

INSTALLATION INSTRUCTIONS

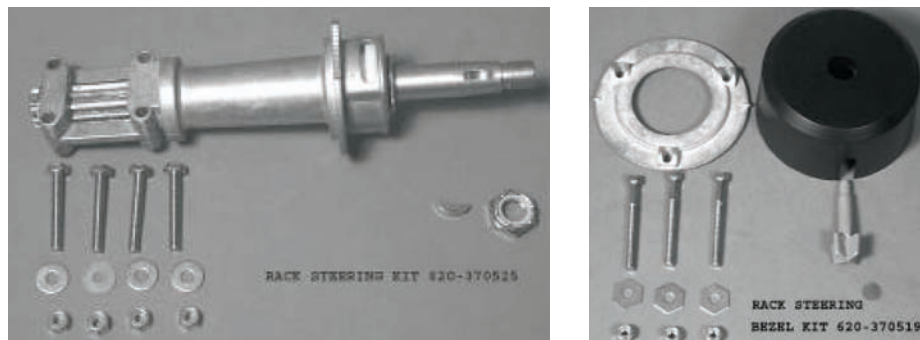


**PRETECH
RACK AND ROTARY STEERING SYSTEMS**

1. Remove old cable and helm assembly
2. IF INSTALLING **RACK STEERING, GO TO STEP 3**
IF INSTALLING **ROTARY STEERING, GO TO STEP 7**

3. INSTALLING RACK HELM INTO THE DASH (RACK STEERING ONLY)

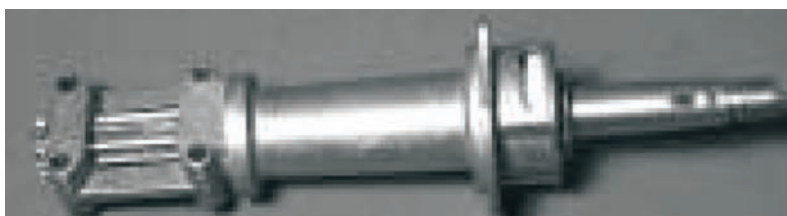
Your Rack Steering Kit includes the steering cable and these **two kits**.



- 3.1 If the old helm mounting holes are the same as the new helm, use the existing holes.
NOTE: Mounting ring requires 11/32 holes for mounting bolts.
- 3.2 If this is a new installation, check for proper steering cable clearance.
- 3.3 If the old helm mounting holes are different from the new helm, use the helm retaining ring as a template to mark dash for drilling new holes.
ONE HOLE MUST BE TOP OR BOTTOM CENTER
- 3.4 If necessary, enlarge the center hole to accommodate the steering helm assembly.
- 3.5 After holes are drilled, place helm through the center hole and orientate the helm to give the desired steering direction.
NOTE: If cable goes to the LEFT, gears on steering helm assembly should be DOWN. If cable goes to the RIGHT, gears should be UP.
- 3.6 Place mounting ring over column and align the three bolt holes with the holes in the dash. Make sure to engage the serrations on the back of the mounting ring so that the ring sits flat to the dash and the rack angle is proper. The rack angle can be adjusted to fit your specific installation, up to 15 degrees, either up or down.
- 3.7 Insert the three long bolts from the rack steering kit through the ring. Install the washers and nuts from the back of the dash and tighten.
Torque the locknuts to 25-30 inch lbs.



Mounting Ring (Back view)



Steering Helm Assembly



BEFORE you attach the rack steering cable onto the helm, install the steering cable and attach it to the tiller arm.

4. INSTALL THE STEERING CABLE

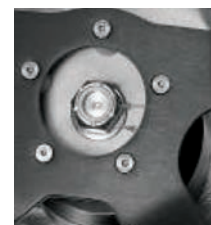
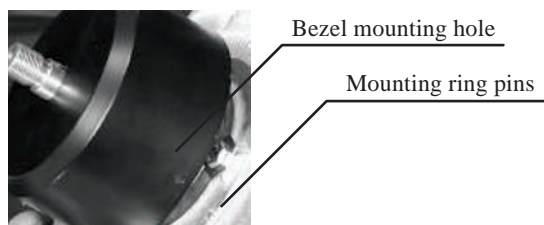
- 4.1 Route cable with as few turns as possible, keeping bends to an 8" minimum radius.
- 4.2 Connect end of tiller using transom connection kit or stock steering tube.
- 4.3 Center your steering wheel.

5. INSTALLATION OF RACK ONTO STEERING

- 5.1 Place rack over helm gears. Check for clearance and 8" minimum bend radius.
***NOTE: If you find clearance or bend radius a problem, go back to step 3.6 and adjust the rack angle as required.
- 5.2 Attach rack end to helm using hardware provided in rack steering kit. Check that teeth are engaged on the pinion BEFORE tightening.
- 5.3 Tighten nuts to 50-60 inch lbs.
- 5.4 Check steering direction, making sure that when wheel is turned to the right, the boat will turn to the right. In most cases, the cable will push for a right-hand turn. IF no further adjustments are required, proceed to next step.

