



Owner's Manual

Waverunner

STARTING
MODEL YEAR **2018**

 **WARNING**

Read and comply with all of the instructions and safety precautions in this manual and on all product labels.

Failure to follow the safety precautions could result in serious injury or death.

CALIFORNIA Proposition 65

 **WARNING**

Operating, servicing and maintaining a passenger vehicle or off-road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.

NOTICE: Your **TEXTRON OFF ROAD HAVOC X** is equipped with sophisticated exhaust and evaporative emission control systems. **TEXTRON OFF ROAD** has engineered the entire vehicle for optimum performance and minimal impact on the environment. As the owner, you may choose a qualified repair shop or person to maintain, replace, or repair emission control devices and systems with original or equivalent replacement parts. However, warranty, recall and all other services paid for by **TEXTRON OFF ROAD** must be performed at an authorized **TEXTRON OFF ROAD** service center.

Installing non-equivalent or non-original components, neglecting maintenance, removing after treatment components, adjusting calibrations or otherwise disabling your emission control systems may void your warranty, cause injury or be a violation of Federal Law.

Thank you for purchasing a TEXTRON OFF ROAD vehicle. Before driving your new vehicle, read this owner's manual to familiarize yourself with safe driving practices, operation, features and controls.

Visit us online at www.textronoffroad.com for the latest news, new product information, career opportunities and more.

This manual contains instructions for minor maintenance only. Information about major repairs can be found in the TEXTRON OFF ROAD repair manual. Your TEXTRON OFF ROAD dealer has thorough knowledge of your vehicle and wants your total satisfaction with your purchase. We recommend you return to your dealership for all of your service needs during, and after the warranty period.

Repair or replacement parts can be purchased at your TEXTRON OFF ROAD dealer or through the manufacturer's parts and accessories department.



To locate your nearest dealer,
call 1-888-438-3946 or
visit www.textronoffroad.com
TEXTRON SPECIALIZED VEHICLES
1451 Marvin Griffin Road
Augusta, GA 30906 USA

All information in this owner's manual is based on the latest product information at the time of publication. Due to constant improvements in the design and quality of production components, some discrepancies may be found between your vehicle and the information presented in this publication. The content in this publication is intended for reference use only. The manufacturer is not liable for omissions or inaccuracies. Any reprinting or reuse of the content in this publication, whether whole or in part, is expressly prohibited.

Printed in USA

HAVOC X Owner's Manual

P/N 663078-A

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INTRODUCTION

The following symbols appear throughout this manual and on your vehicle. Your safety is involved when these symbols are used. Become familiar with their meanings before reading the manual.

 **DANGER** **DANGER** indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 **WARNING** **WARNING** indicates a hazardous situation, if not avoided, could result in death or serious injury.

 **CAUTION** **CAUTION** indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

 The PROHIBITION SAFETY SIGN indicates an action NOT to take in order to avoid hazard.

 The MANDATORY ACTION SIGN indicates an action that NEEDS to be taken to avoid a hazard.

 **WARNING** Failure to comply with the warnings in this manual can result in severe injury or death.

 **WARNING** Read this entire manual carefully before operating this vehicle. Do not attempt to operate this vehicle until you have thorough knowledge of the controls and features.

 **WARNING** Regular inspections and maintenance, along with good operating techniques, will help ensure your safe enjoyment of the capabilities and reliability of this vehicle.

MANUFACTURER'S INTENDED USE

- The TEXTRON OFF ROAD HAVOC X is designed and manufactured for off road use only. Use on public streets, roads or highways is illegal in most areas and increases the risk of an accident involving other vehicles and people. This vehicle does not meet FMVSS (Federal Motor Vehicle Safety Standards) for public street, road or highway use.
- Check all laws and regulations before choosing an area to operate the HAVOC X.

NOISE CONTROL SYSTEM

Do not modify the engine, intake or exhaust components. Modifications to these components can affect compliance with ROHVA 1 - 2016 and local noise level requirements. Modifications to these components can also affect the emissions control system. See *Vehicle Modification* on page 18 and *Emissions Related Control Systems and Components* on page 18 for more information.

SPARK ARRESTOR AND USE ON PUBLIC LANDS

The TEXTRON OFF ROAD vehicle has a spark arrester that was tested and qualified to be in compliance with the USFS standard 5100-1. Federal law requires that this spark arrester be installed and functional when the vehicle is operated on public lands.

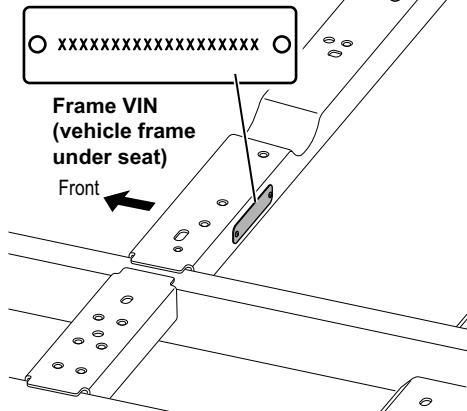
Off road vehicle operation on public lands in the USA is regulated by 43 CFR 420. Violations are subject to monetary penalties. Go to www.gpo.gov/fdsys to see federal regulations.

WARRANTY AND REGISTRATION

The HAVOC X includes product and emission warranties. All information, including coverage, limitations, exclusions and how to obtain warranty service is included in the literature package with the purchase of the vehicle. It can also be found at www.textronoffroad.com.

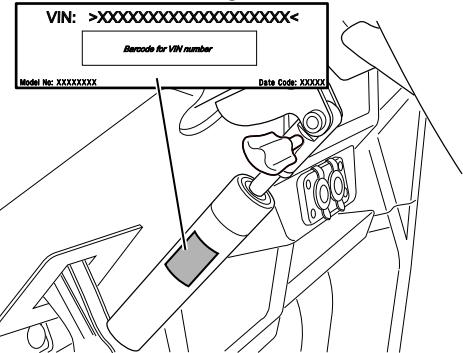
Registration of the vehicle will be done by the dealer at the time of purchase.

VEHICLE IDENTIFICATION NUMBER

Frame VIN
(vehicle frame
under seat)

Front

VIN Label on Steering Column

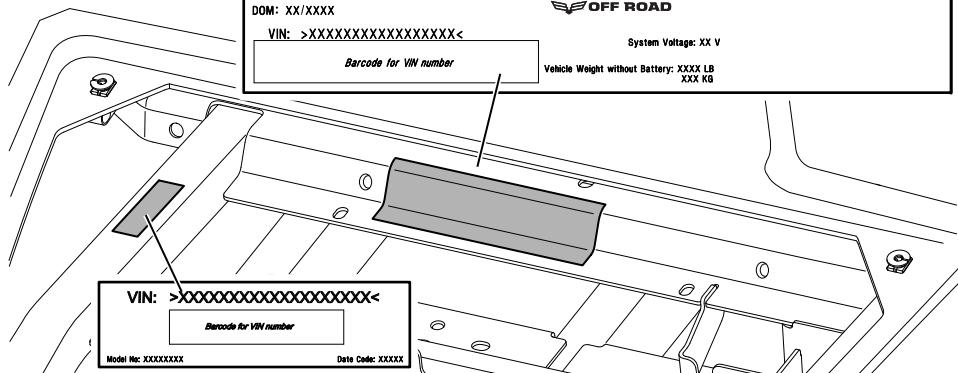


VIN: >xxxxxxxxxxxxxxxxxxxx<

Barcode for VIN number

Model No: XXXXXX

Date Code: XXXX

VIN Labels under
Front Cowl Access
Panel

VIN: >xxxxxxxxxxxxxxxxxxxx<

Barcode for VIN number

Model No: XXXXXX

Date Code: XXXX

The certification statement for the industry standard in which this vehicle complies is stated on the MAIN IDENTIFICATION LABEL that is located under the front cowl access panel, as shown above.

The vehicle model number and Date of Manufacture (DOM), MM/YYYY is identified on the MAIN IDENTIFICATION LABEL that is located under the front cowl access panel, as shown above.

Record the vehicle identification numbers and key number in the spaces provided below. This information is required when ordering parts from TEXTRON OFF ROAD.

Vehicle Date of Manufacture (DOM): _____

Vehicle Model Number: _____

Frame VIN: _____

Key Number: _____

Remove the spare key and store it in a safe place. An ignition key can be duplicated only if the key number is provided. If all keys are lost and the key number is not known, the ignition switch must be replaced.

INTRODUCTION

REPAIR AND PARTS MANUALS

The following manuals can be purchased through a TEXTRON OFF ROAD dealer:

- repair manual
- parts manual
- engine manual

SAFETY

REQUIRED RIDING APPAREL

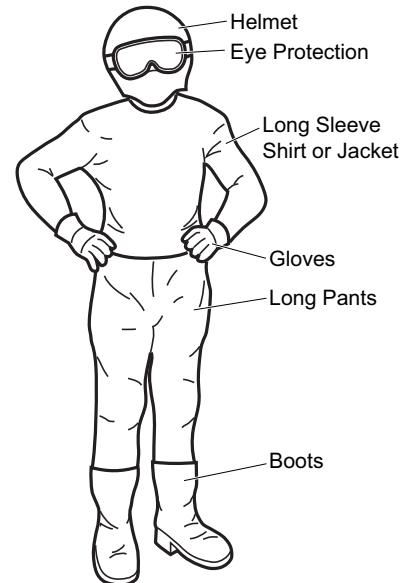
The driver and passenger must wear the following protective riding gear to decrease the risk of injury:

- helmet
- eye protection
- gloves
- boots
- long sleeve shirt or jacket
- long pants

Helmet

Wear a helmet designed for off road use to decrease the risk of head injury. A full face helmet is recommended. A properly fitting helmet is snug and will not wiggle excessively when shaking the head from side to side. Always wear a helmet that meets or exceeds established safety standards when riding the *HAVOC X*.

Approved helmets in the USA and Canada have a U.S. Department of Transportation (DOT) label attached.



Approved helmets in Europe, Asia and Oceania have the ECE 22.05 label attached. The ECE mark consists of a circle around the letter E, followed by the distinguishing number of the country that has permitted approval. The approval number and serial number is also shown on the label.

Eye Protection

Always wear shatterproof goggles or a shatterproof helmet face shield. Personal eye glasses or sun glasses are not adequate eye protection. TEXTRON OFF ROAD recommends wearing approved Personal Protective Equipment (PPE) with markings such as VESC8, V-8, Z87.1, or CE. Keep protective eye wear clean and free of scratches.

Gloves

Wear gloves to protect hands.

Boots

Wear sturdy, over the ankle boots with low heels for support and protection. Never ride with bare feet or sandals.

Clothing

Wear a long sleeve shirt or jacket to protect arms, and long pants to protect legs.

SAFETY

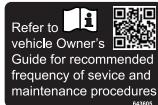
SAFETY LABELS

Safety and warning labels are on the vehicle for your protection. Read and comply with the instructions on the labels carefully. If any label shown in this manual is different from the label on your vehicle, always follow the instructions on the vehicle label.

If a label comes off or becomes illegible, contact your TEXTRON OFF ROAD dealer to get a replacement. Replacement safety labels are available at no charge to you. The part number is provided in this manual, printed on the label, or can be provided by your dealer.

Service Label (P/N 643605)

Located under the front cowl access panel.



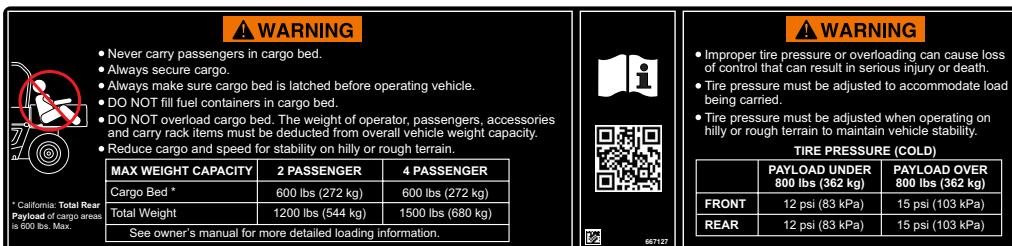
Safety Warning (P/N 642600)

Located on the dash to the left of the steering column.



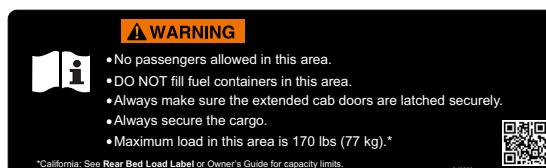
Overload Warning and Tire Pressure Warning (P/N 667127)

Located in the truck bed.



Storage Compartment Warning (P/N 643606)

Located in the storage area behind the seats.



Operator Warning (P/N 642599)

Located on the dash.

 **WARNING**

Improper Use of Off-Highway Vehicles Can Cause Severe Injury or Death

Be Prepared

- Fasten seat belt.
- Wear an approved helmet and protective gear.
- Make sure the door is latched securely.
- Driver must be able to sit with their back against the seat, feet flat on the floor and hands on the steering wheel.
- Passengers must be able to sit with their back against the seat, feet flat on the floor and hands on handhold.
- Stay completely inside the vehicle.

Drive Responsibly

This type of vehicle has a high risk of rollover.

Avoid loss of control and rollovers:

- Avoid abrupt maneuvers, sideways sliding, skidding, or fishtailing and NEVER do donuts.
- Slow down before entering a turn.
- Avoid hard acceleration when turning, even from a stop.
- Plan for hills, rough terrain, ruts and other changes in terrain. Avoid paved surfaces.
- Avoid side hilling (riding across slopes).
- Rollovers have caused severe injuries and death, even on flat, open areas.

642599

Passenger Safety Warning (P/N 645330)

Located on the dash in front of the passenger seat.

 **WARNING**

Be Prepared

- Fasten seat belt.
- Wear an approved helmet and protective gear.
- Make sure the door is latched securely.
- Passengers must be able to sit with their back against the seat, feet flat on the floor and hands on handhold.

- Do not ride or drive after using drugs or alcohol.
- Maximum front seat capacity: 2 persons.
- Stay completely inside the vehicle when vehicle is moving.
- Use handhold and brace yourself on slopes and in turns.

645330

ROPS Warning (P/N 665884)

Located on the ROPS behind the driver.

This ROPS was tested in accordance with the requirements of ISO 3471 per ANSI/ROHVA 1

Test GVW: 1406 kg (3100 lbs)
 Vehicle Model: Havoc X
 Type: ROV

Textron Specialized Vehicles
 1451 Marvin Griffin Rd.
 Augusta, GA 30906
 USA



 **WARNING** 

The protection offered by this ROPS will be impaired if it has been subjected to any modification or structural damage. This ROPS must be replaced after a rollover.

665884

Clutch Cover Warning (P/N 643600)

Located on the clutch cover.



 **WARNING**

Clutch Cover

- Moving parts under clutch cover, do not operate vehicle with clutch cover removed.
- Do not modify engine or clutch. Modifications can cause part failure, possible imbalance, and excessive engine RPM which can result in serious injury or death.
- Read vehicle manuals for detailed information on maintenance safety procedures.



643600

13

SAFETY

Shifting Transmission Warning (P/N 643602)

Located on the dash above the gear shifter.



Hitch Warning (P/N 645329)

Located on the rear hitch.



SEAT BELTS

⚠ WARNING Operating the vehicle while not wearing the seat belt increases the risk of serious injury or death in the event of rollover, loss of control, or sudden stopping.



All riders must wear a seat belt at all times.

MAXIMUM CARGO LOAD / MAXIMUM WEIGHT CAPACITY

⚠ WARNING Exceeding the weight capacities can cause loss of vehicle control and possible injury or death.

Maximum Vehicle Weight Capacity	1200 lbs. (544 kg)
Maximum Cargo Load Capacity (Bed) *	600 lbs. (272 kg)
Maximum Cargo Load (Extended Cab) *	170 lbs. (72 kg)

* California Load Capacity (Bed and Extended Cab combined) is 600 lbs. (272 kg).

- Do not exceed the maximum cargo load weight.
- Do not exceed the maximum weight capacity (includes weight of operator, passenger, cargo and accessories).
- Do not exceed 35 mph (56 kph) if the maximum weight load is greater than 600 lbs. (272 kg).
- Do not exceed 25 mph (40 kph) if the maximum weight load is greater than 900 lbs. (408 kg).

TIRE PRESSURE

⚠ WARNING Improper tire pressure or uneven tire pressure can cause loss of vehicle control and possible injury or death.

Maintaining correct tire inflation pressure is essential for safe vehicle operation.

Tire Pressure (Front and Rear)	Payload
12 psi (83 kPa)	under 800 lbs. (364 kg)
15 psi (103 kPa)	over 800 lbs. (364 kg)

OPERATOR SAFETY

Safe and responsible use of this vehicle is necessary to prevent dangerous conditions for the operator, passengers and other people in the area of operation. This section of the manual provides information on the safe operation of the vehicle. Make sure you read, understand and comply with all of this information to decrease the risk of personal injury or death.



Serious injury or death can occur if you do not follow the instructions and procedures shown in this owner's manual.

- Read this entire manual and all product labels carefully. Follow the safety information and operating procedures described.
- Do not carry a passenger until you have a minimum of two hours driving experience on this vehicle.
- Keep feet, legs, hands and arms inside the vehicle at all times.
- The driver must keep both hands on the steering wheel and both feet on the floor or pedals.
- Inspect the vehicle before each use to make sure it is in safe operating condition. Perform the pre-ride inspection described in this manual. See page 31.
- Always have the vehicle checked by an authorized dealer after an accident.
- Always put the transmission in P (park) before you leave the vehicle.
- Remove the ignition key when the vehicle is not in use to prevent accidental starting, unauthorized use by someone below the age of 16, or someone without a driver's license and proper training.

Additional information about safety is included throughout this manual or can be obtained from your local TEXTRON OFF ROAD dealer.



Failure to operate the HAVOC X as instructed can cause collision, loss of control or roll-over resulting in severe injury or death. Follow all safety warnings in this section of the owner's manual. See the OPERATION section of the owner's manual for operating procedures and additional safety information.

Unauthorized Use



This vehicle is for adult use only. Any person below the age of 16 is not permitted to operate the vehicle. Any person who does not have a valid driver's license is not permitted to operate the vehicle.

Do not allow any person below the age of 12 to ride as a passenger. Any passenger must be able to sit with their back against the seat, both feet on the floor and both hands on a passenger hand hold.

Leaving the keys in the ignition allows unauthorized use of the vehicle by someone under 16 years of age or an unlicensed driver. Always remove the ignition key when the vehicle is not in operation.

Operating without Instruction



Operation of this vehicle without proper instruction increases the risk of an accident. The operator must understand how to operate the vehicle correctly in different situations and on different types of terrain.

All operators must read, understand and comply with the owner's manual and all warning and instruction labels before operating the vehicle.

All operators should take a ROHVA training course (www.rohva.org).

Alcohol or Drugs



Operation of the vehicle during or after consuming alcohol or drugs can adversely affect operator judgment, reaction time, balance and perception.

Never drink alcohol or use drugs or medications before or during operation of the vehicle.

Seat Belts



Riding in this vehicle without wearing a seat belt increases the risk of serious injury in the event of roll-over, loss of vehicle control, accident or sudden stop. Seat belts can decrease the severity of injury in these circumstances.

The operator and passenger must wear seat belts at all times.

The speed of the vehicle is limited to 15 mph (24 kph) or less when the driver's seat belt is not fastened.

SAFETY

Passenger

Do not carry any passenger below the age of 12 years. The passenger must be able to sit with their back against the seat, both feet on the floor and both hands on a passenger hand hold. For additional safety and operational information, see *Driving with a Passenger* on page 33.

Protective Riding Apparel

A complete list of protective apparel is shown on page 11. Riding in this vehicle without wearing protective gear increases the risk of serious injury if an accident occurs.

Cab Doors

Riding in this vehicle with doors removed or with doors not securely latched increases the risk of serious injury or death if a rollover or accident occurs.

Keep the cab doors closed and latched securely during operation of this vehicle.

Keep entire body inside a moving vehicle at all times.

Before Operating

Perform the *PRE-RIDE INSPECTION* on page 31 before each use to make sure the vehicle is in safe operating condition. Failure to inspect and confirm that the vehicle is safe to operate increases the risk of an accident.

Follow all inspection and maintenance procedures and schedules described in this owner's manual. See *TOOL KIT* on page 47.

Load Operation

The weight of cargo and occupants affects vehicle operation. Carefully calculate how the vehicle is loaded and how to safely operate it. Follow the instructions in this manual for loading, tire pressure, gear selection and speed.

Do not exceed weight capacities specified for your vehicle. Capacities are listed in *Maximum Cargo Load / Maximum Weight Capacity* on page 14 of this manual, and also on the label affixed to the truck bed. As passenger weight increases, cargo weight needs to be adjusted to ensure the maximum vehicle weight capacity is not exceeded.

Tire pressure must be adjusted to accommodate the load being carried. See *Tire Pressure* on page 14 for pressure specifications. Tire pressure specifications can also be found on the label affixed to the truck bed.

Verify tire pressure, and drive slowly and carefully to maintain control of the vehicle if driving under any of the following conditions:

- passenger and/or cargo exceeds half the maximum weight capacity
- driving in rough terrain
- driving over obstacles
- towing
- climbing a hill

Fuel Handling Guidelines

Gasoline is flammable and can be explosive in some conditions. Use the following guidelines when handling fuel:

- Always use caution when handling gasoline.
- Refuel in a well-ventilated area.
- Turn off the engine before refueling.
- Use an approved gasoline container to store fuel.
- Remove portable gasoline containers from the vehicle and place on the ground before filling to prevent ignition caused by electrical static discharge.
- Do not smoke or allow open flames or sparks in or near the area where refueling is done or where gasoline is stored.
- Do not overfill the tank. Do not fill the tank neck.
- If gasoline contacts skin, immediately wash with soap and water. If gasoline gets on clothing, change immediately.

