GARMIN®

FORCE® PRO TROLLING MOTOR TRANSDUCER REPLACEMENT INSTRUCTIONS

Getting Started

⚠ WARNING

Always disconnect the motor from the battery before handling or working with the propeller, propeller drive motor, electrical connections, or electronics enclosures to avoid serious injury or death.

⚠ CAUTION

For the best possible performance and to avoid potential injury, damage to the device, or damage to your vessel, installation by a qualified marine installer is recommended.

When stowing or deploying the motor, be aware of the risk of entrapment or pinching from moving parts, which can result in personal injury.

This manual covers replacing the transducer on a Force Pro trolling motor. If you are upgrading a Force trolling motor with the GT56UHD-TR transducer, you should refer to the *Transducer Replacement Instructions* for the Force trolling motor on garmin.com/manuals/force_trolling_motor.

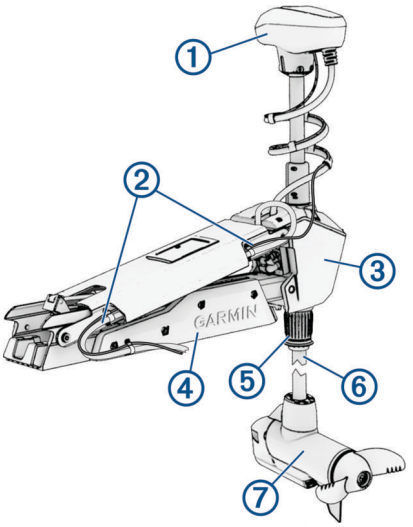
You should read these instructions completely before beginning this service, and make sure that you have the tools and skill set needed to complete it. If necessary, you should use a qualified marine installer to ensure proper service.

Tools Needed

- #2 and #3 Phillips screwdrivers
- 3 and 4 mm hex bits or drivers
- 4 mm ball-head hex bit or driver

  NOTE: A ball-head bit is highly recommended due to the angle of some screws.
- Torque wrench
- Medium-strength thread-locking compound, such as LOCTITE® 243™
- Canned compressed air or an air compressor

Device Overview



1	Shaft cap
2	Power and transducer cables
3	Steering system
4	Mount
5	Depth-adjustment collar
6	Shaft
7	Propeller drive motor

Disconnecting the Shaft Cables

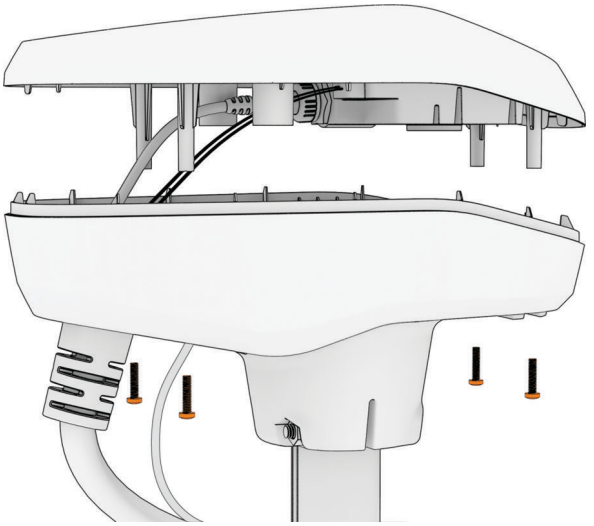
1. Open the shaft cap (*Opening the Shaft Cap*, page 3).
2. Disconnect the cables in the shaft cap (*Disconnecting the Cables*, page 4).
3. Remove the transducer cable from the shaft cap (*Removing the Transducer Cable*, page 5).

Opening the Shaft Cap

⚠ WARNING

Always disconnect the motor from the battery before opening the shaft cap. The power cables in the shaft cap may carry high current, and accidental discharge may cause serious injury or death.

1 Using a #2 Phillips screwdriver, remove the four screws that secure the lid of the shaft cap.



2 Carefully lift up the lid of the shaft cap to access the cable connectors inside.

NOTICE

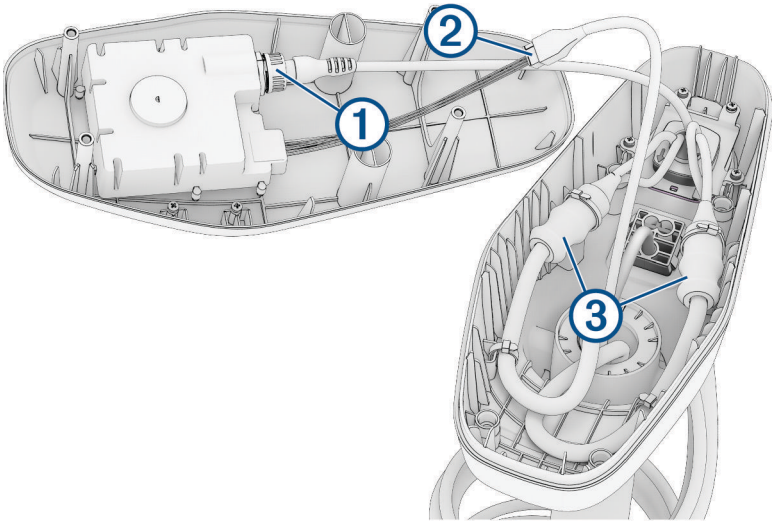
There are two cables connected to the top of the shaft cap. Take care when opening the shaft cap to avoid damaging the cables or connectors.

Disconnecting the Cables

1 Take a picture or note the arrangement of the cables in the shaft cap, so you can reproduce it correctly when you reconnect the cables and close the shaft cap.

2 Unscrew and disconnect the GPS data connector ①.

Ensure the o-ring remains in place inside the connector.



3 Release the latch and pull the connectors apart to disconnect the motor data cable ②.

NOTICE

To avoid damaging the cable, pull only on the connector body. Do not pull on the wire itself.

