

Edson

INTERNATIONAL



Pedestal Mounted Single-Lever Engine Control Part# 875

Safety, Use, Care, and Warranty

IMPORTANT:

***Please read and understand all instructions
before installing or operating the product.***

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Description

Edson Pedestal Mount Engine Controls (Part# 875) are designed for easy and convenient shift and throttle control of sailboat engines with hydraulic transmissions. The controls mount easily to the top of an Edson Pedestal beneath the compass and the cables are led neatly inside the pedestal column. The control uses industry-standard 33 Series cables.

Edson Engine Controls use rugged stainless, bronze and marine grade aluminum components with minimum-maintenance bearings and are pre-drilled to easily fit to all Edson Pedestals.

The installation or use of this control other than in accordance with these instructions and manual can result in damage to the control, your vessel, or personal injury.

All Controls include:

- (1) Engine Control Shroud
- (1) Engine Control Unit
- (1) Engine Control Handle

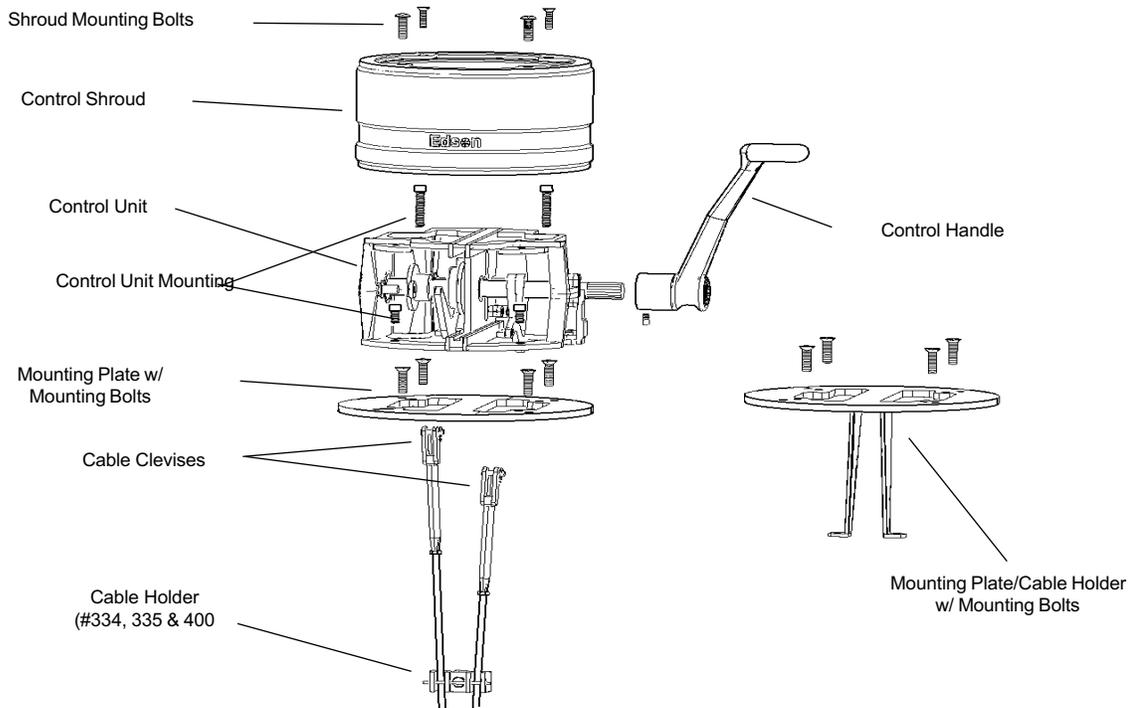
- (2) Cable Clevises
- (1) Cable Holder
- (1) Tube Tef-Gel Mounting Bolts

Single-Lever Engine Controls being mounted to #400 Pedestals also include:

- (1) Engine Control Mounting Plate

Single-Lever Engine Controls being mounted to CD-i Pedestals also include:

- (1) Engine Control Mounting Plate/Cable Holder Assembly



Limitations

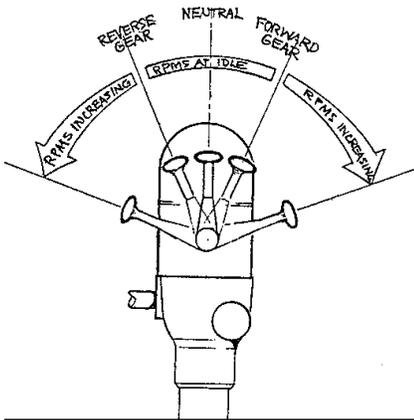
This control is intended to be installed by a qualified marine mechanic. The Single Lever Engine Control is sold through authorized Service Centers only. Due to critical adjustments required for proper operation it is not sold for owner/operator installation.

It is **not** possible to add a second (remote) control station to this single lever control system.

The #875 Single-Lever Engine Control is intended to be used with most modern hydraulic auxiliary transmissions, but cannot be used in conjunction with Atomic 4, Gray Marine or other engines using "Paragon" mechanical shift transmissions. Only the Edson Part #751 Engine Controls should be used with hard to shift "mechanical" transmissions such as the Atomic 4 when pedestal mounted engine controls are desired.

Some transmissions are considerably harder to shift while the engine is not running. If this is the case, care should be taken not to operate the control unless the engine is running in order to prevent damaging force being applied to the shift cable and/or the control unit.

Engine Control Operation



All on board the boat should be familiar with the operation of the controls. Always verify the control lever is in neutral before starting the engine.

Never attempt to operate the vessel under power if the control movement is reversed (forward movement of the lever results in the vessel going astern).

This control, like all mechanical controls, will react instantly to the input by the skipper. Take care to pause adequately in neutral before selecting the opposite direction in order to conform to the boat builder's recommendations concerning the safety of the vessel and the integrity of its drive train.

Engine Control Maintenance

For best results your Edson Engine Controls should be routinely maintained. Make sure the screw holding the handle to the shaft is secure. Check clevis connections as well as clevis pins and cotter pins for wear and corrosion. Replace or tighten any worn or loose parts. Lubricate both cable ends with Teflon Spray - this will increase cable life and make operation easier.

Inspect all linkage at the engine and transmission. Lubricate all linkage, paying particular attention to the shift linkage and the lever itself. If there is an external detent, keep it well lubricated.

If the control becomes hard to move (shift, throttle or both) do not operate the vessel until the source of the problem is located and corrected. Refer to the **TROUBLESHOOTING** section.

If the vessel is laid up for any duration of time (i.e. winter storage, etc.) it is best to remove the control handle. When replacing, use Tef-Gel on the spline in order to keep corrosion from setting in.

Remove and coat all fasteners with liberal amount of Tef-Gel annually. Failure to do so will make it hard to remove at a later date or when steering cable maintenance is required.

Planning the Installation

The Single Lever Control should be installed only by a qualified technician. The installation requires a familiarity with basic mechanical systems and linkages and with the tools and processes involved in engines and transmissions.

CONTROL CABLES

Edson Engine Controls are not provided with engine control cables because the lengths vary with each installation.

High-efficiency cables such as Edson Part# 734, NW Controls "Golden Grade" Model 95 or Panish Controls #PT-33 must be used to ensure smooth and positive operation. Use of less efficient cables will result in difficult shifting and improper throttle operations.

CABLE MEASUREMENT

You must measure the length required on your particular boat. This should be measured approximately from the center of the control unit to the engine throttle lever or transmission shift lever, taking into consideration any bends or necessary routing.

CABLE ROUTING

It is critical that cables be led below decks with a generous radius. Bend radius must not be tighter than 8". Cable bends should be started well away from the cable ends. Wire-tie the cable to convenient structural members without kinking or deflecting the cable from its natural path while assuring that the cable does not interfere with the steering cables or sheaves. Also ensure that the cable does not come into contact with possible sources of heat such as exhaust piping.

All fasteners as well as the handle shaft should be well coated with Tef-Gel or other anti-seize compound. This will make routine maintenance after installation much easier.

