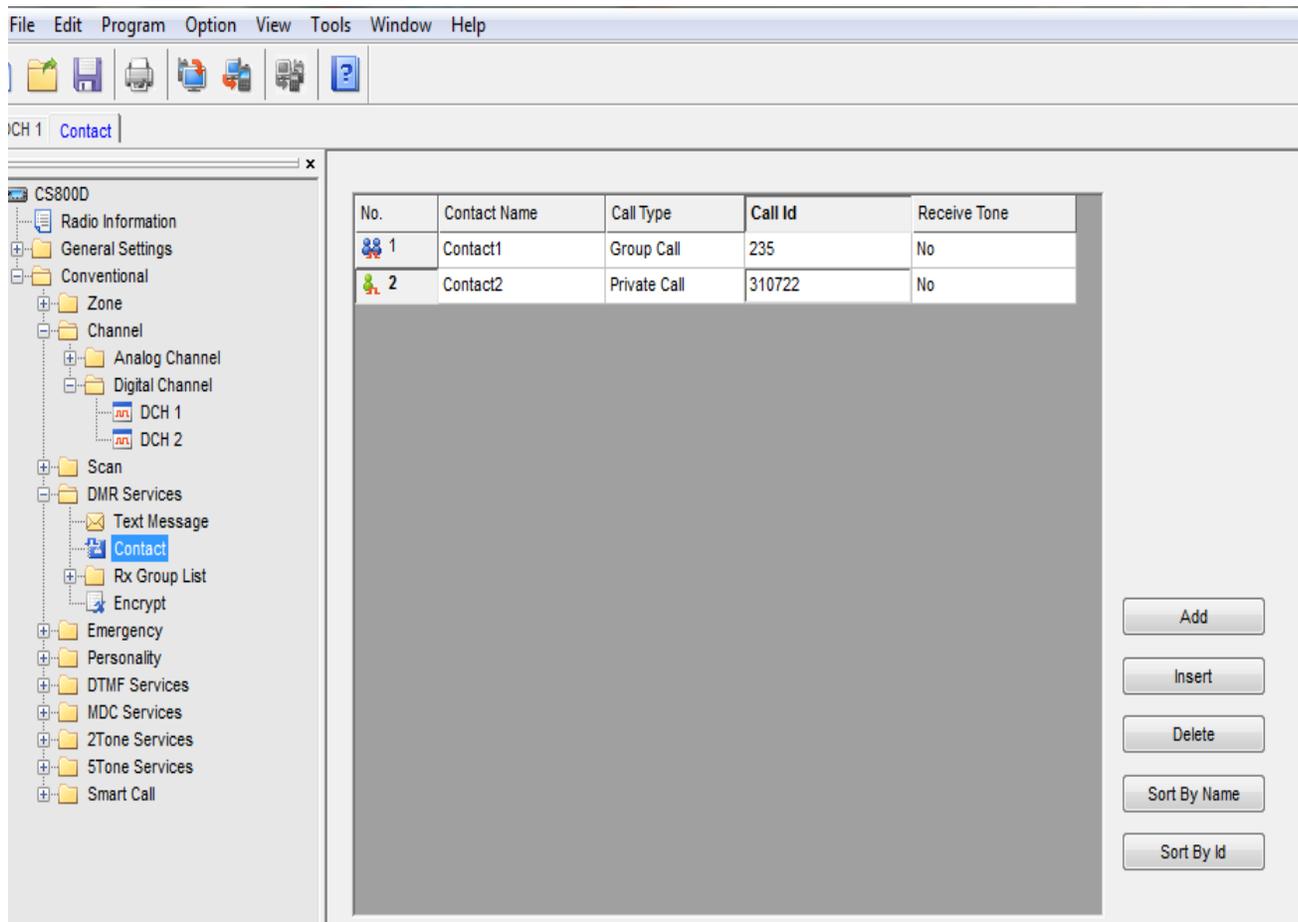


MERGING A NEW CONTACT LIST INTO AN EXISTING CODEPLUG

This application note will show a problem of merging a new contact list in an existing code plug using the import and export functions of the CPS. This applies to the CS800, CS801, and CS800D

For the next three pictures, you will see this radio has contact 1 and contact 2 in channels 1 and channel 2 respectively.



