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INSTALLATION INSTRUCTIONS

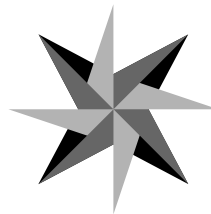
AND OWNERS MANUAL

Part # IS-1530000, Rev 2, 07/2013

www.seastarsolutions.com

TILT KIT DASH PREPARATION

big-t
jbs
nfb
rack
safe-t
xtreme



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*Before you do it your way,
please try it our way.*

TILT KIT DASH PREPARATION

NOTICE

Installer: these instructions contain important safety information and must be forwarded to the boat owner.

These instructions show how to properly prepare the dash of an existing steering system for Tilt Steering using SeaStar Solutions Tilt Kits SHT91XXX and SS157 or SeaStar Solutions tilt/tilt helm components.

There are two parts to this document: Part 1 explains how to remove existing rotary (Part 1A) and rack (Part 1B) steering systems. Part 2 describes dash preparation using the plastic template that is supplied with these instructions.

NOTICE

If this is a completely new steering installation—that is, if there is no helm mounted and no hole in the dash—please ignore these instructions and go directly to the instruction sheets for each individual unit, starting with tilt mechanism SH91800.

WARNING

Before starting installation read these instructions and engine makers instructions thoroughly. Failure to follow either of these instructions or incorrect assembly can result in loss of control and cause property damage, injury, or death.

WARNING

DO NOT substitute parts from other manufacturers, they may cause a safety hazard for which SeaStar Solutions cannot accept responsibility. Use only SeaStar Solutions steering cables with this helm.

WARNING

To avoid excessive steering loads, and to get the best steering performance, the outboard motor or outdrive trim tabs and tilt position must be adjusted as instructed in the motor manufacturers operation manual. Failure to do so can effect the performance of the boat and its safe operation which may cause property damage, injury, or death.

WARNING

DO NOT attach any electrical ground wires to the helm. This would result in an electrolytic reaction to the steering system that may result in system failure or greatly reduced service life.

NOTICE

Helms and cable assemblies are supplied lubricated ready for installation, do not add any lubricant to either assembly. Use of other lubricants can cause damage to the steering cable, resulting in the cable seizing or premature wear. Keep the cable and drive assembly clean during installation. Dirt will damage the system and cause premature wear. Do not take the plastic sleeve off the end of the cable until you are ready to install it into the helm.

This notice does not include the engine output ram end of the cable.

WARNING

Helms must not be disassembled for any reason. Failure to reassemble correctly may lead to total failure of the system, which could result in property damage, injury, or death.

WARNING

Do not disassemble tilt unit. It contains springs under tension which could cause injury.

Part 1A: Rotary Steering

The following checklist summarizes the steps needed to properly remove the existing rotary steering system and prepare the dash for the installation of SeaStar Solutions Tilt Steering:

- Remove the existing steering cable.
- Remove the wheel.
- Remove the bezel.
- Remove the helm
- Remove the mounting bracket.
- Prepare the dash for the new Tilt unit (using the supplied plastic template).
- Install the new Tilt unit *per the installation instructions that come with the Tilt Kit (or with the Tilt unit/Tilt helm)*.

A. Remove the Existing Steering Cable: Rotary

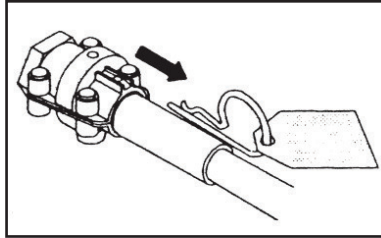
Refer to Figure 1A, as there are several types of rotary helms. Follow the directions for the type of helm that is on the boat. When the steering cable is free from the helm, wrap a protective cover over it and set it aside for later use (unless replacing the existing cable with a new one).

If replacing a cable, disconnect the old cable completely from the engine, noting carefully how the connection to the engine is made. For engine-mounted cables it may be necessary to remove the engine from the boat to avoid bending the cable output end. Disconnect the cable from the helm spigot (see Figures 1 and 2 to identify the appropriate helm and to ensure the appropriate procedures are followed).

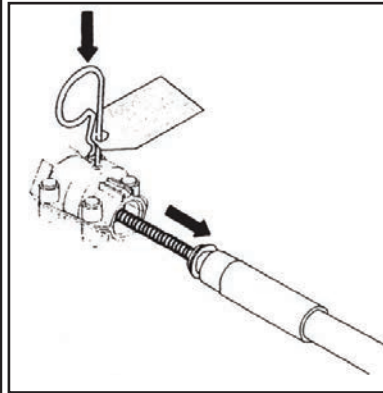
Figure 1A: Removal of Existing Cable: Rotary

SAFE-T® QUICK CONNECT, SAFE-T II AND HELMS WITH SA27620P CONVERTER

STEP 1. Remove hitch pin from helm.



