AP4-TY13

Advanced Amplifier Interface
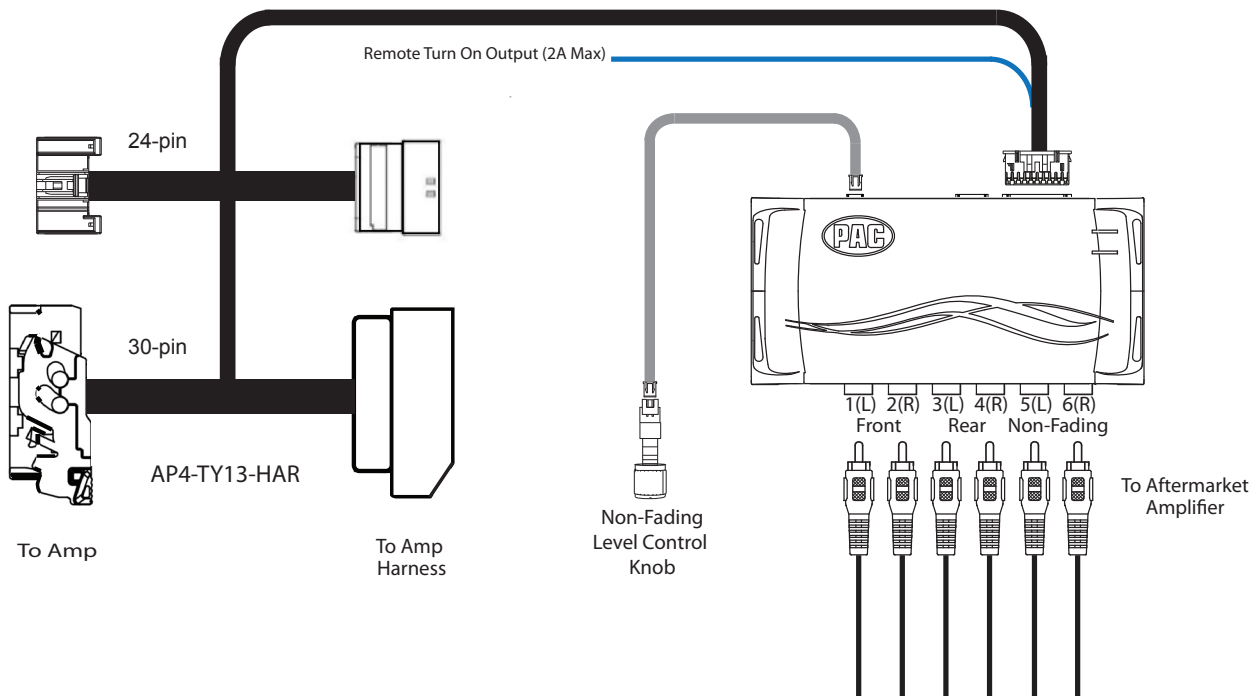for Select Toyota Applications

Introduction and Features

The AP4-TY13 provides a 6-channel pre-amp output for use with aftermarket audio equipment. Using the full range, fixed level head unit output, in conjunction with data bus messages, the AP4-TY13 delivers a variable 5v RMS pre-amp output with fading, balance, equalization, and level control capabilities. The module also retains audio from other vehicle features such as factory navigation prompts, Bluetooth and Voice Activation. An accessory controlled remote amplifier turn on wire is also provided by the AP4-TY13. When used in conjunction with the APA-TOS1 (sold separately), the module can provide a variable 2-channel fiber optic digital audio output (TOSLINK).

Important Notes

1. Toyota Safety Connect (SOS) can easily be retained.

2. The factory radio's speed controlled volume, DSP, and surround sound mode are not supported by the AP4 outputs.
3. The factory amplifier must remain connected, and in the vehicle after the AmpPRO has been installed.
4. Prior to testing, cycle the ignition off and back on again to properly initilize the AP4-TY13.
5. The radio's beep setting must be enabled on the factory radio in order to hear the audible tones when making selections through the radio.
6. Initially, if the beep through the AP4-TY13 does not match the on / off selection through the radio, cycle the beep to the opposite setting and back, then test again.
7. The radio's beep volume and minimum volume levels are set to 0 dB by default. If you are happy with this level in your particular application, additional adjustment is not required. Please refer to the Setup and Configuration section on page for more details.
8. The Radio's Nav / VR Voice, incoming E-mail tone, Ringtone, In-Call, Incoming SMS / MMS tone and Incoming SMS Voice volumes can be adjusted through the radio's settings menu as they were prior to installation of the AP4-TY13.
9. The remote output is rated at 2A of current. If more current is needed, an external relay must be used.
10. Channels 5 and 6 are non-fading outputs. The output level of channels 5 and 6 can be controlled using the supplied level control knob.
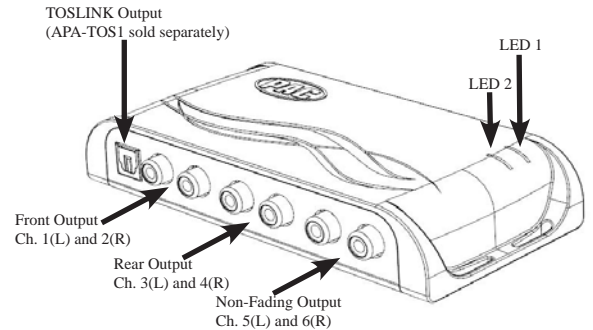
Wiring Connection Chart

