Glider Transceiver Troubleshooting & Information

Dated: September 10, 2025

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PLEASE NOTE

This document may have been updated with new information, changes, or corrections.

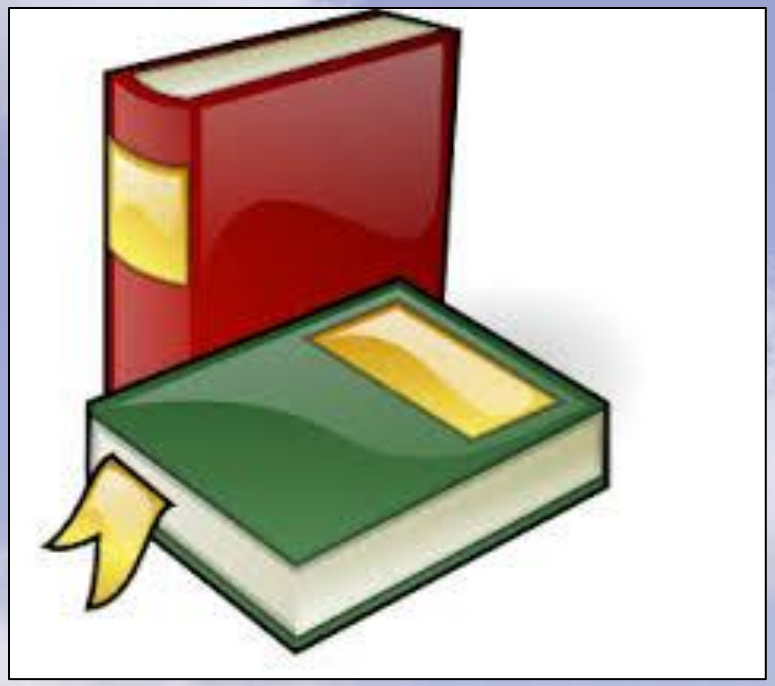
Be sure to visit my presentation web site and download the latest version of this document.

It could make an important difference in your work!

http://aviation.derosaweb.net/presentations

Thank you, John DeRosa

Introductory Information



Troubleshooting aircraft transceiver (or transponder) issues can be difficult, time consuming, and irksome to resolve! Especially if the issues are intermittent!

I hope that these notes may help you to identify your issue. Once identified you may be able to fix the problem yourself, or you may find you need to engage some professional help.

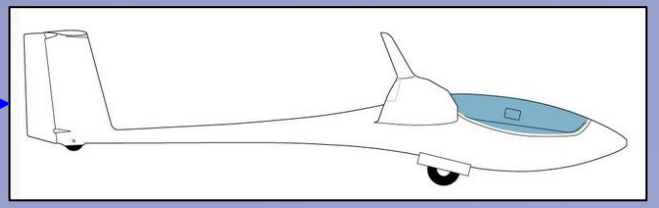
Take it one step at a time!

Best of Luck!

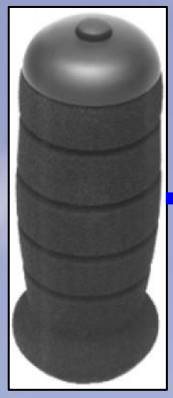
Basic Glider Transceiver Connections

Battery
Power
Source

Coaxial
Cable



Glider's Antenna
(Receive & Transmit)



Push to Talk
Switch

Microphone
(Audio Input)

Speaker
(Audio Output)

Basic Troubleshooting

Troubleshooting Steps By Symptom

1. No Power?
   - ❑ Transceiver getting power and “lighting up”? No? Battery dead? Bad fuse or tripped breaker?
   - ❑ Battery Issues
     - ❑ Swap your battery with known good battery and retest.
     - ❑ Use a voltmeter to measure the battery voltage when the transceiver is on and then during transmit.
     - ❑ If there is excessive battery voltage drop (greater than 2Vdc) there could be a bad antenna.
   - ❑ Inspect connections/wiring on the rear of the radio (control, power, antenna). Wiggle the connector. Does that help? Is the connector inserted fully? Do you see any broken/loose wires?

2. No Receive Audio Heard From Other Radios?
   - ❑ Tuned to the correct frequency? Are you a quarter-kilohertz (0.25khz) off?
   - ❑ Volume turned up high enough?
   - ❑ Squelch set properly? Try un-squelching 100%. Do you hear a “shhh” sound of received signal?
   - ❑ Check the battery voltage at the battery and at the radio. Should be 12Vdc or more.
3. No Transmit Audio Of Yours Heard by Others?
   - ❑ Push to talk (PTT) switch broken or intermittent. Confirm that the radio is “keying”. Almost always there is an indicator on the transceiver’s front panel to tell you the radio is keyed and transmitting.
   - ❑ Is there “carrier” but no audio received by others? That is, can others determine you have keyed your transceiver but no audio is heard? Might be a bad or disconnected microphone (review following slides).
   - ❑ Antenna Issues - Remove the aircraft’s antenna coax/BNC cable/connector and temporarily replace it with a portable handheld “rubber ducky” antenna. If transmit audio is working properly with a different antenna then this points to the ship’s antenna, coax or BNC connector as the culprit. Review following slides for ideas for suggestions of cause and fix.

Troubleshooting Steps - Miscellaneous

1. BEST PLAN ➔ If possible swap the transceiver with the same make/model of a known good transceiver. This will confirm if your transceiver is the bad component. If so, send it in for a "bench test" at a repair facility. See slides at the end of this presentation which lists US based repair facilities for major aviation transceiver brands.
2. Loose/dirty/broken wiring at the rear connectors of the transceiver. Do a visual external and internal inspection. Wiggle the connector and wires to check for intermittents. Are there any bent pins? Loose or broken wires? Shorts between pins? Use a magnifying glass!
3. Trace the wiring from the transceiver to the PTT switch(es), speaker, microphone(s). Are any of the wires damaged/frayed/broken under the seat pan or side panels? Mice problems?
4. Microphones (or Headsets)
   - ❑ Swap with known good. Sorry that a boom microphone is difficult to swap/test.
   - ❑ Inspect for loose or damaged wiring on the connectors. Unfortunately, mice often get and chew on something.
   - ❑ Check transceiver settings such as microphone type or gain – see your manual.
   - ❑ Review the microphone section of this presentation for additional details and information.

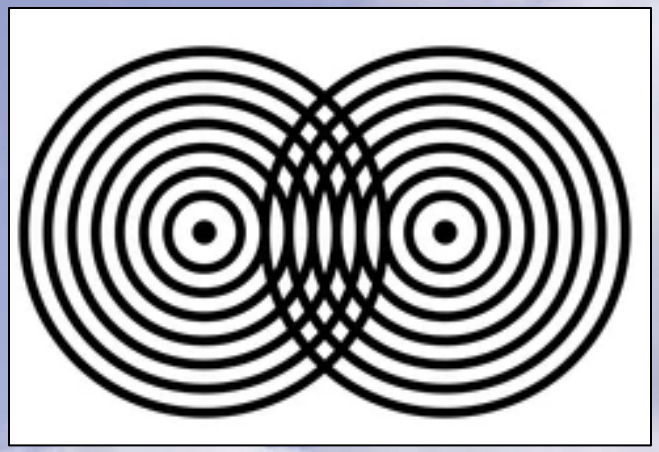
5. Refer to your manual and review the various programming configurations for your radio. Might be a bad setting for squelch, microphone type or microphone gain.
6. If receive/transmit is still bad then you should send the radio into a service center for a bench test and/or repair/modifications/updates. See a later slide in this deck which lists US based repair facilities for major aviation transceiver brands.
7. Do you have a Speaker/Microphone box (Dittel, Becker)? Review later slides for details.
8. Interference from your other avionics? Review later slides for ideas.

Troubleshooting – Speakers

FYI - Most speakers are either 4Ω or 8Ω and usually 5W or larger. A transceiver speaker at full volume will consume a significant amount of battery power. Only a transceiver transmitting consumes more energy.

- There are two leads to/from the speaker. One lead is connected to the "speaker" or "headset" terminal of the transceiver's rear connector. The other lead is connected to the "speaker" or "power" ground terminal of the transceiver's connector. The connections at the speaker are interchangeable and either one can be used for the connections at the transceiver's connector (see the manual).
- **During the following speaker testing you must disconnect the transceiver's rear connector to prevent possible damage to the transceiver!** Testing a speaker is easily done by temporarily connecting a small 9V battery (NEDA 1604 type) to the two terminals of speaker. First test at the speaker's terminals. Then test at correct pins of the connector for the transceiver which will test both the speaker and the speaker's wiring. Clicks should be heard when the battery is repeatedly connected and disconnected. This test does not damage the speaker.
- Replace the speaker, or speaker wiring, as necessary.
- Review following slides about wiring Becker/Dittel speaker boxes.

