CPT-S Thru-Hull

INSTALLATION INSTRUCTIONS

Raymarine®

BY **◆FLIR®**

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Software updates

Check the Raymarine website for the latest software releases for your product.
www.raymarine.com/software

Product documentation

The latest versions of all English and translated documents are available to download in PDF format from the website: www.raymarine.com/manuals.
Please check the website to ensure you have the latest documentation.

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Contents

Chapter 1: Important information

Certified Installation

Raymarine recommends certified installation by a Raymarine approved installer. A certified installation qualifies for enhanced product warranty benefits. Contact your Raymarine dealer for further details, and refer to the separate warranty document packed with your product.

> ⚠️ **Warning: Product installation and operation**
>
> - This product must be installed and operated in accordance with the instructions provided. Failure to do so could result in personal injury, damage to your vessel and/or poor product performance.
>
> - Raymarine recommends certified installation by a Raymarine approved installer. A certified installation qualifies for enhanced product warranty benefits. Contact your Raymarine dealer for further details, and refer to the separate warranty document packed with your product.

> ⚡ **Warning: High voltages**
>
> This product may contain high voltages. Do NOT remove any covers or otherwise attempt to access internal components, unless specifically instructed in the documentation provided.

> ⚡ **Warning: Switch off power supply**
>
> Ensure the vessel's power supply is switched OFF before starting to install this product. Do NOT connect or disconnect equipment with the power switched on, unless instructed in this document.

> ⚡ **Warning: Transducer operation**
>
> Only test and operate the transducer in the water. Do NOT operate out of water as overheating may occur.

> **Caution: Do not cut transducer cables**
>
> - Cutting the transducer cable severely reduces sonar performance. If the cable is cut, it must be replaced, it cannot be repaired.
>
> - Cutting the transducer cable will void the warranty and invalidate the European CE mark.

> **Caution: Service and maintenance**
>
> This product contains no user serviceable components. Please refer all maintenance and repair to authorized Raymarine dealers. Unauthorized repair may affect your warranty.

Transducer care and cleaning

Growth can collect on the bottom of the transducer, this can reduce performance. To prevent the build-up of sea growth, coat the transducer with a thin layer of water-based antifouling paint, available from your local marine dealer. Reapply paint every 6 months or at the beginning of each boating season. Certain smart transducers have restrictions on where antifouling paint is applied. Please consult your dealer.

> **Note:** Transducers with a temperature sensor may not work properly if painted.

> **Note:** Never use ketone-based paint. Ketones can attack many plastics, possibly damaging the sensor.

> **Note:** Never use spray paint on your transducer. Spraying incorporates tiny air bubbles, and a marine transducer cannot transmit properly through air.

Use a soft cloth and mild household detergent to clean the transducer. If the fouling is severe, remove the growth with a tough cleaning pad, such as a green Scotch Brite™ pad for example. Be careful to avoid scratching the face of the transducer.

> **Note:** Harsh cleaning solvents such as acetone WILL damage the transducer.

Water ingress

Water ingress disclaimer

The waterproof rating capacity of this product meets the stated IPX standard referred to in the product's *Technical Specification*.

Disclaimer

Raymarine does not warrant that this product is error-free or that it is compatible with products manufactured by any person or entity other than Raymarine.

Raymarine is not responsible for damages or injuries caused by your use or inability to use the product, by the interaction of the product with products manufactured by others, or by errors in information utilized by the product supplied by third parties.

Declaration of conformity

Raymarine UK Ltd. declares that this product is compliant with the essential requirements of EMC directive 2004/108/EC.

The original Declaration of Conformity certificate may be viewed on the relevant product page at www.raymarine.com.

Warranty registration

To register your Raymarine product ownership, please visit www.raymarine.com and register online.

It is important that you register your product to receive full warranty benefits. Your unit package includes a bar code label indicating the serial number of the unit. You will need this serial number when registering your product online. You should retain the label for future reference.

Product disposal

Dispose of this product in accordance with the WEEE Directive.

The Waste Electrical and Electronic Equipment (WEEE) Directive requires the recycling of waste electrical and electronic equipment.

IMO and SOLAS

The equipment described within this document is intended for use on leisure marine boats and workboats NOT covered by International Maritime Organization (IMO) and Safety of Life at Sea (SOLAS) Carriage Regulations.

Technical accuracy

To the best of our knowledge, the information in this document was correct at the time it was produced. However, Raymarine cannot accept liability for any inaccuracies or omissions it may contain. In addition, our policy of continuous product improvement may change specifications without notice. As a result, Raymarine cannot accept liability for any differences between the product and this document. Please check the Raymarine website (www.raymarine.com) to ensure you have the most up-to-date version(s) of the documentation for your product.

Chapter 2: Document and product information

Chapter contents

2.1 Document information

This document contains important information related to the installation of your Raymarine product.

The document includes information to help you:

- plan your installation and ensure you have all the necessary equipment;

- install and connect your product as part of a wider system of connected marine electronics;

- troubleshoot problems and obtain technical support if required.
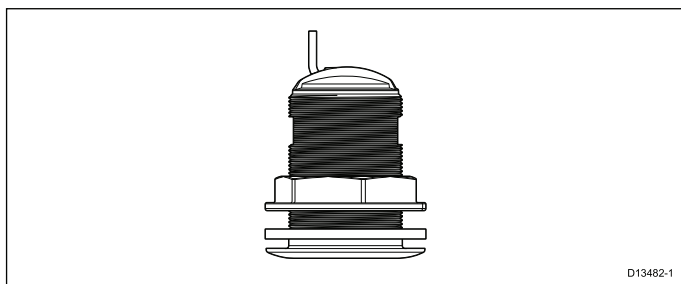
This and other Raymarine product documents are available to download in PDF format from www.raymarine.com.

Applicable products

This document is applicable to the following products:

CPT-S Bronze thru-hull transducer

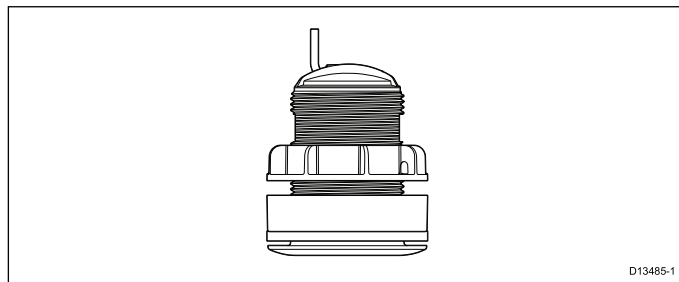The CPT-S is a CHIRP, conical beam sonar transducer

Part number	Description	Suitable hull deadrise angle
A80446	CPT-S Bronze thru–hull 0° angled element CHIRP sonar transducer, with 10 m (32.8 ft) cable.	0° to 5°
E70340	CPT-S Bronze thru–hull 12° angled element CHIRP sonar transducer, with 10 m (32.8 ft) cable.	7° to 17°
E70341	CPT-S Bronze thru-hull 20° angled element CHIRP sonar transducer, with 10 m (32.8 ft) cable.	15° to 25°

- The transducer can be connected to **DownVision™** sonar modules or **DownVision™** LightHouse™-compatible multifunction displays that offer sonar-only functionality to **DownVision™** products.