The screenshot shows the CPS software interface for a CS800D radio. The left sidebar displays a tree view of the radio's configuration, with 'Contact' selected under 'DMR Services'. The main window displays a table of contacts with the following data:

| No. | Contact Name | Call Type | Call Id | Receive Tone |
|-----|--------------|--------------|---------|--------------|
| 1 | Contact1 | Group Call | 235 | No |
| 2 | Contact2 | Private Call | 310722 | No |

Below the table, there are several control buttons: Add, Insert, Delete, Sort By Name, and Sort By Id.

Channel Alias
Digital ID
Color Code
Repeater/Time Slot
Channel Voice Annunciation
Scan List

Auto Scan Start
Rx Only
Talk Around
Lone Worker
VOX

Receive
Frequency [MHz]

Offset [MHz]

Transmit
Frequency [MHz]

Ref Frequency [MHz]
Rx Group List
Emergency Alarm Indication
Emergency Alarm Ack
Emergency Call Indication

Ref Frequency [MHz]
Tx Contact
Emergency System
Power Level
Tx Admit
Tx Time-Out Time [s]
TOT Re-key Time [s]
TOT Pre-Alert Time [s]
Private Call Confirmed
Data Call Confirmed

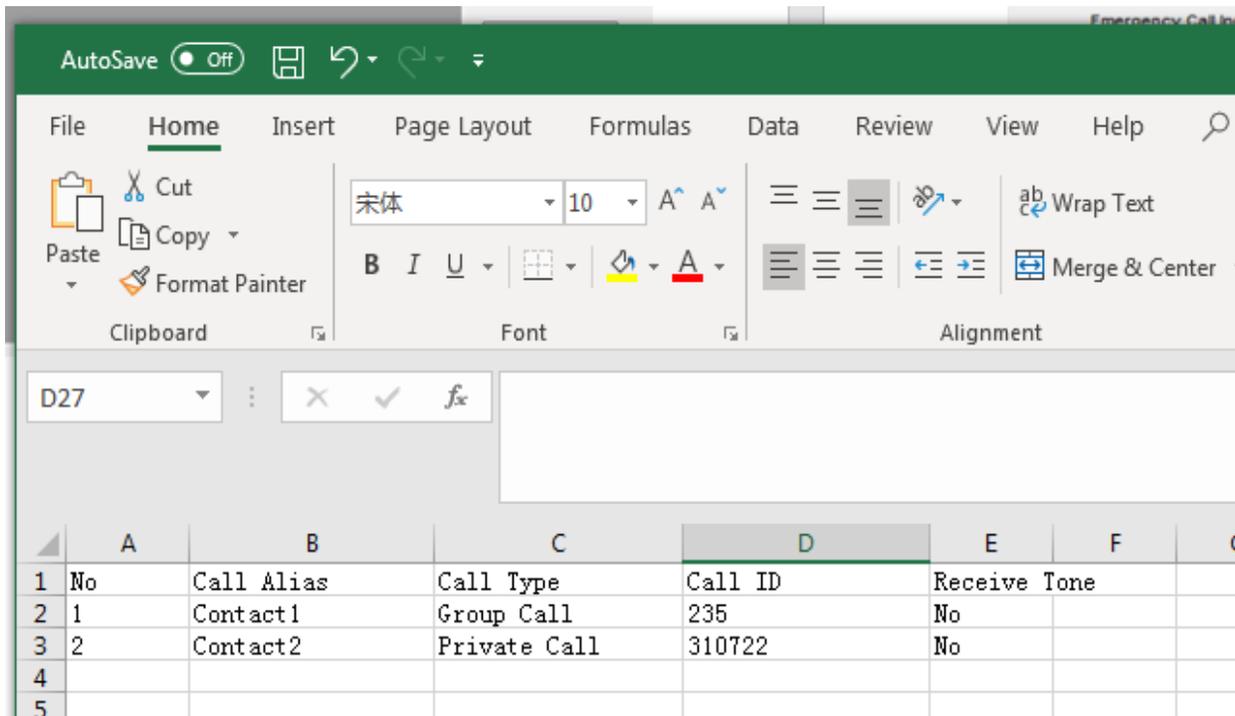
Encrypt
Encrypt
Encrypt Type
Encrypt Key List