Interference Troubleshooting



Interference Troubleshooting – Guidelines

All electronic devices can emit electronic high frequency “noise” or battery cabling transients of varying amounts. Most noise is of extremely low amplitude but others can be surprisingly large. The goal is to determine where the interference is coming from, its type, and then to work to block or mitigate that interference.

There are two general kinds of avionics interference that can occur between devices:

- Interference through wiring – Usually all electronic devices have connections to a common power source, usually a positive DC voltage and a ground. Often devices are also interconnected through wiring containing data information.
- Interference through the air – One device can interfere with another device without any physical contact between the two devices.

Start by taking the following steps;

1) It can be very helpful to create a diagram (a functional schematic) of all cabling connections for your various devices. This will give you a roadmap to follow as you track down interference. Detail all the connections for the power bus, ground bus, data connections to other devices, and any antenna coax connections (GPS, Transceiver, Transponder, FLARM, etc).
2) Which device is causing the interference? Start by turning off all devices then power up the device of concern and confirm there is no interference. One at a time power up each of other devices while testing for interference. Some devices will need to be “operated”, not just powered up, to cause potential interference sources (e.g. transciever must be keyed to transmit and others listen to the results). It is possible, but unlikely, that interference might come from a combination of multiple devices.

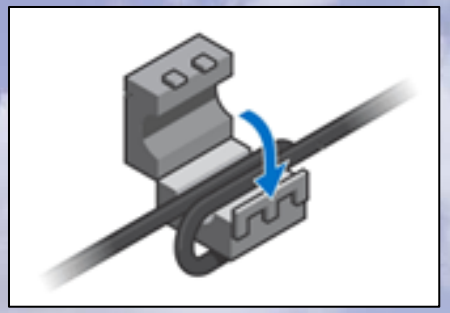
Now proceed to work through the troubleshooting information on the following slides.

Interference Troubleshooting - Power

Because all avionics devices are connected together via their power and ground cabling, one avionics device can send interference to your transceiver through the power cabling and may interfere with your devices.

By powering down one device at a time you can help determine which one is causing your interference.

1. Grounding is very important. All ground cables from every device should interconnect to a single common ground point (stud or bus bar). This can help prevent interference and prevent something called “ground loops”.
2. Route the power and ground cabling of offending (or all) avionics devices through individual “ferrite rings” sometimes called “chokes”, “beads” or “cores” (shown at right). These are inexpensive small split devices that are easy to clip onto existing wires. These can prevent high frequency interference from traveling from device to device through the power/ground wires. Start with your transceiver’s power leads then re-test. Move onto your other device’s power and ground wires as needed.
3. Most 12Vdc USB power adapters can cause interference - especially the commonly found cheap units.



Wrap Wire Twice Around the Choke!

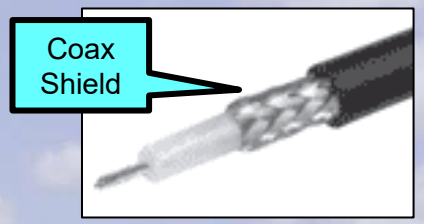
Interference Troubleshooting - Through the Air

Interference can be caused by other electronics (avionics) in your cockpit without any physical contact. Try these ideas to track down the culprit. This interference can be between an RF* transmitting and a receiving device (e.g. transceivers, transponders, FLARM, etc.) but can also occur between non-transmitting/receiving devices (navigation displays, variometers, flight computers, FLARM displays, etc).

Unplug data cable(s) one at a time from each individual device. After each cable is unplugged see if that makes a difference with the radio's interference. If this is a source of interference you should;

1. Inspect the data cable(s) for damage. Repair or replace the cable.
2. Inspect all coax cabling connectors for damage. The coax outer shield wiring must be properly grounded at the device. The connector that provides this grounding can become damaged. See the later section on Coax Cabling.
3. Try moving the data cable to another location. Cables adjacent to each other can "couple" noise one onto the other. Microphone cables, with their very low signal amplitude, can easily be interfered with by high amplitude data noise from other devices.
4. It may be necessary to send the offending device, or the offended device, to a service shop for bench testing.

* Radio Frequency



Microphones

Microphone Mounting Brackets & Thread Patterns

Thread Patterns

- 1/8-IP (Common in US table lamps)
- 18-27 NPSM (Difficult to find)

Microphones – Types and Issues

- There are two types of microphones - “standard” (electret) and “dynamic”.
- Most modern transceivers can utilize either microphone type but If your microphone is not connected correctly to the transceiver’s connector it may have either much lower audio output, distorted audio, or no audio output at all. Refer to your owner’s manual.
- There are two ways that transceivers are set up for a particular microphone type:
  1. Depending on type the microphone is connected to a different pin (and mic ground*) on the transceiver’s connector.
  2. All types of microphones are connected to the same input pin (plus microphone ground*) on the transceiver’s connector - then the type is configured using software settings.
  - Refer to your owner‘s manual.
  - NOTE: Some older transceivers may only accept one type of microphone.
- See your transceiver’s manual for details on making connections and proper settings.
- Different microphone types and models favored for glider/sailplane installations:

- “Electret” Microphone
  - Peiker ME510
  - Microair
  - XCOM
  - Flightline
  - Trig

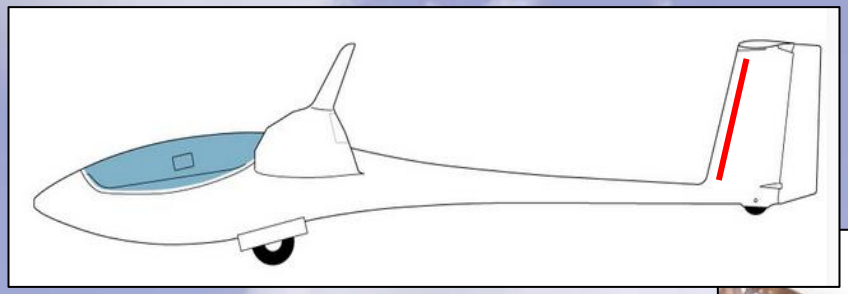
- “Dynamic” Microphone
  - Peiker TM170
  - Dittel
  - Becker
  - f.u.n.k.e.
  - TQ

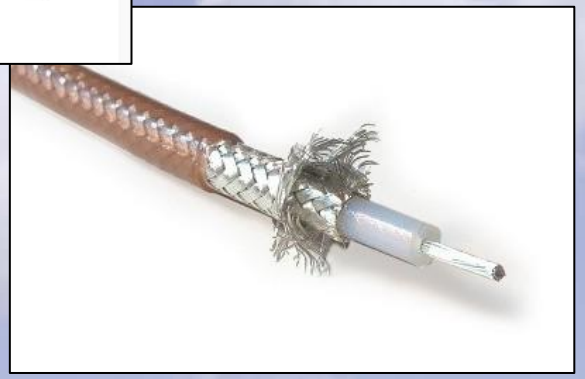
* On most transceivers there is a “microphone” ground pin which is specifically different than the battery or PTT ground pin(s).

Issues with Microphones (Gain)

- Another issue can be the microphone's audio gain (amplification) setting.
- This gain may need to be adjusted for clear and strong transmission audio. In all transceivers there is a way to adjust this gain.
  - Sometimes the gain adjustment is a screwdriver setting through the side of the case.
  - Other times microphone gain is made with a software adjustment through menu settings via the front panel knobs.
  - See your transceiver's manual for specific details.
- Adjust the gain one step at a time and retest your transmissions.
  - Too small of microphone gain will give low, or no, audio transmission.
  - Too large of microphone gain can distort your audio transmission.