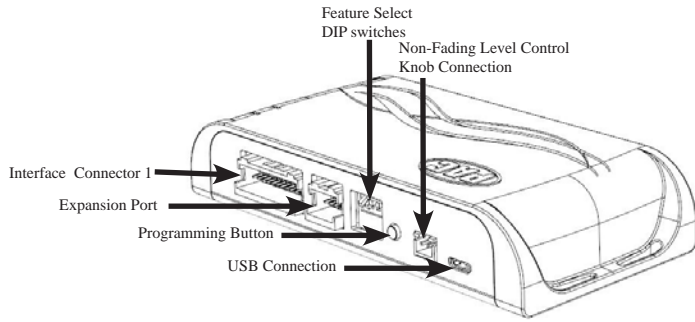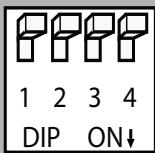Remote Turn On Output (2A Max)

24-pin

30-pin

AP4-TY13-HAR

To Amp

To Amp Harness

Non-Fading Level Control Knob

1(L) 2(R) 3(L) 4(R) 5(L) 6(R)
Front   Rear   Non-Fading

To Aftermarket Amplifier

PAC

Rev: V3
Date:062419

Page 1

AP4-TY13

Module Layout

Feature Select
DIP switches

Non-Fading Level Control
Knob Connection

Interface Connector 1

Expansion Port

Programming Button

USB Connection

TOSLINK Output
(APA-TOS1 sold separately)

LED 1

LED 2

Front Output
Ch. 1(L) and 2(R)

Rear Output
Ch. 3(L) and 4(R)

Non-Fading Output
Ch. 5(L) and 6(R)

Installation

1 2 3 4
DIP   ON↓

**Set DIP switches to the ON position to activate the corresponding features.
Set DIP switches to the OFF position for any features that are not desired.**

DIPSWITCH
ON = DOWN
ON

Two Channel Mode	5v / 4v Preout	Troubleshooting	Not Used
1	2	3	4

1. To gain access to the amplifie , reposition the left front seat forward and to the highest position.
2. Locate the factory amplifier cove , remove the 3 push pins that secure the cover into place, and remove the cover to gain access to the amplifier (Fig. 1)
3. Disconnect the 30-pin harness and the 24-pin harness from the amplifie . To unplug the 30-pin, you must press the inner release tab and pull the connector's outer release tab at the same time (Fig. 2).
4. Connect the AmpPRO harnesses to the vehicle harnesses.
5. Connect the AmpPRO harnesses to the factory amplifie .
6. Set any feature DIP switches that apply to your install.
   a. DIP switch 1 is used for two channel mode. In this mode, both the TOSLINK and front RCA outputs (1 and 2) become non-fading outputs.
   b. Set DIP switch 2 on (down) to lower the RCA output voltage to 4v. Leave DIP switch 2 off (up) to keep the RCA output voltage at 5v. See troubleshooting section on page 6 for more details.
   c. Set DIP switch 3 on (down) only if the output of the AP4 is too low. Doing this will give you a +8 dB boost on the INPUT of the module.
   d. DIP switch 4 is not used and should remain off (up).
6. If you are using the APA-TOS1 (sold separately) refer to the instructions included with that product for its installation.
7. Connect the AmpPRO harness to the module.
8. Connect the level control knob to the module and install in an accessible location.
9. Connect the signal cables and remote input from the aftermarket amplifie .
10. Initially, if the beep through the AP4-TY13 does not match the on / off selection through the radio, cycle the beep to the opposite setting and back, then test again.
11. See the Tech Brief "AP4-TY SOS Retention"

