

# HDS unit installation instructions



*Read the following instructions carefully before attempting any installation.*

## **Transducer installation recommended tools and supplies (not included)**

If you plan to route the transducer cable through the transom, you will need either a 1" drill bit or a 5/8" drill bit depending on the size of the transducer cable connector. Each transom mount requires a high quality, marine grade above- or below-waterline sealant/adhesive compound. The following installations also call for these recommended tools and supplies.

### **One-piece bracket transom installation:**

Tools: two adjustable wrenches or socket wrench, drill, #29 (0.136") drill bit, screwdriver. Supplies: none.

### **Two-piece bracket transom installation:**

Tools: two adjustable wrenches or socket wrench, drill, #20 (0.161") drill bit, screwdriver. Supplies: four, 1" long, #12 stainless steel wood screws.

### **TMB-S bracket trolling motor installation:**

Tools: two adjustable wrenches or socket wrench, screwdriver. Supplies: plastic cable ties.

### **Skimmer Transducer shoot-through hull installation:**

Supplies: alcohol wipes, 60 and 160 grit sandpaper, and marine grade above- or below-waterline epoxy adhesive.

### **Pod Transducer shoot-through hull installation:**

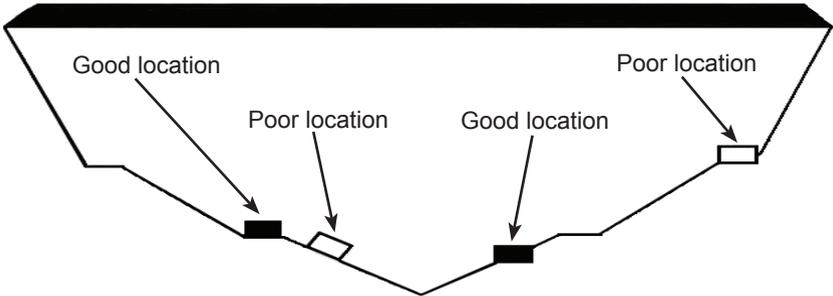
Supplies: alcohol wipes, 60 and 160 grit sandpaper, and marine grade above- or below-waterline epoxy adhesive.

# Skimmer Transducer installation instructions

Transducer location and installation is one of the most critical steps in sonar installation.

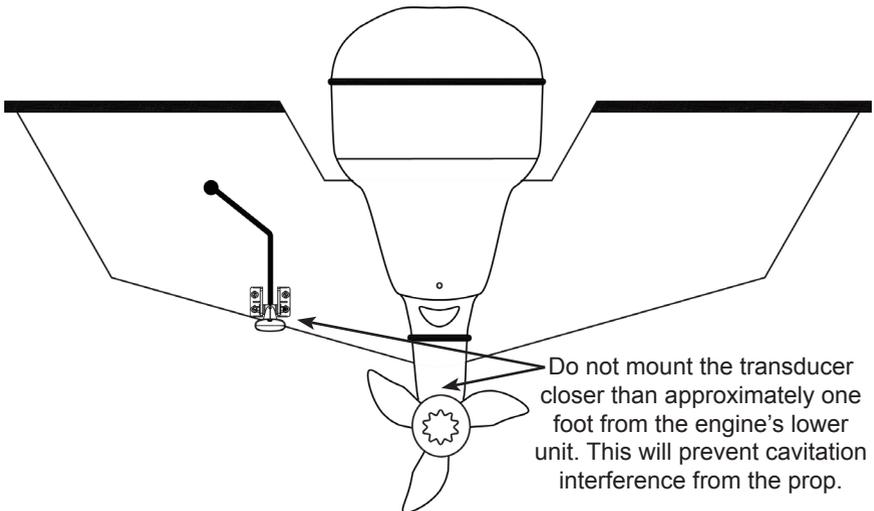
## 1. Select a transducer location

To function properly the Skimmer transducer must be in the water at all times and in a location that has a smooth flow of water when the boat is moving.



***Aluminum boats with strakes or ribs on the hull can create large amounts of turbulence at higher speeds. A good transducer location on these types of boats is between the ribs closest to the engine.***

If the transducer is not placed in a smooth flow of water, interference caused by bubbles and turbulence may show on-screen in the form of random lines or dots. The unit also could lose bottom signal when the boat is on plane.

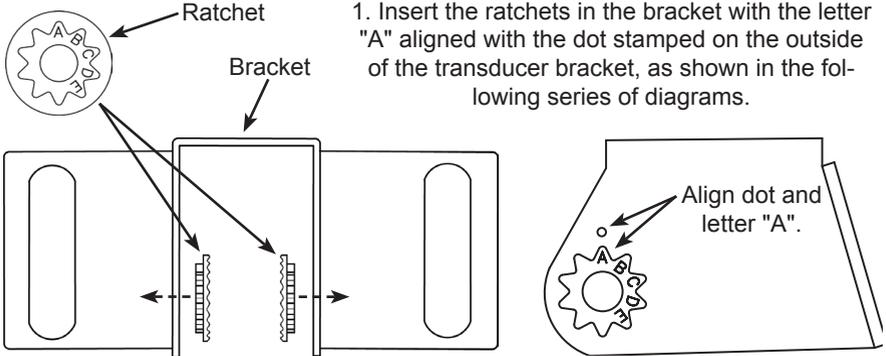


***When mounting the transducer, make sure it does not interfere with the hauling of the boat.***

## 2. Aligning Ratchets on Transducer bracket

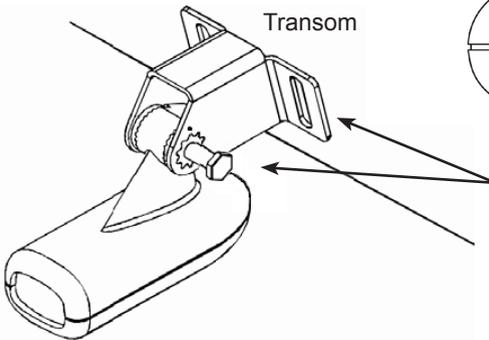
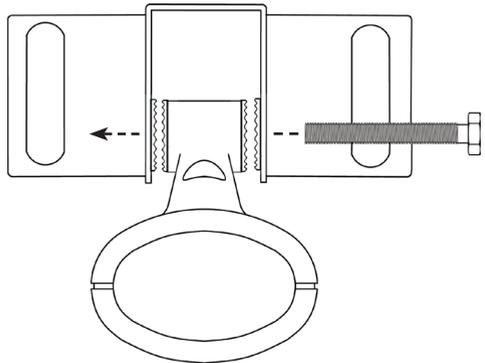
### *Aligning ratchets on one-piece bracket:*

The one-piece bracket assembly includes two black plastic ratchets. The ratchets are used to align the transducer with the boat hull. Each ratchet has the letters A-E molded into it.



1. Insert the ratchets in the bracket with the letter "A" aligned with the dot stamped on the outside of the transducer bracket, as shown in the following series of diagrams.

2. Slide the transducer in the bracket and temporarily slide the bolt through the transducer bracket, as shown in the image at right.



3. Hold the transducer assembly against the transom. Look at the transducer from the side. Try to adjust the transducer so its face is parallel to the ground. If it does, then the "A" position is correct.

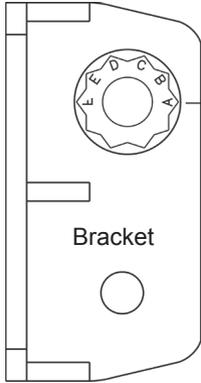
If the transducer will not adjust with its face parallel to the ground, remove the transducer and ratchets from the bracket. Reinsert the ratchets into the bracket, this time with the letter "B" aligned with the dot stamped in the bracket. Reassemble the transducer and bracket and place it against the transom. Again, check to see if the transducer will adjust so its face is parallel with the ground. Repeat this process until the transducers face will adjust so that it is parallel with the ground.

### Aligning ratchets on two-piece bracket:

The two-piece bracket includes four black plastic ratchets. The ratchets are used to align the transducer with the boat hull. Each ratchet has the letters A-F molded into it.

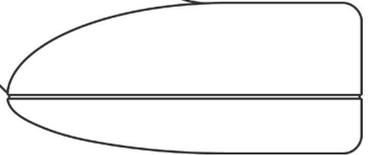


Ratchet

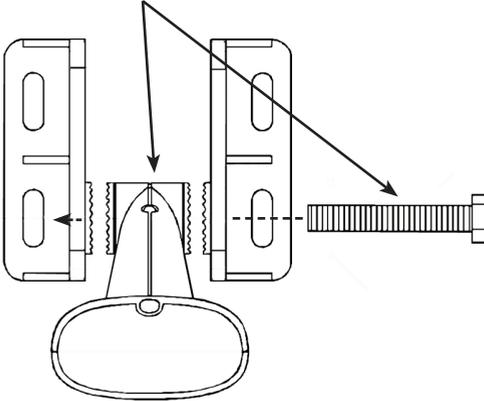


1. Place two of the ratchets in each side of the bracket with the letter "A" aligned with the alignment mark molded into each bracket.

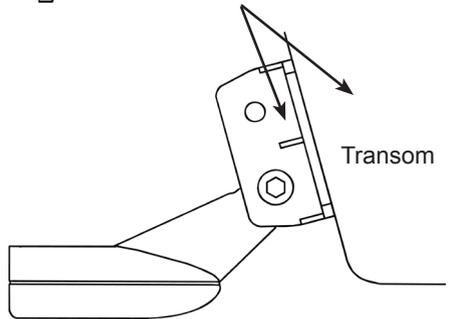
2. Now place the other two ratchets on the transducer with the letter "A" aligned in the 12 o'clock position on the transducer stem.