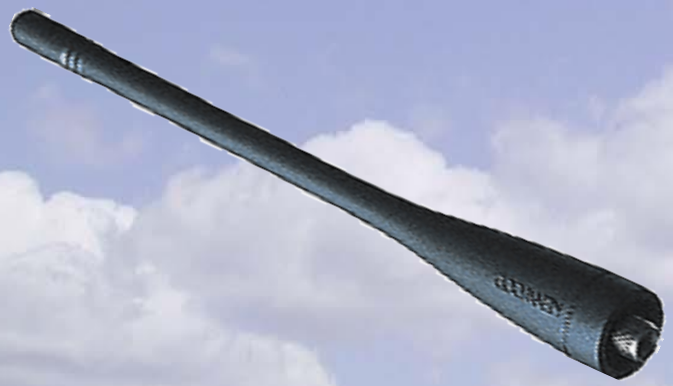
Antennas and Coax Cabling





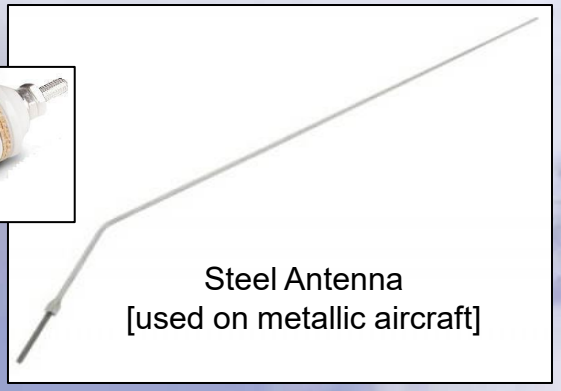
Antennas and Coax Troubleshooting

1. In the majority of situations the antenna coax should be RG-58 (50Ω)
2. Inspect the coax BNC connection at the transceiver for broken center pin, loose coax, poor/broken/frayed/shorted ground shield. Replace.
3. Inspect the coax connection at the antenna for loose/broken connections.
4. If accessible inspect the coax leading to the antenna for breaks or dents.
5. Inspect/replace the antenna itself if accessible.
6. Replace the antenna with a “rubber duckie” antenna and retest.
7. Measure the battery voltage during transmit watching for large drops (3Vdc or more).
8. Use a VSWR or VNA meter to verify your entire antenna system (BNC connector(s), coax, and antenna). See details in the miscellaneous section.

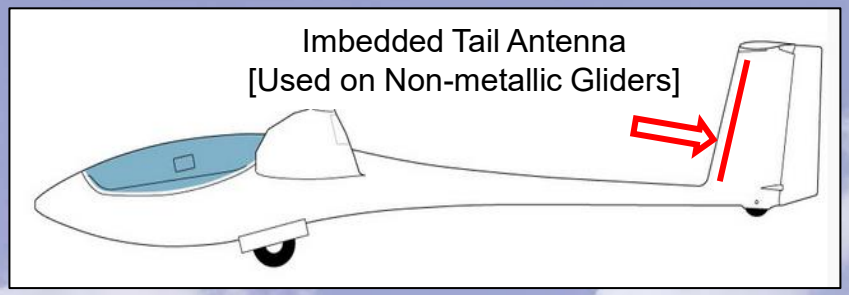


Antenna Types

[and typical use]



Steel Antenna
[used on metallic aircraft]



Imbedded Tail Antenna
[Used on Non-metallic Gliders]

Rubber “Duckie” Antenna
[Used on Portables]

Flexible Magnetic Antenna
[Used on Base and Mobile Stations]

Typical 50Ω Coax Sizes

OK

RG58A/U

Non-Certified
Jacket: Polyvinyl Chloride (PVC)
Shielding: Single

Good

RG58C/U

Non-Certified
Jacket: Polyethylene (PE)
Shielding: Single

Better

RG142

Certified MIL-C-17
Jacket: Fluorinated Ethylene Propylene (FEP)
Shielding: Single

Best

RG400

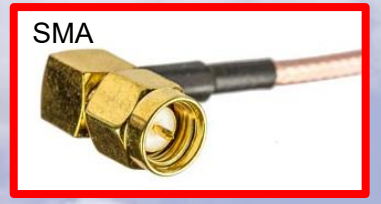
Certified MIL-DTL-17
Jacket: Fluorinated Ethylene Propylene (FEP)
Shielding: Double

Common Radio Frequency (RF) Coaxial Connector Types

- **BNC** – The most common connection between the transceiver and the aircraft's antenna.
  - Connection Type: Bayonet (quarter-turn twist lock)
  - Connector Assembly Difficulty: **Medium**

- **TNC** – Used between a transponder and aircraft's antenna.
  - Connection Type: Threaded
  - Connector Assembly Difficulty: **Medium**

- **SMA** – Found on most GPS antennas. Also found on the antennas for FLARM devices. A rarer variety is a "reverse polarity" connector known as an SMA-RP found on a few devices.
  - Connection Type: Threaded
  - Connector Assembly Difficulty: **High**



- **MCX** - Found on a few GPS antennas such as FLARM devices.
  - Connection Type: Push-on
  - Connector Assembly Difficulty: **High**

NOTE: All connectors shown are male. There are female versions for each type.

BNC Coaxial Connector Types

- **Crimp Style**
  - Reliable
  - Preferred
  - Somewhat Expensive
  - Requires coax crimping tool
  - Center pin crimp or soldered

- **Solder + Compression Style**
  - Reliable
  - Repairable
  - Most expensive
  - Requires hand tools
  - Center pin soldered

- **Twist On Style**
  - Not reliable
  - Expensive
  - Requires simple tools
  - Requires no soldering

- **Solder Style**
  - BAD NEWS!
  - Expensive
  - Requires soldering

BNC Crimp Connector

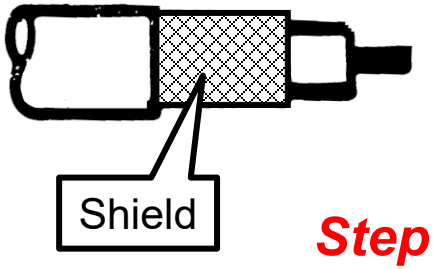
Coax Crimping Tool
$15-$25

Avionics manufactures recommend only using soldered or crimped BNC/TNC connectors

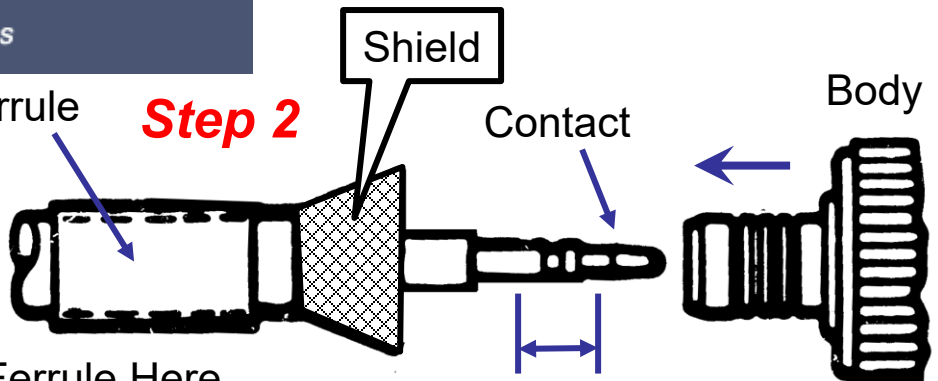
Amphenol® RF *Global RF Solutions*

Step 1

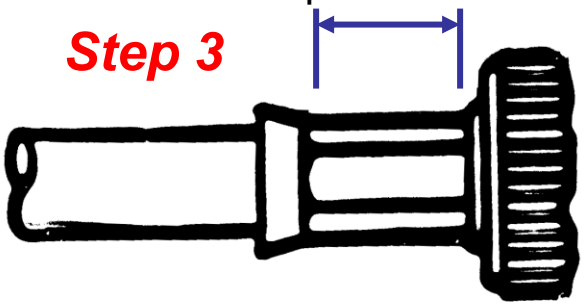
Stripping Coax

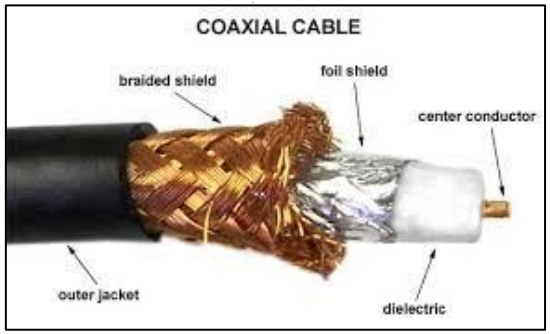


Step 2

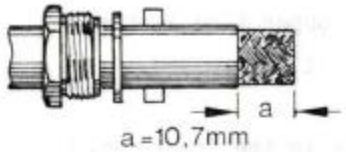


Step 3

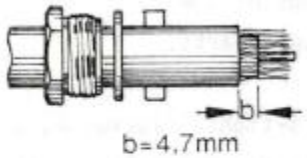




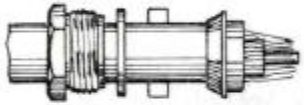
BNC Solder Connector



Cut cable sharp; slide on nut, washer and silicon gasket; remove jacket to length indicated.

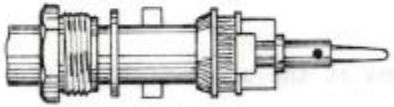


Comb out shield braiding. Strip inner insulation cleanly and at right angles to length indicated. (Warning: do not damage center conductor! Potential breaking point!)

