

Safe~T~Puller



INSTALLATION INSTRUCTIONS FOR
*Safe-T-Puller*TM
Models STP-1100, STP-1600 and STP-2100

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SAFE-T-HAULERTM IS PROTECTED
UNDER U.S. PATENT 6,027,103**

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**Safe-T-Puller™ and Safe-T-Hauler™ are protected under
United States Patent 6,027,103**

WARNING

Proper installation is very important for safely operating any piece of equipment. Failure to read and follow these installation and operating instructions may result in serious injury. If you have any questions, please call your dealer for further instructions.

Pulling or hoisting any type of crab traps, shrimp pots, lobster traps or other types of marine gear from a vessel is inherently dangerous and should always be treated as such. Your new *Safe-T-Puller™* incorporates many safety features designed to make pot hauling as safe as possible, particularly for recreational boaters. It is important that this product be installed correctly for these safety features to be fully operational. Installation is not difficult for those mechanically inclined. However, if you are unsure of your mechanical abilities, then you would be best advised to have the unit installed and tested by a competent marine service representative. It is far better to have the confidence of a safe and properly installed unit that will provide you with reliable service for years to come.

These instructions are provided to walk you through steps required for a professional installation. We at Quality Products NorthWest, have safety as our number one concern. Number two is the quality of our products. By examining your new *Safe-T-Puller* you can clearly see that you have purchased a high quality product using only the best-proven materials and components. We do this partly due to our commitment to a high quality product and partly for your safety.

Please carefully read these instructions completely through before attempting to complete any of the assembly steps involved. This will give you a good idea of the intention of each step. Because many boats are very likely of a different configuration and size, it is **MOST** important to select an appropriate location for your *Safe-T-Puller* **BEFORE** installation.

Product Familiarity

The *Safe-T-Puller* consists of 3 primary components. The davit and mounting brackets make up the first component, the powerhead and roller-fairlead assembly make up the second component, and the control switch, circuit breaker, solenoid and wiring harness make up the third component. The *Safe-T-Puller* is sold as a complete unit or as a powerhead only with or without wiring harness. There are a number of davit and bracket mounting options. **For purposes of these instructions we will assume you have purchased the complete *Safe-T-Puller* package with the 2-piece davit option.**

The davit is in 2 pieces. The upper (bent) section has a solid machined aluminum shaft that mates with the lower section. A stainless steel safety pin locks the two pieces together when assembled. The lower section of the davit is the straight section. The Powerhead is attached to the upper davit section by a similarly machined solid shaft section and pinned with a second stainless steel safety pin. This is the EZ-ON, EZ-OFF attachment. You may detach the powerhead by simply removing the wires from the motor and pulling the pin, then slide the unit out of the upper davit section. See picture below.



EZ-ON EZ-OFF Powerhead Attachment

The davit pipe is generally secured to the boat gunnel (side) by using the upper bracket (gunnel bracket) and the lower bracket (kick-plate bracket). The “Gunnel Bracket” has a white UHMD plastic insert pressed into it. On the STH-1100 and STH-1600 models, Schedule 40 davit pipe material is used. On the STH-2100 model, Schedule 80 davit pipe material is used. The Schedule number is an indication of the wall thickness (and strength) of the davit pipe.

Choosing a Location

Locating the davit is probably the hardest decision for your installation. Once your location has been selected, the process is very straight forward, depending on the type of gunnels on your boat. Once the location is selected, temporarily position the *Safe-T-Puller* and davit with brackets in position to check for clearance and to position the

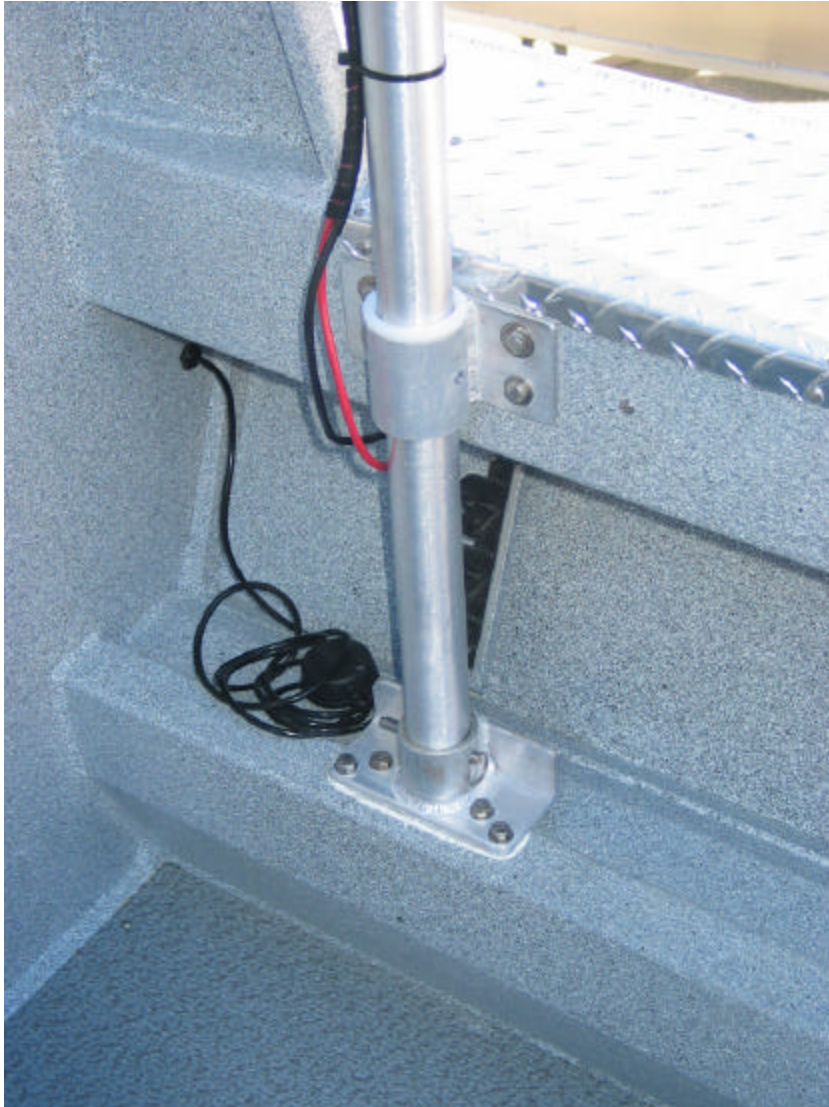
brackets. It will be easiest to enlist the help of a friend to help with this operation (with the powerhead removed). Once the brackets are positioned, then they will be attached. When the davit installation is complete, it will be necessary to drill a hole through the davit pipe and one of the brackets so that the davit can be pinned in place with the Stainless Steel Safety Pin provided. Every effort should be made to ensure that the holes are **dead center** on the davit pipe. Doing so will allow the davit to be rotated inwards and then rotate 180 degrees and pinned in the operating position. Depending on your selection of gunnel bracket style, the gunnel bracket should already be drilled for the SS Safety Pin. The bracket has a UHMD plastic sleeve pressed into it. The sleeve is not pre-drilled. You will drill through this material when you drill through the davit pipe.

