

Vehicle Maintenance

The following section covers routine maintenance procedures for your utility vehicle.

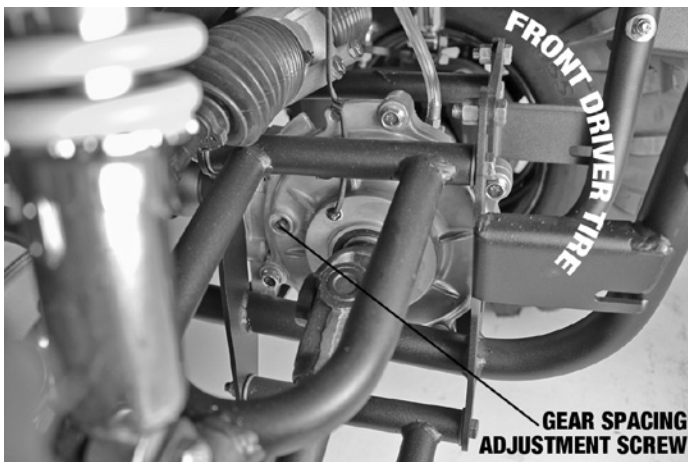
Front Differential Gear Box – It is recommended that the oil be changed once every 2000 miles (about 150 to 200 hours). To change the oil, follow each step on the procedure listed below.



1. Remove the oil drain plug located on the bottom of the gear case using a 7/16" socket.
2. Let all the oil drain out of the unit. Catch and discard the oil properly.
3. Be sure to clean off any debris on the drain plug and reinstall using a new nylon washer (part #20843). Torque the oil drain plug to 9 ft*lbs.
4. Remove the oil fill plug using a 5/16" hex key wrench.
5. Add 150 ml. (5 oz.) of Mobil fluid 424 American SportWorks part # 20848 (*note: do not use any other type of oil in this system or the 4WD will not operate properly!*)
6. Reassemble the oil fill plug into the gear case and torque to 10 ft*lbs.

Gear Spacing adjustment

1. Locate set screw on front gear box.
2. Turn clockwise until you feel resistance.
3. Turn back counter clockwise ¼ turn.



Rear Transaxle Gear Box – It is recommended that the oil be changed once a year or after 600 hours. See page 28 of owner's manual.

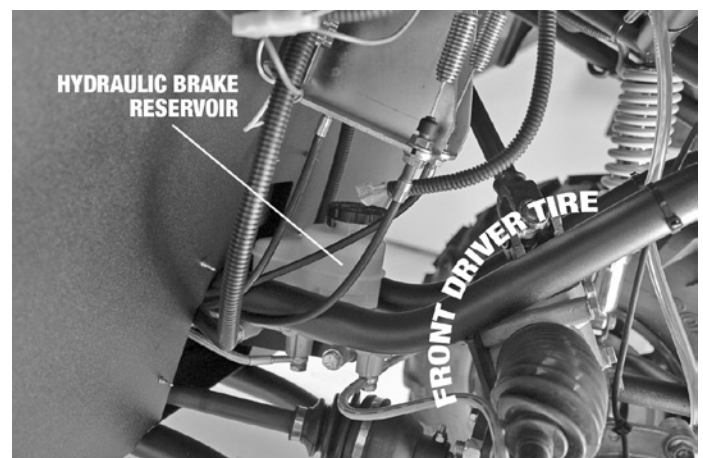
90° Transfer Gear Box – It is recommended that the oil be changed once a year or after 600 hours.

1. Remove the oil drain plug located on the bottom of the gear case using a ¼" hex key wrench.
2. Let all the oil drain out of the unit. Catch and discard the oil properly.
3. Be sure to clean off any debris on the drain plug and reinstall. Torque oil drain plug to 10 ft*lbs.
4. Remove the oil fill plug using a ¼" hex key wrench.
5. Add 200 ml. (7 oz.) of 80W90 gear oil.
6. Reassemble the oil fill plug into the gearcase and torque to 10 ft*lbs.



Hydraulic Brakes – Hydraulic Brakes use fluid pressure to transfer the braking force to the wheels. Before driving the vehicle each day, check the fluid level in the reservoir. The reservoir is located under the hood behind the front differential gear box. Fill to the MAX line with DOT 3 brake fluid. If you notice that the brake pedal feels spongy or the vehicle is not stopping well, take the vehicle to a qualified service center.

Authorized ASW service centers in your area can be found by visiting www.amsportworks.com or by calling customer service toll free at 800-643-7332



Fuel Type

The fuel tank is located under seat.

390cc, 479cc & 653cc Fuel Capacity is 5 Gallons.

265cc Fuel capacity is 1.6 Gallons.

277cc Fuel capacity is 1.92 Gallons.

When filling the fuel tank, place the gear shift in forward or reverse, set the park brake, turn off the engine, and remove ignition key. Clean dirt from around the fuel tank cap, remove cap, and begin filling. When finished, screw the cap back on securely and wipe up any spilled gasoline. Use regular unleaded gasoline with an octane rating of 87 or higher.

CAUTION

Never use methanol, gasoline containing methanol, or gasohol containing more than 10% ethanol because the fuel system could be damaged. Do NOT mix oil with gasoline.

Using a fuel stabilizer/conditioner in the vehicle can provide benefits such as:

- Keeps gasoline fresh during storage of 90 days or less. For longer storage, drain the fuel tank.
- Cleans the engine during operation.
- Eliminates gum-like varnish build-up in the fuel system.

Add the correct amount of gas stabilizer/conditioner to the gas. Follow the gas stabilizer/conditioner manufacturer's directions for best results.