For refueling procedure, refer to *Fuel* on page 32.

Carbon Monoxide Exposure

Carbon monoxide is an odorless gas that is formed as a natural part of the combustion of hydrocarbon fuels.

Carbon monoxide is poisonous, and can cause loss of consciousness or death in a short period of time. Never start the engine or allow it to run in an enclosed area.

If you experience any of the following symptoms, stop the engine and get fresh air immediately:

- dizziness
- intense headache
- weakness and sleepiness
- vomiting
- muscular twitching
- throbbing in temples

Operate this vehicle outdoors or in well-ventilated areas only.

Driving in Reverse

Make sure the area behind the vehicle is clear before operating in reverse. After making sure it is clear and safe to operate in reverse, accelerate slowly. Avoid making sharp turns in reverse. Refer to *Driving in Reverse* on page 36 for operational information.

Driving a Damaged Vehicle

Driving a damaged vehicle is not safe.

If your vehicle has been involved in any type of accident, have it inspected by a qualified service dealer to verify that it is safe for operation.

Driving at High Speeds

High speed operation increases risk of loss of control. Always drive at a speed that is appropriate for the terrain, visibility, operating conditions and your skill and experience level. Use the brake to control speed and maintain control of the vehicle.

Driving on Pavement

The tires on your *HAVOC X* are designed only for off road use; not for use on pavement. Driving the vehicle on paved surfaces can affect handling characteristics and increase tire wear.

If possible, avoid driving on paved surfaces. If unavoidable, drive slowly, travel short distances and avoid sudden turns or stops.

Driving on Public Roads

Driving your *HAVOC X* on public streets, roads or highways could result in a collision with another vehicle. Never drive this vehicle on any public street, road or highway, including dirt and gravel roads, unless they are designated for off road use. Most areas prohibit the operation of this vehicle on public streets, roads or highways, and can result in traffic violations and fines.

Turning

Improper or careless turning can cause loss of traction, loss of control, accident or rollover. Do not turn quickly or at sharp angles. Do not turn at high speeds. Practice turning at slow speeds before attempting to turn at faster speeds.

Jumps and Stunts

Attempting wheelies, jumps or other stunts increases the risk of an accident or rollover. Never attempt wheelies, jumps or other stunts. Avoid exhibition driving.

Unfamiliar Terrain

Drive slowly and cautiously on unfamiliar terrain to prevent an accident or rollover. Unfamiliar terrain can contain hidden rocks, bumps or holes that can cause loss of control or rollover. Constantly monitor for changing terrain conditions.

Obstacles

Check for obstacles before operating in an unfamiliar area. Do not drive over obstacles that are too large for the vehicle or your driving abilities. Refer to *Obstacles in Drive Path* on page 34 for operational information.

Climbing Hills

Do not climb hills that are too steep for the vehicle or your driving abilities. Practice driving on small hills before attempting to drive on larger hills. Loss of vehicle control or rollover can result from climbing hills incorrectly. Refer to *Driving Uphill* on page 34 for operational information.

Driving Downhill

Inspect the terrain before descending a hill. Avoid driving across hills. Use the brake to limit speed and maintain control. Loss of vehicle control or rollover can result from driving downhill incorrectly. Refer to *Driving Downhill* on page 35 for operational information.

SAFETY

Stalling on a Hill

A rollover can result from stalling or rolling backward while climbing a hill. Drive uphill at a constant speed. See procedure on page 35 for maintaining control of your vehicle if it stalls on a hill.

Tires

Operating the vehicle with incorrect tires or with incorrect or uneven tire pressure can cause loss of control or an accident. Always use the size and type tires specified for the vehicle. See *SPECIFICATIONS CHART* on page 71. Always maintain correct tire pressures as specified in *Tire Pressure* on page 14.

Slippery Terrain

Driving on rough, wet or loose terrain increases the risk of loss of traction or control, accident or rollover. Drive slowly and use correct turning procedures when operating on slippery surfaces.

Tires that have lost traction, and then regain traction suddenly, can cause loss of vehicle control or rollover.

Refer to *Slippery Surfaces* on page 34 for operational information.

Driving Through Water

Do not drive the vehicle through fast flowing water or in water deeper than that specified in the operation section of this manual. Refer to *Driving Through Water* on page 35 for operational information.

Test the brakes after you drive through water. Wet brakes can reduce stopping ability. If necessary, apply pressure to the pedal lightly several times to allow friction to dry the brake pads.

Driving on Ice

Severe injury or death can result if the vehicle and operator fall through ice. Never operate the vehicle on a frozen body of water unless the ice is determined to be thick enough to support the weight and moving force of the vehicle, occupants, cargo and other vehicles operating in the same area.

Check with local authorities and residents to confirm ice conditions and thickness over your entire route. Operators assume all risk associated with frozen bodies of water.

HOT EXHAUST SYSTEMS

Exhaust system components are very hot during and after use. To avoid burn injuries, do not touch hot exhaust system components. Hot components can also cause fire. Keep combustible materials away from the exhaust system. Check for buildup around the exhaust system after driving through high and dry grass.

VEHICLE LIFTING

The vehicle must be on a firm and level surface for lifting. Remain constantly aware that the vehicle is not stable during the lifting process. Do not get under a vehicle until you verify that it is stable on the jack stands. Never get under a vehicle while it is on a jack only. Put wheel chocks in front and behind the wheels that are not being lifted. Do not allow anyone to remain or get on the vehicle at any time during the lifting process.

Read and comply with all warnings and follow the lifting procedures described on page 50.

VEHICLE MODIFICATION

Do not install any accessory not approved by TEXTRON OFF ROAD. Do not modify the vehicle to increase speed or power. Any modifications or installation of accessories not approved by TEXTRON OFF ROAD can create a safety hazard and increase the risk of injury. Modifications or unapproved installed accessories also may affect emissions, and be a violation of Federal Law.

The warranty will be terminated if the vehicle is modified to increase vehicle speed or power.

The warranty may be terminated if original (or equivalent) replacement parts are not installed on the vehicle.

The addition of some accessories can change the handling characteristics of the vehicle. Use only TEXTRON OFF ROAD approved accessories, and familiarize yourself with their function and effect on the vehicle.

EMISSIONS RELATED CONTROL SYSTEMS AND COMPONENTS

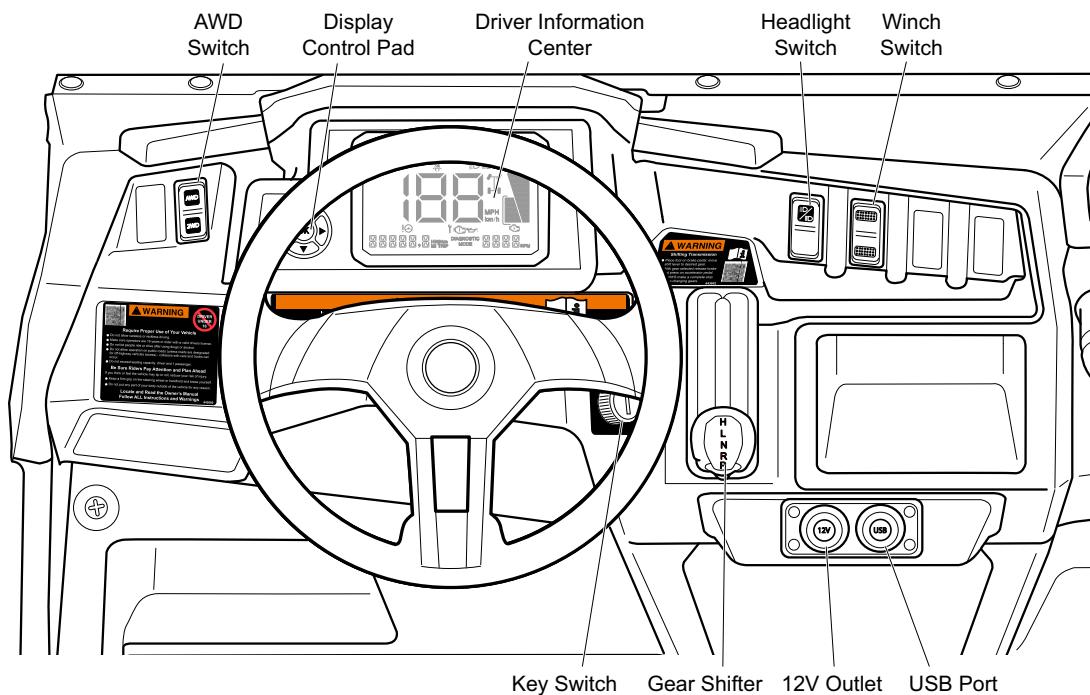
Installing non-equivalent or non-original components, neglecting maintenance, removing after treatment components, adjusting calibrations or otherwise disabling your emission control systems may void your warranty, cause injury or be a violation of Federal Law.

Refer to the EMISSION CONTROL SYSTEM (ECS) section beginning on page 45 for complete emissions information.

FEATURES AND CONTROLS

CONSOLE

Some features on the console are optional and may not be on all vehicles.



KEY SWITCH

The key switch is a three-position switch.

- OFF
- First position to the right is ON; activates vehicle electronics and accessory power.
- Second position is momentary; turn the key until the engine starts, then release. Engage the starter for no more than five seconds. If the engine fails to start, wait ten seconds before engaging the starter again.

HEADLIGHT SWITCH

The headlight switch is a three-position switch:

- upper – low beam
- middle – high beam
- lower – off

NOTICE: The accent lights stay on in all positions.



WINCH SWITCH

The winch switch is a two-position switch that activates the winch.

FEATURES AND CONTROLS

ALL-WHEEL DRIVE (AWD) SWITCH

The AWD switch is a two-position switch.

- upper – power is transferred to the front wheels and the vehicle is in AWD
- lower – front differential is unlocked and the vehicle is in 2WD (two-wheel drive)



DRIVER INFORMATION CENTER

All segments on the LCD display screen will display for one second at start-up. The brightness of the display backlight is adjustable and will be the same at start-up as it was at last shutdown.

Display Control Pad

The display control pad beside the display screen allows the user to perform the following functions:

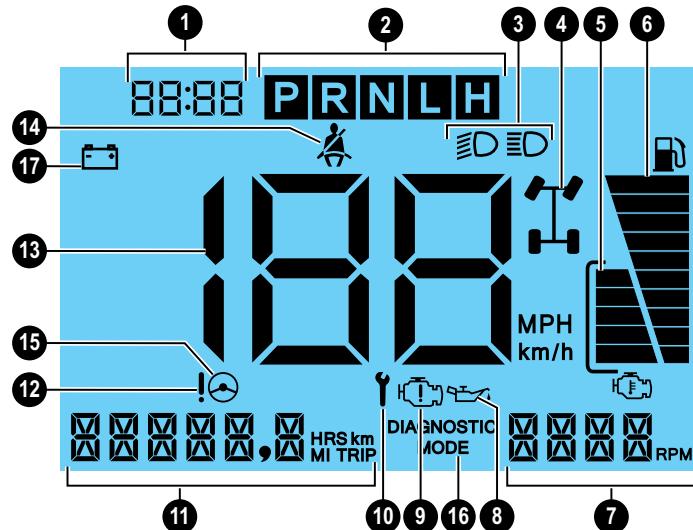
- navigate through the selectable displays in the driver information center
- enter and navigate through the diagnostic mode (see *Diagnostics* on page 73)
- clear the service reminder light after service is completed (see *Diagnostics* on page 73)
- adjust the brightness of the LCD display screen



Adjust Backlight

Press the up and down buttons on the control pad to brighten and dim the backlight of the display screen and all of the lighted switches (if equipped).

1. Clock
2. Gear Indicator
3. Headlight Beam Indicator
4. Drivetrain Mode Indicator
5. Engine Temperature Indicator
6. Fuel Level Indicator
7. Tachometer
8. Low Oil Pressure Indicator
9. Engine Malfunction Indicator
10. Engine Maintenance Indicator
11. Multifunction Display*
12. EPAS Fault Indicator
13. Speedometer
14. Seat Belt Indicator
15. EPAS Enabled Indicator
16. Diagnostic Mode Indicator
17. Low Battery Voltage Indicator



* Use the left and right buttons on the display control pad to scroll through the following options in the multifunction display (11):

- odometer (MI or km)
- trip odometer (MI TRIP or km TRIP) - With this option displayed, the trip odometer can be reset by pressing and holding OK on the display control pad until the number resets to 0.0 (approximately 3 seconds).
- engine hours (HRS)

Indicator Lights

Number	Indicator	Light	Description
8	Low Oil Pressure Indicator		Low oil pressure indicator and backlight flashes when low oil pressure is detected. Automatically shuts the engine down.
4	Drivetrain Mode Indicator		AWD; rear differential is locked
			2WD; rear differential is locked
3	Headlight Beam Indicator		Low beam
			High beam
14	Seat Belt Indicator		Flashes on startup; remains illuminated until fastened.
6	Fuel Level Indicator		Bars indicate level of fuel in the tank. Last bar flashes when fuel is low.
2	Gear Indicator		Park
			Reverse
			Neutral
			Low
			High
15	EPAS (Electronic Power Assisted Steering) Enabled Indicator		Illuminates when the EPAS is in the enabled mode.
12	EPAS Fault Indicator		Illuminates when a malfunction is detected in the EPAS.
9	Engine Malfunction Indicator		Illuminates when a malfunction is detected in the engine.
10	Engine Maintenance Indicator		Illuminates when scheduled maintenance (engine oil and spark plugs) is required.

FEATURES AND CONTROLS

SELECTABLE DISPLAYS

There are seven possible selectable top level displays in the driver information center:

- DISPLAY 1 - Engine FAULTS - Indicates trouble codes for the engine. For information and use, see *Diagnostics* on page 73.
- DISPLAY 2 - EPAS FAULTS - Indicates trouble codes for the EPAS. For information and use, see *Diagnostics* on page 73.
- DISPLAY 3 - MAINT - Indicates status of serviceable items. Allows user to reset or clear the maintenance reminder.
- DISPLAY 4 - SETUP - Allows the user to set up vehicle preferences.
- DISPLAY 5 - CLOCK - Allows the user to set up clock and time preferences.
- DISPLAY 6 - INFO - Provides vehicle information.
- DISPLAY 7 - SPEED - This feature control may not be available on all Textron Off Road products. If applicable, this allows the user to set a vehicle speed limit to a setting less than the factory-set maximum.

To enter the selectable displays:

1. Make sure the key is in the OFF position.
2. Press and hold the OK button on the display control pad while turning the ignition key to the ON position. Turning the key past the ON position and starting the engine will exit the display.
3. Release the OK button.
4. Use UP and DOWN on the control pad to scroll through the top level displays.



Display 3 - MAINT

NOTICE: All options in this menu are editable.

1. With MAINT displayed, press the RIGHT arrow to enter the maintenance menu.



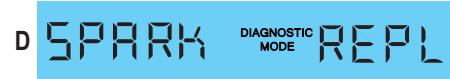
2. The first display (A or B) indicates the status of oil maintenance:

- Display A - OIL OK indicates no maintenance required.
- Display B - OIL REPL indicates that oil replacement is required.



3. Press DOWN to toggle to the second display (C or D) which will be either:

- Display C - SPARK OK indicates no maintenance required.
- Display D - SPARK REPL indicates that spark plug replacement is required.



4. In either of the OK displays (A or C) there are two options:
 - Do nothing. No maintenance is required at this time.
 - If the service is performed before the scheduled maintenance reminder is indicated, the maintenance reminder can be reset.
 - In OIL OK or SPARK OK, press OK on the display control pad to enter edit mode (wrench displays).
 - Use the LEFT and RIGHT arrows to toggle between OK and COMP (for complete).
 - Select the COMP option and press the OK button to reset the maintenance reminder. If the OK option is selected when the OK button is pressed, edit mode exits without resetting the reminder.



- Either of the REPL displays (B or D) indicates scheduled maintenance is due. After the maintenance is complete, the maintenance reminder can be cleared.
 - In OIL REPL or SPARK REPL, press OK on the display control pad to enter edit mode (wrench displays).
 - Use the LEFT and RIGHT arrows to toggle between REPL and COMP (for complete).
 - Select the COMP option and press the OK button to clear the maintenance reminder. If the REPL option is selected when the OK button is pressed, editing exits without clearing the reminder.

- Press LEFT arrow to return to top level display.

Display 4 - SETUP

NOTICE: All options in this menu are editable.

- With SETUP displayed, press the RIGHT arrow to enter the setup menu.



- Press the UP and DOWN arrows to scroll through the setup menu:
 - Display A indicates the unit of measure selected.
 - Press OK to enter edit mode.
 - Press the LEFT and RIGHT arrows to toggle between USCS (US Customary System) and METR (Metric).
 - Press OK to select preference.
 - Display B is the enable/disable EPAS option.
 - Press OK to enter edit mode.
 - LEFT and RIGHT arrows toggle YES and NO.
 - Press OK to select preference.
 - Display C is the leading zero option for the speed display.
 - Press OK to enter edit mode.
 - LEFT and RIGHT arrows toggle YES and NO.
 - Press OK to select preference.
- Press LEFT arrow to return to top level display.



FEATURES AND CONTROLS

Display 5 - CLOCK

NOTICE: All options in this menu are editable.

1. With CLOCK displayed, press the RIGHT arrow to enter the clock menu.



2. Press the UP and DOWN arrows to scroll through the clock preferences menu:

- Display A indicates the 24 hour mode selected.
 - Press OK to enter edit mode.
 - LEFT and RIGHT arrows toggle YES and NO.
 - Press OK to select preference.



- Display B allows the hour value to be set.
 - Press OK to enter edit mode.
 - LEFT and RIGHT arrows for input values 00 - 23.
 - Press OK to select preference.



- Display C allows the minute value to be set.
 - Press OK to enter edit mode.
 - LEFT and RIGHT arrows for input values 00 - 59.
 - Press OK to select preference.



Display 6 - INFO

NOTICE: None of the options in this menu are editable.

1. With INFO displayed, press the RIGHT arrow to enter the information menu.



- Display A indicates remaining oil life based on scheduled maintenance.



- Display B indicates remaining spark plug life based on maintenance schedule.



- Display C indicates the dash calibration number.



- Display D indicates the dash firmware number.



- Display E indicates the calibration revision number.



- Display F indicates firmware revision number.



- Display G indicates bootloader revision number.



Display 7 - SPEED

NOTICE: This feature control may not be available on all Textron Off Road products.

If applicable, all options in this menu are editable.

The default speed setting from the factory is maximum, until the speed control (if available) allows it to be set to a different speed limit.

- With SPEED displayed, press the RIGHT arrow to display the PIN entry menu.



NOTICE: The default PIN is "0000" until it is otherwise set. PINs must always be four digits.

The correct PIN must be entered to access the speed setting and PIN setting menu items.

The PIN can be reset to default ("0000") by the dealer if needed.

PIN is displayed on the screen. The digits are initially blank.

- Press OK to edit.
 - The wrench icon displays indicating edit mode is active.
 - A blinking cursor will display to indicate which digit of the 4-digit PIN is being entered.
 - Press UP and DOWN arrows to select digit between 0 - 9.
 - Press RIGHT and LEFT arrows to move between digits.
 If RIGHT is pressed before selecting a value, "0" is entered and the cursor moves to the next digit. Each digit is blank until a number is selected. The digit will blink if a number has been selected and it is the current digit being edited.
 - Press OK after correct PIN is entered.



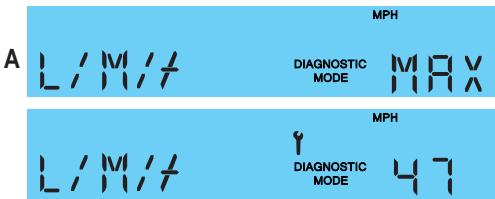
NOTICE: If the entered PIN is incorrect or incomplete, the wrench icon disappears and the digits on the right go blank again.

- After the PIN is entered correctly, the LIMIT speed setting menu displays.

NOTICE: Press the UP and DOWN arrows to toggle between the LIMIT speed setting and PIN reset menus:

FEATURES AND CONTROLS

- Display A (LIMIT speed) allows the user to set the maximum vehicle speed. The default setting from the factory is MAX indicating that the maximum value set in the display calibration has been set. Unit for speed is indicated by MPH or km/h.
 - Press OK to edit. The wrench icon displays to indicate edit mode is active.

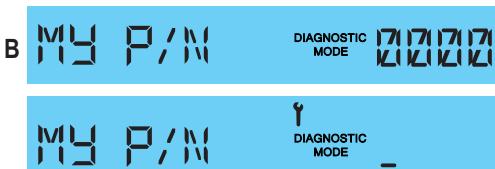


NOTICE: Pressing the LEFT arrow when MAX is displayed will step down to the highest limited speed that can be set.

Pressing the RIGHT arrow when MAX is displayed will display the lowest limited speed that can be set.

- Press LEFT and RIGHT arrows adjust speed.
- Press OK after speed preference is set to complete.

- Display B (MY PIN reset) allows the user to reset the PIN. The current PIN is displayed before editing starts.
 - Press OK to edit. The wrench icon displays to indicate edit mode is active. The digits are blanked.
 - Press RIGHT and LEFT arrows to move between digits.If RIGHT is pressed before selecting a value, "0" is entered and the cursor moves to the next digit.
Each digit is blank until a number is selected. The digit will blink if a number has been selected and it is the current digit being edited.
- Press OK after new PIN is entered to complete reset.