Installation of the Control

Great care must be taken to assure ease and safety of engine control operation. Components must be installed and adjusted so the engine goes into gear smoothly and completely and the throttle operates easily. Cables must be installed without kinks or tight bends. See the Planning the Installation section for cable information.

Open all parts of the kit and thoroughly familiarize yourself with the parts. Remove compass and old engine control, if fitted. Working space can be gained in the upper section of the pedestal by moving the chain forward of the sprocket. To do this, first tighten the brake, then ease the tension of the chain and steering cables by backing off the nuts on the take-up eyes located on the quadrant or radial wheel attached to the rudderpost. With slack steering cables and chain, lift the chain and move it forward of the sprocket hub.

ENGINE CABLE INSTALLATION

1. If the cockpit floor is not already drilled for cables, drill two 3/4" holes in the cockpit floor. The location of these holes should correspond with the holes in the aft side of the idler plate beneath the pedestal. Care should be taken that the engine control cables do not interfere with the steering cables.
2. Lead cables below deck from engine up through the bottom of the pedestal and out the top of the Pedestal on the same side of the Steering Wheel shaft.

If Mounting the Single-Lever Control on an Edson CD-i Classic Pedestal, skip to #8

3. Drill a 1/4" hole for the cable holder in the aft side of the pedestal tube 8 3/4" below the mounting surface of the control. Place any pedestal guard top plate or control mounting plate on top of the pedestal and measure from the overall top surface on which the control will be mounted.
4. Install the cables in the Plastic Cable Holder with the shift cable on the port side and the throttle cable on the starboard side. Make sure the retaining Cotter Pin is secure in the cable grooves.
5. Push cables back down pedestal below the steering wheel shaft.
6. Pull the cables up on either side of the steering shaft and engage the 1/4-20 cable holder screw into the new hole, and secure with the nut provided. Press the provided plastic plug into old hole.
7. **For #400 Pedestals only:** install the circular Engine Control Mounting Plate with four 1/4" flat head machine screws onto the pedestal. *If there is a Pedestal Guard Top Plate to be installed, it should go beneath*
8. **For CD-i Pedestals only:** install the cables into the Cable Holder/Plate Assembly. The Clutch cable must be installed on the port side and the throttle cable must be installed on the starboard side. After sliding the cables into the appropriate slots in the holder crimp the forks together to hold the cables securely. Screw the Cable Holder/Plate Assembly onto the top of the pedestal with the four flat head screws. Make sure that the arrow on the plate is facing forward.

CLEVIS ATTACHMENT

1. Screw the Bronze Clevises onto the threaded ends of the Engine Control Cables at the control end of the cable.
2. Push the Cables all the way down to their lowest possible position.
3. Adjust the clevises so that the center of the pin is 7/16" above the control mounting surface.

ENGINE CONTROL MOUNTING

1. Install the Single-Lever Control unit on the pedestal temporarily, using the shorter 1/4" round head machine screws.
2. Using the Tef-Gel to lubricate the shaft and Slide the control lever (handle) onto the shaft and snug the set screw.
3. Attach the clevises to the outer (aft) hole in the respective levers using the brass clevis pins and cotter pins provided. Only spread the cotter pins enough to hold the pins in place temporarily.
4. Cycle the control to ensure smooth and positive operation. In particular, ensure the cables are not restricting the movement of the shift or throttle levers.

NOTE: The cables should run free without "bottoming out". The control should not run the cable to its full extension in either direction. Bottoming the cable can actually jam the clutch lever system entirely. The same precaution applies to the throttle cable.

5. If there is restriction at either end of the shift or throttle cable travel, adjust the clevis on the thread so the cable does not reach its full extension or "bottom out".
 6. After confirming the adjustments are correct, tighten (just snug - do not overtighten) the cable locknuts against the clevises. Make sure you do not change any adjustments while tightening these nuts. Ensure that the clevises are aligned with the levers and do not twist or come into contact with any other parts of the control or pedestal.
- Final assembly of the shroud and compass should be completed after checks and sea trials are complete.