See engine operator's manual for the following:

- Draining the fuel tank.
- Checking fuel line for cracks and leaks.
- Engine fuel valve lever (if applicable).

Engine Maintenance

General Information

Detailed instructions and recommendations for break-in and regular maintenance are specified in the engine operator's manual. Engine warranty is backed by the engine manufacturer. Please refer to engine manufacturer's manual for engine servicing, lubricating oil levels, oil quality and viscosity recommendations, bolt torques, etc. Special attention should be paid to applicable data that is not duplicated here.

NOTICE

Continual operation of your vehicle in altitudes in excess of 5000 feet, will require the installation of a high altitude jet kit. This service should be performed by an authorized service center. Please refer to your engine owner manual or call ASW customer service at 1-800-643-7332

Engine Fuel Valve Lever

Refer to figures 6.1, 6.2 and 6.3

On single cylinder models the engine has a fuel valve that opens and closes the passage between the fuel tank and carburetor. Leave fuel valve lever in the OFF position when the engine is not in use to prevent carburetor flooding and reduce possibility of fuel leakage into the cylinder cavity and engine oil reservoir. Turn fuel valve lever to the ON position when running the engine.

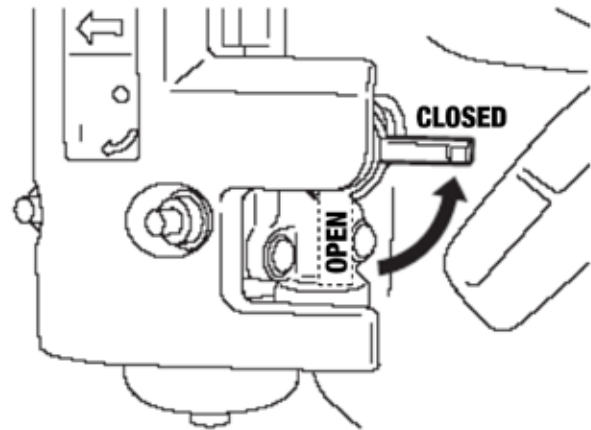


figure 6.1

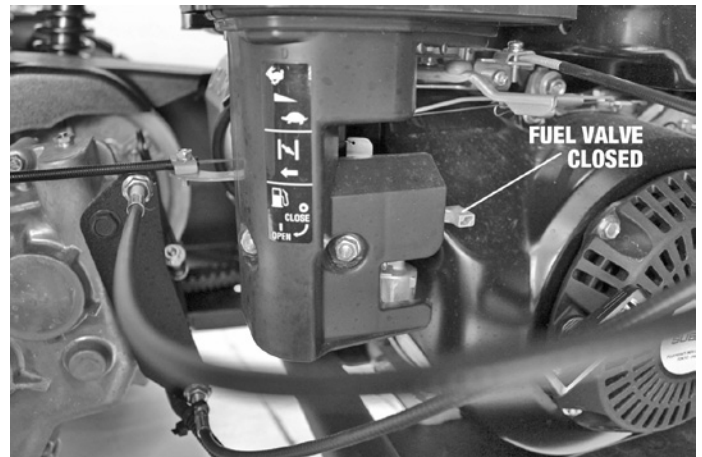


figure 6.2



figure 6.3

Foam element refer to figure 6.4

Clean foam element with detergent in warm water or in a nonflammable solvent. Do not wring element. Squeeze excess cleaning fluids out. Allow time for the element to dry and then soak it with clean engine oil. Squeeze excess oil out. Excess oil left in the filter will cause engine to smoke briefly when first started.

Before installing the filter elements to make sure they have not been damaged during cleaning.

Never run an engine without the filters installed.

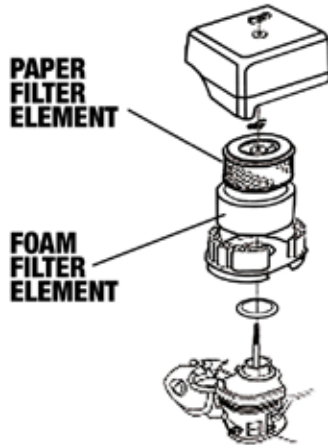


figure 6.4

Air Filter Elements Replacement Parts

Description	Part No.
Briggs & Stratton Air Filter	16170
Honda Paper Filter Element	2-20153
Honda Foam Filter Element	2-20154
Subaru Paper & Foam Element (653cc)	2-20158
Subaru Paper & Foam Element (265cc)	12374
Kohler Air Filter / Pre Cleaner (277cc)	15771

Spark Plug Replacement Parts

Description	Part No.
BRIGGS & STRATTON 479cc	
NGK	BPR6ES
HONDA 390cc	
NGK	BPR6ES
CHAMPION	RN9YC
AUTOLITE	4263 / 63
DENSO	W20EPR-U
SUBARU 265cc	
NGK	BR6HS
CHAMPION	RLH6C
SUBARU 653cc	
NGK	BPR2ES
KOHLER 277cc	
CHAMPION	RC12YC
NGK	BCP5EV

Fuel Hose

Inspect fuel hose monthly for cracks, leaks or other damage. Replace immediately if any damage is suspected.

Engine Oil

A general description for engine oil maintenance, recommendations, and capacities is provided below. See Engine Operator's Manual for a detailed description.

NOTE

- Running engine low on oil can cause engine damage and void engine warranty.
- Overfilling of oil level can cause loss of power, engine damage and void engine warranty.

