



Mud Buddy HD/HDR Owners Manual

March 2016

Models 23, 25, 35, 37EFI & 4400

All 4400 models must use 91 or higher octane fuel.

All models use quality standard, synthetic blend or synthetic 10W-30 oil - up to 2 quarts per engine - check while filling.



**HD model has forward and neutral transmission.
HDR model has forward, neutral and reverse transmission.**

HD - Center position is neutral/start.
Forward position is forward gear.

HDR – Rear position is reverse gear.
Center position is neutral/start.
Forward position is forward gear.



Trim up and down.

Safety turn off lanyard – to be worn at all times.

- 3-----Mounting
- 3-----Break In
- 3-----Fuel and Storage
- 4-----Trailing
- 4-----Battery (Use group 27)
- 4-----Oil (10W30)
- 4-----Start, Operation and Controls
- 5/10----Service Schedule and Procedures
- 11/12--Warranty
- 13-----Contact
- 14/15 -Wire Diagrams
- 16 -----Parts Diagram
- 17 -----Emergency Start Procedures

Mounting:

Your motor is shipped with two mounting bolts. Use a hoist capable of handling 350 pounds to safely lift the engine from the crate on to the boat.



Align the motor to the center of the boat then mark the mounting holes and drill using a 3/8" drill bit.

Use silicone to seal the bolt holes. Do not over tighten the bolts and crush the mount or boat transom.

Break in. This is very important. Motors should be broken in over a five -hour period. During the first hour do not run full throttle longer than two minutes. For the next two hours do not run the motor at full throttle longer than 15 minutes at a time. Run the final two hours by varying the throttle position ever 10 minutes.

Model 4400 requires a valve adjustment at ten hours. This is the owner's responsibility. See page 9 for instructions.

Change the oil at 20 hours.

Fuel and Storage:

It is important to use a fuel stabilizer whenever the engine is not being used for more than two weeks. There is no warranty on fuel systems and damage incurred by improper storage.

Your motor is shipped with a 5' fuel hose. Connect this to an approved marine fuel tank using the hose clamps included.

Do not use a quick disconnect fuel hose which can restrict fuel delivery. You can use a marine primer bulb, however do not excessively pump the primer bulb as it can damage the carburetor.

If you are using a forward mounted fuel tank, use a minimum size 5/16" fuel hose.

Use a minimum of 87 Octane fuel for the 23, 25, 35 and 37 EFI models. The 4400 model must use 91 or higher octane fuel.

Use Stabil or an equivalent brand fuel additive if you are storing the engine for more than one two weeks.

Trailing:

Use bungee or over-the-boat strap wrapped around the handle once as shown to tie down the handle so that it does not bounce while trailering. Failure to follow this advice may cause damage to the handle, controls and wiring.



The motor is equipped with a travel lock that holds the engine in the horizontal (up and down) and vertical (left and right position).



To engage, stand on the oil filter side of the engine facing the boat. While lifting the engine with your left hand, raise the engine upward to line up the tab on the base plate with the engine mount plate. Push the travel lock ball inward to lock the engine upward. Secure the travel lock with the travel lock pin.

You can use the hydraulic trim pump to raise the engine, but be careful to not bend the base plate with excessive lift.

Battery:

Use a group 27 or larger battery with at least 550 cranking amps. If the battery is located in the front of the boat, use 4-gauge battery wire. Your motor is equipped with a 5 foot, 6-gauge wire.

Oil:

You engine holds approximately 2 quarts of oil. We ship the engine with no oil, however some oil from assembly may be in the engine. Add oil slowly and check the dipstick with the engine in a level position.

We recommend using a 10W-30 oil or synthetic blend oil the first twenty hours during break in. Afterwards we recommend a synthetic or synthetic blend 10W-30. Use 5W-30 in temperatures lower than 20 degrees to help the engine start easier.

Start Switch:

The start key switch is located on the front of the engine. It has three positions, off, on and start.

Safety Lanyard

Connect the safety lanyard to your clothing or wrap around your wrist during operation.

Shifting

The HD model has a forward shift position and a center start position.

The HDR reverse model has a forward gear position, a center start position and a reverse gear position.

Caution - Ensure the engine is running 1200 RPM or less to ensure easy shifting, to prevent drive damage and to reduce sudden forward or reverse motion of the boat which may cause injury or death to the operator or passengers.

Trim Switch

The trim switch allows you to select the best drive vertical position. Initially, trim the engine downward to accelerate and as you pick up speed, trim upward allowing the propeller to run on the surface for best performance. Once you set the full speed running height. **It is not necessary to trim the drive downward to stop and take off.**

Starting:

Make sure everyone is clear of the propeller. Place the shift switch in the center neutral position. The engine will not start with the shift switch in other positions.

