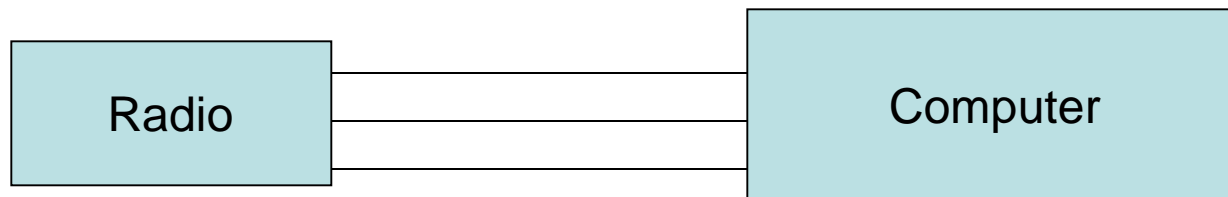


Digital Sound Card Interfaces on the Cheap!

Dale Chidester NJ7C

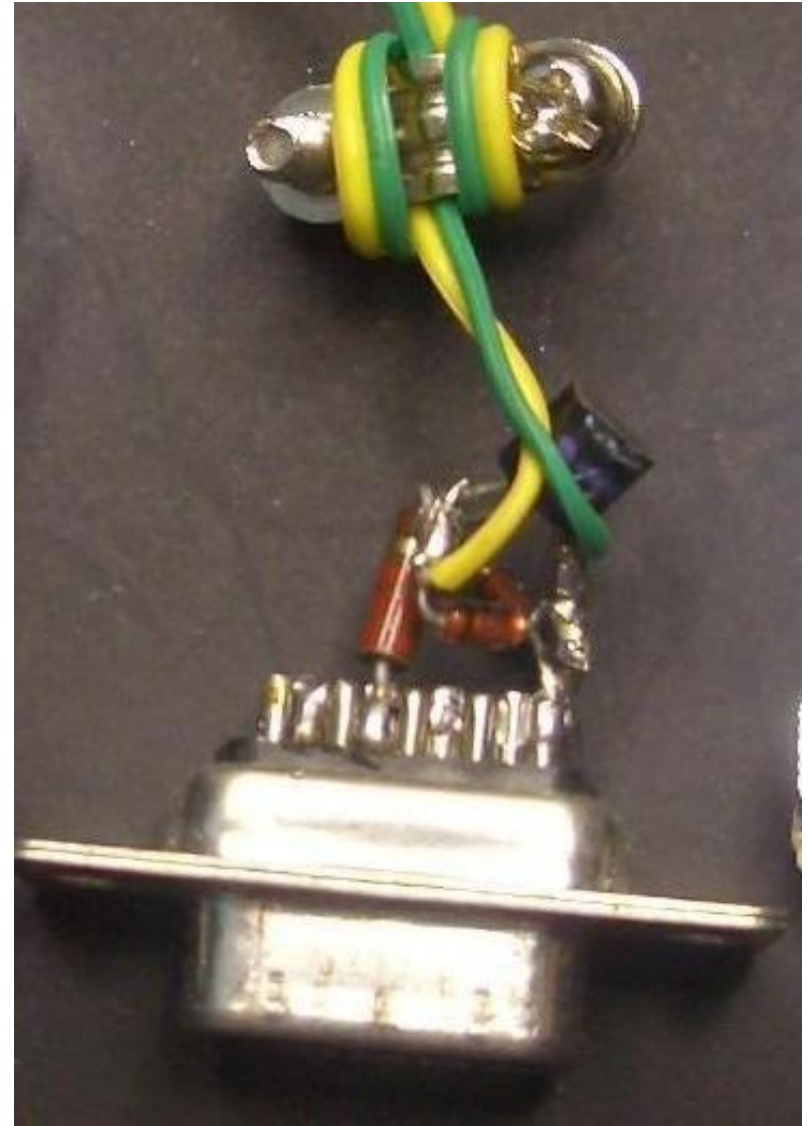
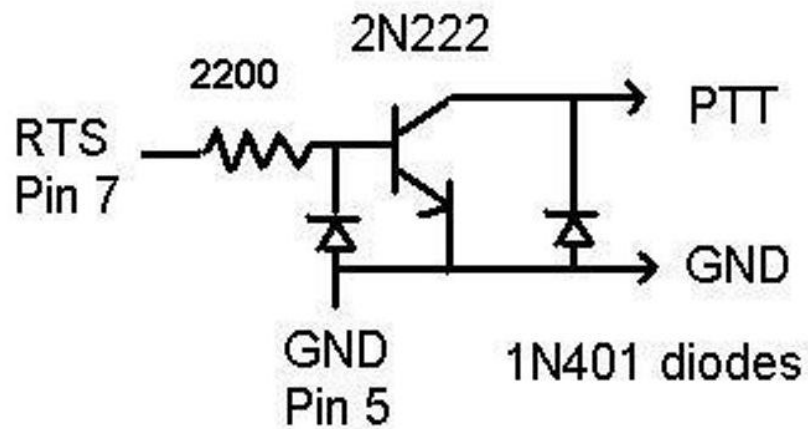
Basic Connections