Oil Filter Replacement Parts

Description	Part No.
653cc Spin-on	2-20159

Engine Oil Fill and Drain Locations

Refer to figures 6.5, 6.6 & 6.7 (on next page)

DIAGRAM OF A SINGLE CYLINDER ENGINE STYLE OF DIPSTICK

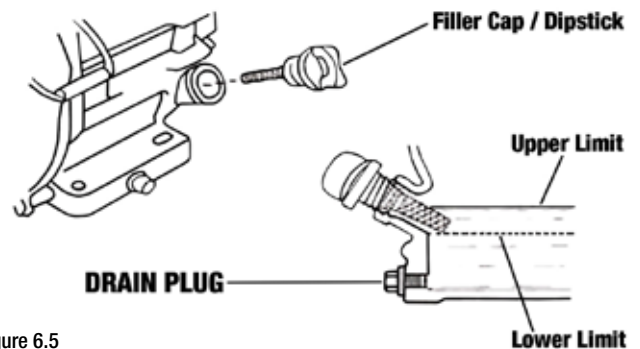


figure 6.5

REMOVE SEAT AND PLASTIC TRAY (if equipped) TO ACCESS

- Filler cap/dipstick location: At front of engine
- Drain plug location: At rear end of engine
- Type of Lubrication (except Subaru 653cc): SAE 10W30
- Type of Lubrication (Subaru 653cc): SAE 10W40
- API classification of SJ, SL or Equivalent
- Honda Oil Capacity: 1.16 US qts. / 1.1 liters
- Subaru 265cc Oil Capacity: 1.16 US qts. / 1.1 liters
- Subaru 653cc Oil Capacity: 1.64 US qts. / 1.55 liters
- Briggs 479cc Oil Capacity: 1.5 US qts. / 1.42 liters
- Kohler 277cc Oil Capacity: 1.16 US qts. / 1.1 liters

Engine Oil Maintenance Schedule

* Check oil level after each use.

* Make first oil change after the first month of operation or at 20 hours of operation (whichever comes first).

* Make all subsequent oil changes every 6 months or every 50 hours of operation (whichever comes first).

Engine Oil Level Check

Refer to figure 6.6 & 6.7

Check engine oil daily with filler cap/dipstick located at the engine rear end as follows:

1. Park Vehicle on a level surface, set park brake, turn off ignition switch, and remove key.
2. Remove filler cap/dipstick and wipe it clean.
3. Insert and remove dipstick without screwing it into the fill neck. Check oil level shown on dipstick.
4. Fill to edge of oil fill hole with recommended oil when oil levels are low.
5. Replace filler cap/dipstick and tighten securely.

Engine Oil Change

Refer to figure 6.8

Warm oil drains quickly and completely. Therefore, drain used engine oil while engine is still warm as follows:

1. Park vehicle on a level surface, set park brake, turn off ignition switch, and remove key.
2. Place a suitable container below engine to catch used oil. Remove filler cap/dipstick and drain plug.
3. Allow used oil to drain completely and then reinstall and tighten drain plug securely.
4. Dispose of used motor oil in a manner that is compatible with the environment.
Do not throw used oil in the trash. Do not pour it on the ground, or down a drain.
5. Fill oil to the outer edge of the oil fill hole, using a funnel, with recommended oil. Engine must be level when filling.
6. Replace filler cap/dipstick and tighten securely.

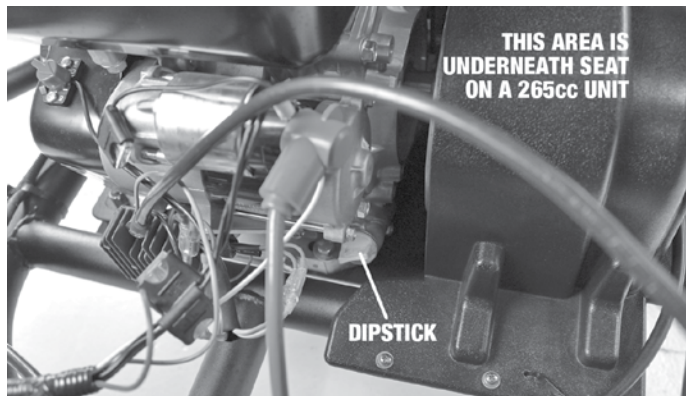


figure 6.6

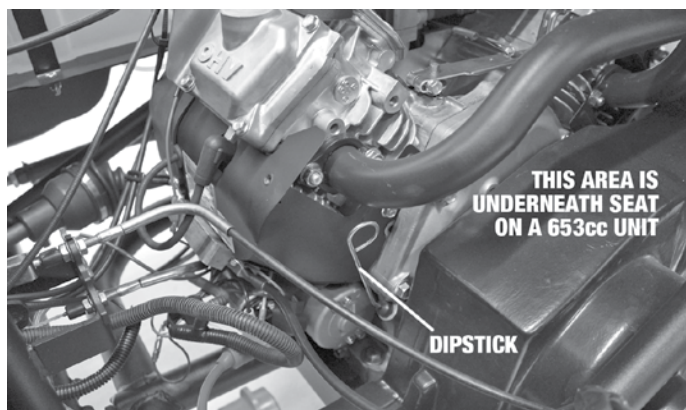


figure 6.7



figure 6.8

Transaxle Oil

A general description for transaxle oil maintenance, recommendations, and capacities is provided below.

NOTE

Running vehicle low on transaxle oil can damage transaxle and void warranty.

Transaxle Oil Type, Fill, and Drain

Refer to figures 6.9 & 6.10

- * Fill cap location: At rear left hand side (see figure 6.10)
- * Drain plug location: At bottom center of transaxle.
- * Type of Lubrication: SAE 30W oil.
- * Transaxle Lubrication Capacity: 20 oz.