Choke the engine during start up and in cold operating conditions. The 23, 25, 35 models have a choke located at the front of the engine.



The 37EFI engine does not have a choke – it automatically richens the fuel during start up.

The 4400 model choke is located at the top left side of the Mikuni carburetor.



Running:

Take time to learn where all the controls are located on your Mud Buddy.

Place the safety lanyard on your wrist or clip it to your clothing.

Start the engine in neutral. Lower the propeller into the water with the trim control and safely place the motor in gear. Drive slowly at first to learn how to steer and throttle the engine. Trim the drive up and down slowly so that the propeller is slightly visible above the surface with a visible water rooter tail. Your motor will run best in this position. It is not necessary to trim down when you stop and resume travel.

You can lower the drive completely for maximum traction in mud, ice and thickly vegetated areas. Trim up to clear logs and rocks.

Handle Bolt Tension:

The handle bolts should be snug, but loose enough to allow the handle to move up and downward. The operator handle is designed to float (freely move up and down) when driving. When the drive hits a hard object when under power, the floating handle absorbs the impact.

Skeg Adjustment:

Depending on the boat design and load, it may be necessary to adjust the skeg to lessen tiller torque (excessive push or pull of the handle). However, tiller torque can also be caused by excessive up or down position of the drive at full throttle.

The skeg has a small bend closest to the propeller. If the operator handle is pushing excessively towards you, increase the bend by adjusting with a large crescent wrench. Lower the drive and place your knee against the drive and bend it in small increments. More bend angle causes the tiller handle to pull away from you. **Do not adjust the skeg with a hammer.**



Engine and Drive Service

Recommend - First 10 Hours Model 4400BD
<ul style="list-style-type: none">- Check and or adjust valve lash to .004 to .006 on all model engines. See page 9 for instructions.- Check muffler and rear engine crankcase engine bolts.- Grease lower drive tube.
First 20 Hours
<ul style="list-style-type: none">- Change engine oil. 10W-30 regular, synthetic blend or synthetic oil.- Inspect propeller for wear and damage. (Replace immediately if the drive incurs vibration.)
Every 50 Hours or Annually
<ul style="list-style-type: none">- Grease lower drive tube and swivel points.- Clean or replace air filter.- Change engine oil and filter.- Lubricate throttle cable and throttle lever.- Check muffler and rear PTO cover bolts.- Inspect propeller for wear and damage.
Every 100 hours or Annually
<ul style="list-style-type: none">- Replace air filter and air filter pre-cleaner on model 4400.- Replace spark plugs.- Check muffler, replace if cracked.- Clean cooling fins located in and around the head and muffler area.- Check valve lash.- Purge drive tube grease by pumping grease into the drive until new grease comes out the grease bleed screw hole.- Check engine base bolts and frame bolts.- Remove corrosion, touch up paint, and lubricate wire ends with silicone spray.- Replace fuel filter- Check belt tension. Page ____ also see video on Mud Buddy website at www.MudBuddy.com/service.htm- Change oil in HDR transmission. Page ____

Frequently Asked Service Questions
<http://www.mudbuddy.com/faqs.htm>

Caution: Owner's Responsibility

The following items are the responsibility of the owner. Failure to maintain the drive and engine will result in damage; early part failure and void the product warranty.

- **Proper storage of engine using fuel stabilizer.** Stale fuel will cause damage to the carburetor and will result in difficult starting, poor idle, acceleration and top end speed. Poor fuel delivery can cause an engine lean condition and may affect the performance and life of the engine.
- Always use a fuel stabilizer like Stabil when the engine is stored for more than one month.
- **Propeller balance and condition.** If a propeller is worn, damaged or bent, it will vibrate and can cause the following conditions- Loose bolts, handle vibration, leaking seals, bearing failure, frame cracking and engine damage. A damaged propeller will cause engine and frame damage and is not covered by warranty.
- **Freezing rain and snow can cause severe damage** to the throttle, trim and shift switch and carburetor. Store the motor with a cover.

Caution: If you have a frozen cable and thaw it out, the water in the cable will freeze again during driving and can cause the throttle to stick open. If the throttle cable freezes, it must be removed, thawed and pressure lubricated with a silicone based lubricant to remove the water within the cable. Tape a silicone pressure can nozzle straw to the end of the cable - spray in lubricant until the water and lubricant exit the opposite cable end. Or, remove the cable and soak in WD-40 overnight.

- **Salt can cause extensive corrosion** to the drive and engine. Ensure the frame is cleaned and lubricated every time it is run in salt water. Corrosion will cause finish damage, switch

failure, wire shorting, and engine failure. Remove corrosion on painted surfaces. Matching paint can be purchased from Mud Buddy and BPS. Use silicone spray protectant on wire connections.