Fig. 1

Fig. 2

24 - Pin   30 - Pin

Press Inner Release Tab

Pull Outer Release Tab
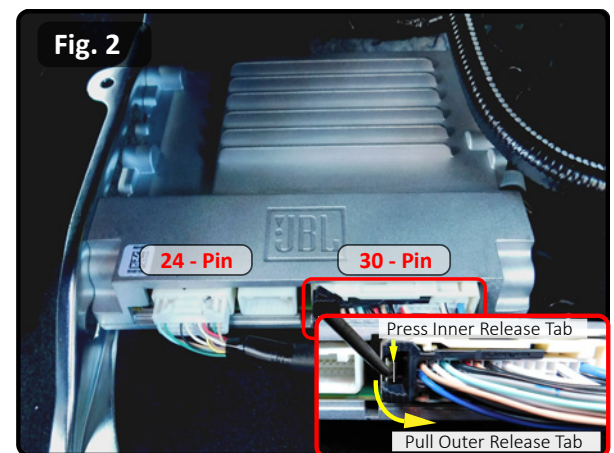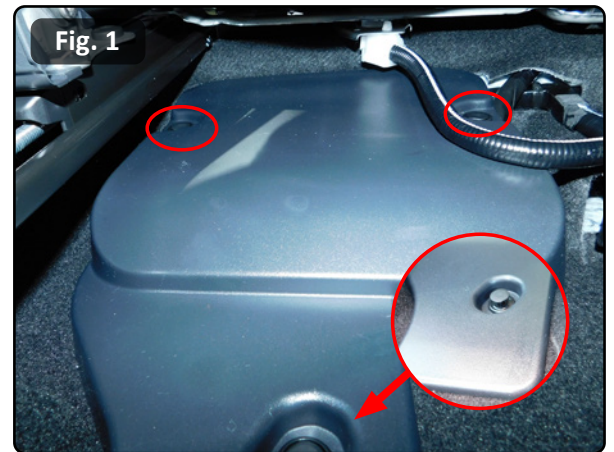
AP4-TY13

Installation (cont.)

Speaker Connections to Aftermarket Amplifier

The AP4-TY13 harness speaker wire outputs are able to be utilized for connecting the aftermarket amplifier to the existing speakers.
1. Using the wiring diagram and information below, cut the speaker wires that will be used between the AP4-TY13 30-pin connector that plugs into the OEM amplifier and the 30-pin connector that plugs back into the OEM harness.
2. Insulate the cut wires on the amplifier side of harness
3. Extend speaker wires from the aftermarket amplifier outputs and connect them to the appropriate wires in the AP4-TY13 harness.

30-Pin AP4-TY13 Harness - Side that Connects to OEM Harness
Connector Viewed From Wire Side
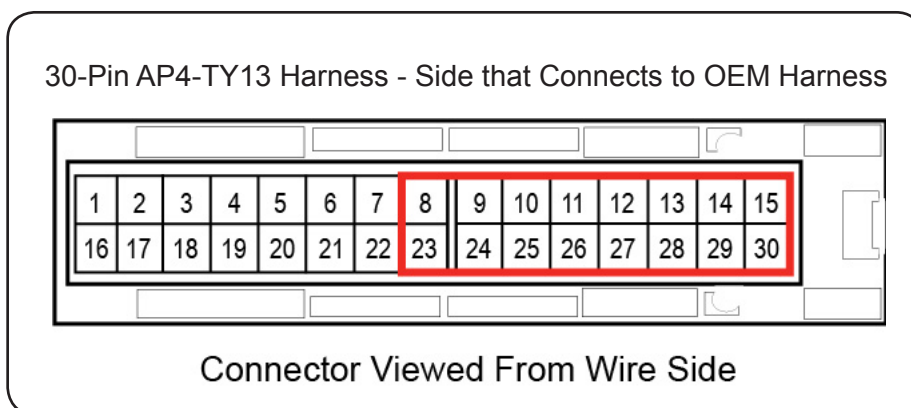
Pin Number	Wire Color	Wire Description	Label
8	Blue	Subwoofer Speaker 2 Positive (SW2+)	Subwoofer 2
23	Blue / Black	Subwoofer Speaker 2 Negative (SW2-)	
9	Green	Left Rear Speaker Positive (LR+)	Left Rear Speaker
24	Green / Black	Left Rear Speaker Negative (LR-)	
10	Purple	Right Rear Speaker Positive (LR+)	Right Rear Speaker
25	Purple / Black	Right Rear Speaker Negative (LR-)	
11	White	Left Front Mid Positive (LF+)	Left Front Midrange
26	White / Black	Left Front Mid Negative (LF-)	
12	Gray / Red	Right Front Tweeter Positive (RFTW+)	Right Front Tweeter
27	Gray / Blue	Right Front Tweeter Negative (RFTW-)	
13	Brown / White	Subwoofer Speaker 1 Positive (SW1+)	Subwoofer 1
28	Brown / Black	Subwoofer Speaker 1 Negative (SW1-)	
14	White / Red	Left Front Tweeter Positive (LFTW+)	Left Front Tweeter
29	White / Blue	Left Front Tweeter Negative (LFTW-)	
15	Gray	Right Front Speaker Positive (RF+)	Right Front Midrange
30	Gray / Black	Right Front Speaker Negative (RF-)	

AP4-TY13

Setup and Configuration

1. Turn the ignition on. LED 1 on the interface will turn on and the +12v remote output will turn on.
2. Set the amp gain(s) to the desired level. We recommend using an oscilliscope and test tones to set the amp gain(s). Please refer to the MECP Advanced study guide if you are unfamiliar with this process.
3. Check volume, balance, fade and EQ settings.
4. If you would like to adjust the radio's beep volume or minimum volume, do so using one of the methods outlined below. If you are happy with the default levels, no adjustments are necessary.

Manually Setting the Radio's Beep Volume
You can manually set the level of the factory radio beeps using the programming button on the side of the interface. If you would like to set the beep volume using the PC app please proceed to the PC App section.