Transaxle Oil Maintenance Schedule

- * Check transaxle housing for damage and possible oil leakage after each use.

- * Check transaxle oil level every 6 months or every 200 hours (whichever comes first).

Park vehicle on a level surface, set park brake, turn off ignition switch, and remove key. Use a clean long bladed screw driver at least 7" long (or similar object) insert into filler hole until it touches the bottom of gear case. Remove the screw driver. There should be approximately 2.1/4" to 2.1/2" of oil visible on screw driver. Refer to figure 6.9

- * Change transaxle oil once a year or every 600 hours (whichever comes first).

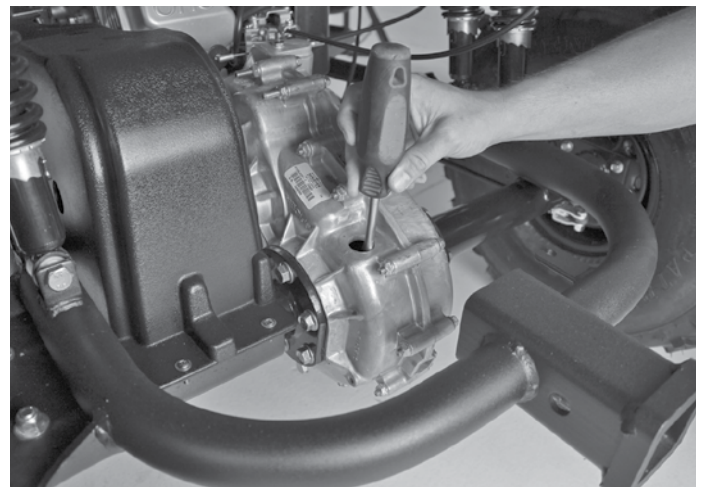


figure 6.9

Transaxle Oil Change

Warm oil drains quickly and completely. Therefore, drain used transaxle oil while transaxle housing is still warm as follows:

1. Park vehicle on a level surface, set park brake, turn off ignition switch, and remove key.
2. Place a suitable container below the transfer case to catch used oil. Remove fill cap and drain plug.
3. Allow used oil to drain completely and then reinstall drain plug and tighten it securely.
4. Dispose of used transaxle case oil in a manner that is compatible with the environment. Do not throw used oil in the trash, pour it on the ground, or down a drain.
5. Fill transaxle housing with 20 oz. SAE 30W oil.
6. Replace fill cap and tighten securely.

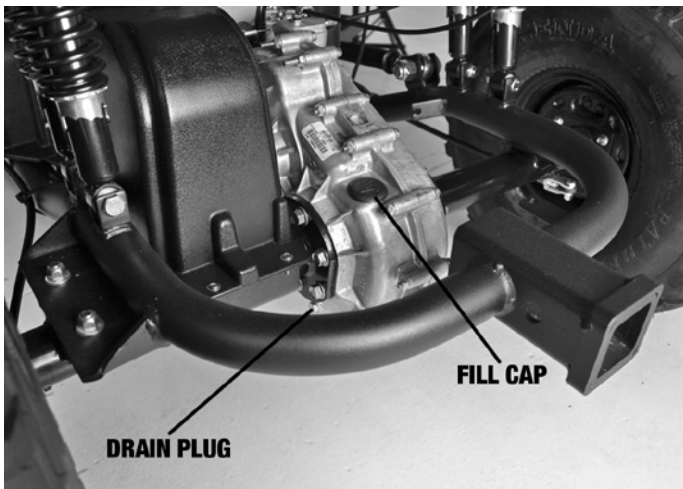


figure 6.10

Cable Lubrication

Stiff or sticking cables can cause the vehicle to not operate properly. Before attempting to adjust the cables ensure they are lubricated. To lubricate the cables, slide the rubber dust caps up the cable. Drip or spray penetrating oil into the cable housing while working the cable. Do this several times as the oil soaks into the housing. Test the vehicle. If this did not help, the cable may require replacement.

Cleaning the Windshield (if applicable)

- Rinse windshield with lukewarm water; wash gently with mild soap or detergent and lukewarm water, using a soft cloth or sponge. DO NOT SCRUB or use brushes or squeegees.
- Rinse again. Dry with soft cloth or moist cellulose sponge to prevent water spotting.
- Abusive cleaning procedures by hand washing or automated washing equipment will eventually result in visual hazing, loss of light transmission and coating contamination.

Compatible Cleaning Agents

Aqueous Solutions (Mix With Water) of Soaps and Detergents

Fantastik, Formula 409, Hexcel, F.O. 554, Joy, Lysol, Mr. Clean, Neleco-Placer, Pine-Sol, Top Job, Windex.

Drive Belt

The drive belt is considered a wearable item. Replacement intervals depend on vehicle use and environment. If your belt is slipping you may need to replace it.

1. Park vehicle on a level surface, set park brake, place shifter in Neutral, turn off ignition switch, and remove key.
2. Remove the upper belt covers. It is not necessary to remove the bottom cover.
3. "Walk" the belt off of the rear pulley as shown in figure 6.11.
4. Install the new belt on the front pulley first and "walk" it onto the rear pulley.
5. Reinstall the belt guards as shown in figure 6.12.