4 Carefully cut off the zip ties that secure the cables to the sides of the shaft cap.

5 Slide the rubber sleeves ③ away from the connection points on the power cables.

6 Using a 2.5 mm hex bit or wrench, loosen the set screws that secure each power cable connection.

7 Disconnect the power cables.

8 Remove the rubber sleeves from the power cables and set them aside.

Removing the Transducer Cable

1. Using a #2 Phillips screwdriver and a 3 mm hex bit or wrench, remove the three cable clamps that secure the power cable and the transducer cable to the trolling motor mount.
2. If necessary, pull the transducer cable out of the channel in the trolling motor mount.
3. Remove the plastic cable clamps that secure the transducer cable to the coiled power cable.

   You should keep these cable clamps in a safe place, because you must reinstall them later.
4. Push from the inside out to remove the square grommet ① that holds the transducer cable ② in the shaft cap.

5. Remove the grommet from the transducer cable.

   The grommet is split on one side to make it easy to remove from the cable.

   You should keep the grommet in a safe place, because you must reinstall it later.
6. Feed the transducer cable through the shaft cap from the outside in until it is no longer routed through the square hole.

Removing the Shaft

⚠ CAUTION

You must make sure the motor is securely latched in the deployed position before you proceed with this service. Working on the motor while the latch is not securely engaged may cause the motor to shift, potentially leading to entrapment or pinching, which can result in personal injury.

1. Remove the shaft cap (*Removing the Shaft Cap*, page 6).
2. Remove the depth limiter (*Removing the Depth Limiter*, page 6).
3. While making sure the weight of the propeller drive motor is supported, loosen the depth adjustment collar on the base of the steering servo.

NOTICE

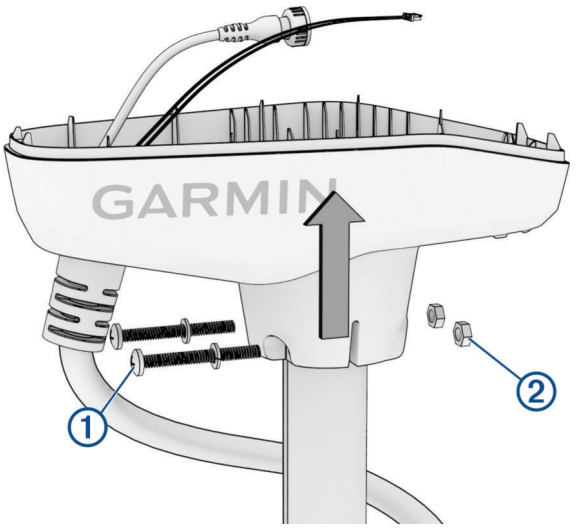
We recommend having a second installer support the propeller drive motor while you loosen the depth adjustment collar. The shaft may suddenly slide down and out of the steering servo, potentially hitting the ground and causing damage to the propeller drive motor.

4. Slide the shaft down and out of the steering servo, taking care not to damage the skeg and transducer or snag the cables or connectors as you pull it through.

Removing the Shaft Cap

1. Take a picture or write down the number of times the coil cable wraps around the shaft.

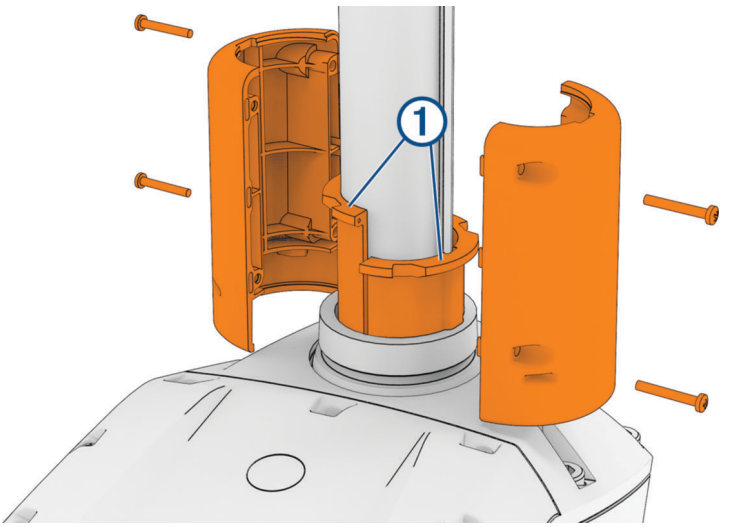
   When reinstalling the shaft cap, you will need to make sure the cable wraps around the shaft the same number of times.
2. Using a #3 Phillips screwdriver, remove the $^{1}/_{4}$–20 bolts ①, lock washers, and nuts ② that secure the shaft cap to the shaft.



   You should keep these bolts and nuts in a safe place, because you must use them when reinstalling the shaft cap.
3. Lift up the shaft cap to disconnect it from the shaft.
4. Pull the cables completely through the shaft cap, taking care to avoid damaging the cable connectors when you pull them through.

Removing the Depth Limiter

1. Remove the screws from each half of the depth limiter, and pull the pieces away from the shaft.
2. Lift up to remove the bushings ① from inside the steering system housing.

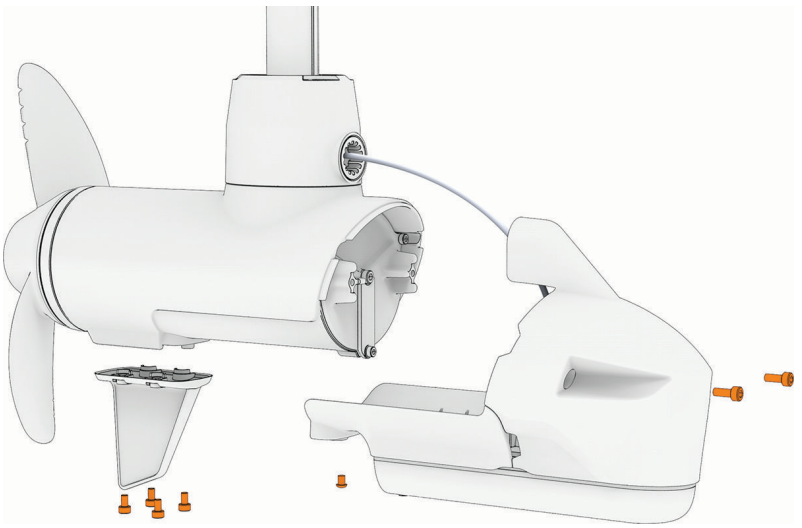


Removing the Existing Transducer

1. Remove the skeg and nose cone from the propeller drive motor (*Removing the Skeg and Nose Cone*, page 7).
2. Remove the propeller drive motor from the shaft (*Removing the Propeller Drive Motor*, page 8).
3. Remove the transducer from the nose cone (*Removing the Transducer*, page 10).