6. INSTALLING THE STEERING WHEEL

- 6.1 If using the brake screw, thread it into the square nut loosely. If not, go to next step.
- 6.2 Place the trim bezel over the shaft and snap into place over the two pins on the side of the mounting ring.
- 6.3 Turn steering wheel column until the keyway groove is top dead center.
- 6.4 Place the woodruff key in the key slot on the shaft, then place steering wheel on the shaft. Place washer onto shaft then thread the nut onto the shaft and torque to 25-30 foot lbs.



**INSTALLATION OF RACK HELM AND CABLE IS COMPLETE.
PLEASE GO TO END OF INSTRUCTIONS AND REFER TO FINAL CHECKS.**

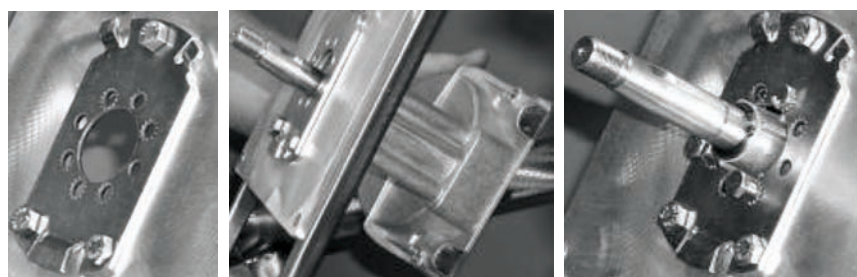
7. INSTALLING ROTARY HELM INTO DASH (ROTARY STEERING ONLY)

- 7.1 If the old helm mounting holes are the same as the new helm, use the existing holes.
NOTE: Mounting ring requires 11/32 holes for retaining bolts.
- 7.2 If this is a new installation, check for proper steering cable clearance
- 7.3 If the old helm mounting holes are different from the new helm, use the helm retaining ring as a template to mark dash for drilling new holes.
ONE HOLE MUST BE TOP CENTER
- 7.4 If necessary, enlarge the center hole to accommodate the steering helm assembly.
- 7.5 Mount retaining plate on dash using hardware supplied with helm kit.
Torque nuts to 25-30 inch lbs.
- 7.6 After mounting plate, place helm through the center hole and orientate the helm to give the desired steering direction. There are multiple holes for mounting the helm. Which ones you use will depend on your particular installation location and cable routing.
NOTE: If cable goes to the LEFT, hub cable openings should also go left, etc.
- 7.7 Place helm steering shaft through the mounting plate from the back of the dash.
Only three of the holes around the center of the shaft opening will be used, depending on your particular installation.
- 7.8 Insert the three bolts from the rotary steering kit through the mounting plate.
Torque the bolts to 25-30 inch lbs.

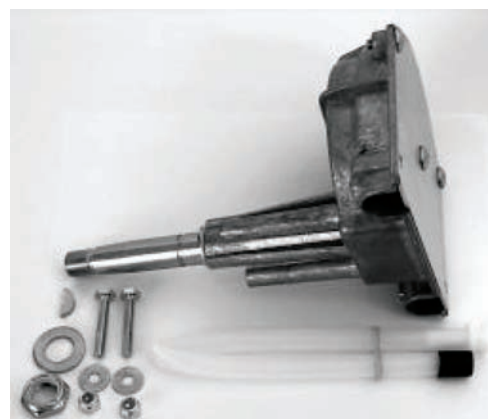
Your Rotary Steering Kit includes your cable and these two kits..



Bezel Kit 620-370559



Mounting plate installed



Rotary Steering Kit 620-370525

8. INSTALLING THE ROTARY CABLE

***NOTE: When inserting the cable core as described, it may be necessary to temporarily install the steering wheel to turn the shaft. DO NOT USE TOOLS TO ROTATE THE SHAFT. DAMAGE WILL OCCUR AND VOID WARRANTY. See Step 9.2 for steering wheel installation instruction. Do not install bezel.

DO NOT ATTACH CABLE TO TILLER...YET

8.1 Place cable end into helm unit and rotate steering as you feed the cable end into the helm unit. Check for clearance

***NOTE: If you find clearance or bend radius a problem, go back to step 7.5.

8.2 Feed cable through, turning wheel to pull cable end through rotary assembly.

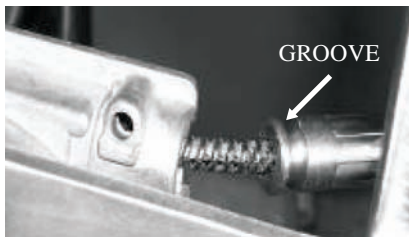
8.3 Place cable tube jacket into rotary housing. Make sure that the bolt catches the groove and holds the cable jacket firmly in place.

Install nut and tighten to 25-30 inch lbs.

8.4 Check steering direction, making sure that when wheel is turned to the right, the boat will turn to the right.

IF no further adjustments are required, proceed to next step.