Setting the radio's beep volume using the programming button
1. Start with the level control knob turned all the way down (counter-clockwise).
2. Press the programming button on the side of the interface.
3. LED 1 will turn green and beeps will begin continuously sounding.
4. Turn the level control knob clockwise until the desired beep volume level is reached.
5. You can now either press the programming button twice or wait ten seconds to exit the settings.

Manually Setting the Minimum Volume
If the minimum volume of the radio (factory radio volume level 1) is too loud, you can manually set the level of the minimum volume using either the programming button on the side of the interface or the factory SWC. If you would like to set the minimum volume using the AmpPRO app, please proceed to the AmpPRO App section.
**PLEASE NOTE: Level control knob must be connected to the module in order to set the Minimum Volume.**

Setting the minimum volume using the programming button
1. Start with the level control knob turned all the way down (counter-clockwise).
2. Set the amp gains to the desired level.
3. Set the volume on the factory radio to 1.
4. Press the programming button on the side of the interface twice.
5. LED 1 will turn amber and the chimes will begin sounding every five seconds
6. Turn the level control knob clockwise until the desired minimum volume level is reached.
7. You can now either press the programming button once or wait ten seconds to exit the settings.

AmpPRO App

Use of the AmpPRO App allows you to do the following:

- Configure User Interface Options suc as:
  - Minimum Volume Level
  - Chime (Radio Beeps) Volume Level
  - Enable / Disable AP4 Chimes (Radio Beeps)
  - Enable / Disable factory EQ
  - Bass / Mid / Treble boost frequencies and Q factor
- Update Product Firmware
- Read Firmware / Hardware Versions

AP4-TY13
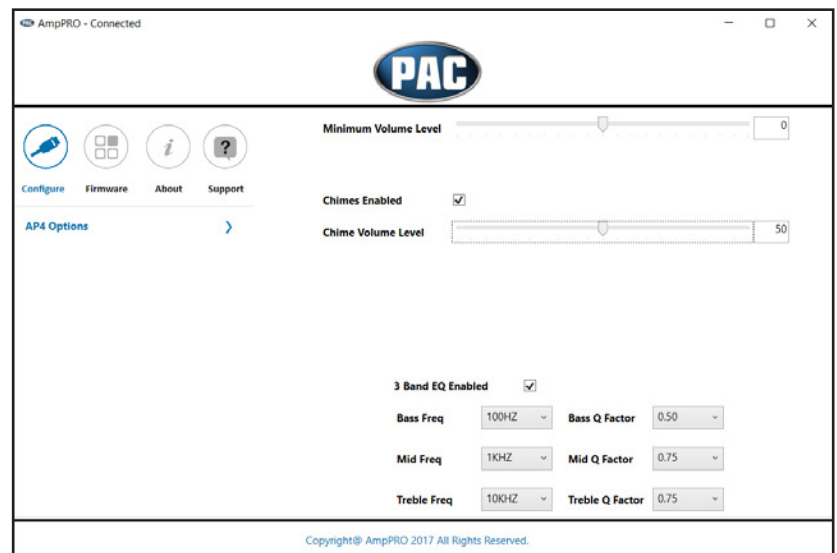
AmpPRO App (cont.)

PLEASE NOTE: These settings can be adjusted with the module installed in the vehicle, or on the bench. However, it is recommended to make the adjustments with the module installed, and the factory radio on, so that the changes can be heard.

Minimum Volume Level - This allows you to set the minimum volume level of the factory radio (factory radio volume level 1).

Chime Volume Level - This allows you to set the volume of the radio beeps that are heard through the AP4.

Chimes Enabled - This allows you to enable / disable AP4 radio beeps (ie: tone that is heard when pressing radio buttons). This is used when mixing factory and aftermarket speakers. It is also possible to turn the beeps off altogether using the radio's factory settings menu.

**3 Band EQ Enabled -** This allows you to enable / disable the 3 band factory EQ.

Bass / Mid / Treble Freq / Q Factor - This allows you to set the center frequency that will be adjusted when setting the 3 band factory EQ, as well as the Q Factor for each frequency. The Q Factor determines how many of the adjacent frequencies will be affected when adjusting the selected frequency. The lower the Q Factor, the more frequencies will be affected.

Available Frequencies and Q Factors					
Bass Frequency	60HZ	Mid Frequency	500HZ	Treble Frequency	7.5KHZ
	80HZ		1KHZ		10KHZ
	100HZ		1.5KHZ		12.5KHZ
	120HZ		2.5KHZ		15KHZ
Bass Q Factor	0.50	Mid Q Factor	0.75	Treble Q Factor	0.75
	1.00		1.00		
	1.50		1.25		
	2.00		1.50		1.25

Firmware Updates

The AmpPRO app will also allow you to update the interface with new firmware as it becomes available.