When the davit pipe has been properly installed using the appropriate brackets (both pieces), you can install the EZ-ON, EZ-OFF attachment onto the Powerhead Unit by screwing the stainless steel eyebolt assembly into the hanging bracket mount. This whole Powerhead assembly can then be attached to the upper davit section.

Wiring your *Safe-T-Puller*

When the installation of the davit and powerhead is completed, then the wiring harness, air microswitch, solenoid and circuit breaker(s) are installed. The wiring installation should be planned out ahead of time so that the components are located in a convenient, but unobtrusive location. The circuit breaker(s) should be located as close to the power source (battery or 12 VDC Buss) as practical. This would either be directly to the battery (+) terminal or to a positive supply terminal with sufficiently heavy wiring to provide ample current. The RED wire is used to connect to the POSITIVE supply. The RED wire is attached to one side of the solenoid. The other side of the solenoid is attached to

one side of the motor. An air-controlled microswitch is wired to the solenoid as well.



A Nice Clean Installation on an Aluminum Boat

The solenoid should be located in an area that is protected from saltwater. A good choice would be inside the engine compartment or other enclosed and protected area. The microswitch is designed to be mounted in a bulkhead configuration relatively close to where the *Safe-T-Puller* will be mounted. It should be mounted so the Air Foot Bellows tubing can be easily attached and disconnected. The BLACK wire is the return path from the motor and must be securely connected to the NEGATIVE side of the 12 V supply. Refer to the wiring diagram in Figure 1.

STEP-by-STEP INSTALLATION INSTRUCTIONS

Now that you have familiarized yourself with the product and have a general idea of what will be accomplished in the installation steps, we will walk you through the installation – Step by Step. **PLEASE READ THESE INSTRUCTIONS THROUGH COMPLETELY PRIOR TO ACTUALLY STARTING THE INSTALLATION.**

STEP 1. Select the area where you will locate your new *Safe-T-Puller*.

THINGS TO CONSIDER:

Boat Stability If your boat is a skiff or small boat under 21 feet in length, then you probably should consider locating the Hauler approximately midway between the stern and the bow. Reason – the Hauler will put a force on the side of the boat. This force is called a *Torque*. A *Torque* is defined as a force (in pounds) times the lever arm length (distance from its centroid). The formula is $T=F(L)$ and the units are in “*foot-lbs.*”

The *Safe-T-Puller* model capacities are 100 Lb., 200 Lb. and 300 Lb. One of these values is the “F” in the formula above. The “Lever Arm Length” (L) is the total distance

(in Feet) from the Center Line (Keel) of the boat to the tip of the davit where Powerhead is attached. Typically for a small boat that length would be around 3 to 4 Feet. This would be the width of the boat divided by two plus the amount of the davit sticking beyond the side of the boat. For a typical worst-case scenario for a small boat, the Torque (T) is equal to the downward Force (F) times the Lever Arm Length (L). So for a STP-2100 the equation becomes $T=300 \text{ lbs.}(4 \text{ ft.})$ or 1,200 ft.-lbs.

So the vessel must be capable of resisting (not tipping over) this 1,200 ft.-lbs. of torque. However, there are another factors to consider as well. You, as the operator of the Puller, will be located closer to the side of the boat than the center. In addition, you will be pulling in gear (line, floats, traps, and hopefully some crab or shrimp). *(Keep in mind that your catch will resist being pulled through the water and in the case of Alaska King Crab – a full pot can be very heavy.)* Although the weight of the gear may not seem like very much, 600 feet of wet line and gear starts to add up fast. So to be generous, consider the weights of the operator and wet gear as approximately 300 lbs. give or take and the average distance as approximately 3 feet, then the added torque becomes $T=300 \text{ lbs. times } (3 \text{ ft.})$ or 900 ft.-lbs. This torque is added to the previous and the Total Torque = 1,200 + 900 or 2,100 ft.-lbs. If other people are onboard and are moving around, this also becomes a stability factor.

The total Torque calculated above must be countered by the vessel buoyancy – otherwise it will capsize. This is the force that tries to roll the vessel over on its side. There is also another Torque that will also be applied along the length of the vessel. The same calculations can be carried out except that a Lever Arm Length is used from the Center of Buoyancy (Center-line Length) to the Powerhead attachment point. This means that if, for

example, the Puller were installed on the starboard side of the transom (stern), then the resultant force would be applied to the stern as well as the starboard side of the boat.

Now while this is normally of no great concern, it is possible for small boats to get into trouble by adverse weather, such as blowing wind and wave conditions. This is particularly true for small boats because many are powered by outboard motors with a cutout (or lowered) transom area. If the Puller is located near the transom, then it will only aggravate an already marginal situation. No problem on a nice day with calm waters, but on a bad weather day, it is a formula for serious consequences. Consider that the wind may drive the waves into your boat. If your Puller is installed near the stern, the wind and waves will force your boat to turn stern-to the waves. The weight and drag of your pot gear will increase since the wind will be blowing your boat creating an added drift factor on the line pull. Additionally, there may be strong currents and tides working against you. We point out these points not to scare you, but hopefully to make you more informed and better prepared. On a small boat, it is important to select a good location for your Puller installation that will minimize these added factors.

On larger boats (greater than 21 feet), it is generally not a problem since it will have sufficient buoyancy and freeboard to counter all of the Torque Forces.

WHICH SIDE? On many boats, both bigger and smaller, the helm (steering console) is either on one side of the boat or the other. Some are located in the center. We have found that it is generally easier to approach a pot float from the same side of the boat that the helm is located. So, it is generally best to locate the Puller on the same side of the boat as the helm. This is true if the configuration of the boat allows installation in this area.

ELECTRICAL How far away is the power source? All wire has a small amount of resistance within it. This is true no matter what the wire is made of and is directly related to the length and diameter of the wire. The longer the wire, the greater the resistance. The smaller the diameter (or circular area) the greater the resistance.

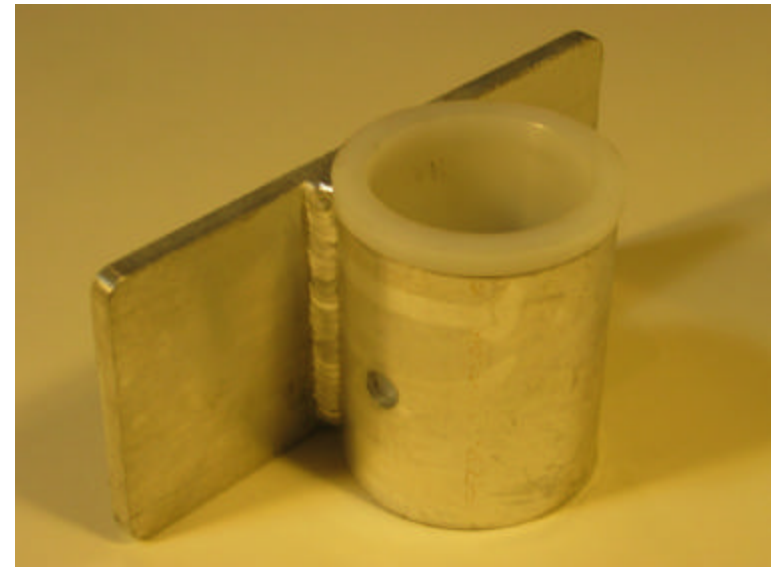
The goal is to reduce this resistance factor (for the overall circuit) to an acceptable level. This is accomplished in a number of ways. We can select a material with a lower resistivity constant, increase the diameter (gauge) and shorten the overall circuit length. We at Quality Products NorthWest have already taken the step of selecting a high quality marine grade wire that has a relatively low resistivity constant. You will notice that the wire provided is fine stranded tinned copper and is sized appropriately. The finely stranded wire is much more flexible and durable. By finely stranding the wire, more circular area can be packed into a given overall diameter than larger strands. Thus it will be capable of carrying a higher current. The tinning applied over the copper makes the wire more resistant to saltwater corrosion and intrusion. The insulation on Marine Grade wire is formulated to better withstand fuel and petroleum products often found in the bilge and engine compartments. Thus we have provided the appropriately sized Marine Grade Wire, for your installation.