GEAR SHIFTER

The gear shifter has five positions. The positions from top to bottom are:

- H – high
- L – low
- N – neutral
- R – reverse
- P – park

High range is the primary driving gear. High gear is intended for use on hard-packed surfaces with light loads.

To change gears, stop the vehicle and move the lever to the desired gear. Do not try to shift gears with engine speed above idle or while the vehicle is moving.

When the vehicle is not in operation or is left unattended, put the transmission in P (park).

NOTICE: Maintaining the shift linkage adjustment is important for proper transmission function. See an authorized TEXTRON OFF ROAD dealer if you experience any shifting problems.

Shifting gears with the engine speed above idle or while the vehicle is moving could cause transmission damage. Always shift when the vehicle is stationary and the engine is at idle.



Using Low Range

Use low range gear in the following conditions:

- operating in rough terrain or over obstacles
- towing a trailer or hauling a heavy load
- loading the *HAVOC X* onto a trailer
- continuously driving at speeds below 20 mph (32 kph)

SEAT BELTS

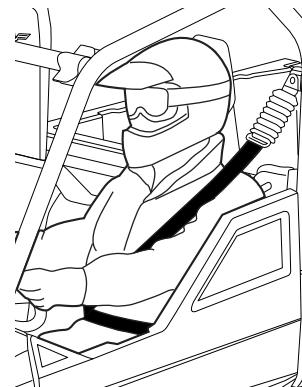
The *HAVOC X* has a three-point seat belt on each seat. Make sure the seat belts for all occupants are fastened before operating the vehicle. The speed of the vehicle is limited to 15 mph (24 kph) or less when the driver's seat belt is not fastened.



Falling from a moving vehicle could cause serious injury or death. All occupants must fasten their seat belts prior to vehicle operation.

Use the following procedure to make sure all seat belts are correctly fastened:

1. Pull the seat belt tab down and across the chest toward the buckle on the inner edge of the seat.
 - Make sure the belt fits snug across the hips and diagonal across the chest.
 - Make sure the belt is not twisted.
2. Push the tab into the buckle until it clicks.
3. Release the strap. It will self-tighten.
4. To release the seat belt, press the release button on the buckle.



Seat Belt Inspection

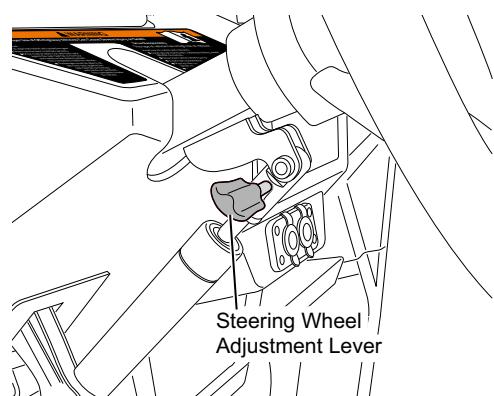
Inspect all seat belts for proper operation before each use.

1. Push the tab into the buckle until it clicks. The tab must slide smoothly into the buckle. A click indicates that it is latched.
2. Press the release button in the buckle to make sure it releases freely.
3. Pull each seat belt completely out and inspect the full length for damage. If damage is found, or if the seat belt does not operate correctly, have the seat belt system inspected by an authorized TEXTRON OFF ROAD dealer.
4. To clean dirt from the seat belts:
 - Use a sponge, mild soap and water.
 - Do not use bleach or household detergents.
 - Rinse the full length of the belt with water.
 - Use a garden hose to flush out the retractor and buckles regularly.
 - Leave the wet seat belt pulled out of the retractor until it is dry.

ADJUSTABLE STEERING WHEEL

The steering wheel can be adjusted to suit different drivers.

Press the adjustment lever down. Move the steering wheel to the most comfortable driving position and pull the lever back up to lock the steering wheel in place.

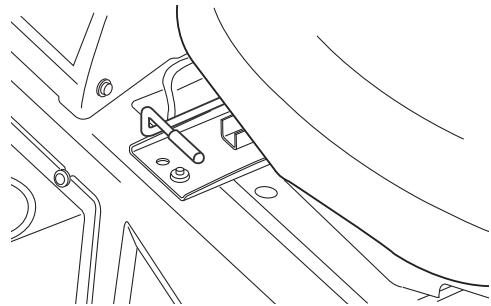


FEATURES AND CONTROLS

ADJUSTABLE DRIVER SEAT

The driver's seat is adjustable for the comfort and safety of the driver.

The adjustment lever is located below the right side of the seat. Pull the lever up and slide the seat to the most comfortable driving position and release the lever to lock into place.



BRAKE PEDAL

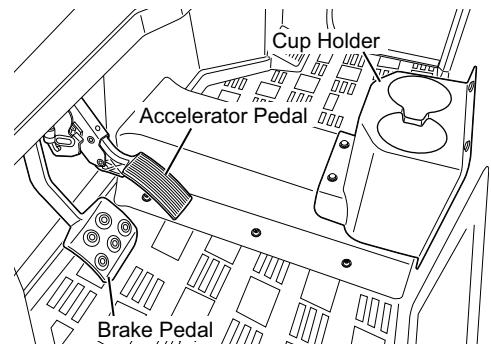
The brake pedal is the left pedal on the floorboard.

Press the brake pedal to slow vehicle speed or bring the vehicle to a complete stop.

ACCELERATOR PEDAL

The accelerator pedal is the right pedal on the floorboard. It controls the acceleration of the vehicle.

Press the pedal to increase engine speed. Spring pressure returns the pedal to the rest position when it is released. Always make sure the pedal has returned properly before starting the engine.

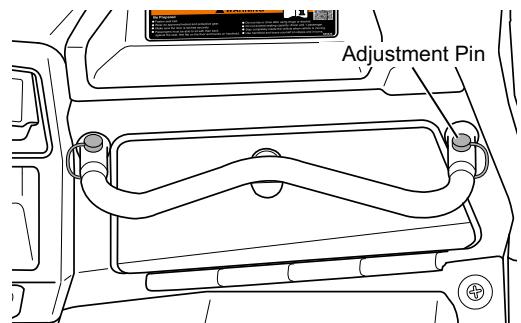


CUP HOLDER

The HAVOC X has a cup holder that will accommodate two beverage containers.

PASSENGER HAND HOLD

The passenger hand hold is adjustable. Remove the pins from the hand hold and slide the hand hold in or out to achieve the most comfortable position. Secure with pins.



EPAS - ELECTRONIC POWER ASSISTED STEERING

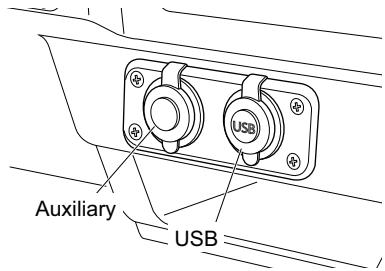
EPAS engages when the ignition key is turned to the ON position. EPAS remains engaged while the engine is running. To conserve battery power, the EPAS will shut down five minutes after the engine is stopped and the key remains in the ON position. The EPAS fault indicator will illuminate to indicate the EPAS has shut down. Turn the key off and back on to reset the unit.

See page 21 for EPAS indicator information.

AUXILIARY OUTLET

A 12-volt auxiliary outlet is located on the dash.

With the key switch in the ON position, the auxiliary outlet supplies power for any lights and accessories that have a 12-volt plug.



USB PORT

A USB port is located on the dash.

With the key switch in the ON position, the USB port supplies power to electronic devices via a USB cable.

ROLLOVER PROTECTION STRUCTURE (ROPS)

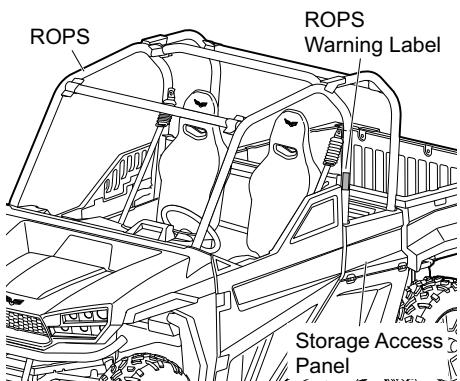
WARNING

A vehicle rollover can cause severe injury or death. Never operate the vehicle in a manner that could cause the vehicle to roll over.

The Rollover Protection Structure (ROPS) on the *HAVOC X* meets ISO 3471 per ANSI/ROHVA 1 rollover performance requirements.

Always have the ROPS inspected by an authorized TEXTRON OFF ROAD dealer if it is damaged in any way.

No device can ensure occupant protection in the event of a roll-over. To avoid vehicle rollover, follow all safe operating practices described in this manual and on the warning label on the ROPS (*ROPS Warning (P/N 665884)* on page 13).



STORAGE COMPARTMENTS

The *HAVOC X* has several open storage compartments and a lockable glove box in the dash panel. There is also a storage area behind the seat for larger objects. Both side panels behind the doors are hinged for access to the storage area behind the seat.

HITCH RECEIVER

The *HAVOC X* is equipped with a hitch receiver. Trailer towing equipment is not supplied with the vehicle.

To prevent injury and property damage, follow all warnings, procedures, and towing capacities described in *TOWING LOADS* on page 38.

TRUCK BED

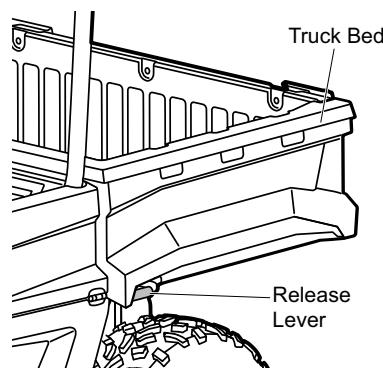
The tailgate can be opened for loading and unloading cargo.

Open the tailgate latches and lower the tailgate.

Lift the tailgate and secure the latches to close the tailgate.

The truck bed can be tilted by lifting up the release lever on either side of the vehicle.

To prevent injury and property damage, follow all warnings, procedures, and weight capacities described on the label in the truck bed as well as the ones in this owner's manual. See *HAULING CARGO* on page 37 and *DUMPING THE TRUCK BED* on page 38.



FEATURES AND CONTROLS

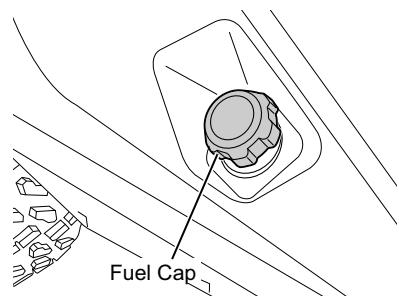
FUEL TANK CAP

WARNING

Always make sure the fuel cap is reinstalled after filling the tank. Do not operate the vehicle without the fuel cap correctly installed and tightened.

The fuel cap is located on the passenger side of the vehicle.

See *Fuel* on page 32 for fueling information.



OPERATION

SAFETY

WARNING

Failure to operate the vehicle correctly can result in a collision, loss of control, accident or rollover, and cause serious injury or death. Read and comply with all safety warnings in the safety section of this owner's manual.

PRE-RIDE INSPECTION

Inspect and verify that the vehicle is in safe operating condition before each use to decrease the risk of an accident. Check the items in the table to help ensure safe and reliable operation.

Item	Check	Page
Brake system/pedal travel	Check for proper operation.	62
Brake fluid	Check for correct level.	62
Park gear	Ensure vehicle does not roll when in park (P), and P light illuminates in the driver information center.	
Front suspension	Inspect. Lubricate if necessary. Check for loose or missing hardware.	
Rear suspension	Inspect. Lubricate if necessary. Check for loose or missing hardware.	
CV boots	Inspect for damage. Replace if necessary.	
Steering	Check for smooth and free operation.	
Tires	Check condition and pressure.	63 14
Wheel hardware	Check for loose or missing hardware.	
Frame hardware	Check for loose or missing hardware.	
Fuel and engine oil	Check for correct levels.	52
Coolant	Check for correct level.	58
Coolant hoses and radiator	Inspect for leaks.	52
Switches and indicator lights	Check operation.	19
Air filter	Inspect; clean or replace if necessary.	61
Headlights	Check operation.	65
Brake light / taillights	Check operation.	65
Seat belts	Check entire length of belt for damage. Check latch operation.	14 27
CVT belt	Check condition.	60
Spark arrestor	Inspect and clean as required.	61

ENGINE BREAK-IN

Correct operation of the engine during the break-in period is essential to the performance, reliability and life of the engine.

The engine break-in period is:

- the first 5 operating hours of a new engine
- the first 5 operating hours of an engine that has been completely disassembled
- the first few minutes until the engine is warm at each operation

During these break-in periods, operate the vehicle in the following manner:

- Avoid engine speeds over 6000 rpm.
- Avoid long periods of idle time.
- Avoid long operating times at low engine speed.
- Avoid long operating times at the same engine speed.
- Avoid long operating times with a full load.
- Vary the engine speed during operation.
- Apply quick bursts of acceleration after the engine has warmed up.

OPERATION

CVT BELT BREAK-IN

The CVT belt break-in period is the first hour of operation on each new belt.

During the CVT belt break-in period, follow the same guidelines as described for engine break-in operation. See *Engine Break-In* on page 31.

FUEL

Refer to *Fuel Handling Guidelines* on page 16 for more information regarding handling and storage of fuel.

WARNING

Always turn off the engine before refueling.

Never use cigarettes in or near the area where refueling is done or fuel is stored.

Do not add fuel near open flame or electrical items that can cause a spark.

Refuel only in well-ventilated areas.

Wear eye protection to protect from splashed fuel and fuel vapors.

Inspect the fuel cap, tank and other components for leaks or damage that can cause a hazardous condition.

Do not overfill the tank. Do not fill the tank neck.

Fill the tank with clean, automotive grade gasoline.

Fuel		NOTES
Recommended grade	91, 92 or 93 octane	Recommended for maximum engine performance and fuel economy.
Minimum grade requirement	87 octane	Permissible, however the use of lower octane fuels can cause loss of engine power and/or increased fuel consumption.
Ethanol content	10% maximum permissible	Exceeding the maximum permissible ethanol concentration can deteriorate the engine fuel system and starting performance.
Methanol content	Not permissible	The use of fuels containing methanol is not permissible.

STARTING THE ENGINE

Always start the engine outdoors or in a well-ventilated space.

1. Sit in the driver's seat and fasten the seat belt. Close the cab doors.
2. Press the brake pedal.
3. Move the gear shifter to the P (park) position.
4. Do not press the accelerator pedal. The engine will not start with the accelerator pedal pressed.
5. Insert the key and turn it past the ON position to the START position until the engine starts, then release. Engage the starter for no more than five seconds.
6. If the engine does not start within five seconds, release the ignition switch and wait five seconds.
7. Repeat steps 5 and 6 until the engine starts.

NOTICE: Operating the vehicle immediately after starting the engine can cause engine damage. Allow the engine to warm up for several minutes before operation begins.

STOPPING THE ENGINE

1. Release the accelerator and press the brake pedal to stop the vehicle.
2. Bring the vehicle to a complete stop and move the gear shifter to the P (park) position.
3. Turn the key to the OFF position to shut down the engine and vehicle electronics.

WARNING

A rolling vehicle can cause serious injury. Always move the shifter to the P (park) position when stopping the engine.

ACCELERATING

1. Release the brake pedal completely.
2. Press the accelerator pedal with gradual and steady pressure until the vehicle reaches the desired speed.

BRAKING

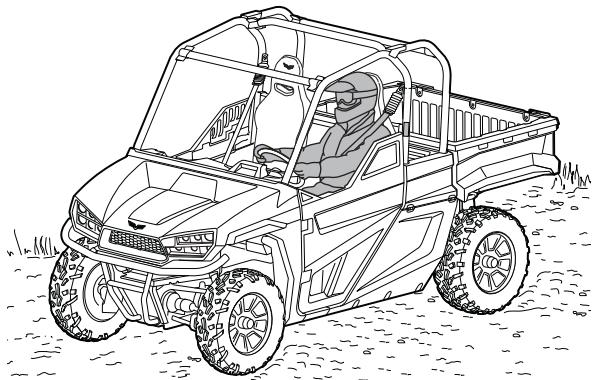
WARNING

When carrying cargo or towing a trailer, the weight of the load will increase the braking distance required to slow or stop the vehicle. Not allowing for increased braking distance under load can cause an accident or injury.

1. Release the accelerator pedal completely.
2. Press the brake pedal firmly.
3. Practice starting and stopping using the brake until you are familiar with the controls.

DRIVING PROCEDURE

1. Perform the pre-ride inspection. See page 31.
2. Wear protective riding gear:
 - helmet
 - eye protection
 - gloves
 - long-sleeve shirt
 - long pants
 - over-the-ankle boots
3. Sit in the driver's seat and fasten the seat belt. Close the door.
4. Start the engine and allow it to warm up.
5. Check surroundings and determine the path of travel.
6. Press the brake pedal and shift the transmission into L (low) or H (high) gear.
7. With both hands on the steering wheel, release the brake pedal and immediately start to apply gradual and steady pressure to the accelerator pedal.
8. Practice maneuvering the vehicle using the accelerator and brake pedals. Drive slowly and cautiously until you are comfortable with the controls.
9. Do not drive with a passenger until you have at least two hours of experience driving this vehicle.



DRIVING WITH A PASSENGER

- All passengers must be at least 12 years old.
- All passengers must be able to sit with their back against the seat, both feet on the floor and both hands on the passenger hand hold.
- Do not allow more than one passenger in the vehicle.
- Do not allow a passenger to ride anywhere on the vehicle except the passenger seat.
- Travel at speeds appropriate for your skills, your passenger's skills and the operating conditions. Avoid unexpected or aggressive maneuvers that could cause discomfort or injury to the passenger.
- The handling characteristics can change with the added weight of a passenger. Allow more time and distance for braking.
- Follow all operating guidelines as described on the safety labels on the vehicle and in this manual.

1. Perform the pre-ride inspection. See page 31.
2. Make sure you and your passenger are wearing protective riding gear:
 - helmet
 - eye protection
 - gloves
 - long-sleeve shirt
 - long pants
 - over-the-ankle boots
3. Make sure you and your passenger have seat belts correctly fastened.
4. Close both cab doors.

OPERATION

SLIPPERY SURFACES

WARNING

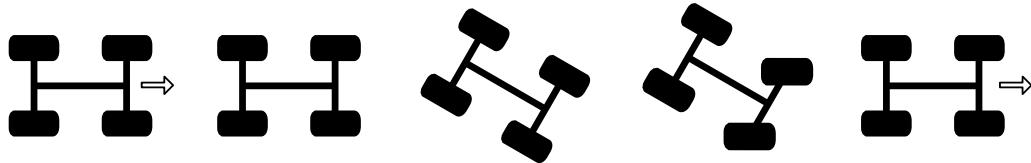
Skidding or sliding can cause loss of control. Skidding or sliding can cause rollover if tires have lost traction, then regain traction suddenly. When operating on slippery surfaces, travel at reduced speed to help maintain control of the vehicle.

When operating in conditions such as ice, water, muddy trails, loose gravel or freezing temperatures, follow these guidelines:

- Do not operate on excessively rough, slippery or loose terrain.
- Slow down before entering potentially slippery areas.
- Maintain a high level of alertness, carefully evaluate the path of travel and avoid quick, sharp turns.
- Engage AWD before the wheels begin to lose traction.

NOTICE: Severe damage to the drive train can occur if AWD is engaged while the wheels are spinning. Always allow the wheels to stop spinning before engaging AWD.

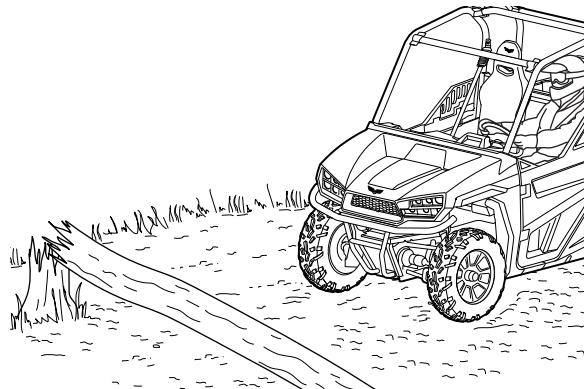
- Correct a skid by turning the steering wheel in the direction of the skid. Never apply the brakes during a skid.



OBSTACLES IN DRIVE PATH

When driving in an area with obstacles such as logs and rocks in the travel path, follow these guidelines:

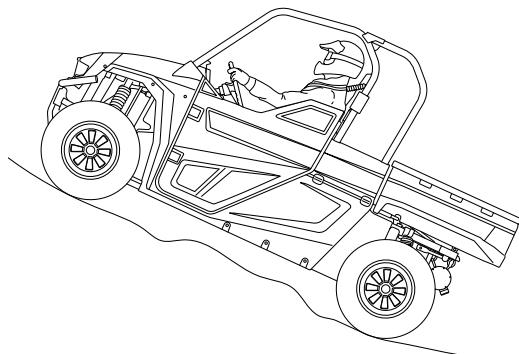
- Check for obstacles before driving in an unfamiliar area.
- Stay alert and continuously monitor the path of travel.
- Drive slowly when on unfamiliar terrain. Some obstacles are not easily or immediately detected.
- Avoid driving over very large obstacles such as large rocks and fallen trees. If unavoidable, drive cautiously and slowly.
- Do not drive over obstacles that could potentially cause a rollover when a passenger is in the vehicle. Have the passenger exit the vehicle and move away to a safe distance.



