

INSTALLATION MANUAL

7000XX	ZTS or 3000 Gen II Rotary Helm series
5600XX	ZTS Gen II Pinnacle Rotary Steering System
5100XX	ZTS Gen II Rotary Steering System
3150XX	3000 Gen II Pinnacle Rotary Steering System
3180XX	3000 Gen II Rotary Steering System

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NOTICE : THIS INSTRUCTIONS CONTAIN IMPORTANT SAFETY INFORMATION AND MUST BE FORWARDED TO BOAT OWNER.

These instructions show how to install the following products for Rotary Steering Systems. See Fig 1.

DESCRIPTION	PART NO.
ZTS Rotary Helm (No Feedback)	700040, 700042, 700050, 700052
3000 Rotary Helm	700010, 700012, 700020, 700022

Please check the following components are prepared.

COMPONENT	DESCRIPTION
Installation Kit	See Fig 2.
Steering Cable	See Fig 3.
Steering Wheel	See Fig 4. (Not included)

And following tools are required. See Fig 4.

TOOL	DESCRIPTION
Spanner	1/4", 5/16"
Hand Drill	φ 10mm[0.4"], φ 83mm[3.27"]
Hand Saw	General

CAUTION

CAUTION - Hazards or unsafe practices which
COULD result in minor or moderate injury if the
warning is ignored

Safety Symbols, to alert and
indicate the level of risk for
the identified procedure.

CAUTION

1. Read this document thoroughly before installation.
2. Do not substitute parts without PRETECH's confirmation.
3. Every condition in this document must be fulfilled.
4. Do not disassemble any part of the product.

Incorrect installation or using of foreign parts may cause operation failure which can result damage or injury to boat or person. PRETECH will not be responsibility for any cases that are in conformity to the conditions of this instruction.

CHECK CLEARANCE

To avoid interference & difficulty in assembling, check the clearance requirements. And check the clearance for Steering wheel's operation as Fig 5.

DRILL ON CONSOLE

After checking clearance, locate holes on dash.

Templates can be used to mark. See **Drawing A**.

If necessary, enlarge the center hole to accommodate the steering helm assembly.

ONE HOLE MUST BE TOP CENTER.

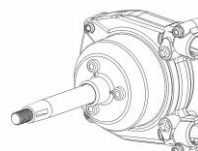
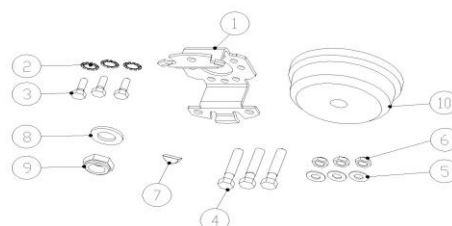


Fig 1. ZTS / 3000 Rotary Helm



1	BRACKET, 1EA	6	NYLON NUT 5/16-18 UNC, 3EA
2	TOOTH WASHER 1/4", 3EA	7	WOODRUFF KEY #9, 1EA
3	HEX BOLT 1/4-28 UNF, 3EA	8	FLAT WASHER 1/2", 1EA
4	HEX BOLT 5/16-18 UNC, 3EA	9	NYLON NUT 1/2-20 UNF, 1EA
5	FLAT WASHER 5/16", 3EA	10	PLASTIC BEZEL

Fig 2. Installation Kit

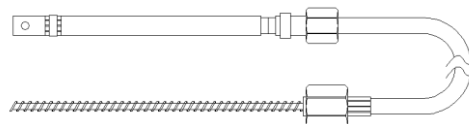


Fig 3. Steering Cable

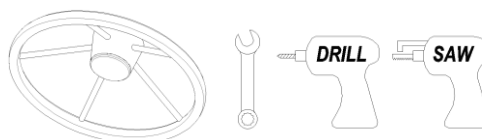


Fig 4. Steering Wheel & Tools (Not included)

MOUNT BRACKET

Use fasteners as next, and see Fig 6.

