Support > Ten-Tec, Inc., Sevierville, TN., U.S.A.

General Repair FAQ Category

Frequently asked questions about Ten-Tec repair services.

Contents

General Repair FAQ

Frequently asked questions about Ten-Tec repair services.

Can my Ten-Tec transceiver operate on MARS frequencies?

The following Ten-Tec Transceivers can be modified to transmit on the MARS frequencies:

Delta II, Model 536

Argonaut II, Model 535

Paragon, Model 585

Paragon II, Model 586

Pegasus, Model 550

Jupiter, Model 538

Argonaut V, Modle 516

There is no charge for the modofication. We must have a copy of your MARS liscense before we can supply the modification.

Connecting a non Ten-Tec transceiver to a Ten-Tec Amplifier

Instructions for connecting non-Ten-Tec transceivers to a Ten-Tec amplifier

This applies to Ten-Tec amplifier models 411, 420, 422, 422B, 425, 425D, 416, 417 and 417A.

QSK with Yaesu Transceivers:

The Yaesu QSK loop is on the band data jack. Pin 2 on the band data jack is KEY OUT and goes to KEY IN on the Ten-Tec amplifier. Pin 8 is TX IN and goes to KEY OUT on the Ten-Tec amplifier. Pin 3 is ground. The QSK/PTT switch on front panel of the Ten-Tec amplifier MUST be in QSK for all modes of operation.

Alternant CW QSK connection:

Connect the CW key or keyer into the Key IN jack on the rear panel of the Ten-Tec amplifier. Connect a cable from KEY OUT jack on the rear panel of the Ten-Tec amplifier to the KEY jack on the transceiver. The QSK/PTT switch on the front panel of the Ten-Tec amplifier MUST be switched to QSK.

CW QSK with Kenwood and Icom transceivers:

Kenwood and Icom transceivers do not have a keying loop. Connect the CW key or keyer into the

KEY IN jack on the rear panel of the Ten-Tec amplifier. Connect a cable from KEY OUT on the rear panel of the Ten-Tec amplifier to the KEY jack on the transceiver. The QSK/PTT switch on the front panel of the Ten-Tec amplifier MUST be switched to QSK.
Non QSK with Kenwood, Icom or Yaesu transceivers:

Refer to the transceivers owner’s manual and locate the amplifier control relay (closure to ground on transmit). Connect a cable from this jack on the rear of the transceiver to the PTT JACK on the rear of the Ten-Tec amplifier. Note: On some early Titan 425’s the PTT jack is not present, use one of the KEY IN jacks. The front panel QSK/PTT switch on the Ten-Tec amplifier must be switched to PTT for all modes of operation.

Connecting a Ten-Tec transceiver to a non Ten-Tec amplifier

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ALC CONNECTION BETWEEN THE TRNASCEIVER AND AMPLIFIER IS NOT REQUIRED.

Early Ten-Tec transceivers do not have a keying loop because QSK amplifiers were not designed until the late 80’s. Any Ten-Tec transceiver earlier than the Corsair II will only have an external TR jack for keying an amplifier. Late production Corsair IIs have the keying loop.

Collins 30L1, Heathkit SB200 and SB220, Drake L4B and other amplifiers with 110 VAC keying relays:

An intermediate relay is required. The TR jack is used to key the intermediate relay and the dry contacts on the relay key the amplifier. Connect the relay as follows:

Solder a diode across the relay coil.
Apply 12 to 14 Volts DC to the cathode end of the relay coil.
Connect a shielded cable with an RCA connector on one end to the TR jack on the Ten-Tec transceiver.
Connect the center conductor of this cable to the anode end of the relay coil and ground the shield.
Connect a shielded cable across a set of normally open contacts on the relay.
Connect the other end of this cable to the relay connector on the amplifier.

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Connect the other end of this cable to the relay connector on the amplifier.

Non QSK amplifiers with DC relays:

Connect a cable from the EXT TR jack (labeled Relay N.O. or AMP KEY on some Ten-Tec transceivers) to the key jack on the amplifier. Note: The relay in the Omni VI and VI+ must be activated in the menu. The relay in the Paragon II must be activated by a jumper. The jumper can be accessed by removing the bottom panel of the Paragon II.

QSK Amplifiers:

Alpha 87A/89

Connect the TX EN/TX OUT jacks on the Ten-Tec Omni VI to a Y cable. A series diode is placed in the center conductor of the third leg of the Y connector and the cathode end is connected to the RELAY connector on the Alpha.

All other transceiver Amplifier combinations use the relay connection

Ameritron with the QSK 5:

Refer to Figure 2A in the QSK-5 manual. Key 2 goes to TX OUTon the Ten-Tec Transceiver. Key 1 and AUX jacks are connected together with a Y cable and the third leg of the Y goes to TX EN on the Ten-Tec Transceiver.

Acom:

Acom amplifiers have a conventional keying loop. Connect the TX EN on the Ten-Tec transceiver to the KEY OUT on the Acom and TX OUT on the Ten-Tec transceiver to KEY IN on the ACOM

Most QSK amplifiers can be keyed from the AMP KEY (also called EXT TR or EXT T/R on some Ten-Tec transceivers) and operated in PTT or semi break in mode.