3. Slide the transducer in the bracket and temporarily slide the bolt through the transducer bracket.



4. Hold the transducer assembly against the transom. Look at the transducer from the side. Try to adjust the transducer so its face is parallel to the ground. If it does, then the "A" position is correct.

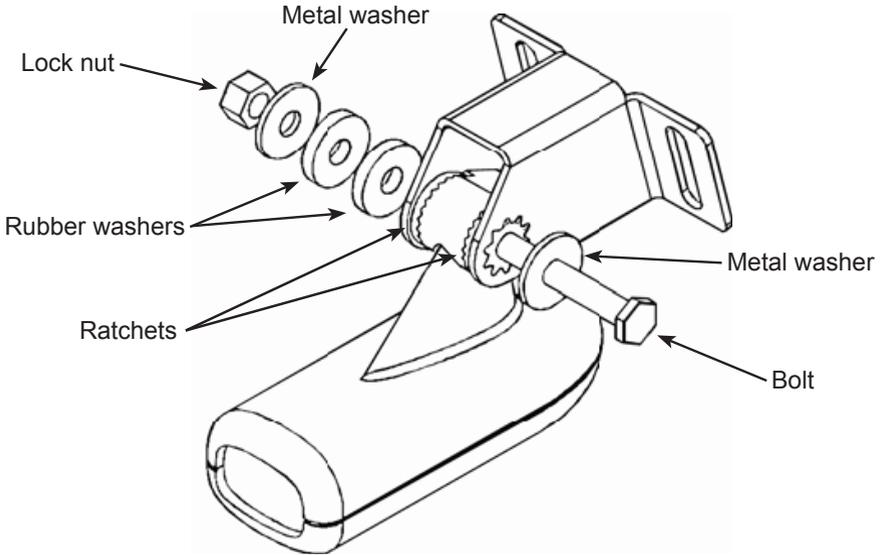


If the transducer will not adjust with its face parallel to the ground, remove the transducer and ratchets from the bracket. Reinsert the ratchets into the bracket, this time with the letter "B" aligned with the dot stamped in the bracket. Reassemble the transducer and bracket and place it against the transom. Again, check to see if the transducer will adjust so its face is parallel with the ground. Repeat this process until the transducers face will adjust so that it is parallel with the ground.

### 3. Assembling the Transducer bracket

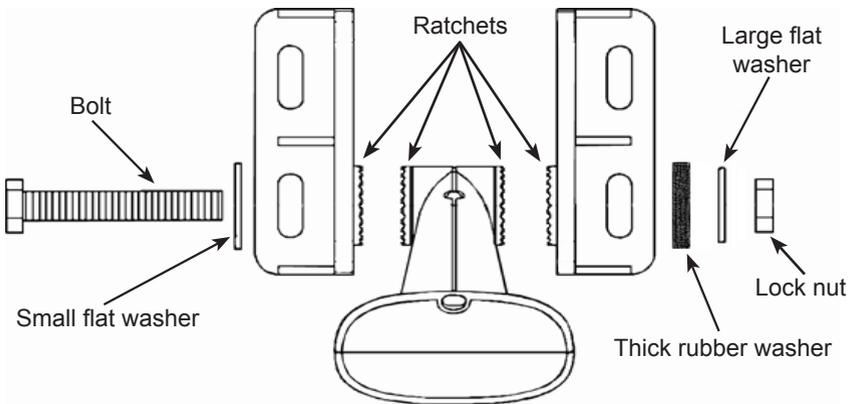
After determining the correct position for the ratchets, loosely assemble the transducer and bracket assembly as shown in one of the two diagrams below.

#### ***One-piece bracket assembly:***



***Do not tighten the transducer bracket assembly until you have aligned the transducer and bracket on the transom.***

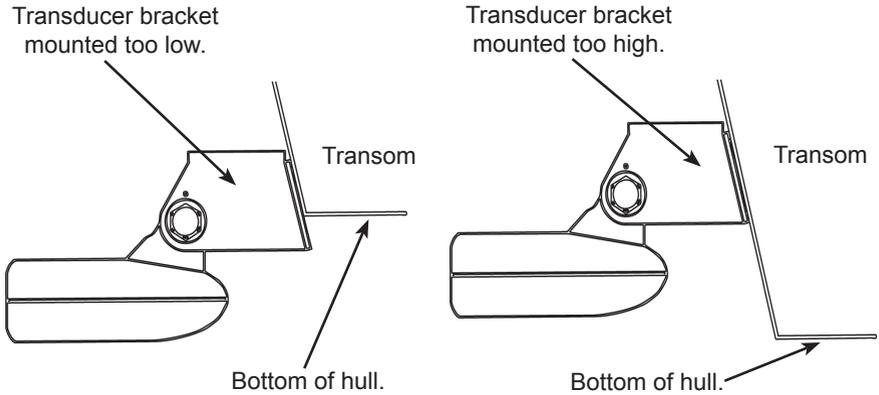
#### ***Two-piece bracket assembly:***



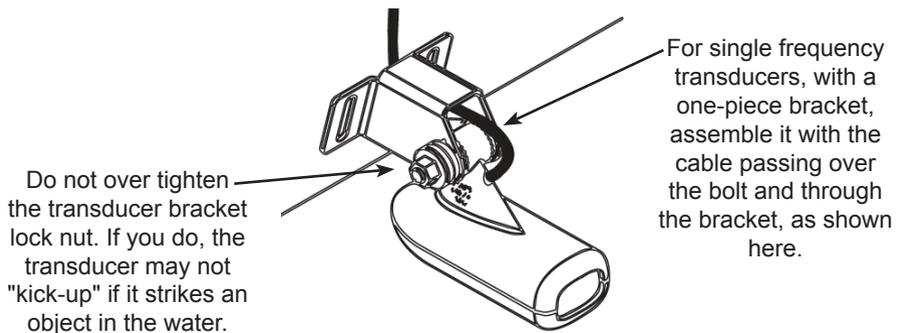
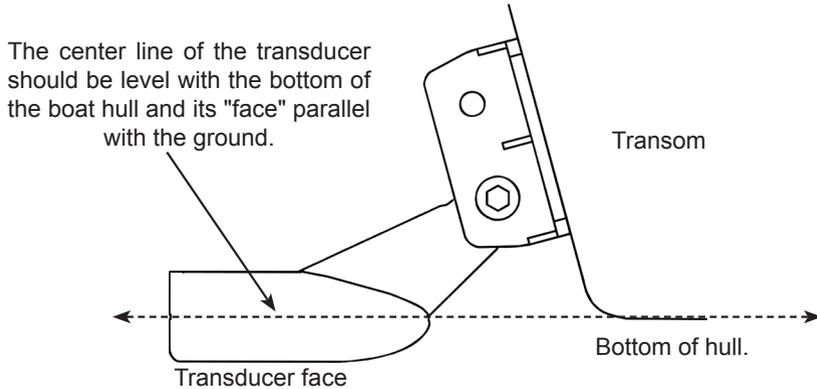
***Do not tighten the transducer bracket assembly until you have aligned the transducer and bracket on the transom.***

## 4. Aligning and Attaching the Transducer on the Transom

Adjust the transducer so that its "face" is parallel with the ground and its center line is even with the bottom of the boat hull.

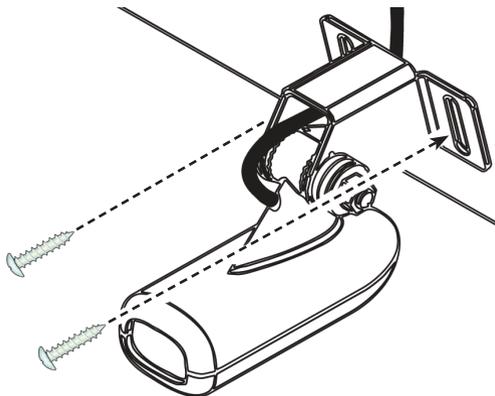


***When mounting the transducer to the transom, there are two extremes you should avoid, first, do not let the edge of the mounting bracket extend below the bottom of the hull, left image, above. Second, do not let the bottom of the transducer rise above the bottom of the hull, right image, above.***

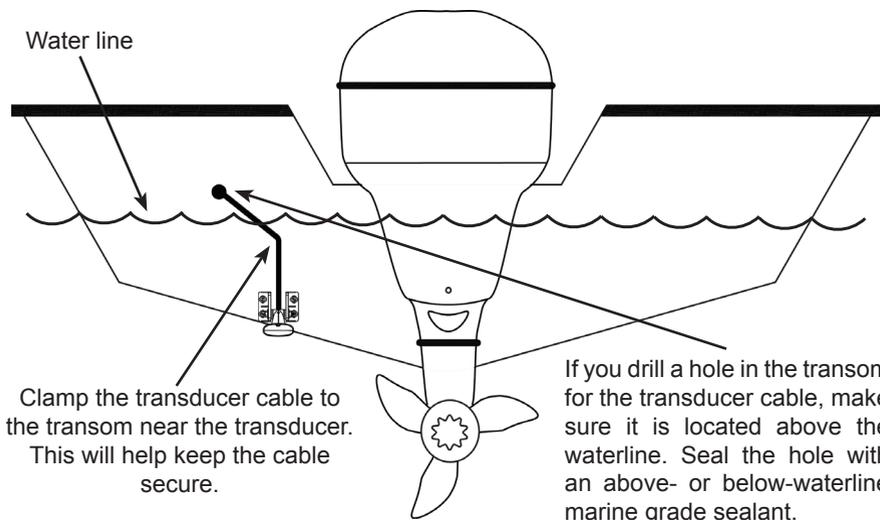
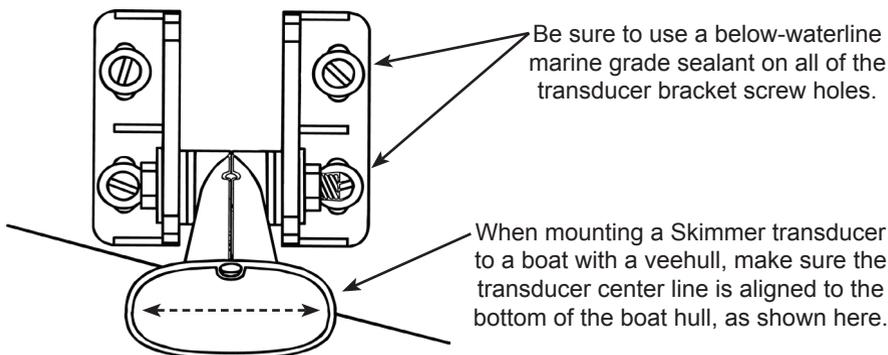


1. Hold the transducer and bracket assembly against the transom. When the transducer and bracket are properly aligned mark its position on the hull.