Removing the Skeg and Nose Cone

1. Using a 4 mm hex bit or wrench, remove the four screws that secure the skeg to the propeller drive motor.



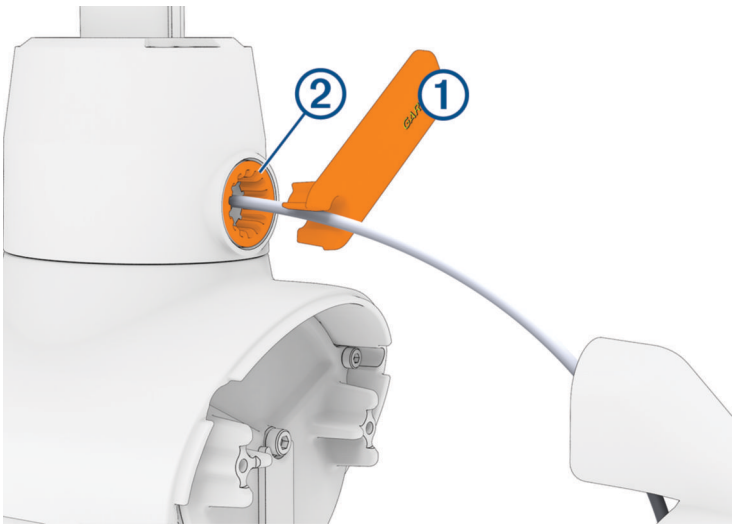
2. Remove the skeg.
3. Using a 4 mm hex bit or wrench, remove the two screws that secure the front of the nose cone to the propeller drive motor.
4. Using a 3 mm hex bit or wrench, remove the single screw that secures the bottom of the nose cone to the propeller drive motor.

   NOTE: You should keep all of these screws and parts in a safe place, because you will reuse them when reassembling the skeg and nose cone.

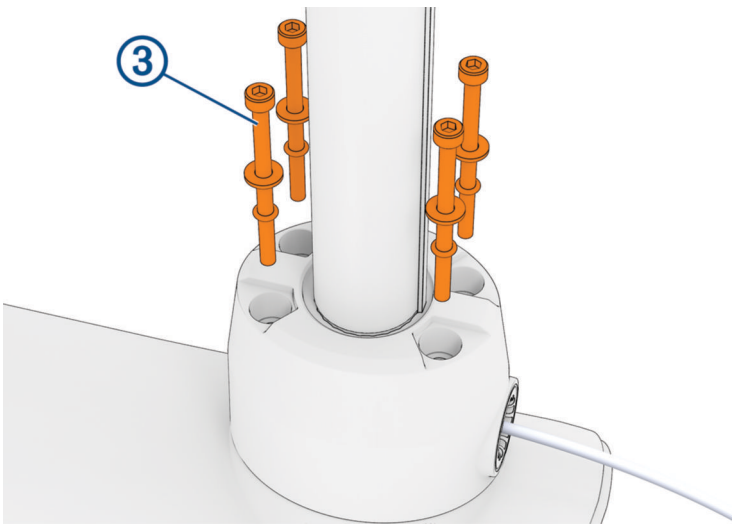
Removing the Propeller Drive Motor

NOTE: When removing the propeller drive motor, using a ball-head hex bit or wrench is highly recommended because of the angle needed to reach the head of the screws.

1 Using the tool ① included in the transducer replacement kit, remove the recessed nut ② that secures the transducer cable to the shaft.

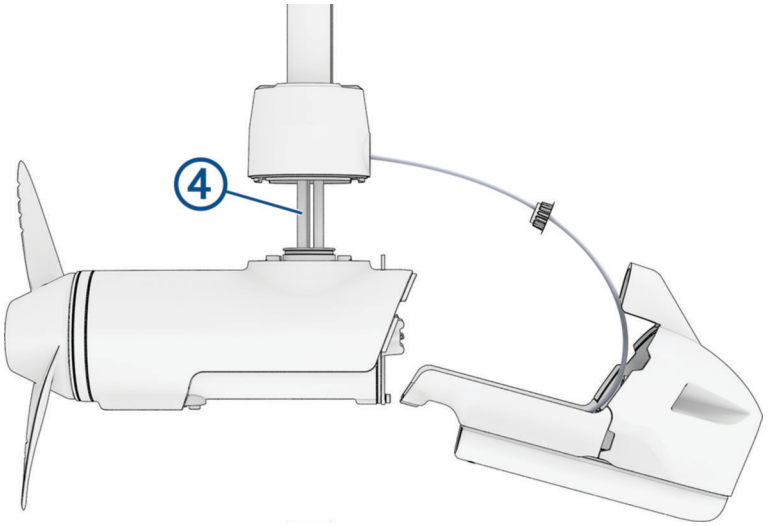


2 Using a ball-head 4 mm hex bit or wrench, remove the screws ③ that secure the shaft base to the propeller drive motor.



When replacing the transducer, you should dispose of these screws, washers and O-rings. New parts are included with the transducer replacement kit.

3 Straighten the cables at the top of the shaft, and slowly pull the propeller drive motor away from the shaft base until you can see the power and data cables ④ connected to the propeller drive motor.



4 Holding the cables only, slowly pull them out of the shaft, taking care that the cable connectors do not get caught on the top of the shaft.