- **CPT-S** Bronze thru-hull transducers are recommended for fiberglass and wooden hulls and should NOT be fitted to vessels with a metal hull.

- Do NOT install bronze transducers on vessels with a positive ground system.

CPT-S Plastic thru-hull transducer

The **CPT-S** is a CHIRP, conical beam sonar transducer

Part number	Description	Suitable hull deadrise angle
E70339	CPT-S Plastic thru-hull 0° angled element CHIRP sonar transducer, with 10 m (32.8 ft) cable.	0° to 5°
A80448	CPT-S Plastic thru-hull 12° angled element CHIRP sonar transducer, with 10 m (32.8 ft) cable.	7° to 17°
A80447	CPT-S Plastic thru-hull 20° angled element CHIRP sonar transducer, with 10 m (32.8 ft) cable.	15° to 25°
A80545	CPT-S-DF Plastic thru-hull 20° angled element CHIRP sonar transducer, with 6 m (19.7 ft) cable featuring a connector for Dragonfly® displays, and a separate power cable.	15° to 25°

- The transducer can be connected to **DownVision™** sonar modules or **DownVision™** LightHouse™-compatible multifunction displays that offer sonar-only functionality to **DownVision™** products.

- The **CPT-S** plastic thru-hull transducer is recommended for fiberglass and metal hulls and should NOT be fitted to vessels with a wooden hull.

Document illustrations

Your product may differ slightly from that shown in the illustrations in this document, depending on product variant and date of manufacture.

All images are provided for illustration purposes only.

Product documentation

The following documentation is applicable to your product:

Description	Part number
CPT-S Thru Hull transducer installation instructions Installation of a **CPT-S TH** transducer and connection to a sonar module / display.	87264 / 88060 / 88062
LightHouse™ MFD Operation instructions Details the operation of the Fishfinder application for **LightHouse™** powered **DownVision™-** variant multifunction displays.	81360
LightHouse™ 3 MFD Advanced operation instructions Details the operation of the Fishfinder application for **LightHouse™** 3 **DownVision™-** variant multifunction displays.	81370
Dragonfly® 4/5/7/Wi-Fish Installation and operation instructions Details the operation of the Fishfinder application for Dragonfly displays.	81358

Operation instructions

For detailed operation instructions for your product, refer to the documentation that accompanies your display.

Sonar module installation instructions

This document includes installation instructions for the transducer only. For installation instructions for connecting a sonar module, please refer to the documentation that accompanies the sonar module.

# 2.2 CHIRP Sonar overview

CHIRP sonar produces a conical shaped beam, the coverage of the conical beam is the water column directly beneath the vessel

Conical beam
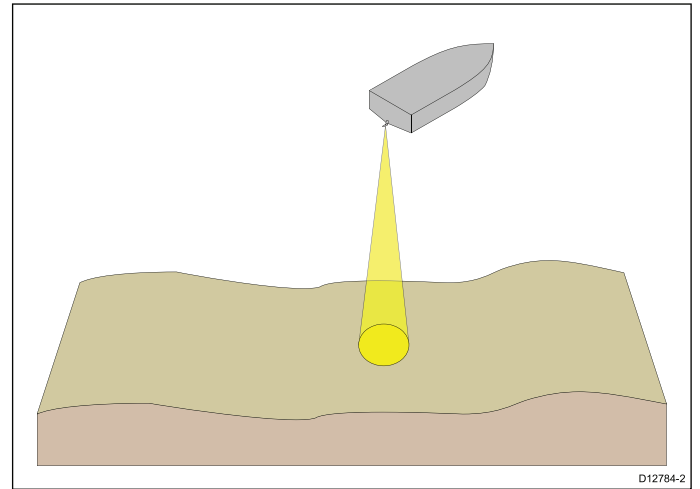
Sonar is effective at a range of speeds. In deeper waters the CHIRP bandwidth is automatically optimized to improve bottom lock and the detection of moving objects (e.g. fish) in the wider water column.

CHIRP sonar screen example
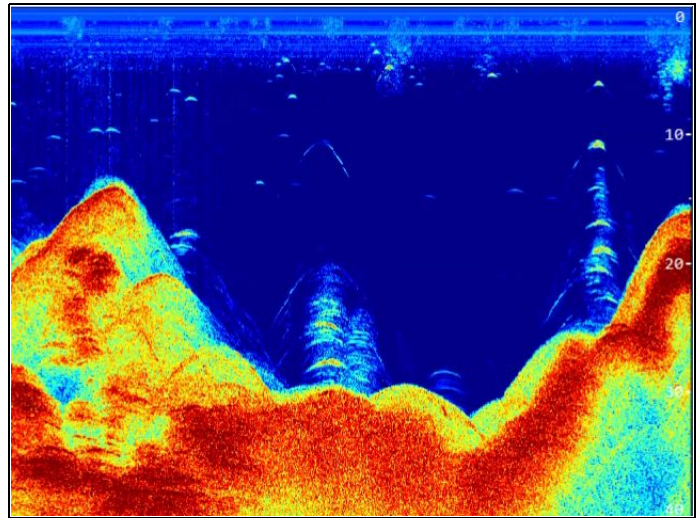
Chapter 3: Planning the installation

Chapter contents

3.1 Installation checklist

Installation includes the following activities:

|	Installation Task
1	Plan your system.
2	Obtain all required equipment and tools.
3	Site all equipment.
4	Route all cables.
5	Drill cable and mounting holes.
6	Make all connections into equipment.
7	Secure all equipment in place.
8	Power on and test the system.

Schematic diagram

A schematic diagram is an essential part of planning any installation. It is also useful for any future additions or maintenance of the system. The diagram should include:

• Location of all components.

• Connectors, cable types, routes and lengths.

3.2 Parts supplied

Parts supplied — CPT-S Bronze Thru-Hull

D13484-2
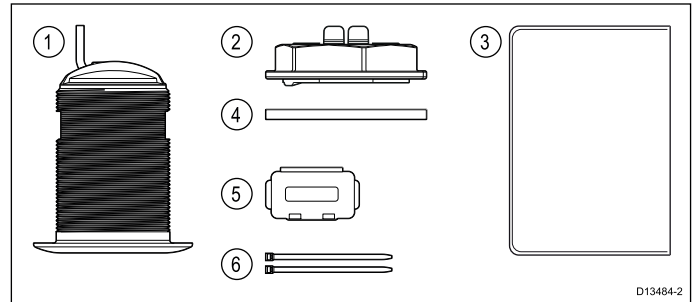
1	**CPT-S** Bronze thru-hull transducer
2	Hull nut (supplied with cable protector fitted)
3	Documentation
4	Rubber washer
5	Suppression ferrite
6	Cable ties x 2