- **Drive seal damage will result in loss of grease level in the drive and cause bearing damage and early failure.**
- **Bolts, nuts and other fasteners should be checked frequently to prevent early drive and engine failure.**
- **Impacts can cause engine and drive damage. This includes prop and skeg damage, oil cooler and hose damage, throttle and kill switch breakage. Severe impacts can cause carburetor and air filter separation. Low hanging branches and snags can break fuel pumps, hoses and pull the dipstick off the engine. These motors are built tough, but caution and safety should be your main concern when running in waters with unknown depth and bottom conditions. Severe impacts that cause frame and engine damage are not covered by warranty.**

Oil Recommendations

We recommend the use of a good quality 10W30 or synthetic blend 5W30 oil classified for service SF,SG,SH, SJ or higher. Do not use special additives.

Check Oil

Place the engine in a flat position. Clean the oil fill area of any debris. Remove the dipstick and wipe with a clean cloth. Insert the dipstick fully. Remove the dipstick and check the oil level. It should be at the top of the oil level indicator. If low, add oil slowly. Do not overfill. Replace the dipstick.

Oil Pressure

If the oil is too low, the engine is equipped with a low oil pressure shutdown switch. The switch prevents the engine from starting if the oil level is low and will stop the engine if the oil pressure is low. If this occurs, check the oil level and fill to the full mark on the dipstick.

Caution: The low engine oil pressure switch is not your primary protection from low oil. If the engine is operating and encounters a low oil

running condition, the low oil pressure switch will not automatically shut down the engine and severe engine damage can occur. Check your engine oil level every time you run the engine.

Engine RPM:

The engine idle speed should be set at 1200 RPM or less to ensure smooth and jolt free shifting. Higher RPMs can cause damage to the drive and you can lose control of the engine and cause serious injury or death to the operator and passengers.

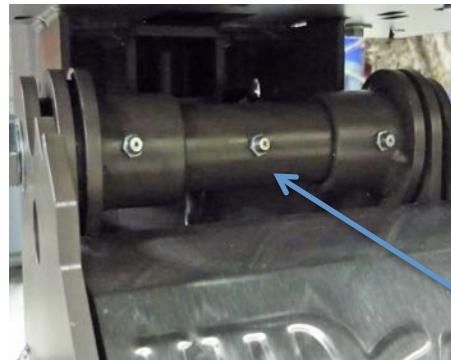
Full throttle engine RPM is set by the propeller size when run in the water. **Use the factory recommended propellers for your engine size.** Normal operating RPM is from 3800 to 4200 RPM. Your engine is equipped with a high RPM governor that will cut out the engine at 4650 RPM if the propeller leaves the water. Do not over rev your engine higher than 4200 when the propeller is out of the water at high speeds for longer than three minutes – this can cause excessive heat and damage to the propeller seals and bearings.

Owner Service

Frame Greasing

Grease swivel assembly fittings annually or every 50 hours with a good quality marine grease available at any auto parts store. Trailer axle marine grease is also acceptable.

Locate and grease the three grease fittings on the horizontal swivel located under the engine mount and the single fitting on the vertical swivel.



Grease the throttle cable on both ends. Also, spray a water resistant silicone spray on the throttle lever. To prevent cable freezing, remove the cable and soak in WD-40 for two hours each year.



Drive Greasing

Grease annually or every 50 hours with a good quality marine grease available at any auto parts store. Trailer axle marine grease is also acceptable.



Locate the drive lubrication bleed screw located on the drive casting on the lower drive assembly.

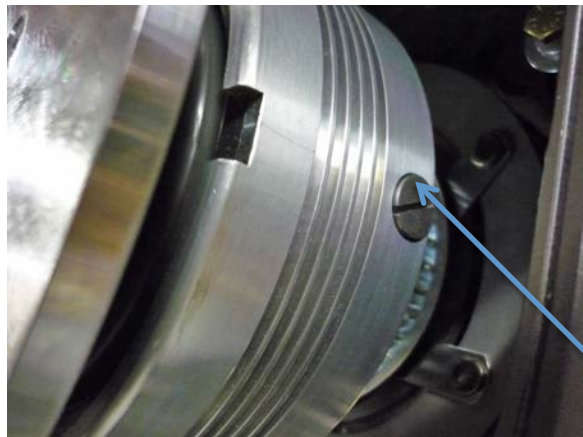


Remove the pressure release bleed screw and grease the drive. Grease until clean grease comes out the bleed screw hole. Run the engine one minute, wipe off the grease that escapes and then replace the bleed screw.

HDR Transmission Service – Every 100 hours.