No.	FASTENER	DESCRIPTION
1	Bracket	1EA
2	Hex Head Screw	5/16-18 UNC, 3EA
3	Flat Washer	5/16", 3EA
4	Lock Nut	5/16-18 UNC, 3EA

CAUTION

Nuts tightening torque

MIN. TORQUE 44.3 [lbf-in] (5.0 [N-m])

MAX. TORQUE 66.4 [lbf-in] (7.5 [N-m])

INSTALL ROTARY HELM

Place helm through the center hold and orientate the helm to give the desire steering direction. There are multiple holes for mounting the helm. Which ones you use will depend on your particular installation location and cable routing.

If cable goes to the LEFT, hub cable openings should also go left, etc.

Use fasteners as next, and see Fig 7.

No.	FASTENER	DESCRIPTION
1	Rotary Helm	1EA
2	Int. Tooth Washer	1/4", 3EA
3	Hex Head Screw	1/4-28 UNF, L 0.75", 3EA

CAUTION

Nuts tightening torque

MIN. TORQUE 44.3 [lbf-in] (5.0 [N-m])

MAX. TORQUE 66.4 [lbf-in] (7.5 [N-m])

MOUNT BEZEL

Place the bezel over the shaft and snap into place over the mounting bracket. Align Tilt Cap with the Bracket carefully. Fig8

No.	PART NAME	DESCRIPTION
1	BEZEL	1EA

INSTALL STEERING WHEEL

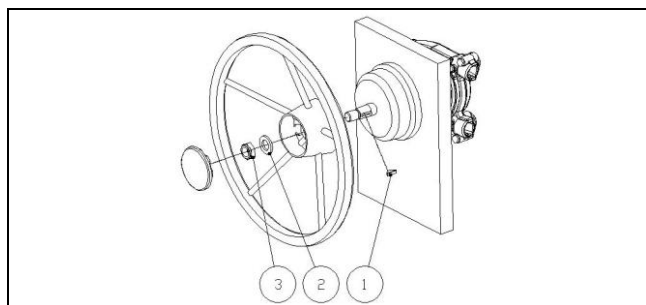


Fig 9. Installing Steering Wheel

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.)

Place the woodruff key in the key slot on the shaft, then place steering wheel on the shaft. Use parts as next, and see Fig9.

(Shown steering wheel is just an example. It is not included.)

No.	FASTENER	DESCRIPTION
1	Woodruff Key #9	1EA
2	Flat Washer	1/2", 1EA
3	Lock Nut	1/2-20 UNF, 1EA

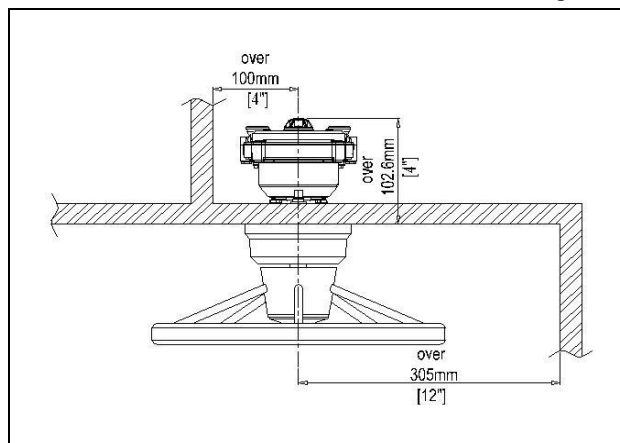


Fig 5. Clearance Requirement (Top view)