Parts supplied — CPT-S Plastic Thru-Hull

D13487-2
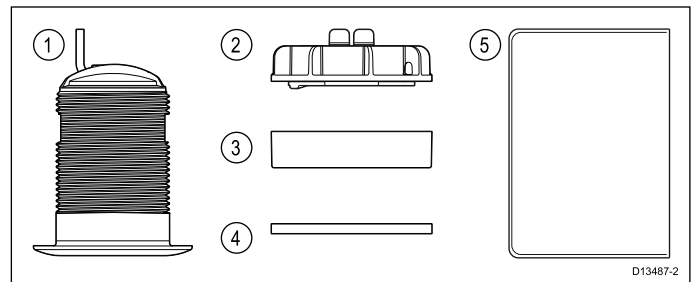
1	**CPT-S** Plastic thru-hull transducer
2	Hull nut (supplied with cable protector fitted)
3	Spacer
4	Rubber washer
5	Documentation
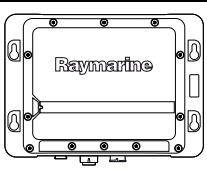
3.3 Required additional components

This product forms part of a system of electronics and requires the following additional components for full operation.

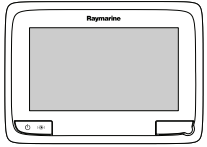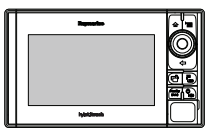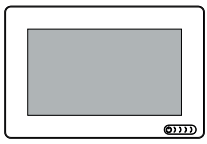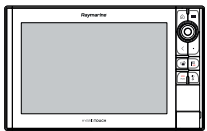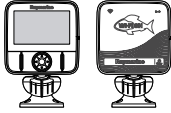- Compatible DownVision™ Sonar Module, or DownVision™ or RealVision™ variant MFD. Refer to **Compatible products**, for a list of compatible products.
- Transducer extension cables. Refer to Chapter 10 **Spares and accessories**, for suitable cables.

Compatible products

Compatible sonar modules and MFDs.

	Description	Part number
	CP100	E70204
	a68 / a68 Wi-Fi	E70206, E70207
	a78 / a78 Wi-Fi	E70208, E70209
	a98	E70234
	a128	E70237
	eS78	E70265
	eS98	E70275
	eS128	E70285
	Axiom™ 7 DV	E70364, E70364-01, E70364-02, E70364-DISP
	Axiom™ 7 RV 3D, via adaptor cable A80490	E70365, E70365-03, E70365-DISP
	Axiom™ 9 RV 3D, via adaptor cable A80490	E70367, E70367-02, E70367-03, E70367-DISP
	Axiom™ 12 RV 3D, via adaptor cable A80490	E70369, E70369-03, E70369-DISP
	Axiom™ Pro 9 RVX, via adaptor cable A80490	E70371
	Axiom™ Pro 9 S	E70481
	Axiom™ Pro 12 RVX, via adaptor cable A80490	E70372
	Axiom™ Pro 12 S	E70482
	Axiom™ Pro 16 RVX, via adaptor cable A80490	E70373

	Description	Part number
	Axiom™ Pro 16 S	E70483
	Note: The CPT-S-DF transducer (A80545) is the only CPT-S-variant transducer compatible with Dragonfly® displays. **Dragonfly 4/5/7/Wi-Fish:** • DV • DVS • Pro	E70291, E70292, E70294, E70306, E70293, E70320, E70290.

3.4 Tools required

Tools required — CPT-S Bronze thru-hull

The following equipment is required to install the transducer.
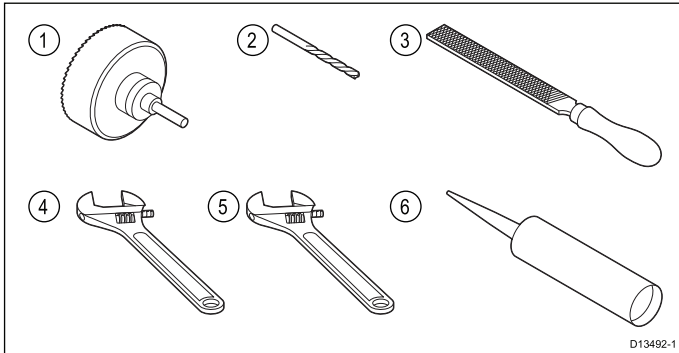
1	60 mm / 2.375 inch hole cutter
2	Drill bit (for drilling the pilot hole)
3	Half round file
4	75 mm / 3 inch wrench (spanner) or suitable size adjustable wrench (spanner)
5	55 mm Wrench (spanner) or suitable size adjustable wrench (spanner) (used for alignment)
6	Marine grade sealant (non-acetate based)

Tools required — CPT-S Plastic thru-hull

The following equipment is required to install the transducer.
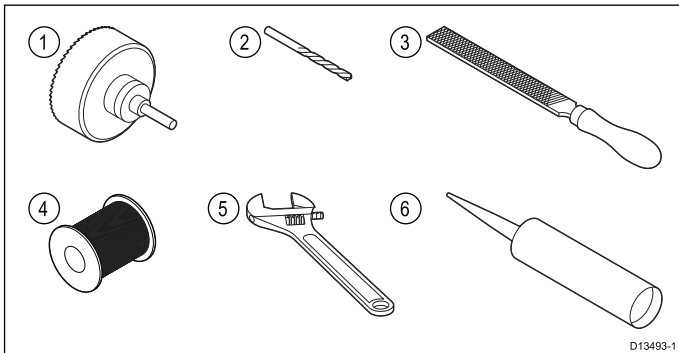
1	60 mm / 2.375 inch hole cutter
2	Drill bit (for drilling the pilot hole)
3	Half round file
4	Non-corrosive locking wire
5	55 mm Wrench (spanner) or suitable size adjustable wrench (spanner) (used for alignment)
6	Marine grade sealant (non-acetate based)

> ⚠️ **Warning: Marine-grade sealant**
>
> Only use marine-grade neutral cure polyurethane sealants. Do NOT use sealants containing acetate or silicone, which can cause damage to plastic parts.

3.5 Warnings and cautions

> **Important:** Before proceeding, ensure that you have read and understood the warnings and cautions provided in the Chapter 1 **Important information** section of this document.

3.6 Location requirements

The guidelines below should be followed when selecting a location for your transducer.

For best performance the transducer should be installed in a location with the least turbulence and aeration.

Important: Do NOT install the transducer in-line with trailer rollers, your vessel's engine intake or discharge openings.