DRIVING UPHILL

When driving up a hill, follow these guidelines:

- Drive straight up the hill.
- Avoid excessively steep hills.
- Keep both feet on the floor or pedals.
- Check the terrain before driving up a hill. Do not try to climb hills that have excessively slippery or loose surfaces.
- Drive at a steady rate of acceleration and speed.
- Do not drive over the crest of a hill at high speed. An obstacle, sharp drop, or another person or vehicle could be on the other side of the hill.
- Do not attempt to drive up a hill that is beyond your skill level.



TRAVERSING HILLSIDES

Traversing a hillside is not recommended. Improper procedure can cause loss of control or a rollover. Avoid crossing the side of a hill unless absolutely necessary. Check the terrain and determine if traversing the hill can be accomplished safely. Do not proceed if the terrain is beyond the vehicle or driver's ability.

If traversing a hillside is unavoidable, follow these guidelines:

- Drive slowly.
- Use extreme caution.
- Avoid crossing the side of a hill that has a slippery surface.
- Avoid crossing the side of a steep hill.
- When traversing a hillside that has soft terrain, it may be necessary to steer slightly uphill to keep the vehicle traveling in a straight line.
- If you feel that you are losing control of the vehicle, steer downhill if possible to regain control.

DRIVING DOWNHILL

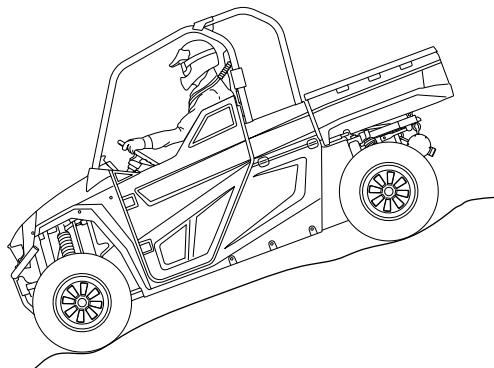
WARNING

When carrying cargo or towing a trailer, the weight of the load will increase the braking distance

required to slow or stop the vehicle. Not allowing for increased braking distance under load can cause an accident or injury.

When driving down a hill, follow these guidelines:

- Avoid excessively steep hills.
- Check the terrain carefully before descending any hill.
- Never drive down hills with excessively slippery or loose surfaces.
- Drive slowly.
- Drive straight down the hill. Avoid descending the hill at an angle that could cause the vehicle to lean sharply to one side.
- Apply light and constant pressure to the brakes to maintain slow speed and control of the vehicle.



STALLING ON A HILL

A rollover can result from stalling or rolling backward while climbing a hill. Drive uphill at a constant speed.

If your vehicle completely stalls while climbing a hill:

1. Apply the brakes.
2. Verify that the area behind you is clear.
3. Put the transmission in R (reverse).
4. Use steady brake pressure to control speed, and allow the vehicle to slowly roll straight downhill.

If your vehicle begins to roll downhill:

1. Do not press the accelerator.
2. Apply the brakes gradually until the vehicle fully stops.
3. Verify that the area behind you is clear.
4. Put the transmission in R (reverse).
5. Use steady brake pressure to control speed, and allow the vehicle to slowly roll straight downhill.

DRIVING THROUGH WATER

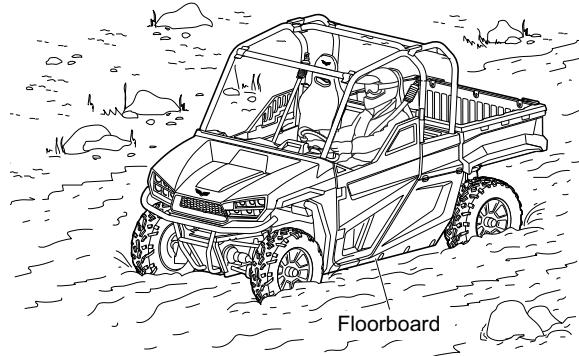
The HAVOC X can be driven through water that is up to the bottom of the floorboard. Do not drive in water deeper than the bottom of the floorboard.

NOTICE: *To decrease risk of major damage, the vehicle must be serviced correctly and promptly after immersion in water deeper than the floorboard. Always take the vehicle to your dealer for service. DO NOT START THE ENGINE. If it is impossible to take the vehicle to your dealer before starting the engine, perform the service procedure described under VEHICLE IMMERSION on page 60, and then take the vehicle to your dealer as soon as possible.*

OPERATION

When driving through water, follow this procedure:

1. Determine the depth of water and strength of current before entering the water.
2. Choose a crossing where both banks have gradual inclines.
3. Proceed slowly. Avoid rocks and other obstacles.
4. Avoid driving through water that exceeds the height of the floorboard.
5. Avoid water with a fast-flowing current.



⚠️ WARNING

Deep or fast-flowing water can cause loss of vehicle control and lead to possible injury or death. Never cross water that is deeper than the bottom of the floorboard.

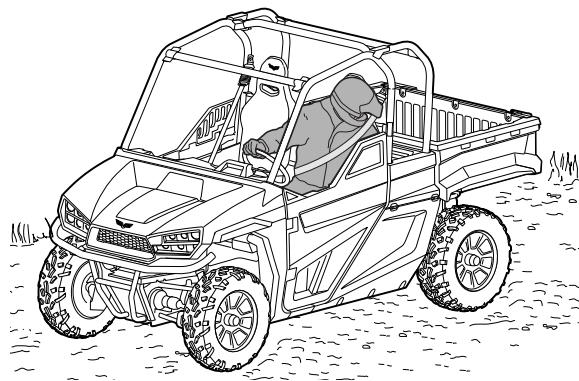
6. After leaving the water, dry the brakes by applying light pressure to the pedal repeatedly until braking action is normal.

NOTICE: After driving your vehicle in water, it is critical that the services listed in the **SCHEDULED MAINTENANCE CHART** on page 48 be performed. Pay particular attention to engine oil, front and rear differential and all grease fittings.

DRIVING IN REVERSE

When driving in reverse, follow these guidelines:

- Check that the area behind the vehicle is clear of obstacles and people.
- Check left and right fields of vision before driving in reverse.
- Do not back down a steep hill.
- Drive in reverse slowly.
- Press the brakes lightly for stopping.
- Accelerate slow and steady.
- Avoid turning at sharp angles.

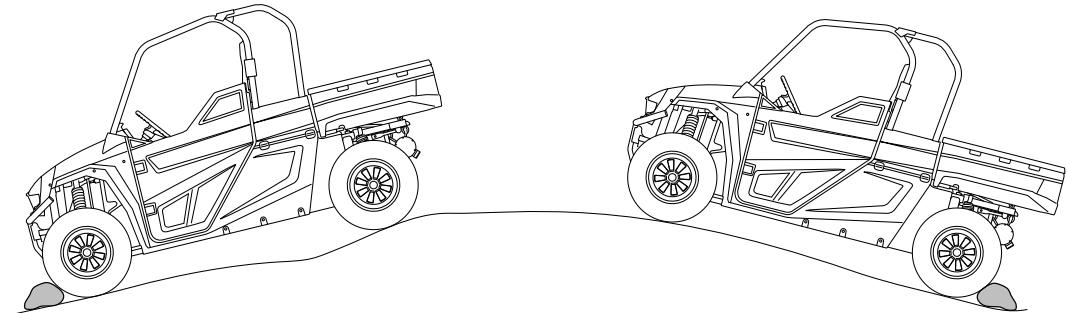


PARKING THE VEHICLE

NOTICE: When parking the vehicle inside a garage or structure, the space must be well ventilated. Park the vehicle away from any source of flame or sparks, including any appliance with a pilot light.

Park the vehicle on a flat surface if possible. If parking on an incline is unavoidable, be sure to chock the wheels as shown in the following illustration to keep the vehicle from rolling.

1. Press the brake to stop the vehicle.
2. Put the transmission in P (park).
3. Turn the engine off.
4. Remove the key from the ignition to prevent unauthorized use.
5. If parking on an incline, chock the wheels on the downhill end as shown in the following illustration.



HAULING CARGO

⚠ WARNING

Hauling cargo incorrectly can alter vehicle handling characteristics and cause loss of control, brake instability, and possibly lead to serious injury or death.

Never exceed the maximum weight capacity of the vehicle. The total load (operator, passenger, accessories, cargo and load on hitch) must never exceed the maximum weight capacity of the vehicle. See the following chart in *Maximum Cargo Load / Maximum Weight Capacity* on page 37.

Position the load as far forward, and as low as possible in the truck bed.

Secure all loads before operating. Unsecured loads can shift and create unstable operating conditions.

When operating over rough or hilly terrain, reduce speed and cargo (if possible) to maintain stable driving conditions.

Use low gear and drive slowly.

Operate only with stable and safely arranged loads. When handling loads that are impossible to center in the truck bed, make sure the load is secured as tightly as possible and operate the vehicle with extra caution.

Always attach a tow load to the rear hitch of the vehicle.

Reduce speed and allow greater distances for braking when hauling cargo.

Heavy loads affect braking and handling characteristics. Use extra caution when applying brakes with a heavily loaded vehicle. Avoid terrain or situations that may require reverse downhill travel.

Use extra caution when operating with loads that extend over the truck bed sides. Stability and maneuverability can be affected and increase risk of rollover.

The HAVOC X is designed to carry or tow specific capacities. Read and comply with the load distribution warnings on the warning label affixed to the bed. The total load (operator, passenger, accessories, cargo and load on hitch) must never exceed the maximum weight capacity of the vehicle.

Maximum Cargo Load / Maximum Weight Capacity

Maximum Vehicle Weight Capacity	1200 lbs. (544 kg)
Maximum Cargo Load Capacity (Bed) *	600 lbs. (272 kg)
Maximum Cargo Load (Extended Cab) *	170 lbs. (72 kg)

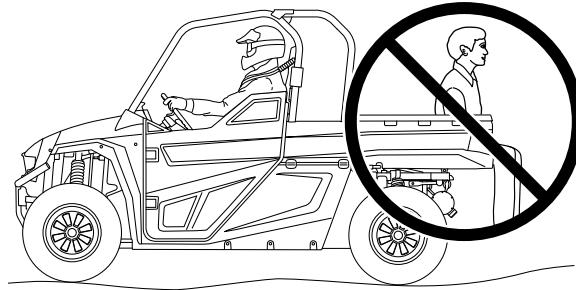
* California Load Capacity (Bed and Extended Cab combined) is 600 lbs. (272 kg).

- Do not exceed 35 mph (56 kph) if the maximum weight load is greater than 600 lbs. (272 kg).
- Do not exceed 25 mph (40 kph) if the maximum weight load is greater than 900 lbs. (408 kg).

OPERATION

⚠ WARNING

Operating the vehicle with passengers in the truck bed can result in severe injury or death. Never allow a passenger to ride in the truck bed. Passengers must always ride seated in the passenger seat with the seat belt fastened.



TOWING LOADS

⚠ WARNING

Towing loads incorrectly can alter vehicle handling characteristics and cause loss of control, brake instability, and possibly lead to serious injury or death.

When towing a load, follow these guidelines:

- Never load more than 150 lbs. (68 kg) tongue weight on the hitch receiver.
- Drive slow and use low gear for towing.
- If towing a disabled vehicle, put the disabled vehicle transmission in neutral.
- Towing a trailer or another vehicle increases braking distances required for slowing or stopping the vehicle.
- Do not tow more than the recommended towing weight for the vehicle. See the following table and the *SPECIFICATIONS CHART* on page 71.

Maximum Towing Capacity (Level Ground)	2000 lbs. (907 kg)
Hitch Tongue Weight	150 lbs. (68 kg)

- Attach a trailer to the tow hitch only. Attaching the trailer at any other location can cause loss of vehicle control.
- Do not drive faster than the maximum speed.

Maximum Towing Speed	Trailer Load
15 mph (24 kph)	under 500 lbs. (227 kg)
10 mph (16 kph)	over 500 lbs. (227 kg)

- Do not tow a trailer on an incline greater than 15°.

To extend the CVT belt life, use the L (low) gear to haul or tow heavy cargo.

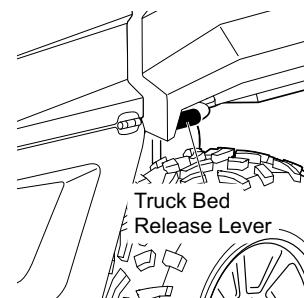
DUMPING THE TRUCK BED

⚠ WARNING

If the bulk of the cargo weight is at the rear of the bed, the bed may unexpectedly dump when the release lever is pulled, causing serious injury to anyone close. Never pull the release lever unless the load is positioned evenly, or located at the front of the truck bed.

Never leave the truck bed in the upright position after emptying the cargo. The bed can unexpectedly close and cause serious injury. Never drive the vehicle with the truck bed in the raised position.

1. Select a level location to dump the truck bed load. Do not attempt to dump or unload the vehicle if it is on an incline.
2. Apply the brakes.
3. Put the transmission in P (park).
4. Exit the vehicle.
5. Make sure the cargo is positioned evenly or located at the front of the truck bed.
6. Release the tailgate latches.
7. Stand clear and pull the release handle. Lift up on the truck bed to dump the cargo.
8. When the truck bed is empty, lower the bed back into place.
9. Push down to latch the bed.
10. Close and latch the tailgate.



DIFFERENTIAL OPERATION MODES

All-Wheel Drive (AWD)

Press the top of the rocker switch to engage All-Wheel Drive (AWD). When in AWD, power is transferred to both the front and rear wheels.



AWD OPERATION:



The AWD icon on the driver information center illuminates when the vehicle is in AWD mode.

In AWD mode, the front differential automatically engages any time the rear wheels lose traction. When the rear wheels regain traction, the front differential automatically disengages. There is no limit to the length of time the vehicle may remain in AWD.

Once enabled, the AWD remains enabled until the AWD switch is moved to the 2WD position. If the switch is moved from AWD to 2WD while the front differential is moving, it will not disengage until the rear wheels regain traction.

Engage AWD before getting into conditions where front wheel drive may be needed. If the rear wheels are spinning, release the accelerator pedal before switching to AWD mode.

NOTICE: *Switching to AWD while the rear wheels are spinning can cause severe drive shaft and clutch damage. Slow the vehicle to nearly or completely stopped before engaging the differential to prevent damage.*

DISENGAGING AWD:

Some conditions make it possible for the front differential to remain locked unnecessarily. This condition causes increased steering effort and speed restriction. To disengage AWD, follow these steps:

1. Stop the vehicle completely.
2. Operate in reverse for a minimum of 10 feet.
3. Stop completely again.
4. Shift into low gear and drive forward.

If the front differential still remains locked, take the vehicle to your dealer for service.

Two-Wheel Drive (2WD)

Press the bottom of the rocker switch to change operation mode from AWD to 2WD. The front differential is unlocked in this position.

WINCH

The winch activation switch is located on the dash console to the right of the steering wheel. See *WINCH SWITCH* on page 19.

The safety warnings and information in this section apply if your vehicle has a winch.

WARNING

Improper or irresponsible use of the winch can result in severe injury or death. Always follow all winch instructions and warnings in this manual.

WINCH SAFETY

- Read and understand this entire section before operating your winch.
- Inspect your winch and winch cable for damage before each use.
- Never use alcohol or drugs before or during operation of the winch.
- Do not allow any person below the age of 16 to operate the winch.
- Always wear eye protection and heavy gloves while operating the winch.
- Always keep body, hair, clothing and jewelry clear of the winch cable and hook while operating the winch.
- Never attempt to jerk a load attached to the winch with a moving vehicle. See *Shock Loading* on page 44.
- Always keep the area around the vehicle, winch, winch cable and load clear of people and distractions while operating the winch.
- Always turn the vehicle ignition switch OFF when the vehicle and winch are not being used.
- Maintain at least five full turns of winch cable wrapped around the winch drum at all times. The friction provided by the wrapped cable allows the drum to pull on the winch cable and move the load.

- If pulling yourself, put your vehicle in N (neutral). If pulling something else, put your vehicle in P (park) to prevent it from moving while winching. Use wheel chocks if needed.
- Always align the vehicle and winch with the load directly in front of the vehicle as much as possible. Avoid winching with the winch cable at an angle to the vehicle's centerline whenever possible.
- If winching at an angle is unavoidable, follow these precautions:
 - Be observant of the winch drum. Do not allow the winch cable to stack or accumulate at one end of the winch drum. If the winch cable stacks, damage to the winch and winch cable can occur.
 - If stacking occurs, stop winching. Follow step 13 on page 43 to feed and rewind the cable evenly before continuing the winch operation.
- Never winch up or down at sharp angles. It can destabilize the winching vehicle and possibly cause unexpected movement.
- Never winch loads that exceed the rated capacity of the winch.
- The winch motor can become hot during use. After winching for more than 45 seconds, or if the winch stalls during operation, stop winching and allow the winch motor to cool down before using it again.
- Never touch, push, pull or straddle the winch cable while winching a load.
- Even if wearing heavy gloves, never let the winch cable run through your hands.
- Never release the clutch on the winch when the winch cable is under load.
- Never use the winch for lifting or transporting people.
- Never use the winch to hoist or suspend a vertical load.
- Never immerse the winch in water. Take your winch to your dealer for service if immersion occurs.
- Never winch the hook fully into the winch. It can damage winch components.
- Disconnect the remote control from the vehicle when the winch is not in use to prevent accidental activation and use by unauthorized persons.
- Never apply grease or oil to the winch cable. Grease and oil will cause the winch cable to collect debris and shorten the life of the cable.

Do not pull at an angle.
Incorrect
Correct

WINCH

WINCH OPERATION

Read all of the *Winch Safety* beginning page 41 before operating your winch.

NOTICE: *Practicing operation and use of the winch before it is needed to perform a job is recommended.*

⚠ WARNING

Improper or irresponsible winch use can result in severe injury or death. Comply with all winch instructions and warnings in this manual.

Since all winching situations are different, follow these important guidelines:

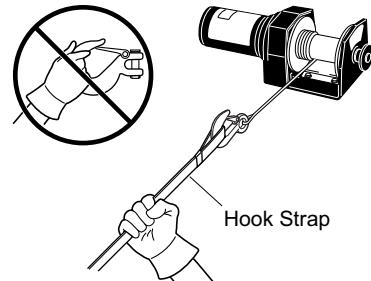
- Evaluate the winching operation you are about to perform.
- Proceed slowly and deliberately.
- Maintain constant awareness of your surroundings.
- Maintain constant awareness that your winch is very powerful.
- Change your winching strategy if what you are doing is not working.
- Seek assistance if needed.

1. Inspect the vehicle, winch, winch cable and winch controls for any signs of damage or parts in need of repair or replacement before each use. Replace the cable if signs of wear or damage is visible. Never operate a winch in need of repair or service.
2. If pulling yourself, put your vehicle in N (neutral). If pulling something else, put your vehicle in P (park) to prevent it from moving while winching. Use wheel chocks if needed.
3. Use a hook strap when handling the hook.

⚠ WARNING

Never put your fingers into the hook. Doing so could lead to severe injury.

- a. Attach the hook onto the load or use a tow strap or chain to secure the load to the winch cable.



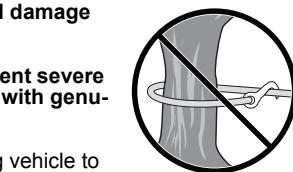
⚠ WARNING

Do not use a recovery strap as a tow strap. Recovery straps are designed to stretch so they store energy. The stored energy in the recovery strap will release if the winch cable breaks. The use of recovery straps can cause severe injury or death.

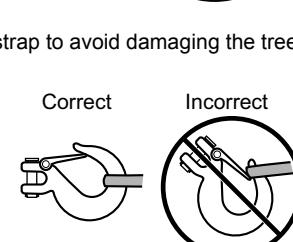
Do not hook the winch cable back onto itself. Doing so will damage the winch cable and can result in winch cable failure.

Replace the winch cable at the first sign of damage to prevent severe injury or death in the event of failure. Replace winch parts with genuine TEXTRON OFF ROAD or equivalent replacement parts.

- b. If possible, keep the winch cable aligned with the centerline of the winching vehicle to help maintain even spooling of the winch cable.
- c. If freeing a stuck vehicle by attaching to a tree, use an item such as a tow strap to avoid damaging the tree during winch operation. Sharp cables and chains can damage or kill trees.
- d. The safety latch on the winch cable hook must be fully seated when the load is attached.



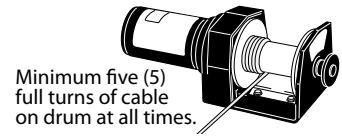
A line drawing of a hand holding a metal hook and attaching it to a cylindrical load. The hook is shown in a standard 'U' shape, with the safety latch fully seated and engaged. The word 'Correct' is printed to the right of the image.



A line drawing of a hand holding a metal hook and attaching it to a cylindrical load. The hook is shown in an inverted 'U' shape, with the safety latch partially seated and not fully engaged. The word 'Incorrect' is printed to the right of the image.

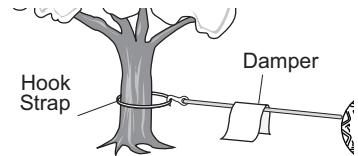
- e. Never operate the winch with a damaged hook or latch. Damaged parts must be replaced before winch operation.
4. Never remove the hook strap from the hook until the operation is complete.
5. Release the winch clutch and pull out the winch cable.

- Pull out as much cable as possible to maximize the winch's pulling capacity. Maintain at least five full turns of winch cable wrapped around the winch drum at all times. The friction provided by the wrapped cable allows the drum to pull on the winch cable and move the load.



- Read and follow the information below for winch damping to ensure safe winch use.