NOTICE

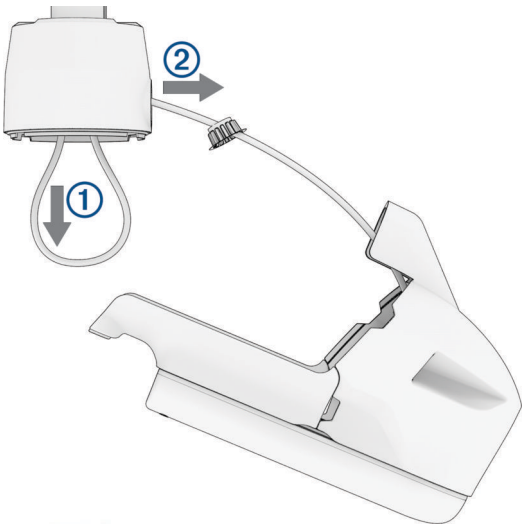
When removing the propeller drive motor and pulling its cables out of the shaft, pull only on the cables themselves and do not let the cables to support the weight of the motor. Pulling on the propeller drive motor or letting the cables support the weight of the motor may damage the cable connections inside the motor.

5 Pull the propeller drive motor cables completely out of the shaft and set the propeller drive motor aside.

Removing the Transducer

Before you can remove the transducer, you must remove the propeller drive motor (*Removing the Propeller Drive Motor*, page 8).

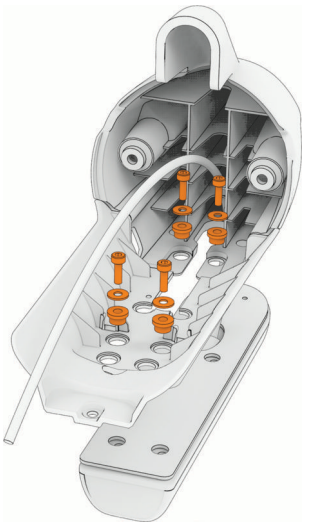
1 Carefully pull the transducer cable straight down ① through the bottom of the shaft until it is completely removed from the shaft.



2 After you pull the transducer cable through the shaft completely, pull it through the hole in the front of the shaft base ②, along with the rubber cable gland and the recessed nut.

When replacing the transducer, you should dispose of the cable gland and recessed nut. A new cable gland and recessed nut are provided in the transducer replacement kit.

3 Using a 3 mm hex bit or driver, remove the screws that secure the transducer to the nose cone.



When replacing the transducer, you should dispose of these screws, washers and bushings. New parts are included with the transducer replacement kit.

4 Remove the transducer and neoprene pad from the nose cone.

When replacing the transducer, you should dispose of the neoprene pad. A new pad is included with the transducer replacement kit.

Installing the Replacement Transducer

After you remove the existing transducer, perform these actions to install the replacement transducer.

1. Install the new transducer in the nose cone (*Installing the Transducer*, page 11).
2. Install the propeller drive motor on the shaft (*Installing the Propeller Drive Motor*, page 12).
3. Install the nose cone and skeg on the propeller drive motor (*Installing the Nose Cone and Skeg*, page 14).

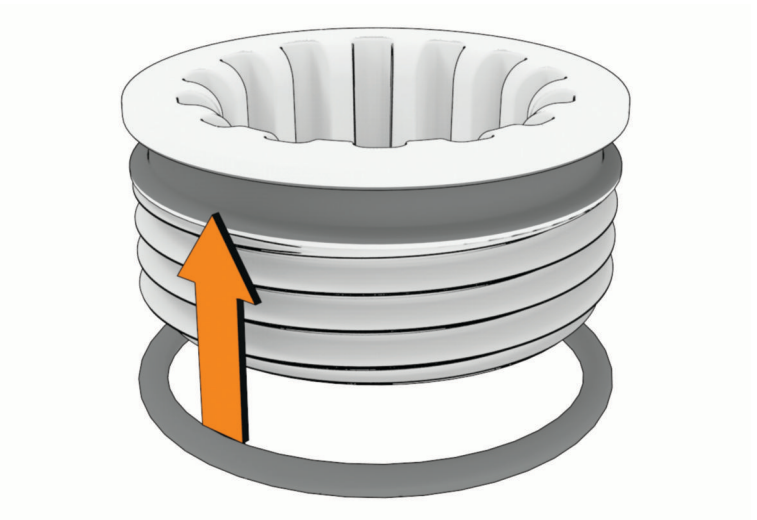
Installing the Transducer

NOTICE

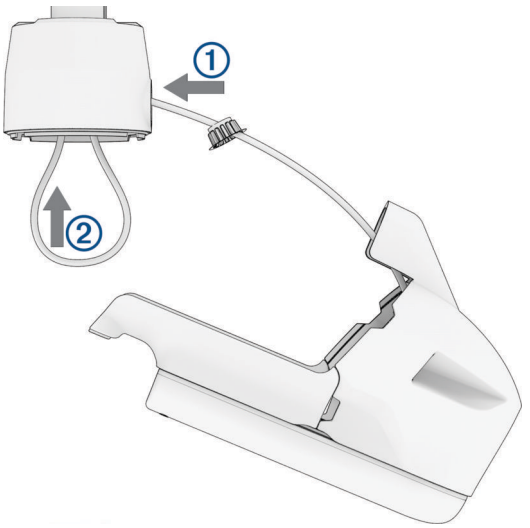
You must use the new screws and seals provided with the transducer replacement kit. Reusing the original screws or seals may lead to product damage.

1. Place the new neoprene pad on the new transducer.

   The transducer replacement kit includes neoprene pads for different size transducers. You should select the pad that fits your transducer.
2. Using a 3 mm hex bit or wrench and the new screws and bushings that came with the transducer replacement kit, secure the replacement transducer to the nose cone.
3. Place the 25 mm (1 in.) O-ring on the recessed nut in the transducer replacement kit.