Attention: Failure to reinstall the belt guards may void your warranty.



figure 6.11



figure 6.12

Headlight Adjustment / Replacement

There are 2 different styles of headlights that require different procedures for aiming and replacement. Headlight style 1 (see figure 6.13) is featured on the LANDmaster line of utility vehicles and style 2 (see figure 6.16) is featured on the BULLDOG, Trail Wagon and Chuck Wagon utility vehicles.



figure 6.13



figure 6.16

STYLE 1 HEADLIGHT ADJUSTMENT

To adjust aiming, turn the adjusting screw located on the back side of the headlight either counter-clockwise to lower the bottom of the light or clockwise to raise the bottom of the light. The light does not adjust side to side. (see figure 6.14)

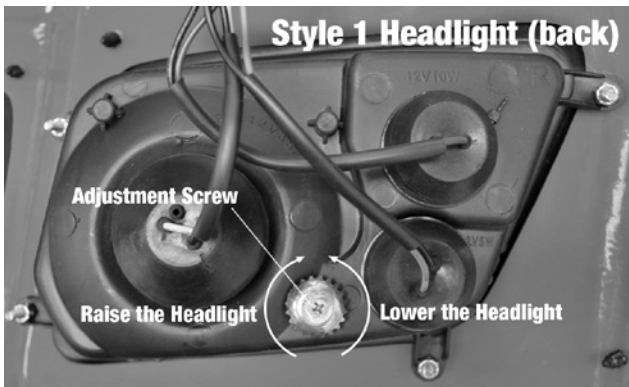


figure 6.14

STYLE 2 HEADLIGHT ADJUSTMENT

To adjust, loosen the adjustment screw located on the bottom of the backside of the light. Aim the headlight to the desired position from the front, either up or down, using your hand. The light does not adjust side to side. When the light is at the desired position, tighten the adjustment screw (see figure 6.17)

STYLE 1 HEADLIGHT REPLACEMENT

To replace the main bulb, remove the rubber cap and turn the main bulb housing counter-clockwise and pull out of the headlight assembly. Push the bulb into it's housing and turn counter-clockwise to remove. Insert new bulb, push in and turn clockwise. Replace bulb housing and rubber cap. Repeat the same steps to replace the amber bulb. To replace the running light, remove the rubber cap and gently rock the housing side to side while pulling outward. Pull the old bulb straight out of the housing and replace. Push the housing back into the headlight assembly. (see figure 6.15)

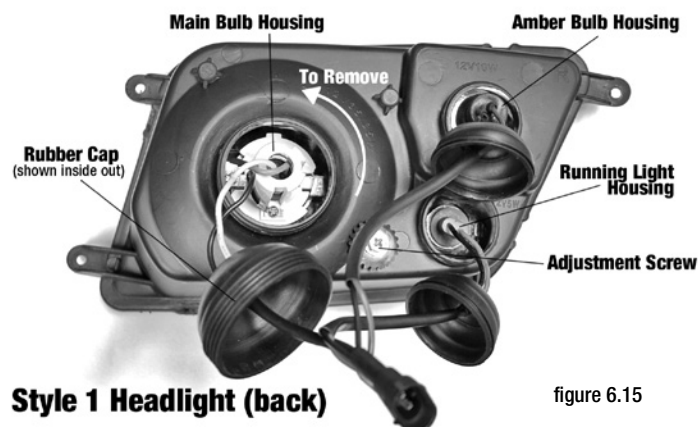


figure 6.15

STYLE 2 HEADLIGHT REPLACEMENT

Remove the rubber cap and connector from the headlight assembly and bulb. Push the upper bulb holder tab in and up and the lower tab in and down to release the bulb. Remove the bulb and replace with the large bulb tab at the top. Replace the holder tabs, connector and rubber cap. (see figure 6.17).

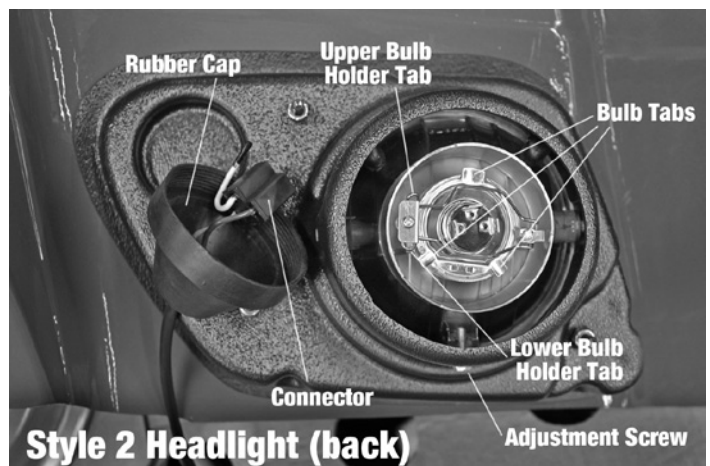


figure 6.17
15371R1 Rev. C
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Battery Charging

Refer to Figure 6.18

- On-Board battery charger is located under the dump bed or under the seat on select models.
- Put the adapter into the AC cord then plug the AC cord into a grounded outlet. If an extension cord is used, a heavy duty cord of no more than 25 feet must be used. The extension cord must be AWG 12 or heavier.
- The charger will come on and begin to charge on its own.
- A fully discharged battery set will take 9-12 hours to fully recharge.

Battery Watering

Flooded batteries need water. More importantly, watering must be done at the right time and in the right amount or else the battery's performance and longevity suffers. Water should always be added after fully charging the battery. Prior to charging, there should be enough water to cover the plates. If the battery has been discharged (partially or fully), the water level should also be above the plates. Keeping the water at the correct level after a full charge will prevent having to worry about the water level at a different state of charge. Depending on the local climate, charging methods, application, etc. Trojan recommends that batteries be checked once a month until you get a feel for how thirsty your batteries are.

Important things to remember:

1. Do not let the plates get exposed to air. This will damage (corrode) the plates.
2. Do not fill the water level in the filling well to the cap. This most likely will cause the battery to overflow acid, consequently losing capacity and causing a corrosive mess.
3. Do not use water with a high mineral content. Use distilled or deionized water only.