2. Drill the mounting holes for the transducer bracket. For the one-piece bracket use a #29 bit (for the #10 screws). For the two-piece bracket use a #20 bit (for the #12 screws).



**Use the provided screws to secure the transducer assembly to the transom.**

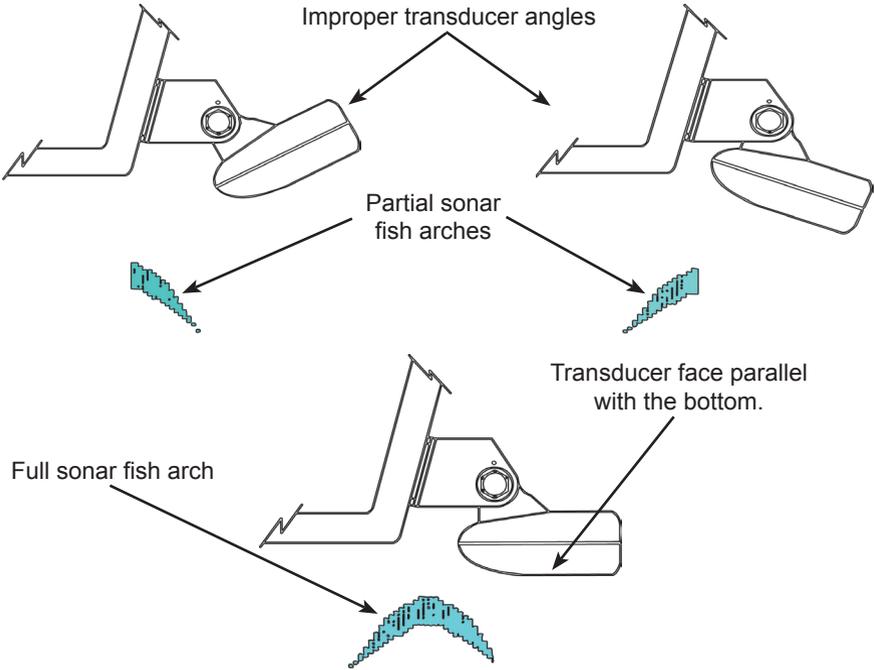


If you drill a hole in the transom for the transducer cable, make sure it is located above the waterline. Seal the hole with an above or below waterline marine grade sealant. Route the transducer cable to the sonar unit. Make sure to leave some slack in the cable near the transducer.

Use caution when routing the transducer cable near other wiring and cables. If you need to drill a hole in the transom to pass the connector through, the hole size will depend on the connector on the end of the transducer's cable.

### 5. Make a test run to determine the results

At times you may need to adjust the transducer higher or lower. The slots in the mounting brackets allow you to loosen the screws and slide the transducer up or down.



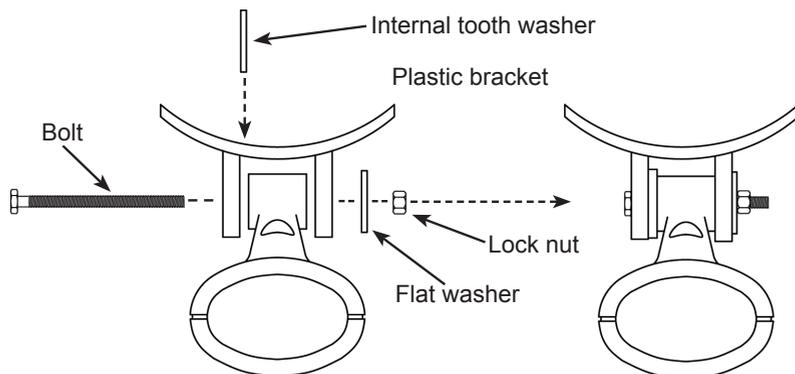
If the sonar screen is displaying partial fish arches, as shown in the previous top two images, the transducer could be at an improper angle. Check the transducer and make sure its face is parallel with the bottom, as shown in the bottom example. If you frequently lose bottom signal lock the transducer may be coming out of the water as the boat crosses waves or wakes.

Move the transducer a little lower in the water to see if that improves sonar performance. When fishing around underwater structure the transducer may be kicked up from object strikes. If the transducer is being kicked up too often, try moving it a little higher for more protection.

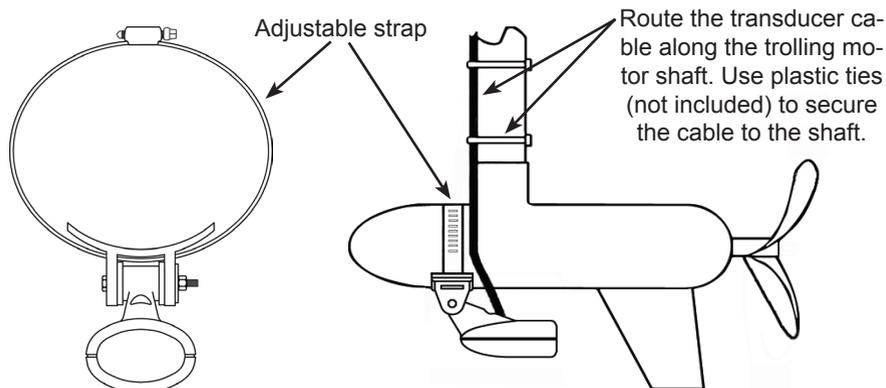
## TMB-S trolling motor bracket installation

**The TMB-S bracket is designed for one-piece bracket transducers only.**

The TMB-S trolling motor bracket (Part No. 51-45) is an *optional* accessory and is available through LEI Extras at [www.lei-extras.com](http://www.lei-extras.com). The TMB-S bracket is used to attach a one-piece bracket transducer to a trolling motor. If you regularly fish in water with a lot of underwater structure, such as rocks, stumps and trees, you may consider using a Pod transducer for trolling motor installation. Pod transducers cannot be "kicked up" by underwater structure.



**Using the components supplied with the TMB-S bracket (adjustable strap, internal tooth washer and plastic bracket) attach it to the transducer as shown in the diagram above.**



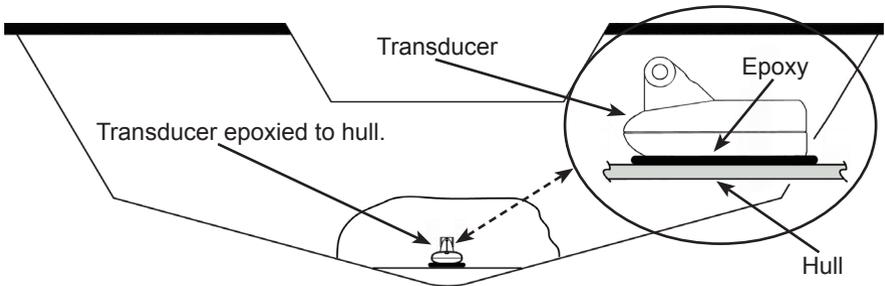
**Slide the adjustable strap through the plastic bracket as shown above, left, then slip the strap around the trolling motor as shown in the image, at right. Position the transducer so its "face" is pointing straight down when the trolling motor is in the water. Tighten the adjustable strap securely to the trolling motor. Make sure there is enough slack in the transducer cable for the trolling motor to turn freely.**

## Skimmer Transducer shoot-thru-hull installation

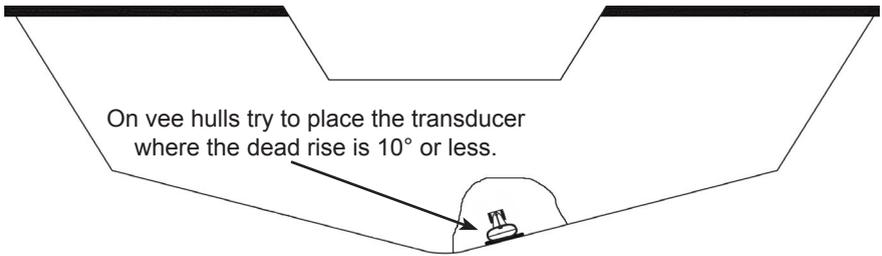
Before attempting any installation on boats with flotation material sandwiched within the hull, consult the boat manufacturer. In a shoot-thru-hull installation the transducer is epoxied to the inside of the boat hull.



**WARNING:** Do not remove any material from the inner hull. Careless grinding or cutting on the hull could damage the integrity of the hull. Contact the boat dealer or manufacturer to confirm hull specifications.