- PTT
- Audio In
- Audio Out

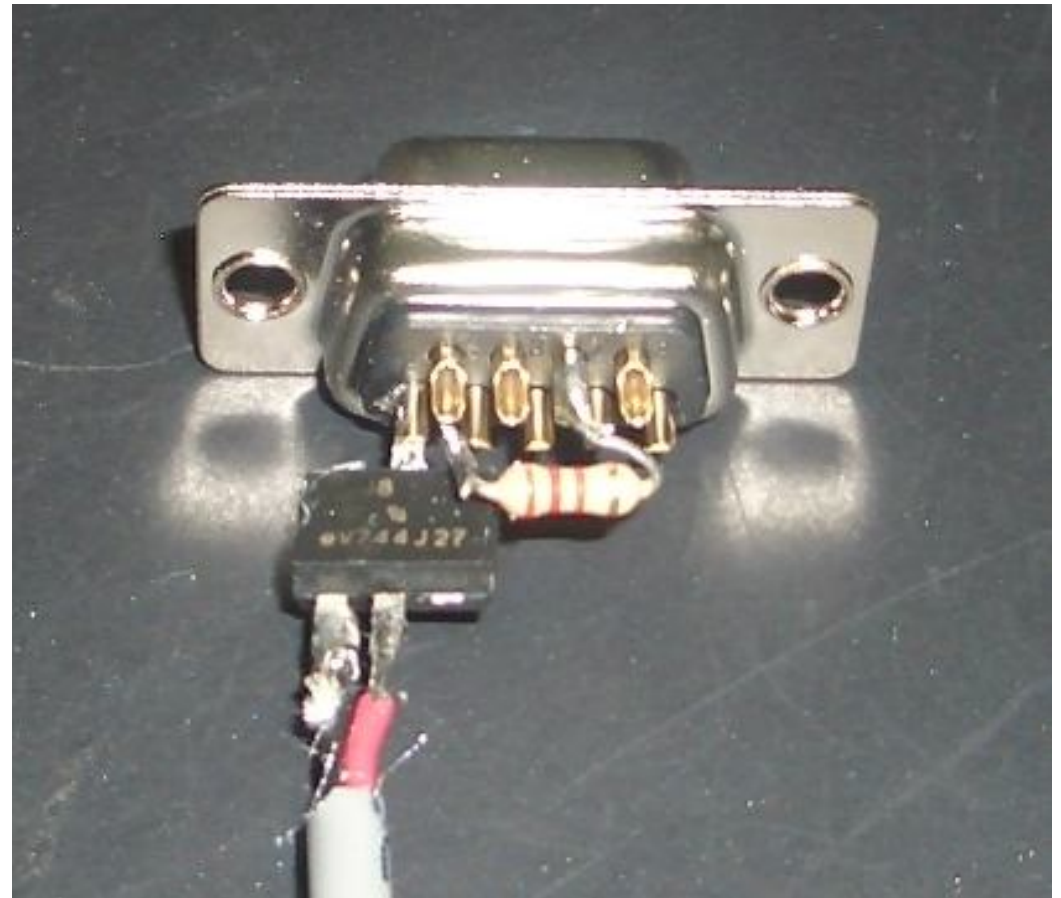
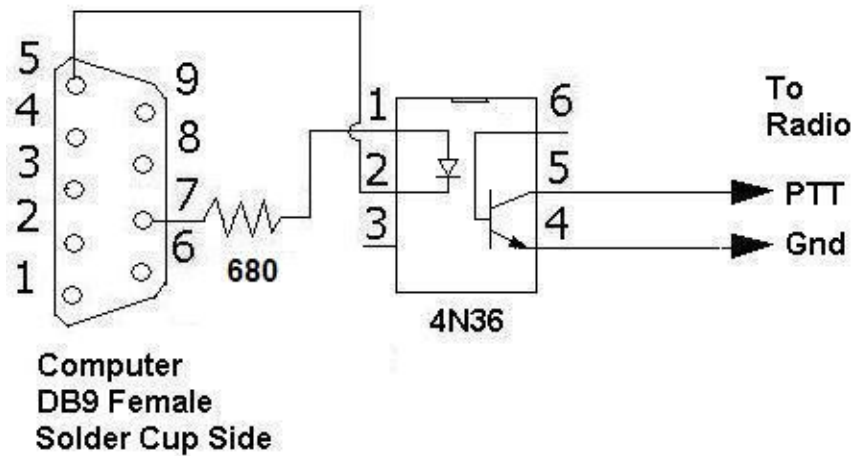


PTT – RS232 Transistor

RS-232 PTT
Control



PTT – RS232 Opto Isolator



PTT USB to RS232

- Adapter Cable (Prolific)



Audio Interface to Computer

- PC Internal Sound Card
- Additional Internal Sound Card
- USB Sound Card
- Commercial Interface BUX Rascal, Signalink, etc.

Internal Sound Card



Hardware Costs

Built-in Soundcard/RS232

- 1/8" Stereo Phone Plug RS 274-284 (2) ~\$4.00
- 18' Shielded Cable Home Depot #22 Security ~\$2.50
 - Audio Cable RS 42-2387 (6') ~\$10.00
- Audio Total ~\$6.50

PTT Parts

- DB9 Female RS 276-1537 \$1.99
- DB9 Shell RS 276-1549 \$2.19
- 2N222 RS 276-1617 (15) \$2.99
- 2.2K RS 271-007 (5) \$0.99
- 1N914 RS 267-1122 (10) \$1.49
- PTT Total: ~\$10.00