| | | |
|----------------------------|--------------------------|--|
| Channel Alias | DCH 2 | |
| Digital ID | 1 | |
| Color Code | 1 | |
| Repeater/Time Slot | Slot 1 | |
| Channel Voice Annunciation | Record 1 | |
| Scan List | None | |
| Auto Scan Start | <input type="checkbox"/> | |
| Rx Only | <input type="checkbox"/> | |
| Talk Around | <input type="checkbox"/> | |
| Lone Worker | <input type="checkbox"/> | |
| VOX | <input type="checkbox"/> | |

| Receive | Offset [MHz] | Transmit |
|----------------------------|--------------------------------------|--------------------------|
| Frequency [MHz] | 0.000000 | Frequency [MHz] |
| | | 400.000000 |
| | <input type="button" value="Apply"/> | |
| Ref Frequency [MHz] | | Ref Frequency [MHz] |
| Middle | | Middle |
| Rx Group List | | Tx Contact |
| None | | Contact2 |
| Emergency Alarm Indication | | Emergency System |
| <input type="checkbox"/> | | None |
| Emergency Alarm Ack | | Power Level |
| <input type="checkbox"/> | | High |
| Emergency Call Indication | | Tx Admit |
| <input type="checkbox"/> | | Always |
| Encrypt | | Tx Time-Out Time [s] |
| Encrypt | | 60 |
| Encrypt Type | | TOT Re-key Time [s] |
| Basic | | 0 |
| Encrypt Key List | | TOT Pre-Alert Time [s] |
| Key 1 | | 0 |
| | | Private Call Confirmed |
| | | <input type="checkbox"/> |
| | | Data Call Confirmed |
| | | <input type="checkbox"/> |

| | | | | | | | | | |
|--------------------------------------|--------------------------------------|-------------------------------------|--------|--------------------------------------|---|-------------------------------------|-------------------------------------|------------------------------------|---------------------------------------|
| <input type="button" value="Close"/> | <input type="button" value="Print"/> | <input type="button" value="Help"/> | 2 of 2 | <input type="button" value="First"/> | <input type="button" value="Previous"/> | <input type="button" value="Next"/> | <input type="button" value="Last"/> | <input type="button" value="Add"/> | <input type="button" value="Delete"/> |
|--------------------------------------|--------------------------------------|-------------------------------------|--------|--------------------------------------|---|-------------------------------------|-------------------------------------|------------------------------------|---------------------------------------|