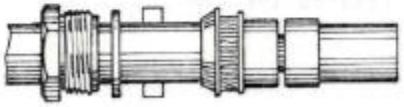


Bend combed shield slightly to the center and slide on champ.

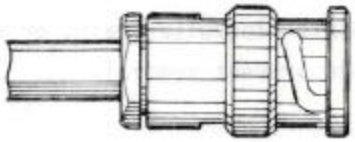
Shorten the shielding so the wires can be bent over the champ as shown. Tin the center conductor, being careful not to damage the dielectric.



Slide on the bushing and rear insulation. Slide the contact pin onto the center conductor and solder. Thoroughly remove all flux and excess solder.



Allow joints to cool and slide on the front insulator (check for correct direction!).



Insert cable thus prepared into the plug body. Ensure that the individual parts are seated perfectly in the body of the plug. Hold the plug securely and screw in the nut.

Avionics manufactures recommend only using soldered or crimped BNC/TNC connectors

Antennas & Coaxes

From the Microair M760 Instruction Manual

Antennas - May be ¼ wave whip (23.95”/61cm for 123.3Mhz) or ½ wavelength dipole.

Coax - Use 50Ω (ohm) RG-58 cable. When the coax cable length exceeds ~15m/~45 feet (uncommon in gliders) then RG-213 (low loss) cable should be used. The actual length of the installed coax is **unimportant***!

**** See https://www.ad5gg.com/2017/06/11/coaxial-cable-length-does-not-change-swr/***

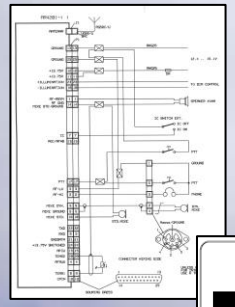
Advanced Antenna System Testing

- One simple test for a faulty antenna system is if the transceiver is drawing much more current than usual. This can usually be noticed by measuring the battery voltage which will droop significantly from the normal ~12Vdc down to ~10Vdc or lower.
- Measuring VSWR* is a handy tool for technical folks to determine if any part of the entire system is faulty - starting at the antenna output of the transceiver to the antenna itself, including the coax in between.
- The VSWR or VNA meter will measure how well the various antenna system components (e.g. BNC connectors, coax wiring, and antenna) are working together for best performance. Any one of these components can cause transmit issues. Especially suspect are the BNC connector(s). Rarely is the antenna itself the issue.
- Simply said, during transmit the meter will indicate if things are not optimum by indicating a higher than normal (numerical) VSWR reading. A reading of 1.0 is “perfect” (and impossible). VSWR between1.0 and 3.0 is considered good. Above 3.0 something is wrong with your antenna system.
- The use, and types, of VSWR and VNA meters are shown in the Miscellaneous section.

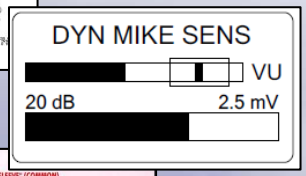
**VSWR stands for Voltage Standing Wave Ratio.*
Expressed as a ratio decimal value+colon+1 (e.g. 1.3:1)
https://en.wikipedia.org/wiki/Standing_wave_ratio

Miscellaneous Information

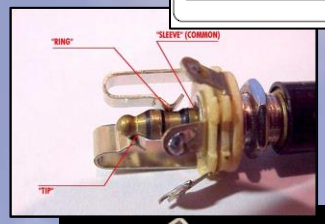
Miscellaneous Information



Manuals see > aviation.derosaweb.net/Avionics/Radios
or the manufacturer's web site



Configuration Settings



Headset Plugs and Jacks

Connector Security

Speaker Box Schematics

VSWR & VNA Test Equipment

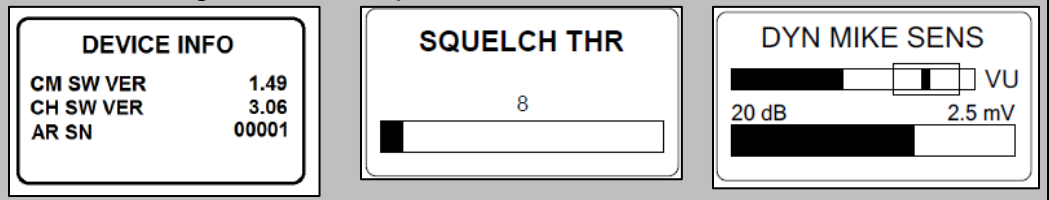
Configuration Settings

Many model transceivers have a method to modify the settings via the display and control knobs. Making adjustments on older transceivers may require being performed via a screwdriver access point on the side, or inside, the case. Review your transceiver's user manual for complete details.

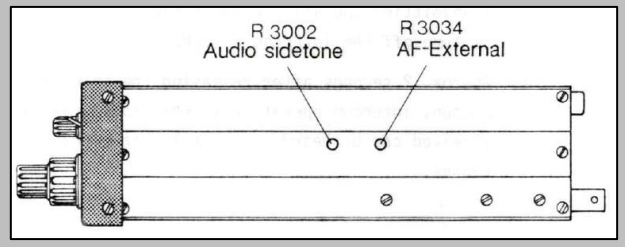
These configuration settings may include;

- **Software version and updating**
- **Microphone gain/sensitivity**
- **Type of microphone (standard or dynamic)**
- **Display settings (brightness, backlighting)**
- **Channel memory settings**
- **Battery information and low voltage settings**
- **Squelch threshold**
- **Restore factory settings**

Configuration examples from the Becker AR6201 manual



Screwdriver adjustment example from the Dittel FSG50 manual



Troubleshooting Speaker/Microphone Boxes

If there is a Becker/Filser or Dittel speaker box installed in the glider then try these things;
Becker/Filser and Dittel box schematics are shown on the next few slides

1. Move the microphone plug to the other jack (or reverse the connections if there are two microphones)*.
2. Wiggle the microphone connector(s) and cabling to see if they are loose. Do that while trying to transmit to see if things work (possibly intermittently).
3. Check the microphone's (male) plug. Are there any bent pins? Loose or broken wires? Shorts between pins? Displaced?
4. Check the box's microphone(s) (female) jacks. Pins seem in place? Not broken or pushed into the connector?
5. Unmount the speaker box and look inside. Are there any bent pins? Loose or broken wires? Shorts between pins? Wiggle things around! Do that while trying to transmit to see if things work (possibly intermittently).
6. Perform a continuity check of the wires going from the box to the transceiver's (rear) connector.

Becker/Filser

Dittel

* **Note that the microphone jacks/plugs are <u>not</u> interchangeable between Dittel and Becker/Filser speaker boxes through the connections are both considered "DIN-5". The Becker/Filser connectors have 45º pin spacing while the Dittel connectors have 60º pin spacing.**

Becker/Filser 45º DIN-5m-180

Dittel 60º DIN-5m-240

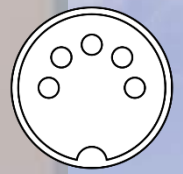
Becker 1PL042 (Filser BS 4/8) Internal View

Screw terminals to the PTT switch

Soldering terminals for wiring to the transceiver
(For pins B to H see the schematic)