WARNING

The electrolyte is a solution of acid and water so skin contact should be avoided.

Step by step watering procedure:

REMEMBER: Always wear a safety shield or approved safety goggles when adding water or charging batteries.



1. Open the vent caps and look inside the fill wells.
2. Check electrolyte level; the minimum level is at the top of the plates.
3. If necessary add just enough water to cover the plates at this time.
4. Put batteries on a complete charge before adding any additional water (refer to the Charging section).
5. Once charging is completed, open the vent caps and look inside the fill wells.
6. Add water until the electrolyte level is 1/8" below the bottom of the fill well.
7. A piece of rubber can be used safely as a dipstick to help determine this level.
8. Clean, replace, and tighten all vent caps.

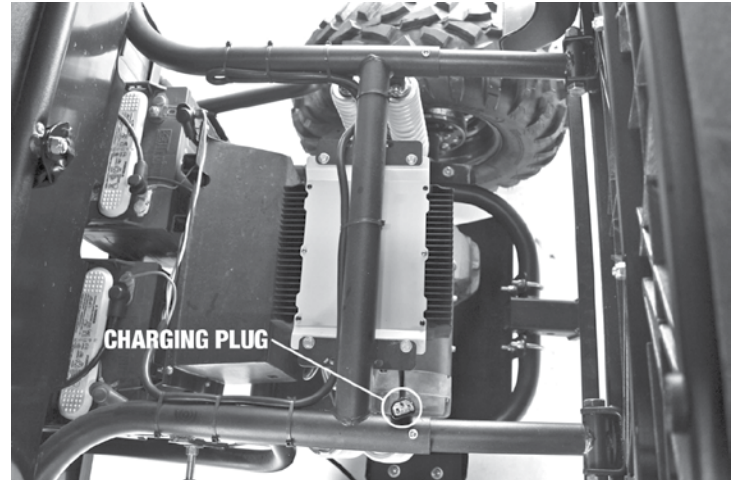


figure 6.18

Battery Disposal

Lead-acid batteries are completely recyclable. Return whole scrap battery to distributor, manufacturer or lead smelter for recycling. For information on returning batteries to Trojan Battery Company for recycling call 800-423-6569. For neutralized spills, place residue in acid-resistant containers with sorbent material, sand or earth and dispose of in accordance with local, state and federal regulations for acid and lead compounds. Contact local and/or state environmental officials regarding disposal information.

Transaxle Oil

Refer to Figure 6.19

**SAE 30W oil is used in the transaxle.
Oil should be changed after one year of normal use, and every other year after.**

To change the oil, a vacuum device may be used to remove the old fluid or remove the differential cover from the bottom in order to get all of the old oil out of the housing. To fill, some fresh oil should be put in the differential cover then installed back to the housing, then fill up to the level of the plug. (figure 6.19)

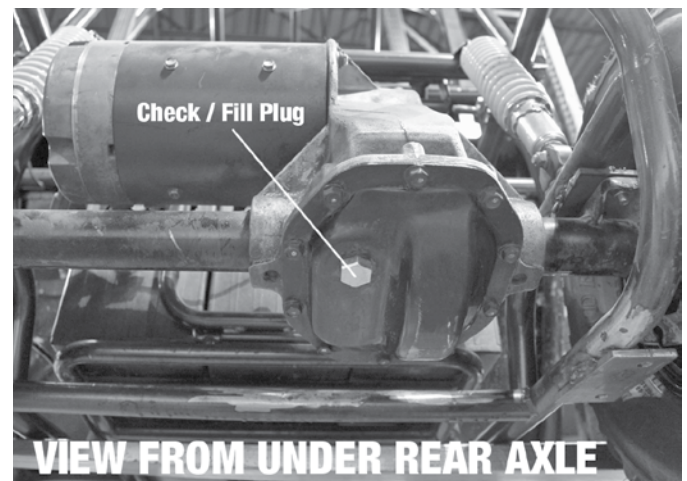


figure 6.19

Mode Switch

Refer to figures 6.20 & 6.21

Your 48V UTV is equipped with a mode switch. These two modes allow for parental control of the speed of the vehicle.

The switch is located either on the dash or on the left side of the vehicle, under the bed. The fast mode (M1) will allow speeds up to 18 mph. The slower mode (M2) will allow speeds up to 10 mph. "Slow Mode" also has a more gentle acceleration curve. The vehicle range is considerably greater in slow mode as well.