If, for any reason, the main wiring is replaced, be certain that it is properly sized for your unit and that **ONLY MARINE GRADE WIRE IS USED**. The wire should be cut to only the length necessary to reach all components and the motor including the return path (BLACK WIRE) to ground. It is always better to use one continuous piece of wire from point to point. Do not splice the wires unnecessarily as doing so creates an additional spot where saltwater intrusion can occur. Always protect

splices with adhesive lined heat-shrink tubing.

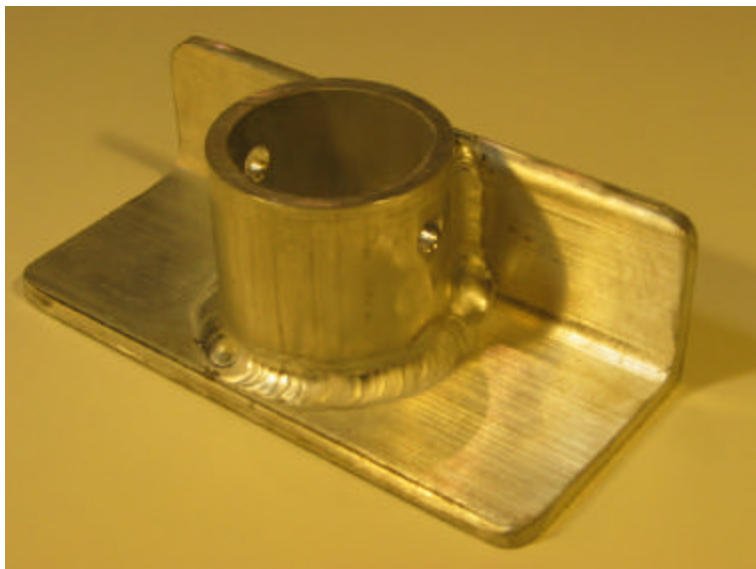
STEP 2. The goal of this step is to identify, locate, mark and drill suitable locations for the upper and lower bracket holes.

At the location selected in STEP 1 above, temporarily hold the assembled *Safe-T-Puller* in place. This is more easily accomplished by having an assistant hold the unit in place while you adjust the upper and lower brackets to suit the boat structure. You can remove the Powerhead Assembly if already installed earlier. *NOTE: There are several variations of upper and lower bracket configurations available. You should select the proper combination that allows the best fit with your boat and installation location.*



Side-Mount Gunnel Bracket

The upper bracket (referred to as the Gunnel Bracket) has the UHMD plastic sleeve pressed into it. The lower bracket (referred to as the Kick-Plate Bracket) is the bracket without the sleeve. Some bracket installations require a suitable "Backing Plate" for mounting the brackets onto. You can also use the Backing Plate as a surface mount so the Gunnel Bracket can be easily removed (like after shrimping or crabbing season). You can order the optional Backing Plates from your *Safe-T-Puller* Dealer.

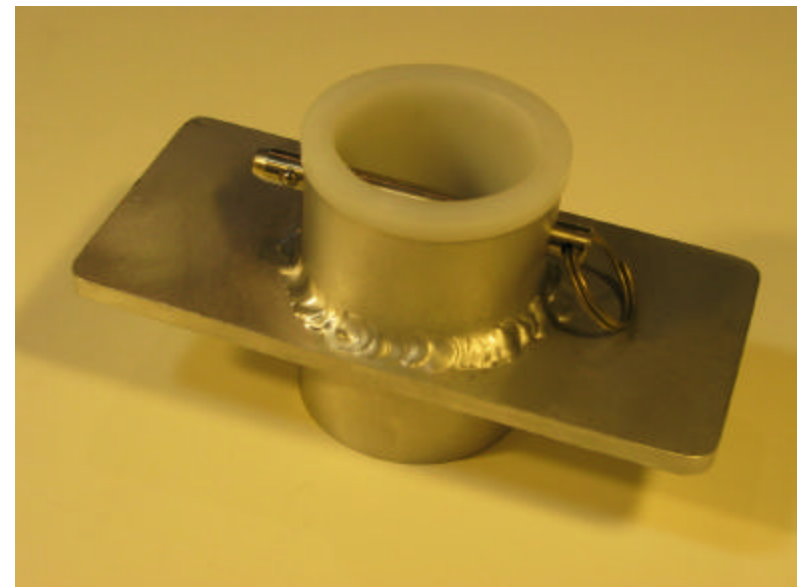


Combination Angle Mount Kick-Plate Bracket

The Kick-Plate bracket is available as either a flush mount to a horizontal surface such as a deck, or as a combination Angle mount to vertical surface and horizontal surface. The *Safe-T-Puller* is normally shipped with the Combination Angle Mount configuration. This should give you the most flexibility of mounting styles.

CAUTION: Many fiberglass boats have their hulls, decks and some bulkhead materials fabricated using a foam or balsa wood core. If your boat uses this construction method, it is mandatory to insure a watertight sealant around any penetrations through this material. Sometimes you can determine this by drilling a small hole where you are planning to drill anyway and then insert a small stiff wire, probing to determine what the interior construction might be. It is always best to select a location where you have access to both sides of the mounting position. If in question, contact your boat dealer.

The Gunnel Bracket is available in a number of different styles. The most popular is the Side-Mount Gunnel Bracket. The *Safe-T-Puller* is normally shipped with this bracket.



Top-Mount Extended Gunnel Bracket

There is a Top-Mount Extended Gunnel Bracket designed for mounting on the top of a boat gunnel. It is necessary to drill a suitably large hole down through the top of the gunnel and then the bracket flange is bolted to the top. The pipe portion will extend about 2" above and below the flange.

Similar to the bracket described above, there is a Top-Mount Flush Gunnel Bracket. This bracket has the pipe portion extending only 3/8" above the flange. It will extend approximately 4" below the flange.



Scotty Downrigger Gunnel Bracket

Our newest bracket is the Scotty Downrigger Gunnel Bracket designed to attach directly to a Scotty Downrigger Mount. It can be used with the small direct mounting Scotty bracket or with the optional rotating Scotty mount. This installation is designed to allow quick removal by simply pulling a stainless steel safety pin. This action completely releases the Gunnel Bracket from

the Downrigger Mount. Proper installation of this style bracket does not apply a Torque Force to the Downrigger Mount. This means that there is no danger of damaging either the Downrigger Mount or the side of your boat when using this style mount.