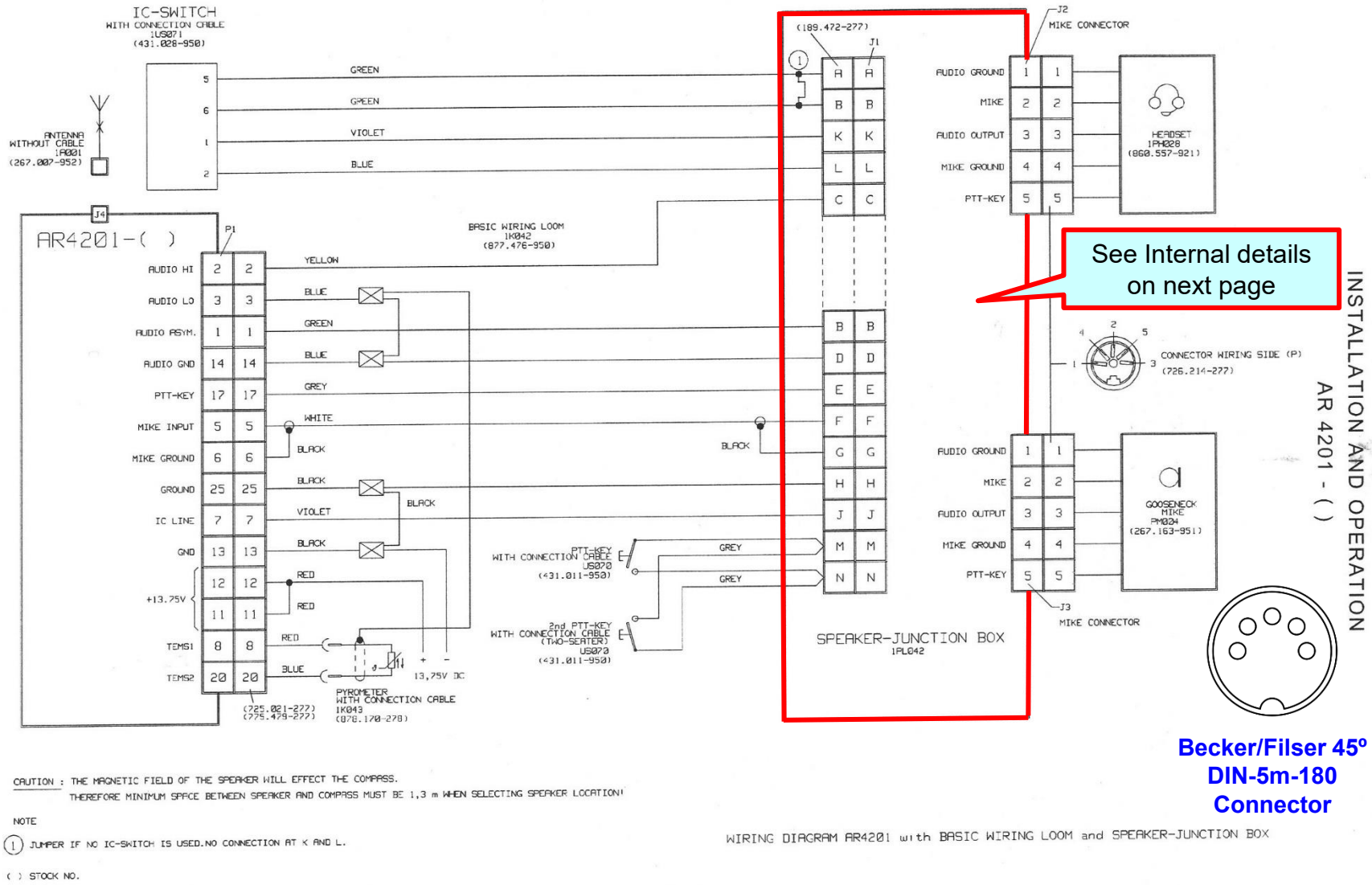
Internal Speaker

Microphone Jacks & Wiring



Becker/Filser 45º DIN-5m-180 Connectors

Becker 1PL042 (Filser BS 4/8) - Schematic



CAUTION : THE MAGNETIC FIELD OF THE SPEAKER WILL EFFECT THE COMPASS.
THEREFORE MINIMUM SPACE BETWEEN SPEAKER AND COMPASS MUST BE 1,3 m WHEN SELECTING SPEAKER LOCATION!

NOTE

(1) JUMPER IF NO IC-SWITCH IS USED.NO CONNECTION AT K AND L.

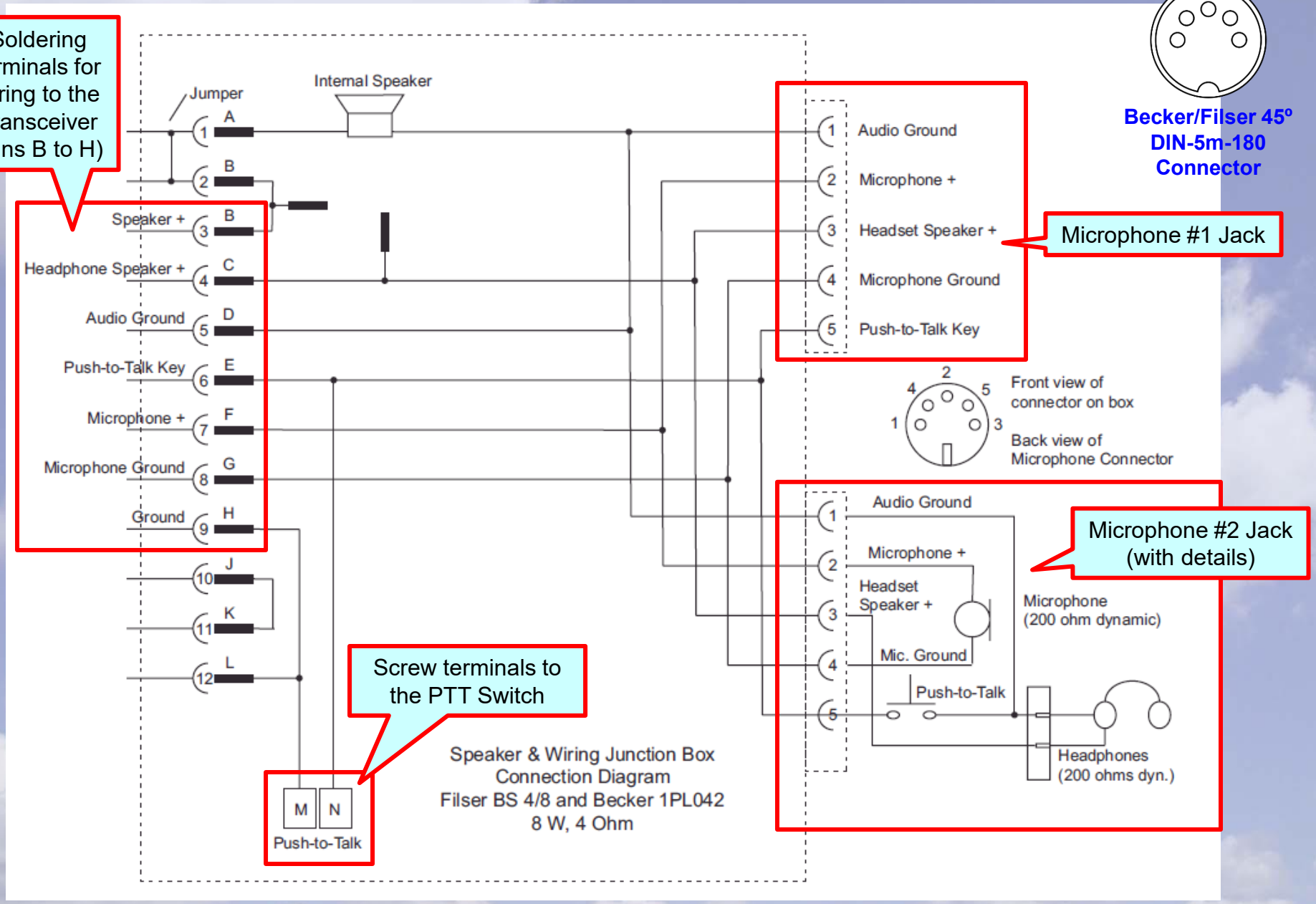
( ) STOCK NO.

WIRING DIAGRAM AR4201 with BASIC WIRING LOOM and SPEAKER-JUNCTION BOX

Fig. 2-6 Interwiring AR 4201 - ( ) with speaker junction

Full Becker AR4201 Manual with Wiring Diagrams Available At:
https://www.cumulus-soaring.com/becker/AR4201-Manual.pdf

Becker 1PL042 (Filser BS 4/8) – Schematic (Details)