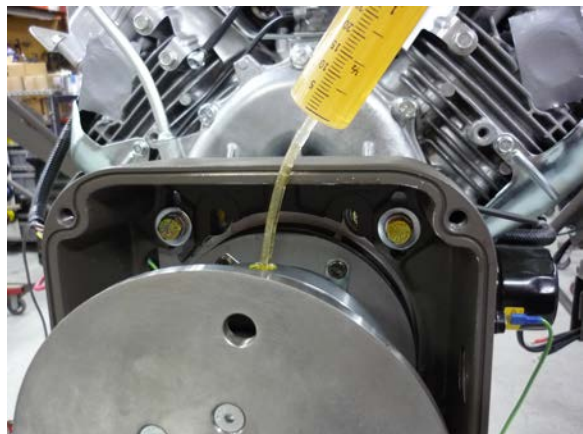
Carefully remove the drive transmission cover and clutch wire plug. locate the two fill and drain screws located on the belt drive transmission.

Disconnect the battery cable. Place a shop towel between the belt below the transmission to catch oil and any parts that might fall. Cut a cup and half and drain and replace the transmission fluid with a good quality 10w-30 automotive grade oil.



Procedure: Remove one of the fill/drain screws and place it at the 12 o'clock position.

Place the other fill/drain screws at the 6 o'clock position. Drain the very small amount of oil on to the shop towel. Replace the drain screw. Using the Mud Buddy filler syringe, fill the transmission with 1 1/4 oz. of 10w-30 automotive synthetic oil. Replace the filler screw. Run the motor and check for any leaks. Note, if there is excessive oil on the inside of the transmission cover, locate and replace the large seal on the transmission hub.



Carefully replace the transmission cover to ensure the magnet wires are not pinched behind the magnets.

Emissions Control

Maintenance, replacement, or repair of emissions control devices and systems, may be performed by any engine repair establishment or individual.

However, to obtain "no charge" emissions control service, a factory authorized service dealer must perform the work. See Emissions Warranty.

Carburetor Adjustment

Never make adjustments to the carburetor. The carburetor was set at the factory to operate efficiently under most conditions. However, if adjustment is necessary, see a Mud Buddy authorized dealer for service.

How to Adjust Valve Lash (First 10 hours)

Setting Valve Lash or Valve Clearance is important and should be checked after the first 10 hours of running, or earlier if the valves are noisy.

If the valve lash is not set to specifications, the valves will not open and close at the correct time, which will cause power loss and possible head and engine damage. You will not get the best performance from your motor if the valve lash is not set correctly. All model valve lash setting is 0.004 to 0.006.



Disconnect the battery cable and remove the spark plugs. Set the valves on a cold engine, remove your valve covers (10mm wrench), spark plugs, and engage the clutch (if you are turning the prop to turn the crank). Turn the crank shaft/prop counter-clockwise until you see the valves

opening and closing. After the exhaust valve closes put your finger over the spark plug hole.

When you feel air coming out (compression stroke) then turn slowly. Look in the spark plug hole with a flashlight and turn the shaft until you see the piston rise to its max point. Turn it just a little bit more till it drops $\frac{1}{4}$ " and then set the valve clearance (this is $\frac{1}{4}$ " past Top Dead Center - TDC).

Use a feeler gauge to check/set the clearance at .004 to .006. They are available at any auto parts stores. Loosen the 13mm nut on the rocker adjuster on the rocker arm and use a Torx T40 driver or metric Allen wrench (depending on your adjuster type) to adjust the clearance. The feeler gauge should move between the valve and the rocker arm with resistance (like slicing a stick of cool butter with a knife). Once the rocker arm clearance is set at the correct clearance, hold the adjuster and tighten the 13mm nut.

Recheck the clearance to ensure you didn't move it while tightening (it may take a few tries to get it right). Now check the other valve on this head.

Then check the valve lash on the other head and rockers arms by repeating the process by ensuring the piston is in the correct position prior to adjusting the valves.

Torque specs: Valve Cover- 70 in. lbs. (8 Nm), Rocker Arm Adjuster Lock Nut- 70in. lbs. (8 Nm). Recheck valve clearance after 10 hours and then yearly.

Warning: Make sure the push rod is seated in the rocker arm cup. If not, this will cause severe engine damage and is not covered under warranty.

Note - you may re-use the valve cover gaskets, if you reinstall the covers and see oil leaking after running, order and install new gaskets.

Belt Tension Adjustment (every 100 hours)

Please see the belt tension instructional video for step-by-step procedures at the Mud Buddy service web page.

<http://www.mudbuddy.com/service.htm>.

Set the Tach/Hour Meter

The tachometer is adjustable to pick up spark pulse from many different types of mud motor engines. Mud Buddy presets the tachometer, but if you accidentally change the settings or get a new tach, follow these instructions.



You do not need to start the engine to set up the tach.

Locate the button on the tach. Push SELECT button several times until the 1P1r appears – do not release the button until SET appears. Once SET appears release the button and toggle through the menu until you get the correct code below. Stop at the correct setting, release the button and wait 30 seconds for the tach to register TOT.