- To absorb energy that could be released by a winch cable failure, always put a damper on the winch cable. A damper can be a heavy jacket, tarp or other soft, dense object. A damper can absorb much of the energy released if the winch cable breaks when winching. Use of a tree limb can help as a damper if no other items are available.
- Lay the damper on top of the mid-point of the winch cable length that is spooled out.
- On a long pull, it may be necessary to stop winching and reposition the damper so that it is always near the mid-point of the cable. Always release the tension on the winch cable before repositioning the damper.
- Never stand in direct line with the winch cable. Never allow others to stand near or in line with the winch cable during winch operation.



- Never use damaged or worn straps, chains or other rigging items.
- The only time a winch-equipped vehicle should be moving when the winch is in use is when the winching vehicle itself is stuck. Follow these guidelines when winching a stuck vehicle.
 - Release the winch clutch and spool out the necessary length of winch cable.
 - Align the cable as close as possible to the winching vehicle centerline.
 - Attach the cable hook to the anchor point or the stuck vehicle frame.
 - Re-engage the clutch on the winch.
 - Slowly winch in cable slack.
 - Shift the stuck vehicle to the lowest gear available.
 - Slowly and carefully press the accelerator pedal and winch together to free the vehicle.
 - Stop winching as soon as the stuck vehicle is able to propel itself without the help of the winch.
 - Remove the cable hook.
 - Rewind the cable evenly back onto the drum.
- To prevent damage to the vehicle, do not attempt to winch another stuck vehicle by attaching the cable to a suspension component, brush guard, bumper or cargo rack. Always attach the cable to the vehicle frame or hitch.
- Extensive winching will drain the battery on the winching vehicle. If winching for long periods of time, allow the engine to run while operating the winch to prevent battery drainage.
- The winch motor can become hot during use. After winching for more than 45 seconds, or if the winch stalls during operation, stop winching and allow the winch to cool down for 10 minutes before using it again.
- If it is necessary to redistribute the winch cable on the drum after winching in complete, use the following procedure:
 - Find an assistant to help.
 - Release the clutch on the winch.
 - Pull the cable out.
 - Re-engage the clutch.
 - Have the assistant pull the winch cable tightly with about 100 lbs. (45 kg) of tension using the hook strap.
 - Slowly retract the cable while the assistant moves the end of the cable back and forth horizontally to evenly distribute the cable on the drum. This process reduces the chance of the cable wedging itself between lower layers of the cable.

WINCH CABLE CARE

For your safety, use original TEXTRON OFF ROAD or equivalent winch replacement parts.



Replace the winch cable at the first sign of damage to prevent severe injury or death in the event of failure.

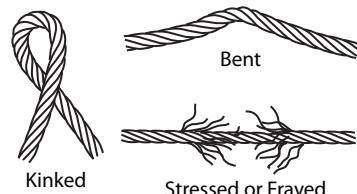
WINCH

- Always inspect the winch cable before each use. Inspect for wear or kinks in the cable.

– A kinked winch cable made of wire rope is shown at right. Even after being straightened out, this cable has been permanently and severely damaged. Discontinue use of a cable in this condition.

– A winch cable made of synthetic rope should be inspected for signs of fraying. Replace the cable if fraying is visible.

– Inspect the winch cable for fused or melted fibers, indicated by stiffness and a smooth or glazed appearance. Discontinue use of a winch cable in this condition.



SHOCK LOADING

The winch cable is designed and tested to withstand the loads produced by the winch motor when operated from a stationary vehicle. The winch and winch cable are not designed for shock loading.

Practices that produce shock loading on a winch cable include:

- Abrupt acceleration of the vehicle against the pull of the winch cable, which causes immediate force on the winch cable that exceeds the force the cable is designed to withstand.
- Jogging the winch by quickly turning the winch ON and OFF repeatedly, which puts extra load on the winch, winch cable and generates excessive heat from the motor.
- Using the winch to tow vehicles or other objects.



A winch cable is not designed for shock loading. Shock loading can tension a cable beyond its strength and cause it to break. A broken winch cable under high loading conditions can cause severe injury or death to anyone in the area.

When using the winch, use the following guidelines:

- To avoid generating high winch cable loads that may exceed the strength of the cable:
 - Never use the winching vehicle to take up slack in the winch cable by moving the vehicle.
 - Never use the winching vehicle to move the object being winched; use the winch only.
- Never jog the winch (quickly turn the winch ON and OFF repeatedly).
- Never tow a vehicle or other objects with a winch. Towing an object with a winch produces shock loading of the cable even when towing at low speeds. Towing from a winch also positions the towing force high on the vehicle and cause instability of the vehicle.
- Never use recovery straps with your winch. Recovery straps are designed to stretch, so they store energy. The stored energy in the recovery strap will release if the winch cable breaks. The use of recovery straps can cause severe injury or death.
- Never use the winch as a tie down to secure a vehicle to a trailer or other transportation vehicle. Using a winch as a tie down can also cause shock loading that can damage the winch, winch cable or vehicles.

WINCH MAINTENANCE SAFETY



Improper or lack of maintenance and service could lead to severe injury or death. Always follow all winch instructions and warnings in this manual.

- Always inspect the winch before each use. Inspect for worn or loose parts including mounting hardware. Never use the winch if any part needs repair or replacement.
- Make sure the winch motor is cool before servicing the winch.
- Always disconnect the battery connections before working on your winch to prevent accidental activation of the winch.
- For your safety, always replace winch parts, including the cable, with genuine TEXTRON OFF ROAD replacement or equivalent parts.
- Replace the winch cable with one of the exact type.

EMISSION CONTROL SYSTEM (ECS)

NOTICE: A qualified repair shop or person of the owner's choosing may maintain, replace, or repair emission control devices and systems with original or equivalent replacement parts. However, warranty, recall and all other services paid for by TEXTRON OFF ROAD must be performed at an authorized TEXTRON OFF ROAD service center.

CRANKCASE EMISSION CONTROL SYSTEM

The TEXTRON OFF ROAD engine has a closed crankcase system. Blow-by gases are forced back to the combustion chamber by the intake system. All exhaust gases exit through the exhaust system.

EXHAUST EMISSION CONTROL SYSTEM

Exhaust emissions are controlled by the engine and catalyst. The catalyst is part of the exhaust system. This system should not be altered in any way.

An electronic fuel injection (EFI) system controls fuel delivery. The engine and EFI components are set at the factory for optimal performance and are not adjustable.

Separate inserts supplied in packaging with the vehicle provide information on Product Warranty and on Emissions Warranty. Failure to follow instructions for emission parts replacement may violate Federal Law (40 CFR part 1068.105 (b)) and be subject to fines and other penalties as described in the Clean Air Act.

NOTICE: Emission-related components also include any other part whose only purpose is to reduce emissions or whose failure will increase emissions without significantly degrading engine/equipment performance.

Installing non-equivalent or non-original components, neglecting maintenance, removing after treatment components, adjusting calibrations or otherwise disabling your emission control systems may void your warranty, cause injury or be a violation of Federal Law.

This vehicle is equipped with the following Emission Control System:

- Catalyst: TWC
- Sequential Fuel Injection: SFI
- Electronic Control Module: ECM
- Heated Oxygen Sensor: HO2S
- Evaporative Fuel Components: EVAP

I. For exhaust emissions, emission-related components include any engine parts related to the following systems:

• air induction system	• ignition system
• fuel system	• exhaust gas recirculation systems

II. The following parts are also considered emission-related components for exhaust emissions:

• after-treatment devices	• crankcase ventilation valves sensors
• electronic control units	

III. The following parts are considered emission-related components for evaporative emissions:

• fuel tank	• control cables*
• fuel cap fuel line	• control linkages*
• fuel line fittings	• purge valves
• clamps*	• vapor hoses
• pressure relief valves*	• liquid/vapor separator
• control valves*	• carbon canister
• control solenoids*	• canister mounting brackets
• electronic controls*	• carburetor
• vacuum control diaphragms*	• purge port connector

* As related to the evaporative emission control system

NOTICE: Refer to the Emission Warranty Statement for warranty and replacement provisions.

EMISSION CONTROL SYSTEMS (ECS)

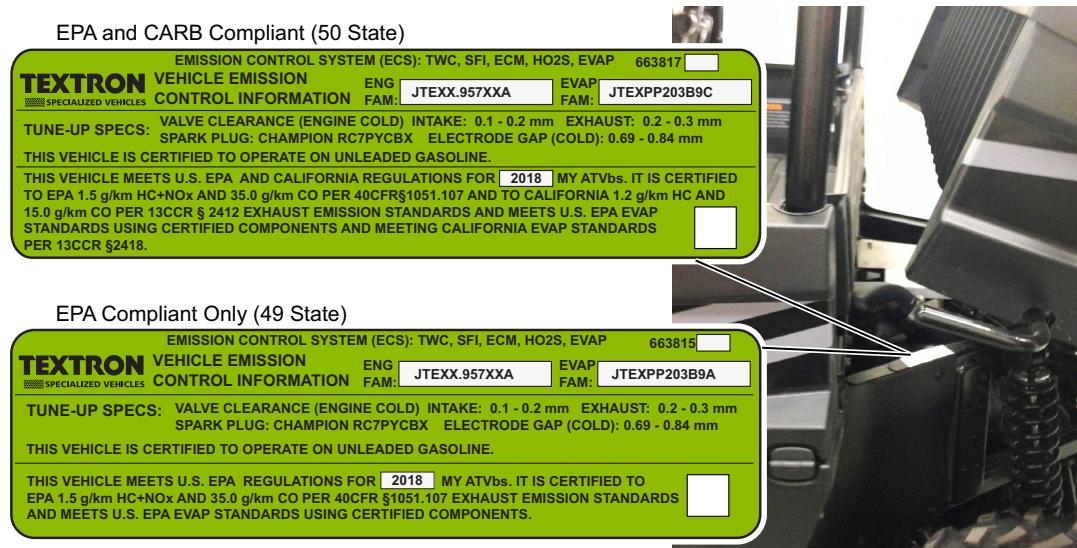
VEHICLE EMISSION CONTROL INFORMATION (ECI) LABEL

The vehicle Emission Control Information (ECI) label is located on the left rear frame, under the truck bed. It is visible and accessible without the removal of any parts. This label identifies the emission certification details, including:

- Model Year
- Engine Family Name
- Evaporative Family Name
- Emission Control System (ECS)
- Tune-up Specs
- Fuel Type
- Emission Standards

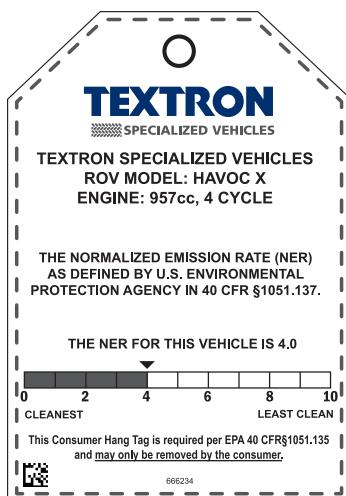
ECI Label

Compliance to the U.S. EPA and/or California emission standards can be verified by the ECI label content.



EMISSIONS HANG TAG

The emissions hang tag is attached to the steering wheel/column with a zip tie.



MAINTENANCE

NOTICE: A qualified repair shop or person of the owner's choosing may maintain, replace, or repair emission control devices and systems with original or equivalent replacement parts. However, warranty, recall and all other services paid for by TEXTRON OFF ROAD must be performed at an authorized TEXTRON OFF ROAD service center.

TOOL KIT

A tool kit is provided that contains tools required to perform some of the scheduled maintenance procedures. The tools included in the kit are:

- spark plug wrench
- shock spanner
- tire pressure gauge
- bit driver
- T-30 Torx bit
- flat head bit
- 5 mm Allen wrench

SCHEDULED MAINTENANCE

Consistent inspection, adjustment and lubrication of some components are necessary to maintain your HAVOC X so that it remains in safe and reliable condition. Refer to the **SCHEDULED MAINTENANCE CHART** on page 48 for detailed requirements.

Inspect, clean, lubricate, adjust and replace parts as necessary. Use original TEXTRON OFF ROAD or equivalent replacement parts.

Record the maintenance items performed along with details in the **MAINTENANCE LOG** beginning on page 81.

NOTICE: *Service and adjustments are important for safe and reliable vehicle operation. If not familiar with safe service and adjustment procedures, have your dealer perform the operations.*

Initial Service Requirements

Perform the additional inspection or maintenance at the initial service interval indicated, in addition to regular intervals. See **SCHEDULED MAINTENANCE CHART** on page 48. The initial service is required for optimum performance and reliability.

- engine oil and filter
- valve lash
- front differential oil
- rear differential oil

Severe Use Conditions

Vehicles subjected to heavy or severe use must be inspected and serviced more frequently than those of normal use patterns.

The following conditions are considered severe use:

- frequent or prolonged use in a dusty environment
- prolonged low speed operation
- prolonged heavy load operation
- frequent use or immersion in mud, water or sand
- short trips in cold weather
- extended idle
- racing or high RPM use

MAINTENANCE

SCHEDULED MAINTENANCE CHART

Perform all services at the maintenance interval reached first. It is recommended, but not required, that all service items are performed by an authorized TEXTRON OFF ROAD dealer. The owner ("you") is responsible for ensuring that scheduled maintenance is performed. You may choose any qualified repair shop or person to maintain, replace or repair emission control devices and systems with OEM or equivalent parts. See *Emissions Limited Warranty* for information related to emission related components and systems.

S – Indicates operations that need to be performed on vehicles subjected to severe use.

Item	Interval (perform at interval that comes first)			Remarks	Page	
	Hours	Calendar	Miles (km)			
Engine oil and filter	Initial Service		Replace oil and filter between first 12 and 25 hours or 250 miles (402 km).		53	
Valve Lash	Initial Service		Check and adjust between first 12 and 25 hours or 250 miles (402 km). See engine manual or take to dealer.			
Front differential oil	Initial Service		Check oil between first 12 and 25 hours.		55	
Rear differential oil	Initial Service		Check oil between first 12 and 25 hours.		55	
S Air filter	Weekly			Inspect. Replace as needed.	61	
S Brake pads	10	Monthly		Inspect. Replace as needed.	62	
Battery	20	Monthly		Inspect terminals. Clean as needed.	66	
Prop shaft	50	3 Months		Inspect and lubricate.	60	
S General lubrication	50	3 Months	500 (800)	Lubricate all fittings, pivots, cables, etc. where required.	49	
Shift linkage	50	6 Months		Inspect, lubricate and adjust.	49	
Steering	50	6 Months	500 (800)	Inspect. Replace if excessive play is found.	63	
S Front suspension	50	6 Months	500 (800)	Inspect. Replace if wear or leaks are detected.	49	
S Rear suspension	50	6 Months	500 (800)	Inspect. Replace if wear or leaks are detected.	49	
Throttle body, air intake ducts and flange	50	6 Months	500 (800)	Inspect for proper sealing. Clean as required.		
CVT belt	50	6 Months	500 (800)	Inspect. Replace as needed.	60	
Spark arrester	50	6 Months	500 (800)	Inspect and clean as required.	61	
Cooling system	50	6 Months		Inspect coolant strength seasonally.	58	
S Oil lines, fasteners	50	6 Months		Inspect for leaks and loose fittings.		
S Front differential oil (Inspection)	100	6 Months	1000 (1600)	Inspect for leaks and contamination; change if required. Also change yearly.	55	
S Rear differential oil (Inspection)	100	6 Months	1000 (1600)	Inspect for leaks and contamination; change if required. Also change yearly.	55	
S Engine oil and filter	100	Yearly	1500 (2400)	Change when preparing for storage (no operation for 90 days).	52	
Valve lash	100	Yearly	2800 (4500)	See engine manual or take to dealer.		
Fuel system	100	Yearly	1000 (1600)	Check for leaks at tank cap, lines, throttle body. Replace with OEM parts if needed.		
S Radiator and cooling fan	100	Yearly		Inspect; clean exterior surfaces.	59	
Cooling system		Yearly		Pressure test system.	58	
S Cooling system	100	Yearly		Inspect for leaks.	58	
S Engine mounts	100	Yearly		Inspect. See repair manual for replacement.		
Exhaust muffler	100	Yearly		Inspect. See repair manual for replacement.		

Item		Interval (perform at interval that comes first)			Remarks	Page
		Hours	Calendar	Miles (km)		
S	Front differential oil (Replacement)		Yearly		Replace at interval and also after immersion.	55
S	Rear differential oil (Replacement)		Yearly		Replace at interval and also after immersion.	55
S	Wiring	100	Yearly		Inspect for wear, routing, security. Apply dielectric grease to connectors subjected to water, mud, etc.	
S	Clutches	100	Yearly	1000 (1600)	Clean and inspect. Replace worn parts.	
	Wheel bearings	100	Yearly		Inspect. Replace as needed.	
	Coolant		24 Months		Completely drain and replace with new mixture.	58
S	Spark plug	200	24 Months	5600 (9000)	Replace.	57
	Valve lash	200		5600 (9000)	Inspect. Adjust as needed.	
S	Fuel lines		24 Months		Replace. See repair manual.	
	Brake fluid	200	24 Months		Change.	62
	Toe adjustment				Inspect periodically. Adjust when parts are replaced.	

RECOMMENDED LUBRICANTS AND FLUIDS

Check and lubricate all components at the intervals shown in the *SCHEDULED MAINTENANCE CHART* beginning on page 48.

Item	Capacity	Lubricants/Fluids		Notes	
Engine oil	~3 qt. (2.8 L)	Mobil 1 0W40 Full Synthetic meeting at least API SJ or ACEA A3/B3		See page 52.	
Engine Coolant	~8 qt. (7.6 L)	Ethylene Glycol, silicate- and nitrate-free coolant suitable for aluminum engines		See page 58.	
		Mixing ratio 50% water/50% coolant			
		Approved coolants	Chevron Havoline Coolant		
		Valvoline Zerex			
Fuel	~9 gal. (34 L)	Unleaded; 87 octane min; 91, 92 or 93 octane recommended 10% ethanol content max.		See page 32.	
Brake fluid		DOT 4 brake fluid		See page 62.	
Front differential oil	6 oz. (180 ml)	Mobil 424 recommended; Mobil Fluid LT or equivalent suitable		See page 55.	
Rear differential oil (upper chamber)	13.5 oz. (400 ml)	Mobil 80W90 recommended or equivalent		See page 55.	
Rear differential oil (lower chamber)	94.7 oz. (2.8 L)	Mobil 80W90 recommended or equivalent		See page 55.	
Prop shaft		Universal joint grease or equivalent		Locate fittings on two u-joints and apply grease	

MAINTENANCE

REPLACEMENT OF MAINTENANCE ITEMS

These items or their equivalents can be purchased through your dealer, directly from TEXTRON OFF ROAD or any other qualified source.

Item	Part Number
Air filter	663655
Engine oil filter	105041

LIFTING THE VEHICLE

WARNING

Read and comply with all of the following warnings and lifting procedures to prevent the possibility of the vehicle falling and causing severe injury or death.

The vehicle must be on a firm and level surface for lifting.

Remain constantly aware that the vehicle is not stable during the lifting process.

Place the jack and jack stands only in the areas indicated in the following illustration.

Do not get under a vehicle until its stability on the jack stands is verified; never get under a vehicle while it is on a jack only.

Put wheel chocks in front and behind all wheels that are not being lifted.

Do not allow anyone to remain or get on the vehicle at any time during the lifting process or when the vehicle is lifted.

When performing any service to the drivetrain, lift all four wheels off the ground.

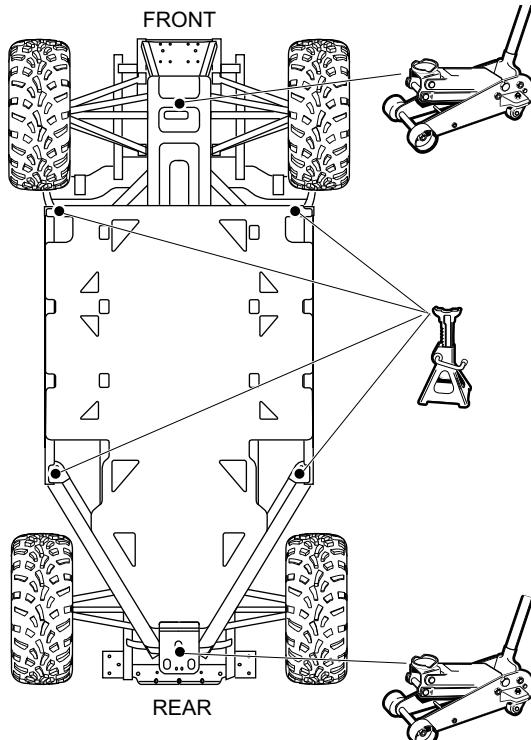
NOTICE: If the skid plate needs to be removed from the underside of the vehicle to perform maintenance, remove it before lifting the vehicle.

Tools

- jack
- jack stands (4)
- wheel chocks

Lifting Front

1. Chock the rear wheels to keep the vehicle from rolling backward.
2. Put a jack under the center of the vehicle frame at the differential mounting plate.
3. Raise the vehicle with the jack.
4. Install a jack stand under each side of the vehicle frame just behind the front wheels.
5. Lower the vehicle until it rests on the jack stands.
6. Remove the jack.
7. Confirm that the vehicle is stable on the jack stands before proceeding with any service.



Lifting Rear

1. Chock the front wheels to keep the vehicle from rolling forward.
2. Put a jack under the center of the vehicle frame at the hitch mounting plate.
3. Raise the vehicle with the jack.
4. Install a jack stand under each side of the vehicle frame just in front of the rear wheels.
5. Lower the vehicle until it rests on the jack stands.