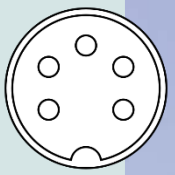
Dittel F10061 Speaker Box Internal View

Quick Release terminals to the PTT Switch

Internal Speaker

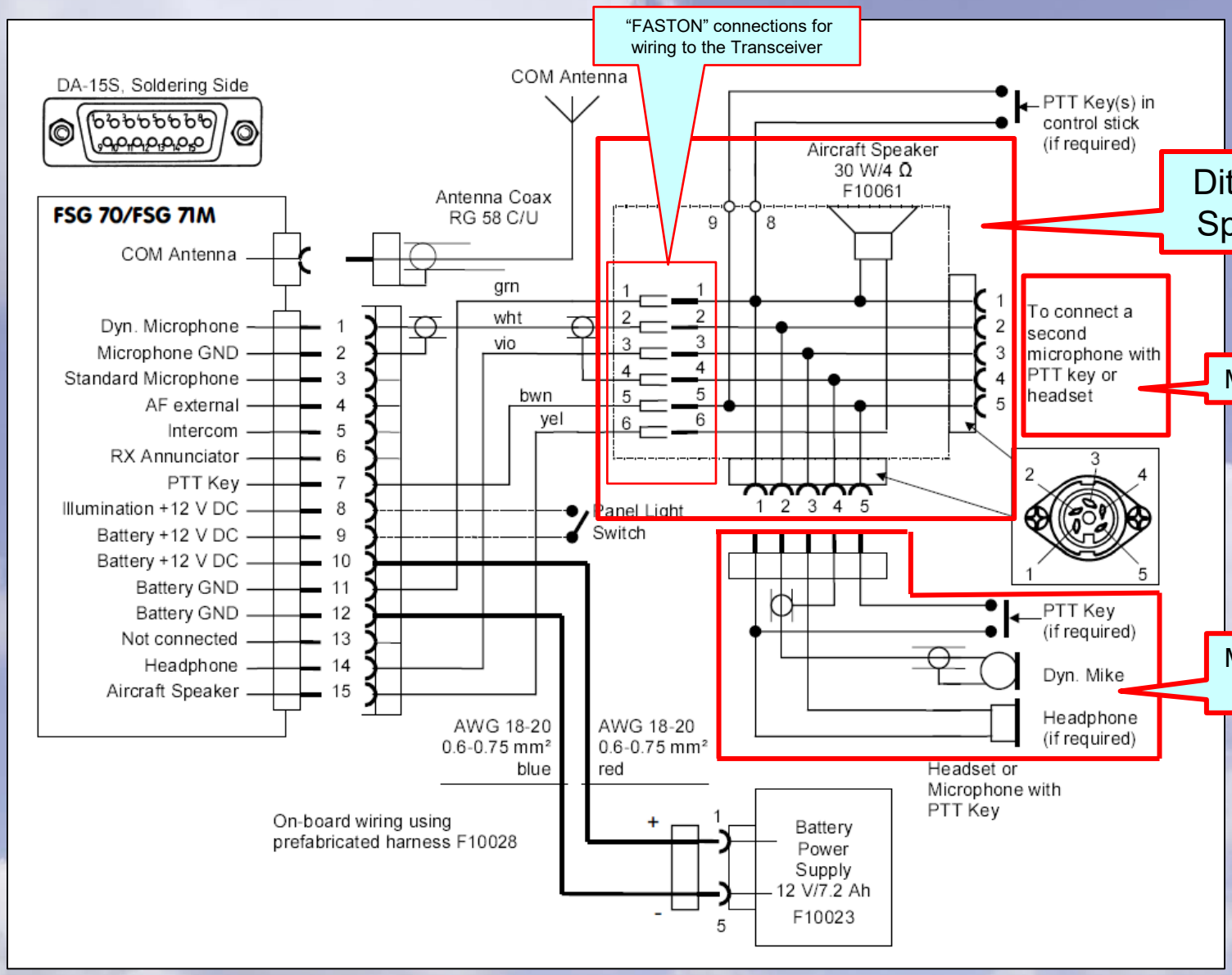
Microphone Jacks & Wiring

"FASTON" terminals for wiring to the Transceiver



Dittel 60º DIN-5m-240 Connectors

Dittel F10061 Speaker Box - Schematic



Dittel 60º DIN-5m-240 Connectors

Full Dittel FSG71 Manual with Wiring Diagrams Available At:
https://www.cumulus-soaring.com/dittel/FSG%2070-FSG71M%20Operation%20and%20Installation%20Manual.pdf

Connectors, Plugs and Jacks

Connector Security (by Manufacturer)

Securing/Latching Types

- Threaded (4-40) Screw/Nut [Trig, Microair]
- Sliding Bar [Becker]
- Sliding Bar [Filser/Dittel]
- Bail [TQ]

Headset Jacks and Plugs

Headsets and their jacks and plugs can be found in gliders but is rare. Headset jacks mounted in the panel can be troublesome for several reasons usually as simple as a broken wire or corroded contact. Connections on the headset itself are rarely an issue.

IMPORTANT: The two headset plugs (and their associated jacks) are two different diameters depending on their function;

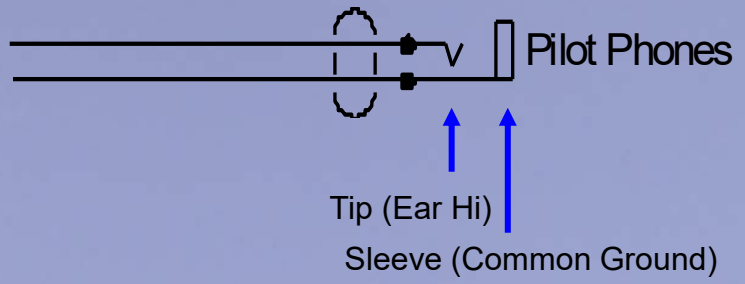
- Phones (Earpiece/Speaker) – 0.250” I.D. - PL-055B or M642/4-1 (2-conductors)
- Microphone & Push-To-Talk (PTT) – 0.205” I.D. - PL-068 or M642/5-1 (3-conductors)

Headset Jacks

Headset Plugs

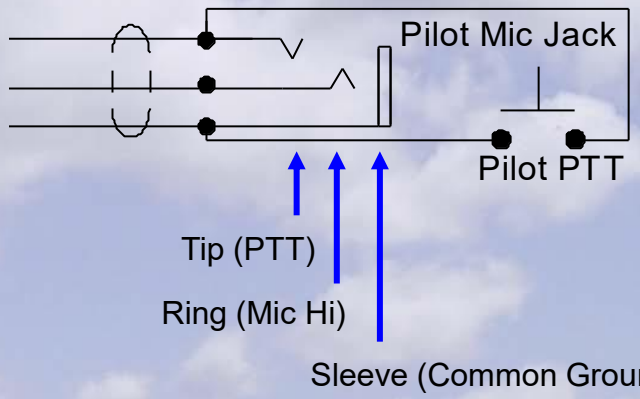
Headset Jack Wiring

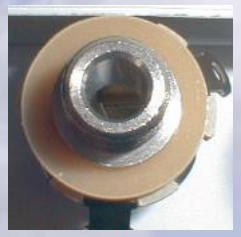
- Earpiece/Speaker
  - Earpiece/Speaker High - Tip
  - Earpiece/Speaker Low - Sleeve



Phones Jack
0.250” ID

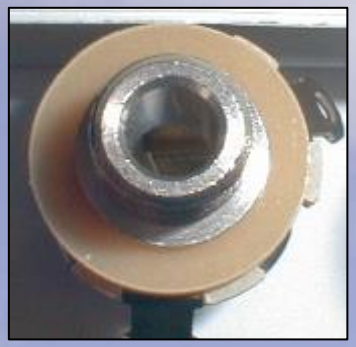
- Microphone & Push-to-Talk (PTT) Switch
  - Push-to-Talk Switch
    - Between Tip & Sleeve
  - Microphone High - Ring
  - Microphone Low - Sleeve





Mic/PTT Jack
0.205” ID

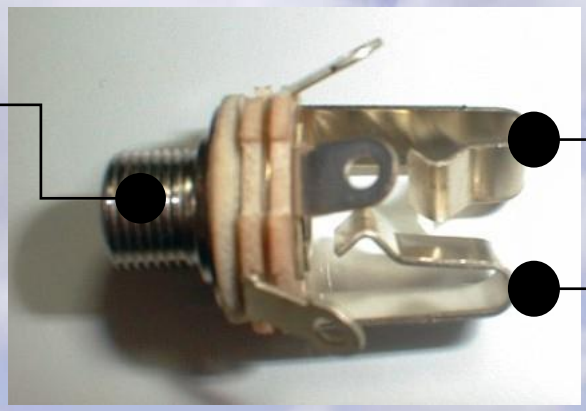
Anatomy of a Headset Jack



Microphone/PTT Jack

0.205” I.D.
(3-conductors)

Source: Aircraft Spruce

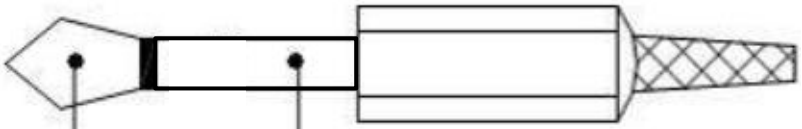


Headset Plug Details

Headphone / Earpiece Audio
Type: PL-055B or M642/4-1

GENERAL AVIATION HEADPHONE PLUG

This is a readily available 6.35mm mono or stereo plug. The mating shaft of the plug is 6.35mm or 0.250"



Sleeve: Common Ground

Tip: Earpiece/Speaker

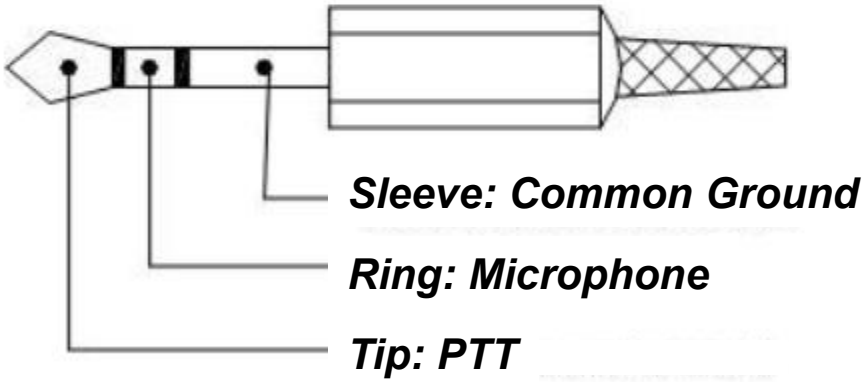
Headset Plug Details

Microphone and Push To Talk (PTT)