*The previous image shows a Skimmer transducer epoxied to a flat, solid portion of the boat hull near the transom. The circled image is a close-up view of the transducer epoxied to the hull.*

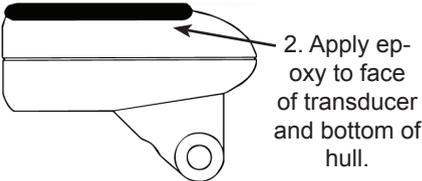
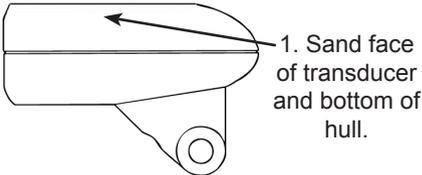


**NOTE:** While you can epoxy a Skimmer transducer to the inside of a boat hull, we recommend using a Pod transducer for this type of installation. Use care when mounting a transducer inside a boat hull. Once epoxied into position, the transducer can be very difficult to remove.

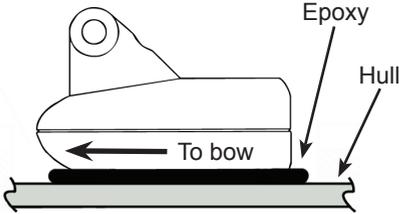
A transducer can not shoot through wood or metal hulls. Wood and metal hulls require either a transom mount or "thru-hull" installation. For shoot-thru-hull applications many boat hulls have a flat keel pad that offers a good transducer mounting surface.

If you are using a Skimmer transducer versus a Pod transducer for this installation, make sure the Skimmer transducer is oriented so the nose of the transducer is facing the bow (front) of the boat. Also, if the transducer has a built in temp sensor, it will only show the temperature of the hull, not the water temp.

Before you epoxy the transducer to the hull, make sure the area is clean, dry and free of oil or grease. The surface of the hull must be flat so the entire transducer face is in contact with the hull. Also, make sure the cable is long enough to reach the sonar unit.



3. Epoxy transducer to hull.



Sand both the inside surface of the hull, where the transducer is to be epoxied, and the face of the transducer.

Start with a rougher grit sandpaper, such as 60 grit, and finish with a smoother grit, such as 160 grit, sandpaper. Sand the inside surface of the hull until it is smooth to the touch.

The sanded area should be about 1-1/2 times the diameter of the transducer. After sanding, clean the hull and face of the transducer with an alcohol wipe to remove any sandpaper grit and dust.

Apply a thin layer of epoxy (about 1-16" or 1.5 mm) on the face of the transducer and the sanded area on the hull. **Make sure there are no air pockets in the epoxy layers.**

Press the transducer into the epoxy, twisting and turning it to force any air bubbles out from under the transducer face. Stop pressing when it bottoms out on the hull.

Apply pressure to hold the transducer in place while the epoxy sets. Be careful not to move the transducer while the epoxy is setting. Allow the epoxy to set before moving the boat. When finished, the face of the transducer should be parallel with the hull with a minimum amount of epoxy between the hull and transducer. After the epoxy has set, route the transducer cable to the sonar unit.

## Pod Transducer installation instructions

The following instructions explain how to install a Pod transducer inside a hull or on a trolling motor. Read the following instructions carefully before attempting any installation. Use extreme care when mounting a transducer inside a boat hull. Once epoxied into position, the transducer can be very difficult to remove.



**NOTE:** *Transducer location and installation is one of the most critical steps in sonar installation.*

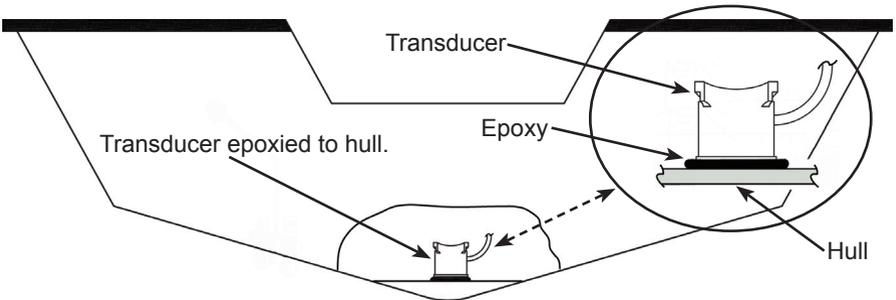
### Pod Transducer shoot-thru-hull installation

Before attempting any installation on boats with flotation material sandwiched within the hull, consult the boat manufacturer.



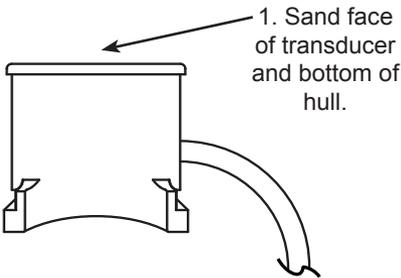
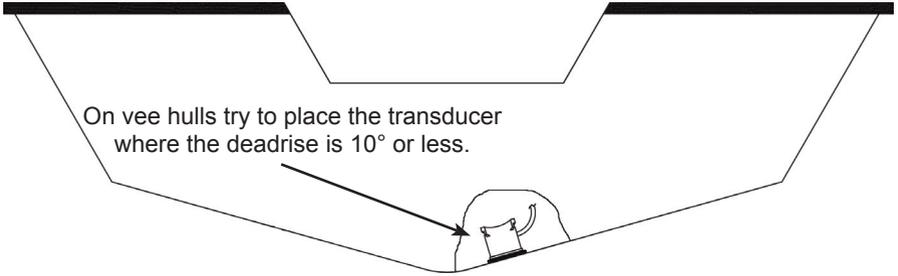
**WARNING:** Do not remove any material from the inner hull. Careless grinding or cutting could damage the integrity of the hull. Contact the boat dealer or manufacturer to confirm hull specifications.

A transducer can not shoot through wood or metal hulls. Wood and metal hulls require either a transom mount or "thru-hull" installation. For shoot-thru-hull applications many boat hulls have a flat keel pad that offers a good transducer mounting surface.



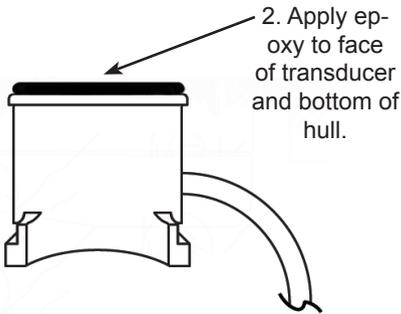
**The previous image shows a Pod transducer epoxied to a flat, solid portion of the boat hull near the transom. The transducer should be installed as close to the transom as possible, close to the center line.**

Before you epoxy the transducer to the hull, make sure the area is clean, dry and free of oil or grease. The surface of the hull must be flat so the entire transducer face is in contact with the hull. Also, make sure the cable is long enough to reach the sonar unit before the transducer is epoxied into place.



Sand both the inside surface of the hull, where the transducer is to be epoxied, and the face of the transducer.

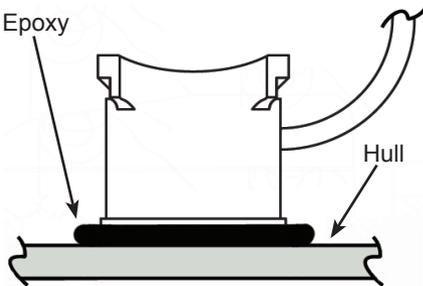
You may want to start with a rougher grit sandpaper, such as 60 grit, and finish with a smoother grit, such as 160 grit, sandpaper. Sand the inside surface of the hull until it is smooth to the touch.



The sanded area should be about 1-1/2 times the diameter of the transducer. After sanding, clean the hull and face of the transducer with an alcohol wipe to remove any sandpaper grit and dust.

Apply a thin layer of epoxy (about 1-16" or 1.5 mm) on the face of the transducer and the sanded area on the hull. **Make sure there are no air pockets in the epoxy layers.**

3. Epoxy transducer to hull.



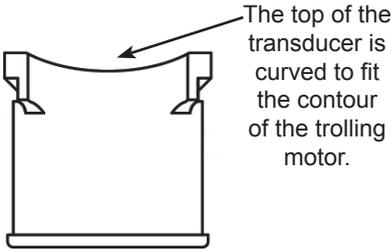
Press the transducer into the epoxy, twisting and turning it to force any air bubbles out from under the transducer face. Stop pressing when it bottoms out on the hull.

Apply pressure to hold the transducer in place while the epoxy sets. Be careful not to move the transducer while the epoxy is setting. Allow the epoxy to set before moving the boat.

**After the epoxy has set, route the transducer cable to the sonar unit.**

When finished, the face of the transducer should be parallel with the hull with a minimum amount of epoxy between the hull and transducer.

# Pod Transducer trolling motor installation

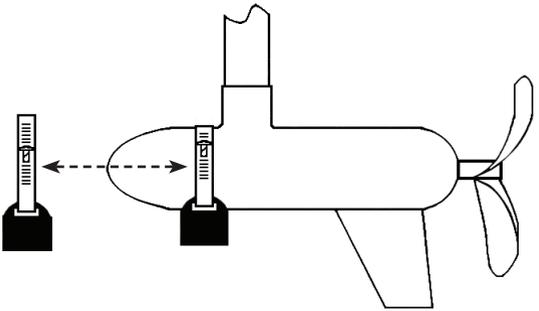
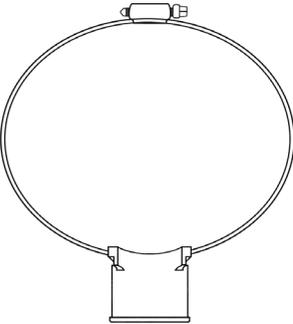


You will need a hose clamp large enough to fit over the trolling motor. The hose clamp is NOT included with the Pod transducer.