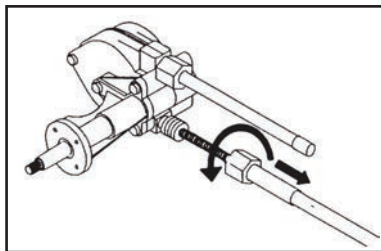
STEP 2. Place end of hitch pin in hole as shown and apply pressure while pulling the cable body away from the helm.



STEP 3. Rotate the steering wheel until the helical core of the cable is free from the helm.

BIG-T® AND SAFE-T® WITH THREADED SPIGOT

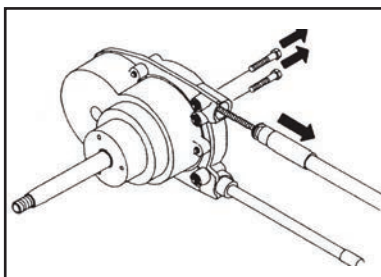
STEP 1. Disconnect the cable body from helm by turning the cable-retaining nut counterclockwise until free.



STEP 2. Rotate the steering wheel until the helical core of the cable is free from the helm.

NFB™ AND 4.2 HELMS ONLY

STEP 1. Disconnect the cable body from helm by removing the two retaining bolts in the back of the helm.



STEP 2. Rotate the steering wheel until the helical core of the cable is free from the helm.

B. Remove the Wheel: Rotary

Refer to Figure 2A below. Remove the wheel's center cap by prying it off with a screw driver. Save this cap for later use. With the cap off, unscrew and remove the 1/2" nut (item 9) from the end of the helm shaft. Also remove the washer (item 8). Withdraw the wheel from the shaft. (Use a gear puller to facilitate removal if the taper fit between the wheel and shaft is tight). After the wheel is off, remove the Key (item 7). Save the wheel and discard the other parts.

