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INSTALLATION INSTRUCTIONS AND OWNERS MANUAL

Part # ISSH91900, Rev 2, 07/2013

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SH91800/10 Sport Tilt



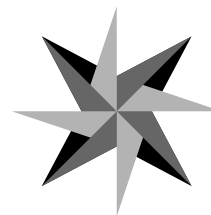
SH91900/10 Sport-Plus Tilt



Mechanical Steering for Inboard,
Outboard, and Sterndrive Powered Vessels

SH91800 SPORT AND SH91900 SPORT PLUS
TILT MECHANISMS

big-t
jbs
nfb
rack
safe-t
xtreme



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

TILT MECHANISMS

SH91800/10 SPORT TILT

SH91900/10 SPORT-PLUS TILT

NOTICE

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

NOTICE

For the complete steering system the following additional components are required:

- SeaStar Solutions tilt helm
- SeaStar Solutions steering cables(s)
- Engine Connection Kit (refer to SeaStar Solutions catalog)
- Steering Wheel (refer to SeaStar Solutions catalog; 3/4" round taper or splined hub)

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.

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.

Installation Instructions

WARNING

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

STEP 1. Use the Mounting Template provided on page 7. Determine the desired mounting position ensuring that the position of the helm will not interfere with any other functional equipment. Check for adequate space behind the dash to allow for unrestricted steering cable bend radii.

STEP 2. Tape the template to the dash and use a center punch for locating the holes on the dash. Double check to ensure unrestricted operation of the steering wheel in ALL tilting positions.

STEP 3. Drill the required diameter center hole and specified number and size of mounting bolts as shown in the template.

STEP 4. Mount dash plate (Item 1) to the dash using the three 1/4" x 2-1/8" hex bolts, washers and 1/4" NC self locking nuts (Items 2, 3 & 4). See Figures 1 and 2.

NOTICE

Use the new mounting plate included in this kit. DO NOT reuse the old bracket if this is a replacement/upgrade. DO NOT try to reuse the old rubber bellows cover as it will not properly fit the new tilt mechanism.

STEP 5. Mount the SeaStar Solutions tilt helm from behind the dash to the tilt mounting plate following the directions on the tilt helm instruction sheet.

NOTICE

The helm mounting bolts (item 5) should be tightened to 90 in-lbs.

STEP 6. Attach the helm shaft to the tilt mechanism (Item 6) by lining up the universal joint slot with the helm shaft tongue and secure with the #10-24 x 7/8" SHCS (Item 7).

NOTICE

If the helm shaft is difficult to locate into the tilt mechanism coupling, loosen the top screw in the coupling by no more than 1/4 of a turn. Ensure that this screw is fully tightened before installing the bezel.

WARNING

Bolt (item 7) must be fully tightened on the universal joint. Failure to do so can affect the performance and safe operation of the boat.

STEP 7. Tighten the two 5/16" NC x 3/4" PHMS and star washers (Items 8 & 9) to secure the tilt mechanism to the dash plate.

STEP 8. Set the tilt unit in the middle position and install latch boot (item 10) onto latch lever.

NOTICE

For SH91800/SH91810 follow steps 8A-9A (Figure 1).

For SH91900/SH91910 follow steps 8B-9B (Figure 2).

NOTICE

Ensure that tilt latch boot (item 10) is properly fitted into the slots provided in the lower bezel.