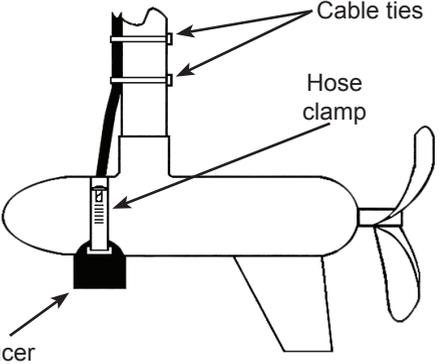
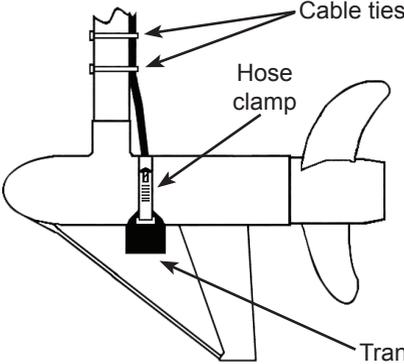
Before you attach the transducer to the trolling motor, make sure there is enough slack in the transducer cable for the trolling motor to turn freely.

1. Slide the hose clamp through the Pod transducer brackets, as shown below.

2. Slip the clamp around the trolling motor, as shown below. Tighten the hose clamp securely to the trolling motor.



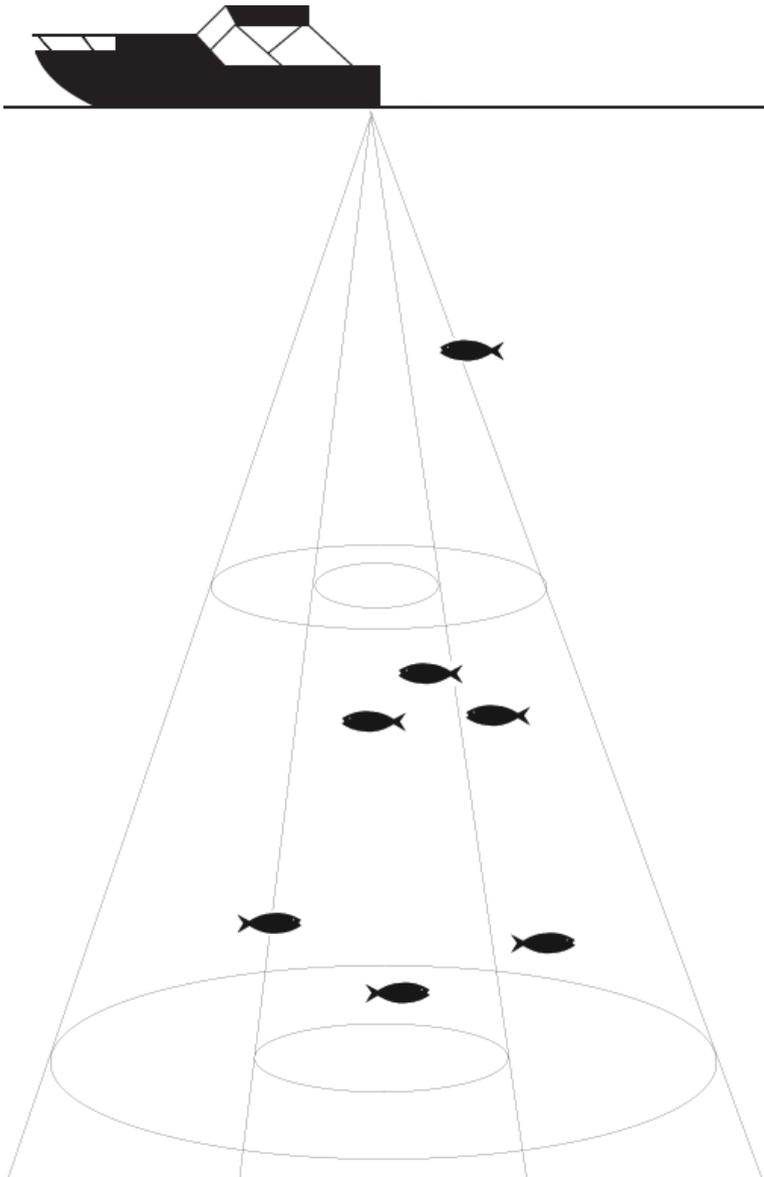
**The transducer should be mounted ahead of the trolling motor fin. Position the transducer so its face is pointing straight down when the trolling motor is in the water.**



**Route the transducer cable along the trolling motor shaft. Use plastic ties (not included) to secure the cable to the shaft.**

## ***Transducer maintenance***

Periodically wash the face of the transducer with soap and water to remove any oil film or debris build-up. Oil and other materials on the transducer's face can hamper its performance. Cleaning will ensure longevity and proper performance of the device.



## Mounting the Unit: Gimbal bracket or In-dash

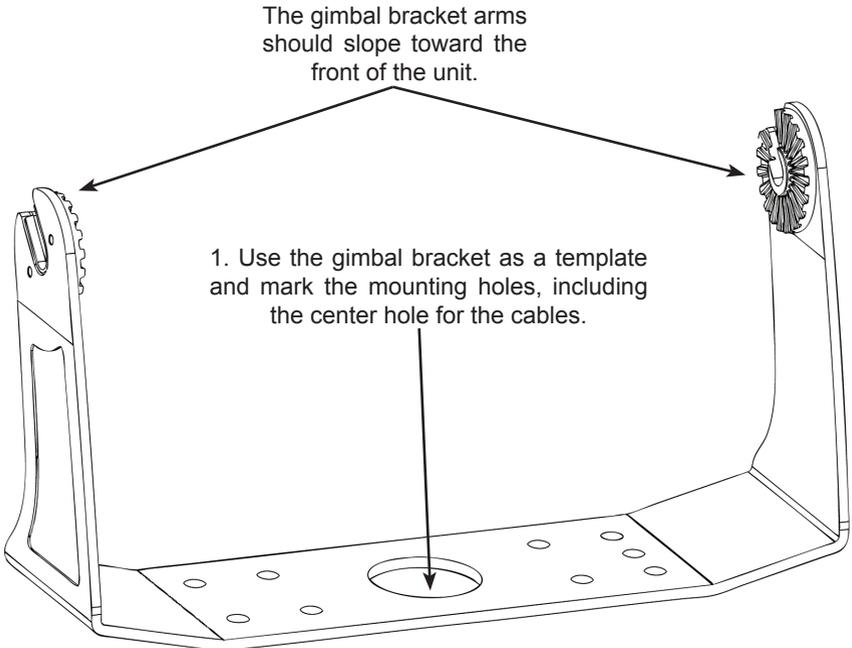
The unit comes with a gimbal bracket so you can mount it on a dash. The unit also ships with an in-dash template and four screws for in-dash installations. Determine the mounting location for the unit. Screws to secure the gimbal bracket to a dash are not included with the unit.

### Gimbal bracket installation

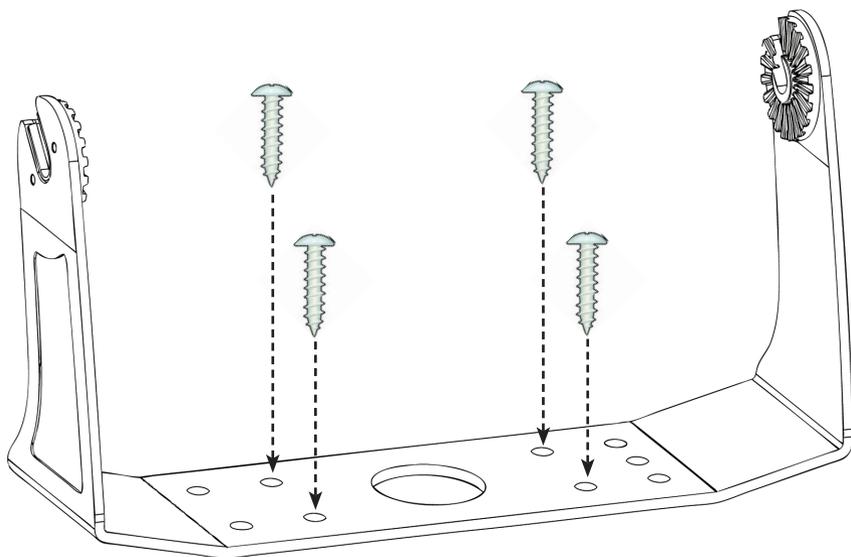


**NOTE:** Before beginning any installation, read the following instructions carefully and double check all cable lengths to make sure the cables will reach the power source, unit, GPS antenna-receiver module, transducer, etc.

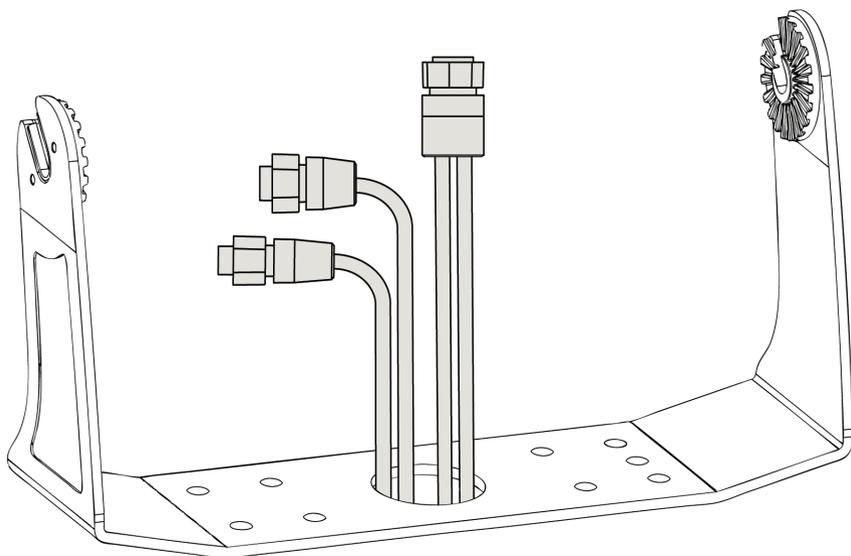
Holes in the gimbal bracket's base allow for wood screw or through-bolt mounting. When mounting the unit using the gimbal bracket, make sure there is enough clearance behind the unit to allow for tilting of the unit and connection of the various cables.



