

## W&W Trig TY91 Installation Instructions With Dual Control Heads

### **READ ALL INSTRUCTIONS BEFORE BEGINNING INSTALLATION.**

1) 'TY91 SPEAKER': For one speaker, solder center conductor to (+) tab on 4 or 8 ohm, 4 watt speaker. Solder the shield wire to the (-) tab.

If using two speakers: Two 8 ohm speakers may be connected in parallel. Solder the center conductors of the 'TY91 SPEAKER' wires from the main harness and the loose wire, to the (+) tab on the first speaker. Solder both black jumper wires to the (-) tab. Route the loose 'TY91 Speak' wire to the second speaker and cut to length. Solder a black jumper wire to the shield braid with a blue solder sleeve. Solder the center conductor to the (+) tab of the second speaker and solder the black jumper wire to the (-) tab.

OR

Two 4 ohm speakers may be connected in series. Solder the center conductor of the 'TY91 SPEAK' wire, from the harness, to the (+) tab on the first speaker. Then solder the center conductor of the loose 'TY91 SPEAK' wire to the (-) tab of the same speaker. Solder both black jumper wires together. Route the loose 'TY91 SPEAK' wire to the second speaker and cut to length. Solder a black jumper wire to the shield braid with a blue solder sleeve. Solder the center conductor to the (+) tab on the second speaker and the black jumper wire to the (-) tab.

2) 'TY91 AUDIO #1': Solder the center conductor to the audio hi tab, which is the only contact on the audio jack. Solder the black shield wire to the ground tab, which corresponds to the threaded portion of the jack. Suggest Switchcraft 11 audio jack or equivalent.

Repeat same steps for 'TY91 AUDIO #2'.

3) '#1 MIC PTT = Blu, #1 MIC Hi = Wh, #1 MIC Lo = Blk': All conductors of this multi-conductor wire go to the mic jack. Suggest Switchcraft, S12B, mic jack or equivalent. Solder the blue striped wire to the push to talk tab, which is the 'tallest' contact on the jack. Solder the white wire to the mic hi tab, which is the 'shorter' contact on the jack. Solder the black shield wire to the ground tab which corresponds to the threaded portion of the jack.

Repeat same steps for '#2 MIC PTT = Blu, #2 MIC Hi = Wh, #2 MIC Lo = Blk'.

(\*) If a remote push to talk switch is to be used, Solder center conductor of the 'PILOT PTT #1' wire together with the blue striped wire '#1 MIC PTT = BLU'. Solder the black ground wire to the same tab as the black, mic lo wire '#1 MIC LO = BLK'. Cut the PTT wire to length and solder a black wire to the shield braid with a blue solder sleeve. Solder the center conductor to one tab of a customer provided momentary contact switch and the black jumper wire to the other tab. Activating EITHER the remote PTT with OR the PTT switch on a mic assembly connected to the mic jack, will allow voice transition over the radio.

Repeat same steps for 'COPILOT PTT #2'.

4) 'TY91 AUX AUDIO IN': Solder the center conductor to the twisted wires on the resistors, already attached to the small music jack. Solder the shield wire to the short, ground, tab on the music jack.

5) 'ICS ON TC90 #1': To activate the intercom circuit, ground this wire through a customer supplied switch. Use a separate switch at each control head.

Repeat same steps for 'ICS ON TC90 #2'.

5) '#1 RS232, OUT=BLU, #1 RS232 IN=WH, #1 RS232 LO=SH': These wires will be used when connecting data lines to another unit. Check with manufacturer's instructions before attempting connections. As a general rule, the 'out' wire from the TC90 will connect with the 'in' wire of the other unit and vice versa. The 'lo' wires should be attached together. If desired, the supplied, three pin connector can be used for this connection. If not, the connections may be made using another connector or with solder.

Repeat same steps for '#2 RS232, #2 RS232 OUT=BLU, #2 RS232 IN=WH, LO=SH'

6) 'STEP TC90 #1': The 'STEP' wire will be soldered to one tab of a customer supplied, momentary 'on' switch. Solder a customer supplied ground wire to the other tab. Each activation of the switch will place the next programmed frequency, from memory to standby. If not used, cap and stow this wire.

Repeat same steps for 'STEP TC90 #2.

7) 'TRANSFER TC90 #2': The 'TRANSFER' wire will be soldered to one tab of a customer supplied, momentary 'on' switch. Solder a customer supplied ground wire to the other tab. Each activation of the switch will place the standby frequency into the active position. If not used, cap and stow this wire.

Repeat same steps for 'TRANSFER TC90 #2.

8) 'GROUND TC90 #1': Attach this twisted pair of wires to, either airframe ground or a dedicated avionics ground. This may be accomplished with solder or by installing a ring terminal and using the appropriate hardware, as necessary.

Repeat same steps for 'GROUND TC90 #2'.

9) 'TY91 GROUND': Attach this twisted pair of wires to, either airframe ground or a dedicated avionics ground. This may be accomplished with solder or by installing a ring terminal and using the appropriate hardware, as necessary.

10) 'TY91 POWER': Install an appropriately sized ring terminal and attach to the 'load' terminal of a 5 amp circuit breaker. **\* ALWAYS check that the power supplied to the radio is correct as per the manufacturer's requirements. \***

11) Connect the 25 socket connector to the back of the radio and tighten the two attaching screws. Connect the 15 socket connector to the back of the control head and tighten the two attaching screws.

#### Special notes:

These instructions only address the electrical installation of this radio. Follow the manufacturer's instructions for all other aspects of the installation, such as the antenna connections and the mechanical mounting.

The speaker or audio (headphones), or both may be used. If speaker and audio are both connected, a switch should be installed on the speaker (+) wire so that if headphones are being used, the speaker can be switched off.

If a wire is not used, such as the speaker, audio, music, or light wires, cap and stow each conductor.

When installing the mic jack on a conductive surface, fiber isolation washers, such as Switchcraft S1028 and S1029, MUST be used. Drill a 7/16" hole to allow the shoulder of the black washer to seat and push the mic jack through its hole. Place the brown fiber washer and thin metal washer over the threads and tighten the nut.

When installing the music jack on a conductive surface, the white nylon washers MUST be used. Drill a 5/16" hole and fit the shoulder of the white, shouldered, washer into the hole. Insert the music jack through the shoulder washer and place the white, flat washer over the threads and tighten the knurled nut.

**\*NEVER attempt to transmit without the antenna connected to a com radio. The transmitter WILL be damaged. \***

Verify correct connections of power and ground wires. Engage the circuit breaker and turn on radio. Program the radio as per the manufacturer's instructions and ensure that any desired options are activated at this time.

Tune the radio to any desired frequency and listen for incoming signals, on the speaker. Plug a hand mic or boom mic into the mic jack and check that a clear voice signal is transmitted. Any aircraft band radio can be used when making these checks, such as a handheld or the radio in another aircraft.

Plug a music source, such as an I-Pod, into the music jack. Check for clarity and volume.

Fly and enjoy!