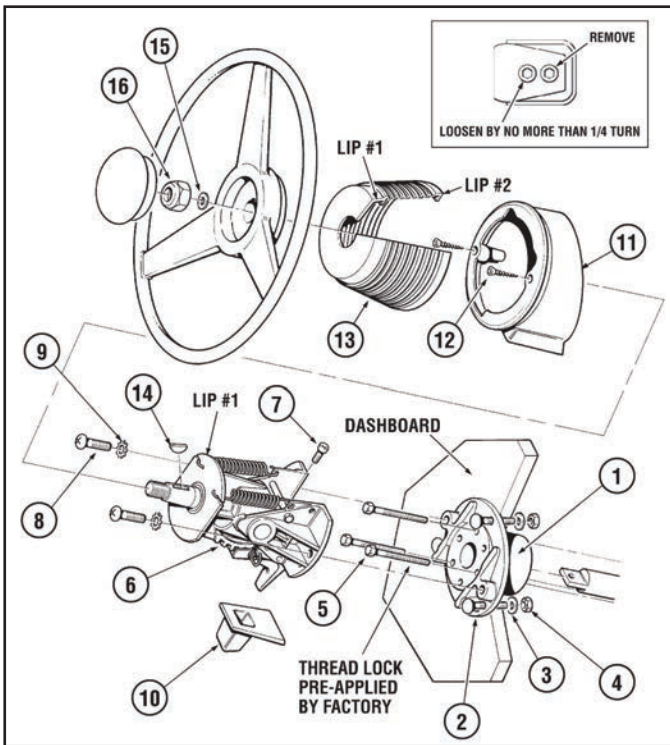


Figure 1.

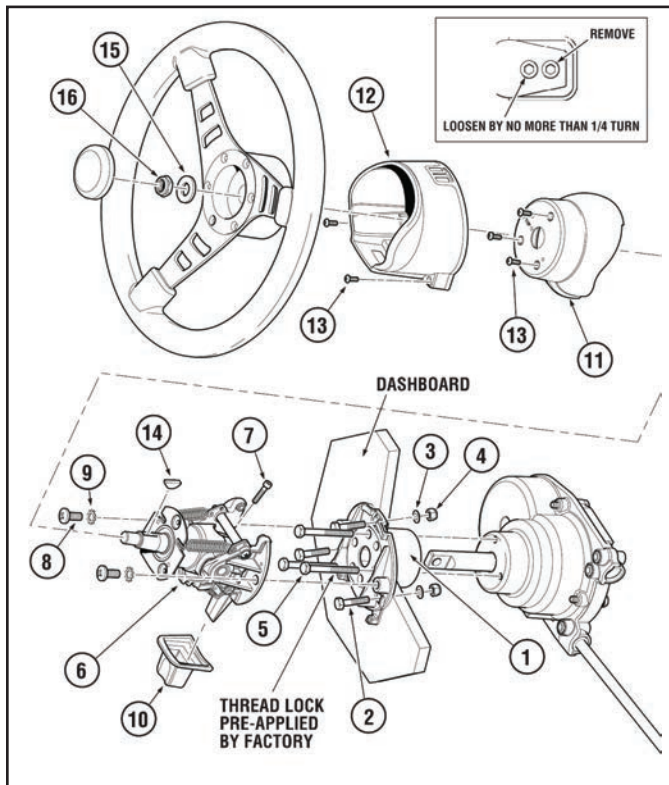
Parts List

ITEM	DESCRIPTION	QUANTITY
1	Dash Plate	1
2	Hex. Head Bolt, 1/4" NC x 2-1/8"	3
3	Large Washer, 1/4" Flat	3
4	Nut, 1/4" NC, Nyloc®	3
5*	Hex Head Bolt	-
6	Tilt Mechanism	1
7	SHCS #10-24 x 7/8", SS	1
8	PHMS 5/16 NC x 3/4"	2
9	Star Washer	2
10	Boot Latch	1
11	Bezel, Lower	1
12	#8 -32 x 1"	2
13	Bezel, Upper, Boot	1
14	Shaft Key	1
15	Washer	1
16	Wheel Shaft Nut	1

*Supplied with tilt helm

STEP 8A SH91800/SH91810. Mount the lower bezel (item 11) to the tilt mechanism. (Be sure to slide the latch boot (item 10) into the grooves in the slot for the latch lever). Fasten the bezel to the tilt unit using the two 8-32 x 1" screws (item 12).

