# Drifter Projects

*Stern Thruster*

## Description

Add a stern thruster to work in conjunction with the factory-installed bow thruster. Move generator battery and add a third 4D house battery in the process.

## Main Parts Ordered

### Defender

1. 305694THR12V Side-Power SE80/185S-24IP DC Thruster (On/Off - Ignition Protected)
2. 303740 Side-Power Stern Thruster Tunnel
3. 300091 Side-Power Stern Thruster Tunnel Cowl - Diameter: 7"
4. 301474 Side-Power Boat-Shaped Docking Control Panel
5. 300022 Side-Power Radio Remote Control Kit
6. 305723ANL400 Side-Power Thruster ANL Fuse - 400 Amp
7. 200631 Blue Sea Systems ANL Fuse Block with Cover
8. 201528 Guest Heavy Duty On / Off Battery Switch with Alternator Field Disconnect
9. 200576 Todd Marine Grade Battery Box - Group 4D Battery
10. 300258 Side-Power Q-Prop Thruster Propeller Upgrade Kit
11. 304237 Side-Power Replacement Bow Thruster Anode

### Fisheries Supply

SM61277-09M 4-Wire Control Harness for Use with Manual Main Switch - 29.5 ft.

### McMaster Carr

90266A346 316 Stainless Steel Thread-Locking Slotted Insert for Metals, 1/4"-20 Internal Thread, 7/16"-14 Externl Thread, 7/16" L

### Amazon

Online Metal Supply 6061-T6 Aluminum Structural Angle 2" x 2" x 12" (1/4")
Sold by: Online Metal Supply | Product question? Ask Seller
$12.41
Buy it Again

by Small Parts
Fiberglass Flat Washer, Black, Inch
Available in multiple versions
2 customer reviews

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| B000FMWTHA | 1/4" | 0.2810 inches | 0.734 inches | 0.0630 inches | 100 | $0.14 ea. | $14.37 Prime |

### Elsewhere on the Interwebs

1. 3/0 Yellow Cable
2. 3/0 Red Cable
3. 2/0 Yellow Cable
4. 2/0 Red Cable
5. 2/0 Lugs
6. 3/0 Lugs
7. Colored Heat Shrink
8. 4D AGM battery
9. 4D AGM battery box
10. Stainless bolts and hardware

## Assembly

This one was pretty involved, so if you are not comfortable doing it yourself this is best left to a competent boat yard or installer. This is just an explanation of how I did it, this is not in any way advice or instruction for anyone else.

First thing to do was cut a 7" diameter hole *below the waterline* in your boat!!! Yikes! This was scary. Measure 6 times, cut once. The thruster "tunnel" flange must sit perfectly flat against the hull – there was quite a bit of curvature in the center there, so I had to sand down and make it flush. This was easier to do before cutting the hole.

Mark the hole pattern and drill the 8 bolt holes. Beware the hull bottom is nearly 2" thick, so be sure the bottom bolt has room for a nut inside the lazarette at the floor. This put the thruster about 6" below the waterline – a bit above the 7.8" recommended. I was hoping the cowlings would help this a lot.

Next, out came the jigsaw. Beware of the hydraulic lines inside the lazarette, and be aware how thick the hull bottom is in order for the lowest bolt to come through "above ground".

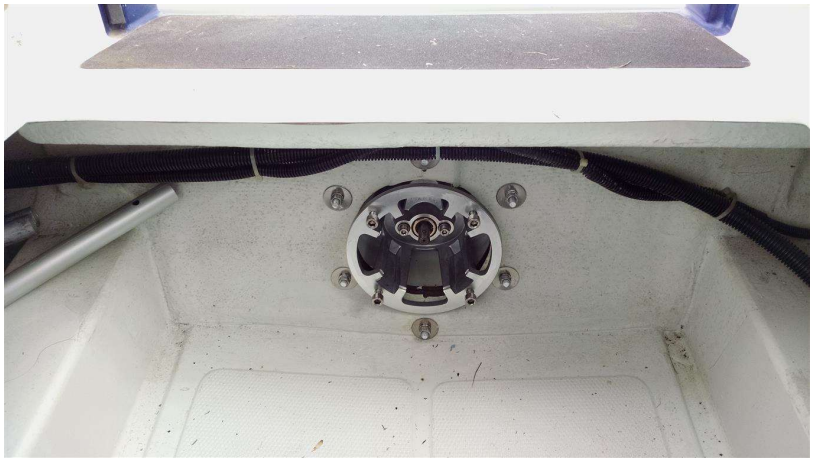
Well, there's no going back now!!

I coated all of the sanding and the edges of the holes with several coats of epoxy.

Next was to mount the tunnel. This was pretty straightforward. The transom thickness varied high to low, so I used different length bolts to accommodate. Lots of cleaning of surfaces, and then ample amounts of Sikaflex. I pre-painted the tunnel parts with bottom paint – the rest of the hull hadn't been repainted for the season yet in the photo.


The next step was to attach the gear leg and the motor bracket inside.

You can see the bottom-most bolt washer is actually curved just a bit, just clearing the liner floor. You can see how close the top bolt is to the wiring and hydraulic lines – careful with that drill!