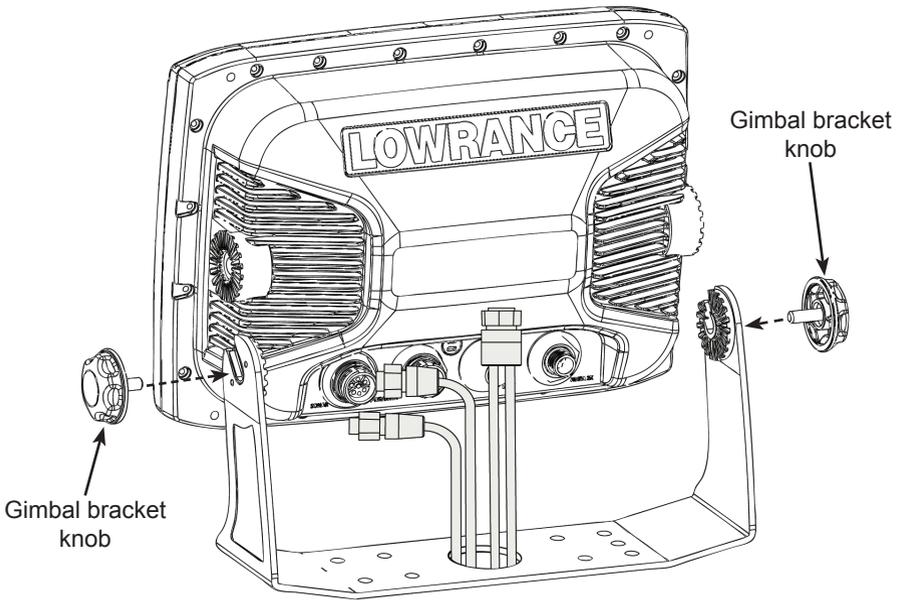
2. Drill a 1-inch (25.4 mm) hole for the sonar, power/data, Ethernet and network cables. The large center hole in the gimbal bracket will be used to pass these cables through.



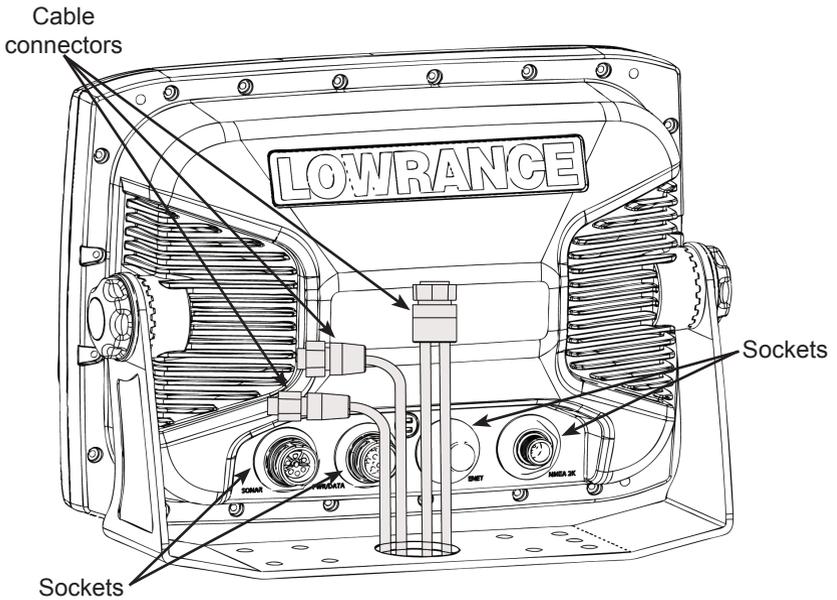
3. Use screws or bolts to secure the gimbal bracket to the mounting surface.



4. Pass all the cable connectors through the 1-inch hole in the center of the gimbal bracket. Leave enough slack in the cables to allow for tilting of the unit.



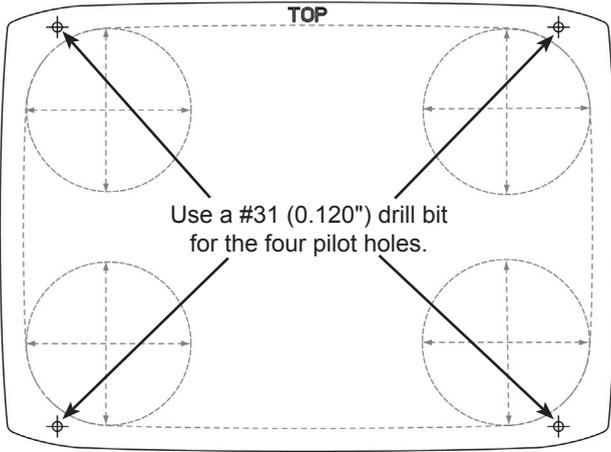
4. Secure the unit to the gimbal bracket using the gimbal bracket knobs.



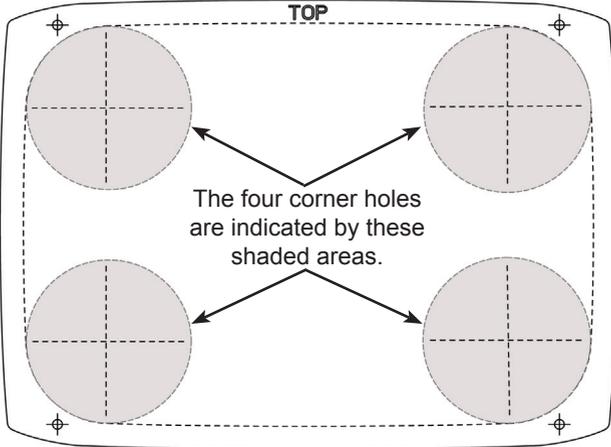
5. Match up the cable connectors to the sockets on the back of the unit. Each cable and socket is labeled. Attach the proper connector to each socket. Power up the unit to make sure all the connectors are securely fastened to the proper socket.

# In-dash installation

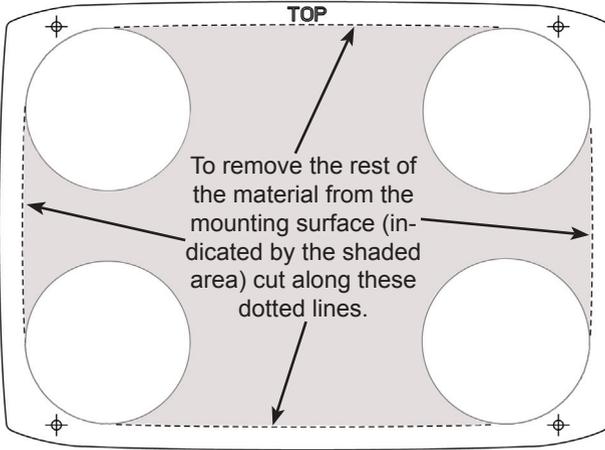
The unit ships with an in-dash template and four #6 – 20 X 1-1/2" screws. Before cutting any holes in the mounting surface make sure there is enough room to attach the cable connectors behind the unit. Begin by taping the in-dash template to the mounting surface.



*The template included with your unit will have the proper measurements written on it, including the size of the hole saw to use to drill the corner holes shown in the following step. Cut only on the dotted lines indicated by the template.*



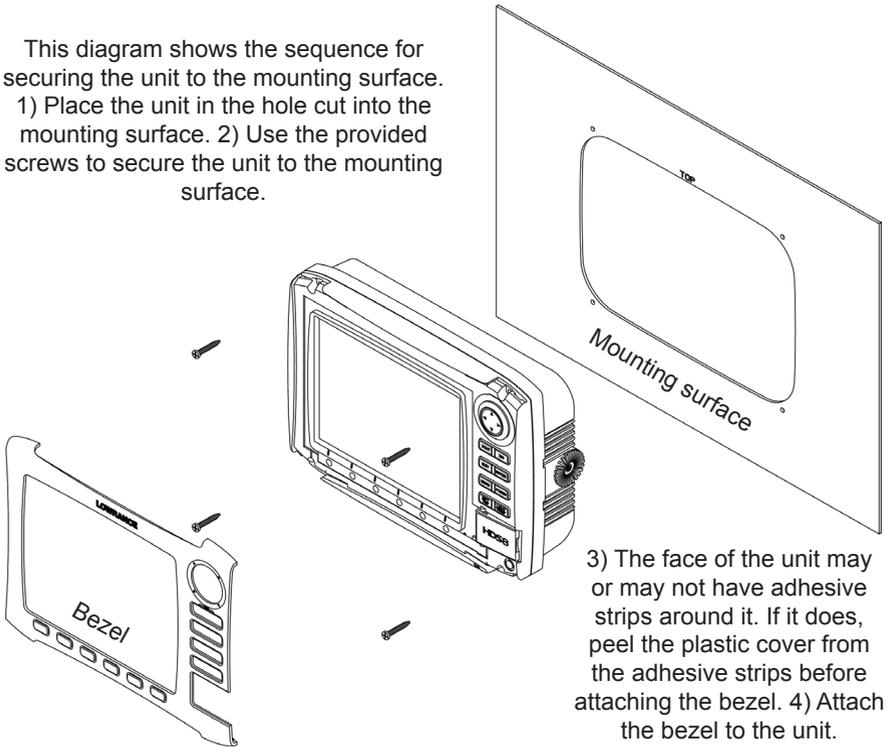
**Use a hole saw to drill the four corner holes indicated by the shaded areas on the template above. Using a hole saw to cut the four corners will ensure smoother, and more rounded, corners for the in-dash installation.**



**After cutting the four corner holes, use a saw to cut along the dotted lines from hole to hole. Be sure to cut along the inner dotted line, not the outer solid line.**

This diagram shows the sequence for securing the unit to the mounting surface.

