



www.BeaverDamMudRunners.com

OWNER'S MANUAL

- Assembly Instructions for Kits
- Operating and Maintenance Instructions for Completed Motors
- V-Twin Instructions and Planing Tab Instructions
- **PAY ATTENTION TO PAGE 22!!!!!!- OPERATION CHECKLIST**

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Operation and Safety Instructions- Please read before use and always follow these precautions

- Gasoline is very flammable. When engine is running or hot, do not fill the tank with gas. Gas could ignite from sparks or heat created by the engine. Always use approved containers for storage of gasoline.
- Keep body parts; hands, feet, hair, etc. away from any moving parts on the engine. Be especially careful with the spinning prop and where you put it.
- Always keep a close eye on the spinning propeller. Never start or run the spinning propeller near a person. Some people paint the shaft next to the propeller bright orange so that it is easy to see where the propeller is located.
- Engine can become very hot, especially the muffler. Be very careful when touching parts of the engine or the attached CLP parts.
- Never run the motor in an enclosed area. Carbon monoxide is produced from the engine and can be very poisonous in a confined area. It is an odorless, tasteless, colorless, flammable gas that is a little less dense than air. Too much of this gas in a poorly ventilated space can become lethal.
- Long tails require a wider turning radius than a regular outboard, thus it is highly suggested that you get used to operating a long tail for your first time in calm water.
- Always have a secured rope in the boat to attach the handle of the motor when it is not in use. This allows for your engine to run in "neutral". When starting your engine, tether it to the boat so that the prop is not in the water. Also use the tether when the engine is not running. This will keep the prop from sinking too much. If it sinks too much, the engine will be at a too strong an angle, and can cause the engine to leak gas.
- Never start the engine with the prop in the water. Always raise the prop out of the water before attempting to start the engine.
- The CLP Long Tail can be operated while sitting down. If you choose to stand up while operating the motor, use a grab bar that is attached to the boat.
- Never use your engine without a safety kill switch attached to your wrist or body. Always test your kill switch to make sure it operates correctly and is attached correctly.
- Always wear a life jacket or flotation device approved by the US Coast Guard.
- Never let go of the tiller handle while operating your long tail motor.
- Do not allow juveniles to operate a long tail motor unless they have completed a US Coast Guard safety course. Always make sure they are supervised by an adult.

BOATING SAFETY

Each year hundreds of lives are lost; thousands of people are injured and millions of dollars of property damage occurs because of preventable recreational boating accidents on U.S. waterways. Too often pleasure outings turn tragic. You, as a boat operator, passenger, or concerned individual, can make a difference!

Please go to the U.S. Coast Guards official boating division website at WWW.USCGBOATING.ORG to familiarize yourself with all required safety items and the federal boating laws and regulations.

LIFE JACKETS

There's no excuse not to wear a life jacket on the water!

*To meet U.S. Coast Guard requirements, a boat must have a U.S. Coast Guard-approved Type I, II, III, or V life jacket for each person aboard. Boats 16 feet and over must have at least one Type IV throwable device as well.

*Wearable life jackets must be readily accessible.

*In good and serviceable condition

*The appropriate size for the intended user.

A full list of life jacket requirements, as well as helpful guides to choosing the correct life jacket can be found on WWW.USCGBOATING.ORG

FLOAT PLANNING

One very important safety precaution that all waterfowls should take is to prepare a Float Plan. Always tell a friend, family member or someone reliable where you will be boating / hunting and when you plan to be back. You can also go to WWW.FLOATPLANCENTRAL.ORG to fill out the official float plan form to give to a dependable person who can use it to notify the Coast Guard, or other rescue organization, should you not return or check in as planned. Why should you take the time to prepare a float plan? The answer is simple... there are just too many facts that need to be accurately remembered and ultimately conveyed in an emergency situation. Without a float plan you are missing detailed information that rescue personnel need in order to find you. This information can make a difference in the outcome.

SAFETY COURSE

All operators should participate in a Boaters Safety Course and in some states, it is a requirement. Many boating safety courses are offered throughout the country, for all types of recreational boaters, and for boaters of all ages. Qualified volunteer organizations, such as the U.S. Coast Guard Auxiliary, U.S. Power Squadron, and others sponsor many courses. Also, many state boating agencies provide classes.

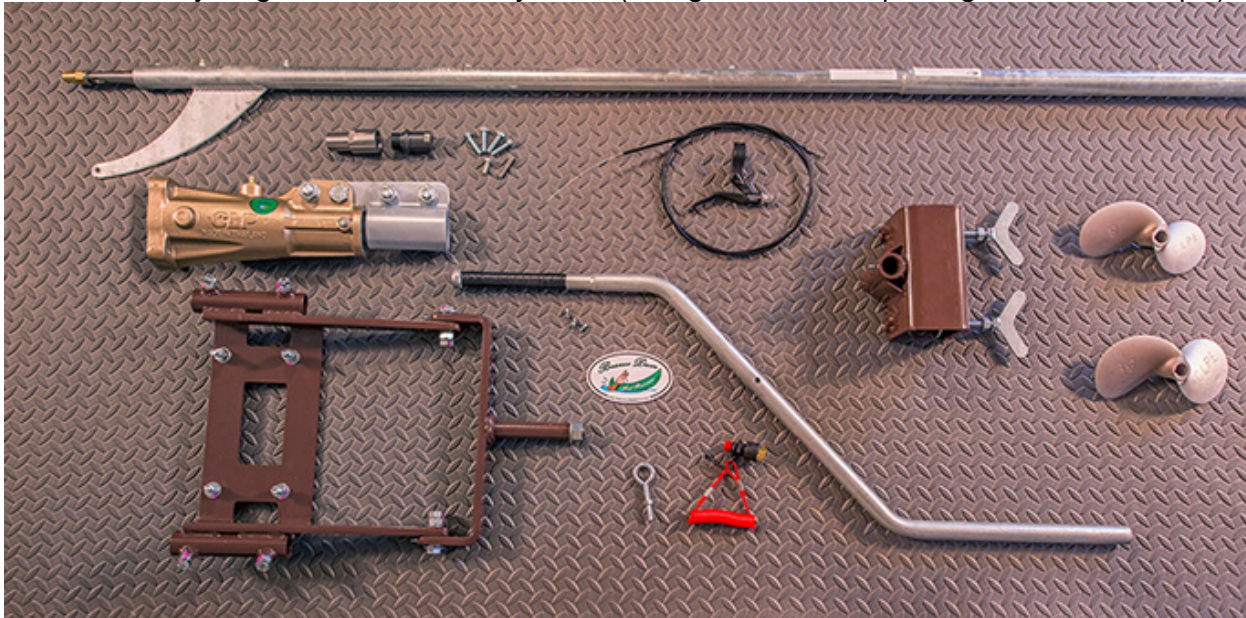
Courses cover many aspects of boating safety, from boat handling to reading the weather, and from a "Water 'N Kids" class to courses for boaters who want to learn electronic navigation skills. You can find how and where to take a Safety Course at WWW.USCGBOATING.ORG

ASSEMBLY INSTRUCTIONS FOR KITS- If you purchased a complete motor, skip to the operation section.