The next step is to mount the motor to the bracket. The manual says the motor needs to be supported from underneath so that the tunnel bracket doesn't take the load of the 30lb motor. I wrestled with this for quite a while, as they described glassing in a wood beam underneath, etc. I didn't want to mess with all that.

I looked at the ignition-protected case and all of the bolts around the perimeter and had an idea……

I cut a piece of heavy aluminum angle and bolted it right onto the case bolts such that the bottom of the angle was parallel to the liner floor in the lazarette. I drilled two holes in the bottom of the angle to accept two 10-24 bolts.

Next, I mounted the motor, measured, and marked the floor about 6 (no, maybe 8) times. Then I epoxied two 10-24, 316 stainless threaded inserts into the floor, aligned with the holes in the aluminum angle.

There was a gap (measured and calculated) of about 1/4 to 1/2 inch between the bottom of the angle and floor when the motor was mounted to the bracket. This left some reasonable space for me to insert “shims” to whatever pressure level I needed when the motor was in place. The “shims” I chose to use were fiberglass washers I found at McMaster Carr. I could just pry up the motor slightly and insert whatever number of these would take the load off (plus just a bit for settling) between the bracket and the floor as I tightened down the bolts.

Except for making a royal mess with half a tube more Sikaflex, it went pretty well. Here is what the finished mount looks like with the motor all bolted in.

At this point the motor appeared to be well supported and felt really rigid.

Next task was to wire it up. I ran the battery wires up along the underside of the cockpit support beam to the bulkhead that divides the battery room. I entered the battery room at the top of the bulkhead (just under floor of cockpit) with two small holes (cable size). Beware of the freshwater tank and its holding brackets and measure carefully!

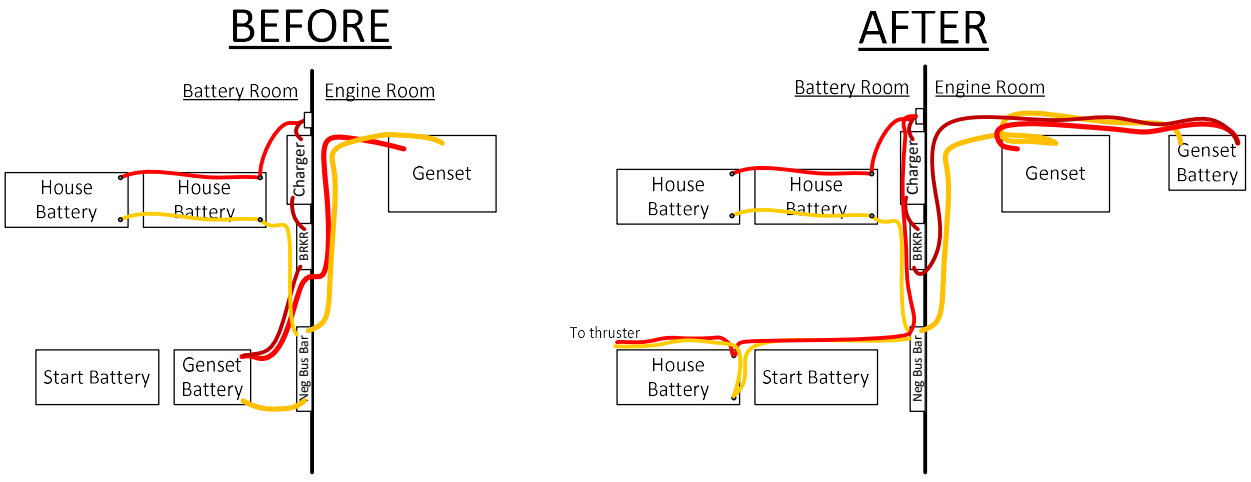
Here are the cables at the motor. They go up and left from this photo.

I came down the side of the freshwater tank on the sole and connected up to the aft-most house battery (of 3). I couldn't find a good place to mount the emergency cutoff switch and fuse block, so I took the battery out and bolted them right to the battery box!


This is the 3rd house battery that was added. The main engine start battery is ahead of it now. You can see the positive lead from the switch going into the house bank battery to do its business. The red and yellow coming around the side are tying into the other two.

I purchased the cowlings to try to help with cavitation since it couldn't be mounted as deep in the water as was recommended. The cowlings just bolt onto the tunnel flange.

Here is a drawing of the battery rearrangements that I did in the process:



Finally, I ran the control wiring along the starboard conduit up to the helm. I pulled out the old bow-only control switch, and with no cutting at all, fit the dual control switch into the same hole.


Last step was the wireless control install. I put the transceiver behind the steering panel at the helm. All of the control cabling was plug and play. I did have to pull the contacts out of one of the connectors to snake everything through all the holes and then put them back for final connection. Here is the wireless remote ready for action!

## Completion

So far everything has worked very smoothly. Nothing like cutting "donuts" in the middle of the marina!!! ☺

As expected the stern thruster is slightly "weaker" than the bow since it is not down in the water as far. If I push both controls to one side, the bow moves a bit faster than the stern (the keel is likely affecting that as well). A long and tedious job, but ***WELL*** worth it.