6. Remove the jack.
7. Confirm that the vehicle is stable on the jack stands before proceeding with any service.

Lowering Vehicle

1. Make sure chocks are still in place on any wheels that remain on the ground.
2. Put the jack in the same location that was used to raise the vehicle.
3. Raise the vehicle enough to remove the jack stands. Remove the jack stands from underneath the vehicle.
4. Slowly lower the vehicle to the ground and remove the jack.

TRUCK BED REMOVAL

NOTICE: You may choose to remove the truck bed for full access to the engine compartment when performing some maintenance items.

Tools

- ratchet
- socket, 10 mm
- needle nose pliers

⚠ CAUTION

The truck bed is heavy and difficult to handle. To prevent possible injury, it is necessary to have an assistant or a lifting device to remove the truck bed from the vehicle.

1. With the truck bed in the down position, remove the two bolts that secure the truck bed bracket to the bed frame. Remove the bracket.
2. Raise the truck bed until the gas spring is fully extended.



NOTICE: Before you can remove the truck bed from the vehicle, the pressure from the gas spring has to be relieved. Failure to do this as the first step can damage the spring pivot components.

⚠ CAUTION

Disconnecting the gas spring from the underside of the truck bed requires two people. One person needs to hold the bed to keep it from falling while the second person removes the cotter and clevis pins. The truck bed unexpectedly falling can cause serious injury.

3. With a person on the opposite side of vehicle to hold the bed, remove the cotter and clevis pins that connect the gas spring to the truck bed. Swing the gas spring down to rest on the frame.
4. Lower the truck bed.
5. Remove the cotter pins and clevis pins at the pivot points of the truck bed.
6. Lift the bed from the vehicle.



Gas Spring Connection to Underside of Truck Bed

Truck Bed Installation

1. Position the truck bed onto the truck bed frame.
2. Install a clevis and cotter pin at each bed pivot.
3. Raise the truck bed.
4. Attach the gas spring with the smaller diameter tube connected to the frame and larger diameter tube connected to the bed.

MAINTENANCE

5. Lower the truck bed.
6. Install the truck bed bracket.

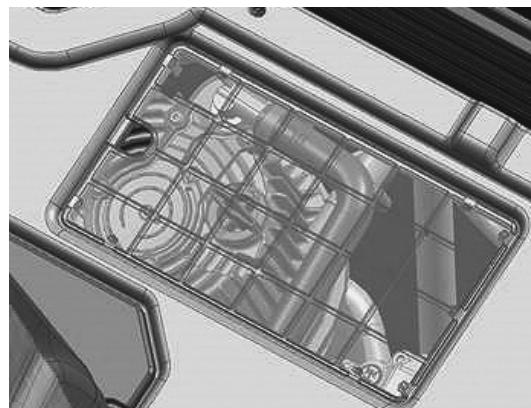
ENGINE OIL

See *RECOMMENDED LUBRICANTS AND FLUIDS* on page 49 for oil capacity and grade. The use of an incorrect grade of engine oil can damage the engine. Always use the recommended grade. Do not mix engine oils of different grades or viscosity.

NOTICE: *Your engine features a dry sump lubrication system. Engine oil is pumped from the oil tank into the engine while the engine is operating. When the engine is turned off, some oil flows slowly from the engine back into the oil tank. Check the oil level immediately after turning off the engine.*

Monitor the oil level in cold conditions. A rise in oil level during cold weather can indicate contaminants collecting in the oil sump or crankcase. Change the oil immediately if the level begins to rise. Monitor the oil level closely. If it continues to rise, discontinue operation and determine the cause of the oil level increase or take the vehicle to your dealer.

Access the oil dipstick by removing the panel in the extended cab.



CHECK OIL

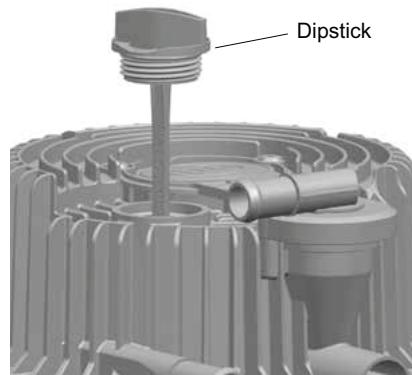
Check the engine oil level when the engine is warm.

1. Start the engine and let it to run until it is warm.
2. Turn off the engine.



Wear protective gloves to prevent scalding from hot engine oil.

3. Remove the dipstick from the oil tank.
4. To get an accurate level reading, wipe the oil from the dipstick and insert back into the oil tank. Do not tighten the dipstick.



- Remove the dipstick from the tank again and check the level. The oil level must be in the area between MIN and MAX on the dipstick.

NOTICE: The lack of oil or low oil level can damage the engine.

- If the oil level is below the MIN line, refer to the following section, *Add Oil*.

NOTICE: Excessive oil can damage the engine.

- If the oil level is above the MAX line, pump out the excessive oil with a siphon pump.
- Replace the dipstick and tighten to secure.

Add Oil

NOTICE: Do not overfill the oil tank. Excessive oil can damage the engine.

Add oil in small quantities with repeated level checks. The area between MIN and MAX is approximately 0.5 qt. (0.5 L) engine oil.

- Add engine oil into the dipstick hole until the level is between MIN and MAX.
- When the level is correct, replace and tighten the dipstick.
- 4.

CHANGE OIL

Tools

- ratchet
- socket, 13 mm
- universal strap wrench
- funnel
- drain pan
- torque wrench, ft.lbs.

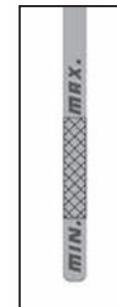
Remove Engine Oil

- Start the engine and let it to run until it is warm.
- Turn off the engine.

CAUTION

Wear protective gloves to prevent scalding from hot engine oil.

- Remove the engine oil.
 - Put a drain pan under the oil tank.
 - Remove the drain plug and seal.
 - Allow the oil to completely drain from the tank into the pan.

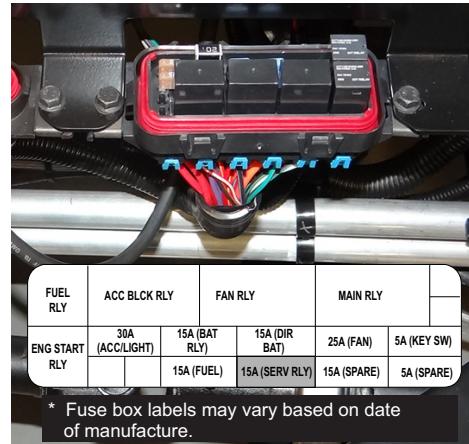


MAINTENANCE

CAUTION

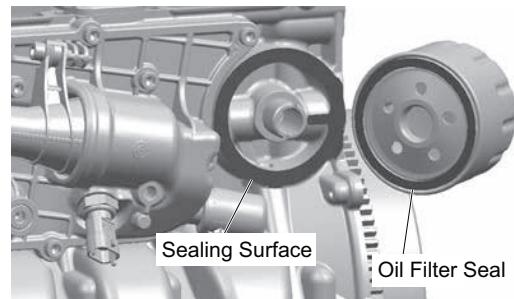
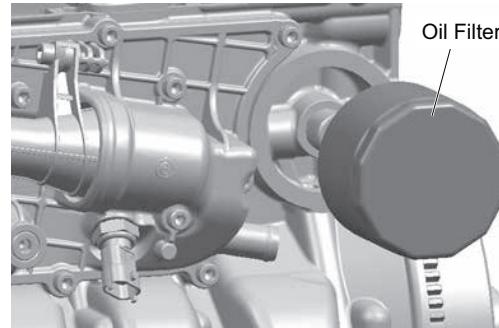
Make sure you remove the correct (15A service) fuse to prevent the engine from starting. Removing the wrong relay or fuse may allow the engine to start when the key is turned. Starting the engine after the oil is drained can cause serious engine damage.

- d. Remove the 15A service fuse in the main fuse box under the driver seat. Removing this fuse will interrupt the power supply circuit to the ignition coil, injectors and O₂ sensor so that the engine will turn over without starting.
- e. Turn the key to activate the starter and let it crank for five seconds. As the engine turns over, the oil is pumped out of the engine.
- f. Let the oil drain until it stops and then repeat two more times to remove the remaining oil from the tank.
- g. When all of the oil is pumped out of the tank, replace the seal and reinstall the drain plug. Tighten the plug to 13.3 - 14.8 ft.lb (18 - 20 Nm).



Replace the Oil Filter

1. Remove the oil filter with a universal strap wrench.
2. Clean the sealing surface with a lint free cloth.
3. Lightly coat the new oil filter seal with clean engine oil.
4. Install the oil filter by hand and then tighten to 7.4 ft.lbs. (10 Nm).

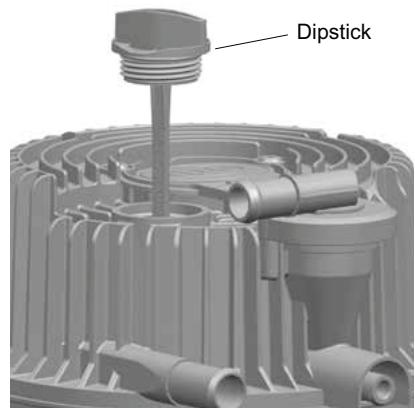


Refill Engine Oil

NOTICE: Do not overfill or under fill the engine. Low or excessive oil can damage the engine.

The use of an incorrect grade of engine oil can damage the engine. Always use the recommended grade. Do not mix engine oils of different grades or viscosity.

1. Remove the dipstick from the oil tank.
2. Add new engine oil into the dipstick hole. See **RECOMMENDED LUBRICANTS AND FLUIDS** on page 49 for grade and capacity.
3. Install the dipstick.
4. Reinstall the 15A service relay in the fuse box.
5. Verify that the oil level is correct. See **CHECK OIL** on page 52.
6. Clear the service counter for the service light. See **Diagnostics** on page 73.
7. Clear the trouble codes. See **Diagnostics** on page 73.
8. Test drive the vehicle and check for oil leaks.



FRONT DIFFERENTIAL

Tools

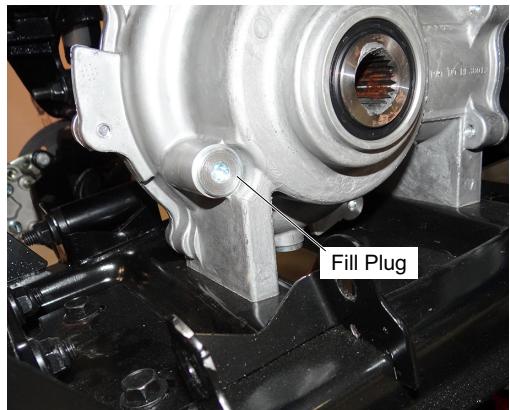
- ratchet
- socket, 8 mm Allen bit
- ratchet extension
- drain pan

Check and replace the front differential oil at the intervals indicated in the **SCHEDULED MAINTENANCE CHART** on page 48.

Front Differential Oil Check

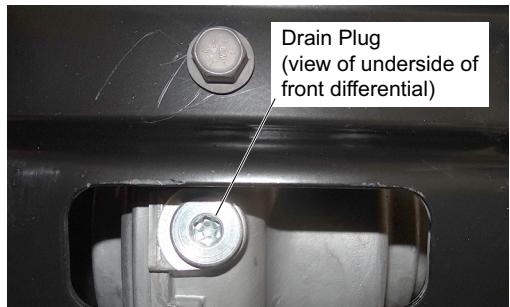
NOTICE: Check the front differential oil at the Initial Service and then at regular intervals indicated.

Remove the fill plug and inspect the oil for water or any other contamination. If the oil is contaminated, it must be replaced.



Front Differential Oil Replacement

1. Put a drain pan under the front differential.
2. Remove the drain plug from the bottom of the front differential and allow the oil to drain completely.
3. Install the plug.
4. Remove the fill plug.
5. Add oil to full capacity. See **RECOMMENDED LUBRICANTS AND FLUIDS** on page 49 for type and capacity.
6. Install the fill plug.



REAR DIFFERENTIAL

The rear differential has two chambers; top and bottom.

Tools

• ratchet, 3/8"	• drain pan
• socket, 1/2"	• Allen wrench, 5 mm
• Torx bit, T30	

NOTICE: You may choose to remove the truck bed, side panel and/or skid plate for full access to the rear differential fill and drain plugs.

MAINTENANCE

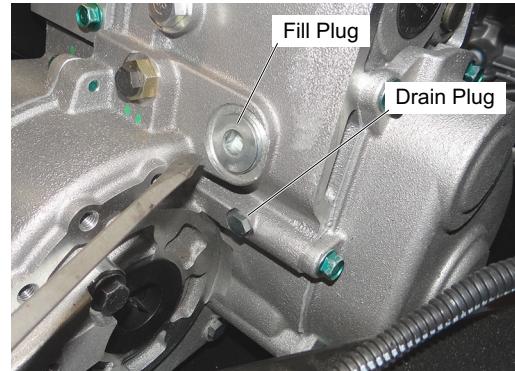
Rear Differential Oil Check

NOTICE: Check the rear differential oil in the upper and lower chambers at the Initial Service and then at regular intervals indicated.

Remove the fill plug and inspect the oil in each chamber for water or any other contamination. If the oil is contaminated, it must be replaced.

Rear Differential Oil Replacement (Upper Chamber)

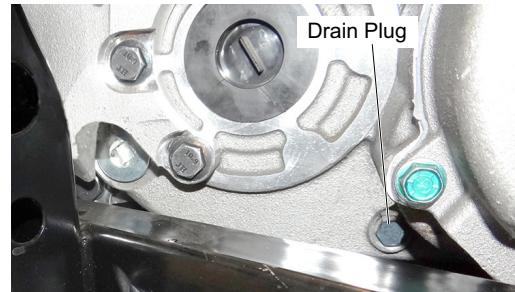
1. Remove the drain plug from the upper chamber of the differential and allow the oil to drain completely.
2. Install the plug.
3. Remove the fill plug.
4. Add oil to full capacity or until the oil level is 3/8 - 1/2 in. (10 to 13 mm) below the bottom of the fill hole. See **RECOMMENDED LUBRICANTS AND FLUIDS** on page 49 for type and capacity.
5. Install the fill plug.



Rear Differential Oil Replacement (Lower Chamber)

NOTICE: The rear differential is shown at right with axle removed and axle hole plugged.

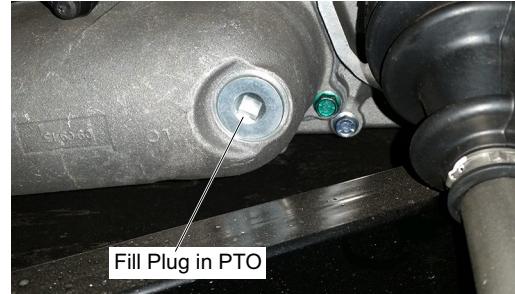
1. Remove the drain plug from the lower chamber of the differential and allow the oil to drain completely.
2. Replace the drain plug.



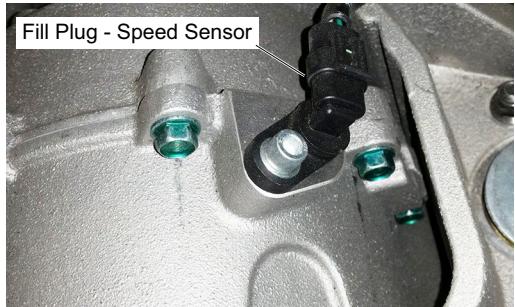
NOTICE: The lower chamber will be filled by adding oil through the PTO fill plug, and then adding more oil through the vehicle speed sensor to bring the level to full capacity.

See **RECOMMENDED LUBRICANTS AND FLUIDS** on page 49 for type and capacity.

3. Remove the fill plug from the PTO (driver side of vehicle).
4. Add oil until it is level with the bottom of the fill plug.
5. Install the fill plug.



6. Remove the vehicle speed sensor.
7. To fill the lower chamber to capacity, add 22 oz. (650 ml) through the speed sensor hole.
8. Replace the speed sensor.



SPARK PLUGS

Tools

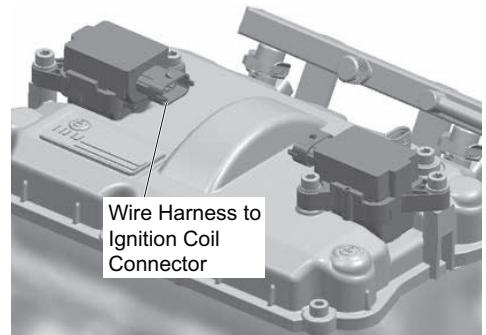
- spark plug socket, 5/8"
- hex head screwdriver, 5 mm
- anti-seize compound
- extension
- torque wrench
- feeler gauge
- ratchet

Recommended spark plug: Champion RC7PYCBX

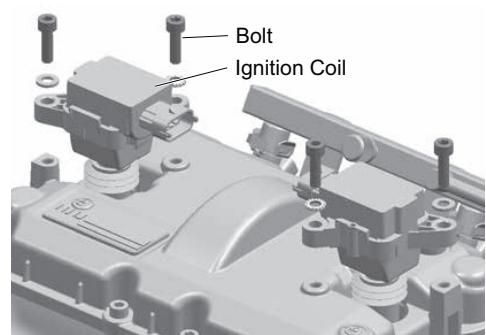
Spark Plug Inspection and Replacement

Remove the spark plugs when the engine is cold.

1. Disconnect the engine from the power supply.
2. Disconnect the wire harness connectors from the ignition coils.



3. Remove the bolts.
4. Pull straight up on the ignition coils to remove from the engine.

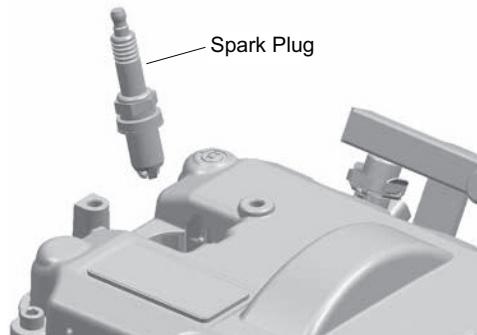


MAINTENANCE

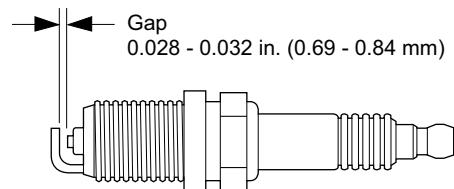
5. Remove the spark plugs.

NOTICE: A piece of rubber fuel line works well to remove the plug from the cylinder head after it is loosened.

6. If the electrodes are extremely sooty, clean carefully with a wire brush.
7. Inspect for cracks in the porcelain insulator. If cracks are visible, spark plugs must be replaced.



8. Determine the condition of the spark plugs by checking the gap with a feeler gauge. The gap must be within the range indicated in the illustration.
 - If both spark plugs are within the range, reinstall them.
 - If the gap on either spark plug is not within the correct range, replace both spark plugs with new ones. Always replace spark plugs in pairs.
9. Apply a light coat of anti-seize compound to the spark plug threads.
10. To avoid altering the gap or damaging the threads, carefully insert the spark plugs in the engine and tighten to 16.2 - 23.6 ft.lb (22 - 32 Nm).
11. Insert the ignition coils. Replace the serrated lock nuts with new ones. Install the bolts, washers and serrated lock washers and tighten to 5.9 - 7.4 ft.lb (8 - 10 Nm).
12. Reconnect the wire harness to the ignition coils.
13. Reconnect the power supply to the engine.
14. Clear the service counter for the service light. See *Diagnostics* on page 73.
15. Test drive the vehicle.



COOLING SYSTEM

The vehicle's cooling system components that require periodic maintenance consists of:

- radiator
- coolant reservoir
- coolant
- cooling fan
- hoses and clamps

See *SCHEDULED MAINTENANCE CHART* on page 48 for maintenance requirements and intervals.

Coolant

See *RECOMMENDED LUBRICANTS AND FLUIDS* on page 49 for recommended coolants and mixing ratio.

The use of incompatible coolant will cause insufficient cooling of the engine. Combining different coolants can trigger a chemical reaction and cause loss of effectiveness. The recommended coolants listed have been tested for compatibility by the engine manufacturer. Verify compatibility of any coolant not recommended in the list before use.

An incorrect mixing ratio reduces the cooling capacity. When topping off coolant, do not change the mixing ratio. Use the same coolant through the year in the mixing ratio specified on page 49.

Reservoir Coolant Level

Tools

- funnel
- drain pan

Check the coolant level when the engine is cold.

1. Verify that the coolant level in the reservoir is between the MIN and MAX lines.
2. If the level is below the MIN line, add coolant.

⚠ CAUTION

Scalding can result from steam if the cap is removed while the coolant reservoir is hot. Open the tank only when the engine is cold.

- a. Remove the cap from the coolant reservoir.
- b. Add coolant until the level is between the MIN and MAX lines.
- c. Replace the cap.
- d. Start the engine and allow it to idle for 10 seconds.
- e. Recheck the level to make sure it is correct.