Type: PL-068 or M642/5-1

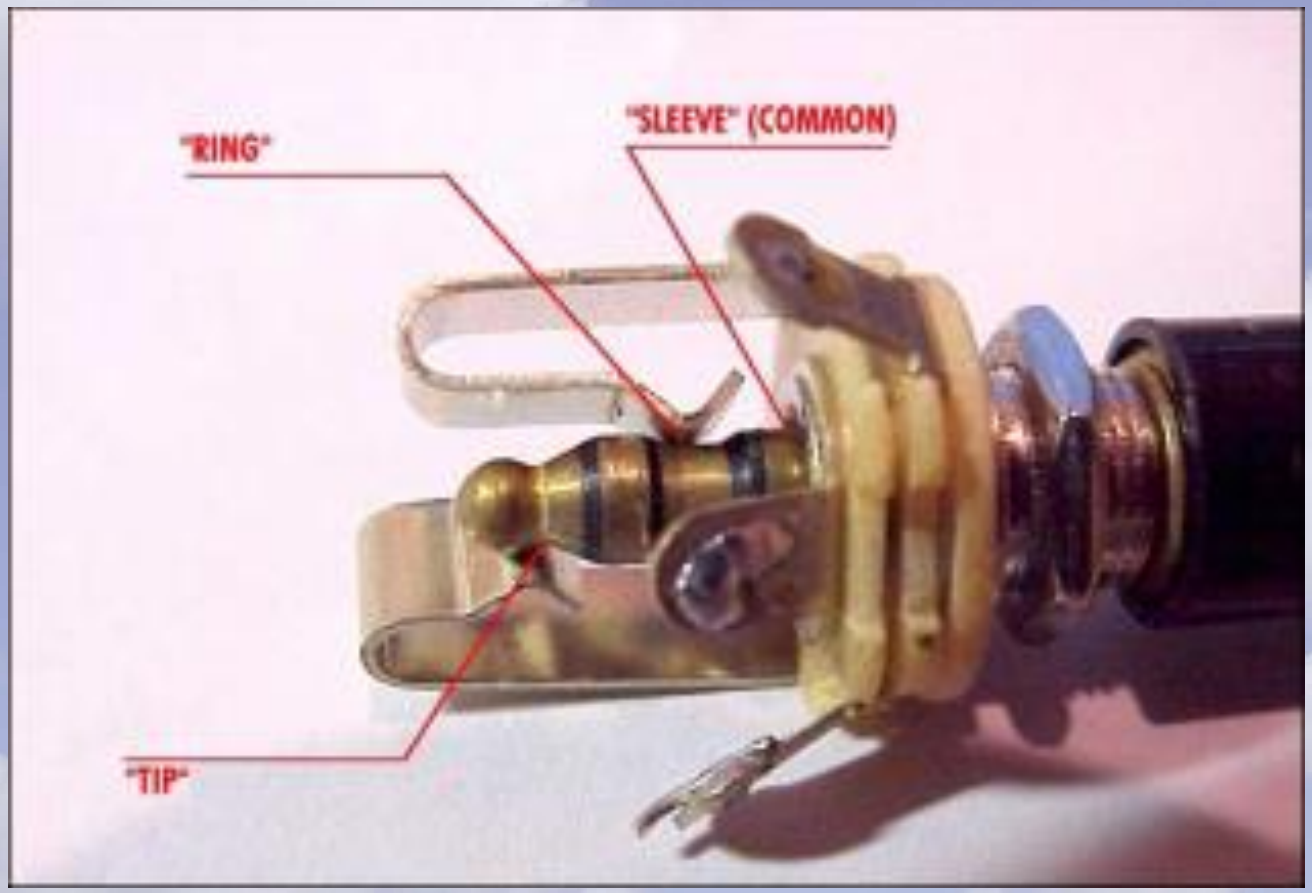
GENERAL AVIATION MIC PLUG

This plug is often difficult to find as it is now only used in aviation. The mating shaft of the plug is 5.23mm or 0.206"



Anatomy of a Headset Jack and Plug

(Identifying Tips, Rings and Sleeves)

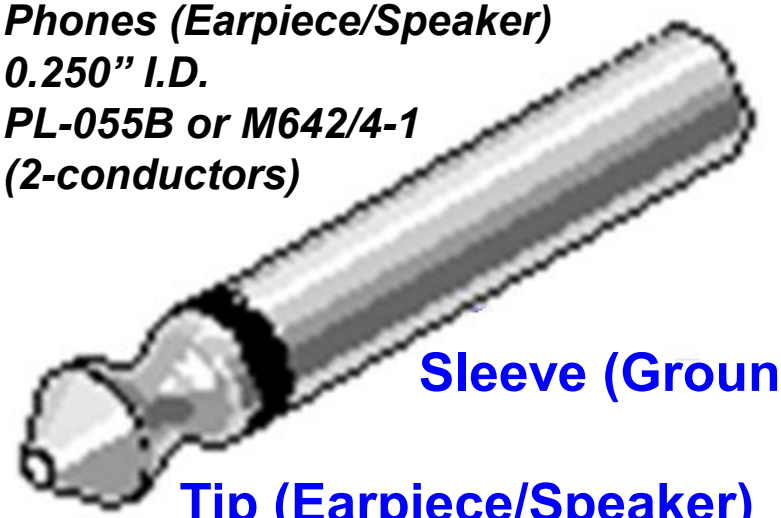


Anatomy of an Aviation Headset Plug

(Identifying Tip, Ring and Sleeve)

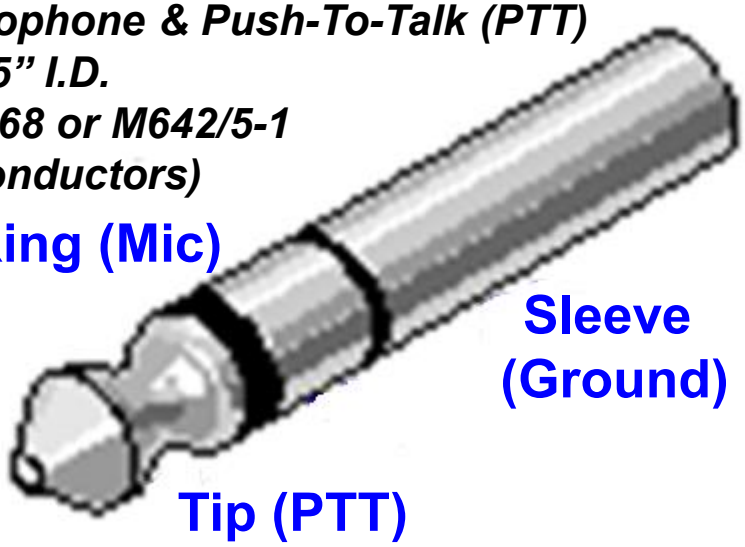
2-Conductor Plug (Earpiece/Speaker)

Phones (Earpiece/Speaker)
0.250" I.D.
PL-055B or M642/4-1
(2-conductors)



3-Conductor Plug (Microphone and PTT)

Microphone & Push-To-Talk (PTT)
0.205" I.D.
PL-068 or M642/5-1
(3-conductors)