Attachment of Cables to Engine

Ensure the control unit will be operating the control levers in the proper direction; i.e. shift cable will push the transmission lever for "ahead," and the throttle cable will pull the throttle lever to speed up the engine. Most engine manufacturers configure their cable bracketing so the throttle is "pull to open," which is compatible with the #875 control. The cable bracketing provided by the engine manufacturer is typically usable "as is," subject to the requirements outlined below.

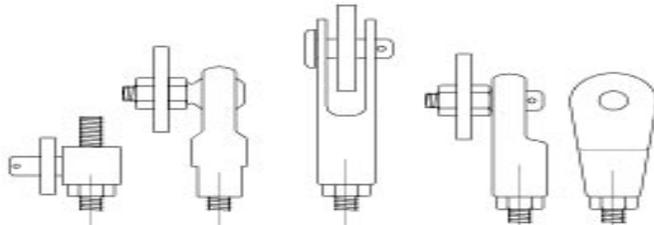
Many transmissions have the provision for reversing the shift motion at the transmission lever by way of bracketing. This allows for the transmission shift lever to be installed 180° from its original position, with an accompanying change in cable conduit clamping location. Follow the engine manufacturers recommendations for reversing shift motion in this fashion.

If the control does not operate either the transmission or the throttle in the proper direction, and there is no way to reverse the motion at the engine and/or transmission, a motion reversing device will be required. Please contact Edson Customer Service for more details regarding this device.

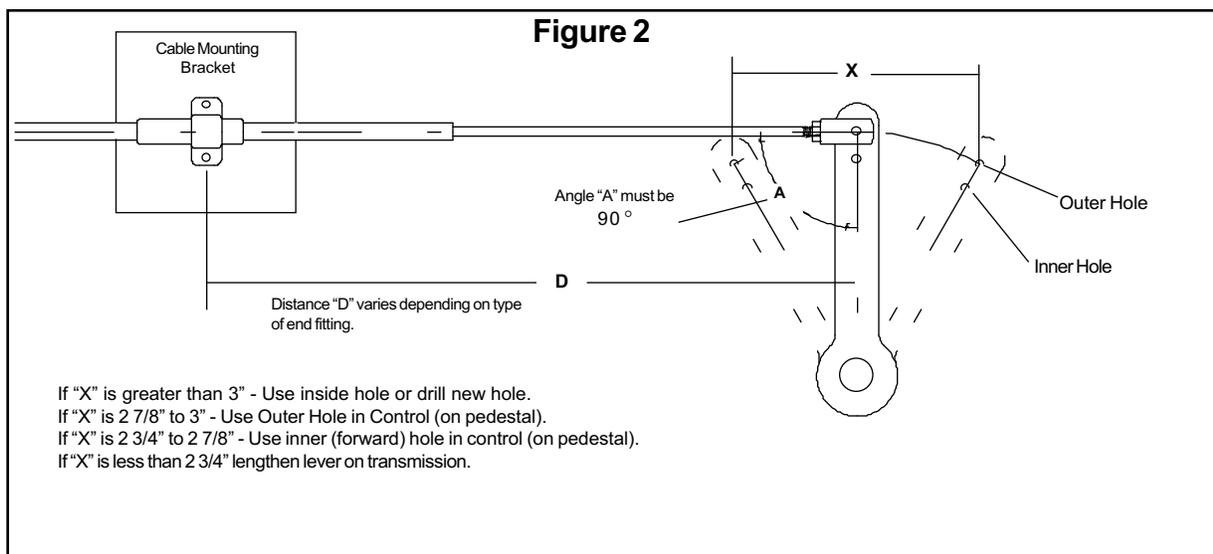
If the throttle lever or the transmission lever have been equipped with a "spring link" type device instead of a standard swivel, eye, ball joint or clevis, we recommend using it, provided all other instructions are followed.

Alignment of the cables to the engine levers is critical. Misalignment will cause binding and possible loss of function of the control. Be sure that the cable motion is operating in the same plane as the engine lever..