Please ensure that your Scotty Downrigger mount is properly mounted to a substantial gunnel or with a sufficient backing plate using through-bolts.

All Gunnel Mounting Brackets mentioned above are provided with a Sleeved Bushing of UHMD plastic making easy and freely rotating davits without any danger of galling between the davit pipe and the bracket pipe.

All Brackets mentioned above (except the Scotty Downrigger Gunnel Bracket) can be supplied with an optional backing plate or an optional Pre-Drilled and Threaded Mounting Plate. See your dealer regarding all optional Brackets, Backing Plates or Mounting Plates.

To determine if you need a Backing Plate, consider using one if the gunnel on your boat is double walled (foam-core) fiberglass or other thin material. The backing plate is designed to provide additional strength for attaching the brackets to your boat. For double-walled gunnels, it is best to locate the brackets and then drill suitable holes for the attachment bolts. In any event, the brackets should be through-bolted.

Position the kick-plate and gunnel mounts so the davit will slip vertically through the gunnel mount into the deck mount. Note: The gunnel and deck mounts for a schedule 40 davit must be mounted at least 21" apart. For a schedule 80 davit, 12" apart. Through-bolting the mounts is recommended using 1/4" or 5/16" Stainless Steel bolts. You may also install additional reinforcement

for added support.

When the holes have been marked, drill a suitably sized hole into or through the material. Attach both brackets using suitably sized Stainless Steel hardware. This time the brackets are only installed temporarily to ensure everything is properly lined up. **Final installation will use sealant to prevent water intrusion.** In this step it is important that the lower portion of the davit rotate freely (without binding) and can be moved vertically through the upper mount.

STEP 3. In this step you will assemble and position the unit, then position for operation. The Stainless Steel Safety pins will then secure the puller in this position during operation.

NOTE: The “Operating Position” means that the puller unit and davit are positioned with the top (bent) section turned to hang over the side of the boat. This is usually perpendicular to the gunnel of the boat. This is the “Ready for Pot Pulling” position.

The “Stowed Position” means that the puller unit and davit are positioned with the top (bent) section turned inboard or in the non-operating position. This would be while you are transporting the boat down the highway, or when you are underway, heading out to the crabbing or shrimping grounds. When arriving at your Pot location, it is easy to rotate the unit into the Operating Position and lock.

Install the lower davit section in the brackets installed in step 2 above. This section should be free to rotate easily. Check to ensure that it is not binding. Shims may be needed to align the brackets properly.

Now install the upper section of the davit (with powerhead removed) into the lower davit section. The upper section is attached to the lower section by inserting the solid section into the lower section. Insert the stainless steel safety pin into the pre-drilled holes in both pieces. Check once again that the assembled davit rotates freely in the mounting brackets. Ensure that the SS Pin is fully inserted so the detent ball is beyond the outside davit pipe. The detent ball prevents the pin from working its way back out.

Once these checks have been made, turn the unit to its operating position. This should be so the upper bent davit section hangs out over the side of your boat and is perpendicular with the side of the boat. When you are satisfied with this position, then firmly secure the unit in this position so that it cannot turn or move. The holes will be drilled in the next step to securely pin the unit in this position.

STEP 4. In this step you will drill holes through the gunnel bracket and lower section of davit. Stainless Steel Safety pins will then secure the puller in this position during operation.

With the unit secured in the Operating Position (Step 3 above), use a 3/8” drill bit to drill a hole through one side of the lower davit section. Carefully line up this hole so it goes straight into the center of the davit. There are pre-drilled holes in the gunnel bracket. You will be drilling through one of these holes and the UHMD Sleeve as you drill this hole. Once the drill is through one side of the davit, run it in and out a few times to assure a nice clean hole.

Remove the drill, blow any chips away, then insert the Stainless Steel Pin a distance of 3/4”. This will hold the davit in position while you are drilling the other side of the

davit.

With the same drill bit, drill a second hole through the other side of the lower davit section. This pre-drilled hole will be on the side opposite the first hole drilled. Carefully line up this hole so it goes straight into the center of the davit. Again, run the drill bit in and out to assure a nice clean hole. Remove the drill and blow any chips away. Remove the SS Pin from the other side. Carefully run the drill bit through both holes so that everything lines up properly. Now fully insert the Stainless Steel Pin. It should be completely through both holes sufficiently that the ball detent is seen on the far side of the gunnel bracket.

This Pin is the Davit Locking Pin and is used to lock the davit in its Operational Position, or to rotate the davit inboard and lock it in that position.

STEP 5. In this step you will prepare the unit for locking in the 180° Stowed Position.

Remove the Davit Locking Pin. Rotate the *Safe-T-Puller* and davit as a unit by 180° from the Operational Position. This will be the “Stowed Position”.

NOTE: If you are not able to rotate the unit a full 180° due to your boat configuration, or if you prefer your Stowed Position to be something other than 180° opposite the Operating Position, then skip the remainder of this step and begin with Step 6.

With the davit rotated 180° so that it is now positioned inwards towards the centerline of the boat, attempt to reinsert the Davit Locking Pin. If you are not able to do so, it means that the holes through the davit pipe were not drilled precisely through its center. In this case, very carefully and slowly ream out the holes so that they will

be lined up with the davit turned inboard. Do not remove more material than necessary. Now the Davit Locking Pin should be easy to insert with the unit turned either inboard or outboard. The “inboard position” is the Stowed Position. The “outboard position” is the Operating Position.

If you were able to successfully complete this step, then please skip Step 6 and begin with Step 7. If your Stowed Position is other than 180° from the Operating Position, then perform Step 6.

STEP 6. In this step you will prepare the unit for locking in the “Other Than 180°” Stowed Position.

Remove the Davit Locking Pin (SS Pin) from the davit and Gunnel Bracket. Rotate the davit so that it is now positioned where you want the unit to be when in the Stowed Position.

CAUTION: Never drill more than one pair of holes through the davit at any given location. Drilling more than one pair will weaken the davit excessively and will void your warranty.

In this step, you will be drilling holes through the Kick-Plate Bracket (Lower Bracket). With the Puller Unit securely positioned in your desired Stowed Position, drill a hole through one side of the davit pipe using a 3/8” drill bit. The Kick-Plate Bracket should be pre-drilled with these holes. Blow any metal chips out of the bracket.

Insert a Stainless Steel Pin into this hole (bracket and davit) to a depth of 3/4”. Then drill another 3/8” hole through the bracket and davit from the other side. Remove the SS Pin. Carefully insert the drill bit again to ream out both holes. You should then be able to insert

the SS Pin.

You will insert this pin to hold the Puller Unit in the Stowed Position. Remove this pin, rotate the davit to the Operating Position and insert the Davit Locking Pin to lock the davit in the Operating Position.

STEP 7. In this step you will install the Wiring, Solenoid, Circuit Breakers and Air Microswitch Controller

All instructions for wiring your new *Safe-T-Puller* refer to the wiring diagram shown below in Figure 1.