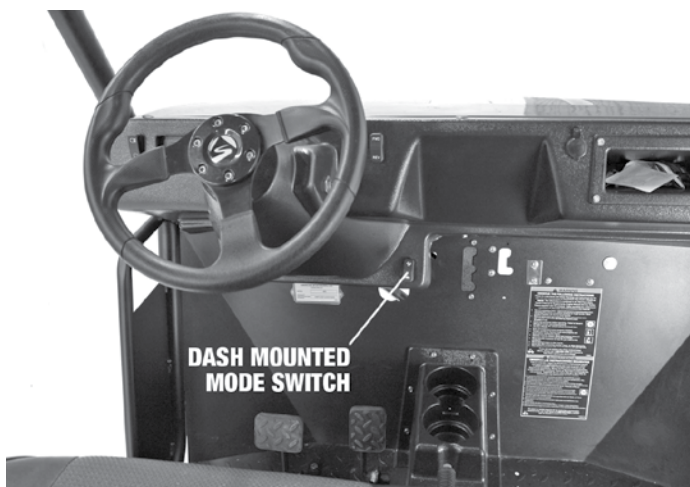


figure 6.20

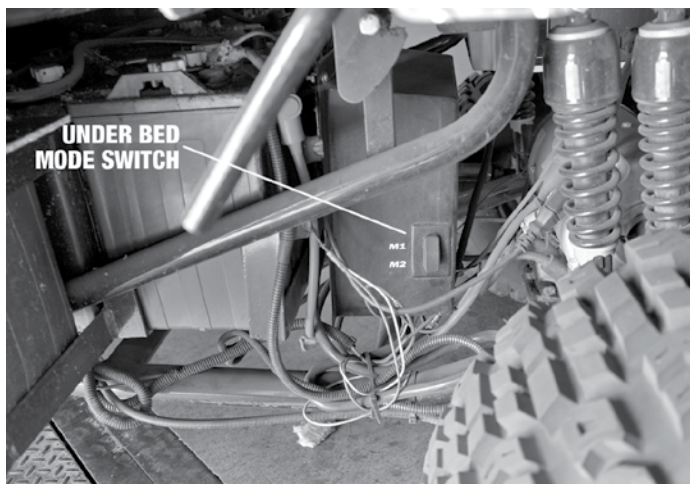


figure 6.21

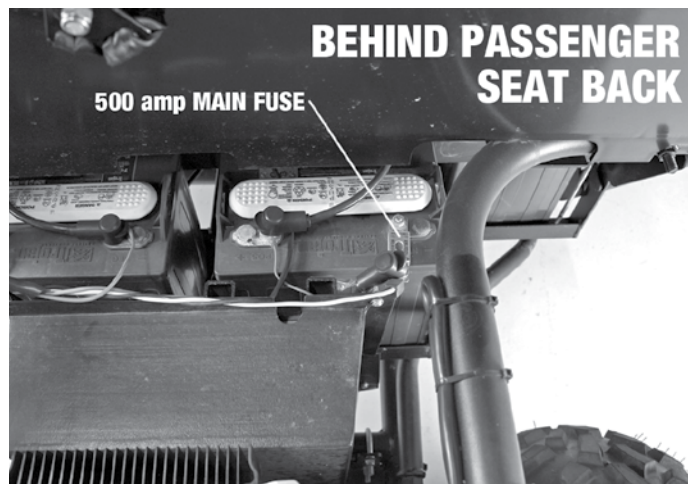


figure 6.22

NOTE

In addition to the main fuse, there are three smaller fuses to protect the 12volt and 48 volt circuits. These fuses are illustrated below. Should these fuses blow and need replacement, a replacement fuse of the same rating must be used.

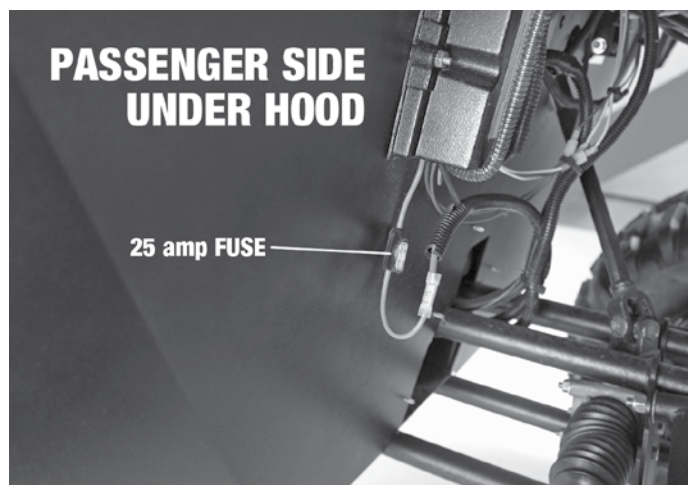


figure 6.23

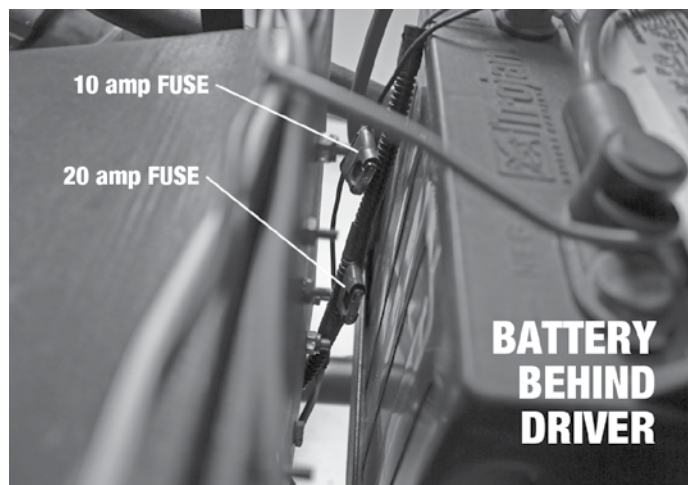


figure 6.24
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Fuses

Refer to figures 6.22, 6.23 & 6.24

Your 48V Vehicle has fused protection for the main motor circuit, along with the low amperage 48 volt circuit, and the 12 volt circuit. Pictured to the right above is the 500 amp main fuse. This fuse will blow in the event of a short across the battery posts, or a catastrophic failure in the motor or controller. Should this fuse blow, it must be replaced with a like 500 amp fuse. These fuses are available through your dealer.

American SportWork's LSV/UTV models are equipped with certain parts unique to these models only. Special care and attention may be required during maintenance of these vehicles.

