


Engineer: Bruce Page	Date: 9/3/03	<div style="text-align: center;">  JPS Communications 5800 Departure Drive, Raleigh, NC 27616 </div>			
Drawn: Bruce Page	Date: 9/3/03				
Approved: Jack Curtis	Date: 9/12/03	Title: ACU RADIO APPLICATION NOTES			
Issued/ Revised	Date: 11-16-05	Size: A	Dwg. #: 5961-271156-APP	Rev: B2	Sheet: 1 Of 2

APPLIES TO: Motorola MCS-2000 800 MHz Mobile Radio
Motorola MCS-2000 UHF Mobile Radio
Motorola MCS-2000 VHF Mobile Radio

RADIO MODIFICATIONS: None required.

RADIO PROGRAMMING:

- The radio should normally be programmed to the lowest programmable power range.
- The "Microphone Off-Hook PL" disable function must be turned off using the programming software to allow the radio to transmit and receive PL tones. Under "Conventional Configuration" set "Hub Defeats PL" to Disable (no check mark in the feature selection block).

OPTIONAL PROGRAMMING STEPS

- The Carrier Detect function or COR can be enabled under "Radio Wide", "Advanced", "AM/FM Radio Mute or Carrier Detect" Enabled (check mark present in the feature selection block). The Mute Timer should be set = 2. Place a check mark in the "Control Station Equipped" feature selection block.
- The Ignition Sense requiring 12V on PIN 15 can be disabled under "Radio Wide", "Advanced", "Ignition Switch" set to "Blank". The Red 22AWG wire on PIN 15 of the Accessory Plug may then be removed from the Interface Cable if this feature is disabled.

RADIO CONTROLS:

- The Volume Control setting has no effect on the level of receive audio to the ACU-1000.

CABLING:

Standard ACU-1000 and ACU-T Interface cables are made up of a 2 foot TRP Radio Tray Interface cable and the appropriate 13-foot Extension cable.

ACU-1000 Interface Cable	JPS P/N 5961-291156	(5961-271156 + 5961-261002-00)
ACU-T Interface Cable	JPS P/N 5961-281156	(5961-271156 + 5961-281013-00)
TRP-1000 Shelf Interface Cable	JPS P/N 5961-271156	
RF Connector Type	Mini-UHF	

DSP JUMPERS:

JP1	Low Impedance* – (See notes)
JP2	Balanced* – (See notes)

DSP PROGRAMMING:

RX Level	7	-16dBm	(See notes)
TX Level	6*	0dBm*	
Squelch Type	VOX*		(See notes)
COR Polarity	Active Low*		
High Frequency Equalizer	5	+2dB	
RX Audio Delay	2*	100 ms*	
TX Audio Delay (Radio Type)	0*	No Delay*	(See notes)
Noise Reduction Value	0*	Off*	
VOX/VMR Threshold	1*	Med1*	
VOX/VMR Hang Time	3*	775 ms*	
COR Inhibit After PTT	1	100 ms*	
All Others	As needed		
	(* Indicates Default Value)		

NOTES:

If the DSP Jumpers are moved to (High Impedance and Unbalanced), the RX Level is set at 4 (–4dBm).

If the OPTIONAL RADIO PROGRAMMING: STEP 3 is completed the setting of Squelch Type COR is supported with this interface cable and will operate with COR Polarity of Active Low.

WARNING:

When radio is in Squelch Type COR and radio is powered off the active low COR will become active resulting in the DSP module showing a COR indication. If this radio is still cross-connected when it is powered off the resulting active COR indication will cause all radios in the cross connect net to key continuously.