Connect the interface to your PC and select "Firmware", then "Update Firmware". Now select "Select File". Finally, browse to the place where you saved the file and select it. This will begin the updating process. Once finished, disconnect the interface from the PC and resume normal operation.
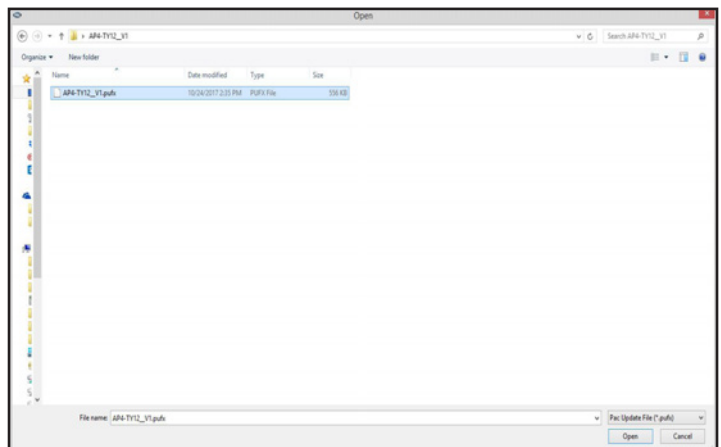
Restoring Factory Settings

You can restore the interface to factory default settings by pressing and holding the programming button on the side of the module until the status LEDs start blinking red. Once the LEDs start blinking red, release the button.

This reset will restore the following settings to their factory defaults:
- Radio Beeps volume level
- Enable / Disable Factory Beeps
- Minimum volume level
- Enable / Disable factory EQ
- Factory EQ frequency
- Factory EQ Q factor

Troubleshooting

1. No audio - Check to see if LED 1 is illuminated. If not, cycle the ignition off and back on.
2. Hiss at high amp gain - Set feature DIP switch 2 to the on (down) position to lower the output voltage of the AP4 to 4v. If you still hear the hiss, lower your amp gains until the hiss is gone.
3. Cannot hear beeps when pressing buttons on the radio - Go to the Beep On / Off setting in the radio's settings menu and make sure it is set to ON. If it is, set it to OFF and back to ON and test for beeps again. Next, set the beep volume using process outlined in Setup and Configuration, or using the AmpPRO application. If you still do not hear beeps, be sure that you are using the remote output from the AP4 to turn on your aftermarket amplifie .
4. Low volume setting on radio is too loud - Set minimum volume using process outlined in Setup and Configuration, or using the AmpPRO application.
5. Drastic volume difference between radio sources - The radio stores the volume of the radio source from the last time that source was used. Readjust the volume of the individual sources to the same output level.

LED Legend		
	Action / Color	**During Normal Operation**
LED 1	Solid Red	Module Active
	Solid Green	Chime Volume Adjustment Mode
	Solid Amber	Minimum Volume Adjustment Mode
	Rapid Blink Any Color	DSP Activity
LED2	Blink Amber	USB Connection Detected
Both LEDs	Alternate Blinking Red	Performing Memory Reset

Technical Bulletin

Overview:

Safety Connect (SOS) is a subscription based service provided for select Lexus / Toyota models. Verify the vehicle is equipped with Safety Connect / Lexus Enform (there will be an SOS button in the overhead console) and that it is an active account, and that retention of SOS is a concern prior to proceeding.

In Toyota / Lexus vehicles equipped with Safety Connect / Lexus Enform and a digital amplifie , the front right output of the factory amplifier (sometimes tweete , sometimes door woofer, sometimes both) goes through the factory SOS telematics module. This telematics module is what creates the audio for the SOS system (Voice Prompts, etc). There is an analog mute wire that runs from the SOS module to the factory amp, and when the SOS is triggered by the user, the SOS module sends a ground signal on this wire to mute the audio coming from the factory amplifie . When this happens, the audio to the SOS speaker (or speakers) is muted and the SOS module internally switches the front right speaker to now pass audio from the telematics module, instead of the amplifie .

Example of Factory JBL system with SOS

SOS
Safety Connect
Button in Overhead Console

Front Left Speakers

Front Right Speakers

JBL
PWR VOL
TUNE SCROLL
APPS
CAR
∧ SEEK
∨ TRACK
AUDIO
⏭
☎
SETUP

Amp Inputs

Safety Connect Inputs

Factory Amplifier

SOS Mute Trigger

Safety Connect Module

Front Left Outputs

Rear Left Outputs

Front Right Outputs to Safety Connect

Rear Right Outputs

Front Right Outputs to Speakers

Rear Left Speakers

Rear Right Speakers

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When using the AmpPRO to add aftermarket amplifiers, and retention of the factory SOS system is desired, there are a few important points to remember:

- If you are not using an aftermarket amplifier on the front speakers, and you wish to mute audio whe SOS is active, the factory mute wire mentioned in the overview must be found and connected to the Yellow / Black wire on the AP4-TY harness labeled "Mute Input From Telematics". See "Method 1" in the next section for further details.
- If you are using an aftermarket amplifier on the front speakers and do not plan on running new speake wires to each speaker, your aftermarket amplifier's front right output will be passed through the factor SOS module. The factory SOS module cannot handle any more that 150w RMS (The engineers at PAC have tested running 150w RMS through a Toyota SOS module for extended periods of time without issue). See "Method 2" in the below for further details.
- If you are planning on running new speaker wires to each speaker, and wish to retain the SOS system, or the aftermarket amplifier is rated at higher than 150w RMS to the front speakers, you will need t follow the steps outlined as "Method 3" on page 4.