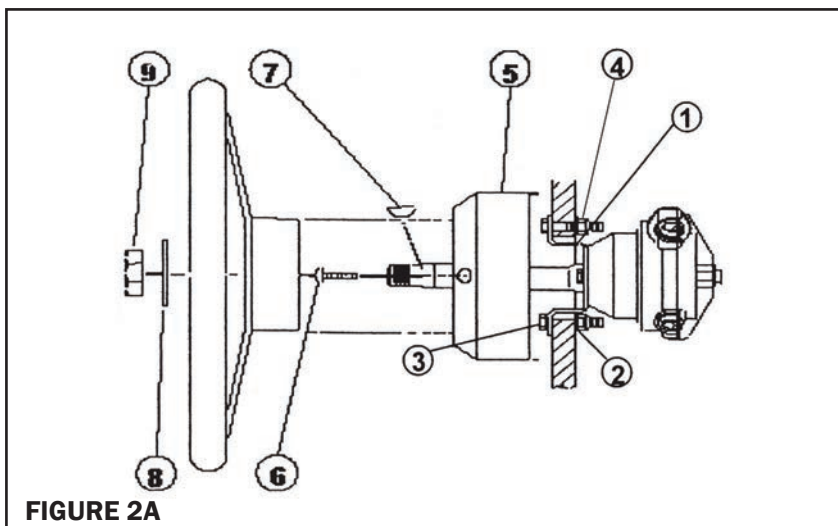


FIGURE 2A

Parts List

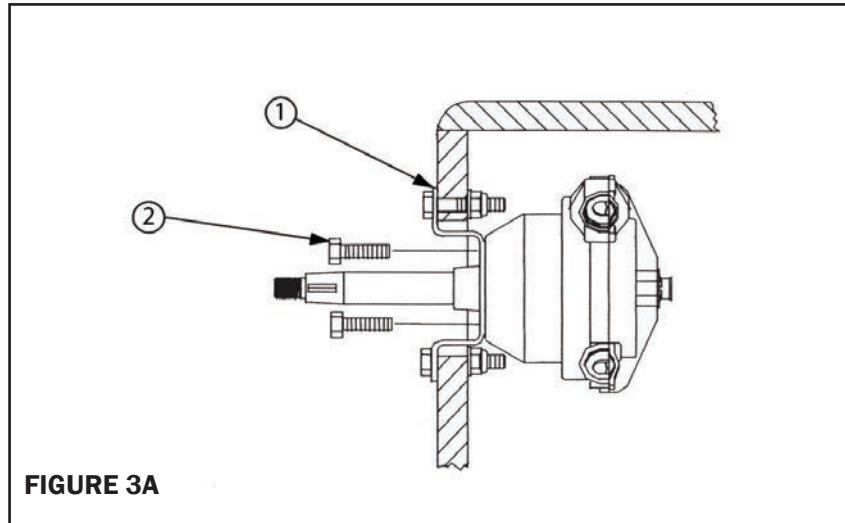
| ITEM | DESCRIPTION | QUANTITY |
|------|-------------------------|----------|
| 1 | Helm Mounting Bracket | 1 |
| 2 | Flatwasher, 5/16" ID | 3 |
| 3 | Hex Bolt, 5/16-18 | 3 |
| 4 | Locknut, 5/16-18 | 3 |
| 5 | Plastic Bezel | 1 |
| 6 | Screw, #10 Self Tapping | 2 |
| 7 | Woodruff Key, No. 9 | 1 |
| 8 | Flatwasher, 1/2" ID | 1 |
| 9 | Locknut, 1/2-20 | 1 |

C. Remove the Bezel: Rotary

Refer to Figure 2A. Locate the two holes—approximately 3/8" diameter—on the beveled edge of the top face of the plastic bezel (item 5). This is where the two Phillips-head screws (item 6) are used to attach the bezel to the dash. Unscrew, remove bezel, and discard.

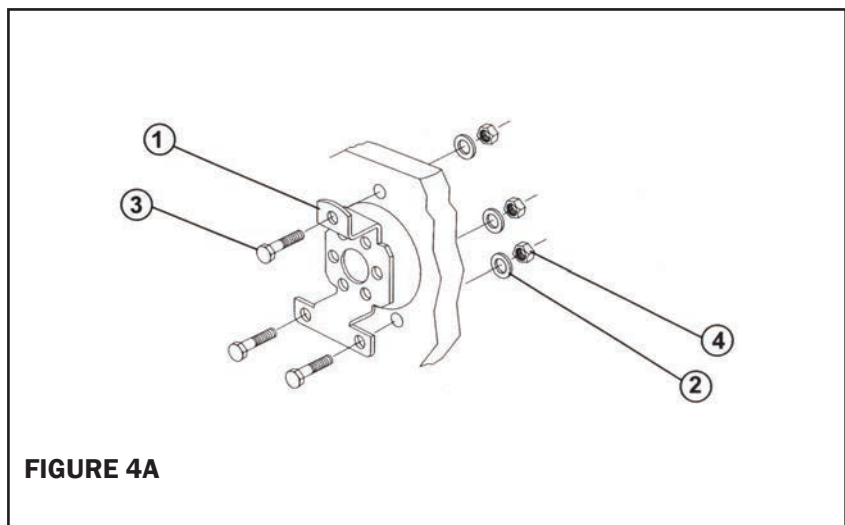
D. Remove the Helm: Rotary

Refer to Figure 3A. Locate the three hex bolts (item 2) that are in the recessed area of the mounting bracket (item 1). Unscrew the bolts from the helm and discard. The helm is now free to be removed from the bracket. The helm can then be discarded.



E. Remove the Mounting Bracket: Rotary

Refer to Figure 4A below. The mounting plate (item 1) is held to the dash by three 5/16" bolts (item 3, as seen from the front face of the dash panel), washers and 5/16" lock nuts (items 2 and 4, as seen from the back face of the dash panel). Remove these bolts to free the plate from the dash. These items can then be discarded.



The removal of the existing rotary steering is now complete. Now the dash must be prepared to accommodate the new Tilt Steering. Go to page 10.

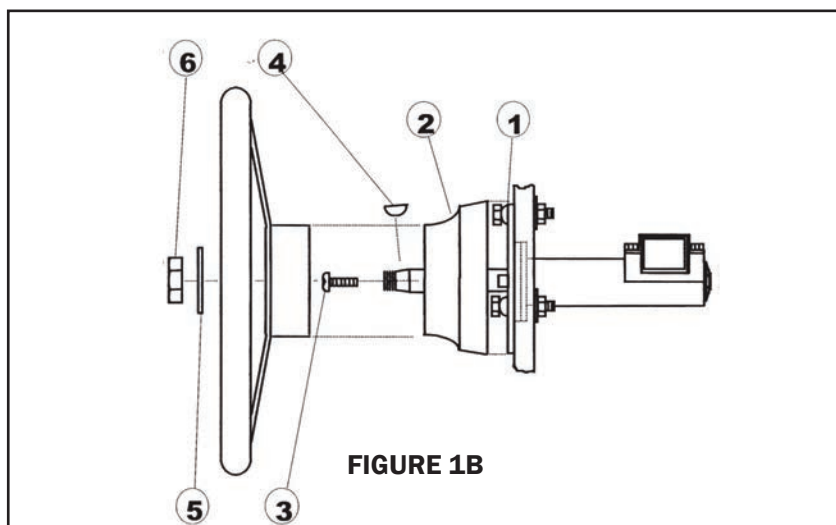
Part 1B: Rack Steering

The following checklist summarizes the steps needed to properly remove the existing rack steering system and prepare the dash for the installation of SeaStar Solutions Tilt Steering:

- Remove the wheel.
- Remove the bezel.
- Remove the helm and cable.
- Remove the mounting plate.
- Remove the cable from the helm.
- Prepare the dash for the new Tilt unit.
- Install the new Tilt unit *per the installation instructions that came with the new Tilt unit.*

A. Remove the Wheel: Rack

Refer to Figure 1B below. Remove the wheel's center cap by prying it off with a screw driver. Save this cap for later use. With the cap off, unscrew and remove the 1/2" nut (item 6) from the end of the helm shaft. Also remove the washer (item 5). Withdraw the wheel from the shaft. (Use a gear puller to facilitate removal if the taper fit between the wheel and shaft is tight). After the wheel is off, remove the Key (item 4). Save the wheel and discard the other parts.



Parts List

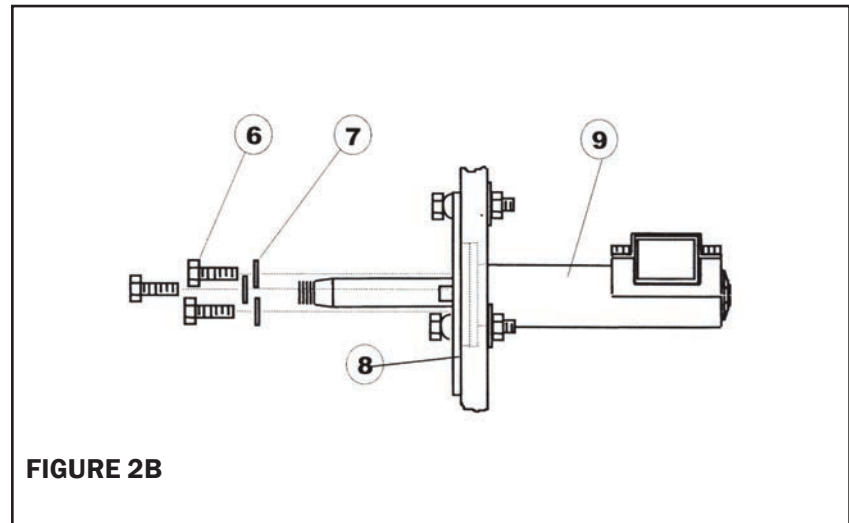
| ITEM | DESCRIPTION | QUANTITY |
|------|--------------------------------|----------|
| 1 | Mounting Plate | 1 |
| 2 | Bezel | 1 |
| 3 | Screw, #8-32 x 1" Lg. Self Tap | 2 |
| 4 | Woodruff Key | 1 |
| 5 | Washer, 1/2" ID | 1 |
| 6 | Lock Nut, 1/2-20 | 1 |

B. Remove the Bezel: Rack

Refer to Figure 1B above. Locate the two holes—approximately 3/8" diameter—on the top face of the plastic bezel (item 2). This is where the two Phillips-head screws are used to attach the bezel to the dash. Unscrew, remove bezel, and discard.