Total: ~\$16.50

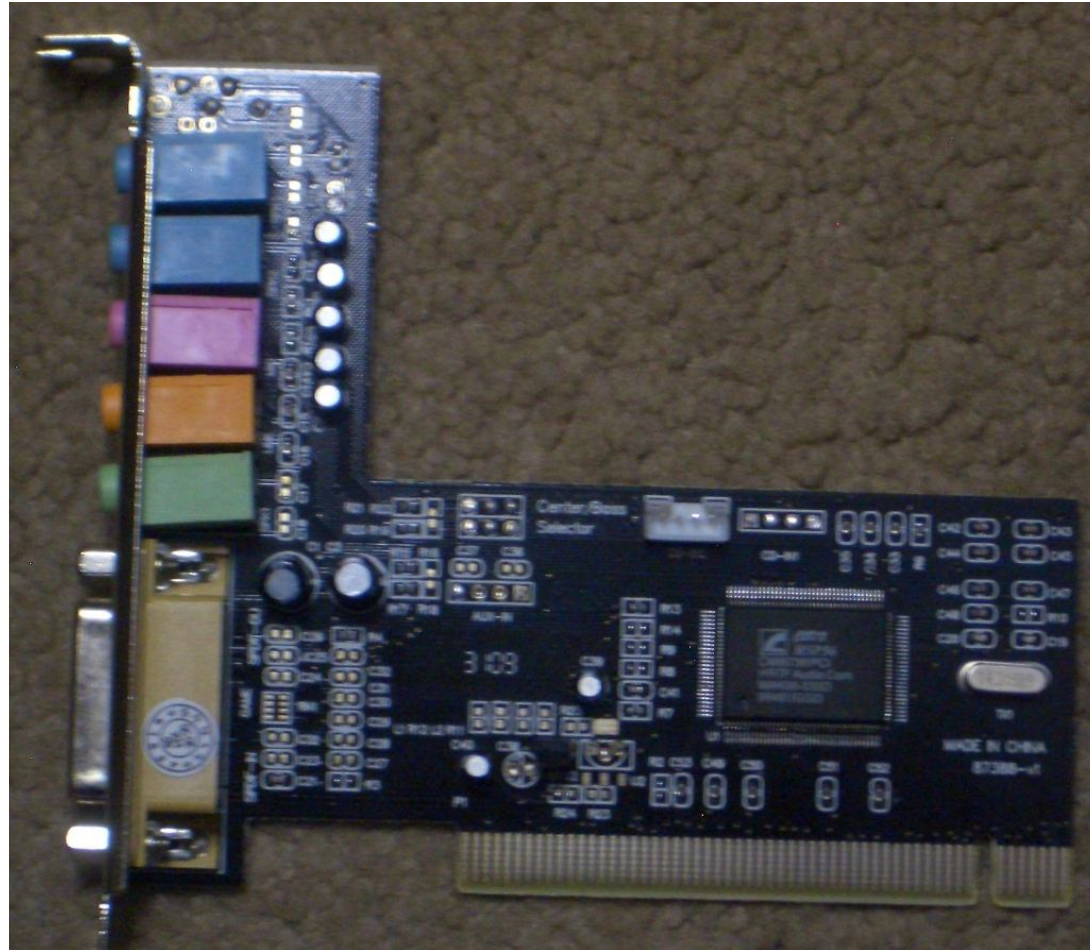
Use USB Port for PTT

Built-in Soundcard RS232

plus:

- Prolific USB to Serial Adapter ~\$15.00
- **Total ~\$31.50**

Add-In Sound Card



Add-In Sound Card

Add-In SoundCard RS232

- PCI Sound Card PacificGeek, etc. on Web ~\$10.00
- Audio and PTT (see above) ~\$16.50
- **Total** ~**\$26.50**
- Prolific USB to Serial Adapter ~\$15.00
- **Total** ~**\$41.50**

USB Sound Card



USB Sound Card

USB SoundCard RS232

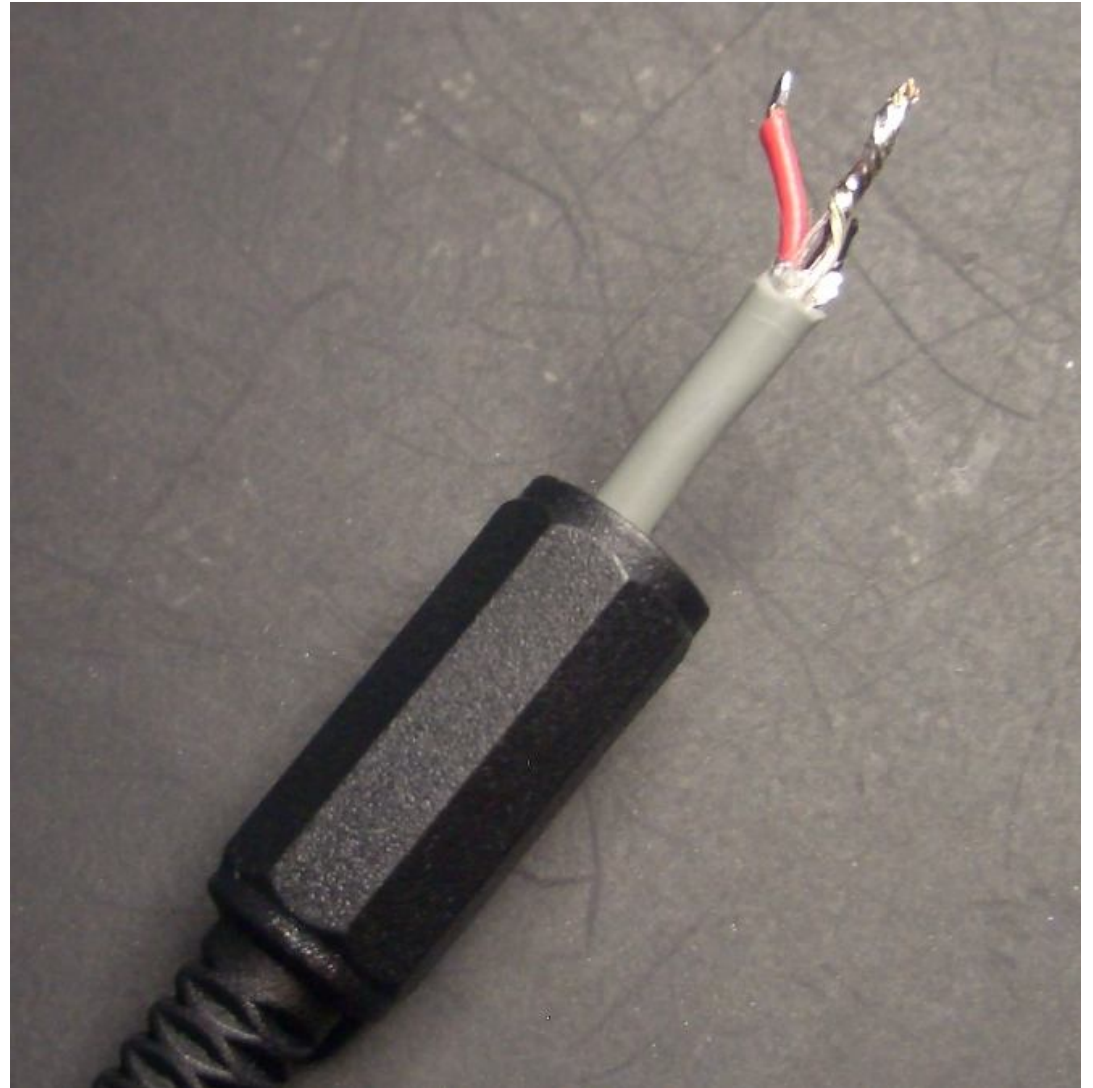
- USB Sound Card SJ-588, PD552, etc. ~\$ 5.00
- Audio and PTT (see above) ~\$16.50
- **Total:** ~**\$21.50**
- Prolific USB to Serial Adapter ~\$15.00
- **Total** ~**\$36.50**