SOS Retention Methods:

Prior to interrupting any of the wires between the factory amplifier, factory telematics module, or the speakers, activate the SOS and note which speaker (or speakers) play the SOS audio for later use. For instance, if only the front right mid is playing the SOS audio and there are additional front right speakers, if you connect to the wires for the front right tweeter at the amplifier, the SOS audio will not be retained. To retain the SOS in this instance, you must connect to the wires for the front right mid.

Method 1 (ex: Subwoofer Only Install):

Method 1 is used in cases where the factory amplifier will continue to power the front speakers and you wish to mute the audio from the aftermarket amplifiers when SOS is active

- Extend a wire from the Yellow / Black "Mute Input From Telematics" wire to the SOS Mute Trigger wire at the factory Safety Connect Module. Refer to the "Vehicle Connections" section for vehicle specific information (page 5).

Method 2 (Amplifying Cabin Speakers):

Method 2 is used when wiring an aftermarket amplifier to the front speaker outputs of the factory amplifi rather than running new speaker wires from the aftermarket amp straight to the front speakers. One of the front right speaker outputs of the aftermarket amplifier passes through the Safety Connect Module. It is recommended to use an amplifier that provides 150 watts RMS or less so that the factory telematics module is not damaged due to excessive heat. If the front speaker output is in excess of 150 watts, use Method 3 instead (page 4).

- If you are wiring an aftermarket amplifier to the front speakers through the Telematics Module, it will require running a wire from the AP4-TY harness Yellow / Black wire labeled "Mute Input From Telematics" to a wire at the Safety Connect Module. Refer to the "Vehicle Connections" section for vehicle specific information (page 5). Next, cut the front speaker outputs (and rear if applicable) to the speaker wire outputs at the factory amplifier and insulate the side that goes towards the amplifie (these wires will not be used). Wire the aftermarket amplifier outputs to the appropriate remaining speaker wires. See the example "Fig. 1" on the following page.
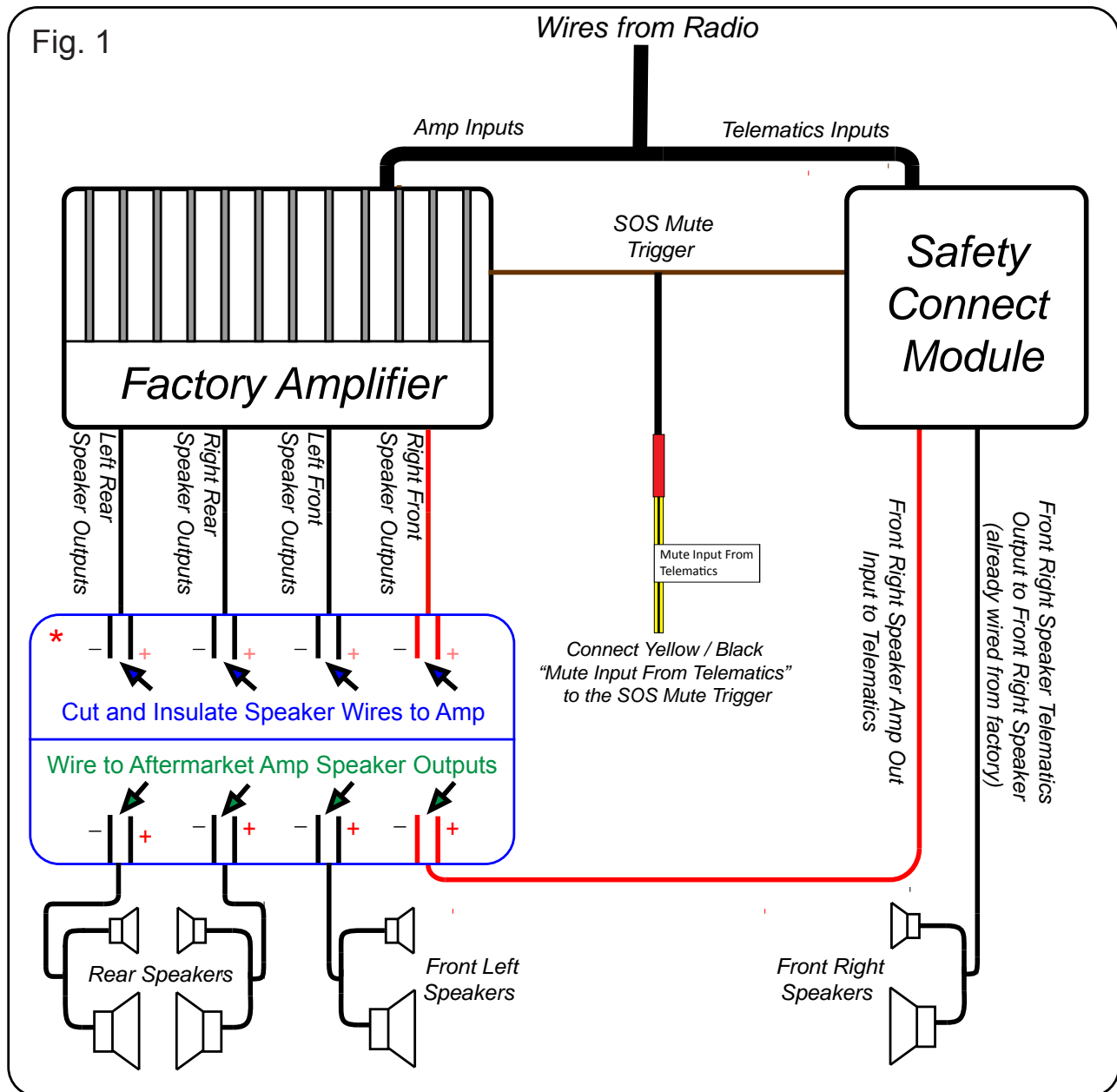
Method 2 (cont.):