- Turn Signal Control Switch - part # 2-70140
- Front Amber Turn Signal Lamp - part # 2-70143
- Rear Red Turn Signal Lamp - part # 2-70142
- Turn Signal Control Module(Grote) - part # 2-70141
- Blue Pigtail Plugs for front and rear Lamps - part # 2-70144
- Turn Signal Wiring Harness - part # 2-70051
- Plastic Turn Signal Switch Cover - part # 2-18318
- Lexan Polycarbonate Windshield - part# 2-18410
- Dana Transaxle H12 High Speed - part # 2-20840
- SeatBelts Retractable (LSV) - part # 2-10706
- RearView Mirror - part # 2-55081
- Horn - part # 2-55033

Wiring of Tail Lights

Refer to figure 6.25

After installation of the fenders, the tail lights must be wired. The wire harness is routed through the holes in the fender. Please note that these fender holes face inward after mounting.

As in the diagram below, the FLAG COLOR on the harness wire is plugged into the corresponding WIRE COLOR on the taillight end. Note that these colors are not the same on the left as the right.

TAIL LIGHT WIRING

Flags on harnesses must match wire color on tail light
If no flags are present, match the wire colors

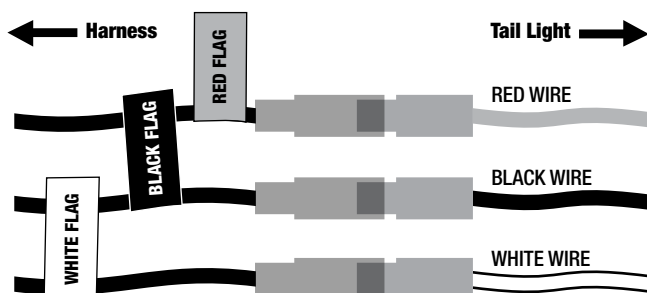


figure 6.25

⚠ WARNING ⚠ ADVERTENCIA

OBSERVE THE FOLLOWING INSTRUCTIONS

Failure to understand and follow Warnings and Instructions for the safe use and maintenance of this product may result in **Death or Injury!**

- Read owner/operator's safety manual carefully.
- This low speed vehicle may be used on public roads (check local ordinances).
- Always wear a D.O.T. - approved motorcycle helmet, eye protection and protective clothing.
- Do NOT operate the vehicle without the brush bars securely in place.
- Keep all covers and shields properly installed.
- Throttle, stop switch and brake controls must work properly and freely before starting the engine.
- Operator must be seated, safety belt must be fastened and brake applied before operating the vehicle.
- This vehicle does not have the same protection as a car or truck in the event of an accident.
- Avoid driving on public roads at night or in low visibility.
- Avoid roads with considerable traffic.
- Follow all safety procedures.
- Never ride after consuming alcohol, drugs or other intoxicants.

If you did not receive any of the material listed above, please call 1-800-643-7332 and request to have them sent to you at no charge.

OBESERVAR LAS SIGUIENTES INSTRUCCIONES

Al fallar o el no entender estos siguientes avisos y instrucciones para la seguridad y el mantenimiento de este producto puede resultar en un **¡Accidente o hasta le Muerte!**

- Lee los manuales de dueño/operador cuidadosamente.
- Esta baja velocidad del vehículo puede ser utilizado en la vía pública (consulte la programación local ordenanzas).
- Todo el tiempo use un casco que sea aprobado por el DDT, protección para los ojos, y ropa protectora.
- NUNCA apere el vehículo sin que las barras de seguridad estén puestas en el lugar apropiado.
- Mantenga todas las coberturas y los protectores instalados apropiadamente.
- El acelerador, el botón de paray y el control de frenos tiene que trabajar apropiadamente y libremente antes de prender el motor.
- El operador tiene que estar sentado, tiene que asegurarse con el cinto de seguridad, y aplicar el freno antes de operar el vehículo.
- Este vehículo no tiene le misma protección que un coche o camión en caso de un accidente.
- Evite conducir en la vía pública por la noche o en baja visibilidad.
- Evitar carreteras con mucho trafico.
- Siga todos los procedimientos de seguridad.
- Nunca maneje antes de consumir alcohol, drogar, o alguna otra sustancia toxica.

Si no recibió cualquiera del material alistado, por favor llame al 1-800-643-7332 y pida que envíen sin cargo alguno.

⚠ CAUTION

Accessories Must NOT be Grounded to Chassis. Damage to Converter Will Occur Ground to Distribution Block Ground (Neg) Terminal Only (see fig. 6.26 below)

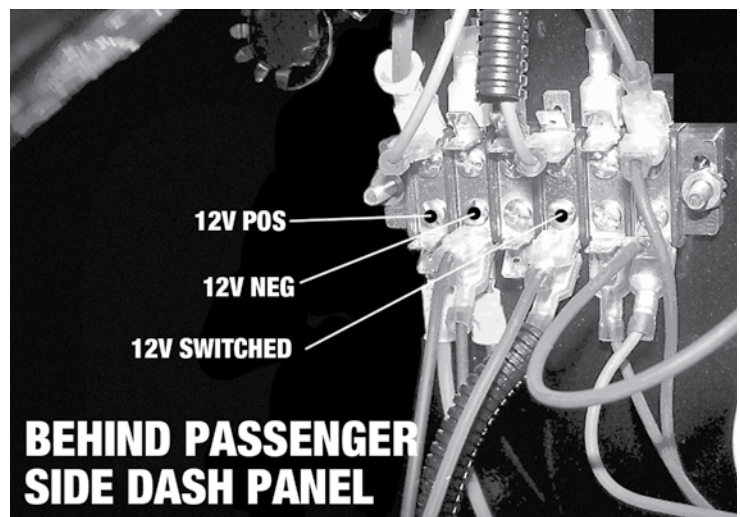


figure 6.26