4 With the O-ring facing the transducer, feed the replacement transducer cable through the recessed nut and the hole in the front of the shaft base ①, but do not feed the cable up through the shaft.



5 Leaving about 60 cm (2 ft.) of the transducer cable out of the front of the shaft base, feed the transducer cable up through the shaft ②.

Installing the Propeller Drive Motor

Before you can install the propeller drive motor, you must install the new transducer and route the transducer cable through the shaft (*Installing the Transducer*, page 11).

1 Remove the large 78 mm (3 in.) O-ring on the shaft base, and discard it.

2 Using the packet included in the transducer replacement kit, apply grease to the new 78 mm (3 in.) O-ring in the transducer replacement kit.

3 Place the new 78 mm (3 in.) O-ring in the groove on the shaft base.

4 Using canned compressed air or an air compressor, blow out any dirt or debris in the four threaded holes on the top of the propeller drive motor.

5 Apply a medium-strength thread-locking compound such as LOCTITE 243 to the threads in the four threaded holes on the top of the propeller drive motor.

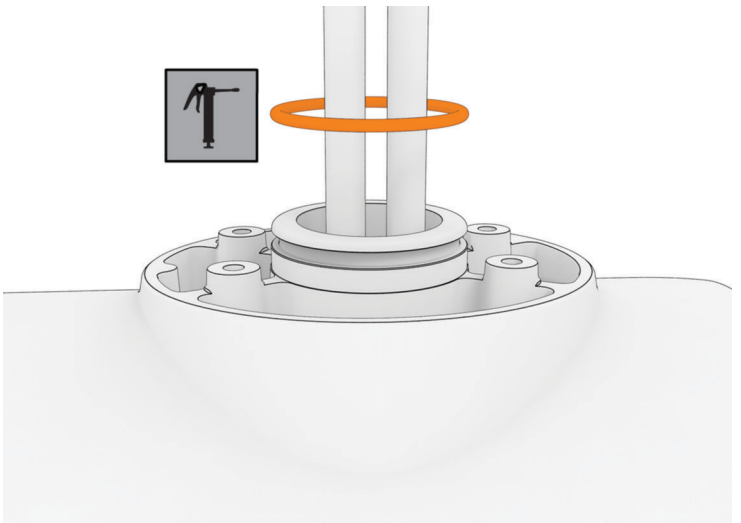
NOTICE

Thread-locking compound is required in these holes to maintain a tight connection between the shaft base and the propeller drive motor. Failure to use thread-locking compound can lead to water ingress and damage to the motor.

6 Remove the 36 mm ($1^{7}/_{16}$ in.) O-ring from the top of the propeller drive motor, and discard it.

7 Thread the cables from the propeller drive motor through the new 36 mm ($1^{7}/_{16}$ in.) O-ring in the transducer replacement kit.

8 Using the packet included in the transducer replacement kit, apply grease to the new 36 mm ($1^{7}/_{16}$ in.) O-ring.



9 Place the new 36 mm ($1^{7}/_{16}$ in.) O-ring in the groove on the top of the propeller drive motor.

10 If the power and data cables from the propeller drive motor are not already aligned and bundled, straighten, align, and bundle them with tape.

If the power and data cables are not straight and aligned, they may not feed through the shaft smoothly.

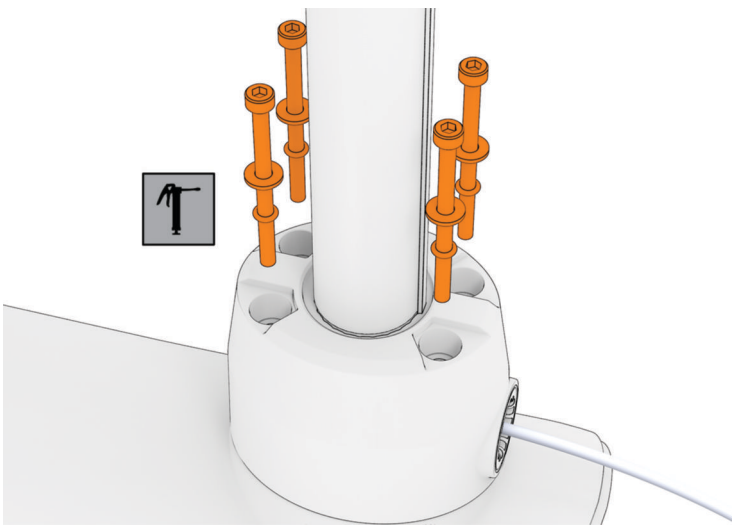
11 Feed the power and data cables from the propeller drive motor up through the shaft until they emerge from the top.

12 Gently pull the ends of the power and data cables as you feed them the rest of the way through the shaft.

NOTICE

When feeding the cables, you must pull on the cable and not on the cable connectors. The data cable connector is fragile and may break if you pull on the connector.

13 Prepare the four bolts that came with the transducer replacement kit by placing a washer and a 4.75 mm ($^{3}/_{16}$ in.) O-ring on each one.



14 Using the grease packet included in the transducer replacement kit, apply grease to the 4.75 mm ($^{3}/_{16}$ in.) O-ring on each bolt.

Avoid getting grease on the bolt threads.

REMEMBER: If you did not previously apply thread-locking compound in the four mounting holes for these bolts, you must apply it before installing these bolts.

15 Using a ball-head 4 mm hex bit or wrench, thread all four of the prepared bolts approximately halfway to make sure that the shaft base and the propeller drive motor are properly aligned.

16 With the shaft base and the propeller drive motor properly aligned, lightly tighten all four bolts by hand.

17 Using a torque wrench, tighten all four bolts to 4 N-m (35 lbf-in).

Installing the Nose Cone and Skeg

Before you can install the nose cone and skeg, you must install the propeller drive motor on the shaft base (*Installing the Propeller Drive Motor*, page 12).