• The transducer should be installed as close to the centerline of the vessel as possible.
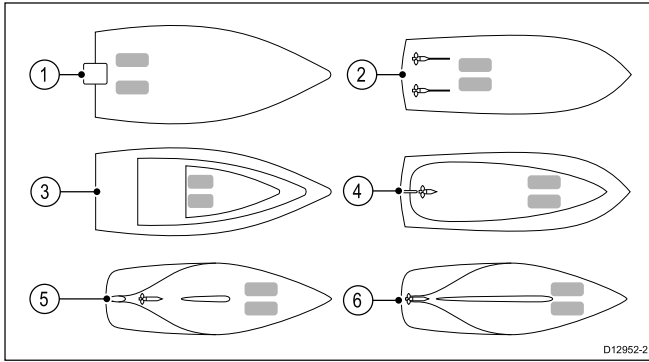
1	Planing hull	**Outboard or I/O** — mount forward and to the side of the propeller(s)
2	Planing hull	**Inboard** — mount forward of the propeller(s) and shaft(s)
3	Planing hull	**Stepped hull** — mount on the first step as far aft as possible
4	Displace-ment hull	**Displacement hull** — mount approximately 1/3 of the way along the length of the hull, measured along the waterline
5	Keel sailboat	**Fin keel** — mount forward of the keel, ensuring that the keel will not obstruct the transducers wide beam width
6	Keel sailboat	**Full keel** — mount away from the keel at a location with minimum dead rise, ensuring that the keel will not obstruct the transducers wide beam width

• The transducer should be installed away from any protrusions such as transducers, steps, ribs, strakes, or rows of rivets.
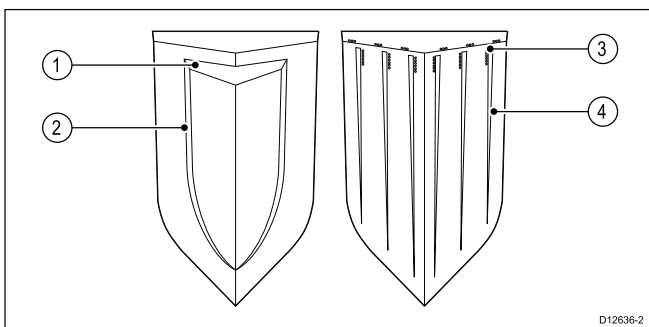
1	Step
2	Rib
3	Row of rivets
4	Strake

• The transducer should be installed in a location where no load will be applied to the transducer during, launching, lifting, trailering and storage of the boat.

• The transducer must be installed in the correct orientation.

• The transducer should be installed in a location where there is sufficient clearance inside the hull to fit the nut and have at least 100 mm (4 in) of headroom to allow for withdrawal.

• The transducer should be installed so that the transducer's elements are pointing straight down.

CPT-S Bronze thru-hull dimensions
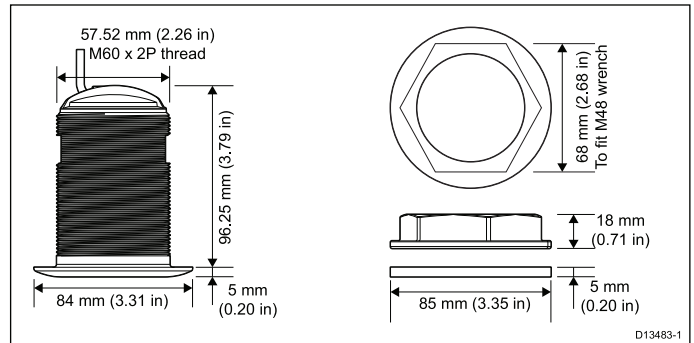
• Transducer cable length = 10 m (32.8 ft)

CPT-S Plastic thru-hull dimensions
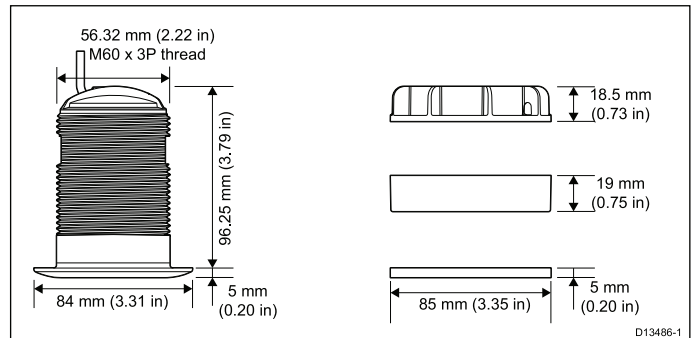
• Transducer cable length = 10 m (32.8 ft)

Chapter 4: Cables and connections

Chapter contents

4.1 General cabling guidance

Cable types and length

It is important to use cables of the appropriate type and length

- Unless otherwise stated use only standard cables of the correct type, supplied by Raymarine.

- Ensure that any non-Raymarine cables are of the correct quality and gauge. For example, longer power cable runs may require larger wire gauges to minimize voltage drop along the run.

Routing cables

Cables must be routed correctly, to maximize performance and prolong cable life.

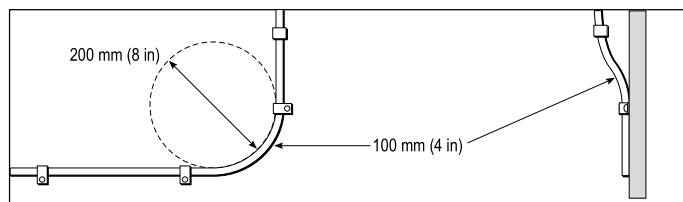- Do NOT bend cables excessively. Wherever possible, ensure a minimum bend diameter of 200 mm (8 in) / minimum bend radius of 100 mm (4 in).

- Protect all cables from physical damage and exposure to heat. Use trunking or conduit where possible. Do NOT run cables through bilges or doorways, or close to moving or hot objects.

- Secure cables in place using tie-wraps or lacing twine. Coil any extra cable and tie it out of the way.

- Where a cable passes through an exposed bulkhead or deckhead, use a suitable watertight feed-through.

- Do NOT run cables near to engines or fluorescent lights.

Always route data cables as far away as possible from:

- other equipment and cables,

- high current carrying AC and DC power lines,

- antennae.

Strain relief

Ensure adequate strain relief is provided. Protect connectors from strain and ensure they will not pull out under extreme sea conditions.

Cable shielding

Ensure that all data cables are properly shielded that the cable shielding is intact (e.g. hasn't been scraped off by being squeezed through a tight area).
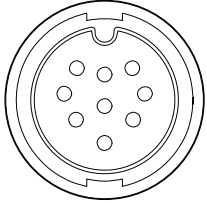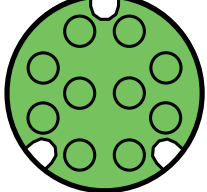
4.2 Cable routing

Cable routing requirements for the transducer cable.

- Check that the cable is long enough to reach the equipment that it will be connected to. Refer to the manual that accompanied your sonar module for details of transducer extension cables.

- Use grommets in any pass through holes to prevent damage to the transducer cable.

- To prevent interference, separate the transducer cable from any other electrical cables.

- Secure the cable at regular intervals using cable clips (not supplied).

- Any excess cable should be coiled up at a convenient location.

4.3 Connections overview

Use the following information to help you identify the connections on your product.

Connector	Connector type	Connects to:
	9 pin **DownVision™** -type connector	• DownVision™ sonar module or MFD. • RealVision™ MFD, via adaptor cable A80490.
	(CPT-S-DF only): 10 pin Dragonfly connector	Dragonfly 4/5/7/Wi-Fish (DV, DVS and Pro variants)

Making connections

Follow the steps below to connect the cable(s) to your product.