Audio Interface Dos and Don'ts - PC

- DO -Turn off all PC Operating System sound functions if using built in Sound Card.
- DO - Use Line input and output on PC SC.
- DO – Always plug USB devices into the SAME USB ports
- DON'T - use too high a setting on the SC input volume.

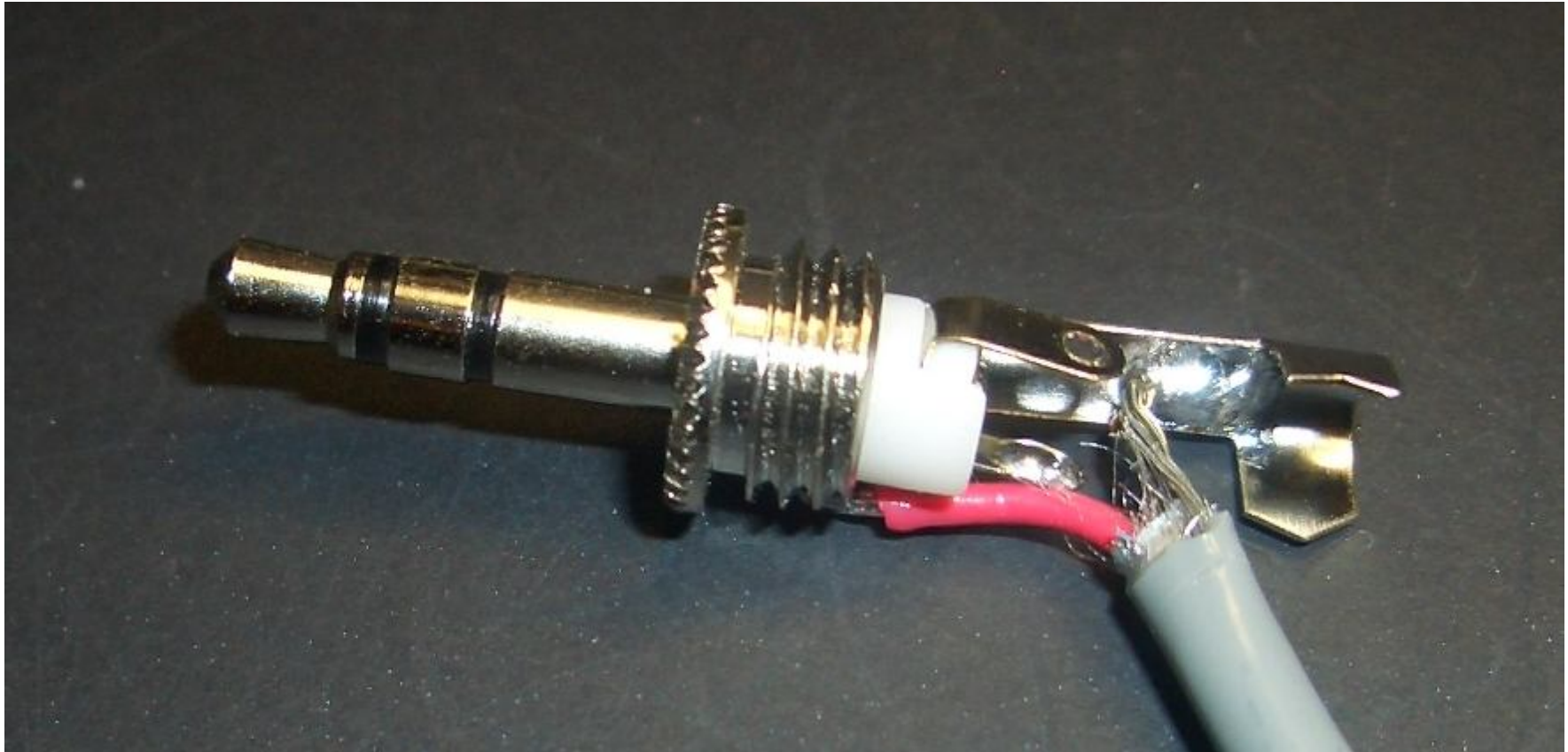
Audio Cable

- Strip and Tin Leads
- Don't forget to put the boot over the wire first!