1 From the transducer replacement kit, select the cable gland that fits your transducer cable:

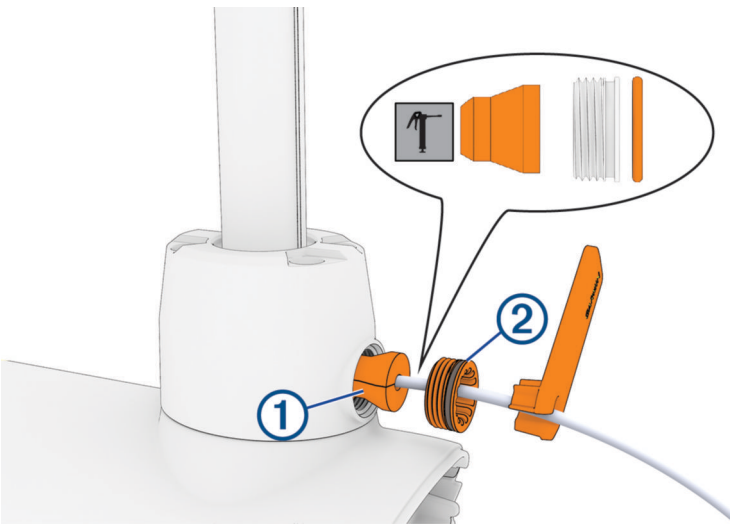
- For a 4-pin transducer, select the cable gland with the smaller hole.
- For an 8- or 12-pin transducer, select the cable gland with the larger hole.

NOTE: A cable gland without a hole is provided if you are not installing a transducer or not routing the transducer cable through the shaft.

2 Measure 20 cm (8 in.) from the point the transducer cable enters the transducer, and mark the transducer cable using a permanent marker.

3 Using the packet included in the transducer replacement kit, apply grease completely to all surfaces of the cable gland you selected to fit your transducer cable.

4 Place the cable gland ① at the marked location on the transducer cable.



5 While keeping the cable gland aligned with the mark on the transducer cable, gently pull the excess cable through the top of the shaft until the cable gland fits into the hole on the shaft base.

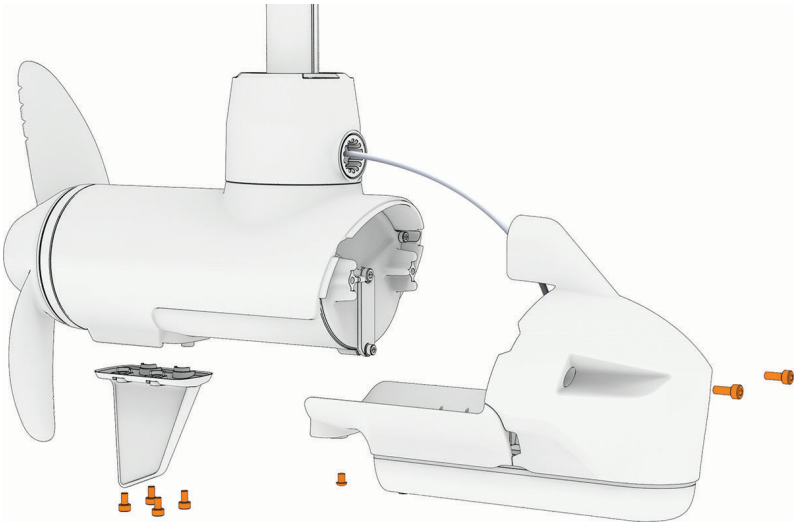
6 Using the packet included in the transducer replacement kit, apply grease to the 25 mm (1 in.) O-ring on the recessed nut ② on the transducer cable.

7 Place the recessed nut into the hole on the shaft base, and tighten it using the included tool.

8 Tighten the recessed nut until it stops.

9 Place the nose cone onto the propeller drive motor.

10 Using a 4 mm hex bit or wrench, secure the front of the nose cone to the propeller drive motor using the two existing screws.



11 Using a 3 mm hex bit or wrench, secure the bottom of the nose cone to the propeller drive motor using the existing screw.

12 Using a 4 mm hex bit or wrench, secure the skeg to the bottom of the propeller drive motor using the four existing screws.

Reinstalling the Shaft

NOTE: We recommend having a second installer available to support the weight of the propeller drive motor while you feed the shaft through the steering servo housing.

1 Feed the transducer cable up through the steering servo housing.

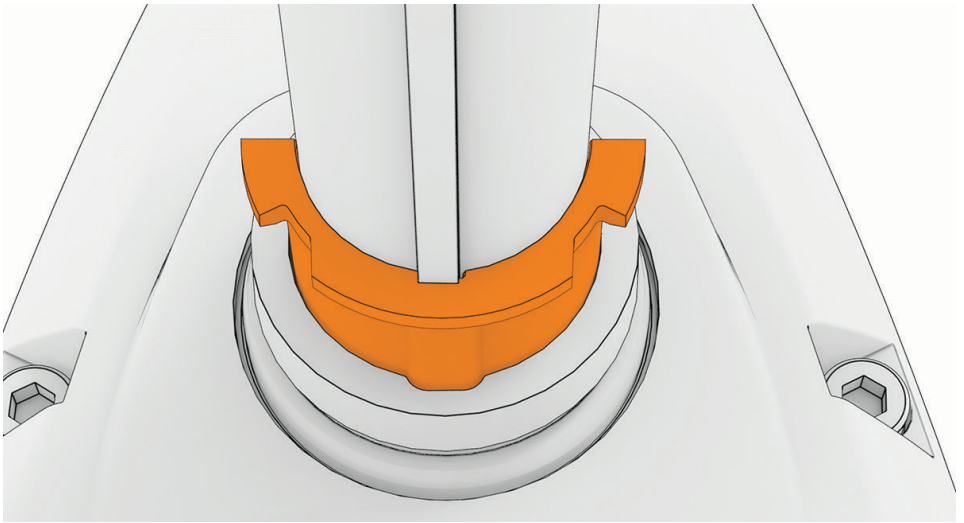
2 Insert the shaft into the bottom of the steering servo housing, guiding the power and data connectors into the steering servo housing to prevent snagging the cables or connectors.