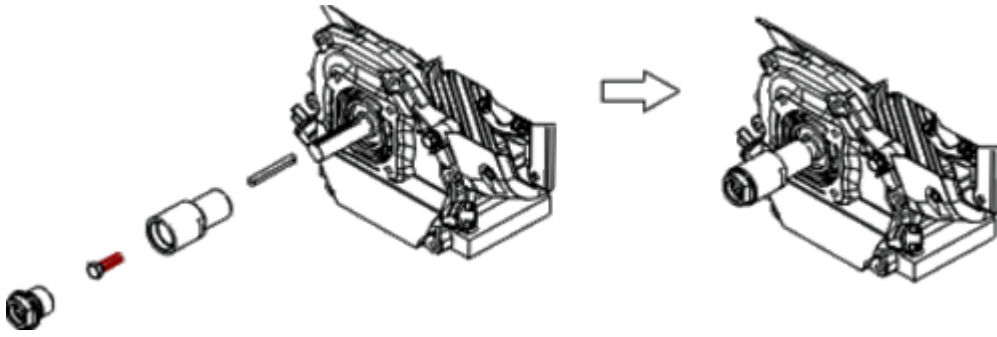
Tools Required

Two Large Crescent wrenches and/or a Socket Set, Two screwdrivers (Phillips and Flat), needle nose pliers, medium Loctite and a grease gun with Mercury 2-4-C grease or marine grease (waterproof grease)

Picture of everything that is included in your kit (wiring harness and planing tabs are not in pic):



Here is a decent assembly video on YouTube-
This is on Reel Wicked Fishing and Outdoors-
<https://www.youtube.com/watch?v=m9KbSWkGrH8&t=16s>



Put the key on the slot of the engine shaft. Take shaft adapter and unscrew it into two pieces. Slide the adapter with the slot onto the engine shaft and then bolt it to the center of the shaft with the one of the black bolts. Two different sizes of black bolts are usually included, so use the one that fits your shaft. Use two large crescent wrenches to tighten the shaft adapter together. Use medium Loctite on the bolts. If the size is 5/16, tighten with 8 ft/lbs. of torque. If the bolt size is 7/16, tighten with 12 ft/lbs. of torque.

SKIP TO PAGE 7 FOR THE REMAINING LARGE KIT INSTRUCTIONS

NEW SMALL KIT INSTRUCTIONS

VIDEO FOR PREDATOR 3HP (79CC) Throttle Hookup- Also has assembly of kit

<https://www.youtube.com/watch?v=zKK2zqVPg-g>

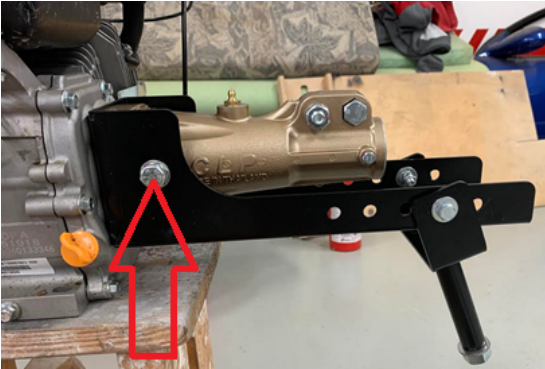
6.5HP throttle hookup is much easier and examples are on page 10 and 20.

The engine bracket and mount designs in our small kit have recent changes. Thus, your kit may look slightly different than the images seen here in the Owner's Manual. Everything else in this kit has remained the same.

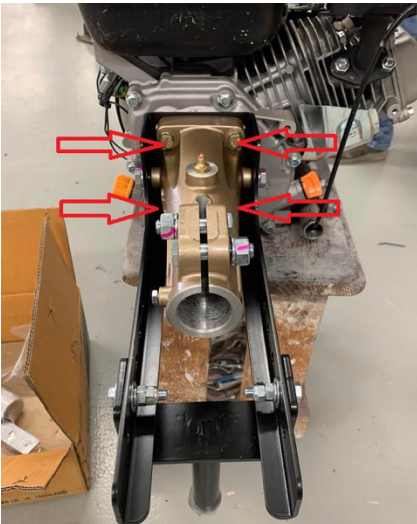
The engine shaft adapter still mounts to the engine shaft the same way. As you see in the pictures below, the gold coupler mounts on top of the metal engine bracket. You use the same four bolts to mount the coupler and the mount to the back of the engine. There are two bolts that you screw through the side metal bracket and into the side of the gold coupler.

Attaching the gold coupler and black bracket to the engine: (This is done after you attach the shaft adapter.)

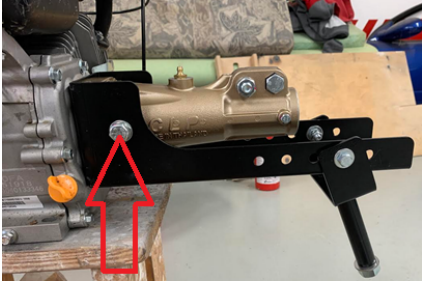
-1st- Start but don't tighten the screws on the side of the gold coupler.



-2nd- run the four bolts through the gold coupler and the engine bracket. Line them up with the four holes on the back of the engine and tighten all the way. Be careful to not overtighten and strip them.

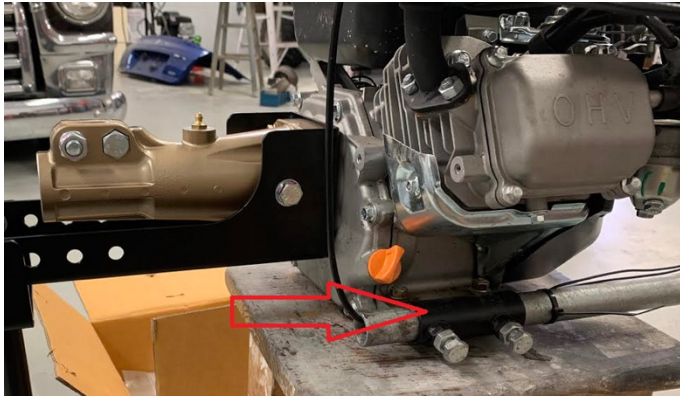


3rd- Tighten the two bolts on the side



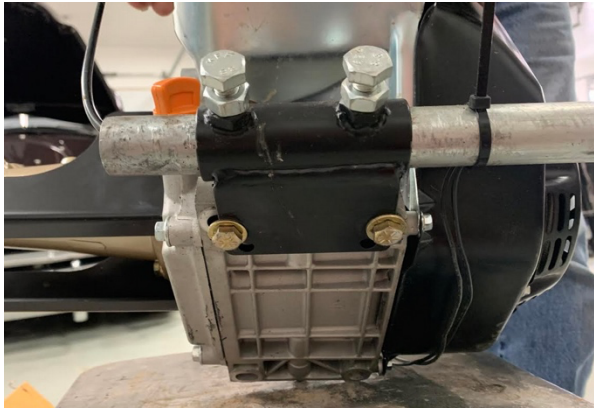
You might want to use blue Loctite on the bolts. DO NOT USE RED LOCTITE!

Handle Mount: The arrow in picture below shows the handle mount with the handle attached. Attach the black handle mount first to the engine. Then slide the handle into it and tighten the bolts down.



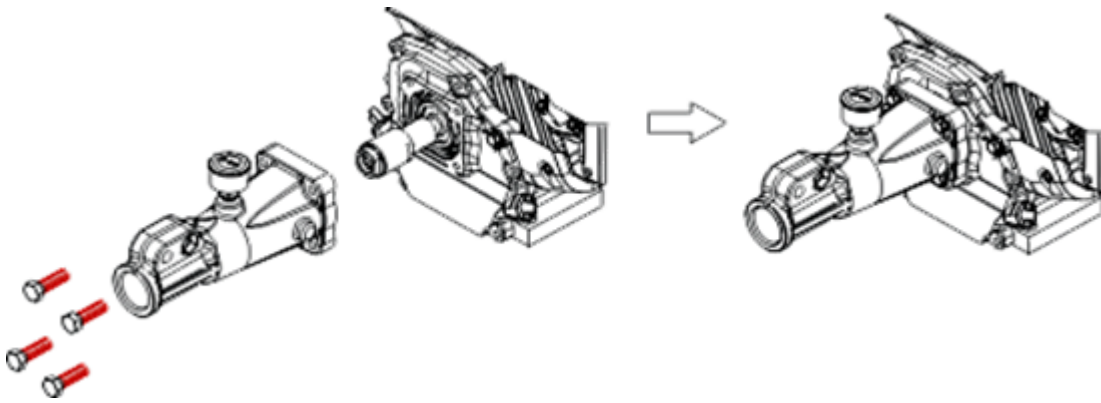
Side of Engine-

Bottom Side of Engine-



SKIP TO PAGE 8 TO FINISH

LARGE KIT INSTRUCTIONS CONTINUED...