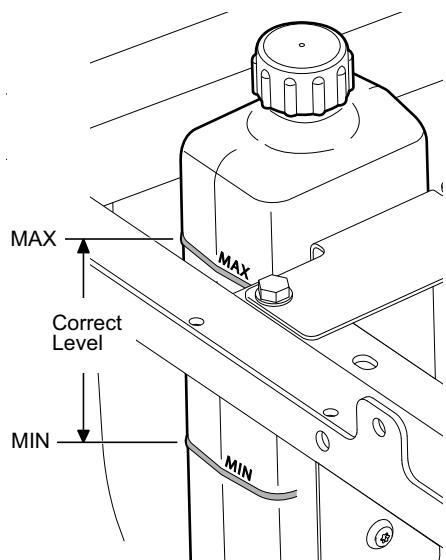
NOTICE: *If coolant runs low often, or if the coolant reservoir runs completely dry, check for leaks within the cooling system.*

Radiator and Cooling Fan

Do not install unauthorized accessories in front of the radiator or behind the cooling fan that could obstruct or deflect air flow. Interference with air flow can lead to overheating and cause engine damage.

Proper radiator maintenance is important to help prevent engine damage or failure. Check and clean the radiator screen and fins at the intervals indicated in the *SCHEDULED MAINTENANCE CHART* on page 48.

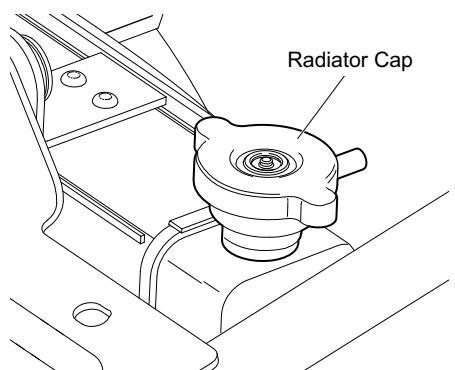
NOTICE: *Do not use a high pressure hose to wash the vehicle. Water from a high pressure hose could damage the radiator fins and impair radiator function.*



Radiator Coolant Level

NOTICE: *This procedure is required only if the cooling system has been drained for scheduled maintenance or repair.*

If the coolant reservoir has run dry, the coolant level in the radiator must be checked.



⚠ CAUTION

Steam from the radiator can cause burns if the pressure cap is removed when the engine is warm or hot. Do not remove the radiator pressure cap while the engine is warm or hot. Always allow the engine to cool before removing the pressure cap.

Check the coolant level when the engine is cold.

1. Slowly remove the radiator pressure cap.
2. Observe the coolant level through the opening. The level should be level with the filler neck.
3. Use a funnel and slowly add coolant if it is low.

⚠ CAUTION

Make sure the engine speed is held at 1900 - 2200 rpm for 15 - 20 seconds so the water pump has enough force to push all the air out of the system. If the engine is allowed to idle, the water pump seal and valve shaft seals can be damaged.

4. Run the engine at 1900 - 2200 rpm for 15 - 20 seconds to push the air out of the system.
5. Reinstall the pressure cap.

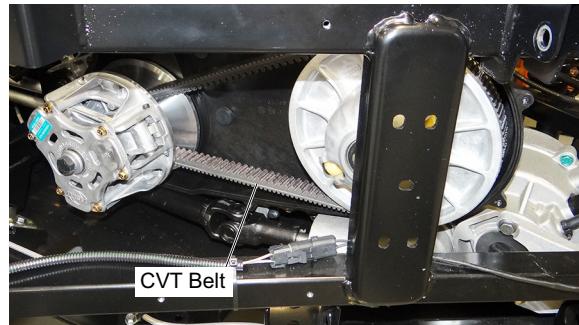
MAINTENANCE

CONTINUOUSLY VARIABLE TRANSMISSION (CVT)

Check and replace the CVT belt at the intervals indicated in the *SCHEDULED MAINTENANCE CHART* on page 48. The CVT cover is located under the driver side truck bed. Lift the bed and/or remove the rear fender liner and side panel to access the cover.

CVT Belt Inspection

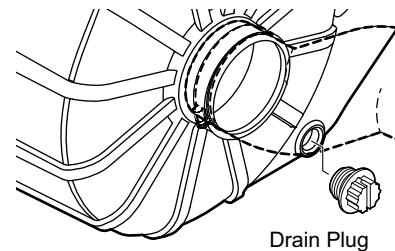
1. Remove the air outlet and inlet hoses from the CVT cover.
2. Remove the CVT cover screws and CVT cover to access the belt.
3. Inspect the belt. If the belt needs to be replaced, refer to the repair manual for procedure and safety information.
4. Reinstall the cover and hoses.



Draining the CVT

If water gets into the CVT, use the following procedure to dry it out before operating:

1. Park the vehicle on a level surface.
2. Remove the drain plug from the bottom of the CVT cover.
3. Allow the water to drain completely.
4. After all of the water has drained out, replace the drain plug.
5. Move the gear shifter to the P (park) position.
6. Start the engine.
7. Alternately press and release the accelerator pedal for 10-15 seconds to remove moisture and air-dry the belt and clutches. Do not hold the throttle wide open for more than five seconds at a time.
8. Allow the engine to settle to idle speed.
9. Apply the brakes.
10. Move the gear shifter to L (low) range.
11. Test for belt slippage. If the belt slips, repeat the process.
12. Take the vehicle to your dealer for service as soon as possible.



PROP SHAFT

There are two universal joints on the prop shaft that require lubrication; one in the center of the vehicle and one at the rear. Inspect and apply lubricant to the universal joints at the intervals indicated in the *SCHEDULED MAINTENANCE CHART* on page 48.

1. Inspect the prop shaft. A visible coat of grease must always be present at both universal joints.
2. If lubricant cannot be seen, or if the lubricant appears contaminated, apply universal joints grease or equivalent to the grease fittings.



VEHICLE IMMERSION

NOTICE: *Vehicle immersion can cause major engine and drivetrain damage. Take a vehicle that has been immersed to the dealer for thorough inspection to verify that it is safe for operation BEFORE starting the engine.*

If taking the vehicle to the dealer before starting it is impossible, perform the following procedure:

1. Remove the vehicle from the water completely. If it is impossible to remove the vehicle completely from the water, at least move it to an area where the water is below the floorboard.

NOTICE: Never try to start the engine if the water level is higher than the floorboard.

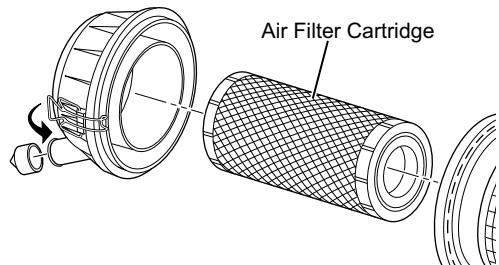
2. Inspect the air box.
 - a. Dry out any water inside the air box.
 - b. Dry or replace the filter if it is wet.
3. Thoroughly dry the engine intake.
4. Disconnect the wire harness from the ignition coils and remove the ignition coils from the engine.
5. Remove the spark plugs.
6. Check the engine oil for signs of water contamination. Change and flush if needed.
7. Using the electric starter, turn the engine over several times.
8. Dry the spark plugs and reinstall, or install new plugs.
9. Install the ignition coils and reconnect the wire harness.
10. Try to start the engine. It may be necessary to repeat the drying steps.
11. Even if you successfully start the engine, take the vehicle to your dealer for service as soon as possible.
12. If water has been ingested into the CVT, see *Draining the CVT* on page 60.
13. See the *SCHEDULED MAINTENANCE CHART* on page 48 for additional components to check after immersion.

AIR FILTER

Inspect and replace the air filter cartridge at the intervals indicated in the *SCHEDULED MAINTENANCE CHART* on page 48.

NOTICE: The filter is a dry filter. Do not apply oil.

1. Remove the snap-in panel behind the driver's seat to access the air filter housing.
2. Unlatch the cover to access the air filter cartridge.
3. Remove the filter from the housing.
4. Inspect and replace if needed.



NOTICE: A lightly soiled filter can be cleaned by tapping out dust. Do not use compressed air on the filter. If the filter is heavily soiled, it must be replaced.

5. Reinstall or replace the filter, making sure it is fully seated in the housing.
6. Replace the housing and secure with latches.
7. Replace the snap-in panel.

SPARK ARRESTER

The spark arrestor on your vehicle requires periodic cleaning to remove trapped particles of carbon that accumulate from the exhaust. Clean the spark arrestor at the intervals indicated in the *SCHEDULED MAINTENANCE CHART* on page 48.

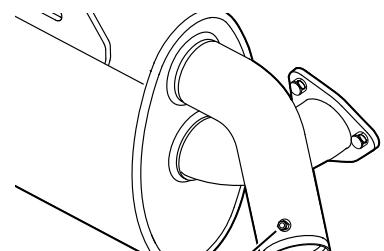
CAUTION

The spark arrestor must be functioning properly to provide adequate fire protection.

Wear eye protection and gloves.

Do not service the spark arrestor while the system is hot. The exhaust system can reach very high temperatures. Allow the components to cool completely.

Do not operate the vehicle with the spark arrestor removed.



Clean the spark arrestor when the exhaust system is cool.

1. Remove the screw from the bottom of the muffler tailpipe and remove the screen from inside the tailpipe.
2. Clean the accumulated carbon from the screen with a brush.
3. Reinstall the screen into the tailpipe and secure with the screw.

MAINTENANCE

BRAKES

The HAVOC X has front and rear hydraulic disc brakes. Perform scheduled maintenance on the brake system at the intervals indicated in the *SCHEDULED MAINTENANCE CHART* on page 48.

Check the brake fluid level before each operation. Test the brakes for function before each use.

Brake Fluid

WARNING When adding or changing brake fluid, always use brake fluid from an unopened bottle. After opening a bottle of brake fluid, always discard the unused portion. Do not store, or use from an opened bottle. Brake fluid rapidly absorbs moisture from the air. The moisture causes the boiling temperature of the brake fluid to drop. This can lead to premature brake fade and the possibility of an accident that can result in severe injury or death.

The brake fluid reservoir is under the cowl at the driver's side front wheel. Remove the panel from the cowl to access the reservoir.

In addition to the scheduled maintenance interval for changing the brake fluid (page 62), the brake fluid must also be changed in the following conditions:

- the fluid becomes contaminated
- the fluid level falls **BELOW** the MIN mark
- the type and brand of the fluid in the reservoir are unknown (see page 49 for recommended fluid)

Return the vehicle to the dealer for brake fluid replacement or refer to the *HAVOC X* repair manual.

1. Park the vehicle on a level surface.
2. Check the brake fluid level at the reservoir. The fluid level should be between the upper MAX and lower MIN lines.
3. If the level is *below* the upper MAX line, add brake fluid:
 - a. Clean any dirt and debris from around the reservoir cap.
 - b. Remove the cap.
 - c. Add fluid until it reaches the upper MAX line.
 - d. Reinstall the cap.
 - e. Clean any spilled brake fluid from the area.
 - f. Dispose of the unused portion of the brake fluid.
4. Press and hold the brake pedal fully down for a few seconds.
5. Check for fluid leakage around the fittings.

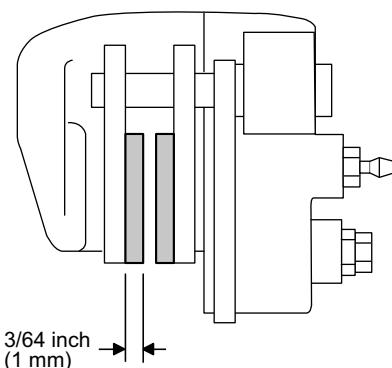


Brake Inspection

1. Check the brake system for fluid leaks.
2. Check the brake pedal for excessive travel or a spongy feel.

NOTICE: *Return the vehicle to the dealer for the replacement of any brake system components or refer to the vehicle repair manual.*

3. Check the brake calipers for looseness.
4. Check the brake pads for wear or damage.
5. Replace the brake pads if worn to $3/64$ inch (1 mm).
6. Check the brake rotors for cracks, corrosion, warping or other damage.
7. Clean any grease found on the brake discs with an approved brake cleaner or alcohol.



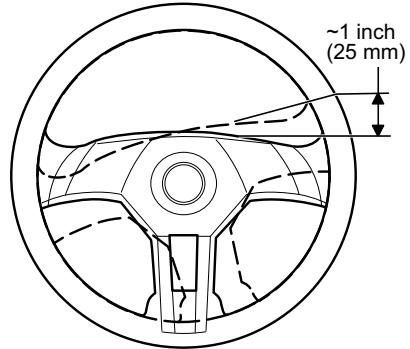
WARNING Never apply WD-40 or any petroleum product to the brake discs. These products are flammable and can also reduce the friction between the brake pad and caliper and increase the possibility of an accident that can result in severe injury or death.

STEERING WHEEL

Perform scheduled maintenance on the steering system at the intervals indicated in the *SCHEDULED MAINTENANCE CHART* on page 48.

Inspect the steering operation before each use using the following procedure:

1. Park the vehicle on a level surface.
2. Lightly turn the steering wheel to the left and then to the right.
3. There should be ~1 inch (25 mm) of free play.
4. If there is excessive play, unusual noises, or the steering feels rough or catchy, have the steering system inspected by your TEX-TRON OFF ROAD dealer.

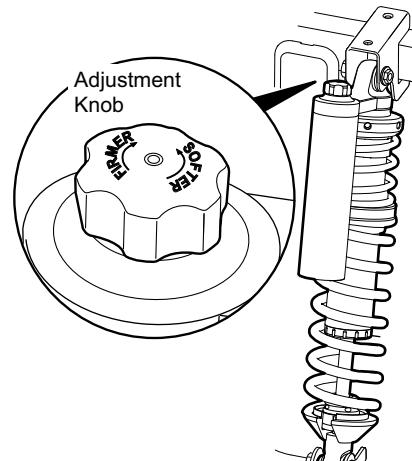


SHOCK ABSORBER SPRING ADJUSTMENT

The shock absorbers can be adjusted in the front and rear shock absorber springs to suit specific needs and preference. Adjust all four shock absorbers to the same level to ensure optimum performance.

To adjust, rotate the adjustment knob:

- to the right for a firmer ride
- to the left for a softer ride



TIRES

Follow the tire maintenance procedures as instructed in this manual and on the labels on the vehicle. Always use approved size and type of replacement tires. See *SPECIFICATIONS CHART* on page 71.

WARNING

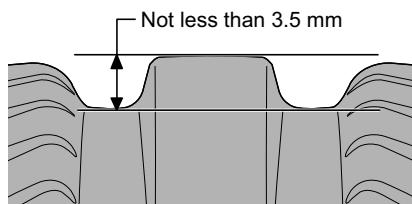
Worn, improperly inflated, improper sized, or incorrectly installed tires will affect vehicle handling and could cause an accident resulting in severe injury or death.

To decrease the risk of tire explosion, do not exceed the tire inflation rating on the tire sidewall. Make sure the tires are properly inflated at all times of operation. See *Tire Pressure* on page 14.

Inflate all tires to the same pressure. Operating with unequal or incorrect pressure can adversely affect steering and handling and could cause an accident resulting in severe injury or death.

Tire Tread Depth

Replace the tires when the tread depth is worn to 3.5 mm or less.



MAINTENANCE

Tire Repair

Use a tire plug to repair small holes in the tread part of the tire. For large holes or holes/cuts in the tire sidewall, the tire must be replaced.

1. Remove the wheel from the vehicle. See *Wheel Removal* on page 64.
2. Locate the leak in the tire.
 - a. If the tire is very low or flat, fully inflate the tire.
 - b. Brush soapy water over the surface of the tire. Air bubbles will be visible where the air is leaking from the tire.
 - c. Mark the hole with chalk.
3. Install the plug according to the manufacturer's instructions.
4. Install the wheel on the vehicle. See *Wheel Installation* on page 64.
5. Fully inflate the tire. See *Tire Pressure* on page 14.

NOTICE: *Tire plug tools and plugs are available at automotive outlets. The tire does not have to be removed from the wheel to install the tire plug.*

Tire Replacement

Tire replacement requires a tire mounting machine and must be done by a qualified tire center or TEXTRON OFF ROAD dealer.

WHEELS

WARNING *Worn, improperly inflated, improper sized, or incorrectly installed tires will affect vehicle handling and could cause an accident resulting in severe injury or death.*

Check lug nuts for tightness at the intervals indicated in the *SCHEDULED MAINTENANCE CHART* on page 48.

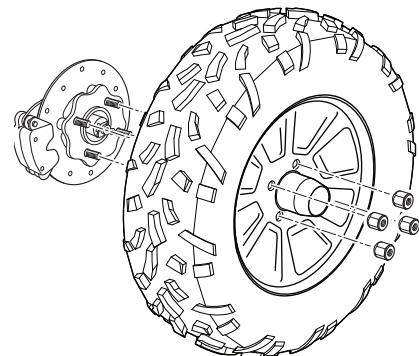
Lug Nut Torque	85 - 100 ft.lbs. (115 - 135 Nm)
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Wheel Removal

Tools

- lug wrench, 19 mm
- impact wrench
- impact socket, 19 mm
- torque wrench, ft.lbs.

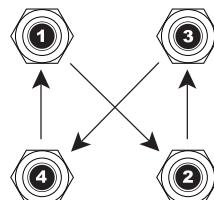
1. Lift the vehicle. See *LIFTING THE VEHICLE* on page 50.
2. Remove the lug nuts.
3. Remove the tire.



Wheel Installation

NOTICE: *To decrease the risk of component damage, do not tighten the lug nuts to more than the specified torque.*

Lug Nut Tightening Pattern



Always install lug nuts using a cross sequence pattern to ensure even seating of the wheel against the hub.

1. Install the wheel on the hub with lug nuts. Make sure the valve stem is to the outside.
2. Finger tighten the lug nuts.
3. Using the tightening pattern shown at right, tighten the lug nuts to 85 - 100 ft.lbs. (115 - 135 Nm). Tighten in increments of 20 ft. lbs. (27 Nm).

ELECTRONIC POWER ASSISTED STEERING (EPAS)

The EPAS is not a serviceable system and requires no maintenance. If it is not working properly, refer to the repair manual for replacement procedures or contact the dealer.

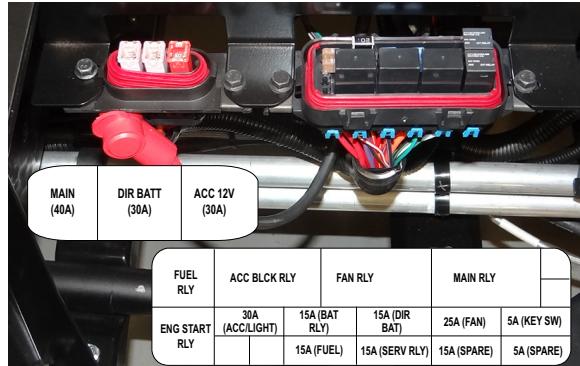
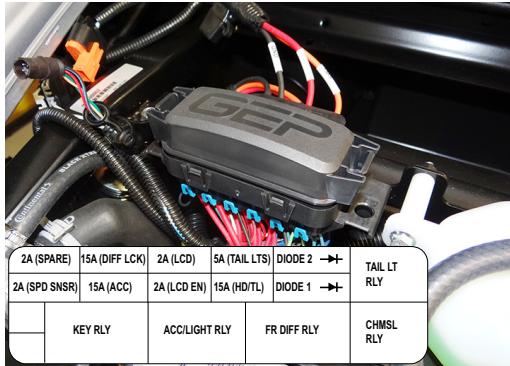
FUSES

NOTICE: Have the vehicle inspected by your dealer if fuses and relays continue to blow after they have been replaced.

Do not use fuses with a higher amp rating than indicated.

A single fuse box is located under the front cowl and two fuse boxes are located under the driver's seat.

1. Remove the cowl access panel, or remove the seat and access panel underneath the seat to access the fuse boxes.
2. Press the tabs on the sides of the fuse box covers to remove.
3. Refer to the chart on the inside of the fuse block cover or the following illustrations for identification of fuses and relays.
4. Inspect the fuses and replace if blown.
5. Replace the relays as necessary.



* Fuse box labels may vary based on date of manufacture.

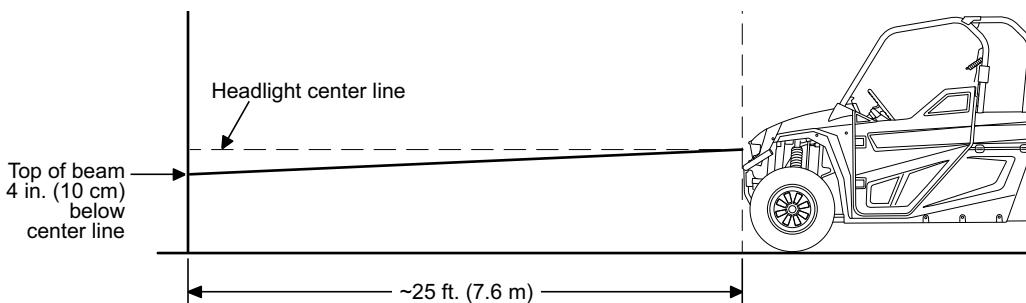
LIGHTS

Headlight Replacement

In the event of failure or damage, the LED light assembly must be replaced as a unit since there are no individual serviceable items. Refer to the repair manual for replacement procedure or see your local dealer or service center.

Headlight Beam Adjustment

1. Park the vehicle on a flat surface adjacent to a vertical wall. The front of the vehicle should be approximately 25 ft. (7.6 m) from the wall.
2. Measure the distance from the ground to the center of the headlight.
3. Mark the wall at the measured height.
4. Turn the key to the ON position.
5. Press the headlight switch to activate the headlights.
6. With a rider in the vehicle, the brightest part of the headlight beam should be 8 in. (20 cm) below the mark on the wall.



MAINTENANCE

7. Check both headlights in low and high (if equipped) beam settings.
8. If a headlight needs to be adjusted, locate the three adjustment screws in the back of the headlight.
9. Turn the screws to adjust vertically and horizontally.
10. Repeat steps until the headlight is properly adjusted.