NOTE: The shaft fits in the steering servo housing only in a certain orientation. If you encounter any resistance, remove the shaft, rotate it a few degrees, and try again. When it is in the correct orientation, the shaft will slide into the steering servo easily.

3 Push the shaft up the steering servo to a comfortable height for you to access the top of the shaft, and tighten the depth adjustment collar on the base of the steering servo housing.

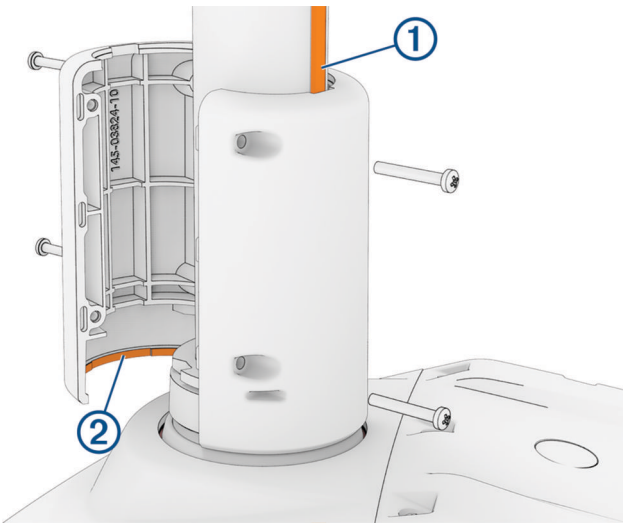
4 Place the keyed bushing over the keyed side of the shaft, and slide it down until its lip rests on the servo housing.

NOTE: The keyed bushing fits in the steering servo only in a certain orientation. While someone supports the weight of the propeller drive motor on the bottom of the shaft, you can loosen the depth adjustment collar and rotate the shaft and bushing to match the position of the notch in the steering servo housing.



5 Install the smooth bushing over the other side of the shaft and slide it down until its lip rests on the steering servo housing.

6 Place both halves of the depth limiter around the shaft so that one half fits over the key on the shaft ①, and both halves overlap the top of the steering servo housing ②.



7 Using a #2 Phillips screwdriver, install the 3 mm pan head screws to secure both halves of depth limiter together.

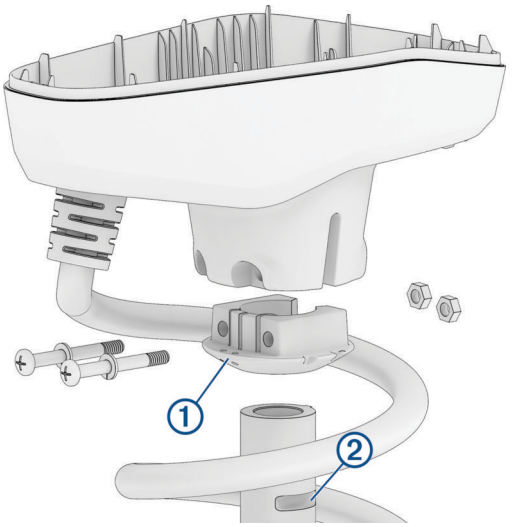
When the depth limiter is installed properly, it rotates with the shaft and cannot slide up the shaft.

8 Reinstall the shaft cap (*Installing the Shaft Cap*, page 17).

Installing the Shaft Cap

1 Insert the rubber wedge ① into the bottom of the shaft cap.

NOTE: The rubber wedge fits in the shaft cap in one orientation only. You should examine the shape of the inside of the shaft cap and the shape of the rubber wedge to determine the correct fit.



2 Pull the cables from the shaft completely through the shaft cap.

3 Place the shaft cap on the shaft, making sure the coil cable wraps around the shaft the same number of times it did before you removed the shaft cap.

NOTICE

You must make sure the coil cable wraps around the shaft the same number of times it did before you removed the shaft cap, to prevent unnecessary wear that may lead to a premature failure of the coil cable.

NOTE: Check the orientation of the shaft cap relative to the orientation of the propeller drive motor. The cables exiting the shaft cap must be on the same side as the propeller, so that the arrow on the shaft cap cover will point forward, relative to the propeller thrust.

4 Push the shaft cap down until the bolt holes on the shaft cap align with the grooves ② on the shaft.

5 Apply a medium-strength thread-locking compound such as LOCTITE 243 to the ends of the $^{1}/_{4}$–20 bolts.

6 Install the $^{1}/_{4}$–20 bolts and split washers into the bottom of the shaft cap.

NOTE: The bolts should slide all the way through the bottom of the shaft cap easily. If you encounter any resistance, you should rotate the shaft cap from side to side while pushing down on it until it is seated correctly and you can easily insert the bolts all the way through.

7 Using a #3 Phillips bit or screwdriver, secure the bolts to the nuts and lock the shaft cap in place.

NOTE: The holes on one side of the shaft cap are shaped to hold the nut in place while you drive the screws from the other side.

Reconnecting the Shaft Cables

1 Install the transducer cable in the shaft cap (*Reinstalling the Transducer Cable*, page 18).

2 Connect the cables in the shaft cap (*Reconnecting the Cables*, page 19).

3 Close the shaft cap (*Closing the Shaft Cap*, page 19).

Reinstalling the Transducer Cable

1 Feed the transducer cable ① completely through the square hole in the shaft cap.

2 Install the grommet ② on the transducer cable.

The grommet is split on one side to make it easy to install on the cable.