CAUTION: DO NOT CONNECT THE CIRCUIT BREAKER (S) and Red Wire to the Battery (+) Positive Post until the other parts of the wiring have been completed.

This step assumes that you have already selected a location for the electrical components. i.e. Air Microswitch Controller, Solenoid and Wiring. Just to review, there are two main wires, one RED and one BLACK. These wires should be 10-gauge wire for models 1100 and 1600 or 8-gauge wire for the 2100. Also required are a couple lengths of smaller 14-gauge wire for the control circuit. These are not provided as the amount required varies greatly for each installation depending on boat type and component installation. Although the wire color does not really matter, it is shown in blue on the wiring diagram (Figure 1). The wire can be obtained at any hardware or marine store after the needed length has been determined.

The Air Microswitch is designed to mount in a bulkhead. This makes a nice professional looking flush mounting with the wires tucked away protected by the surface of your bulkhead material. You will need to select a 5/8" drill

bit (just slightly larger than the threaded portion of the Microswitch.) A sharp spade bit of the appropriate size works well on fiberglass. If drilling through aluminum or other material, you may need a 5/8" twist drill.

CAUTION: Exercise care when drilling through your bulkhead area. Know what you are drilling into and what is located behind the area. Double check to make certain you will be drilling in a safe location and be sure to check that there are no wires or other items on the back side that may become entangled in your drill bit. You will need to have access to the backside with your hand and arm to hold the switch in place while screwing on the mounting nut. Ensure that the thickness of the bulkhead material does not exceed the maximum allowed by the switch.

When you have drilled the appropriately sized hole, remove the plastic nut from the threaded portion of the Microswitch. Try a test fit to see how it fits and sufficient threads protrude for the plastic nut to be securely attached. If there are insufficient threads, you can snip off the little plastic ears at the base of the threaded section. This will allow a little thicker bulkhead material to be used. Use a flat file to dress the area where you snipped the plastic ears off.

Once everything fits nicely, then it is usually easiest to attach the smaller control wires to the (COM) and (NO) connection terminals using the crimp connectors provided. The (NO) connection means "Normally Open". Be sure to crimp the connectors FIRMLY with the stripped wire end fully inserted. You can also use a heat gun to shrink the connector around the wire.

DO NOT USE AN OPEN FLAME IN OR NEAR YOUR BOAT AS FLAMABLE FUMES OR MATERIALS MAY BE PRESENT!

With the wires attached to the Microswitch connections, install the switch permanently. Tighten the plastic nut FIRMLY using care not to break or damage the plastic nut or threads. Route one of the wires from the Microswitch to the Negative (-) side of the battery. (See Figure 1)



Coated Marine Grade Continuous Duty Solenoid

The Solenoid should be installed in a protected area such as an out of the way part in the engine compartment. Ensure that it is securely mounted and that it will be protected from saltwater spray or contact with other components. The solenoid is a Marine Grade Continuous Duty type with a water-resistant coating. A short piece of wire is already connected between the Heavy Duty Lug (+) and one side of the solenoid control coil. Connect the remaining wire from the Microswitch to the unused small post on the front of the Solenoid.

CAUTION: Exercise care when tightening or loosening the double nuts on the rear of the puller motor. Use a wrench on the inner nut to prevent it from turning while the outside nut is turned. The studs have wires connected to the brushes and will break if the stud is turned excessively.

The Heavy Gauge Wires (one RED, one BLACK) from the motor should now be connected. Connect the BLACK wire from the motor directly to the Negative (-) side of the battery. Make sure the small wire is also connected at the same point (the wire from the Microswitch).

Connect the Heavy Gauge RED wire from the Motor directly to the free Large Post on the Solenoid. Check your wiring at this time. Ensure that the wiring is correct and that the connections are tight. At this time Connect the free end of the buss bar on the Circuit Breaker(s) to the Positive (+) of the battery.

Attach the Foot Bellows Tubing to the Air Microswitch by slipping the tubing over the inlet port. Test the operation of your *Safe-T-Puller* by depressing the Foot Bellows. The motor should start turning. Check to see that the Sheave is rotating in the correct direction. NOTE: You can rotate the Powerhead to nearly any position you wish. Simply disconnect the wires from the motor terminals, position the Powerhead as desired, then re-attach the wires. From any position, the correct rotation of the sheave is for the top part of the sheave to rotate towards you. If the sheave rotates in the wrong direction, simply switch the RED and BLACK wires at the motor terminals.

A WORD ABOUT NOISE: The *Safe-T-Puller* is driven with a powerful permanent magnet 12 volt DC motor

through a planetary differential gear reduction unit. The gear reduction unit reduces the high speed rpm of the motor to a high-torque low speed rpm of the sheave. The gears in the gear reduction unit are straight cut spur gears. Because of the design of these gears, they tend to be noisy when compared to worm gear or helical cut gears. However, the *Safe-T-Puller* is much quieter than a comparable gasoline engine and far safer. The noise may initially be louder, but quiets down with usage as the gears have a chance to break in.

This completes the installation of your new *Safe-T-Puller*.

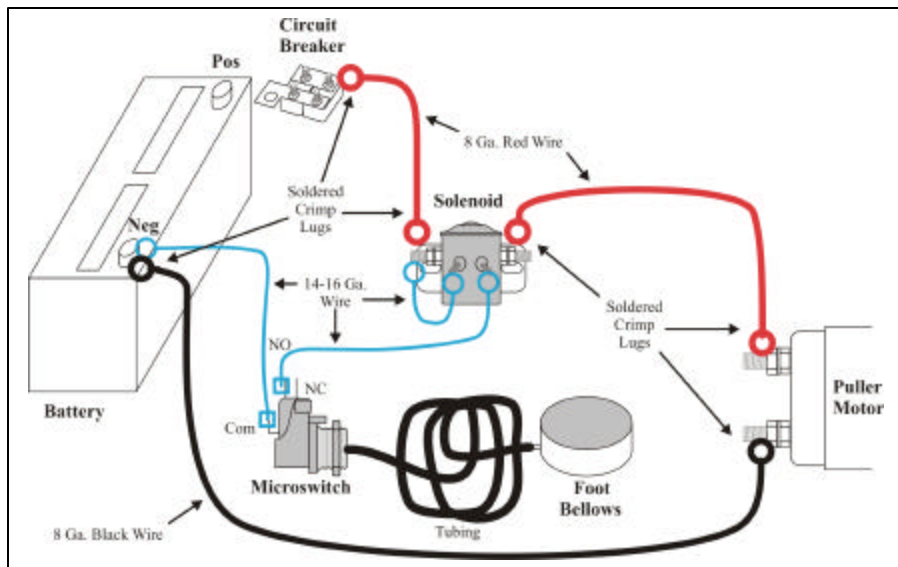


FIGURE 1

STEP 8. In this step we will cover the operation of your new *Safe-T-Puller*

You should perform the checklist below on your first initial use of the Puller and then at the beginning of the season.

Some of the steps should become habits you should develop whenever using your puller.