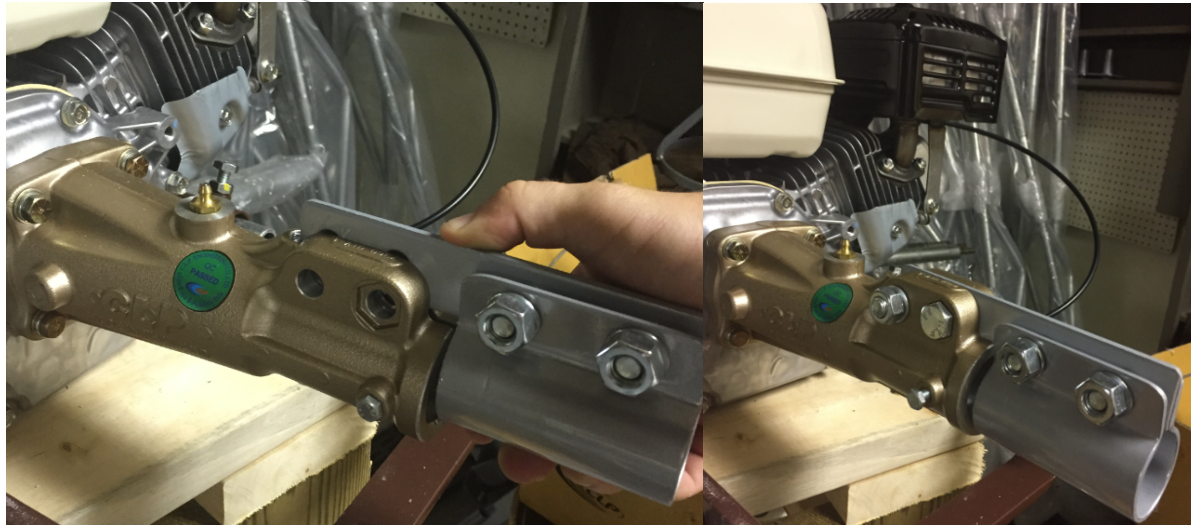
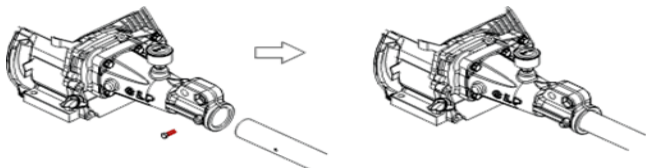


Attach the aluminum (gold colored) coupler to the engine. Line the coupler up with the 4 holes around the shaft. Use the 4 bolts included in the kit and use medium Loctite. To tighten the bolts, 10 to 15 ft/lbs. of torque are needed.

Fill the coupler with grease at least 1/3 full. You can do this with a grease gun.

Tip: Some people like to purchase longer bolts, locking washers and regular washers to reinforce everything. This is not necessary but can be done. If you do this, 5/16-24 X 1 1/2in hex tap bolts (Fine Thread) will be needed with washers and locking washers.

LARGE AND SMALL KIT INSTRUCTIONS CONTINUED

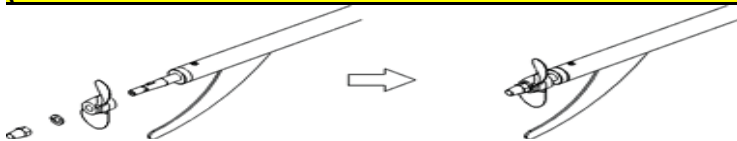


Unscrew the small set screw that is on the side of the gold coupler/housing. (This screw is not necessary now that we have the grey shaft supporter. Some people don't reinstall it.) Loosen the two top bolts and take them out. Insert the gray shaft supporter into the coupler and line it up with the two top holes. This grey shaft supporter is a new feature recently added to the CLP kit and coupler. That is why it is not in all the drawings and pictures. DO NOT INSTALL THE SHAFT WITHOUT THE GREY SHAFT SUPPORTER IN THE PICTURES ABOVE. This will cause issues with the coupler. Insert the two bolts you took out, but do not tighten them down. Slide the long tail shaft into the shaft supporter and housing fully until the small side hole of the coupler/housing lines up with the hole at the top of the outer shaft. Tighten the four large bolts with the lock washers.

MAKE SURE THE SKEG IS POINTING STRAIGHT DOWN. If it is tilted, it will cause handling issues. GREASE FITTINGS ON SHAFT. THE SHAFT SHIPS WITH THREE PIECES OF MASKING TAPE ON IT. THIS IS WHERE YOU INSTALL THE GREASE FITTINGS ON THE SHAFT.

There are 3 threaded holes under these pieces of tape where you install the grease fittings. Be careful installing these. Lightly tighten them with a wrench, or you can overtighten them and break them off. If you do, we include a couple extras. They are metric size M6 if you want to pick some spares up at the hardwre store. Harbor Freight carries a metric kit that has them.

(DO NOT TAKE ANY SCREWS OUT OF THE SHAFT- THEY HOLD BUSHINGS IN PLACE)



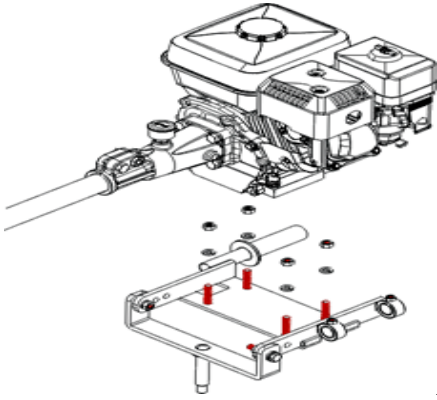
Unscrew the bolt and locking washer at the end of the shaft.

Sometimes a "shiny" steel sleeve is attached- This is put on for shipping and can be thrown away.

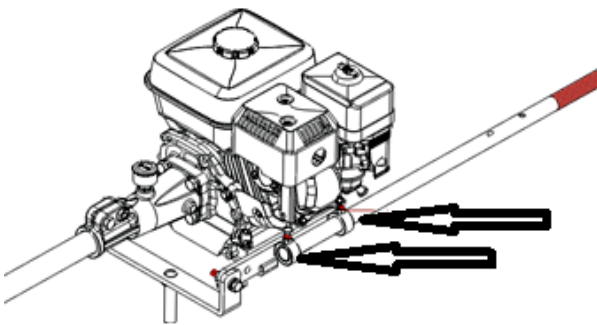
Line the keyway on the prop up with the key on the shaft. Slide the prop on to the shaft. The shaft is tapered, so make sure you slide the correct side of the prop onto the shaft. Tighten the bolt and locking washer. Just hand tighten it until the locking washer starts to flatten.

-HONDA ENGINE : GX160,GX200 recommended size of propeller is 6.5"

-HONDA ENGINE : GX270,GX390 recommended size of propeller is 8"



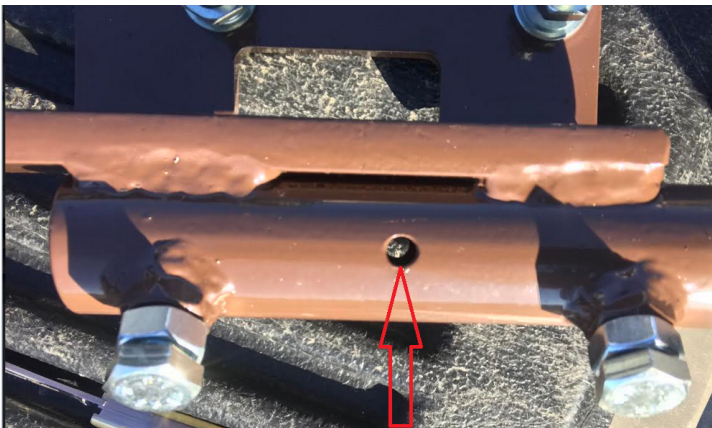
Attach the engine to the engine mount. Make sure the shaft side is on the side of the transom mount. Use medium Loctite and the recommended torque of 25 - 40 ft/lbs. of torque.