Note: In some vehicles there will be multiple speakers on the front right output of the factory amplifier with only one speaker passing the SOS audio. If that is the case, it is important to use the exact speaker output of the factory amp that corresponds to the speaker playing the SOS audio to connect to the front right speaker output of the aftermarket amplifie . If the front right dash speaker is the only speaker playing the SOS audio and now only the door speakers are going to be used, it would be necessary to run the aftermarket amplifier's front right output to the front right dash speaker wires, then use the front right speaker output from the Safety Connect Module to connect to the door speaker that needs to be powered by the aftermarket amplifie . Method 3 can be substituted for ease of SOS retention if desired. Refer to the "Vehicle Connections" section on page 5 for vehicle specific information

Fig. 1

Wires from Radio

Amp Inputs

Telematics Inputs

SOS Mute Trigger

Safety Connect Module

Factory Amplifier

Left Rear Speaker Outputs
Right Rear Speaker Outputs
Left Front Speaker Outputs
Right Front Speaker Outputs

Mute Input From Telematics

*
Cut and Insulate Speaker Wires to Amp

Wire to Aftermarket Amp Speaker Outputs

Connect Yellow / Black "Mute Input From Telematics" to the SOS Mute Trigger

Front Right Speaker Amp Out Input to Telematics

Front Right Speaker Telematics Output to Front Right Speaker (already wired from factory)