CAUTION: Some mechanical transmissions require an excessive amount of force to shift when the engine is not running. If the transmission is hard to shift, you may need to start the engine. Follow the engine manufacturers recommended procedures for running the engine (i.e. water hose connections) if the boat is out of the water.



Installing and Adjusting the Shift Cable



1. LOCATING SHIFT CABLE CLAMPING POSITION

- a. Thread the cable end fitting onto the cable end about half way down the thread.
- b. Put both the control unit and the transmission in their neutral positions.
- c. Determine the appropriate hole in gear lever as shown in Figure 2. Temporarily place the end fitting into the proper hole in the transmission lever.
- d. While making sure you do not move the transmission out of the neutral position, align the cable as shown in Fig #2 in order to determine where to place the cable clamp. Typically, there will be at least one pair of cable clamp screw holes in the bracket. If the groove in the conduit of the cable aligns with a pair of these holes, then clamp the cable onto the bracket using these holes. If the clamp groove in the cable does not align with any predrilled holes, you must drill new ones to accommodate the cable clamp at this new point. If new holes are required, make sure the cable is aligned properly according to Fig #2.

2. ADJUSTING CABLE END FITTING

- a. With positive "in gear" detents
If your gear has positive detents in the shift lever, it is imperative that you match up the "in gear" (forward and reverse) positions of the shift lever exactly with the "in gear" positions of the cable end fitting. In order to accomplish this, refer to Fig #2 and thread the end fitting in or out on the cable thread so that the end fitting will match exactly with each "in gear" position.
- b. Without positive "in gear" detents
For the type without positive detents, it is important to assure the cable will move the transmission shift lever sufficiently so that full and proper engagement is made as per the manufacturer of the transmission. The gear lever should its full range.

Important notes for either type:

CAUTION: If the cable travels further than the transmission lever, the shifting "feel" will be compromised and damage to the control unit and/or cable may result. If the cable travel is insufficient to cause the lever to reach its detents, damage to the transmission may result.

If the cable travels further than the transmission lever, use the inside (forward) hole in the control shift lever, thereby reducing the cable travel. If the cable still travels further than the transmission lever (using the outermost hole of the transmission lever) then the transmission shift lever may need to be lengthened. If the cable travel is insufficient to cause full engagement of the transmission, then use a hole in the transmission lever inside the current one, or (in rare cases) drill a new one, as appropriate.

Installing and Adjusting the Throttle Cable

GENERAL NOTES

The #875 control unit is designed to produce approximately 3" of total throttle cable travel. Many engines require far less than the industry standard 3" travel to move the throttle lever from idle to full speed. If the throttle lever requires 1" or less of total movement, you should consider lengthening the engine throttle lever, if feasible. The #875 control will operate a "short travel" throttle properly, but the throttle response (or feel) may be compromised. The #875 is designed to yield smooth and positive throttle action without a "touchy" feel. Taking the time to set up the throttle linkage to accommodate at least 2" of cable travel will deliver the excellent throttle response this unit was designed to provide.

If the engine throttle lever requires only between 1" and 2" of cable travel, and the throttle lever is not lengthened, we recommend the cable clevis be installed in the inside (forward) hole in the control unit throttle lever.

Make sure there is no clamp or other friction device(s) clamped to the plastic jacket of the cable. These are sometimes found anywhere along the length of the cable. These are unnecessary with the #875 control with its built in throttle brake, and should be removed.

Before beginning, assure the engine idle is adjusted properly, as recommended by the manufacturer. The proper installation of the throttle cable will depend on the engine idling properly when the throttle lever is against its idle stop. Any adjustment of the idle stop setting made after the throttle cable is installed, may also require adjustment of the cable end fitting.

1. LOCATE THROTTLE CABLE CLAMPING POSITION

A cable mounting bracket and cable end fitting are typically supplied with the engine. While referring to Fig #4 (Typical Throttle Cable Connection) you must determine where to mount the cable on the cable bracket.