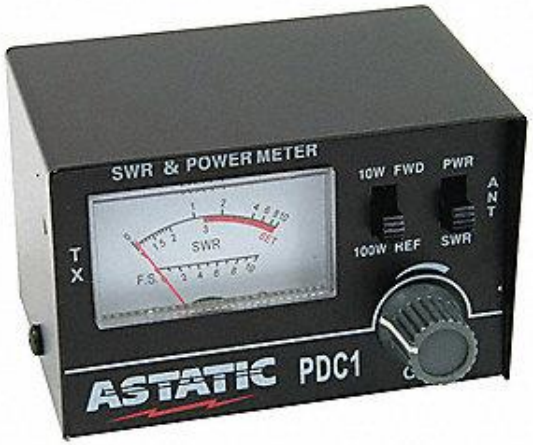


Transmission Testing via VSWR

Antenna System "VSWR" Testing

Examples of Types of VSWR Meters

Inexpensive VSWR/Power Meter



Astatic PDC1

VSWR/Power/Frequency Meter

Surecom SW102

Pro VSWR/Power Meter

BIRD FA-8141A

Be sure to buy a meter that covers the aviation frequency band of 118-137 MHz

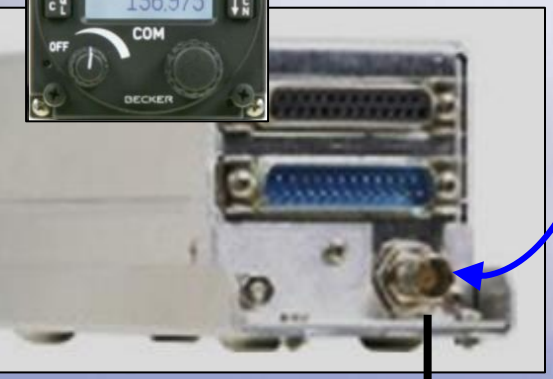
Meter Cost: Anywhere from $20 to hundreds of dollars
Sources: eBay, Amazon, Ham Radio equipment sites
Required Accessories: Short length of coax, BNC & N adapters

How To Use Video: https://www.youtube.com/watch?v=qSea5FjcTDE

Antenna System "VSWR" Testing

Typical VSWR Test Setup

Glider's Transceiver's BNC Connector



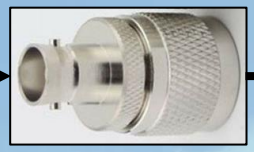
Glider's Antenna's Coax BNC

Testing Process:

1) Unplug the glider's antenna coax from the rear of the transceiver.
2) Interconnect the equipment as shown below.
3) Press the PTT switch on the transceiver.
4) Monitor the VSWR reading on the meter.

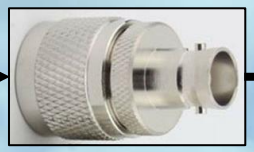
VSWR Measuring Instrumentation

BNC to BNC Coax Patch Cable



Adapter BNC to N-Type Or BNC to PL-259

VSWR Meter with either N-Type or PL-259 connectors



Adapter N-Type to BNC Or PL-259 to BNC

Total Cost of Test Equipment: Approximately $100

Antenna System VNA* Testing

This is an instrument that measures the parameters of electrical networks such as antenna systems. They measure reflection and transmission of signals at a wide range of VHF and UHF high frequencies.

NOTE: These devices typically use SNA connectors and will require adapters for use with aviation equipment.

* VNA stands for Vector Network Analyzer

Meter Cost: Anywhere from $30 to hundreds of dollars
Sources: eBay, Amazon, Ham Radio equipment sites
Required Accessories: Short length of coax, BNC adapters

How To Use Video: https://www.youtube.com/watch?v=xa6dqx9udcg
Information: https://en.wikipedia.org/wiki/Network_analyzer_(electrical)#VNA

Transceiver Vendors

(Based in the United States)

Glider Transceiver Vendors

(Based in the United States)

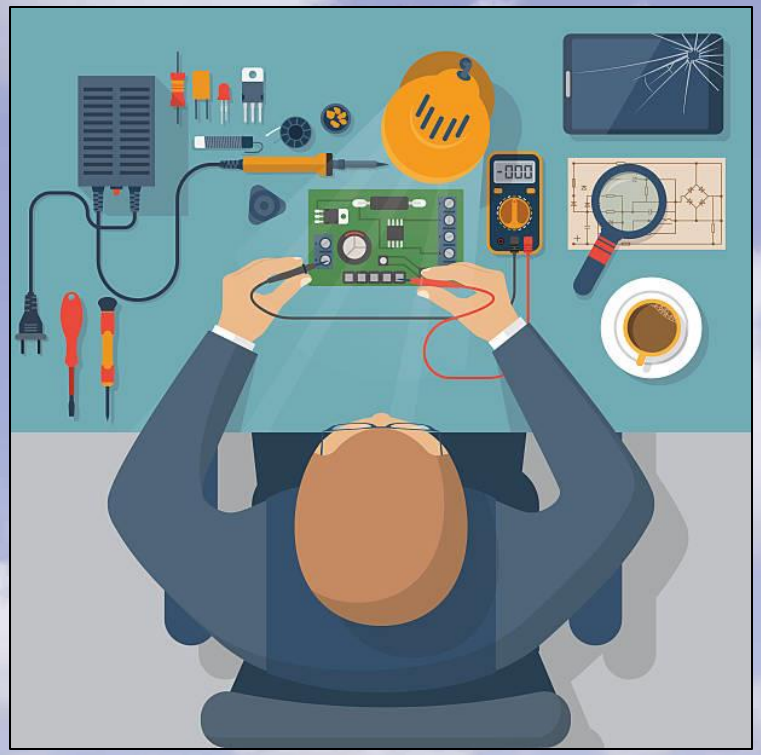
- **Craggy Aero**
  - https://www.craggyaero.com/
  - 530-905-0062
  - info@craggyaero.com

- **Cumulus Soaring**
  - https://www.cumulus-soaring.com/
  - 952-445-9033
  - paul@remde.us

- **Wings and Wheels**
  - https://wingsandwheels.com/
  - 208-994-4110
  - sales@wingsandwheels.com

Transceiver Repair Stations

(Based in the United States)



Transceiver Repair Stations

Based in the United States

- **Becker Avionics**
  - Becker USA
    - https://www.becker-avionics.com/
    - 10376 USA Today Way, Miramar, FL 33025
    - Phone: +1-954-450-3137
    - Email: info@beckerusa.com
  - Gulf Coast Avionics Corp.
    - http://www.GulfCoastAvionics.com
    - 3650 Drane Field Road, Lakeland, FL 33811
    - Phone: +1-863-709-9714
    - Email: info@GCA.aero
  - Erie Aviation
    - http://www.erieaviation.com
    - Erie International Airport
    - 1607 Asbury Road, Erie, PA 16505
    - Phone: +1-814.838.893
    - Email: support@erieaviation.com

Additional Manufacturer's Contact Information is Continued on Next Slide…

Transceiver Repair Stations

Based in the United States

- **Funkwerk Avionics (f.u.n.k.e. Walter Dittel)**
  - Peninsula Avionics
  - http://www.peninsulaavionics.com/
  - 14229 SW 127 Street, Miami, FL 33186
  - Phone: +1-305-238-6550
  - Email: sales@peninsulaavionics.com
- **Trig Avionics**
  - Mid Continent Instruments and Avionics
  - http://www.mcico.com
  - 9400 East 34th Street North, Wichita, KS 67226
  - Phone: +1-800-821-1212
  - Email: mcia@mcico.com
- **Microair Avionics**
  - MicroairUSA Service
  - http://www.microairusa.com/
  - 2711 Legion Rd # 8564, Erie, PA 16505
  - Phone: +1-814-882-2855
  - Email: repair@microairusa.com

Additional Manufacturer's Contact Information is Continued on Next Slide…

Transceiver Repair Stations

Based in the United States

- **MGL Avionics**
  - Michigan Avionics
  - www.michiganavionics.com
  - 1232 Roods Lake Rd Hangar 47, Lapeer, MI 48446
  - Phone: +1-810356-9855
  - Email: sales@michiganavionics.com

- **Flightline Avionics**
  - Tallahassee International Airport (KTLH)
  - http://www.flightlinegroup.com/servicecenter_avionics.aspx.html
  - 3256 Capital Circle SW, Tallahassee, FL 32310
  - Phone: +1-850-576-3515

- **TQ Avionics (KRT-2)**
  - Mid Continent Instruments and Avionics
  - http://www.mcico.com
  - 9400 East 34th Street North, Wichita, KS 67226
  - Phone: +1-800-821-1212
  - Email: mcia@mcico.com

Additional Manufacturer's Contact Information is Continued on Next Slide…

Transceiver Repair Stations

Based in the United States

- **Air Avionics**
  - Mid Continent Instruments and Avionics
  - http://www.mcico.com
  - 9400 East 34th Street North, Wichita, KS 67226
  - Phone: +1-800-821-1212
  - Email: mcia@mcico.com

See My Other Presentations

- Glider Electrical Wiring
- Transceiver Troubleshooting
- Oxygen Systems
- Working with Glider Air Lines
- Trailer Wiring & LED Lights
- Trailer Chains
- Pilot Relief Systems
- Battery Testing
- FLARM Config & Registration
- Emergency Location Devices
- Spar Alignment Tool
- L'Hotellier Fittings
- Carbon Fiber Panels
- IGC Filename Decoding
- Blanik L-23 Strut Work
- Survival Kits
- Instrument Control Extension
- Removing Painted Lettering
- Open Glider Network (OGN)

http://aviation.derosaweb.net/presentations

Please Send Me Feedback!