STEP 9A SH91800/SH91810. Install the boot (item 13) lip #1 over the tilt unit (item 6) and lip #2 over the lower bezel (item 11). Be sure to have it on lip #1 before trying lip #2.



Parts List

ITEM	DESCRIPTION	QUANTITY
1	Dash Plate	1
2	CB, 1/4" NC x 2"	3
3	Washer, 1/4" Flat, SS	3
4	Nut, 1/4" NC, Nyloc®	3
5*	Hex Head Bolt	-
6	Tilt Mechanism	1
7	SHCS #10-24 x 7/8", SS	1
8	PHMS 5/16 NC x 3/4"	2
9	Washer, Star	2
10	Latch Boot	1
11	Upper Bezel	1
12	Lower Bezel	1
13	BHSCS, 8-32 x 1/2", SS	5
14	Shaft Key	1
15	Washer	1
16	Wheel Shaft Nut	1

*Supplied with tilt helm

Figure 2.

STEP 8B SH91900/SH91910. Mount the top bezel (item 11) to the top of the tilt unit with the three screw holes lined up. Use three 8-32 x 1/2" screws (item 13) to secure the top bezel.

STEP 9B SH91900/SH91910. Slide the lower bezel (item 12) over top of the top bezel all the way down to where you can slide the small plastic ridges on the inside of the bezel into the tilt mounting bracket (item 2). Then use the two 8-32 x 1/2" (item 13) screws to secure the lower bezel to the mounting bracket. Slide Latch Boot into slot in Lower Bezel.

STEP 10. STEERING WHEEL INSTALLATION–TAPERED SHAFT. Insert the woodruff key (item 14) into the keyway slot in the helm shaft. Slide the steering wheel onto the helm shaft aligning the wheel keyway with the woodruff keyway with the woodruff key in the shaft. Secure into place with the flat washer (item 15), then locking nut (item 16). Tighten securely.

STEP 11. STEERING WHEEL INSTALLATION–SPLINED SHAFT. Align the splines in the wheel hub with the splines on the helm shaft and push the wheel firmly into position. Secure in place with flat washer (item 15) and lock nut (item 16). Tighten securely.

STEP 12. The Steering Cable can now be installed following the instructions packed with the SeaStar Solutions tilt helm.

Operation & Maintenance Notes

CAUTION

It is possible to over trim the engine and increase the steering torque to the point that the steering wheel cannot be turned, even though the torque is not felt at the wheel. This may give the impression that the steering is “locked”. This condition can occur more when jack plates are used to raise the engine on the transom, and can only be overcome by reducing the boat speed or engine trim out position. Until you are completely familiar with the boat and the effects of power trim, make all adjustments of trim with extreme caution.

1. After a few hours of operation and at frequent intervals thereafter, check all fasteners and the complete steering system for security and integrity.

DANGER

Loosening or loss of one or more fasteners may cause failure of the steering system, resulting in loss of steering control and could cause property damage, injury, or death.

2. Keep all moving parts free from build-up of salt and other foreign material. This will affect their operation and create steering problems. Periodically remove the cable, clean support tube and telescopic end of cable thoroughly and lubricate with a **waterproof marine grease**.

3. Periodically Inspect for corrosion. Any parts affected by corrosion must be replaced. When replacing hardware, self-locking hardware as originally supplied must be used.