(EFI engine spark plugs fire every two engine revolutions and the tach should be set to **1P2=1.**)

(Non EFI engine spark plugs fire every revolution and the tach should be set to **1P1=1.**)

Spark Plug Gap (100 hours)

Check the gap with a wire gauge. If necessary, reset the gap to .032 to .035. Install and tighten the spark plug to the recommended torque.

Specifications	
Spark Plug Gap	.032 to .035 in
Spark Plug Torque	160 inch pounds

Inspect Muffler

Remove accumulated debris from muffler area and cylinder area. Inspect the muffler for cracks, corrosion and other damage. If damaged, install a replacement muffler.

Change the Oil Filter

All models are equipped with an oil filter. Change every 50 hours. Use Briggs part number 4929325 or Napa Gold 1348.

- Drain the oil from the engine.
- Remove the oil filter.
- Before installing the new filter, pre-lubricate the filter gasket ring.
- Install and tighten the filter by hand.
- Add oil to the full mark on the dipstick.
- Start and run the engine. Check the oil filter for leaks. Again check the oil level.

Service the Air Filter

Notice: Do not use pressurized air or solvents to clean the air filter.

Remove the pre-cleaner and air filter. Replace the filter or pre-cleaner if damaged. To loosen debris, gently tap the air cleaner on a hard surface. Wash the air filter and pre-cleaner with household detergent. Dry the filter and pre-cleaner.

Clean the Air Cooling System

Notice: Do not use high pressure water to clean the engine. Water could contaminate the fuel system. Use a brush or dry cloth to clean the engine.

This is an air-cooled engine. Dirt or debris can restrict airflow and cause the engine to overheat resulting in poor performance and shortened engine life. Use a brush or dry cloth to remove debris from the intake guard, cylinder heads and muffler area. Inspect and clean the cooling fins. Loosen the two front panel screws and clean the area under the panel.

Fuel Filter

Use pliers to squeeze the tabs on the fuel filter clamps. Slide the clamps away from the filter. Carefully remove the fuel filter and properly dispose of any leaking fuel. Check the fuel line for any cracks or leaks. Replace if necessary. Replace the fuel filter with an original equipment fuel filter. Secure the fuel filter with the hose clamps. Use Briggs part number 691035 or WIX 33011 or any good quality fuel filter 10 micron size or better.

Storage - Fuel System

Fuel can become stale when stored over 30 days. Stale fuel causes acid and gum deposits to form in the fuel system and essential carburetor parts. To keep the fuel fresh, use a fuel treatment and stabilizer, available at most automotive stores.

There is no need to drain gasoline from the engine if a fuel stabilizer is added according to instructions. Run the engine 2 minutes after adding the stabilizer to the fuel tank.

If stored longer than 30 days, the cylinders should be protected with a cylinder fogging available from marine stores by injecting the fog in the cylinders through the spark plug holes. Cylinders that become corroded will lose compression and void the emissions warranty.

Cover the engine from rain and snow to prevent corrosion and water from entering the exhaust outlet.

If gasoline in the engine has not been treated with a stabilizer, it must be drained into an approved container. Run the engine until it stops from lack of fuel.

Common Service Parts and Suggested Replacement Period

Air Filter - 100 Hours

4400 Air Prefilter - 100 Hours

Fuel Filter - 100 Hours

Oil Filter - 50 Hours

Muffler - 200 hours

Spark Plug - 100 Hours

Warning - Propeller Balance

A badly worn, damaged or out-of-balance propeller can cause severe damage to the drive and engine. A bad propeller will cause significant vibration in the handle and lower skeg. Damage caused by a bad propeller is not covered under our warranty.

Warranty:

One Year - Frame and Drive all Models

One Year - Model 4400 Engine

Three Year - Model 23, 25, 35 and 37EFI Engines

Limited Lifetime - Drive Belt (parts only)

(note: a belt break that has a clean cut, straight across the belt is due to insufficient service and tensioning and is not covered under warranty.)

Manufacturer's Emissions Warranty Coverage

If any emission related part on your engine is defective, the part will be repaired or replaced by Briggs and Stratton and Mud Buddy.

Owner's Warranty Responsibilities

As the engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. MUD BUDDY LLC recommends that you retain all your receipts covering maintenance on your engine, but MUD BUDDY LLC cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the engine owner, you should however be aware that MUD BUDDY LLC may deny warranty coverage of your marine engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your engine to a MUD BUDDY LLC Service Dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time. If you have any questions regarding your warranty rights and responsibilities, you should contact a MUD BUDDY LLC Service Representative at 1-801-352-1455.

Manufacturer Emissions Control Warranty Provisions

The following are specific provisions relative to your Emissions Control Warranty Coverage. It is in addition to the manufacturer engine warranty for non-regulated engines found in the Operator's Manual.