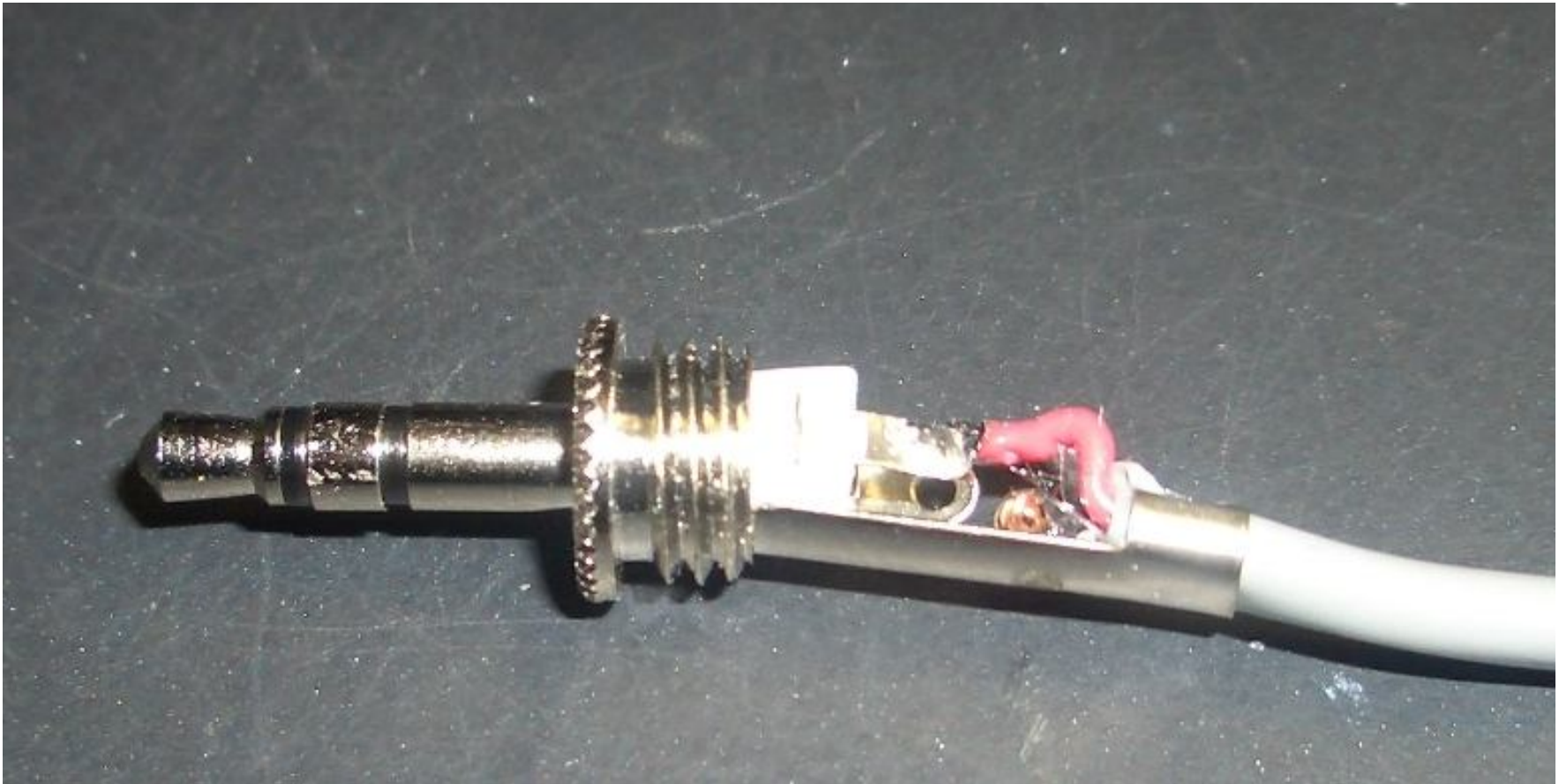


Audio Cable

- Solder Shield/Ground to Shell



- Solder signal lead to Tip and Crimp



Interface to Radio

- Old Way
 - External Speaker
 - Mic Input and PTT
- New Way
 - Audio/Line Out
 - Audio/Line In
 - PTT

Audio Interface - Old Radio

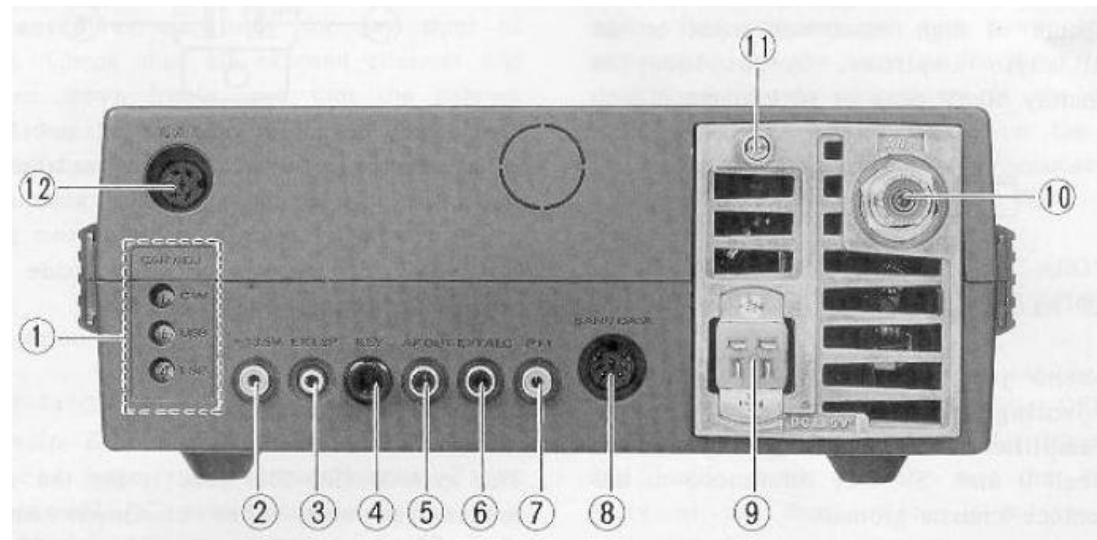
Yaesu FT-747

3 - External Spkr

5 - AF Out

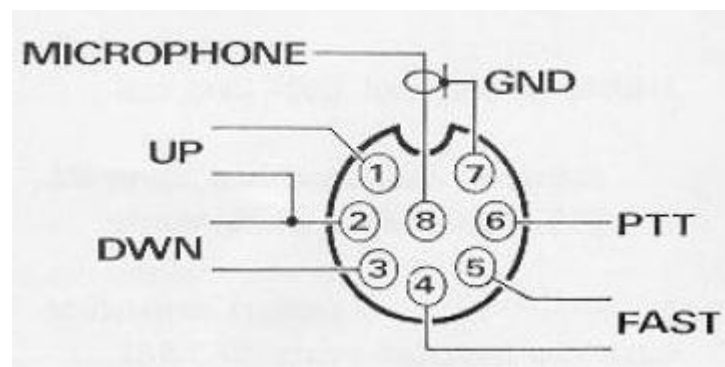
(Phone Patch)

7 - PTT Jack



Mic Connector

AF In



Audio Interface – Not so old.