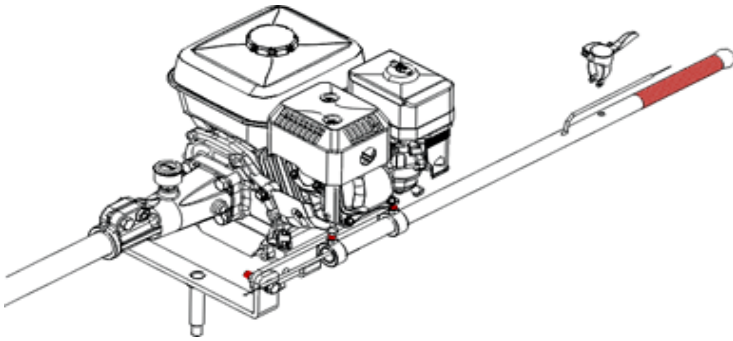


Slide the handle into the right or left side of the engine bracket. Tighten the bolts. Use medium Loctite and the recommended torque of 14-18 ft/lbs. of torque.

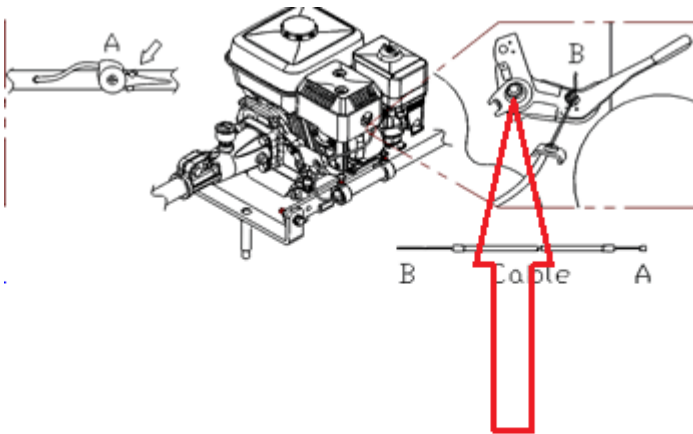
TIP- You can tilt the handle left or right to your desired height if you want to operate sitting down, etc.

TIP- We drill a hole through the mounting tube for the handle (see pic below). Figure out what handle angle feels most comfortable to you and then drill a hole through the handle to permanently mount it. Then use a bolt to secure it at that angle along with tightening the two bolts on the bracket down. This makes it safer in case the other two bolts come loose.





- This is an old drawing. You will have a squeeze type throttle that will look a little different. Attach the throttle control to the handle unlike the pic above, you will have a squeeze type throttle. You can either run the throttle cable through the center of the handle or zip tie it to the outside. On most engines you can either mount the throttle cable to the muffler side of the engine or the front of the engine. If you choose to mount it to the front side of the engine, then you will have to zip tie the throttle cable to the outside of the handle since it isn't long enough to reach around. If you choose to mount the handle on the left side, you will have to zip tie the throttle cable to the handle.

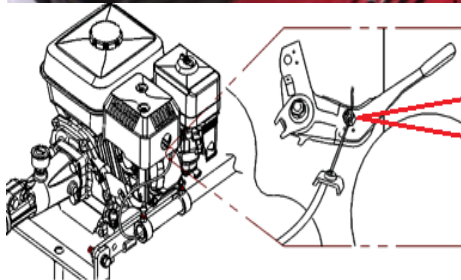
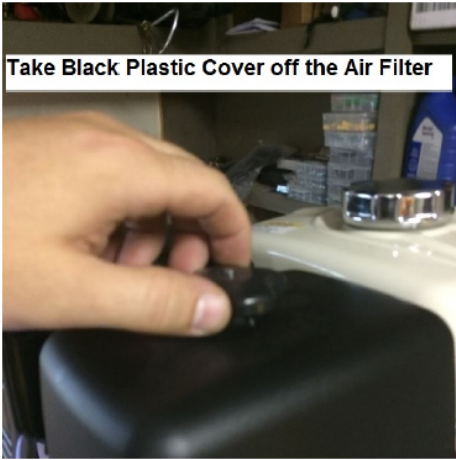


Make sure this bolt is loosened enough to allow the throttle to easily move back and forth. This enables the throttle to return to idle.

Take the throttle cable out of the black outer cable. Lubricate it with WD-40, grease or some other lubricant of your choice. Loosen the smaller screw on the throttle control that you mounted on the handle. Run the cable through the hole on the throttle control on the handle as marked "A" in the picture. Then tighten the screw once it is all the way through and the barrel is against the throttle control. The barrel is the lead piece attached to the end of the cable. Run the cable through the black outer cable. Then attach the black outer cable and the inner cable to the throttle control on the engine.

****V-TWIN THROTTLE INSTRUCTIONS ARE TOWARDS THE END OF THIS MANUAL**

Take the air filter off and attach the throttle cable to the engine. See additional pics on next page.



On Honda Engines and some other engines, this throttle cable hookup is not included. Some Honda Clone Engines come with this part. (Most Harbor Freight Predator Engines do) You can purchase this at some hardware stores or at a small engine shop.

These are the Honda part #'s so you can find the exact same part.

16594-883-010 -



90605-230-000 -



93500-04006-0H -



On Predator Engines you have to loosen some screws that are under the air filter to take the plastic housing off. Predator Engines come with a throttle hook up part as seen in the picture.

ALL OF OUR KITS NOW INCLUDE A WIRING HARNESS SO SKIP TO PAGE 14

Mounting Kill Switch without the wiring harness:

It is very important that you install your safety kill switch on your motor. The switch should be tethered to the operator and will stop the engine if the operator accidentally loses control of the vessel or falls overboard. We include an eye bolt to mount the Sea Dog Safety Kill Switch. To mount this, drill a 5/16 in hole anywhere on the handle. We suggest that you mount it close to the throttle control side of the handle. The closer it is to you, the easier it is to reach. The red button on it allows you to also kill the engine. The Sea Dog Switch has four brass prongs to attach wires. You only need to use two of these. They are labeled and most people use the magneto hook up. This will be labeled "M". Cover the two prongs you don't use with tape or heat shrink wrap. They will be labeled "I". You can also break these two prongs off. The Sea-Dog Universal Ignition Kill Switch features dual circuitry that allows it to be wired for either ignition or magneto kill. We only use the magneto hook-up.

For the Magneto Hook-Up: Use two wires. Connect one to the engine block (It doesn't matter which wire). This is the ground connection (Many people connect it to one of the Engine Bracket Bolts that Holds the Engine on the Bracket.) Connect the other wire to the wire that runs upward from the stop switch on the engine to the engine magneto/coil. There are many different types of adapters at your local hardware or auto parts store that you can use to splice into this. We use zip ties to secure the wires to the handle and engine bracket.

ALWAYS TEST THE KILL SWITCH TO MAKE SURE IT WORKS BEFORE OPERATION OF THE LONG TAIL MOTOR.

Picture of Safety Kill Switch:



Picture of 14 - 16 Gauge Insulated Female Disconnect. You will need two of these, to connect the two wires to the safety kill switch. They can be purchased at any hardware or auto parts store.



Some people like to use a Ring Terminal Adapter to connect the ground wire to the engine block. Pic Below:



Example of how switch can be mounted on handle with the Eye Bolt:



Instructions for Our Wiring Harness for the Kill Switch- THIS IS INCLUDED WITH OUR KITS NOW and will fit most Harbor Freight, Lifan, and Honda Motors.

- Cut the small zip tie holding everything together
- Find a small bolt to loosen on the engine. Then attach the ring adapter to any bolt that it will fit. This will ground your engine out when the kill switch is pulled.
- There is usually a plastic bracket or bendable metal bracket holding the wires on the side of the engine. Undo this bracket so you can access these wires.
- There are usually bullet adapters, male and female, holding these wires together. Try and find the one that goes to the ignition coil and undo the bullet adapter on that wire.
- Simply plug our wiring adapter into these adapters (the part that has bullet adapters). This will enable the kill switch to ground out the engine.
- Plug the two flat female connectors to the back of the red Sea Dog kill switch. There are a total of 4 flat connectors on the kill switch. Two are labeled "M" and the other two are labeled "I". Plug these on the two labeled "M". Some people choose to break the connectors labeled "I" off so they don't get in the way.