1) Place the unit in the hole cut into the mounting surface. 2) Use the provided screws to secure the unit to the mounting surface.

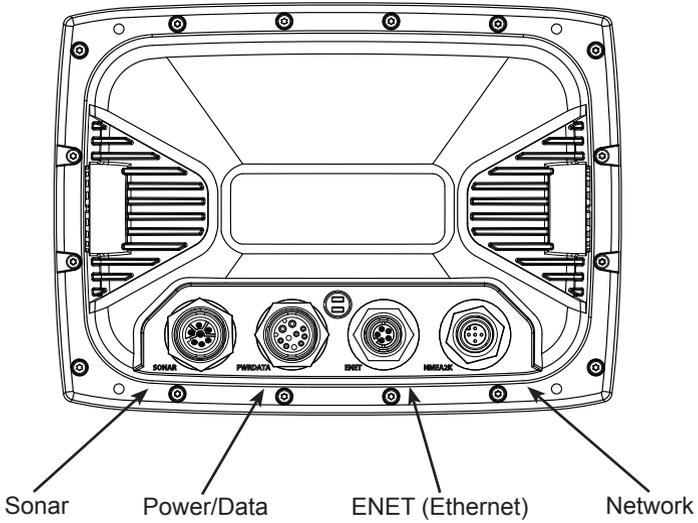


3) The face of the unit may or may not have adhesive strips around it. If it does, peel the plastic cover from the adhesive strips before attaching the bezel. 4) Attach the bezel to the unit.

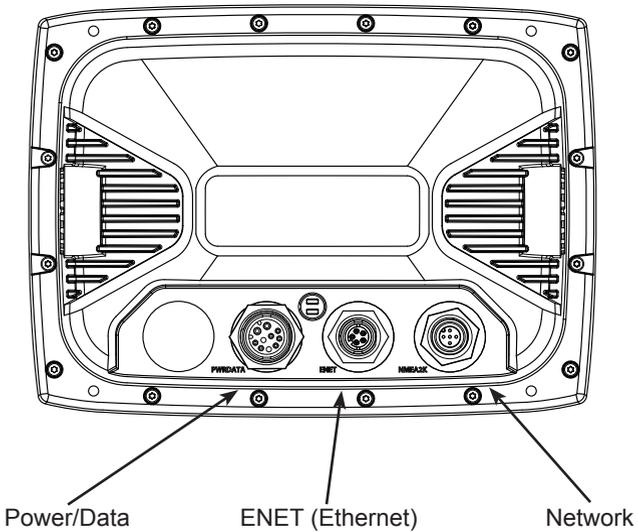
**If water penetration is a concern, use a marine grade sealant between the unit and mounting surface.**

# Connectivity

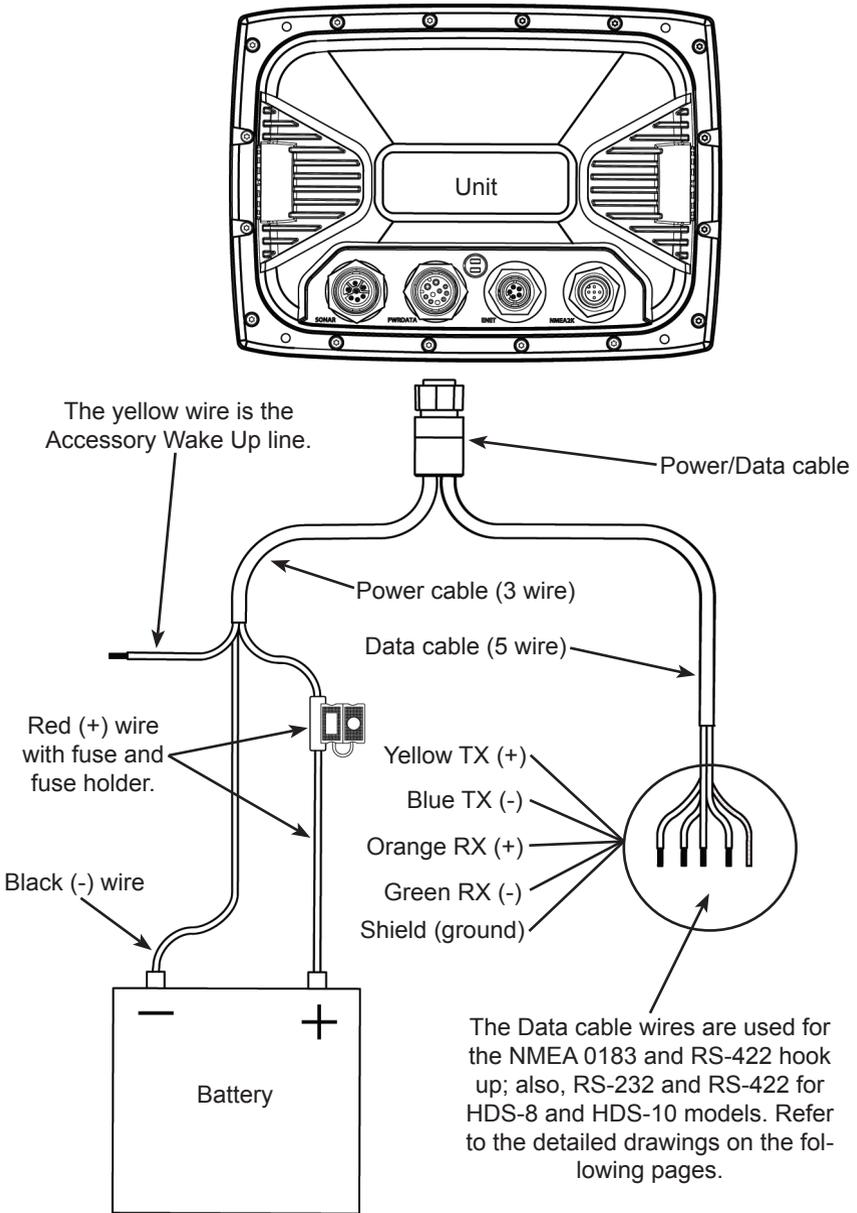
## Combination Sonar/GPS units



## GPS only units

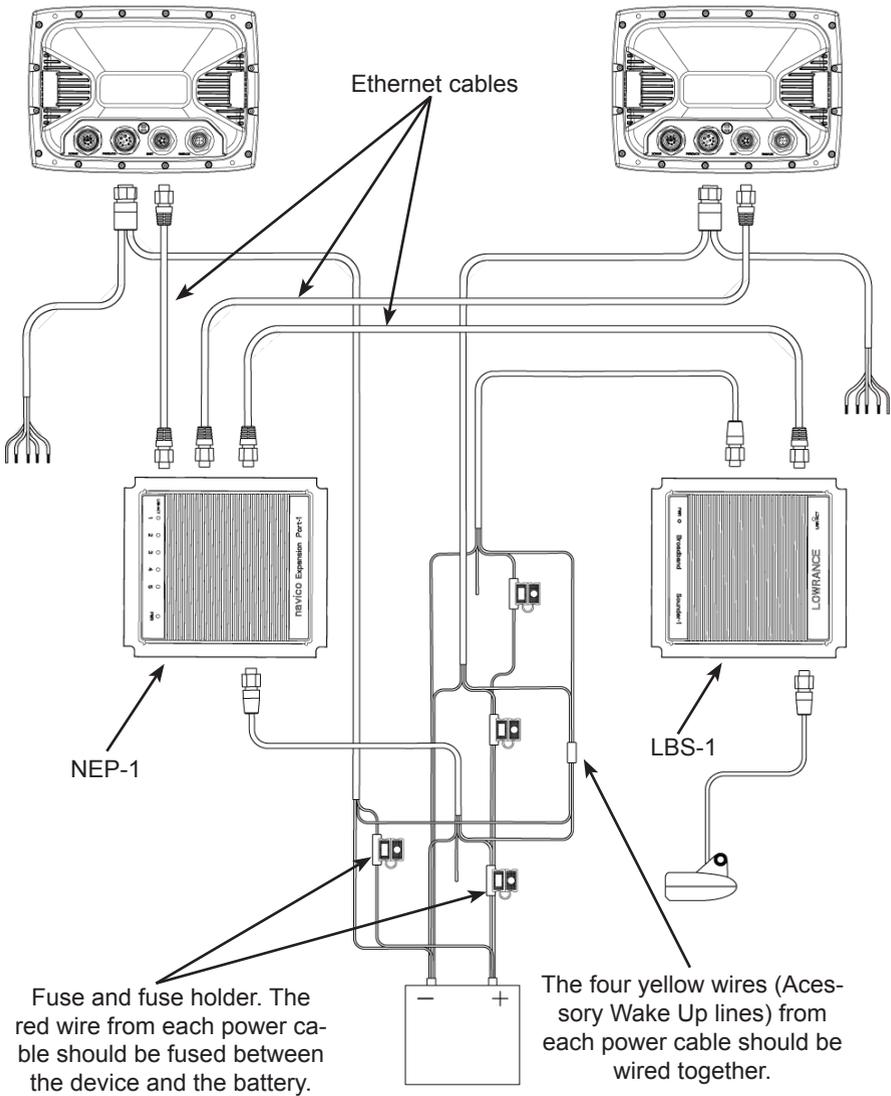


# Power / Data cable wiring diagram



**The diagram above shows how the Power/Data cable connects to power.**

# Multiple unit wiring diagram with devices



**The diagram above shows two HDS units and an LBS-1 connected via an NEP-1. The power cable from each device contains a yellow wire. The yellow wire is the Accessory Wake Up line. Connect the yellow wires together. When the Accessory Wake Up line is used to connect units with the accessory wake up feature, you can power up certain connected devices from one location, including digital sonar optimizers and expansion ports.**

