
3. Damaged or missing cooling fan blades.
4. Loose or missing fan belt.
5. Faulty engine coolant temperature warning light.

***Note:** Engine coolant temperature warning light illuminates at 237°F.*

General Dimensions

Height to top of ROPS:	80 in. / 2032 mm
Ground clearance:	14 in. / 356 mm
Max. lift height, at hinge pin:	131 in. / 3327 mm
Machine length, w/out bucket:	122.5 in. / 3111 mm
Machine length, with bucket:	152.75 in. / 3880 mm
Machine width:	69 in. / 1753 mm

Track Specifications

Track width:	18 in. / 457 mm
Length of track on ground:	72.5 in. / 1841 mm
Ground contact area:	2,610 in. ² / 1.68 m ²

Machine Weight

**Operating weight with bucket:	10,500 lb / 4763 kg
Shipping weight without bucket:	9,595 lb / 4352 kg
Ground pressure:	3.67 psi / 25.3 kPa

Specifications are subject to change without notice.

* SAE J818 standards define operating capacities of rubber-tired skid steers (50% tipping load) and tracked loaders (35% tipping load). There are no standards defining the operating capacity of machines equipped with a suspended undercarriage or machines with rubber tracks.

** Bucket installed, fluid levels full, 165 lb. operator seated in cab.

*** When replacing or replenishing fluids, it is recommended that you specify genuine ASV Posi-LubeTM products from your ASV dealer.

Engine

Model:	Perkins 1104C-44
Type:	4-cylinder diesel
Displacement:	268 in. ³ /4.4 liter
Gross HP @ 2800 rpm:	86 hp / 64 kW
Torque (peak):	222 ft-lb / 301 Nm

Operating Specifications

Operating capacities:	
*Tipping load:	8,000 lb / 3629 kg
*35% tip load:	2,800 lb / 1270 kg
*50% tip load:	4,000 lb / 1814 kg
Travel speed (low/high) max.:	6 mph / 9.7 kmh

Auxiliary Hydraulic Pump

Low flow, max.:	20 gpm / 76 lpm
High flow, max.:	38 gpm / 144 lpm
Pressure:	3,300 psi / 22750 kPa

Service Refill Capacities

Fuel tank:	26 gal / 98 L
***Hydraulic tank:	20 gal / 76 L
***Engine coolant:	3.125 gal / 12 L
***Engine oil, including filter:	8.5 qt / 8 L

Recommended Fluids and Lubricants

When replacing or replenishing the fluids and lubricants in your RCV Rubber Track Loader, you can specify ASV Posi-Lube products. This ensures that the new fluids and lubricants match those originally installed when your Posi-Track left the ASV factory. Posi-Lube products were developed for, tested and approved by ASV to assure optimum life and performance in all ASV Rubber Track Equipment, when used as recommended.



The ASV Posi-Lube product line includes:

- Heavy Duty Engine Oil, 10W-30
- Premium All Season MV Hydraulic Oil
- Multi-Purpose EP Lithium Grease
- Long-Life 50/50 Antifreeze/Coolant
- Undercarriage Wheel Bearing Lubricant.

Posi-Lube fluids and lubricants are available through your ASV Dealer. If Posi-Lube products are not available, use high quality substitutions that meet or exceed the specifications listed above and throughout this manual.

Fuel specifications

In North America, diesel fuel, distilled from crude oil, identified as No. 1-D or No. 2-D in “ASTM D975” generally meet machine requirements.

Torque Specifications

General Torque Specifications

Inch Fasteners

Thread size	Standard Torque
1/4"	9 +/- 2 lb ft
5/16"	18 +/- 4 lb ft
3/8"	35 +/- 7lb ft
7/16"	50 +/- 11 lb ft
1/2"	75 +/- 15 lb ft
9/16"	120 +/- 22 lb ft
5/8"	160 +/- 30 lb ft
3/4"	275 +/- 37 lb ft
7/8"	460 +/- 60 lb ft
1 "	660 +/- 75 lb ft
1-1/8"	960 +/- 110 lb ft
1-1/4"	1320 +/- 150 lb ft
1-3/8"	1780 +/- 220 lb ft
1-1/2"	2280 +/- 260 lb ft

Metric Fasteners

Thread size	Standard Torque
M6	12 +/- 3 Nm
M8	28 +/- 7 Nm
M10	55 +/- 10 Nm
M12	100 +/- 20 Nm
M14	160 +/- 30 Nm
M16	240 +/- 40 Nm
M20	460 +/- 60 Nm
M24	800 +/- 100 Nm
M30	1600 +/- 200 Nm
M36	2700 +/- 300 Nm

Service and Maintenance Schedule

Service and Maintenance Schedule

<u>Item #</u>	<u>Maintenance Item</u>	<u>Interval</u>	<u>Service required</u>	<u>Notes</u>	<u>Capacity</u>
1	Grease fittings	Daily	Lubricate	Grease often.	
2	Fluid levels	Daily	Check	Adjust levels as necessary.	
3	Fan-A/C belt tension	Daily	Check	Adjust tension as necessary.	
4	Fan-A/C belt condition	Daily	Inspect	Replace as a pair if worn or damaged.	
5	Water separator	Daily	Drain		
6	Track condition	Daily	Inspect	Replace if severely damaged.	
7	Track tension	Daily	Inspect	Adjust tension as necessary.	
8	Air cleaners	Daily	Inspect	Replace if damaged or heavily soiled.	
9	Radiator/oil cooler	Daily	Inspect	Clean often (as necessary).	
10	Undercarriages	Daily	Inspect	Clean often (as necessary).	
11	Engine compartment	Daily	Inspect	Clean often (as necessary).	
12	Drive sprocket rollers	50 hr.	Inspect	Replace if damaged or worn. (35% min.)	
13	Engine oil and filter	6 Mo./250 hr.	Replace	Severe conditions (3 Mo./100 hr. interval)	8.5 qt.
14	Hydraulic filters (2)	250 hr.	Replace	Replace filters as a pair.	
15	Hydraulic oil	500 hr.	Replace		20 gal.
16	Fuel filter	500 hr.	Replace		
17	Water separator	500 hr.	Replace	Replace filter element.	
18	Radiator coolant	3000 hr.	Replace		3.125 gal
19	Case drain filter	N/A	None required	Replace if attachment drive motor fails.	

<u>Hours</u>	<u>Service Performed</u>	<u>Notes</u>

Service Log

Hours

Service Performed

Notes

<u>Hours</u>	<u>Service Performed</u>	<u>Notes</u>

RCV Rubber Track Loader

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