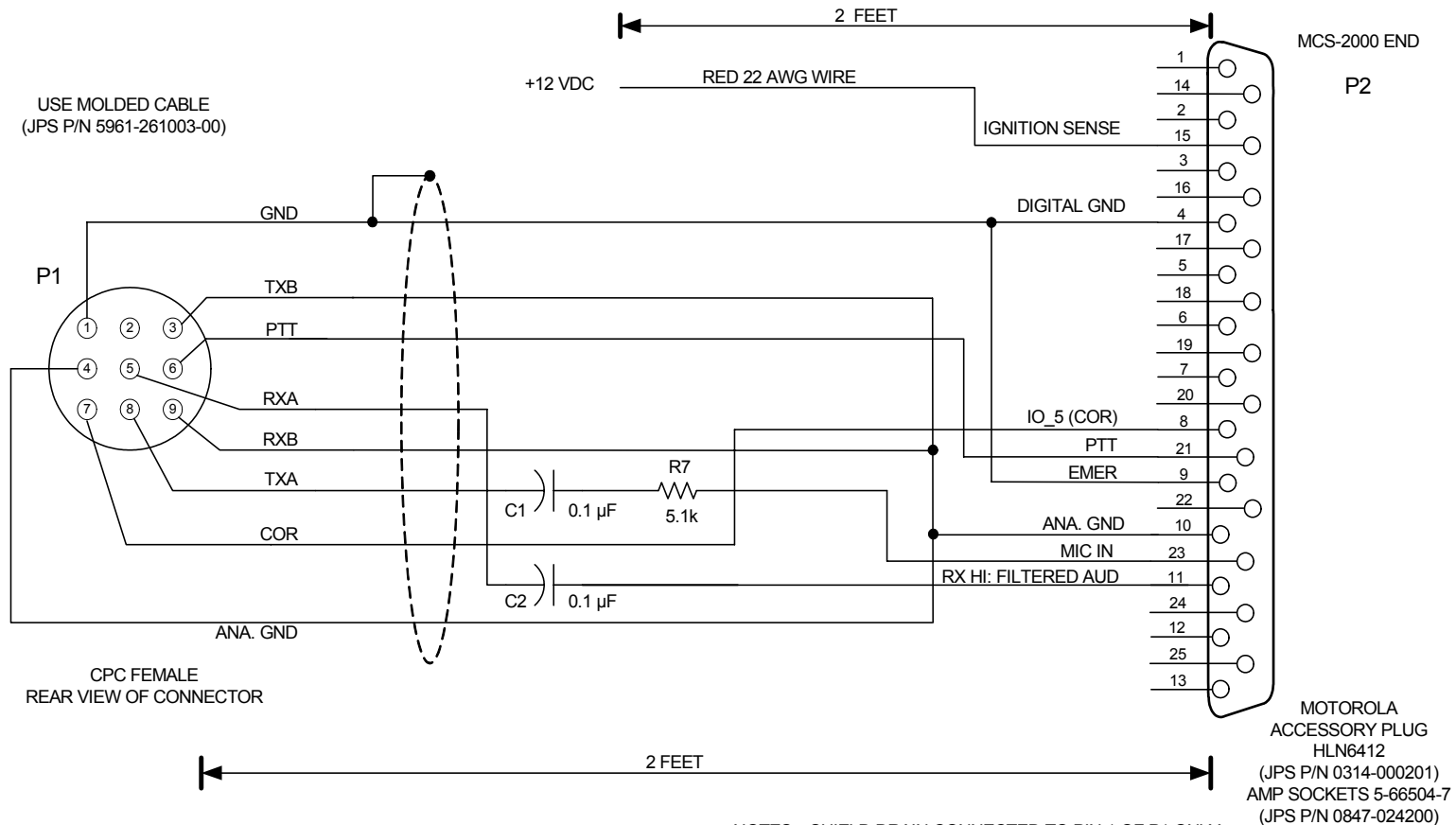
If the radio is trunked, set TX Audio Delay to 4 (800 ms).

It may be required that COR Inhibit Time after PTT be increased if Squelch tail is observed. It has typically been required when the Squelch Type of COR is selected. Settings of 6 for 2 seconds of COR Inhibit After PTT have been successfully used to suppress Ping Pong type problems that can occur with this model radio.

Previous Rev B1 version of this application note and its associated template file set Squelch Type as COR and in this new Rev B2 version it is now JPS Engineering recommendation to use default setting of VOX.