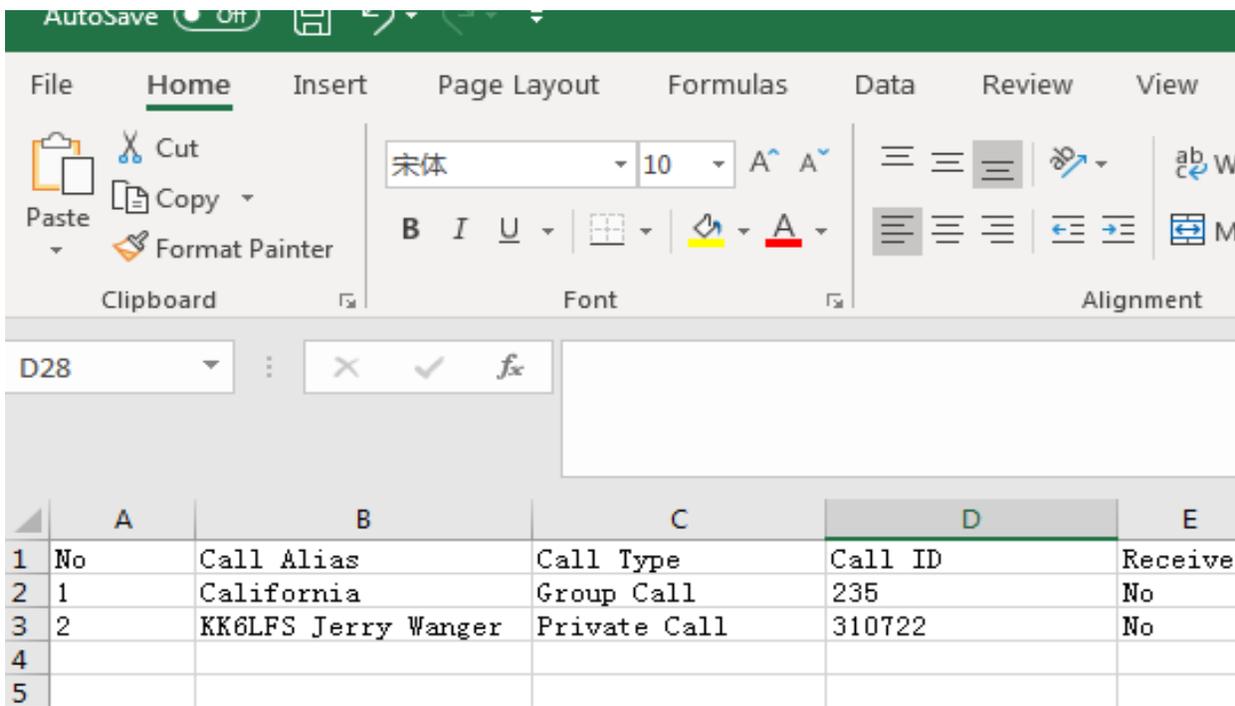
Now I go to tools and “Export Digital Contact and I get the following excel spread sheet



The screenshot shows the Microsoft Excel interface with the Home tab selected. The ribbon includes options for Clipboard, Font, and Alignment. The spreadsheet data is as follows:

| | A | B | C | D | E | F | G |
|---|----|------------|--------------|---------|--------------|---|---|
| 1 | No | Call Alias | Call Type | Call ID | Receive Tone | | |
| 2 | 1 | Contact1 | Group Call | 235 | No | | |
| 3 | 2 | Contact2 | Private Call | 310722 | No | | |
| 4 | | | | | | | |
| 5 | | | | | | | |

Now I change the call alias in the spread sheet as follows and save it.



The screenshot shows the Microsoft Excel interface with the Home tab selected. The spreadsheet data is updated as follows:

| | A | B | C | D | E | F | G |
|---|----|---------------------|--------------|---------|---------|---|---|
| 1 | No | Call Alias | Call Type | Call ID | Receive | | |
| 2 | 1 | California | Group Call | 235 | No | | |
| 3 | 2 | KK6LFS Jerry Wanger | Private Call | 310722 | No | | |
| 4 | | | | | | | |
| 5 | | | | | | | |

Now I go back to the CPS and go to Tools followed by Import Digital Contact.

Now I look at the two channels again and I get the following:

Channel Alias: DCH 1
Digital ID: 1
Color Code: 1
Repeater/Time Slot: Slot 1
Channel Voice Annunciation: Record 1
Scan List: None
Auto Scan Start:
Rx Only:
Talk Around:
Lone Worker:
VOX:

Receive: Frequency [MHz]: 400.000000
Offset [MHz]: 0.000000
Ref Frequency [MHz]: Middle
Rx Group List: None
Emergency Alarm Indication:
Emergency Alarm Ack:
Emergency Call Indication:
Encrypt:
Encrypt Type: Basic
Encrypt Key List: Key 1

Transmit: Frequency [MHz]: 400.000000
Ref Frequency [MHz]: Middle
Tx Contact: None
Emergency System: None
Power Level: High
Tx Admit: Always
Tx Time-Out Time [s]: 60
TOT Re-key Time [s]: 0
TOT Pre-Alert Time [s]: 0
Private Call Confirmed:
Data Call Confirmed:

Close Print Help 1 of 2 First Previous Next Last Add Delete

Notice the Tx Contact says “None” for Channel 1.