Brake Light

Pressing the brake pedal activates the brake light. Check the function of brake light before each operation.

1. Turn the key to the ON position.
2. Press the brake pedal to activate the brake light.
3. If the light does not activate when the pedal is pressed, check the bulb.

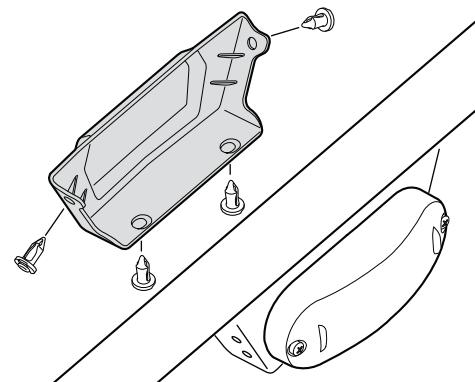
Brake Light Bulb Replacement

⚠ CAUTION

Light components can get hot if they have been in operation. Allow the lights to cool before servicing to prevent burns to the skin.

NOTICE: Do not touch a halogen bulb with bare fingers. Oil from skin leaves a residue that causes a hot spot and will diminish the life of the bulb.

1. Use a screwdriver to remove four rivets from the back of the light and remove the back cover.
2. Rotate the bulb and pull it from the light housing.
3. Disconnect the bulb from the wire harness.
4. Connect the new bulb to the wire harness.
5. Insert the bulb and turn to secure in place.
6. Install the cover.



BATTERY

The HAVOC X has a sealed battery, which requires no maintenance except to keep it corrosion-free, and to test for functionality.

The sealed battery is filled with electrolyte and sealed at the factory. Never pry the seal strip off, or add fluid to the battery.

Inspect the battery terminals at the intervals indicated in the *SCHEDULED MAINTENANCE CHART* on page 48. Clean and tighten as needed.

Battery Cleaning

⚠ WARNING

Use insulated wrenches to prevent direct contact of a wrench with the battery terminals. Direct contact of a bare wrench with battery terminals can cause an explosion resulting in severe injury or death.

⚠ CAUTION

Always wear eye protection when charging the battery.

NOTICE: To decrease the risk of damage to electrical components surrounding the battery while cleaning, do not use a pressure washer.

1. Remove corrosion with a wire brush.
2. Wash with a solution of:
 - 1 tsp. (5 ml) baking soda
 - 1 cup (236 ml) water
3. Rinse with tap water and dry with shop towels.
4. After the battery is clean and dry, coat with a commercially available battery terminal spray.

Battery Charging

WARNING

Do not overcharge the battery. Overcharging the battery can cause overheating and possible explosion, resulting in severe injury or death.

NOTICE: Use a battery charger that is designed for charging sealed batteries.

Keep battery fully charged.

Heavy use of accessories can drain the battery and leave insufficient charge to start the vehicle.

The sealed battery is a 12 V starter battery that supplies power to the starter and accessories. A starter starts the engine and an internal generator charges the battery while the engine is running. Due to heavy use of accessories, the battery can become discharged even if the engine is running and the generator is operating.

It is important to keep the battery fully charged. Since the battery is sealed, a voltmeter or multimeter is required to check voltage.

1. Check the battery voltage with a voltmeter or multimeter.
 - If the voltage measured is 12.8 V or higher, the battery is fully charged and requires no further action.
 - If the voltage measured is less than 12.8 V, recharge the battery.
2. Charge the battery with a charger designed for sealed batteries. Follow the instructions supplied with the manufacturer of the charger.

Battery Storage

NOTICE: A battery will self-discharge over time. The rate of discharge varies depending on ambient temperature, age and condition of the battery. Check the battery each month during storage and charge as needed to maintain full charge.

A full charge will prevent the battery from freezing in winter conditions.

If the vehicle is going to be out of operation for three (3) months or longer, do the following:

1. Remove the battery from the vehicle.
2. Make sure the battery is fully charged.
3. Store it out of the sun, in a cool, dry place.
4. Check battery voltage each month during storage and recharge as needed to maintain a full charge.

CLEANING

Keeping your HAVOC X clean is not only beneficial to its appearance, but can also help extend the life of various components.

Washing the Vehicle

- Use an automotive type cleaner or mild soap to wash the vehicle. Harsh cleaners can scratch the finish.
- Do not use a pressure washer to clean the vehicle.
- Use clean or new cloths and pads for washing. Reused cloths and pads can contain dirt particles that will scratch the finish.
- Inspect all grease fittings for dirt intrusion or lack of grease after washing. Apply grease as required to maintain proper function.
- Start engine and let it run for a few minutes to dry any water that may have entered the engine or exhaust system.

NOTICE: Do not use a pressure washer to wash your vehicle. High water pressure can damage components.

Some products, including insect repellents and chemicals, will damage plastic surfaces. Do not allow these types of products to contact the vehicle.

1. With an automotive type wash cloth, wash from the top to the bottom.
2. To prevent the soap from drying on the vehicle, rinse with clean water frequently.
3. To prevent water spots, dry with a chamois before the water dries.

TEXTRON OFF ROAD does not recommend the use of a pressure washer. High pressure water can damage components, chip paint and remove labels. If the use of a pressure washer cannot be avoided, avoid directing the water stream at the following items:

• wheel bearings	• body panels	• brakes
• radiator	• labels and decals	• electrical components and wiring
• transmission seals	• switches and controls	

MAINTENANCE

Polishing the Vehicle

- Do not use medium to heavy duty compounds on the finish.
- Use clean or new cloths and pads for polishing. Old or reused cloths and pads can contain dirt particles that will scratch the finish.

STORAGE

NOTICE: Do not start the engine during the storage period. Starting the engine during a storage period will disturb the protective film created by fogging and damage could occur.

Clean the Exterior

Clean the vehicle. See *CLEANING* on page 67.

Stabilize the Fuel

1. Fill the fuel tank.
2. Add approved fuel treatment or fuel stabilizer. Follow the instructions on the container for the recommended amount. Fuel treatment removes water from fuel systems, stabilizes fuel and removes carbon deposits from pistons, rings, valves and exhaust system. Start the engine and let it run for 15-20 minutes to allow the stabilizer to disperse through the entire fuel system.

Oil and Filter

Change the oil and filter. See *ENGINE OIL* on page 52.

Air Filter

1. Inspect and clean or replace the air filter. See *AIR FILTER* on page 61.
2. Clean the air box.

Inspect and Lubricate

1. Inspect the shifter cable.
2. Lubricate all areas of the vehicle as recommended in the *SCHEDULED MAINTENANCE CHART* on page 48.

Battery

Remove the battery. Fully charge the battery. See *BATTERY* on page 66.

Fluid Levels

Inspect all fluid levels. Add or change fluids as recommended in the *SCHEDULED MAINTENANCE CHART* on page 48.

- front and rear differential fluids
- brake fluid
 - Change if the fluid is dark or contaminated.
- coolant
 - Test coolant level. Add coolant if necessary.

Fog the Engine

1. Treat the fuel system with an approved fuel treatment. Follow the instructions on the container.
2. Start the engine.
3. Let the engine idle for several minutes for the treatment to reach the injectors. Stop the engine.
4. Disconnect the wire harness from the ignition coils and remove ignition coils from the engine.
5. Remove the spark plugs.
6. Add 1 oz. (25 ml) of engine oil to each cylinder through the spark plug hole.
7. Reinstall the spark plugs. *Recommended spark plug: Champion RC7PYCBX*
8. Leave the ignition coils disconnected and disconnect the fuel injectors. Turn over the engine for 2-3 seconds.

9. Reconnect the ignition coils and fuel injectors and clear the engine codes (see *Diagnostics* on page 73).
10. Put the vehicle in storage.

NOTICE: *If fuel additive is not used, the fuel tank, lines and injectors must be completely drained of fuel.*

Storage Area

Store your *HAVOC X* in an area that is well ventilated. Cover the vehicle. Covers designed specifically for vehicles are recommended because they allow enough ventilation to prevent condensation and corrosion.

REMOVE FROM STORAGE

1. Charge the battery to full charge.
2. Install battery in the vehicle.
3. Check the spark plug for tightness. Tighten if necessary.
4. Fill the fuel tank with fuel.
5. Check all items in the daily pre-ride inspection. See *PRE-RIDE INSPECTION* on page 31.
6. Lubricate according to the *SCHEDULED MAINTENANCE CHART* on page 48.

TRANSPORTING THE HAVOC X

⚠ WARNING

Loose cargo or vehicle components can fly off when the vehicle is being transported.
Secure or remove all cargo. Inspect the vehicle for loose components prior to transport.

1. Drive the vehicle onto the trailer or truck.
2. Press the brake pedal.
3. Move the gear shifter to P (park).
4. Turn the engine off.
5. Make sure the fuel cap is tight and the cowl access panel and cargo box are secured.
6. Make sure the seats are secured and the doors are latched correctly.
7. Secure the frame of the *HAVOC X* with tie downs, straps or ropes.
8. To prevent loss of the key, remove it from the ignition switch.

SPECIFICATIONS

SPECIFICATIONS CHART

Item	Specification
Maximum Weight Capacity (includes weight of operator, passenger, cargo, accessories)	1200 lbs. (544 kg)
Seating Capacity	2 person
Dry Weight	1755 lbs. (796 kg)
Curb Weight	1891 lbs. (858 kg)
Rollover Protection System (ROPS)	Certified ISO 3471 per ANSI/ROHVA 1
Fuel Capacity	~9 gal. (34 L)
Engine Oil Capacity	~3 qt. (2.8 L)
Coolant Capacity	~8 qt. (7.6 L)
Overall Length	126 in. (320 cm)
Overall Width	64 in. (163 cm)
Overall Height (no canopy)	77 in. (196 cm)
Overall Height (with canopy)	78.5 in. (199 cm)
Wheelbase	85.2 in. (210 cm)
Track Width (front)	55 in. (140 cm)
Track Width (rear)	55 in. (140 cm)
Ground Clearance (no load)	13 in. (33 cm)
Cargo Box (L x W x H)	32 in. x 49 in. x 12 in. (81 cm x 124 cm x 30 cm)
Extended Cab (L x W)	17 in. x 49.5 in. (43 cm x 126 cm)
Cargo Box Load Capacity *	600 lbs. (272 kg)
Extended Cab Load Capacity *	170 lbs. (77 cm)

* California Load Capacity (Bed and Extended Cab combined) is 600 lbs. (272 kg).

Towing Capacity (rear, if equipped)	2000 lbs. (907 kg)
Hitch Tongue Capacity (rear, if equipped)	150 lbs. (68 kg)
Towing Capacity (front)	1000 lbs. (453 kg)
Hitch Tongue Capacity (front)	100 lbs. (45 kg)
Engine Type	Naturally aspirated 4-stroke gasoline, parallel twin with balance shaft and single overhead camshaft (SOHC)
Engine Weight (without oil and coolant)	132 lbs. (60 kg)
Displacement	957 cc
Number of Cylinders	2
Bore x Stroke	92 mm x 72 mm
Compression Ratio	11.5:1
Starter System	Electric
Fuel System	Sequential multi-point manifold injection
Ignition System	3-position key; electrical starter
Throttle Body	Electronically controlled
Spark Plug	Champion RC7PYCBX (2)
Electrical System	12 V

SPECIFICATIONS

Item	Specification
Battery	Single, 12 V starter
Lubrication System	Dry sump
Cooling	Liquid
Shift Type	Single lever on console
Gear Reduction (L)	28.03:1
Gear Reduction (R)	25.49:1
Gear Reduction (H)	10.24:1
Drive Ratio (front)	3.81:1
Transmission	Continuous Variable Transmission (CVT)
Steering	Self-compensating rack and pinion (EPAS)
Tire Size, standard, front and rear	28 x 10-14 ITP Ultracross
Tire Pressure, front and rear	12 psi (83 kPa)
Wheels, standard	Cast aluminum
Brakes	Foot activated, 4-wheel hydraulic disc
Headlights	High/Low LED with LED accent light
Taillight	Center high mounted stop light (CHMSL) 7W Halogen
Brake Light	27W Halogen

FAULT TESTING

DIAGNOSTICS

The HAVOC X is equipped with an on-board computer diagnostic system that stores diagnostic trouble codes (or fault codes). Trouble codes are stored when a sensor in the vehicle reports a reading that is outside the normal/accepted range.

Trouble codes identify a particular problem area and provides a guide as to where a fault might be occurring within the vehicle. These codes should be used in conjunction with the HAVOC X repair manual to identify which systems, circuits or components should be tested to fully diagnose the fault.

NOTICE: A complete list of codes can be found in the HAVOC X repair manual.

To enter the selectable displays:

1. Make sure the key is in the OFF position.
2. Press and hold the OK button on the display control pad while turning the ignition key to the ON position. Turning the key past the ON position and starting the engine will exit the display.
3. Release the OK button.
4. Use UP and DOWN on the control pad to scroll through the top level displays.



FAULT TESTING

Display 1 - FAULTS - Engine

NOTICE: Only the **CLEAR** option in this menu is editable.

1. With FAULTS (with engine symbol) displayed, press the RIGHT arrow to enter the fault codes display.



2. Press UP or DOWN to scroll through three fault code displays:

- Display A indicates no trouble code. No further action required.



- Display B indicates a historical (HIST on right) trouble code.



- Display C indicates an active (ACTI on right) trouble code.



3. Press DOWN to scroll through additional trouble codes if there are any. CLEAR will be the last display.



4. Press the OK button to enter the edit mode (wrench displays). LEFT and RIGHT arrows toggle YES and NO.

- Select NO and press OK to exit edit mode without clearing codes.
- Select YES and press OK to clear codes.



5. Press LEFT arrow to return to top level display.

Display 2 - FAULTS - EPAS

NOTICE: Only the **CLEAR** option in this menu is editable.

- With FAULTS (with EPAS symbol) displayed, press the RIGHT arrow to enter the fault codes menu.



- Press UP or DOWN to scroll through fault code displays:

- Display A indicates no trouble code. No further action required.



- Display B indicates a historical (HIST on right) trouble code.



(example code)

- Display C indicates an active (ACTI on right) trouble code.



(example code)

- Display D indicates vehicle not EPAS equipped or the EPAS is disabled.



- Press DOWN to scroll through additional trouble codes if there are any. CLEAR will be the last display.



- Press the OK button to enter the edit mode (wrench displays). LEFT and RIGHT arrows toggle YES and NO.

- Select NO and press OK to exit edit mode without clearing codes.
- Select YES and press OK to clear codes.



- Press LEFT arrow to return to top level display.

FAULT TESTING

CVT BELT WEAR

Possible Cause	Solution
Driving onto a pickup or trailer in high range	Use low range when loading.
Starting out on a steep hill in high range	Use low range.
Driving at low RPM or low ground speed	Drive at higher speeds or use low range more frequently.
Insufficient warm-up at low ambient temperatures	Warm the engine a minimum of five (5) minutes. Put the transmission in N, press the throttle five to seven times in short bursts to make the CVT belt more flexible and prevent belt burning.
Slow clutch engagement	Press the accelerator quickly and effectively.
Towing and pushing at low RPM or low ground speed	Use low range only.
Utility use	Use low range only.
Stuck in mud or snow	Put the transmission in low range and use fast, aggressive acceleration to engage the clutch.  WARNING Excessive acceleration can cause loss of control and vehicle rollover.
Climbing over large objects from a stopped position	Put the transmission in low range and use fast, brief, aggressive acceleration to engage the clutch.  WARNING Excessive acceleration can cause loss of control and vehicle rollover.
Belt slippage from water or snow ingestion into the CVT system.	Dry out the CVT. See <i>Draining the CVT</i> on page 60. Inspect the clutch seals for damage if repeated leaking occurs.
Clutch malfunction	See your TEXTRON OFF ROAD dealer.
Poor engine performance	Check for fouled plugs or foreign material in the fuel tank or lines. See your TEXTRON OFF ROAD dealer.
Slippage from failure to warm up CVT belt	Always warm up the belt by operating below 30 MPH for one mile (5 miles or more when temperature is below freezing).
Wrong or missing CVT belt	Install the recommended belt.
Improper break-in	Always break in a new belt and/or clutch. See <i>CVT BELT BREAK-IN</i> on page 32.

ENGINE DOES NOT CRANK

Possible Cause	Solution
Ignition is off	Turn on the ignition.
Accelerator is pressed	Remove foot from accelerator pedal.
Brake pedal is not pressed	Press the brake pedal.
Defective fuse	Check fuses.
Low battery voltage or defective battery	Recharge or replace the battery.
Loose battery connections	Check all connections and tighten.
Corroded battery terminals	Remove corrosion from terminals.
Loose solenoid connections	Check all connections and tighten.
Loose electronic control box connections	Inspect, clean, reinstall connectors.

ENGINE CRANKS, BUT DOES NOT START

Possible Cause	Solution
Low or no fuel	Refuel.
Clogged fuel filter	See your TEXTRON OFF ROAD dealer.
Water is present in fuel	Drain the fuel system and refuel.
Old or non-recommended fuel	Replace with fresh recommended fuel.
Fouled or defective spark plug	Inspect plug and replace if necessary.
No spark to spark plug	Inspect plug and replace if necessary.
Water or fuel in crank case	See your TEXTRON OFF ROAD dealer immediately.
Low battery voltage or defective battery	Recharge or replace the battery.
Mechanical failure	See your TEXTRON OFF ROAD dealer.
Defective fuse	Check fuses.

ENGINE STALLS AND CAN BE RESTARTED

Possible Cause	Solution
Low or no fuel	Refuel.
Low oil pressure	Check oil level; if low, fill to correct level. See <i>Add Oil</i> on page 53. If low oil pressure continues, see your TEXTRON OFF ROAD dealer.

ENGINE STALLS AND CANNOT BE RESTARTED

Possible Cause	Solution
Low or no fuel	Refuel.

ENGINE OUTPUT IS INTERRUPTED

Possible Cause	Solution
Accelerator and brake pedals are pressed at the same time	Release the brake pedal.

ENGINE BACKFIRES

Possible Cause	Solution
Weak spark from spark plug	Inspect, clean or replace plug.
Incorrect spark plug gap or heat range	Set gap to specs or replace plug.
Old or non-recommended fuel	Replace with fresh recommended fuel.
Incorrectly installed spark plug wires	See your TEXTRON OFF ROAD dealer.
Incorrect ignition timing	See your TEXTRON OFF ROAD dealer.
Mechanical failure	See your TEXTRON OFF ROAD dealer.
Loose ignition connections	Check all connections and tighten.
Water in fuel	Replace with fresh recommended fuel.

FAULT TESTING

ENGINE PINGS OR KNOCKS

Possible Cause	Solution
Poor quality or low octane fuel	Replace with recommended fuel.
Incorrect ignition timing	See your TEXTRON OFF ROAD dealer.
Incorrect spark plug gap or heat range	Set gap to specs or replace plug.

ENGINE RUNS IRREGULARLY, STALLS OR MISFIRES

Possible Cause	Solution
Fouled or defective spark plug	Inspect, clean or replace spark plug.
Worn or defective spark plug wires	Replace.
Incorrect spark plug gap or heat range	Set gap to specs or replace plug.
Loose ignition connections	Check all connections and tighten.
Water in fuel	Replace with fresh recommended fuel.
Low battery voltage or defective battery	Recharge or replace the battery.
Kinked or plugged fuel tank vent line	Inspect and replace.
Incorrect fuel	Replace with fresh recommended fuel.
Clogged air filter	Inspect and clean or replace.
Low fuel pressure	See your TEXTRON OFF ROAD dealer.
Other mechanical failure	See your TEXTRON OFF ROAD dealer.

Possible Lean Fuel Cause	Solution
Low or contaminated fuel	Add or change fuel, clean the fuel system.
Low octane fuel	Replace with recommended fuel.
Clogged fuel filter	See your TEXTRON OFF ROAD dealer.

Possible Rich Fuel Cause	Solution
Very high octane fuel	Replace with lower octane fuel.

ENGINE STOPS OR LOSES POWER

Possible Cause	Solution
Low or no fuel	Refuel.
Kinked or plugged fuel tank vent line	Inspect and replace.
Water in fuel	Replace with fresh recommended fuel.
Fouled or defective spark plug	Inspect, clean or replace spark plug.
Worn or defective spark plug wires	Replace.
Incorrect spark plug gap or heat range	Set gap to specs or replace plug.
Loose ignition connections	Check all connections and tighten.
Low battery voltage or defective battery	Recharge the battery.
Incorrect fuel	Replace with fresh recommended fuel.
Clogged air filter	Inspect and clean or replace.
Other mechanical failure	See your TEXTRON OFF ROAD dealer.
Overheated engine	Allow engine to cool. Check coolant level and clean radiator. If it still doesn't start, see your TEXTRON OFF ROAD dealer.

ENGINE DOES NOT REACH FULL ENGINE SPEED

Possible Cause	Solution
Driver's seat belt is not fastened	Fasten seat belt.
Poor fuel quality	Refuel.
High coolant temperature	Allow engine to cool.
High intake air temperature	Allow engine to cool.
Accelerator and brake pedals are pressed at the same time	Release the brake pedal.
Gear shifter is in neutral (N)	Move shifter to high (H), low (L).
Gear shifter is in neutral (R)	Move shifter to high (H), low (L).
Engine malfunction	See your TEXTRON OFF ROAD dealer.

MAINTENANCE LOG

Record periodic maintenance in the following maintenance log.

MAINTENANCE LOG

MAINTENANCE LOG

MAINTENANCE LOG

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