3 Push from the outside to secure the square grommet in the shaft cap.

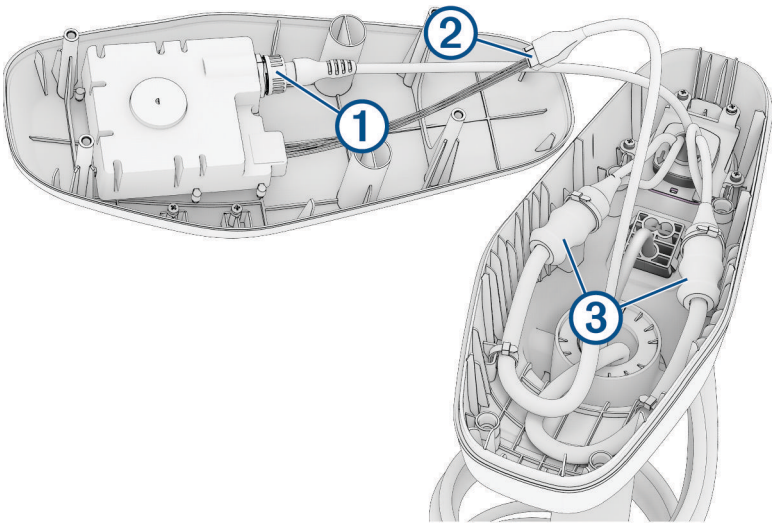
4 Route the transducer cable alongside the coil cable, using the cable clamps to hold the cables together.

5 Route the transducer cable through the mount base alongside the coil cable, using the cable clamps to secure the cables to the base.

6 Route the transducer cable to the chartplotter and connect it.

Reconnecting the Cables

1 Add dielectric grease to the connectors on the GPS data cable ①, the motor data cable ②, and the motor power cables ③.



2 Place the rubber sleeves on the power cables from the shaft, so that you can later slip them over the power cable connections.

3 Reconnect the power cables and, using a 2.5 mm hex bit or wrench, tighten the set screws.

4 Slip the rubber sleeves over the power cable connections.

5 Secure the power cables to the sides of the shaft cap using cable ties, following the arrangement you noted before cutting the original cable ties.

6 Reconnect the GPS data cable to the connector on the shaft cap cover, and tighten the collar.

7 Reconnect the motor data cable, aligning the connectors so that the latch is engaged and the connection is secure.

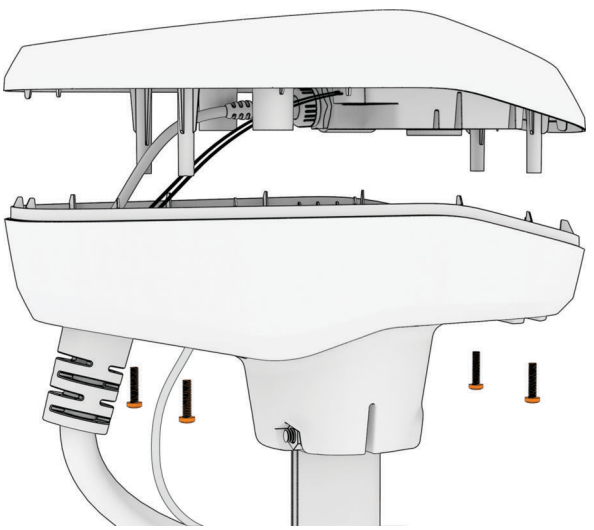
Closing the Shaft Cap

1 Place the lid on the shaft cap.

NOTICE

Ensure the cables are routed away from pinch points before securing the shaft cap lid to avoid damaging the cables.

2 Using a #2 Phillips bit or screwdriver, install the four screws you removed previously to secure the lid of the shaft cap.



Appendix

GT56UHD-TR Transducer Specifications

Dimensions (L x W x H)	218.5 x 51.8 x 27.7 mm (8.61 x 2.04 x 1.09 in.)
Operating temperature range	From 0° to 50°C (from 32° to 122°F)
Storage temperature range	From -40° to 70°C (from -40° to 158°F)
Cable length	7.6 m (25 ft.)
Number of cable pins	12
Water rating	IPX7[1]
Transmit power (RMS)	Traditional: 350 W Garmin ClearVü™: 500 W Garmin SideVü™: 500 W
Frequency	Traditional: CHIRP High Wide (140-240 kHz) Garmin ClearVü and Garmin SideVü: CHIRP 455 kHz (420-490 kHz); UHD CHIRP 800 kHz (770-840 kHz); UHD CHIRP 1 MHz (1000-1120 kHz)
Maximum depth/distance[2]	Traditional: 244 m (800 ft.) Garmin ClearVü at 455 kHz: 122 m (400 ft.) Garmin ClearVü at 1 MHz: 61 m (200 ft.) Garmin SideVü at 1 MHz, max. depth of 15 m (50 ft.): 61 m (200 ft.) each side; 122 m (400 ft.) total Garmin SideVü at 455 kHz, max. depth of 30 m (100 ft.): 152 m (500 ft.) each side; 305 m (1,000 ft.) total

联系信息

制造厂商 : 台湾国际航电股份有限公司

销售厂商 : 上海佳明航电企业管理有限公司

联络地址 : 上海市徐汇区桂平路 391 号 (新漕河泾国际商务中心 A 座 37 层)

电 话 : 021-60737675

客服专线 : 400-819-1899

[1] The device withstands incidental exposure to water of up to 1 m for up to 30 min. For more information, go to www.garmin.com/waterrating.
[2] Dependent upon water salinity, bottom type, and other water conditions.

物质宣言

部件名称	有毒有害物质或元素									
	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚	邻苯二甲酸二(2-乙基己)酯	邻苯二甲酸丁苄酯	邻苯二甲酸二丁酯	邻苯二甲酸二异丁酯
印刷电路板组件	X	O	O	O	O	O	O	O	O	O
金属零件	X	O	O	O	O	O	O	O	O	O
电缆 电缆组件 连接器	X	O	O	O	O	O	O	O	O	O
塑料和橡胶零件	O	O	O	O	O	O	O	O	O	O

本表格依据 SJ/T11364 的规定编制。

O: 代表此种部件的所有均质材料中所含的该种有害物质均低于 (GB/T26572) 规定的限量

X: 代表此种部件所用的均质材料中, 至少有一类材料其所含的有害物质高于 (GB/T26572) 规定的限量

* 该产品说明书应提供在环保使用期限和特殊标记的部分详细讲解产品的担保使用条件。

产品

GT56 探头(适用 Force Pro 脚控马达)