4. Periodically Inspect steering cable for cracks or other damage. If any is found the cable must be replaced.

5. If cable is stiff in operation, it is unsafe to use and must be replaced immediately.

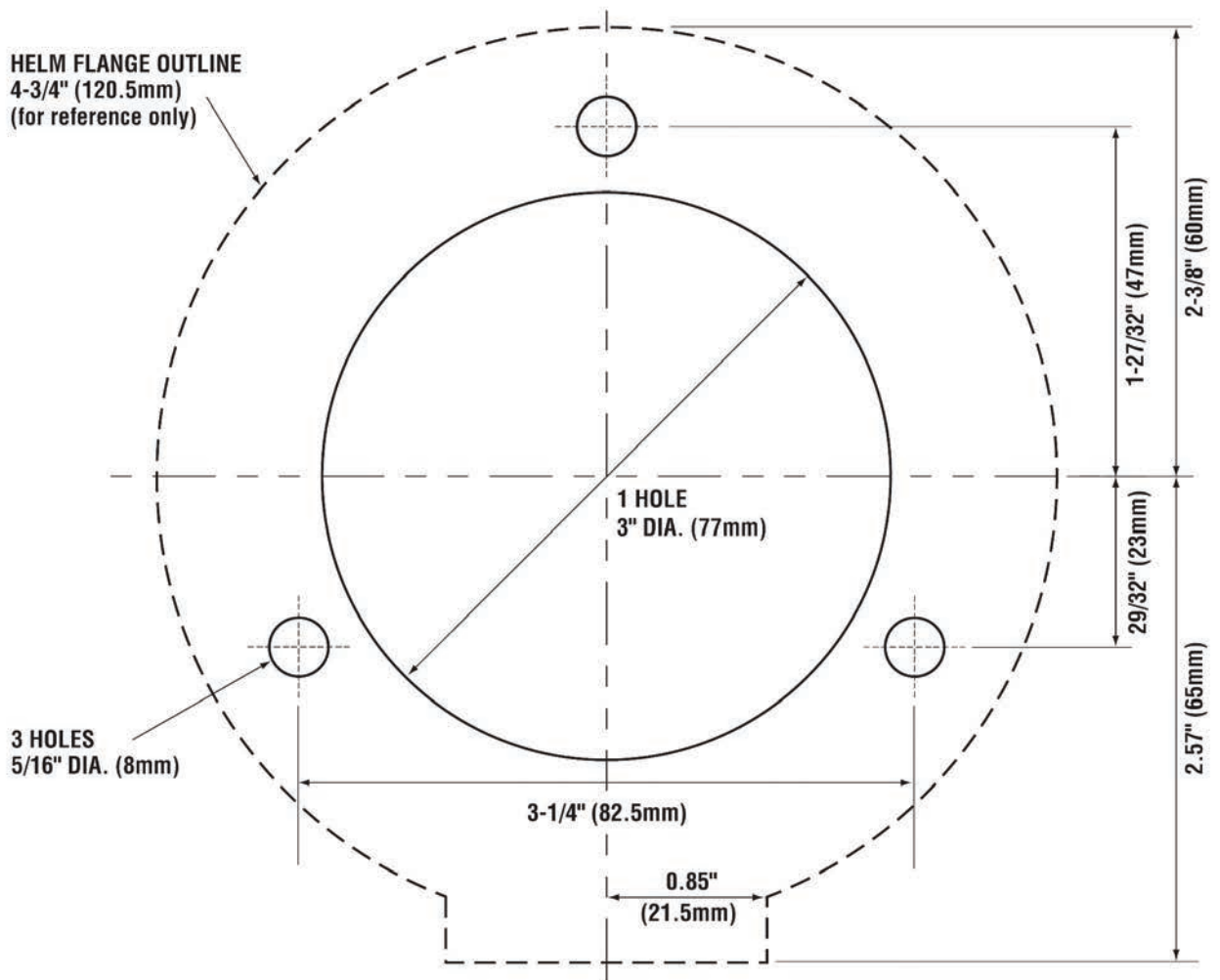
DANGER

DO NOT cover cracks with tape or other sealants, this will create a hazard in which the cable can fail suddenly without warning, resulting in property damage, injury, or death.

NOTICE

Boat builder and boat dealer, please supply these Installation Instructions and Owner’s Manual with the delivery of boat. Boat owner keep these instructions with your boat for future reference. Boat owner consult with your boat builder, boat dealer, or SeaStar Solutions if you have any questions regarding these instructions.

Mounting Template



NOTICE

If you must photocopy this mounting template for use, check ALL measurements using a measuring device prior to using as a template.



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