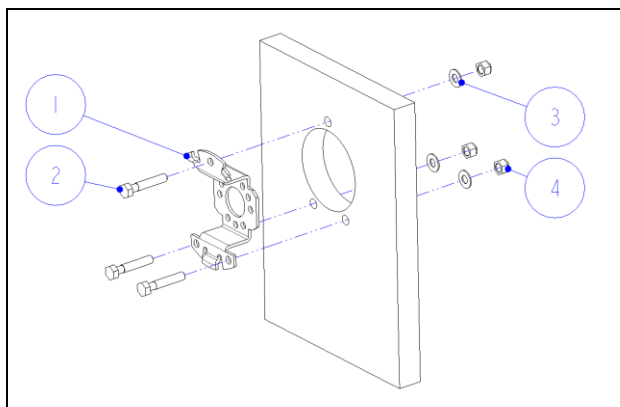


Fig 6. Mounting Bracket

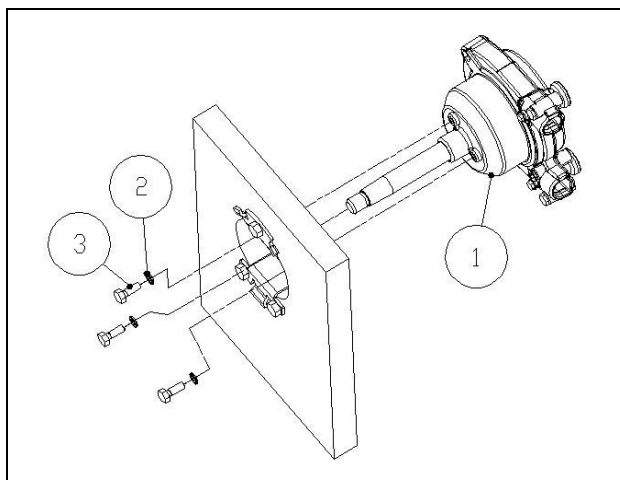


Fig 7. Installing ZTS Rotary Helm

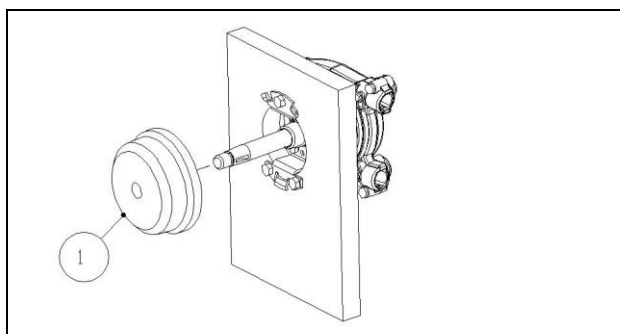


Fig 8. Mounting Bezel

Place washer onto shaft then thread the nut onto the shaft.
Hold the steering wheel while tightening to avoid cable damage to helm assembly

CAUTION

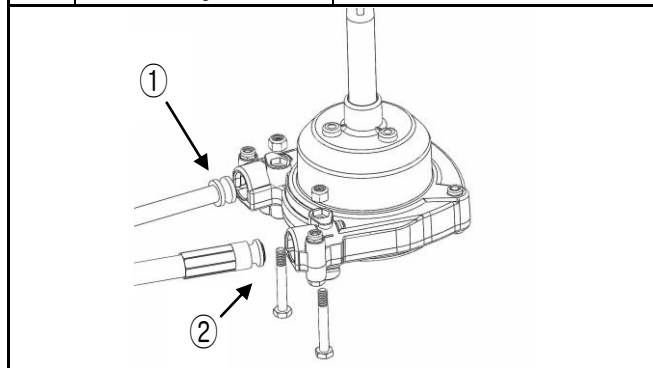
Nuts tightening torque

MIN. TORQUE 44.3 [lbf-in] (5.0 [N-m])

MAX. TORQUE 66.4 [lbf-in] (7.5 [N-m])

ROUTE CABLE

No.	FASTENER	DESCRIPTION
1	Spent Core Tube	1EA
2	Steering Cable	1EA

**Fig 11. Check Conduit fitting**

After placing cable end(fitting) into helm unit, rotate steering as you feed the cable end into the helm unit.

Keep minimum bending radius 8" (200mm) and clearance. **Fig 12.** Feed cable through while turning wheel to pull cable end to inside rotary assembly.