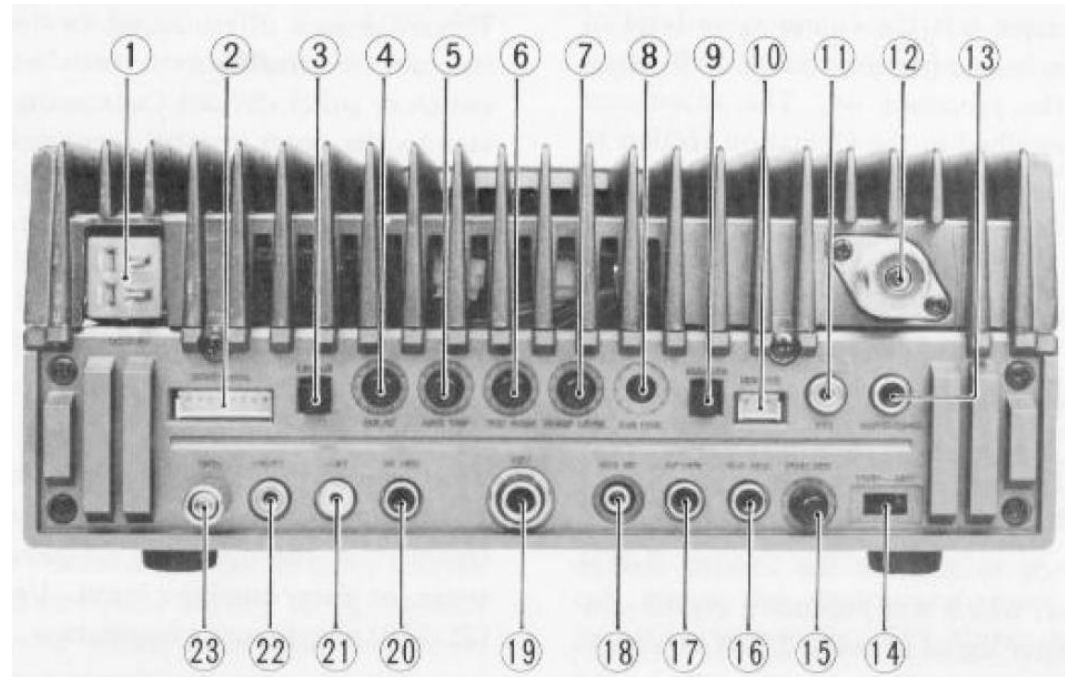
Yaesu FT-757

17 – AF Out

18 – Ext Spkr

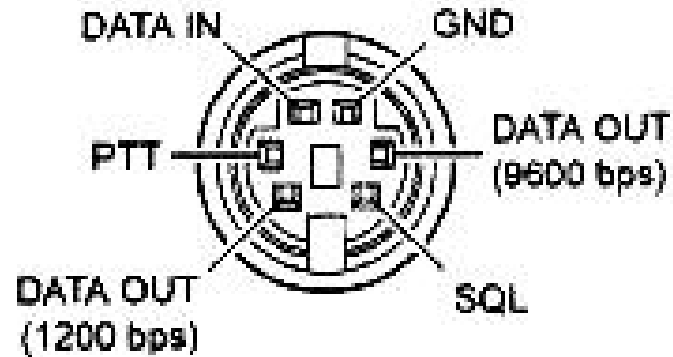
11 – PTT

13 – Patch/AFSK

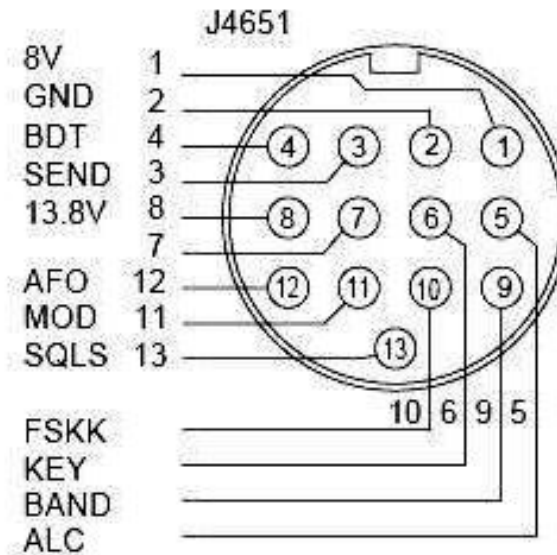


Audio Interface - Newer Radios

Yaesu FT-100
Data Jack



ICOM 718 - 706
ACCESSORY Jack



Audio Interface - Nicer Radio

ICOM IC-756 Pro

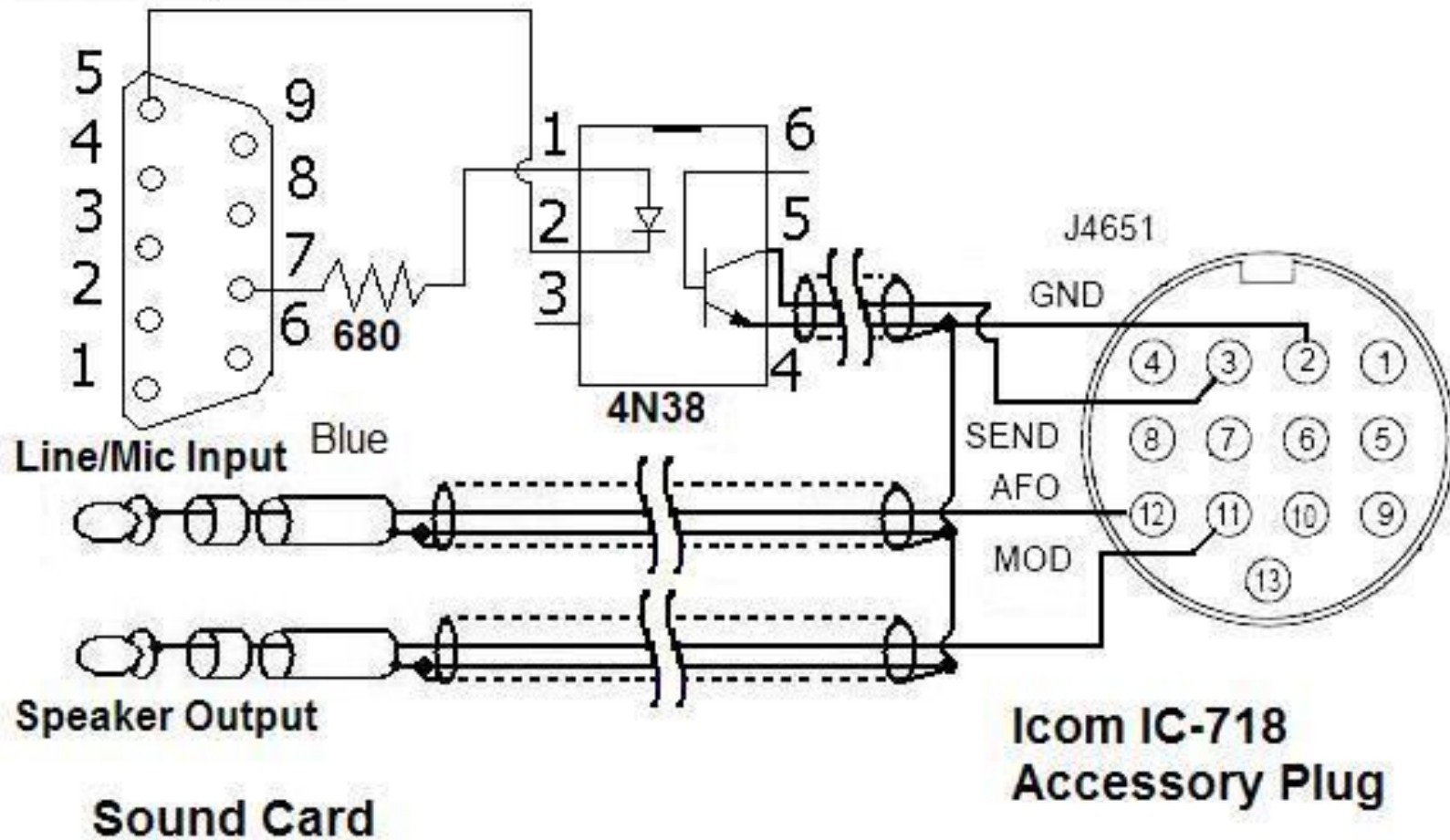
ACC(1)	PIN NO.	PIN NAME	DESCRIPTION	SPECIFICATIONS
	1	RTTY	Controls RTTY keying.	"HIGH" level : More than 2.4 V "LOW" level : Less than 0.6 V Output current : Less than 2 mA
	2	GND	Connects to ground.	Connected in parallel with ACC(2) pin 2.
	3	SEND	Input/output pin. Goes to ground when transmitting. When grounded, transmits.	Ground level : -0.5 V to 0.8 V Output current : Less than 20 mA Input current (Tx) : Less than 200 mA Connected in parallel with ACC(2) pin 3.
	4	MOD	Modulator input. Connects to a modulator.	Input impedance : 10 k Ω Input level : Approx. 100 mV rms
	5	AF	AF detector output. Fixed, regardless of [AF] position in default settings. (see notes below)	Output impedance : 4.7 k Ω Output level : 100 to 300 mV rms
	6	SQLS	Squelch output. Goes to ground when squelch opens.	Squelch open : Less than 0.3 V/5 mA Squelch closed : More than 6.0 V/100 μ A
	7	13.8 V	13.8 V output when power is ON.	Output current : Max. 1 A Connected in parallel with ACC(2) pin 7.
	8	ALC	ALC voltage input.	Control voltage : -4 to 0 V Input impedance : More than 10 k Ω Connected in parallel with ACC(2) pin 5.