1. Ensure that the vessel's power supply is switched off.
2. Ensure that the device being connected to the unit has been installed in accordance with the installation instructions supplied with that device.
3. Ensuring correct orientation, push the cable connector fully onto the corresponding connector on the unit.
4. Turn the locking collar clockwise to secure the cable.

DownVision™ transducer extension cable

For best performance, cable runs should be kept to a minimum. However, for some installations it may be necessary to extend the transducer cable.

• A 4 m (13.1 ft.) Transducer extension cable (A80273) is available.

• It is recommended that only one cable extension is used.

4.4 Cable ferrite installation

Your product is supplied with a cable ferrite. To ensure EMC Compliance, the supplied ferrite must be fitted to the power cable according to the following instructions.
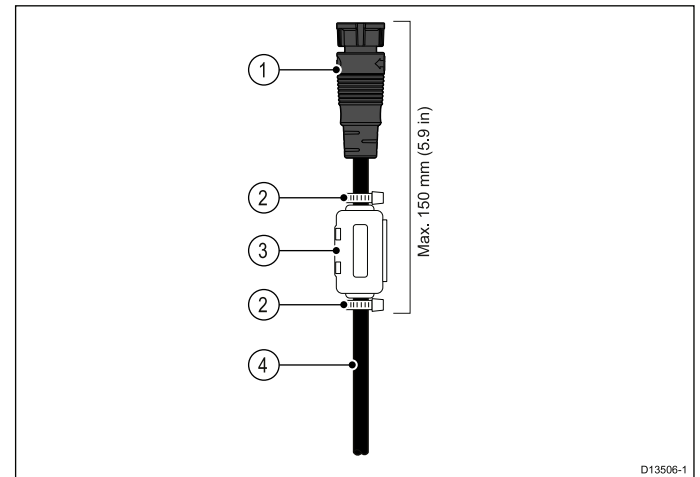
1. Transducer connector.
2. The supplied cable ties should be used to secure the ferrite in position.
3. Fit the supplied ferrite to the transducer cable, ensuring a tight fit. The ferrite should be fitted as close as possible to the connector, but ensure that the distance between the ferrite and the top of the connector is no more than 150 mm (5.9 in).
4. Transducer cable.

Chapter 5: Mounting

Chapter contents

5.1 Pre-installation test

⚡	**Warning: Transducer operation**
	Only test and operate the transducer in the water. Do NOT operate out of water as overheating may occur.

Testing the transducer

Transducer operation should be checked before installation.

1. Connect the transducer to the sonar module's / display's transducer connection.
2. Fully submerge the transducer in water.
3. Power up the sonar module / display.
4. Open a Fishfinder application on your display.
5. If required, select the relevant transducer/channel from the Channel selection page (**Menu > Channel**).
6. Check that accurate depth and temperature readings are displayed.
7. If you experience difficulties obtaining readings then contact Raymarine Technical Support.

| **Caution: Transducer cable** |
|---|
| • Do NOT use the transducer cable to lift or suspend the transducer; always support the transducer body directly during installation. |
| • Do NOT cut, shorten, or splice the transducer cable. |
| • Do NOT remove the connector. |
| If the cable is cut, it cannot be repaired. Cutting the cable will also void the warranty. |

5.2 Mounting — CPT-S Bronze thru-hull

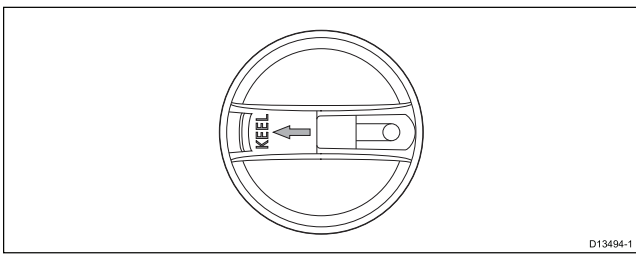The following procedure should only be performed with your vessel out of the water.

Important:
• The threads on the Hull nut may be sharp, ensure that the supplied Cable protector is fitted to the Hull nut before feeding the transducer cable through the nut.
• Do not remove the label attached to the transducer cable as it contains important information.

D13490-1
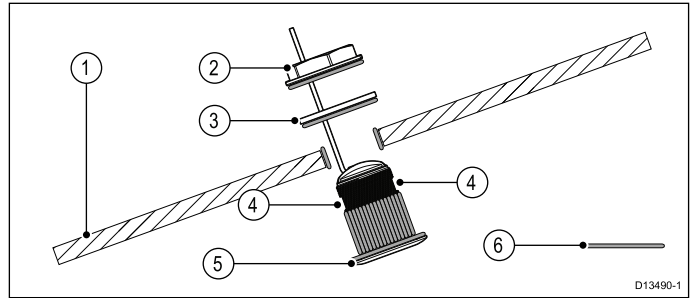
1	Hull
2	Hull nut
3	Rubber washer
4	Wrench flats (for alignment)
5	Transducer
6	Marine grade sealant (non-acetate based)

1. Using the location guidelines provided, ensure you have selected an appropriate location for the transducer.
2. Drill a pilot hole in the center of the selected location.
3. Drill the hole out using a suitable size hole cutter.
4. Using a half round file and / or sandpaper, ensure there are no rough edges or burrs.
5. Wipe all surfaces and ensure they are dry, clean and free from debris.
6. Apply a thick bead of marine grade sealant all around the edge of the hole cut out.
7. Apply a thick bead of marine grade sealant all the way around the top of the transducer lip, where it will meet the hull.
8. Apply a thick bead of marine grade sealant all the way around the threaded section, ensuring that the sealant will protrude approximately 6 mm above the final tightened Hull nut.
9. Guide the transducer cable and threaded section up through the hole in the vessel's hull and hold in position.
10. Ensure the transducer is orientated correctly. The arrow should point towards the Keel of the vessel.

11. Apply a thick bead of marine grade sealant all around the bottom face of the Rubber washer.

12. From inside the vessel, feed the transducer cable through the Rubber washer and then slide the Rubber washer over the threaded section.

13. Ensuring the Cable protector is fitted to the Hull nut, feed the transducer cable through the nut, resting the nut on top of the threaded tube.

14. Remove the Cable protector by pulling the 2 tabs away from the back of the Hull nut.

15. Apply a thick bead of marine grade sealant to the bottom face of the Hull nut.

16. Screw the Hull nut onto the threaded section and tighten by hand until the flats are above the Hull nut.

17. Use a suitable sized wrench (spanner) across the flats of the threaded section to ensure that the transducer does not twist during tightening.

18. Fully tightening the Hull nut using a second suitable sized wrench (spanner).

In order to prevent leaks and transducer movement when hit by objects or waves, ensure that the nut is adequately tightened. You should see the sealant protruding from the edges of all applied surfaces.

Important: Wooden hull — Allow wooden hulls to swell prior to fully tightening the nut.