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Does the frequency display on Ten-Tec transceivers show receive or transmit frequency?

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The frequency display on all Ten-Tec transceivers from the Corsair to the Orion, except the Scout, show transmits frequency.

USB: The display shows suppressed carrier frequency.
LSB: The display shows suppressed carrier frequency.
CW: The display shows the zero beat. The receiver is offset from the transmit frequency.
In early transceivers such as the Corsair, Omni V, Paragon and Delta II this offset was fixed, usually 750 HZ.

Omni VI, Pegasus, Jupiter, Orion and Orion II:

CW offset is the same as the side tone.

Orion and Orion II

UCW: The receiver is offset above the frequency displayed by the amount of the sidetone

frequency.

LCW: The receiver is offset below the frequency displayed by the amount of the sidetone frequency.

Scout and Argo 556: The display shows receive frequency.

CW: Exercise caution when transmitting near the band edge. The transmit frequency is 750 Hz below the displayed frequency on 160, 80, 40 and 30 meters. The transmitted signal is 750 Hz above the frequency displayed on 20, 17, 15 and 10 meters.

Good Service

Transmit bandwidth can not be changed in the Delta II

Identifying the Argonaut transceivers

Identification of Argonaut transceivers

Argonaut 505

The Argonaut 505 has an analog dial.
Band coverage: 80, 40, 20, 15 and 10 meters. Modes are SSB and CW.
The Resonate control peaks the transmitter and receiver. The Argonaut 505 has Argonaut on the left side of the front panel near the Ten-Tec logo. Mode switch has Off, SB-R, CW, SB-N and LOCK. Microphone gain and CW Drive are on the rear panel.
Note: Some 505s have been modified; the Sensitivity control was replaced with a concentric pot to move Microphone gain and CW drive to the front panel.

Argonaut 509

The Argonaut 509 has an analog dial.
Band coverage: 80, 40, 20, 15, and 10 meters. Modes are SSB and CW.
Resonate control peaks the receiver, transmitter is broad banded. The Argonaut 509 has Argonaut 509 on the front panel near the Ten-Tec logo and the serial number begins with 509. Mode Switch has SB-R, CW, SB-N and LOCK.

The Argonaut 505 and 509 front panels are cream colored with wood grain top and wood grain inserts on the side panels. The 505 and 509 could also be purchased with an optional wood grain front panel.

Argonaut 515

The Argonaut 515 has an analog dial. 10 meters is in four sections on an auxiliary band switch. Band coverage is 80, 40, 15 and 10 meters. Modes are SSB and CW. The Argonaut 515 has Argonaut 515 under the Ten-Tec logo on the left side of the front panel.

Argonaut II
Model 535

The Argonaut II is the QRP version of the Delta II. The Argonaut has a liquid crystal display. Band coverage is 160, 80, 40, 30, 20, 17, 15, 12 and 10 meters transmit and 100 KHz to 30 MHz receive.

Modes are SSB, CW, and FM and receive only on AM. The early Argonaut IIs did not have an External Speaker Jack or J-1 accessory jack (for computer control of the Argonaut) on the rear panel. The External Speaker Jack and J-1 Accessory Jack were added in June 1992.

Identifying the Century 21 and Century 22

Identifying the Century

Century 21 Model 570

The Century 21 receives CW and SSB, transmits CW only. Power input is 70 watts output is 25 to 30 watts. Band coverage is 80, 40, 20, 15, and 10 meters. The Century 21 has analog frequency readout and a built in AC operated power supply (only Ten-Tec transceiver with built in power supply)

Century 21 Model 574

The Century 21 Model 574 is identical to the Model 570 except the Model 574 had digital frequency readout.

Appearance: The Century 21 has a gray front panel and a black vinyl covered wrap around top and bottom.

Century 22 Model 579

The Century 22 receives CW and SSB, transmits CW only. Power input is 50 watts output is 20 watts. Band coverage is 80, 40, 30, 20, 15 and 10 meters. The Century 22 has analog frequency readout.

Appearance: The Century 22 has a beige front panel with Century/22 on the right bottom of the front panel. Top and bottom covers are dark steel clam shell.

Identifying the Omni D series A, B or C

Identifying the Omni A and D

Omni A series A

The Omni A series A has an analog dial. Band coverage is 160, 80, 40, 30 (receive only), 20, 15 and 10. There is an AUX position on the band switch to add 12 meter receive and transmit (available after WARC bands became available). 30 meter transmit could be added after WARC bands became available*. The Omni A Series A can not be made to receive or transmit on 17 meters. The Omni A series A has a 4 position audio filter and squelch, no notch filter or crystal filters.

Omni D series A

The Omni D series A has digital frequency readout, otherwise is identical to the Omni A Series A.

Omni A series B

The Omni A series B has an analog dial. Band coverage is the same as the Omni A series A. The

Omni A series B can not be made to transmit or receive on 17 meters. The Omni A series B has a rotary switch to cascade the 3 audio filters with 3 crystal filters. 2.4 KHz crystal filter is standard; 1.8 KHz and 500 Hz filters are optional. Omni A series B has a notch filter no squelch.