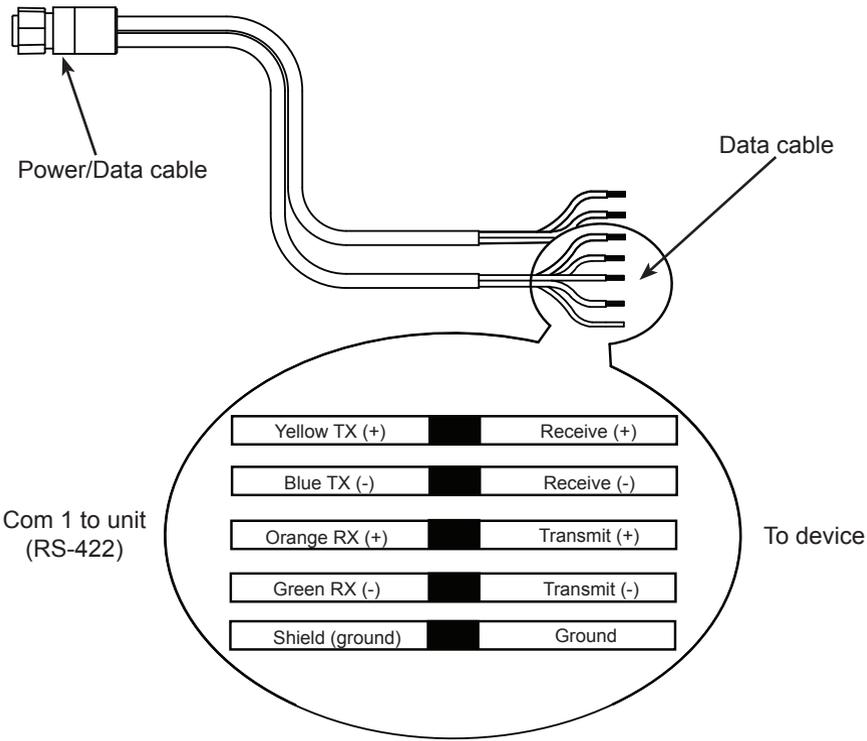
# Data cable wiring diagram: HDS-8 & HDS-10 units

## NMEA 0183 wiring (data cable)

To exchange NMEA 0183 data, the HDS-8 and HDS-10 units have a NMEA 0183 version 2.0 (RS-422) communication port. Serial Communications Port one (Com 1) can be used to transmit or receive NMEA format data. Two RS-232 ports (Com 1 and Com 2) also are available via software selection. These ports transmit or receive NMEA data.

The five wires for the serial communications ports (Data cable) are combined with the Power cable to form the Power/Data cable.

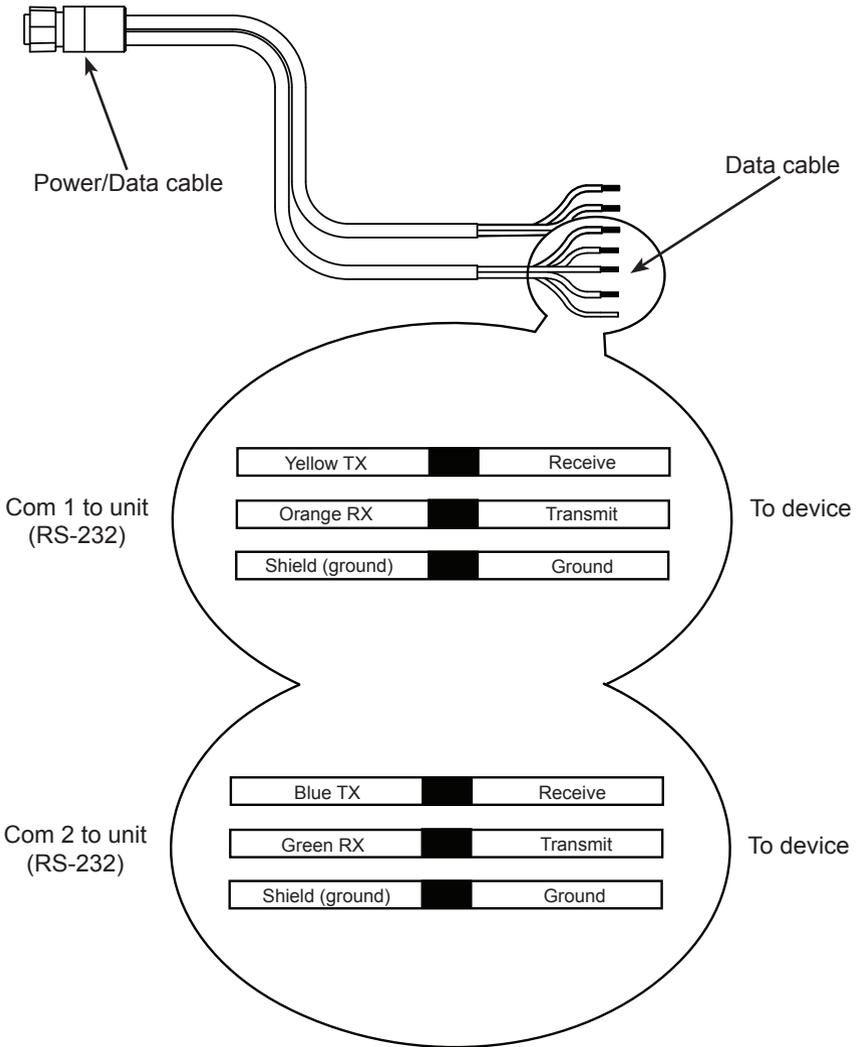
- **Com 1 (RS-422)** uses the yellow and blue wires to transmit, the orange and green wires to receive and the shield (bare) wire for signal ground.



# Data cable wiring diagram: HDS-8 & HDS-10 units

## NMEA 0183 wiring (data cable)

- **Com 1 (RS-232)** uses the yellow wire to transmit, orange wire to receive and shield (bare) wire for signal ground.
- **Com 2 (RS-232)** uses the blue wire to transmit, green wire to receive and shield (bare) wire for signal ground.

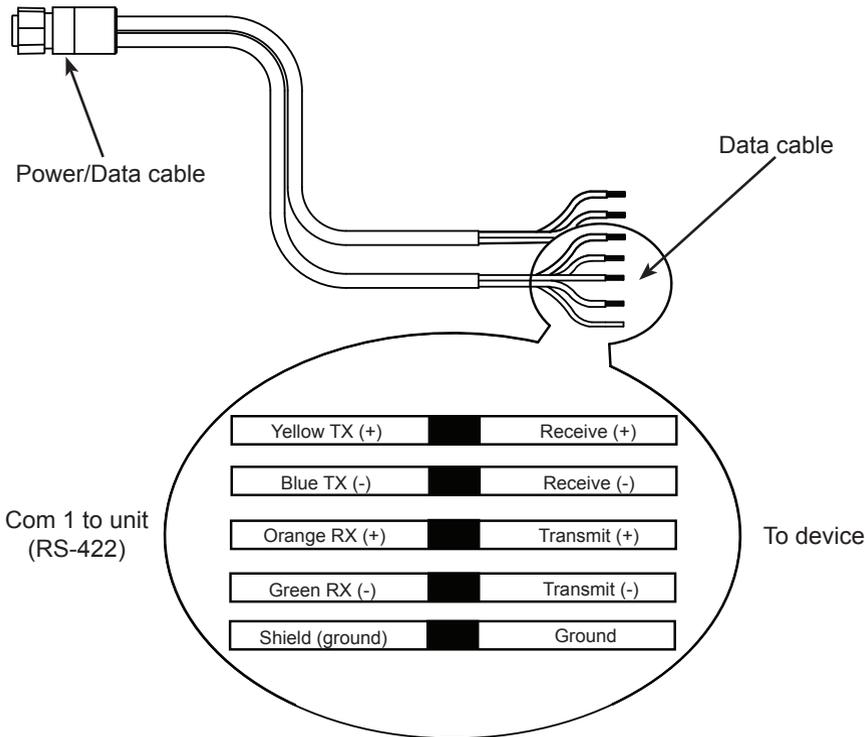


# Data cable wiring diagram: HDS-5 & HDS-7 units

## NMEA 0183 wiring (data cable)

To exchange NMEA 0183 data, the HDS-5 and HDS-7 units have a NMEA 0183 version 2.0 (RS-422) communication port. Serial Communications Port one (Com 1) can be used to transmit or receive NMEA format data. The five wires for the serial communications ports (Data cable) are combined with the Power cable to form the Power/Data cable.

- **Com 1 (RS-422)** uses the yellow and blue wires to transmit, the orange and green wires to receive and the shield (bare) wire for signal ground.



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