Important: Do NOT overtighten. Overtightening can cause damage to the hull which may result in water leaking into the vessel.
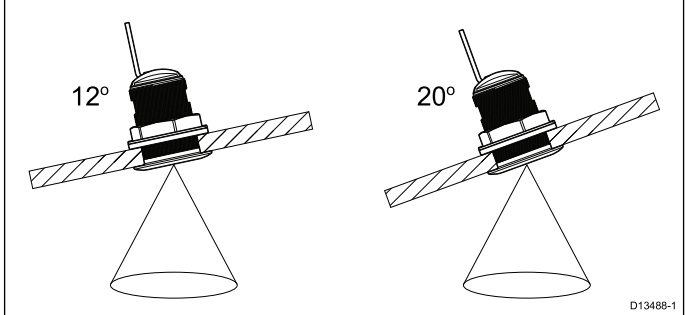
19. To prevent aeration around the transducer, remove any excess sealant on the outside of the hull.

20. Ensure that the sealant has fully cured before putting the vessel back in the water.

Refer to the sealant manufacturer's instructions for curing times.
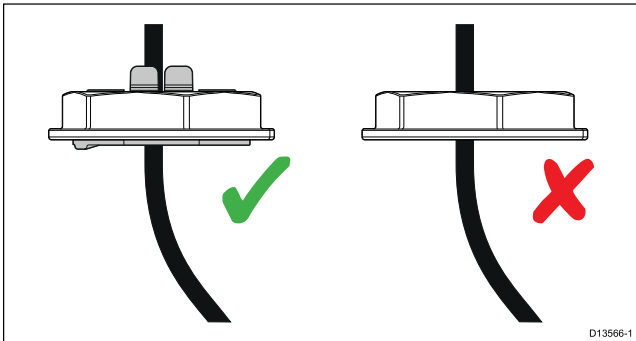
21. Once the vessel has been put back in the water check for leaks immediately.

22. Check for leaks at regular intervals after installation until you are satisfied that there are no leaks.

23. Ensure checking for leaks around the transducer is added to your routine vessel maintenance schedule.

5.3 Mounting — CPT-S Plastic thru-hull

The following procedure should only be performed with your vessel out of the water.

> **Important:**
>
> • The threads on the Hull nut may be sharp, ensure that the supplied Cable protector is fitted to the Hull nut before feeding the transducer cable through the nut.
>
> • Do not remove the label attached to the transducer cable as it contains important information.
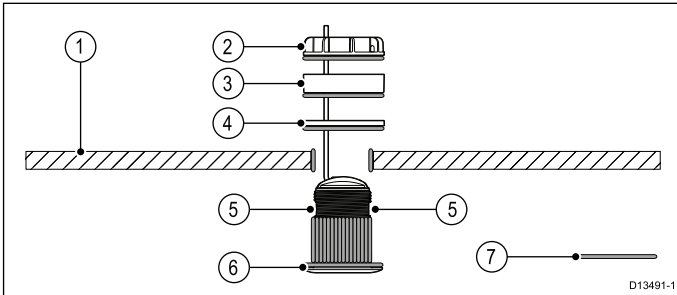
1	Hull
2	Hull nut
3	Spacer
4	Rubber washer
5	Wrench flats (for alignment)
6	Transducer
7	Marine grade sealant (non-acetate based)

1. Using the location guidelines provided, ensure you have selected an appropriate location for the transducer.
2. Drill a pilot hole in the center of the selected location.
3. Drill out the hole using a suitable size hole cutter.
4. Using a half round file and / or sandpaper, ensure there are no rough edges or burrs.
5. Wipe all surfaces and ensure they are dry, clean and free from debris.
6. Apply a thick bead of marine grade sealant all around the edge of the hole cut out.
7. Apply a thick bead of marine grade sealant all the way around the top of the transducer lip, where it will meet the hull.
8. Apply a thick bead of marine grade sealant all the way around the threaded section, ensuring that the sealant will protrude approximately 6 mm above the final tightened Hull nut.
9. Guide the transducer cable and threaded section up through the hole in the vessel's hull and hold in position.
10. Ensure the transducer is orientated correctly. The arrow should point towards the Keel of the vessel.

11. Apply a thick bead of marine grade sealant all around the bottom face of the Rubber washer.
12. Apply a thick bead of marine grade sealant all around the bottom face of the Spacer.
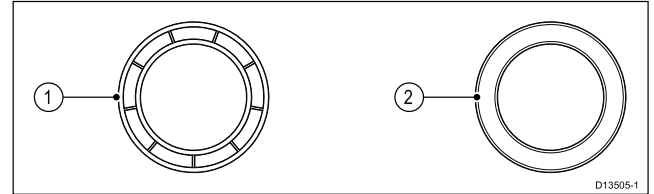
1	Top face
2	Bottom face

13. From inside the vessel, feed the transducer cable through the Rubber washer and the Spacer and then slide the Rubber washer and Spacer over the threaded section.
14. Ensuring the Cable protector is fitted to the Hull nut, feed the transducer cable through the nut, resting the nut on top of the threaded section.
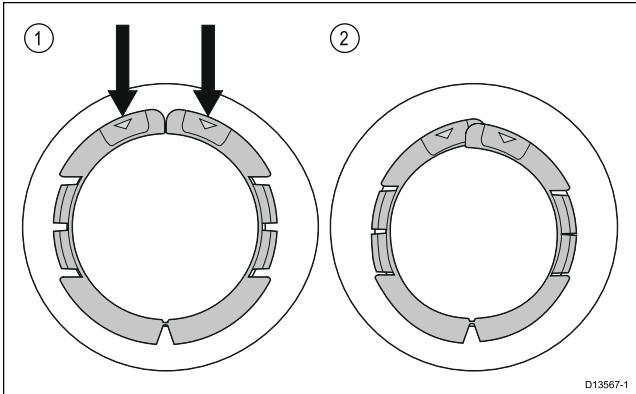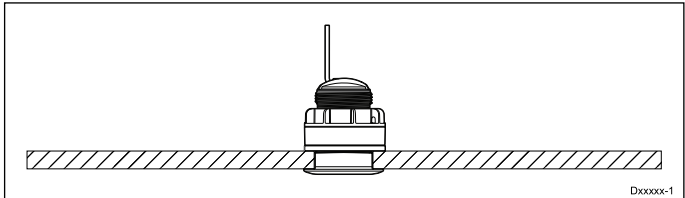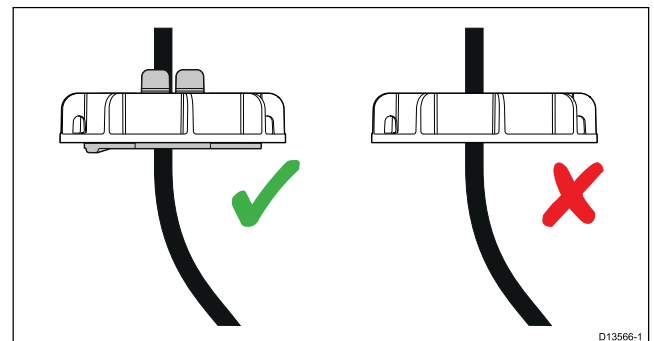