- CHECK BATTERY CONDITION. MAKE SURE IT IS FULLY CHARGED.
- CHECK ELECTRICAL CONNECTIONS. MAKE SURE THEY ARE TIGHT AND NOT CORRODED.
- MAKE SURE THE PULLER SHEAVE ROTATES IN THE PROPER DIRECTION. WHEN THE PULLER IS IN THE OPERATING POSITION, THE CORRECT DIRECTION OF ROTATION IS WITH THE TOP PART OF THE SHEAVE ALWAYS ROTATING TOWARDS YOU. IF NECESSARY YOU CAN REVERSE THE DIRECTION BY SWITCHING THE WIRES AT THE MOTOR.
- WHEN OPERATING, MAINTAIN A SAFE DISTANCE. EXTEND YOUR HAND SO YOU CAN JUST TOUCH THE SIDE OF THE SHEAVE NEAREST YOU. THEN TAKE A STEP BACK. POSITION THE AIR FOOT BELLOWS SWITCH IN A COMFORTABLE POSITION TO BE OPERATED WITH YOUR FOOT. THIS IS THE POSITION YOU SHOULD MAINTAIN WHILE OPERATING YOUR PULLER.
- BE SURE ANY CLOTHING YOU ARE WEARING DOES NOT HAVE ANY LOOSE CUFFS, SLEAVES OR CINCH CORDS THAT COULD BECOME ENTANGLED IN THE LINE OR HAULER. BE SURE THAT YOUR SHIRT OR JACKET CUFFS ARE BUTTONED AND SNUG FITTING.
- ANY GLOVES USED SHOULD BE SIZED CORRECTLY AND SNUG FITTING. GLOVES WITH RUBBER COATING FOR GRIPS MAKE LINE HANDLING MUCH EASIER AND SAFER.
- IT IS A GOOD IDEA TO REMOVE ANY RINGS, BRACELETS, WATCHES OR JEWELRY.
- SPEND TIME TO FAMILIARIZE YOURSELF WITH YOUR NEW POT PULLER AND ITS OPERATION. DO THIS BEFORE GOING OUT ON THE WATER FOR THE FIRST

TIME. PRACTICE WILL RELIEVE ANY ANXIETY. **NEVER ALLOW CHILDREN TO OPERATE THIS UNIT.**



Hoisting a load of King Crab

- EXERCISE CAUTION WHEN SNAGGING YOUR POT FLOAT. USE A BOAT HOOK OR OTHER CONVENIENT DEVICE. PULL SUFFICIENT SLACK LINE ABOARD WITH THE POT FLOAT. PLACE THE POT LINE OVER THE TOP OF THE SHEAVE. WHILE MAINTAINING YOUR HOLD ON THE FREE END OF THE LINE, PULL THE LINE GOING TO THE POT INWARDS ENOUGH TO PUT IT UNDER THE OUTBOARD FAIRLEAD ROLLER. THEN PULL STRAIGHT DOWN ON THE FREE END PULLING IT UNDER UNDER THE INBOARD FAIRLEAD ROLLER. TAKE A STEP BACK AND YOU ARE READY TO START HOISTING. SEE PICTURES BELOW.
- ASSUME THE OPERATING POSITION. WHILE MAINTAINING A SLIGHT TENSION ON THE LINE, DEPRESS THE FOOT SWITCH BELLOWS WITH YOUR FOOT TO ENGAGE THE MOTOR AND START HOISTING YOUR POT. AS YOUR POT IS BEING RAISED, IT IS HANDY TO COIL OR LOOP THE LINE IN A TUB OR PLASTIC BASKET.
- CONTINUE HOISTING THE POT UNTIL YOU CAN SEE THE POT IN THE WATER. ONCE SIGHTED, CAREFULLY POSITION THE POT JUST SHORT OF THE ROLLER FAIRLEAD. THIS ALLOWS YOU TO GRAB THE POT SECURELY WITH ONE HAND AND REMOVE THE LINE FROM THE SHEAVE WITH THE OTHER HAND.
- WHILE IT IS COMMON PRACTICE TO LEAVE YOUR BOAT ENGINE RUNNING WHILE PULLING POT GEAR, IT IS ADVISABLE TO SHUT OFF YOUR ENGINE WHEN FIRST STARTING TO LEARN TO USE YOUR NEW PULLER.
- YOU WILL UNDOUBTEDLY SEE SOME PEOPLE PULLING POTS AND RETURNING THE POT FLOAT AND LINE DIRECTLY BACK INTO THE WATER, THIS IS A HIGHLY RISKY PRACTICE. IT IS A VERY GOOD WAY TO GET YOUR POT LINE ENTANGLED IN YOUR ENGINE PROP, RUDDER, SWIM STEP OR OTHER ITEMS. IT IS ALWAYS BEST TO PULL THE LINE ONBOARD TO BE SAFE. EXERCISE CARE, STEPPING ON THE WET POLY LINE CAN BE VERY SLICK.

- MANY PEOPLE USE CLIP-ON LEAD WEIGHTS TO SINK THEIR POLY LINE. IT IS SAFEST TO USE LEAD CORE GROUND LINE SOMETIMES KNOWN AS CRAB LINE. ADDED WEIGHTS ARE NOT NECESSARY WITH THIS LINE. IF USING CLIP-ON WEIGHTS, BE AWARE THAT THE WEIGHT WILL COME UP FIRST. BE SURE TO STOP HOISTING THE LINE AND REMOVE THE WEIGHT BEFORE IT COMES TO THE FRP BLOCK.
- USE THE PULLER WITH THE DAVIT LOCKED IN THE OPERATING POSITION ONLY. DO NOT PUT YOUR HANDS ON, AROUND OR IN FRONT OF THE SHEAVE OR ROLLER-FAIRLEAD WHILE OPERATING.
- WHEN YOUR POT IS UP, TAKE YOUR FOOT OFF THE AIR BELLOW TO STOP THE PULLER MOTOR.
- PAY CAREFUL ATTENTION TO THE LINE AND YOUR OPERATION. DO NOT ALLOW YOURSELF TO BE DISTRACTED. WATCH THE LINE FOR ANY FRAYED AREAS, WEIGHTS, KNOTS OR OTHER POTENTIAL PROBLEMS.
- YOUR LINE SHOULD BE IN GOOD CONDITION. THE BEST LINE TO USE IS LEAD CORE GROUND LINE OR CRAB LINE. IT IS USUALLY AVAILABLE IN 5/16" OR LARGER. WHILE IT IS MORE EXPENSIVE, IT IS FAR SAFER AND MUCH EASIER TO HANDLE. YOU WILL FIND THE CRAB LINE COILS VERY NICELY INTO A PLASTIC TUB OR BASKET.
- POLY LINE IS POPULAR SINCE IT IS CHEAP. HOWEVER, IT FRAYS QUITE EASILY AND IS VERY UNRULY ONCE IT IS STRETCHED. IT LIKES TO TWIST UP A LOT ONCE IT IS STREACHED. THE MOST UNDESIRABLE CHARACTERISTIC IS THAT IT FLOATS! THAT ALONE MAKES IT A REAL HAZARD TO BOATERS BECAUSE IT IS HARD TO SEE ON THE WATER.