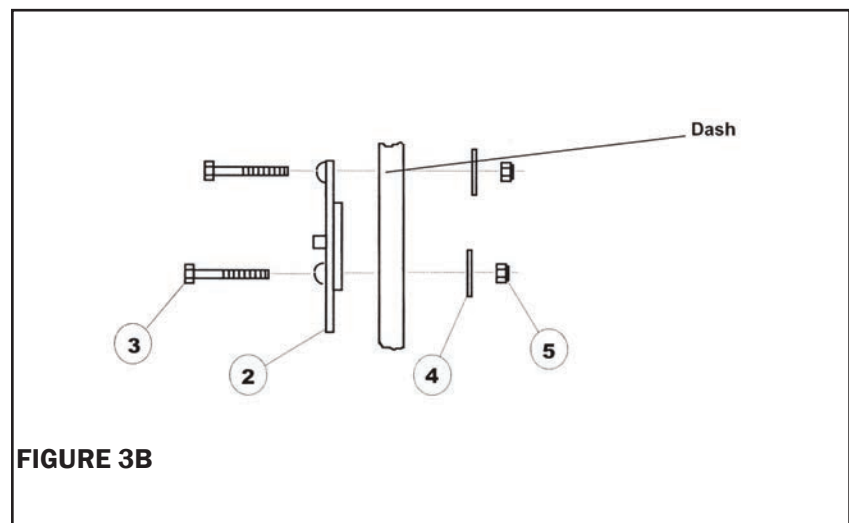
C. Remove the Helm and Cable: Rack

Refer to Figure 2B below. The helm (item 9) is attached to the mounting plate (item 8) by three 1/4" bolts (item 6) and washers (item 7). Unscrew and remove the bolts and washers. The helm and cable are now free. Discard the loose parts.



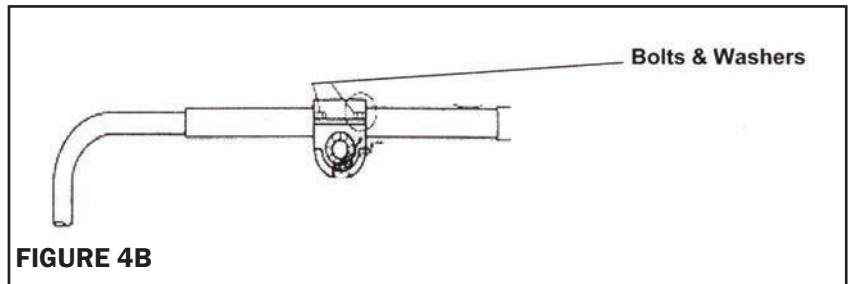
D. Remove the Mounting Plate: Rack

Refer to Figure 3B below. The mounting plate (item 2) is held to the dash by three 5/16" bolts (item 3, as seen from the front face of the dash panel), washers and 5/16" locknuts (item 4 and 5, as seen from the back face of the dash panel). Remove these bolts to free the plate from the dash. These items can then be discarded.



E. Remove the Cable from the Helm: Rack

Refer to Figure 4B below. There are four 1/4" bolts and washers holding the cable assembly onto the helm. Remove and discard. Lift the cable housing off of the helm. Wrap a protective cover over the open window of the housing to keep out dust and dirt. Set aside for later use.



The removal of the existing rack steering is now complete. Now the dash must be prepared to accommodate the new Tilt Steering.

Part 2: Dash Preparation

The supplied plastic template is used in this step.

A. For Both Rotary and Rack Steering

STEP 1. Using a 1/4" bolt with a washer under the head, pass the bolt/washer through the 5/16 hole in the plastic template and then through the top-most existing hole in the dash.

STEP 2. Align the template so that it is centered around the existing dash holes.

STEP 3. Push the template down against the top bolt to take away any clearance in the top hole.

STEP 4. Tighten the bolt so that the template will not move.

STEP 5. Ensure the template is still centered.

STEP 6. Follow Step B for Rotary or Step C for Rack steering.

B. For Rotary Steering Only

STEP 1. Drill two 1/8" diameter holes in the dash, using the two 1/8" diameter pilot holes in the plastic template. Remove the template.

STEP 2. Using the two 1/8" diameter holes just drilled for location, drill open these two holes to 3/8".

NOTICE

The drill may "walk" into the old existing holes, resulting in a change of location. In this case, use a rat tail file or other means to finish the 3/8" holes on the location of the 1/8" pilot holes. This will provide the alignment needed to mount the Tilt unit. There is no need to alter the existing 3-1/4" diameter dash hole.

C. For Rack Steering Only

STEP 1. Using the large 2-7/8" hole in the center of the plastic template, trace or mark the dash with the 2-7/8" diameter pattern so that it can be used as a guide to open up the existing 2-1/4" diameter hole to the 2-7/8" size needed.

STEP 2. Drill two 1/8" diameter holes in the dash, using the two 1/8" diameter pilot holes in the template. Remove the template.

STEP 3. Using the two 1/8" diameter holes just drilled for location, drill open these two holes to 3/8".

NOTICE

The drill may "walk" into the old existing holes, resulting in a change of location. In this case, use a rat tail file or other means to finish the 3/8" holes on the location of the 1/8" pilot holes. This will provide the alignment needed to mount the Tilt unit.

STEP 4. Complete the dash preparation by sawing the 2-7/8" diameter hole as outlined/marked by the template.

CONGRATULATIONS! You have just finished this phase of the installation! To proceed with the Tilt installation, go to the instruction sheets that are packed with the Tilt Kit (or with the separate Tilt unit and tilt helm).

NOTES



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