15. Remove the Cable protector by pulling the 2 tabs away from the back of the Hull nut.
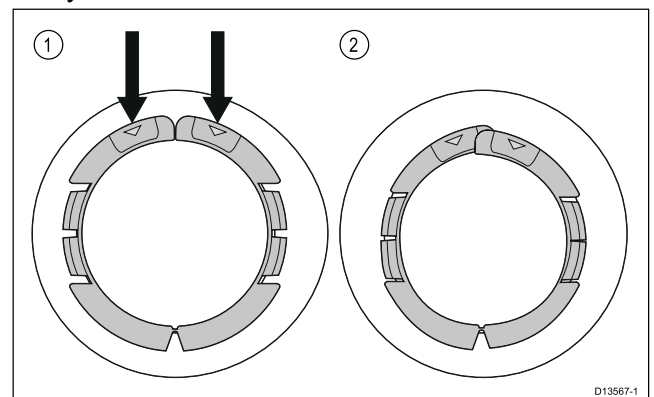
16. Apply a thick bead of marine grade sealant to the bottom face of the Hull nut.
17. Use a suitable sized wrench (spanner) across the flats of the threaded section to ensure that the transducer does not twist during tightening.
18. Screw the Hull nut onto the threaded section and tighten by hand until the flats are above the Hull nut.

19. Fully tightening the Hull nut by hand.

    *In order to prevent leaks and transducer
    movement when hit by objects or waves, ensure
    that the nut is adequately tightened. You should
    see the sealant protruding from the edges of the
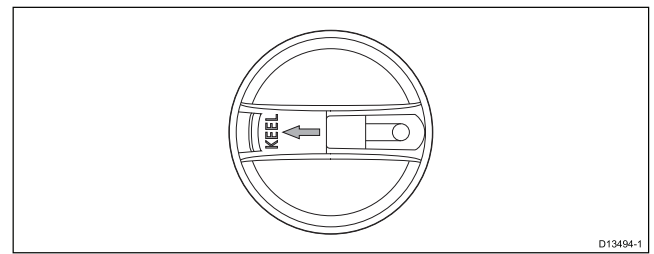   applied surfaces.*

    Important: Do NOT overtighten. Overtightening
    can damage to the transducer, which may result in
    water leaking into the vessel.

20. To prevent aeration around the transducer,
    remove any excess sealant on the outside of the
    hull.

21. Secure the Hull nut by feeding a piece of locking
    wire (not supplied) through the holes in the nut
    and then tightly wrapping around the threaded
    section as close to the top of the nut as possible.
    The wire should then be tied to prevent it coming
    loose.
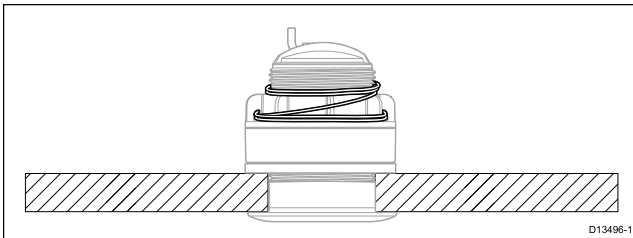
22. Ensure that the sealant has fully cured before
    putting the vessel back in the water.

    *Refer to the sealant manufacturer's instructions
    for curing times.*

23. Once the vessel has been put back in the water
    check for leaks immediately.

24. Check for leaks at regular intervals after
    installation until you are satisfied that there are
    no leaks.

25. Ensure checking for leaks around the transducer
    is added to your routine vessel maintenance
    schedule.
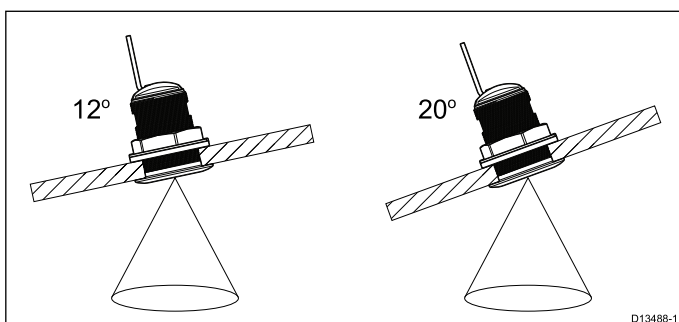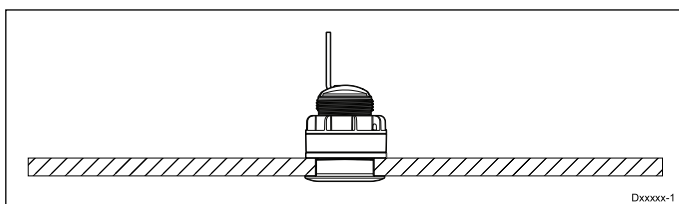
5.4 Cored fiberglass hull mounting

If installing in a cored fiberglass hull, it is
recommended that the transducer is mounted in a
non-cored section.

If installation in a cored section of the hull is required
then the area around the hole must be adequately
strengthened to ensure it is not damaged when
tightening the transducer.

Important: Installation in a cored fiberglass hull
should only be carried out by a competent marine
installer.

Chapter 6: System checks and troubleshooting

Chapter contents

6.1 Troubleshooting

The troubleshooting information provides possible causes and corrective action required for common problems associated with installation and operation of your product.

Before packing and shipping, all Raymarine products are subjected to comprehensive testing and quality assurance programs. If you do experience problems with your product this section will help you to diagnose and correct problems in order to restore normal operation.

If after referring to this section you are still having problems with your product, please refer to the Technical support section of this manual for useful links and Raymarine Product Support contact details.

Operation instructions

For detailed operation instructions for your product, refer to the documentation that accompanies your display.

Sonar troubleshooting

Problems with the sonar and their possible causes and solutions are described here.

Problem	Possible causes	Possible solutions
Sonar data not available on multifunction display.	Unit power supply fault.	Check the unit power supply and cables.
	Other unit fault.	Refer to the instructions supplied with the unit.
	SeaTalk^hs / RayNet network problem.	Check that the unit is correctly connected to a Raymarine network switch. If a crossover coupler or other coupler cable / adapter is used, check all connections (as applicable).
		Check the status of the Raymarine network switch (if applicable).
		Check that SeaTalk^hs/ RayNet cables are free from damage.
	Software mismatch between equipment may prevent communication.	Contact Raymarine technical support.
Problematic data readings. **Note:** Not all transducers and / or sonar modules support the detection of depth, range and temperature. For more information, refer to the latest specifications and documentation available for your particular products on the Raymarine website (www.raymarine.com).	Gain or Frequency settings may be inappropriate for present conditions.	Check the sonar presets, gain and frequency settings.
	Unit power supply fault.	Check the voltage from the power supply, if this is too low it can affect the transmitting power of the unit.
	Unit cable fault.	Ensure that the power, transducer and all other cables to the unit are properly connected and free from damage.
	Transducer fault.	Check that the transducer is mounted correctly and is clean.
		If you have a transom mount transducer, check that the transducer hasn't kicked-up due to hitting an object.
	Other unit fault.	Refer to the instructions supplied with the unit.
	Vessel stationary.	Fish arches are not displayed if the vessel is stationary; fish will appear on the display as straight lines.
	High vessel speed	Turbulence around the transducer may be confusing the unit.
	Scroll speed set to zero	Adjust the scroll speed.