Channel Alias: DCH 2
Digital ID: 1
Color Code: 1
Repeater/Time Slot: Slot 1
Channel Voice Annunciation: Record 1
Scan List: None

Auto Scan Start
Rx Only
Talk Around
Lone Worker
VOX

Receive
Frequency [MHz]: 400.000000
Offset [MHz]: 0.000000
Apply
Ref Frequency [MHz]: Middle
Rx Group List: None
Emergency Alarm Indication
Emergency Alarm Ack
Emergency Call Indication

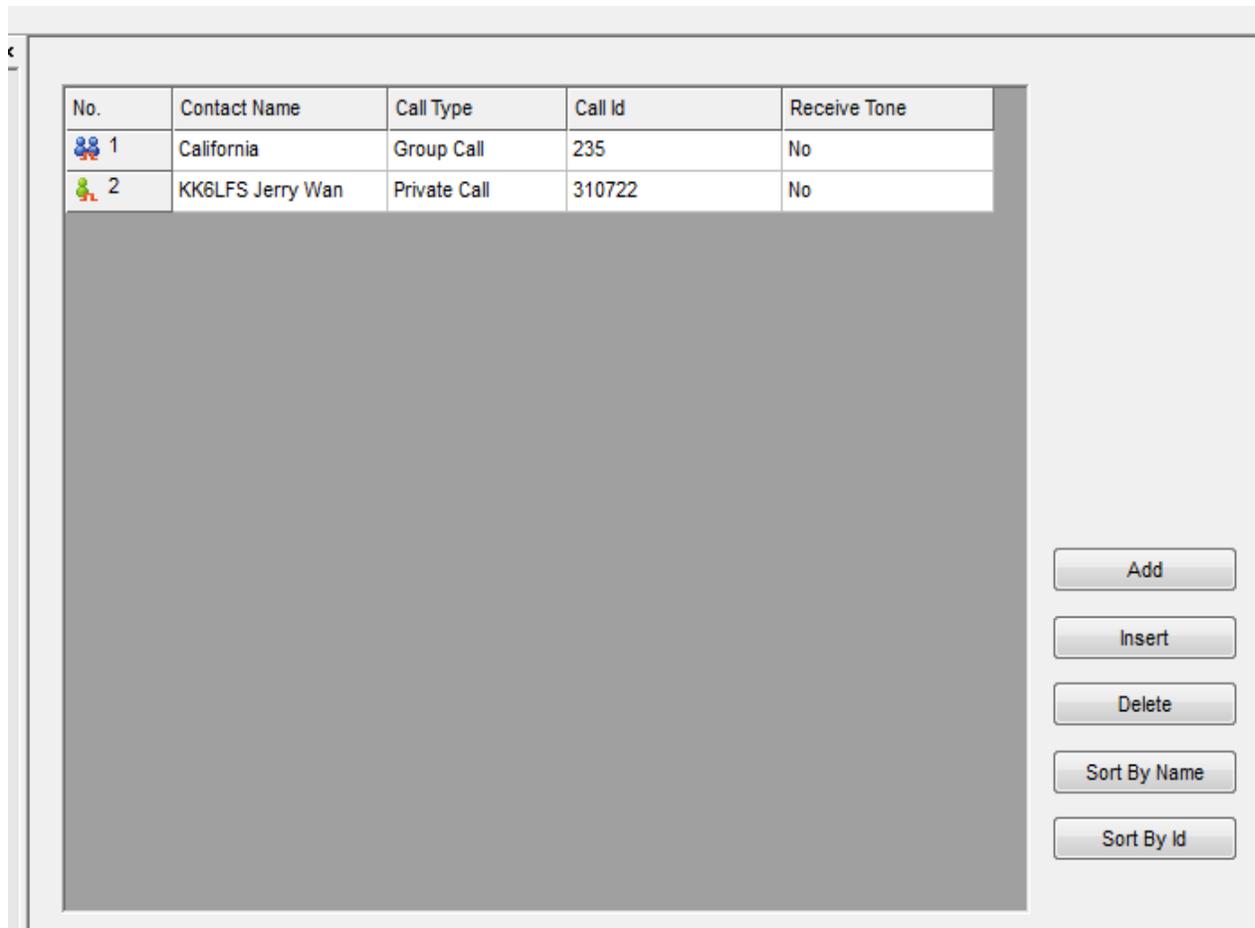
Encrypt
Encrypt
Encrypt Type: Basic
Encrypt Key List: Key 1