Always Test your Kill Switch and make sure it works before using your Long Tail

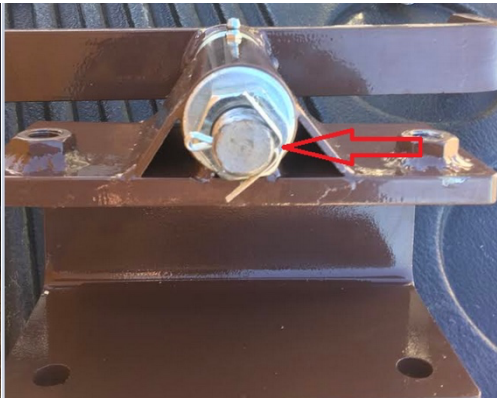
Notes on the Transom Mount-

- The Transom Mount comes with 4 bolts. **Two bolts have protective cups, and most people mount the bracket on the transom with them. The cups don't damage the transom.** We include two extra bolts without cups in case you don't want to use the cups or if you want to carry them as spares, etc.
- If you have a weak transom, you might use a piece of wood to spread the weight and force on the transom out. Mount the wood between the cups and the transom.
- **The cups are usually mounted on the bolts already. They have threads in them so you can take the cups off the bolts by turning them counterclockwise and pulling. You can then screw the bolts through the transom mount holes and re-attach the cups by screwing them back on.**
- You can attach the bolts to whatever side of the transom mount you prefer, and mount the transom mount to whatever side of the transom you prefer.

- With the smaller kits take caution not to over tighten the bolts. It is easy for one to tighten so much that the bracket will start to bend or flex. If this occurs, it means you should stop tightening because you have already tightened them enough.
- There is a silver spacer/bushing where the engine bracket slides into the transom mount. This is to raise the engine up if necessary, or you can take it off if you find that you don't need it. Some angled transoms will need this depending on how you mount it. The angle prevents you from pushing the motor down because you don't have enough clearance. By adding this spacer, it gives you better clearance. See pic-



- There is a cotter pin that you can slide in the hole below the transom nut. This keeps it from falling off if it comes loose-



OPERATION SECTION

PROPS-

A crescent wrench and a spare prop or two should be carried in your boat at all times.

When you have a spinning prop, you have to have a failure point to absorb the shock caused by hitting hard objects. Our props are a fraction of the cost of a stainless prop. Our \$10 or \$20 prop would cost at least \$150 if it were stainless. If I am in the middle of "nowhere" on a cold morning, I don't want to get stranded because I bent a shaft. However, if I bend or break one of CLP's aluminum props, I can quickly replace it with a standard small crescent wrench. All you do is undo the bolt that holds the aluminum prop to the shaft and simply put a new prop back on. It is a simple process that takes less than a minute to complete.

You usually break more props when you are learning to use the motor. Most people do not break as many as they think they will.

Interesting Note- Because these are surface piercing props, they do not require complete submersion to propel your boat. The reason we use longer shafts is so that we can rest the prop in the wake created by the boat. This enables our motor to accomplish three very important objectives:

- We recycle the energy created by the wake of the boat, similar to surfing.
- Our prop rests above the bottom of the boat. We don't hit as many objects that are underwater.
- We are pushing directly from behind instead of an inefficient angle
- The prop has less drag from the water because it is not completely submerged. This allows the prop to spin with less resistance.

GREASE-

Keep your shaft and coupler greased! There are three grease fittings on the shaft and one on the coupler. You want to keep the shaft full of grease so that the bushings get plenty of lubrication. If you don't grease the shaft, the bushings will eventually wear down or burn out. **Before you operate your motor, it is suggested that you give a few pumps of grease on each grease fitting. Although these shafts come with grease from the manufacturer, they aren't always completely full.** Keeping the shaft full of grease also helps keep water out of the shaft. On long trips, you might want to carry a grease gun in your boat. After a few hours of operation, add a few "pumps" of grease to each grease fitting on the shaft.

You can't overfill these with grease. If you do, it will usually just come out around the end bushing near the prop.

Long Tails handle very differently than your traditional outboard as they require a wider turning radius. **It is highly suggested that you get used to operating a long tail for your 1st time in calm water.** Although they are harder to turn, they are able to run in very shallow water.

Use a rope for securing your handle on your long tail when it is not in use to make it easier to start. Always have a secured rope in the boat to attach the handle of the motor when it is not in use. This allows for your engine to run in "neutral"- the prop will be spinning but not in the water. When starting your engine, tether it to the boat so that the prop is not in the water. Also use the tether when the engine is not running. This will keep the prop from sinking too much. If it sinks too much, the engine to be at a strong angle, which may allow the engine to leak gas.

ALWAYS start your engine with the prop out of the water. Engines with Electric Start assembled by Beaver Dam Mud Runners will have a tilt switch that is required by The Coast Guard. This switch prevents the motor from starting when it is an angle. In other words, the prop must be out of the water to be able to start the motor.

Avoid operating your engine at high rpms for extended periods of time with the prop out of the water. The water helps keep the end bushings from getting too hot. Also avoid running for long periods of time with weeds or vegetation wrapped around the shaft. Usually you can easily knock debris off the shaft by picking up and dipping it into and out of the water a couple times.

Our design is very simple and has few parts. **We do not have reverse.** Neutral is achieved by simply raising the prop out of the water. It is strongly suggested to kill the engine when approaching a dock or other vessel. Tether the non-running engine so that the shaft is not in the water. Use a paddle or pole to navigate the boat to the dock or other boat.

” Which prop size should I use?” - Each kit comes with two propellers to give you a reference point for testing. Due to an infinite combination of boat manufacturers, hull weights, design configurations, and varied uses, these propellers are not guaranteed to work with every application, and should only be used as a starting point. Our propellers are economical, so you can afford to order smaller or larger propellers and experiment. We, however, cannot guarantee results.

How to adjust the engine and transom- Our engine mount is designed so it can be mounted on a variety of transom sizes and designs. It can be mounted on the inside or the outside of the transom. There are also 4 different holes on the motor mount. This enables you to increase or decrease weight to be placed on the shaft/prop. You want at least some weight to be on your prop/shaft.

Titles for Motors-

The states of Missouri, Ohio, Oklahoma, South Carolina, Texas, and Utah all require titles for boat motors. If you do not live in one of these states, you should not need to title your boat motor. If you do live in one of the above-mentioned states, you will need to contact the government entity that issues titles, and ask them what documentation is required to obtain title for a homemade boat motor that you built yourself. Some title states will provide a title when presented with the appropriate application along with receipts documenting your purchase of the engine and other hardware necessary to build the boat motor. Other states may require you to fill out an affidavit attesting that you built the motor yourself, or they may require an inspection by a local game warden to verify that the engine is indeed home built. If you are requested to provide a Manufacturer's Statement of Origin (MSO), explain that you built the boat motor yourself. If you purchased a completed motor from us, we can send you an MSO, a bill of sale or whatever you need.

Motor Oil-

New engines are shipped without any oil or gas. Fill the fuel tank with gas and add oil to the crankcase. Use what the engine's owner's manual recommends.

Running the engine without enough oil will cause the low oil sensor to shut the engine off when tilted. Some engines may need to run a little more oil to prevent the oil sensor from shutting the engine down.

MAINTENANCE AND STORAGE

Grease-

We use and recommend Quicksilver 2-4-C Marine Grease. However, we have customers that prefer to use other types. Some grease is better than no grease at all. Make sure you at least use a grease that is waterproof. If you are operating in cold temps, make sure your grease is rated for low temps. .

Saltwater Use-

For over half a century, thousands of commercial fishermen in southern Thailand have been using long tails in saltwater on a daily basis. As with any marine hardware, diligent maintenance is required to prevent corrosion in a saltwater environment. After each use in saltwater, we recommend you flush everything with freshwater, keep everything properly greased, and use a corrosion blocking product such as BoeShield T-9. I have a customer in Texas that has over 3000 hours on his longtail in SALT WATER. He keeps it greased very well!