- a. Thread the cable end fitting onto the cable end about half way down the thread.
- b. Put the control unit in neutral. This will set the throttle at idle.
- c. Temporarily place the end fitting into the proper hole in the throttle lever. The proper hole is determined by the total travel requirements of the lever. Refer to Fig #4 and the General Notes above.
- d. While making sure you do not move the throttle from idle, align the cable as shown in Fig #4 in order to determine where to place the cable clamp. Typically, there will be at least one pair of cable clamp screw holes in the bracket. If the groove in the conduit of the cable aligns with a pair of these holes, then clamp the cable onto the bracket using these holes. If the clamp groove in the cable does not align with any predrilled holes, you must drill new ones to accommodate the cable clamp at this new point. If new holes are required, make sure the cable is aligned properly according to Fig #4.

2. ADJUSTING CABLE END FITTING

Once the cable is clamped in place on the bracket, the cable end fitting must be adjusted on the cable thread so that the idle position of the throttle lever corresponds exactly with the end fitting.

CAUTION: Ensure the throttle cable is placing the throttle lever just to its idle stop with no excessive pressure. This is critical to proper control operation as well as attaining proper and consistent idle speed. Failure to observe this requirement can lead to damage to the control unit, the cable, or the engine.

Final Control Checks

- * Make sure all cable connections are secure:
 - Engine cables properly secured in their clamps (clamp in groove) and clamp screws tight.
 - Engine cable locknuts are snugged against their respective end fittings.
 - Cotter pins are adequately flared.
 - End fittings are properly secured into their respective levers.
 - Engine cables do not interfere with or chafe against the steering cables.
- * Make sure cables are not kinked or touching anything which moves or which could be hot that could melt the cable jacket.
- * Locate the engine stop control and confirm it operates properly.
- * Before starting engine, be sure transmission is in neutral, and verify throttle on engine is at idle.
- * Start the engine.
- * Pull out the handle to activate "throttle only" feature, and try the throttle before attempting to shift. Make sure the throttle is fully returning to idle when the control is positioned as such in order to prevent damage from shifting at high RPM. Repeat this process using the "throttle only" feature in the reverse mode.
- * Before attempting to put the control into gear, ensure the vessel is secured to the dock and not in a position to endanger itself or any surrounding vessel or persons.
- * Use caution when trying the shift for the first time. Verify it is moving the transmission in the proper direction.
- * Make sure the shifting action is smooth with clear detent positions, and there is no excessive or unusual "clunking" when engaging the gear which may indicate the idle is set too high.
- * Also ensure the idle is not set too low, which could lead to engine stalling during maneuvering.
- * Once satisfied that all adjustments are correct, remove handle and position shroud over the control. Replace handle, verifying that the set screw is properly located in the recess (hole) in the shaft.

In-Water Testing

You must sea trial the vessel before completing the assembly. It should be determined whether you will need to adjust the throttle friction screw to prevent the throttle from “creeping” back. If necessary, the throttle friction screw (the nylon thumb screw on the top of the control unit) should be tightened until the proper friction is added. **DO NOT OVERTIGHTEN** this screw, a slight amount of adjustment adds quite a bit of friction. Keep testing the throttle as you add friction, adding only what is necessary to hold RPM.

After successful completion of sea trials:

1. Spread the cotter pins on the cable ends, and check all fasteners.
2. Slip the Engine Control Shroud over the Control Unit.
3. Screw down the shroud to the control unit using two 1/4” flat head machine screws through the two most forward holes. The heads must draw down flush with the top surface of the shroud.
4. Mount Compass, if used, on top of the control using four 1/4” round head machine screws through the four remaining holes in the top of the control unit. This should only be done after completing the “In-Water Testing” section on page 11.
5. Cycle the control back and forth to insure proper operation and free movement in either direction.

Troubleshooting

Throttle Creep

If the throttle continually tends to close, there is a friction device provided to minimize this tendency. Please refer to the ***In-Water Testing*** for details on eliminating throttle creep. If this does not add sufficient friction, or the required friction makes the throttle operate too stiffly, the control may not have adequate mechanical advantage in relation to the throttle load. If the engine throttle lever moves less than 1 to 1-1/2” from idle to full speed, the lever must be lengthened. See the GENERAL NOTES section under ***INSTALLING AND ADJUSTING THROTTLE CABLE*** for details.