Transmit
Frequency [MHz]: 400.000000
Ref Frequency [MHz]: Middle
Tx Contact: None
Emergency System: None
Power Level: High
Tx Admit: Always
Tx Time-Out Time [s]: 60
TOT Re-key Time [s]: 0
TOT Pre-Alert Time [s]: 0
Private Call Confirmed
Data Call Confirmed

Close Print Help 2 of 2 First Previous Next Last + Add X Delete

Notice the Tx Contact says "None" for Channel 2.

And the Tx Contact list is as follows:



| No. | Contact Name | Call Type | Call Id | Receive Tone |
|-----|------------------|--------------|---------|--------------|
| 1 | California | Group Call | 235 | No |
| 2 | KK6LFS Jerry Wan | Private Call | 310722 | No |

Buttons: Add, Insert, Delete, Sort By Name, Sort By Id

Which agrees with what was changed.

The mistake is in the Tx Contact for the two channels. The Tx Contact should say “California” for channel 1 and “KK6LFS Jerry Wan” for channel 2.

This is not really a problem with the CPS but is a problem with how HAMS might use the system.

If you left the Contact Name the same but changed the Call Id, the results would be what you expect and there would be no reason the write this memo.

The reason this might be a problem is because in the HAM applications, the caller ID always stay the same, but the Contact Name occasionally changes. In commercial applications the reverse is often true. The people who wrote the CPS modeled It after the typical commercial applications.

There are two approaches to handling this problem. The first is to do nothing and after the merge, go back and fix all the channels that have the word "None" for the Tx Contact.

The second approach is to write a utility that will correctly merge the two for HAM applications. I will present the algorithm to do it.

For those people who know how to program, the algorithm presented could be implemented more efficient than the way I have shown. I was more interested in clarity than efficiency for this memo.

ALGORITHM FOR MERGING A NEW CONTACT LIST INTO AN EXISTING CODE PLUG

The method used is going to be shown for a code plug with three channels and multiple contacts. The method will work for 4000 channels and 130,000 contacts. The computational time might be significant if you have a system with the maximum number of channels and contacts.

Step 1. Export the channels and the contact list as shown below:

| N | O | P | Q | R | S | T | U | V | W |
|-------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|--------|
| Group | Emergency | Emergency | Emergency | Transmit | TX Ref Fr | TX Contac | Emergency | Power Lev | TX Adm |
| | Off | Off | Off | 420 | Middle | Contact 1 | None | High | Always |
| | Off | Off | Off | 430 | Middle | Contact 2 | None | High | Always |
| | Off | Off | Off | 440 | Middle | Contact 3 | None | High | Always |
| | | | | | | | | | |
| | | | | | | | | | |

| | A | B | C | D | E | F |
|---|----|------------|--------------|---------|--------------|---|
| 1 | No | Call Alias | Call Type | Call ID | Receive Tone | |
| 2 | 1 | Contact 1 | Group Call | 150 | No | |
| 3 | 2 | Contact 2 | Group Call | 2 | No | |
| 4 | 3 | Contact 3 | Private Call | 310211 | No | |
| 5 | | | | | | |
| 6 | | | | | | |