8.5 Install spent tube cable cover by slipping it over the cable end, then securing it in the same manner as cable jacket in step 8.3



Insert cable jacket into housing



Be sure bolt shaft is in groove

9. INSTALLING THE STEERING WHEEL

9.1 Place the trim bezel over the shaft and snap into place over the mounting plate.

(Skip this step if only temporarily installing the steering wheel as suggested in step 8 above)

9.2 Turn steering wheel column until the keyway groove is top dead center. (This will help to keep the keyway from falling out during installation. Centering wheel adjustments will be made later while attaching cable end to tiller)

9.3 Place the woodruff key in the key slot on the shaft, then place steering wheel on the shaft. Place washer onto shaft then thread the nut onto the shaft and torque to 25-30 foot lbs. (Hold the steering wheel while tightening to avoid cable damage or damage to helm assembly.)

10. INSTALLING CABLE ON TILLER

10.1 Route cable with as few turns as possible, keeping bends to an 8" minimum radius.

10.2 Connect end of tiller using transom connection kit or stock steering tube.

10.3 Adjust as required for steering wheel center with tiller center.

10.4 Check steering direction

**INSTALLATION OF ROTARY HELM AND CABLE IS COMPLETE.
PLEASE REFER TO FINAL CHECKS BELOW.**

FINAL CHECKS-ALL CABLES

Cable radius NOT LESS than 8" minimum.
Turn wheel to determine that the direction of the wheel matches the direction of the rudder action.
Brake (if used) is adjusted to proper feel.
Check that the rudder or drive stops coincide with the cable travel.
All bolts and nuts are tightened to specifications below.

TORQUE SPECIFICATIONS

Rack retaining ring to dash: 25-30 inch lbs.
Rack cable to helm: 50-60 inch lbs.
Rotary helm bracket to dash: 25-30 inch lbs.
Rotary helm to mounting bracket: 50-60 inch lbs.
Shaft nut, retaining wheel adapter: 25-30 foot lbs.

ADDITIONAL INFORMATION AND NOTES

MAINTENANCE

It is recommended that the steering system be checked and serviced at least every 30 days in salt water areas and at least every 90 days in fresh water areas. Check and service the following;

CABLE OUTPUT END: Check all metal parts and the cable output end for corrosion. Remove any old grease from the cable ram and motor swivel connections using a mild solvent, such as kerosene. Spray the cleaned areas with a moisture-displacing lubricant such as WD-40 or equivalent and apply a light coat of a good quality marine grease. Do this with the cable ram fully extended.

CABLE: Check the entire cable conduit for cracks or abrasion of the plastic cover. Replace the cable if needed.

HELM: Check all bolts, nuts, and fasteners for tightness.

WINTER STORAGE: If the boat is put in winter storage or used infrequently, clean the cable ram per the previously mentioned instructions. Cycle the steering several times when applying lubricant. If at any time the steering system becomes stiff, has an excessive amount of freeplay or shows any change in its operating characteristics, it is recommended to have the system checked by authorized dealers.

Helms contain no internal field serviceable parts.

Any attempt at disassembly of these units will void warranty of this product.

Instructions are for 90 degree mount helms only.

10 and 20 degree mounting and/or bezel kits are available.

Please contact your dealer or PRETECH for information on purchase and installation.

Tilt helm assemblies are available. Please contact your dealer or PRETECH for information.

LIMITED WARRANTY

PRETECH warrants to the first retail (end user) purchaser of this product, or a PRETECH product incorporated in another vendor's product that, for a period of one (1) year from the date of original purchase, such product will be free from defects in materials and workmanship. PRETECH MAKES NO WARRANTY AS TO THE MERCHANTABILITY OR FITNESS OF ITS PRODUCTS FOR A PARTICULAR PURPOSE.

The above warranty does not apply to a product that has not been installed or maintained in accordance with PRETECH's instructions, been subjected to damage in an accident or abuse during operation, or repaired or modified by persons other than PRETECH.

This warranty is also void when PRETECH Products are installed on a boat or engine judged by PRETECH to be an inappropriate application of its product or when PRETECH products are used with other marine accessory products which in PRETECH's judgment are incompatible with the PRETECH product or adversely affect its performance or durability.

If any PRETECH product is used commercially for such purposes as rental or other income-producing activities then this warranty is limited to 90 days from the date of the original retail purchase.

PRETECH's responsibility in respect to warranty claims is limited solely to repair or replacement of products found by PRETECH to be defective. PRETECH DOES NOT PAY FOR LABOR CHARGES connected with removal of a product deemed to be defective or with installation of replacement or repaired product, or for any other incidental or consequential damages.

To make a claim under this warranty, return the product believed to be defective to your local marine dealer or PRETECH distributor, along with proof of purchase. IF your dealer or distributor feels that a warranty claim is justified, he/she should contact PRETECH giving a description of the product and requesting authorization to return it to the factory.

MERCHANDISE SHOULD NOT BE RETURNED TO PRETECH UNTIL A RETURN GOODS AUTHORIZATION FORM IS RECEIVED.

After receipt of an authorization form, he/she should return the product, freight prepaid, to PRETECH. If found to be defective, and if all return charges have been prepaid, PRETECH will repair or replace the product and return the freight prepaid.