Motorola XTL Mods (WIP)

These are the different custom cables and changes I've made to my 2-way commercial radios - all Motorola XTL series.

- Oddesey TIB Mod for W3 control heads
- Dual Radio Custom Cable (for W3 control head)

Oddesey TIB Mod for W3 control heads

The Oddesey tibs are ALMOST pin-compatible with W3 control heads, except that the AUX_MIC pin has been replaced with a VIP pin. This sucks, because without the MIC input, the head works otherwise, but there is no audio when the radio is keyed!

TODO: Guide on how to switch pin back to AUX_MIC function.

Dual Radio Custom Cable (for W3 control head)

XTL 5000 radios support dual radio operation (controlling two radios with one control head, using a programable button to switch between them on the head.) In a pinch, one can directly jumper the bricks together with a 1:1 DB25 cable between the bricks, however I had to make a custom cable to use my W3 control head with my radios, as they have the newer style Oddesey TIB.

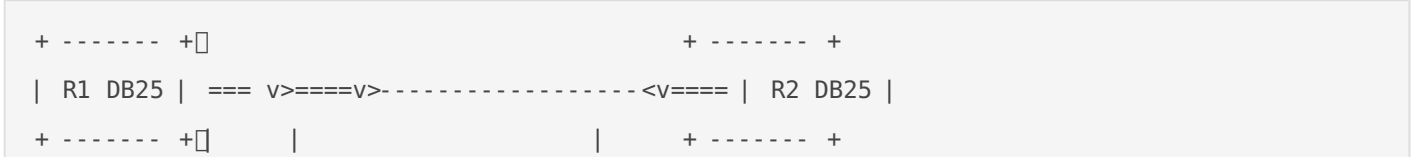
In order to make the cabe, I first had to pin out the control head's cable. The cable is coiled, with an RJ45 connector on one end that plugs into the head, and a DB25 connector on the other end to connect to the radio:

Head (RJ45)	Wire Color	TIB (DB25)	Signal
1	Black	22	V+
2	Brown	24	SPKR-
3	Purple	23	SB9600 BUSY
4	Red	4 & 18	GND
5	Blue	12	AUX MIC/VIP PIN
6	Orange	14	SB9600 BUS-
7	Green	5	SB9600 BUS+
8	Yellow	25	SPKR+

I'm going to be honest, I have NO IDEA why the W3 head has the speaker output pins going to it, so I opted to leave them disconected, and run an actual speaker to the radio instead. This does not seem to effect the functionality of the head or radio.

To make a dual-head cable, simply jumper the SB9600 signals, mic, and ground pins between the radios, and tap the control head cable into the pins on one radio connector (doesn't matter which!) I would recommend leaving either flying leads or another conenctor on each radio plug to connect a speaker, as there is no other way to get speaker audio otherwise.

An ASCII diagram:



```
                v     v                    v
        + ------- +  + ------- +        + ------- +
        | R1 Spkr |  |  Control |        |  R2 Spkr |
        + ------- +  |   Head   |        + ------- +
                     + ------- +
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The connector for the control head can be another DB25, or, what I did, is chop off that and crimped on an RJ45, bought a 6-ing RJ45 panel mount extenion cable on ebay, and conencted that up to R1 as the control head port, taking careful note of where each signal is going to ensure the control head works properly!

See image:
[INSERT IMAGE OF HARNESS HERE]

The final pin conenctions should be:

Head (RJ45)	Radio 1 (DB25)	Jumper?	Radio 2 (DB25)	Signal
1	22	<-x->	22	B+
--	24	<-x->	24	SPKR- (connect to external speaker)
3	23	<-->	23	SB9600 BUSY
4	18	<-->	18	GND
5	12	<-->	12	AUX MIC
6	14	<-->	14	SB9600 BUS-
7	5	<-->	5	SB9600 BUS+
--	25	<-x->	25	SPKR+ (connect to external speaker)
--	13	<-x->	13	EMG (Jumper to pin 18 [GND] in BOTH connectors!)

Pin 22 should NOT be connected across the radio jumpers directly! TIf one radio is un-powered (or a fuse blew), pin 22 would FEED POWER FROM THE OTHER RADIO INTO THE UN-POWERED ONE VIA THE HARNESS! This WILL damage the radio if you try to key up in this state! You can SUM TOGETHER the two power pins, such that EITHER radio will power the head, by adding a diode in both radio connectors anode (output) going to the control head. This ensures that the head can be powered with only one radio connected, without accidentally back-feeding the other radio in the case of lost power.