Step 2. Add two new columns next to TX Contact and label them New Contact and Call ID as shown below.

| | N | O | P | Q | R | S | T | U | V | W |
|------------|-----------|-----------|-----------|----------|--------|--------------|-------------|---------|-----------|------|
| FrRX Group | Emergency | Emergency | Emergency | Transmit | TX Ref | FrTX Contact | New Contact | Call ID | Emergency | |
| : | None | Off | Off | Off | 420 | Middle | Contact1 | | | None |
| : | None | Off | Off | Off | 430 | Middle | Contact2 | | | None |
| : | None | Off | Off | Off | 440 | Middle | Contact3 | | | None |
| | | | | | | | | | | |

Step 3. Merge the Caller ID from the other table into this table as follows:

| | N | O | P | Q | R | S | T | U | V | W |
|------------|-----------|-----------|-----------|----------|--------|--------------|-------------|---------|-----------|------|
| FrRX Group | Emergency | Emergency | Emergency | Transmit | TX Ref | FrTX Contact | New Contact | Call ID | Emergency | |
| : | None | Off | Off | Off | 420 | Middle | Contact1 | | 150 | None |
| : | None | Off | Off | Off | 430 | Middle | Contact2 | | 2 | None |
| : | None | Off | Off | Off | 440 | Middle | Contact3 | | 310211 | None |
| | | | | | | | | | | |

Step 4. Bring in the new contact list as follows:

| | A | B | C | D | E |
|----|-------|-------------|--------------|---------|--------------|
| 1 | No | Call Alias | Call Type | Call ID | Receive Tone |
| 2 | 1 | World | Group Call | 1 | No |
| 3 | 2 | USA | Group Call | 2 | No |
| 4 | 3 | UK | Group Call | 3 | No |
| 5 | 4 | Germany | Group Call | 4 | No |
| 6 | | | | | |
| 7 | 149 | Cal North | Group Call | 149 | No |
| 8 | 150 | Cal Central | Group Call | 150 | No |
| 9 | 151 | Cal South | Group Call | 151 | No |
| 10 | | | | | |
| 11 | 52133 | KK4123 | Private Call | 310210 | No |
| 12 | 52134 | KK6LFS | Private Call | 310211 | No |
| 13 | 52135 | W6MO | Private Call | 310212 | No |
| 14 | | | | | |

Step 5. Match the Call ID from the Channel list with the Call ID from the new Contact list and put the Call Alias from the new Contact list in the New Contact column of the Channel list as follows:

| | P | Q | R | S | T | U | V | W | |
|----|-----------|-----------|----------|-----------|------------|-------------|---------|-----------|---|
| cy | Emergency | Emergency | Transmit | TX Ref Fr | TX Contact | New Contact | Call ID | Emergency | P |
| | Off | Off | 420 | Middle | Contact1 | USA | 150 | None | H |
| | Off | Off | 430 | Middle | Contact2 | Cal Central | 2 | None | H |
| | Off | Off | 440 | Middle | Contact3 | KK6LFS | 310211 | None | H |
| | | | | | | | | | |
| | | | | | | | | | |

Step 6. Delete the TX Contact column, the Call ID column and rename the New Contact column to Tx Contact column as follows:

| | P | Q | R | S | T | U | |
|-----------|-----------|----------|-----------|-------------|-----------|----|--|
| Emergency | Emergency | Transmit | TX Ref Fr | TX Contact | Emergency | P | |
| Off | Off | 420 | Middle | USA | None | H: | |
| Off | Off | 430 | Middle | Cal Central | None | H: | |
| Off | Off | 440 | Middle | KK6LFS | None | H: | |

Step 7. Import the new Contact list followed by the modified Channel list back into the CPS and you are done. The order is important.