When you aren't using your motor, store the shaft at an angle so that that any water can drain out of the shaft.

You may want to "hand grease" the internal shaft once a year. If you are a heavy user, then you might want to do this more often. Since these are used for daily transport in Thailand and many other countries, they recommend "hand greasing" the internal shaft very often. However, since most users in the USA are recreational, it is not needed as often. Some customers just purchase a new shaft every few years since it is not easy to disassemble.

How to hand grease the internal shaft-

First, take the internal shaft out of the external shaft and bushings. Remove the end bushing nearest the prop and take the prop off. Unscrew the bottom screw and grease fitting nearest the prop. These hold the metal end bushing in. Then remove the metal end bushing from the outer shaft. This can usually be done by pushing on the internal shaft at the top where it slides into the shaft adapter (where the spline adapter is located). There is a metal collar around the internal shaft that will force the metal end bushing out.

Once the metal bushing is out, you will need to remove(unscrew) the spline adapter at the top of the shaft. The Spline Adapter at the top of the shaft looks like a PTO Shaft on a tractor. It is attached via threads to the internal shaft. How you do this is described below:

- Take the prop off and secure that side, the side with the key, of the shaft in a vice. (You should wrap it in a towel or something to prevent the vise from damaging/scratching it.)
 - Use a crescent wrench to unscrew the spline adapter from the shaft. There is a place for one right below the spline adapter.
 - Slide the Shaft completely out and clean the old grease off with paper towels.
 - The internal bushings, which are polymer/plastic, can be replaced at this time if needed. You can use the internal shaft to push them out, but be sure to remove the set screws before doing this. Push the replacements back in place by pushing them with the shaft. Line them up with the set screw holes and reinstall the screws. This is not an easy process so is not recommended unless absolutely necessary.
 - Generously apply grease to the internal shaft and reinsert it in the outer shaft. Re-attach the spline adapter. Make sure you have enough grease in the shaft by using a grease gun on each grease fitting.
- **Some people just buy a new/spare shaft instead of doing all of this. They cost less than \$200.

Suggestions on Transporting your long tail motor and boat:

-Long tail mud motors are very top heavy. Although they don't weigh more than outboards, all of their weight is above the transom. When you hit a bump, it multiplies the force on your transom.

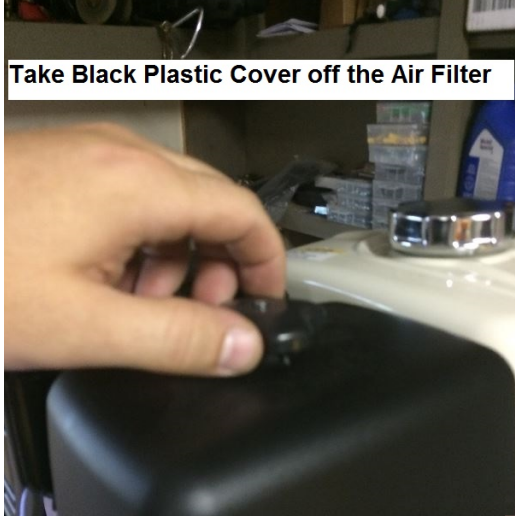
-Trailer is not recommended with some boats/transoms. If you do trailer a boat with a long tail, here are some tips:

- Obviously, strap the shaft down the best you can. Use more than one strap.
- Always check to make that it is securely mounted on the transom
- Possibly attach C-Clamps on top of the transom mount for extra pressure.
- Some people prefer to secure their transom mount by drilling bolt holes through the transom. Just make sure your transom is thick enough to handle holes. Create a waterproof seal around the holes with silicone caulk, etc.
- Secure something like a piece of wood under the prop guard so that it does not damage the bottom of your boat. A piece of wood with a slit cut in it works great. Rest the skeg in the slit.
- Some people take the shafts out of the engine/coupler and rest the engine on a 2 X 8 piece of wood running from the transom to a bench seat in the boat. This takes weight off the transom also.

Turn the Fuel Line to the OFF position. Gas can leak into your oil when transporting if you do not cut the fuel supply off.

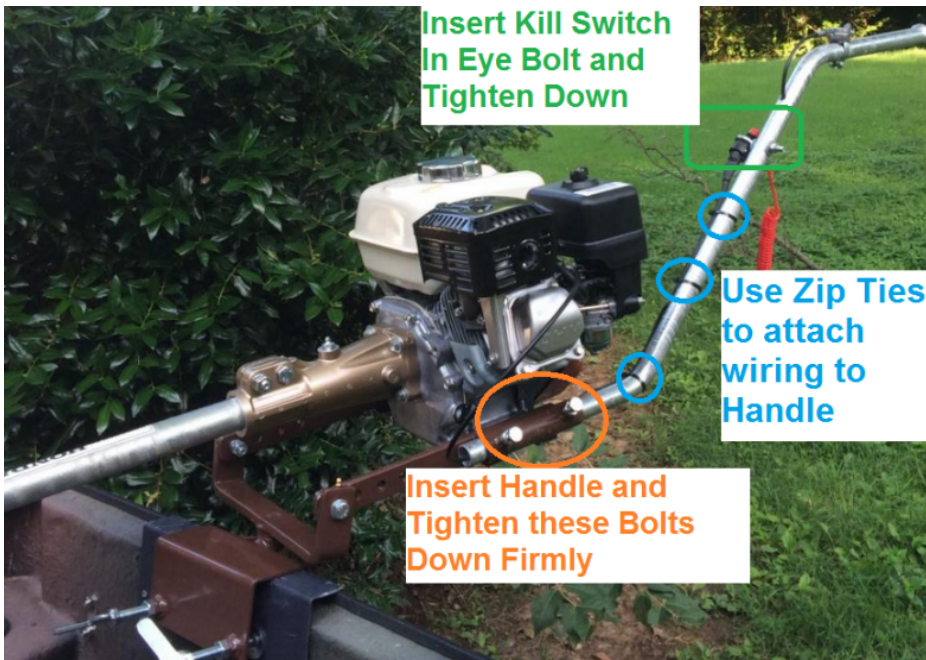
ASSEMBLY FOR CUSTOMERS THAT ORDERED A COMPLETED MOTOR

Some pictures to help with attaching the throttle cable and control. This is more for customers that ordered the completed motor. However, it can help in assembling the motor.

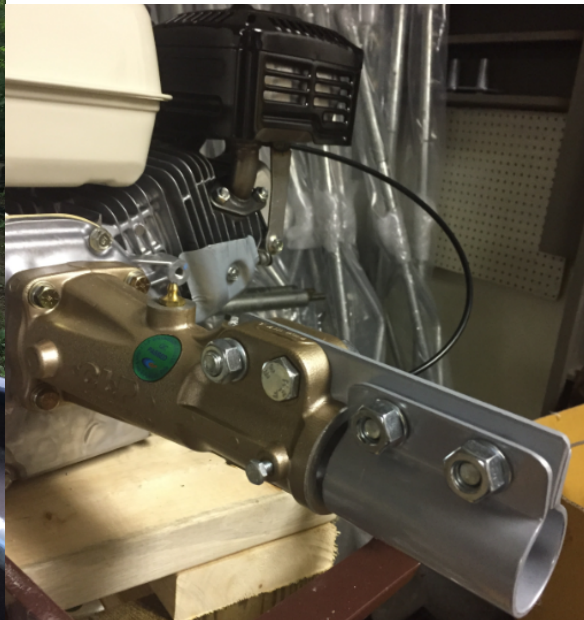


Insert Throttle Cable and Tighten Down Screws- You can run the engine temporarily with the air filter off and adjust the throttle to your preference- Be very careful to not burn yourself on the Black Metal Muffler





THIS IS A NEW PART/FEATURE. IT IS A SHAFT SUPPORTER- SEE PAGE 5 FOR MORE DETAILS- **DO NOT INSTALL THE SHAFT WITHOUT THIS PART -**



If you ordered an Electric Start motor from us, we installed a mercury tilt switch to prevent it being started with the prop in the water. This is required by the Coast Guard. **You must lift your prop out of the water in order to start the engine.**

Having a hard time keeping the prop in the water? Follow these steps:

Most of the longtail designs offered by other companies employ a steep shaft angle that is very inefficient. Their shaft angles often approach as much as 19 to 20 degrees. They also utilize a ride plate, often referred to as a cavitation plate, placed above the propeller to prevent the prop from climbing up out of the water. This ride plate creates unnecessary drag that slows you down and can catch weeds. Unlike these inefficient designs with no adjustability, the Thai design is a sleek racehorse, with adjustments that can be fine-tuned to run on different hull configurations. Unfortunately, this high degree of adjustability can also result in the potential for confusion and improper setup. When properly adjusted for shaft angle, shaft length, and engine balance, the Thai longtail will run smoothly on most hulls.