PURCHASED PART

Rev	ECO	Date
B		10-27-04



COMPONENT PCB
(JPS P/N 5961-271000)

C1 JPS P/N 0327-104101
C2 JPS P/N 0327-104101
R7 JPS P/N 1820-512000
JU5
JU6

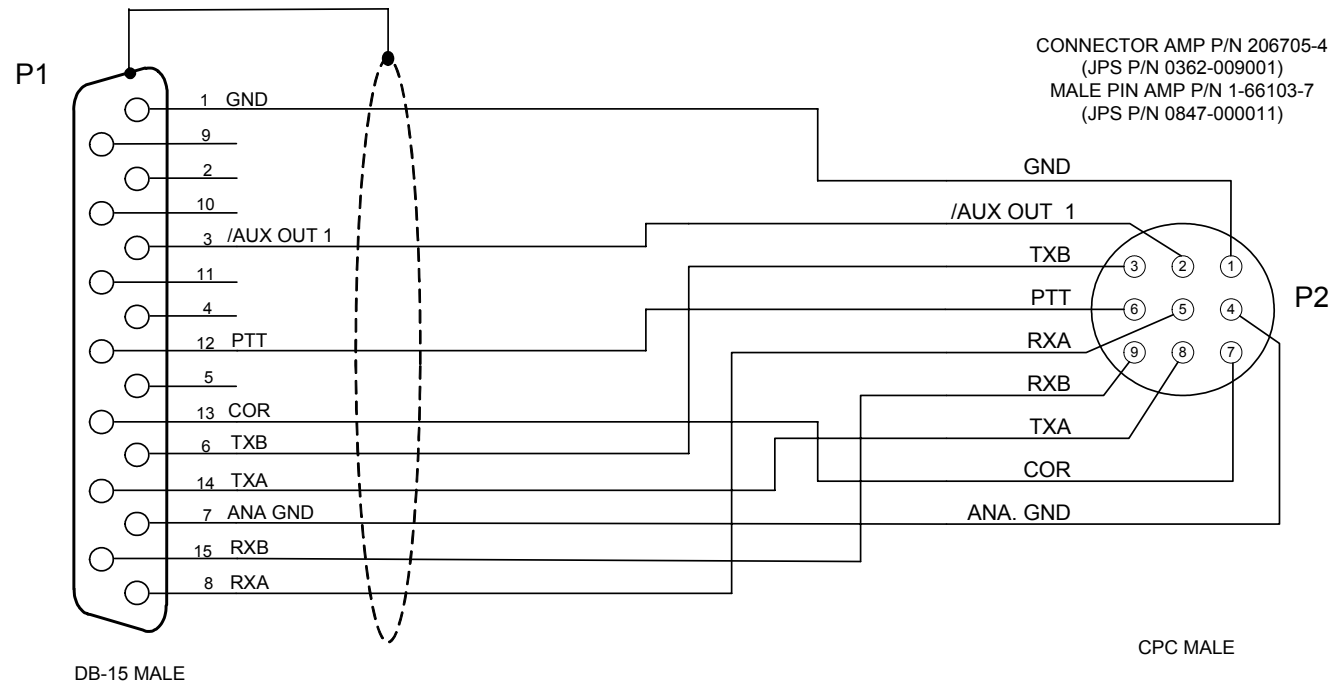
USED WITH:
MOTOROLA MCS-2000 MOBILE

SOLDER RED 22 AWG WIRE TO PIN 15 OF P2. NOT REQUIRED IF
DISABLED IN SOFTWARE (SEE APP NOTES).

Designed By: CTS	Raytheon JPS Communications Raleigh, NC USA		
Drawn By: EDV	Title CABLE, CPC TO MOTOROLA MCS-2000		
Checked By: JAC	Size A	Document Number 5961-271156	Rev B
Issued Date NOVEMBER 5, 2003		Sheet 1 of 1	

PURCHASED PART

Rev	ECO	Date
A		



- NOTES: 1) USE BELDEN 9934 SHIELDED CABLE.
2) CONNECT SHIELD DRAIN TO SHELL OF P1 ONLY.
3) CONNECTORS P1 AND P2 MUST BE MOLDED TO THE CABLE.
4) CABLE MUST BE LABELED WITH THE RAYTHEON/JPS P/N AND REV, VENDOR CODE AND DATE (MM/YY).