Make sure that the bolt catches the groove and holds the cable jacket firmly in space. Install nut and tighten to 25-30 inch lbs. See Fig. 11.

Check steering direction, making sure when wheel is turned to the right, the boat should turn to the right as well.

Install spent tube cable cover by slipping it over the cable end, then securing it in the same manner as cable jacket like you did.

See **Fig 10** one more time.

INSTALL CABLE ON TILLER

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

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

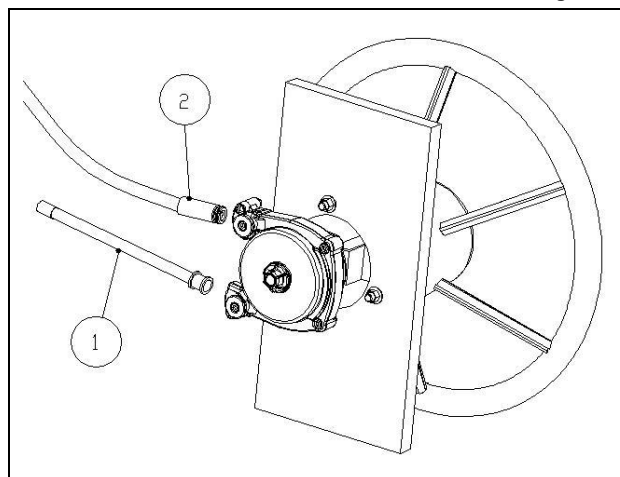
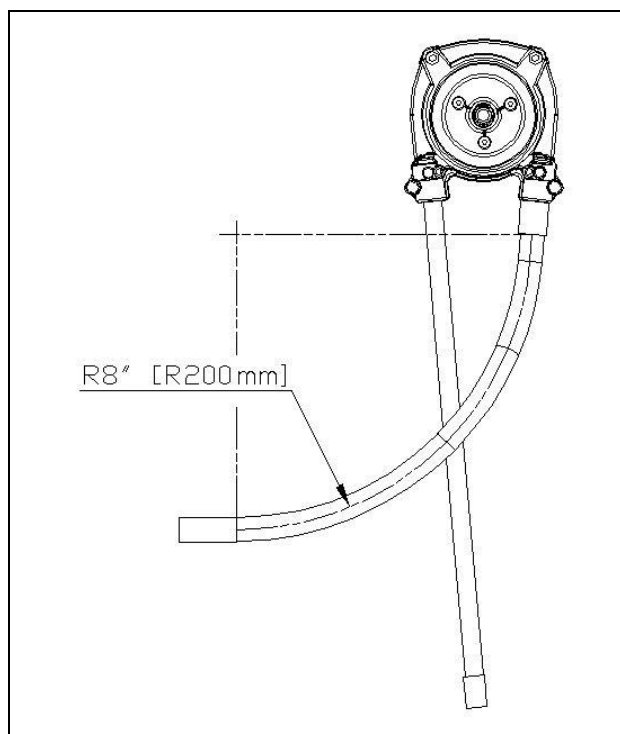
Adjust as required for steering wheel center with tiller center.

Check steering direction.

FINAL CHECKS-ALL CABLES

Before try to test operation, check following list especially.

No.	CHECK POINT
1	Cable radius NOT LESS than 8" minimum.
2	Turn wheel to determine that the direction of the wheel matches the direction of the rudder action.
3	Check that the rudder or drive stops coincide with the cable travel.
4	All bolts and nuts are tightened to specifications.

**Fig 10. Assembling Cable & Tube****Fig 12. Minimum Bending Radius of Cable****NOTE**

Helm contains 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.
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 warranty 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 damage.

To make a claim under this warranty, return 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.

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 ;

No.	CHECK POINT
1	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.
2	CABLE : Check the entire cable conduit for cracks or abrasion of the plastic cover. Replace the cable if needed.
3	HELM : Check all bolts, nuts, and fasteners for tightness.
4	WINTER STORAGE : 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.