There are several factors that can cause a Thai longtail to climb out of the water. The following checklist of remedies should be followed in order;

1. Make sure the Skeg is pointing directly down.
2. Don't run too short of a shaft. The wider the boat, the longer of a shaft you need. The bigger and faster the motor, the longer the shaft you will need. Our large and small kits come with the longest shaft that is available. You can specially request a shorter shaft. We mainly carry a 65in shaft as a shorter option
3. Put more weight in front of the boat. Too much weight in the back makes it harder to get on plain and harder for the engine to push the boat.
4. The transom bracket should normally be mounted with the hole for the gimble shaft positioned on the outside of the transom. If you, have it mounted on the inside of the boat, this moves the prop forward a couple inches. **You want the prop to rest directly in the wake of the boat.**
5. Balance and prop placement can also affect performance. Because not all engines weigh the same, the Thai longtail has adjustment holes on the side of the engine base. Moving the engine base back will create additional tail weight. This also moves the prop back so it can rest in the wake of the boat. Reposition the engine base one set of mounting holes at a time. Test run the longtail and reposition if necessary.
6. Running too large of a propeller for the engine/hull can also cause the shaft to ride up out of the water. **Over-propping is the #1 mistake we see. Bigger is not always better and it can also cause your engine to bog down and lower your RPMS.** Try a smaller prop especially with heavier loads. The standard aluminum props are all made with the same pitch so you can only go up and down in prop sizes. Weedless props are available on our website and have more pitch. You will need a slightly smaller weedless than your normal, standard props that come with the kits.

Quote from a customer: "I can get on plain with a bigger 8.5in prop on my 15HP when I am running it by myself. However, when I add two people and gear, I have to downsize to an 8in prop to get on plain.

7. Move the transom bracket a couple inches to the starboard side (right side) facing forward. **You might be surprised how much this helps with the prop popping and it's an easy fix!**

8. Running a Thai longtail on too wide of a hull, anything over 48" measured across the bottom, can cause the shaft to climb out of the water. Unlike all other longtails, the Thai longtail prop is surface piercing and designed to run in the crest of the two wakes where they meet behind the boat. The wider the hull, the further behind the boat the two wakes meet. Therefore, a wider hull will require a longer shaft to reach the crest of the wakes. If the shaft is running in the trough located forward of the wakes, it will be very hard to control. Narrow hulls are better for longtails. However, if you have a wider boat, make or buy a planing tab to help keep the prop in the water.

9. Try bending the skeg, which is the bottom guard below prop, towards the port side. If the prop is popping out on the port side, just bend it barely and in small increments. A crescent wrench can be used to do this.

10. If followed correctly, steps 1-9 will remedy the vast majority of handling and performance issues encountered. However, we've seen a few boat hulls that just don't play well with longtails. ONLY if steps 1-9 have not worked, do we recommend a planing tab as the final solution. We can send you a couple pictures of a simple planing tab. The tab is only 1.5" wide and 3" in overall length. You can make one easily out of 1/8" steel using a metal bandsaw, and spot weld it to the skeg at the angle displayed on the template and in the picture. The tab can be adjusted by bending the tail up or down. Whenever we encounter a longtail that is difficult to control on some western style hulls, this tab does the trick. **We sell some adjustable planing tabs on our website and they now come with the large kits.** They are laser cut and bolt on. There are two holes in the skeg (bottom guard) on your shaft. Planing tab instructions are located on the next page.

Once you have it dialed in, your longtail should operate with little effort. If you have additional questions, please give us a call.

Planing Tabs

The planing tabs are designed to help keep the prop in the water. We usually recommend them as a last resort since making adjustments on your engine bracket, prop size, shaft length and weight distribution can usually "dial your motor in".

We have two pre-drilled holes in the Skeg. If you have an older shaft, you just need a 1/4in drill bit to drill two holes in the skeg (bottom guard below the prop). You want to mount your tabs in the middle of the skeg and to be pointed towards the center of the prop.

You can then adjust it up and down by loosening one of the bolts.

You don't want the prop too deep nor do you want it too high. As it mentions in the owner's manual, these are surface piercing props and are designed to rest in the front part of the wake of the boat in what many people call the "rooster tail".

Run your boat in some calm water as you adjust the tabs and get them dialed in. These planing tabs can make it harder to turn depending on how you have them mounted. Be very careful as you adjust them. Sometimes these tabs can cause the prop to keep pushing under the water as you turn. This can cause the motor to be hard to maneuver and make it difficult to hold onto the handle. Do not try turning at high speeds with these planing tabs! Slow down to make sharp turns.



V-TWIN INSTRUCTIONS AND TIPS

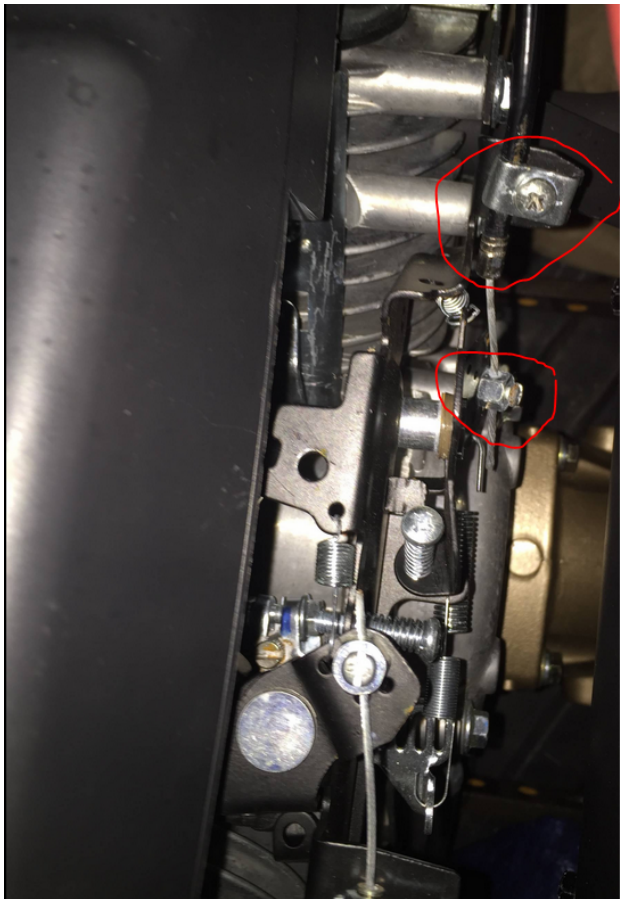
Thanks for your purchase of our new V-Twin motor kit. We included the instructions for the smaller kits in your package. Everything on the V-Twin installs the same as the smaller kits except the throttle. Here are some directions and suggestions for your V-Twin throttle and fuel line-

You will need to purchase a battery and cables to run your V-Twin. Purchase the correct size thickness cables that are recommended by the engine's owner's manual. If they are too thin, they won't work well. Make sure they are long enough to turn the engine to steer. (Usually 4 - 5 ft and 4 Gauge – you can find them on eBay for about \$30. Some people also convert/modify jumper cables)

You will need to purchase a fuel line and a gas tank to use with your V-Twin.