IF YOU DECIDE TO USE THIS TYPE OF LINE, BE PREPARED TO DEAL WITH ITS BAD HABITS. ALSO, PLEASE BE SURE TO WEIGHT THE LINE SUFFICIENTLY SO THAT IT DOES NOT FLOAT ON TOP OF THE WATER.

YOU MAY BECOME ENTANGLED IN YOUR OWN LINE!
USE A BRIGHT COLOR AND ALWAYS BE ON THE ALERT FOR FRAYED AREAS.

- WITH PRACTICE, YOU WILL FIND THAT IT IS POSSIBLE TO PULL IN LINES WITH KNOTS AND SPLICES WITHOUT ANY PROBLEMS. HOWEVER, YOU SHOULD ONLY ENGAGE IN THIS PRACTICE ONCE YOU ARE TOTALLY FAMILIAR WITH YOUR SAFE-T-PULLER PRODUCT.
- CHECK YOUR STAINLESS STEEL SWIVEL AND HANGING BRACKET, NUT AND OTHER HARDWARE DAILY TO BE SURE IT IS TIGHT AND SECURE.
- WHEN FINISHED HOISTING POTS, PULL THE STAINLESS STEEL SAFETY PIN AND ROTATE YOUR PULLER AND DAVIT INTO ITS TRANSPORT POSITION. SECURE YOUR GEAR BEFORE GETTING UNDERWAY. REMOVE THE AIR BELLOWS SWITCH SO THAT IT CANNOT BE ACCIDENTALLY STEPPED ON.

STEP 9. In this step we will cover maintenance of your new Safe-T-Puller

- CHECK ELECTRICAL CONNECTIONS FREQUENTLY. GET A TUBE OF ELECTRICAL DIELECTRIC GREASE AND APPLY IT LIBERALLY TO ALL ELECTRICAL CONNECTIONS.
- CLEAN AND RINSE THE POT PULLER WITH FRESH WATER AFTER EACH DAILY USE. SOAP IT DOWN, SCRUB OFF ALL THE UGLY SEA WEED AND SEA CREATURES WHEN YOU CLEAN YOUR BOAT.
- EXERCISE CAUTION WHENEVER REMOVING THE ELECTRICAL WIRES FROM THE MOTOR TERMINALS. THESE TERMINALS HAVE DOUBLE NUTS ON EACH STUD. THE ELECTRICAL WIRE RING TERMINAL CONNECTOR GOES BETWEEN THE NUTS. YOU MUST BE CERTAIN TO HOLD THE INNER NUT (THE ONE CLOSEST TO THE MOTOR HOUSING) SO THAT IT CANNOT TURN WHEN LOOSENING OR TIGHTENING

THE OUTER NUT. THESE NUTS ARE BRONZE (IF YOU EVER NEED TO REPLACE THEM).

THE STUDS ON THE END OF THE MOTOR ARE CONNECTED BY WIRES TO THE BRUSHES INTERNAL TO THE MOTOR. IF THE STUDS ARE ALLOWED TO TURN (BY ALLOWING THE INNER NUT TO TURN) YOU MAY TWIST OFF THE WIRE TO THE BRUSHES. YOUR UNIT WILL THEN NEED TO BE REPAIRED.

- YOU CAN KEEP YOUR PULLER AND DAVIT IN FACTORY FRESH CONDITION BY GIVING IT A COATING OF PREMIUM WAX AT LEAST ONCE A YEAR OR MORE.
- CHECK YOUR WIRES AND ELECTRICAL CONNECTIONS TO BE SURE THERE IS NO CHAFFING, CRACKS OR BAD SPOTS. APPLY ELECTRICAL DIELECTRIC GREASE LIBERALLY TO ALL CONNECTIONS, TERMINALS AND NUTS. THIS WILL PREVENT SALTWATER CORROSION.
- YOU CAN SPRAY THE STAINLESS STEEL SAFETY PINS WHERE THEY HAVE THE LITTLE BALL DETENTS WITH “CORROSION BLOCK” AS A PREVENTATIVE. WIPE OFF THE EXCESS WITH A PAPER TOWEL
- BARE ALUMINUM RUBBING AGAINST BARE ALUMINUM MAY TEND TO GALL AFTER A PERIOD OF TIME. YOU CAN PREVENT THIS BY USING “CORROSION BLOCK” OR BY RUBBING A BLOCK OF PARAFIN WAX ON THE BARE METAL OCCASIONALLY.
- USE ONLY THE NEEDED LENGTH OF WIRE FOR THE HEAVY GAUGE WIRES GOING TO THE ELECTRIC MOTOR FROM THE BATTERY. EXCESS LENGTH WILL ONLY RESULT IN LESS EFFICIENCY OF THE ELECTRICAL CIRCUIT.
- DO NOT ATTEMPT TO DISMANTLE THE *Safe-T-Puller* AS SPECIAL TOOLING IS NEEDED TO PROPERLY RE-ASSEMBLE. THERE ARE NO USER SERVICABLE PARTS INSIDE. WITH OUT PROPER KNOWLEDGE OF HOW TO REPAIR OR HOW TO RE-ASSEMBLE THE UNIT YOU CAN SERIOUSLY DAMAGE THE UNIT. A VERY TACKY GEAR

GREASE IS USED TO LUBRICATE THE REDUCTION GEARS. AFTER SEVERAL YEARS OF USAGE YOU MAY WANT TO CONSIDER SENDING THE UNIT BACK TO THE MANUFACTURER FOR INSPECTION AND REPLACEMENT OF ANY WORN PARTS AND NEW LUBRICANT.

- YOUR PULLER MOTOR MAY BECOME HOT TO THE TOUCH WHEN OPERATING OVER LONGER PERIODS OF TIME. YOU SHOULD GIVE IT (AND YOURSELF) A REST BETWEEN TRAP HOISTS. HOIST A TRAP, REBAIT, REPOSITION THE POT, DEPLOY THE POT, AND THEN MOVE ON TO THE NEXT POT FLOAT. HOISTING A POT TAKES 3 TO 6 MINUTES OR SO DEPENDING ON WATER DEPTH AND GEAR WEIGHT. GIVE IT A BREAK OF 3 TO 6 MINUTES BETWEEN PULLS.
- YOUR PULLER IS EQUIPPED WITH A 2-PIECE DAVIT. THIS MAKES IT EASY TO STOW AWAY AND EASY TO ASSEMBLE. TAKING CARE OF YOUR NEW PRODUCT WILL REWARD YOU WITH A LONG AND TROUBLE-FREE LIFE.

STEP 10. Here are some handy tips for using your *Safe-T-Puller* and pulling Crab Pots, Shrimp Pots and other gear

- YOUR NEW PULLER IS DESIGNED PRIMARILY FOR SAFETY AND SECONDARILY FOR QUALITY. THE USER CAN CIRCUMVENT THE SAFETY FEATURES OF THIS PRODUCT IF IT IS IMPROPERLY INSTALLED OR IMPROPERLY OPERATED. PLEASE HELP US BY USING IT IN A SAFE AND SANE MANNER. BOATING SAFETY IS LARGELY DEPENDENT ON PUBLIC AWARENESS AND HOW PRODUCTS ARE USED. REMEMBER, SAFETY COMES FIRST!
- SALTWATER BAYS, COVES, AND OTHER BODIES OF WATER CAN SOMETIMES (AND OFTEN DO) HAVE STRONG CURRENTS. THESE CURRENTS CAN HAVE A BIG EFFECT ON YOUR SHRIMPING AND CRABBING ACTIVITIES. CHOOSE A FLOAT AND LINE APPROPRIATE FOR THE TYPE OF POT AND AREA YOU

ARE FISHING IN.