1. Warranted Emission Parts

Coverage under this warranty extends only to the parts listed below (the emissions control systems parts) to the extent these parts were present on the engine.

- a. Fuel Metering System
 - Cold start enrichment system (soft choke)
 - Carburetor and internal parts
 - Fuel pump
 - Fuel line, fuel line fittings, clamps
- b. Air induction system
 - Air cleaner

- Intake manifold
- Purge and vent line

c. Ignition System

- Spark plug(s) and magneto ignition system

d. Exhaust system

- Exhaust manifold

e. Miscellaneous items used in the above systems

- Connectors and assemblies

2. Length of Coverage

For a period of three years from date of original purchase, the manufacturer warrants to the initial owner and each subsequent purchaser that the engine is free from emission defects in materials and workmanship that could cause the failure of the warranty part, and that it is identical in all material respects to the engine described in the manufacturer's application for certification. For models 4000, 4400 and 5000 the emissions warranty is 175 hours or five years. The warranty period begins on the date the engine is originally purchased.

The warranty on emissions-related parts is as follows:

Any warranted part that is not scheduled for replacement as required maintenance in the owner's manual supplied, is warranted for the warranty period stated above. If any such part fails during the period of warranty coverage, the part will be repaired or replaced by the manufacturer at no charge to the owner. Any such part repaired or replaced under the warranty will be warranted for the remaining warranty period.

Any warranted part that is scheduled for replacement as required maintenance in the owner's manual supplied, is warranted for the period to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part will be repaired or replaced by the manufacturer at no charge to the owner. Any such part repaired or replaced under the warranty will be warranted for the remainder of the warranty period prior to the first scheduled replacement point for that part.

Add on or modified parts may not be used. The use of any non-exempted add on or modified parts by the owner will be grounds for disallowing a warranty claim. The manufacturer will not be liable to warrant failures of warranted parts caused by the use of a non exempted add on or modified part.

3. Consequential Coverage

Coverage shall extend to the failure of any engine components caused by the failure of any warranted emissions part.

4. Claims and Coverage Exclusions

Warranty claims shall be filed according to the provisions of the engine warranty policy.

Warranty coverage does apply to failures of emission parts that are not original equipment parts or to parts that fail due to abuse, neglect, or improper maintenance as set forth in the Mud Buddy LLC engine warranty policy. No liability is accepted for warranty coverage of failures to emissions parts caused by the use of add-on or modified parts.

5. High Altitude

Model 4400 is equipped with a nonadjustable Mikuni HSR 42 carburetor. This engine is not recommended for altitude use of 4000 feet (1219 meters) or above. Contact your dealer if you have questions.

6. Emissions Label

Look for relevant emissions, date of manufacture, engine family and the durability period on your engine emissions label located on the cover side of your engine.

Contact Information

Mud Buddy Manufacturing
7956 South, 1530 West, Suite 100
West Jordan, Utah 84088
801.352.8011 801.569.3799 fax
MudBuddy.com

Customer service:

801-352-8011

Micah@mudbuddy.com (performance components)

Keith@mudbuddy.com (customer service)

Parts Ordering:

Notice: All Mud Buddy parts and performance components are sold by BPS a separate company.

BPS Parts and Accessories
385-695-3807

www.backwaterperformancesystems.com

Travis@mudbuddy.com

JustinK@mudbuddy.com

Glade@mudbuddy.com

Remember, send in your warranty registration card. Thank you.

Check for product updates, service advisories, etc., on the Service Page at www.MudBuddy.com/service.htm