Depending on the size of your line and the length, you might have to purchase a low pressure 12 Volt fuel pump that is 2 – 6 psi. Most auto parts stores carry low pressure, electric fuel pumps. They are very common on lawn mower tractors. **The Harbor Freight Predator V-Twins usually need an electric fuel pump.** The Hondas usually do not.


A throttle control arm is installed on the side of the Harbor Freight V-Twin. We remove it and the cable that runs to it. We then attach the throttle with a screw and throttle clamp to the backside of the engine between the engine and muffler. Here is a picture. The metal end of the throttle cable should be installed under the metal clamp, however it is not under the metal clamp in this picture.



For a Harbor Freight V-Twin some people like to install the throttle hook up part below instead of clamp. See circled part below. These can be purchased from go kart sites like this one- <http://www.affordablegokarts.com/> .

Sign In

Throttle Linkage Kit Like 0



Quantity in Basket: None
Code: AGKZTLK
Price: \$12.00
Sorry, we are currently sold out of Throttle Linkage Kit. Please check back later.

Quantity:

This is a simple yet effective throttle linkage kit. Can be used with or without stock gas tank and air box. If you plan to keep the governor in place disregard the short throttle rod included in the kit. See [our how-to section](#) for more throttle linkage details. Our most popular and most universal throttle linkage kit.

Here is a picture of it installed using the part in the throttle linkage kit. This is our preferred way of installing it on a Harbor Freight V-Twin.



Note on attaching the kill switch to the Harbor Freight Predator-

The black wire with a red stripe goes to the engine coil. Using the Magneto setup, this is the wire you want to plug or splice into.

Notes from Honda on Fuel Systems

Fuel Tank Position

The fuel tank must be installed so that its maximum gasoline level is within 50 cm (19.5 in) above or below the carburetor gasoline level.

Fuel Line

Use a low permeation fuel line displaying an executive order number rated for use with gasoline. The fuel line should have an inside dimension of 5.5 mm or 0.22 inches. Keep the fuel line as short as possible. Install the fuel line so it will not rest against any sharp objects or make sharp bends that can restrict the flow of fuel. If the fuel line passes through an enclosure wall, protect the line with a rubber grommet. Secure the fuel line with the appropriate clamping mechanism. Route the fuel line away from hot engine and exhaust system components and from electrical wiring. Secure the fuel line to prevent sagging and bending.

Fuel Valve

Install the fuel valve so it is easily accessible. Install the fuel valve at the outlet of the fuel tank and use an easily read label to indicate valve location and operation. If under the fuel tank is not the ideal location, securely install the fuel valve in-line with the fuel tube in a cool location, so that engine heat cannot cause vapor lock.

Fuel Tank Filter Installation

It is recommended that a fuel tank strainer with a mesh rating of #80 be installed at the fuel tank inlet to catch debris when refueling. It is also recommended that a fuel tank sump be provided at the fuel tank outlet to reduce the chance of contaminants entering the fuel system.

Honda makes a fuel pump for their V-Twin engines but your Honda probably won't need it. The one on a Honda engine is usually strong enough. It can be ordered on various websites online. The part # is 16700-ZA0-971.

We love for people to post pictures or videos on our on YOUTUBE AND OUR FACEBOOK PAGE! We give props away for GOOD VIDEOS!

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PART LIST

ITEM	PART NUMBER	PART NAME	QTY / TYPE		REMARKS
			MIDDLE	BIG	
ENGINE					
1	9160 - GXM - 0000	HONDA GX - SERIES	1	-	HONDA : GX160
	9390 - GXM - 0000	HONDA GX - SERIES	-	1	HONDA : GX390
LONG TAIL ASSY					
2	1200 - A1A - 0000	MIDDLE HOUSING	1	-	
	1200 - B1A - 0000	BIG HOUSING	-	1	
3	4010 - A1A - 0000	DRME FLANGE A	1	-	
	4010 - B1A - 0000	DRME FLANGE A	-	1	
4	4020 - A1A - 0000	DRME FLANGE B	1	-	
	4020 - B1A - 0000	DRME FLANGE B	-	1	
5	4030 - A1A - 0000	MIDDLE SHAFT	1	1	
6	9092 - A1A - 0000	HEX NUT	2	2	M12x1.75
7	9093 - A1A - 0000	HEX BOLTS	2	2	M12x1.75x50
8	9094 - A1A - 0000	SPRING WASHER	2	2	M12
9	9095 - A1A - 0000	HEX BOLTS	1	1	M6x1.0x20
10	9096 - A1A - 0000	HEX BOLTS	4	4	5/16 - 24 UNF x30
11	9098 - A1A - 0000	HEX BOLTS	1	-	5/16 - 24 UNF x20
	9098 - B1A - 0000	HEX BOLTS	-	1	7/16 - 20 UNF x20
12	9099 - A1A - 0000	PARALLEL KEY	1	-	
	9099 - B1A - 0000	PARALLEL KEY	-	1	
13	3050 - A1A - 0000	NUT DRME	1	1	
14	4040 - A1A - 0000	DISTANCE COLLER 20x25	1	1	
15	9041 - A1A - 0000	SPACER	1	1	
16	9070 - A1A - 0000	GREASE TANK	1	-	#8 (SMALL)
	9070 - B1A - 0000	GREASE TANK	-	1	#9 (BIG)
19	2010 - A1A - 0000	OUTER TUBE	1	1	
20	2030 - A1A - 0000	END BUSH	1	1	
21	2040 - A1A - 0000	BUSH	*	*	L85-105 : 5, L110-120 : 6
22	3010 - A1A - 0000	DRME SHAFT	1	1	
23	3060 - A1A - 0000	BOLT DRME	1	1	
24	9031 - A1A - 0000	LOCK NUT	1	1	
25	9032 - A1A - 0000	SPRING WASHER	1	1	M14
26	9033 - A1A - 0000	SCREW WASHER M5x0.8x8	*	*	L85-105 : 6, L110-120 : 7
27	9090 - A1A - 0000	PROPELLER	1	-	6.5"
	9090 - B1A - 0000	PROPELLER	-	1	8"
BRACKET ENGINE ASSY					
28	1100 - MGX - 0000	BASE MOTOR BOAT	1	-	
	1100 - BGX - 0000	BASE MOTOR BOAT	-	1	
29	1200 - MGX - 0000	ARM ASSY	1	-	
	1200 - BGX - 0000	ARM ASSY	-	1	
30	1300 - MGX - 0000	CLAMP ASSY	1	-	
	1300 - BGX - 0000	CLAMP ASSY	-	1	
31	1400 - MGX - 0000	HANDLE ASSY	1	-	
	1400 - BGX - 0000	HANDLE ASSY	-	1	
32	1500 - MGX - 0000	BUSH BRKT	2	-	
	1500 - BGX - 0000	BUSH BRKT	-	2	
33	1600 - MGX - 0000	GRIB HANDLE	1	1	
34	9105 - MGX - 0000	HEX BOLTS SET M10x50	2	-	M10x1.5x50
	9126 - BGX - 0000	HEX BOLTS SET M12x60	-	2	M12x1.75x60
35	9082 - MGX - 0000	HEX BOLTS SET M8x25	2	2	M8x1.25x25
36	9084 - MGX - 0000	HEX BOLTS SET M8x40	4	-	M8x1.25x40
	9105 - BGX - 0000	HEX BOLTS SET M10x50	-	4	M10x1.5x50
37	9124 - MGX - 0000	HEX BOLTS SET M12x40	2	-	M12x1.75x40
	9125 - BGX - 0000	HEX BOLTS SET M12x50	-	2	M12x1.75x50
38	9214 - MGX - 0000	HEX NUTS M14	1	-	M14x2.0
	9218 - BGX - 0000	HEX NUTS M18	-	1	M18x2.5
39	9314 - MGX - 0000	WASHER M14	1	-	M14
	9318 - BGX - 0000	WASHER M18	-	1	M18

Beaver Dam Mud Runners



“Back to the Original”

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