Omni D series B has digital frequency readout, otherwise identical to Omni A series B.

Note: A modification kit was available to modify the Omni A series A and Omni D series A transceivers to series B configuration. A front panel overlay that covered the filter and squelch controls was included in the modification.

Omni D series C

The Omni D series C has digital frequency readout. Band coverage: 160, 80, 40, 30, 20, 17, 15, 12 and 10 meter bands. Note: Omni D series Cs were shipped without WARC band crystals until WARC bands became available**. Omni D series C has a 3 position flip switch to select audio filters and a 3 position flip switch to select optional crystal filters. 2.4 KHz crystal filter is standard; 1.8 KHz and 500 Hz crystal filters are optional. Omni D series C has a notch filter, no squelch.

*Parts are no longer available to make these modifications
** Crystals are available from Ten-Tec Service

Identifying the Power-Mite transceivers

Identification of Power-Mite Transceivers

PM1:

PM1 has VFO control of receive and transmit for 80 and 40 meters and crystal controlled transmit on 15 meters. PM1 has 4 circuit boards, MX1 mixer, TX1 transmitter, AA1 audio amp and VO1 variable oscillator. Basic PM 1 had no sidetone and manual TR switch. AC6 optional board added VFO controlled 20 meter transmit and receive and sidetone. AC3 board added VFO controlled 15 meter transmit and receive. PM1 had one empty slot for the AC3 or AC6.

Appearance: PM1 had no top or side covers, only the U shaped sheet metal chassis and had PM1 on the lower right side of the front panel.

PM2:

There are 2 versions of the PM 2:

Version 1: Side panels and a top were added to the basic PM1 to make a PM2. This version of the PM2 has 4 boards and could be fitted with an AC3 or AC6 optional board. This version of the PM2 has PM1 on the lower right side of the front panel.

Version 2: Version 2 has one large circuit board and VFO control of transmit and receive on 80 and 40 meters and crystal controlled transmit on 15 meters. No optional boards were available and no sidetone.

PM 2A:

PM 2A is the same as PM2 version 2 with sidetone.

PM 2B:

PM 2B also has one large board with VFO control of transmit and receive on 80, 40 and 20 meters, no sidetone.

PM1 and all versions of PM2 have 2 watts RF input.

PM3:

PM3 has four circuit boards with VFO control of receive and transmit on 80 and 40 meters.

PM3A is the same as PM3 with the addition of the AC7 board for semi QSK break in keying.

PM3 and 3A have 5 watts RF input and sidetone.

Identifying the Triton IV and models 540/544

Identifying the Triton and Model 540/544

Triton 1 (Model 510) and Triton II (Model 520)

The Triton I and Triton II are identical except for the power output. The Triton I has a RF power output of 50 watts and the Triton II has a RF power output of 100 watts. The Transmitter is broad banded and requires no tuning. Receiver is peaked with the resonate control. Band coverage is 80, 40, 20, 15, and 10. The Tritons have analog frequency readout.

Appearance: Front panel is egg shell white, top is wood grain vinyl and side panels have wood grain vinyl inserts. No model numbers appear on the transceivers, Triton 1 or Triton II is on the lower left of the front panel.

Triton IV (Model 540)

The Triton IV* (Model 540) has an RF Power Output of 100 watts. The transmitter is broad banded and required no tuning. The receiver is peaked with the resonate control. Band coverage is 80, 40, 20, 15, and 10 meters. The 10 meter band was divided into four segments by an auxiliary 10 meter band switch. The Triton IV has analog frequency readout.

Model 544*

The Model 544 is identical to the Triton IV except it has digital frequency readout.

Appearance: Front panel is brushed aluminum with clear coat, top is textured vinyl and side panels are black cycolac high impact plastic.

* The Triton name was dropped because of a copyright question. Some 540s will have Triton IV on the front panel and some will have Model 540.

The main tuning knob on my older Ten-Tec transceiver will not turn; can I add a light lubricant or solvent to the grease and free the PTO?

The main tuning knob on my older Ten-Tec transceiver will not turn; can I add a light lubricant or solvent to the grease and free the PTO?

No, if a light lubricant or solvent is added to the grease and the grease is thinned or removed, the PTO may turn but could have excessive drift or frequency jump. An incorrect type of lubricant or solvent could damage the plastic or electronic parts of the PTO.

If the PTO is stuck it must be disassembled, cleaned and mechanically rebuilt. A PTO rebuild kit is available from Ten-Tec Service. The PTO kit contains all the necessary replacement parts needed to rebuild the PTO. The kit also contains complete step by step instructions and correct grease.

What is the proper grease for the Ten-Tec PTO

What is the proper grease for the Ten-Tec PTO?

The PTO for Ten-Tec transceivers was designed by Ten-Tec engineers in the early 70’s. In order for the PTO to operate as designed it must have the proper grease. The engineer designed the PTO to use open gear grease. Open gear grease was chosen because it is very tacky and stays in place when the main tuning knob is rotated. If a thinner grease is used there could be premature wear to the bearing race or inner drive shaft.