Visit the BPS Store

Performance Parts

Engine and Drive Parts

Propellers

Clothing – Hoodies and Hats

Carb Kits

Engine and Drive Parts

Stainless Mufflers

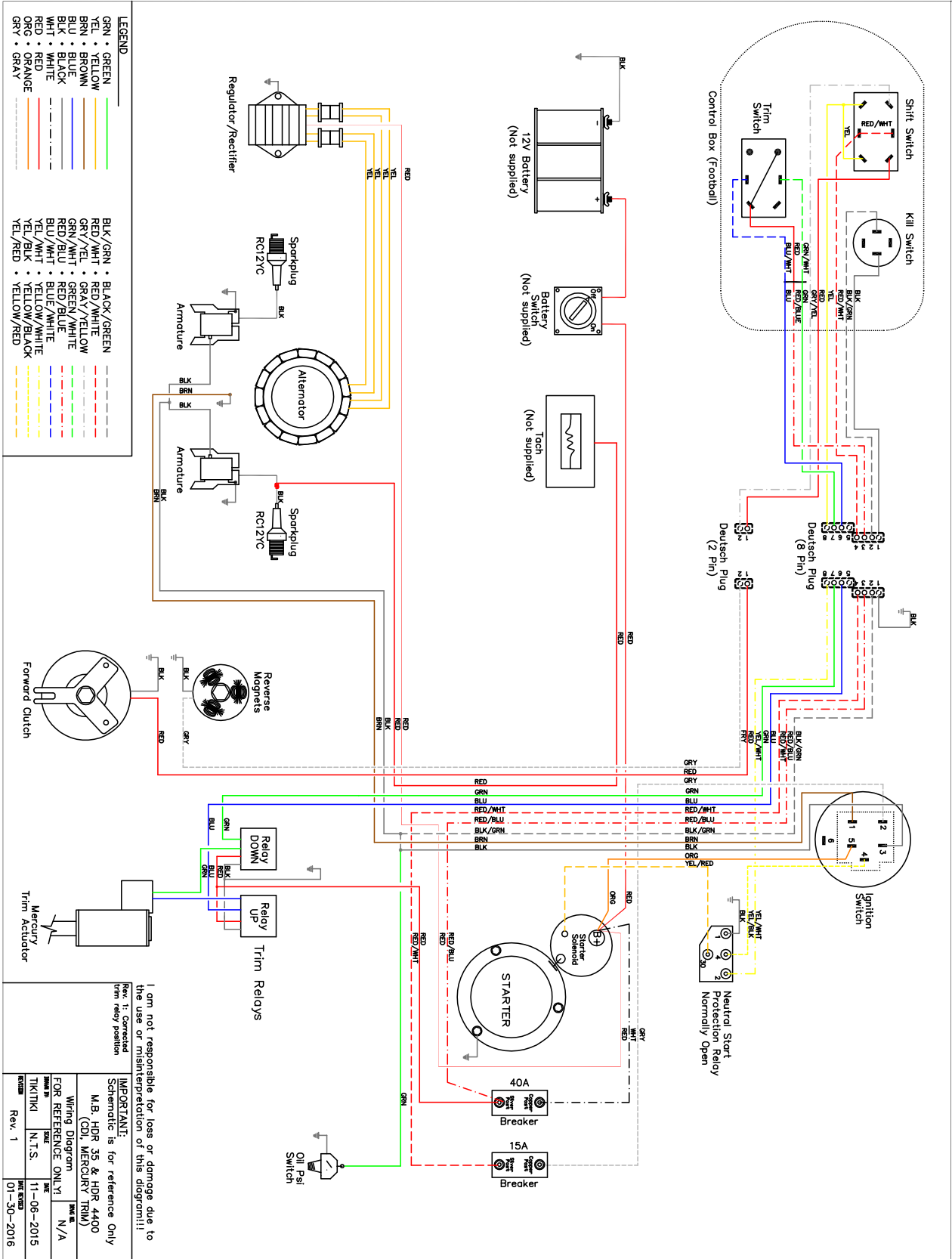
Conversion Kits

Performance EFI Modules

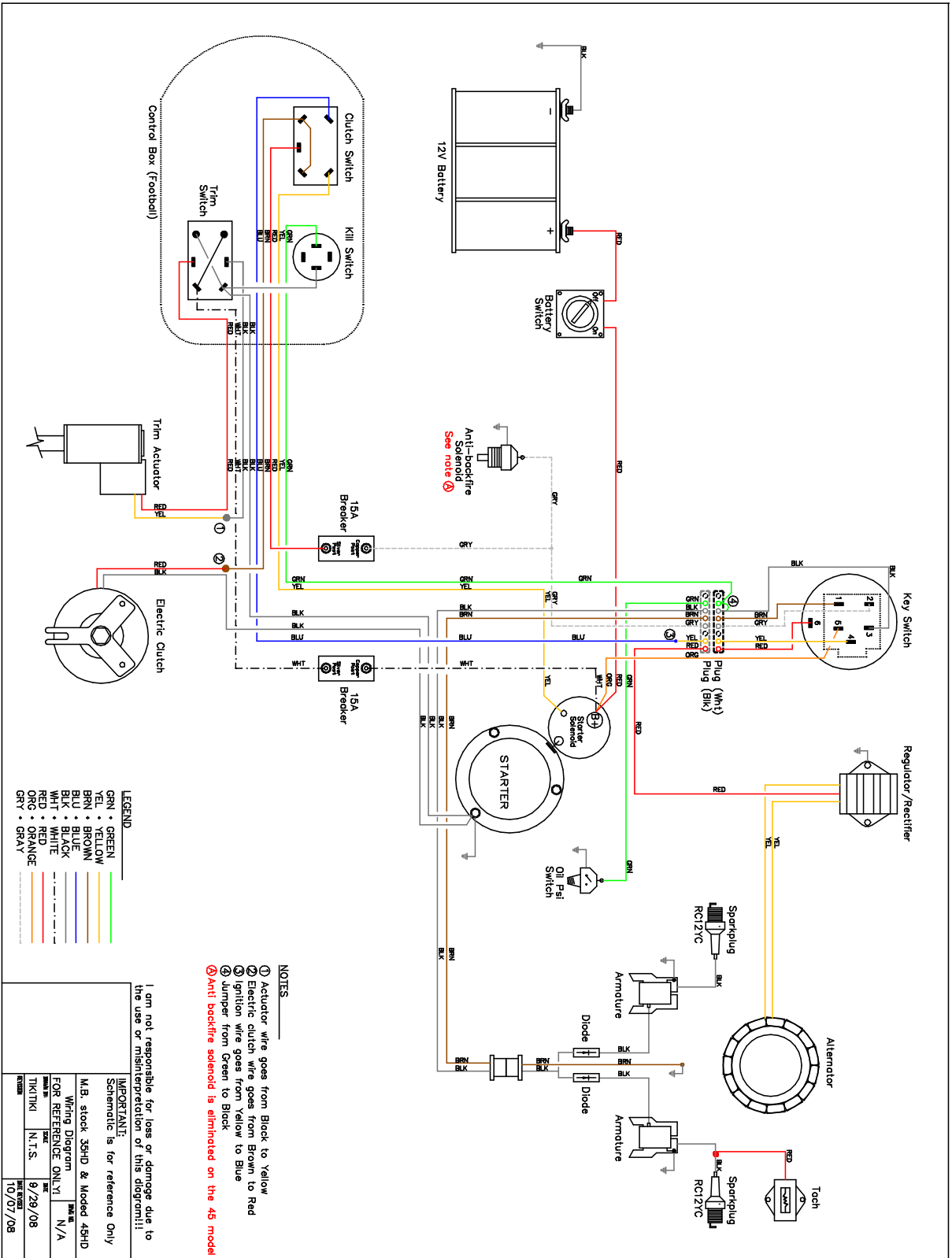
Bowfishing Supplies



HDR Wire Diagram



HD Wire Diagram



Start:

If the motor Starter will not engage when the key is turned, but the motor trim and clutch operate normally- there is possibly a failure in the Shift Switch, Start Protection Relay, or their connections. This procedure will temporarily bypass these safety components, which ensure the motor is in Neutral before allowing the Starter to engage.

- 1) **Ensure the Shift Switch is in the Neutral position.**
- 2) Remove wire cover on the side of the motor.
- 3) Remove the **Yellow/Red** wire from the Starter Solenoid tab.
- 4) Locate the **Yellow** wire from the motor wire harness where it connects to the **Yellow/Black** wire from the Start Protection Relay. Disconnect this male/female connection.
- 5) Temporarily connect the **Yellow** wire from the motor wire harness directly to the tab on the Starter Solenoid.
- 6) Again ensure the Shift Switch is in the **Neutral** Position and start the motor from the Key Switch.
- 7) If the motor starts normally, there is a failure in either the Shift Switch, the Start Protection relay, or their connections.

SHIFT SWITCH WIRING

RED	+12V only when Key Switch is engaged
BROWN	FORWARD Control wire to Clutch
BLUE	REVERSE Control wire to Transmission Magnets
