

## Harness Preparation

Firstly, clear the bench and give yourself lots of room. Some harnesses can become big and heavy and you can never have too much room. As you will soon find, you will soon have a mass of wires going in all directions.

## Wire and Fittings

Only use good quality Teflon wire (known as Tefzel). Do not use automotive wire for this job. You will require the following items:

- Single core Tefzel 18 gauge for the power supply
- Single core Tefzel 22 gauge for general wiring
- Single core shielded Tefzel 22 gauge
- Triple core and shielded Tefzel 22 gauge
- Headphone and Mic jacks (2 sets if your plane is a 2 seater)
- PTT switches (2 sets if your plane is a 2 seater)
- Backlight On/Off toggle switch
- Intercom On/Off/Isolate Switch
- 3.5mm mono audio jack (if fitting music system)

## Tools



Clear the bench and give yourself lots of room. Now that the bench is clear get your tools ready.... Use a proper soldering iron made for the job. Do not attempt to solder small connections with a large soldering iron because it will not work - you will simply end up with large clumps of poorly connected solder. Use good quality solder and have lots of heatshrink ready.



Prepare the Heatshrink for the job. You will need three sizes for the harness - 1.5mm for the individual wires, 3mm for things like the headset jacks and multiple wires and 12 to 15mm for the bundle of wires coming from the DB15 plug.





Use good quality wire cutters like those shown. Tefzel wire is amazingly tough and the cheaper cutters won't do the job.

### Power and Ground Wires



Cut the power and ground wires from the 18 gauge wire

Power = Red wire 400mm or as required in your plane

Ground = Black wire 400mm or as required in your plane

Strip and pre solder each end of the wires. This is consistent throughout the job. If necessary, cut the plastic back to expose the wire a little longer than required, solder the wire and then trim the wire to the exact length

### PTT Wires

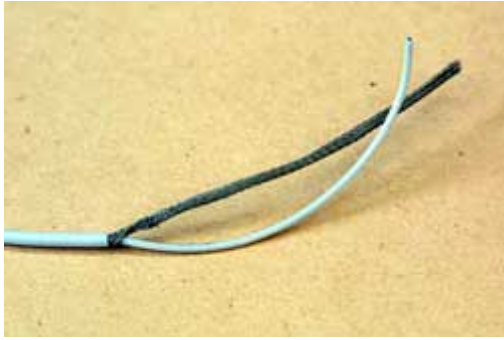


Cut the PTT wires using 22 gauge single core shielded wire

Standard PTT harness length is 1400mm or as required in your plane



Strip about 40mm from both ends and separate the shield from the cores by separating the mesh and bending the wire through the hole. We use a small screwdriver to assist



Try not to damage the shield during this process

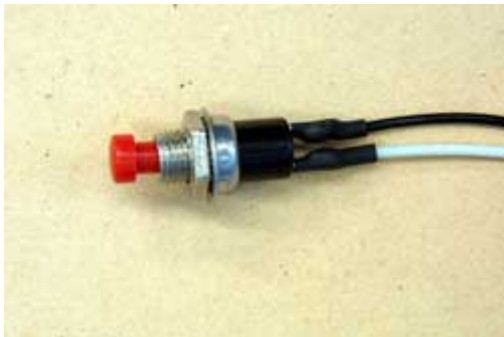


On one end only, trim the shield to around 10mm and attach a piece of black wire about 50mm long



Solder and heatshrink over the section.

Trim the black wire to the length of the core, strip the shield and pre solder.



Pilot PTT soldered and heatshrink

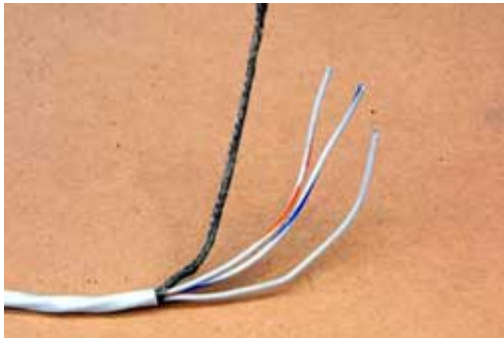
If the aircraft is a two seater you will need to make 2 PTT wires

## Headset Wires

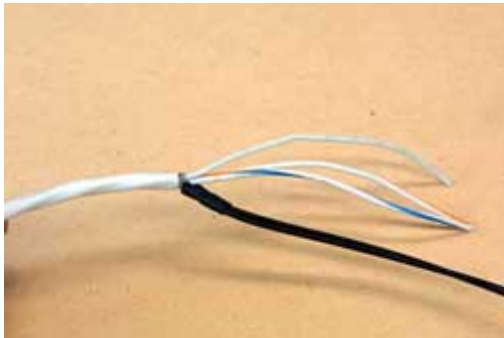
Cut four Headphone extension cables from 22 gauge wire about 120mm long. Strip and pre solder both ends