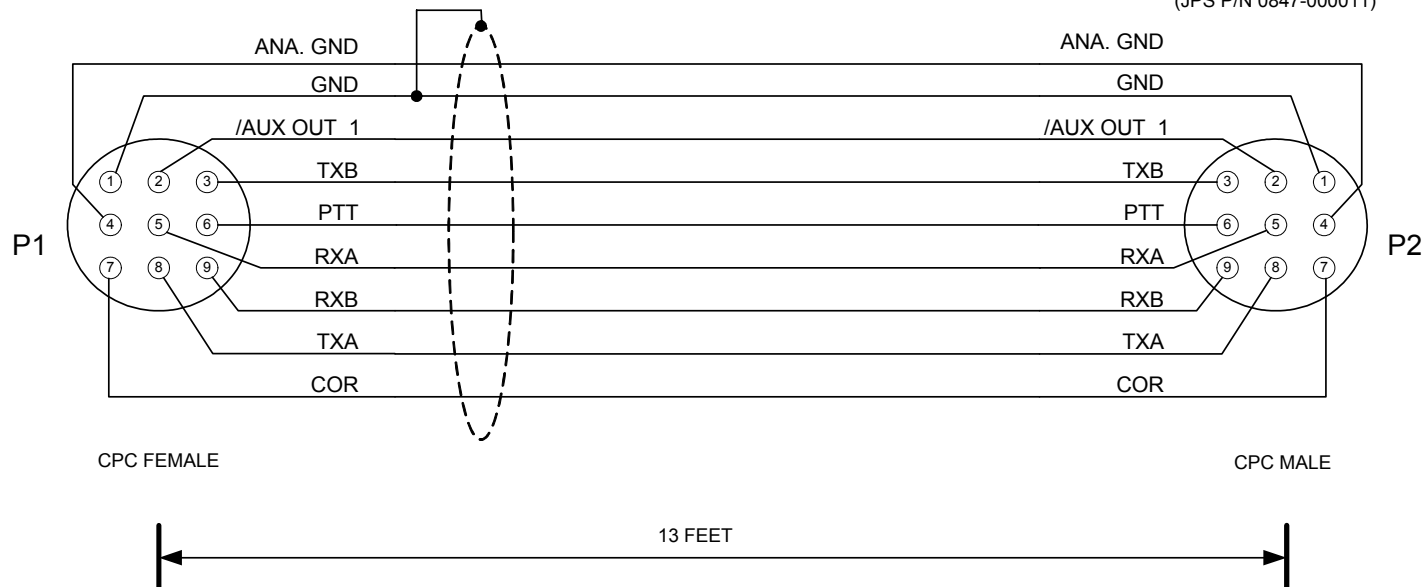
Designed By: JAC	Raytheon JPS Communications		
Drawn By: JAC	Title CABLE, ACU-1000 RADIO EXTENSION - 13 FT		
Checked By: RBP	Size A	Document Number 5961-261002-00	Rev A
Issued Date JANUARY 5, 2004		Sheet <u>1</u> of <u>1</u>	

Rev	ECO	Date
A		

PURCHASED PART

CONNECTOR AMP P/N 206708-1
(JPS P/N 0362-005003)
FEMALE PIN AMP P/N 1-66105-8
(JPS P/N 0362-005002)

CONNECTOR AMP P/N 206705-4
(JPS P/N 0362-009001)
MALE PIN AMP P/N 1-66103-7
(JPS P/N 0847-000011)



- NOTES: 1) USE BELDEN 9934 SHIELDED CABLE.
2) CONNECT SHIELD DRAIN TO PIN 1 OF P1 ONLY.
3) CONNECTORS P1 AND P2 MUST BE MOLDED TO THE CABLE.
4) CABLE MUST BE LABELED WITH THE RAYTHEON/JPS P/N AND REV, VENDOR CODE AND DATE (MM/YY).

Designed By: JAC	Raytheon JPS Communications Raleigh, NC USA		
Drawn By: JAC	Title CABLE, ACU-T RADIO EXTENSION - 13 FT		
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