General Cable Notes

Hard or Stiff Operation

The key to determining why a control system is not operating properly is to isolate the individual parts of the system. By the process of elimination, you can usually rule out the control unit itself if only the throttle or only the shifting is hard or binding.

1. Both throttle and shift equally hard to operate:

Remove the shroud. First, look for visible signs of corrosion. If the bearings in the control unit are stiff, it will be very difficult to pull the handle out into the “throttle only” position, and it would resist springing back in. If this is the case, disconnect the cable clevises from their levers. Try spraying a thin, penetrating type spray into the bearings, while working the handle back and forth. If the control remains stiff, it may require maintenance.

2. Only throttle or only shifting is hard to operate:

Remove the shroud. Disconnect the suspect cable at the control (shift cable on port lever, throttle cable on starboard) and at the engine end. Cycle the cable with your fingertips to ensure it moves freely and with no binding throughout its travel. The cable should move in and out easily by hand with little or no friction.

If cable binds, or is stiff throughout its travel, replace it. The length is typically “hot stamped” in the plastic jacket on one end, and may be in inches or feet. The measurement is tip to tip.

High Efficiency NW Controls Model 95 cables or equivalent are required for proper operation of this engine control.

If the cable works freely, there may be a problem with the linkage at the engine end (corrosion, misalignment, etc.) or there may be a problem with the lever itself. Stiff transmission levers can commonly be the cause. Refer to your marine gear manual for causes and remedies.

If the shifting action is stiff only when the engine is off, it is probably a mechanical transmission which resists engagement when its input or output shafts are not turning. If this is the case, refrain from shifting unless the engine is running or the propeller shaft is "windmilling".

Engine cables are subject to deterioration from the high heat in the engine room, condensation, salt water, high usage, heavy loads, damage, etc. They have a typical life-span of 5 to 7 years and should be replaced if corroded, stiff, binding, kinked or if the jacket is cracked or peeling. They are not internally serviceable. Use good judgement when installing your new Single-lever control - **do not** install a new control using old cables. **High Efficiency NW Controls Model 95 cables or equivalent are required for proper operation of this engine control. See "Planning the Installation" section of the installation guide for cable ordering information.**

THE EDSON LIMITED WARRANTY

The Edson Corporation ("Edson") warrants to the original consumer purchaser of this product, that it is free from defects in materials and workmanship. Edson's responsibility is limited to repair or, at Edson's election, replacement of any defective product and does not include any charges for removal, reinstallation, or incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Expiration: This warranty and any implied warranties shall expire one (1) year from the date of purchase; provided, however, that if any product is used for any commercial activity, this warranty shall expire ninety (90) days from the date of purchase. Some states do not allow limitations on how long an implied Warranty lasts, so the above limitation may not apply to you.

Exceptions: *The above warranty does not apply:* to metal finishes or coatings; to a product not installed or maintained following Edson's instructions, damaged by casualty or improper use, repaired or modified by other than Edson personnel, installed in a vessel or manner judged by Edson to be an inappropriate application of its product, or used with other products incompatible with the Edson product or which adversely affect its performance or durability.

Claim Procedure: (1) Immediately upon purchase, complete and mail to Edson the Owner Information Card accompanying Edson's equipment, if any. (2) Immediately upon discovery of any apparent defect, notify your vendor, the builder of your boat, or Edson, describing such defect; (3) the Vendor, boatbuilder or Edson shall make a preliminary determination as to whether a warranty claim is justified and, if so (4) upon request, Edson shall authorize return of the product. *NO product shall be returned until authorized by Edson.* (5) After such authorization, return the product, freight prepaid, with proof of purchase, if no owner information card has been filed with Edson, to: The Edson Corporation, 146 Duchaine Blvd., New Bedford, MA 02745. (6) If found defective, Edson shall repair or replace the product and return it at Edson's expense if destination is within continental U.S.A. or, if not, or if special freight required, at owner's expense.

Other Rights: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.