AT FIRST IT MAY TAKE A BIT OF PRACTICE IN PICKING UP YOUR POT FLOAT. YOU CAN MAKE THIS EASIER BY TAKING NOTE OF WHICH WAY THE CURRENT IS RUNNING. THEN APPROACH THE FLOAT FROM DOWNSTREAM. THIS MEANS THAT THE FLOAT WILL BE PULLING THE SLACK LINE TOWARDS YOU (AS YOU APPROACH FROM DOWNSTREAM). AS YOUR BOAT APPROACHES, KICK THE ENGINE OUT OF GEAR. THE FORWARD MOMENTUM WILL CARRY YOU CLOSE ENOUGH TO GRAB THE FLOAT. THIS MAY TAKE A LITTLE PRACTICE AT FIRST, BUT IT IS EASY TO GET THE HANG OF IT.

THE FORWARD MOMENTUM WILL ALSO SERVE TO CARRY YOU (AND THE FLOAT AND LINE FORWARD CREATING A LITTLE MORE SLACK LINE. YOU WILL BE ABLE TO USE THIS SLACK LINE IF YOU ACT QUICKLY AND GET THE LINE AROUND THE SHEAVE. BE CERTAIN YOU HAVE THE ENGINE IN NEUTRAL OR YOUR PROP COULD BECOME ENTANGLED IN THE LINE.

- YOU CAN MAKE PICKING UP YOUR POT FLOAT A LOT EASIER IF YOU HAVE TWO PEOPLE. ONE PERSON OPERATES THE VESSEL, WHILE THE OTHER PERSON STANDS AT THE READY WITH A BOAT HOOK TO GRAB THE LINE. THE BOAT OPERATOR SHOULD ANNOUNCE "COMING UP" AS THE BOAT NEARS THE FLOAT. THE HELPER SHOULD ANNOUNCE "GOT IT" WHEN HE HAS SECURED THE FLOAT AND LINE.

OF COURSE THIS IS NOT NECESSARY ON A SMALL VESSEL.

- IF YOU HAVE A PROBLEM PICKING UP YOUR FLOAT, TRY PLACING A SMALL "TAILER" FLOAT ATTACHED TO THE LARGER FLOAT BY A SHORT LINE. THEN MAKE A GRAB WITH THE BOAT HOOK IN BETWEEN THE SMALLER FLOAT AND THE LARGER FLOAT. MAKES IT MUCH EASIER, ESPECIALLY WHEN THE WATER IS A BIT ROUGH!

- BE SURE YOU HAVE ADEQUATE LINE LENGTH FOR THE AREA YOU ARE SETTING YOUR POT IN. YOU NEED TO ALLOW FOR TIDES AND CURRENT. IF SETTING IN 300 FEET OF WATER, YOU WILL NEED A MINIMUM OF 350 FEET OF LINE.
- YOU WILL FIND IT EASIER TO SPLICE AN EYE IN EACH END OF YOUR POT LINES. THEN YOU CAN USE A SHORT LINE WITH STAINLESS STEEL HALIBUT CLIP TO CLIP YOUR LINE ON. THIS WILL PREVENT LOST POTS AND GEAR DUE TO THE HALIBUT CLIP SLIPPING ON THE LINE (LINE WITHOUT AN EYE).
- SHRIMP ARE VERY PERISHABLE CREATURES. IN ORDER TO PROTECT YOUR INVESTMENT AND EFFORTS, YOU NEED TO GET THEM ON ICE AS QUICKLY AS POSSIBLE. A GOOD TRICK THAT WE HAVE LEARNED IS TO FREEZE SOME PLASTIC MILK CONTAINERS FILLED WITH SALT WATER. WHEN SALT WATER FREEZES IT IS SIGNIFICANTLY COLDER THAN FRESH WATER ICE.

AS YOU PREPARE TO PULL YOUR POTS, PUT SOME SALT WATER IN THE COOLER WITH YOUR FROZEN SALT WATER. AS SOON AS YOU PULL YOUR POTS, PLACE YOUR FRESH SHRIMP IN THE VERY COLD WATER AND THEY WILL KEEP FRESH MUCH LONGER. TRY PUTTING YOUR HAND IN THE WATER. YOU WILL SEE THAT IT IS MUCH COLDER!

- WHEN FISHING FOR DUNGENESS CRAB, PLACE THE KEEPERS ON THEIR BACKS, THEY WILL SOON GO TO SLEEP AND BECOME INACTIVE. WHEN GRABBING A DUNGIE, ALWAYS PLACE YOUR THUMB UNDER THEIR BOTTOM BACKSIDE, FINGERS ON THE SHELL BACK. THEY WILL HAVE A MUCH HARDER TIME TRYING TO PINCH YOU.
- IF YOU NEED TO KEEP DUNGIE CRABS FOR ANY LENGTH OF TIME, THEY KEEP BETTER OUT OF WATER THAN THEY DO IN WATER. KEEP THEM COOL. OF COURSE IF YOU HAVE A LIVE TANK, THEN THEY WOULD BE BEST KEPT IN THERE!

- KNOW THAT SHRIMP AND CRAB MIGRATE QUITE A BIT. BRIGHT SUNNY DAYS DRIVE SHRIMP DOWN DEEP, LIKE 350 TO 500 FEET (WE'RE TALKING SPOTS HERE). OVERCAST DAYS MEAN THEY WILL BE SHALLOWER, LIKE 250 TO 350 FEET. AT NIGHT THEY COME UP EVEN MORE SHALLOW.
- SHRIMP LIKE TO HAVE DARK AREAS TO HIDE IN. A DARK OR BLACK POT DOES BETTER THAN LIGHTER COLORED ONES.
- DUNGIE CRABS SEEM TO LIKE RED OR BRIGHT ORANGE. THIS IS WHY YOU MAY SEE SOME BAIT CONTAINERS OF THOSE COLORS. DON'T BE AFRAID TO EXPERIMENT. USE WHAT WORKS BEST FOR YOU.

IF YOU HAVE ANY QUESTIONS REGARDING THE SAFE OPERATION OF THIS UNIT, PLEASE CALL YOUR DEALER.

INSTALLATION INSTRUCTIONS FOR

SAFE-T-PULLER

<<< WARNING >>>

Proper installation of the *Safe-T-Puller* is important for safe operation and for your personal safety. The *Safe-T-Puller* was designed and engineered to perform safe and sane pot pulling operations. Failure to read and comply with these installation, mounting and operating instructions may result in serious personal injury. If you have any questions or feel you are not qualified to perform the installation, please call your dealer for further instructions.

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***Safe-T-Puller*[™] and *Safe-T-Hauler*[™] are protected under United States Patent 6,027,103**