Rear panel view

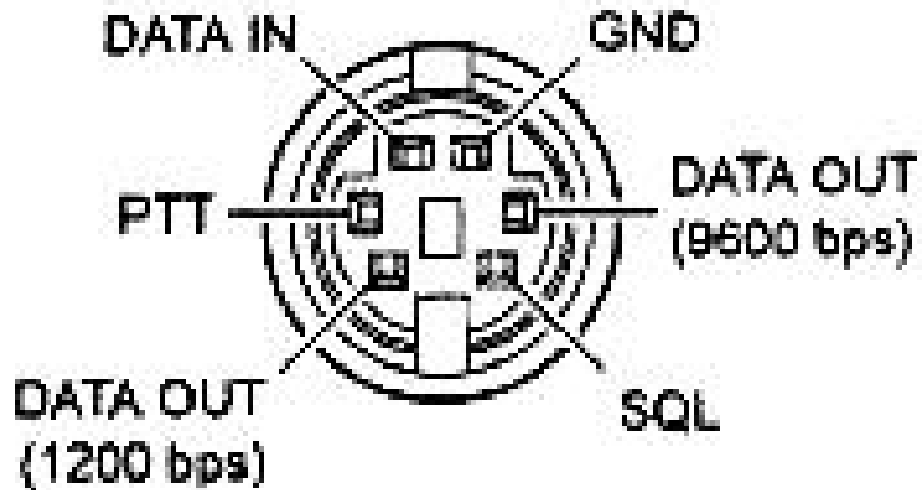
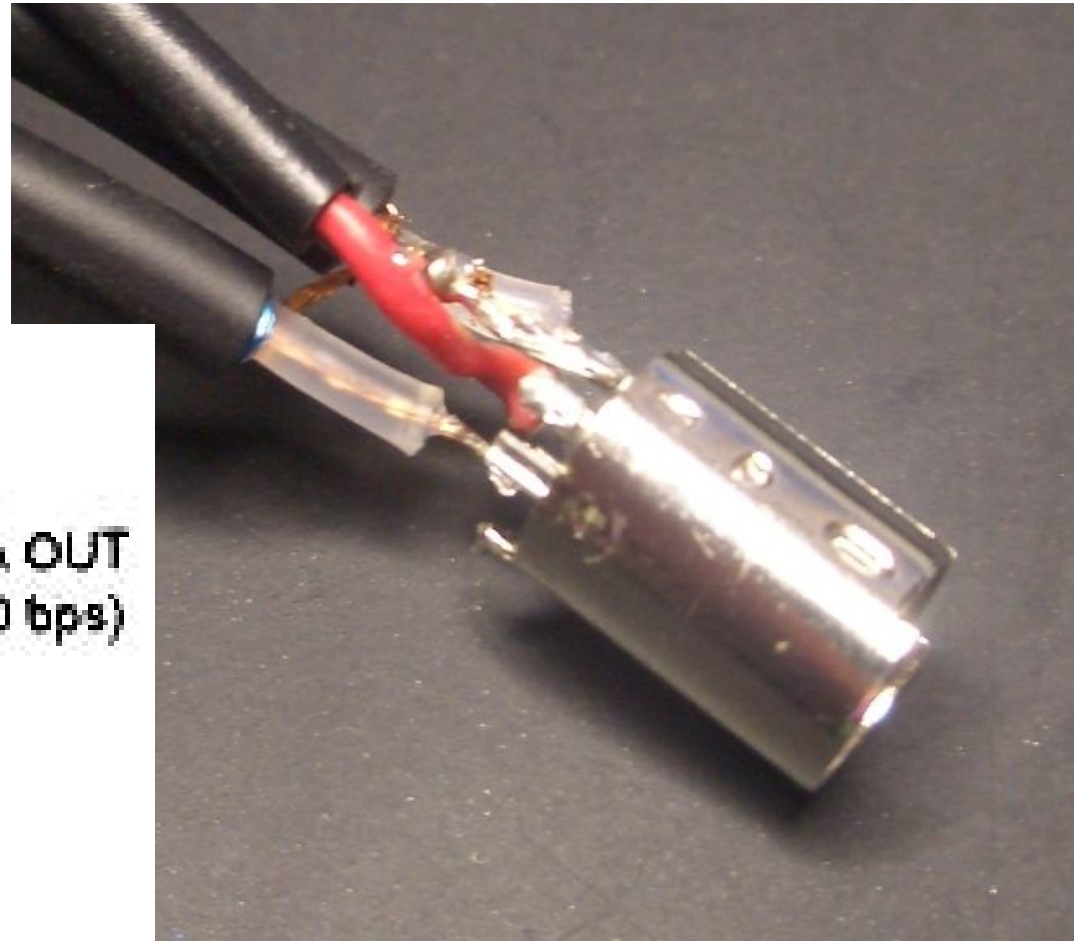
Complete Circuit – IC-718/706

Serial Port - DB25
Solder Cup Side

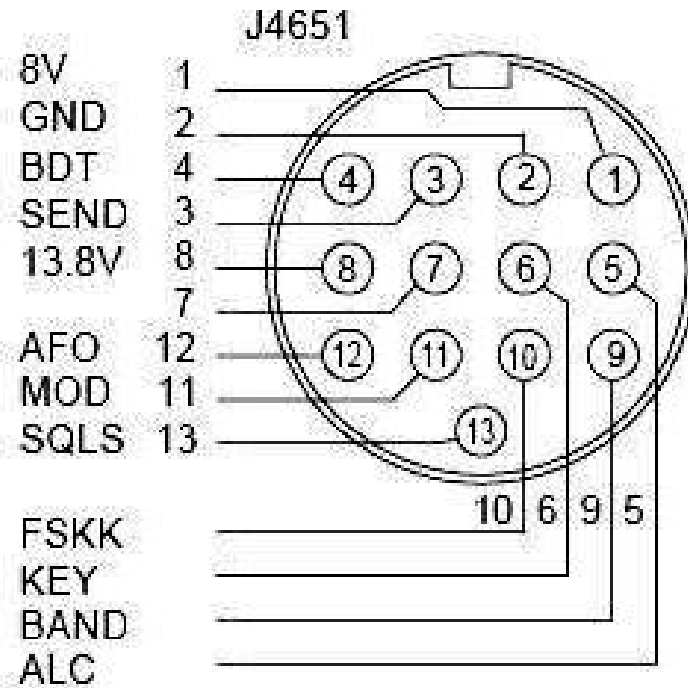


Yaesu FT-100 Plug

Yaesu FT-100



IC-718/706 Plug



Audio Interface Dos and Don'ts

- Radio

- DO - Use AF (Line, Phone Patch) out from radio, not External Speaker.
- DO - Use AF (Line, Phone Patch) Input to radio, not the Mic input.
- If you must use the Mic input on an older radio, DO - Insert at least 10:1 attenuation.
- DO - Adjust volume of PC SC output to radio so that ALC only moves a little when transmitting.

Digital Sound Card Software

- FLDIGI <http://www.w1hkj.com/Fldigi.html>
- RMS Express (WINMOR)
<http://www.winlink.org/WINMOR> Click Downloads tab and Software-for_users to get latest revision. Need a WinLink (WL2K) email account.
- MULTIPSK http://f6cte.free.fr/index_anglais.htm
- MixW <http://mixw.net> \$50 to license.
- IZ8BLY Hellschreiber, MT63, STREAM, etc.
<http://xoomer.virgilio.it/aporcino/>
- MMTTY, MMSSTV, MMVARI
<http://www.mmhamsoft.amateur-radio.ca>
- Digipan <http://www.digipan.net>
- Hamscope <http://www.qsl.net/hamscope>

fldigi

- Download and install
- Set up Audio
- Set up PTT
- Calibrate sound card

RMSExpress

- Register with Winlink.org
- Download and install RMSExpress
- Set up sound card
- Set up PTT