YELLOW	+12V to Start Protection Relay when Switch in Neutral

MERCURY TRIM SWITCH WIRING

RED-> WHITE	+12V from Circuit Breaker
BLU/WHT -> RED	UP control wire – RED tiller wire connects to BLUE trim relay wire
GRN/WHT -> BLACK	DOWN control wire – BLACK tiller wire connects to GREEN trim relay wire

KILL SWITCH WIRING

BLACK	Connects to starter Ground through Trim switch
GREEN	Connects to Coil ground wire circuit on engine to kill fire to the engine when grounded.

Control Box Wiring:

You may want to print out this page and keep it in a Ziploc in the boat. The table below shows the wiring inside the control box. This information allows troubleshooting electrical issues or temporarily bypassing / disabling a switch. Remove the four screws to remove the bottom of the control box and expose the wiring.

Shift Switch: To bypass the switch and engage the Forward Clutch- temporarily connect the **Brown** FWD control wire and **Red** POWER wire on the same terminal. **Caution- the motor will be in gear while the Key Switch is ON.** If the switch has failed, the Emergency Start procedure may also be required. .

Kill Switch: To temporarily disable the kill switch, disconnect the **Green** wire to isolate from the engine coil ground circuit.

Trim Switch: If trim switch has failed, you can trim the motor to a position to allow running. Temporarily disconnect the bullet connectors at the trim switch. Touch the **White** power wire to either the **Red** wire connector to trim UP or **Black** wire connector to trim DOWN. Reconnect or insulate the White power wire while traveling.