Resetting the sonar module

You can use the reset function on a compatible Raymarine multifunction display to restore the sonar module to its factory default settings.

In the fishfinder application:

1. Select **Menu**.
2. Select **Set-up**.
3. Select **Sounder Set-up**.
4. Select **Sonar Reset**.
5. Select **Yes** to confirm or **No** to abort the operation, as appropriate.

The unit will now be reset to factory default settings.

Chapter 7: Maintenance

Chapter contents

7.1 Routine checks

The following periodic checks should be made:

- Examine cables for signs of damage, such as chafing, cuts or nicks.

- Check that the cable connectors are firmly attached and that their locking mechanisms are properly engaged.

Note: Cable checks should be carried out with the power supply switched off.

⚡ **Warning: High voltage**

This product contains high voltage. Adjustments require specialized service procedures and tools only available to qualified service technicians. There are no user serviceable parts or adjustments. The operator should never remove the cover or attempt to service the product.

7.2 Unit cleaning instructions

The unit does not require regular cleaning. However, if you find it necessary to clean the unit, please follow the steps below:

1. Ensure power is switched off.
2. Wipe unit clean with a damp cloth.
3. If necessary, use a mild detergent solution to remove grease marks.

Transducer care and cleaning

Growth can collect on the bottom of the transducer, this can reduce performance. To prevent the build-up of sea growth, coat the transducer with a thin layer of water-based antifouling paint, available from your local marine dealer. Reapply paint every 6 months or at the beginning of each boating season. Certain smart transducers have restrictions on where antifouling paint is applied. Please consult your dealer.

Note: Transducers with a temperature sensor may not work properly if painted.

Note: Never use ketone-based paint. Ketones can attack many plastics, possibly damaging the sensor.

Note: Never use spray paint on your transducer. Spraying incorporates tiny air bubbles, and a marine transducer cannot transmit properly through air.

Use a soft cloth and mild household detergent to clean the transducer. If the fouling is severe, remove the growth with a tough cleaning pad, such as a green Scotch Brite™ pad for example. Be careful to avoid scratching the face of the transducer.

Note: Harsh cleaning solvents such as acetone WILL damage the transducer.

Chapter 8: Technical support

Chapter contents

8.1 Raymarine product support and servicing

Raymarine provides a comprehensive product support service, as well as warranty, service, and repairs. You can access these services through the Raymarine website, telephone, and e-mail.

Product information

If you need to request service or support, please have the following information to hand:

- Product name.
- Product identity.
- Serial number.
- Software application version.
- System diagrams.

You can obtain this product information using the menus within your product.

Servicing and warranty

Raymarine offers dedicated service departments for warranty, service, and repairs.

Don't forget to visit the Raymarine website to register your product for extended warranty benefits: http://www.raymarine.co.uk/display/?id=788.

Region	Tele-phone	E-mail
United Kingdom (UK), EMEA, and Asia Pacific	+44 (0)1329 246 932	emea.service@raymarine.com
United States (US)	+1 (603) 324 7900	rm-usrepair@flir.com

Web support

Please visit the "Support" area of the Raymarine website for:

- **Manuals and Documents** — http://www.raymarine.com/manuals
- **FAQ / Knowledgebase** — http://www.raymarine.com/knowledgebase
- **Technical support forum** — http://forum.raymarine.com
- **Software updates** — http://www.raymarine.com/software

Telephone and e-mail support

Region	Tele-phone	E-mail
United Kingdom (UK), EMEA, and Asia Pacific	+44 (0)1329 246 777	support.uk@raymarine.com
United States (US)	+1 (603) 324 7900 (Toll-free: +800 539 5539)	support@raymarine.com

Region	Tele-phone	E-mail
Australia and New Zealand	+61 2 8977 0300	aus.support@raymarine.com (Raymarine subsidiary)
France	+33 (0)1 46 49 72 30	support.fr@raymarine.com (Raymarine subsidiary)
Germany	+49 (0)40 237 808 0	support.de@raymarine.com (Raymarine subsidiary)
Italy	+39 02 9945 1001	support.it@raymarine.com (Raymarine subsidiary)
Spain	+34 96 2965 102	sat@azimut.es (Authorized Raymarine distributor)
Netherlands	+31 (0)26 3614 905	support.nl@raymarine.com (Raymarine subsidiary)
Sweden	+46 (0)317 633 670	support.se@raymarine.com (Raymarine subsidiary)
Finland	+358 (0)207 619 937	support.fi@raymarine.com (Raymarine subsidiary)
Norway	+47 692 64 600	support.no@raymarine.com (Raymarine subsidiary)
Denmark	+45 437 164 64	support.dk@raymarine.com (Raymarine subsidiary)
Russia	+7 495 788 0508	info@mikstmarine.ru (Authorized Raymarine distributor)

8.2 Viewing product information

You can view information about your unit from the **Diagnostics** menu on a compatible multifunction display. This option displays information such as product serial number and software version.

With the Homescreen displayed:

1. Select **Set-up.**
2. Select **Maintenance**.
3. Select **Diagnostics**.
4. Select the **Select Device** option.

   A list of connected devices is displayed.
5. Select the product for which you want to view information. Alternatively, select **Show All Data** to display information for all connected products.

Chapter 9: Technical specification

Chapter contents

9.1 Technical specification

Physical specification — CPT-S Thru-hull transducers

Dimensions	• Width: 84 mm (3.31 in) • Face diameter: 96.25 mm (3.79 in)
Cable length	10 m (32.8 ft)
Unboxed weight (including cable)	• **Bronze** — 1.357 kg (2.99 lbs) • **Plastic** — 0.711 kg (1.58 lbs)

Transducer environmental specification

Operating temperature	0 ºC to + 40 ºC (32 ºF to 104 ºF)
Storage temperature	–20 ºC to + 70 ºC (23 ºF to 158 ºF)
Waterproof rating	• IPX6 • IPX7 • IPX8

Sonar specification

Channels	1 x CHIRP sonar
Beam coverage	Conical beam
Depth range	0.6 m (2 ft) to 274 m (900 ft) depending on water conditions
Power	90 W

Conformance specification

Conformance	• EN 60945:2002 • IEC 28846:1993 • EMC Directive 2004/108/EC • Australia and New Zealand: C-Tick, Compliance Level 2

Chapter 10: Spares and accessories

Chapter contents

10.1 Spares and accessories — CPT-S Thru-Hull

Accessories

Description	Part number
4 m (13.1 ft.) Transducer extension cable	A80273

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