Cut the main Headsets wires using 22 gauge 3 core shielded wire

Standard harness lengths 1000mm or as required in your plane



Strip about 40mm at one end and separate the shield from the 3 cores and pre solder the wires



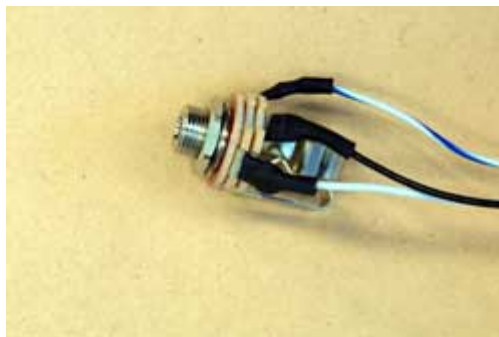
Strip about 100mm from the other end and separate the shield from the core. Trim the shield to about 10mm and add 2 x 120mm long black wires to the shield (headphone extension wires mentioned above). Cut off the same length as the cores, strip and pre solder



Separate the White wire and one of the Black wires which are used on the headset jack. The Orange and White, the Blue and White and the Black are used on the Mic jack. Heatshrink as shown.



Pilot Mike jack, soldered and heatshrink



Pilot Headphone jack soldered and heatshrink



If the aircraft is a two seater you will need to make 2 Headset wires

## Speaker Wires

Cut the speaker wire from 22 gauge 1 core and shield 400mm long or as required in your plane

Strip about 40mm from both ends and separate the shield from the cores. On one end only, trim the shield to around 10mm and attach a piece of Black wire about 50mm long. Solder and heatshrink over the whole lot. Trim the black wire to the length of the core, strip the shield and pre solder

### **Backlight Wires**

Cut the backlight wire from 1 core and shield

Standard length 400mm long or as required in your plane



Strip about 40mm from both ends and separate the shield from the cores. On one end only, trim the shield to around 10mm and attach a piece of black wire about 50mm long. Solder and heatshrink over the whole lot. Trim the wire to the length of the core, strip the shield and pre solder. Attach to the toggle switch and heatshrink as shown.

### **Music Input**

Cut the music input wire from 1 core and earth

Standard length 400mm long or as required in your plane



Strip about 40mm from both ends and separate the shield from the cores. On one end only, trim the shield to around 10mm and attach a piece of black wire about 50mm long. Solder and heatshrink over the whole lot. Trim the black wire to the length of the core, strip the shield and pre solder



Attach the 3.5mm audio jack to one end

Note: The XCOM is mono only so do not wire for stereo sound

### **Intercom On/Off/Pilot Isolate**

Cut the Intercom On/Off/Isolate lead from 3 core and shield or use three separate wires.

Standard length 400 mm long or as required in your plane.

Strip about 40mm from both ends and separate the shield from the cores. Cut the white wire from both ends as we only need the 2 cores and shield.



On one end only, trim the shield to around 10mm and attach a piece of black wire about 50mm long. Solder and heatshrink over the whole lot. Trim the black wire to the length of the other cores, strip the shield and solder to the toggle switch

## Chassis Grounding Strap



Cut the XCOM chassis ground strap from black 18 gauge wire.

Standard length 300mm long or as required in your plane.

Strip and pre solder the ends. On one end only, solder or clamp the earth fitting which is screwed into the back of the XCOM.

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## Harness Assembly



Clamp the DB 15 plug securely and pre solder the pins. The pins are numbered left to right on the back starting top left corner as number 1 and continuing the top row to number 8. The bottom row is 9 to 15.

Solder the Red power wire to pin 9.

Solder the backlight switch power to pin 10 and then bridge pin 9 to 10 with an off cut f wire or a small blob of solder.

Heatshrink both pins together (if you want backlight ON all of the time and no switch installed, then run a wire from Pin 8 to pin 10 and bridge to pin 9).

Solder the backlight switch to pin 8 and Heatshrink.

Solder the Black power wire to pin 12 and piggyback a 50mm length of black wire to the pin to act as a common earth for the rest of the harness and than Heatshrink.

Solder the speaker wires to pin 15 and pin 4 and Heatshrink.

Solder the music input to pin 2 and the common earth.

Solder the intercom switch to pin 5, pin 11 and the common earth and then Heatshrink all connections.

Solder in the pilot headset and mic wires. The white wire connects to pin 14, the orange and white striped wire connects to pin 1 and the blue and white connects to pin 7. Extend the pin 7 wire so that the pilot PTT core can piggyback and attach the Pilot PTT core wire. Heatshrink the wires and attach the earth to the common ground.

Solder in the co pilot headset and mic wires. The white wire to connects to pin 13, the orange and white striped wire conencts to pin 3 and the blue and white wire conencts to pin 6. Extend the pin 6 wire so that the co pilot PTT core can piggyback and attach the Copilot PTT core wire. Heatshrink the wires and attach the earth to the common ground.

Link up all common earths and solder in the black radio chassis ground.



Heat all heatshrink and fit the DB15 plastic shell



That's it ! You've finished you're new harness and are ready to test !!