Rear Speakers

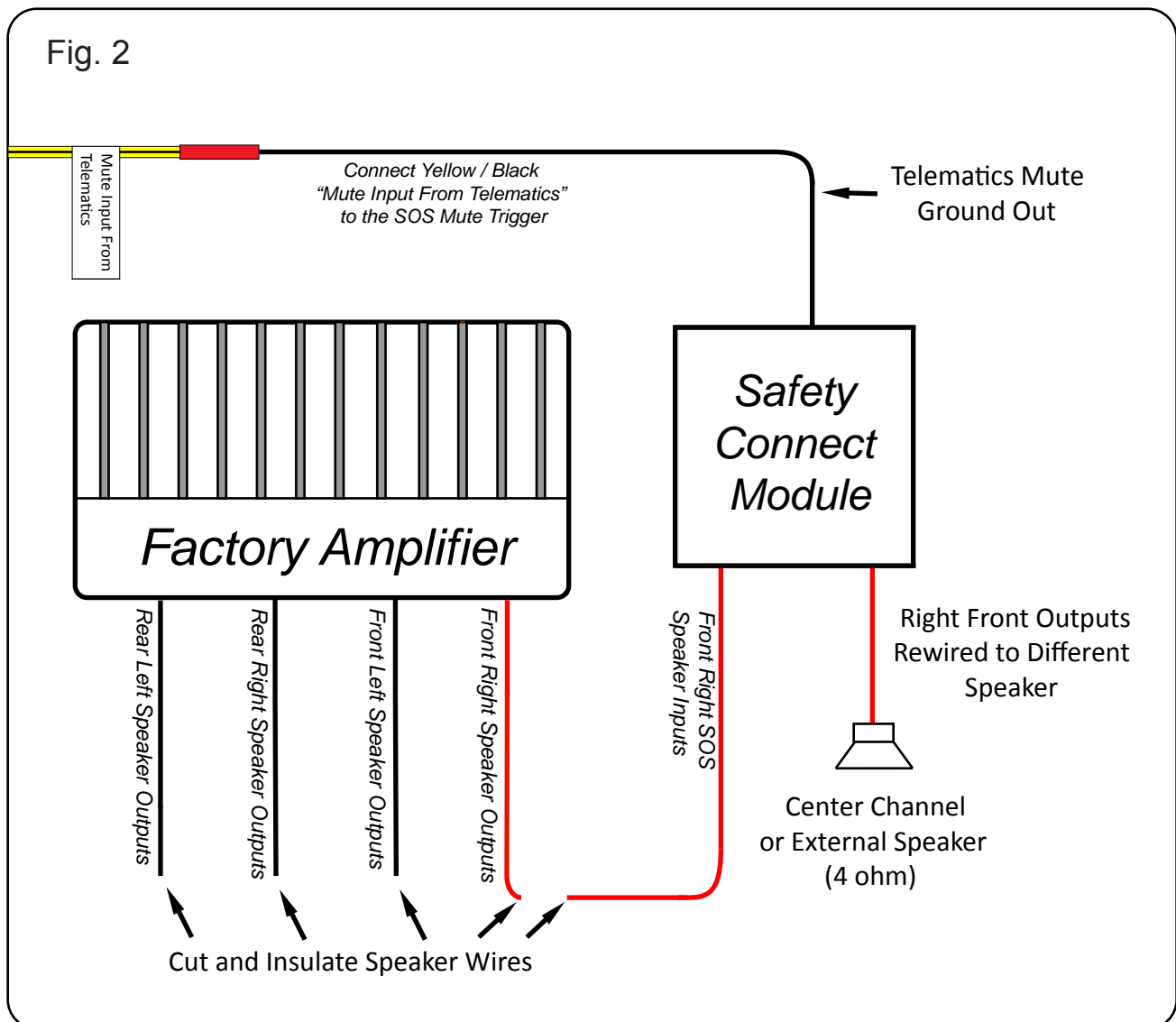Front Left Speakers

Front Right Speakers

*** Image is zoomed in to show the individual positive and negative speaker wires*

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Method 3 (using a separate speaker):

Method 3 bypasses the Safety Connect Module and uses an external speaker (not supplied) to provide the SOS audio.

- Method 3 will require running a wire from the AmpPRO harness Yellow / Black wire labeled "Mute Input From Telematics" to a wire at the Safety Connect Module. Refer to the "Vehicle Connections" section on page 5 for vehicle specific information. It also requires cutting the audio input and output wires at the Safety Connect Module, and insulating the input wires that lead back to the factory amp (to prevent shorting them out). Extend a speaker wire from the Safety Connect audio output wires to an external 4 ohm speaker and hide it in a place where it will be audible (commonly under the dashboard on the driver's side of the vehicle facing downward). If the vehicle has a center channel speaker that is no longer being used, it is possible to run the speaker wires to this speaker rather than adding an additional speaker. See "Fig. 2". Refer to the "Vehicle Connections" section on page 5 for information regarding where the Safety Connect Module is located and what wire to extend the Yellow / Black wire to.

Fig. 2

Mute Input From Telematics

Connect Yellow / Black
"Mute Input From Telematics"
to the SOS Mute Trigger

Telematics Mute
Ground Out

Factory Amplifier

Safety Connect Module

Rear Left Speaker Outputs

Rear Right Speaker Outputs

Front Left Speaker Outputs

Front Right Speaker Outputs

Front Right SOS Speaker Inputs

Right Front Outputs
Rewired to Different
Speaker

Center Channel
or External Speaker
(4 ohm)

Cut and Insulate Speaker Wires

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Vehicle Connections

Use the information contained in the chart below to determine the factory Amp location, Safety Connect Module location, and the Pin positions and colors for the wires necessary for specific methods of SOS retention.

The connector to the right represents the Safetey Connect Module connector for all of the Lexus / Toyota applications listed below. The Pin positions highlighted in Red are indicative of the wire positions outlined in the chart below.

38 - Pin Safety Connect Module Connector
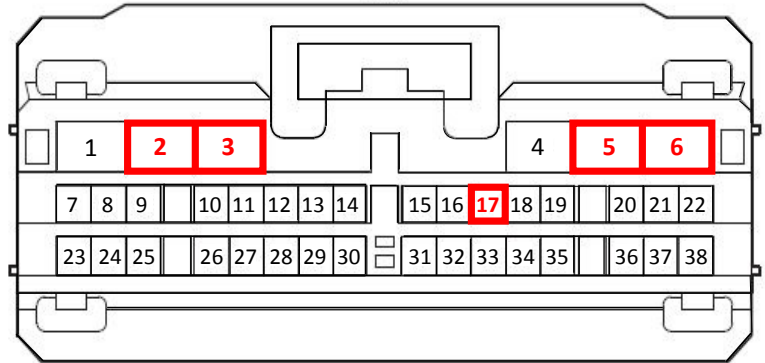
Connector Viewed From Pin Side

Toyota

Model	Years	OEM Amp Location	Safety Connect Module Location	Safety Connect Input Audio	Safety Connect Output Audio	Telematics Mute Trigger
4Runner	2010 - 2018	Behind Right Rear Side Panel in Rear Cargo Area	Behind Glovebox Left Side	38 Pin Connector Pin 2 (+) Violet Pin 3 (-) Pink	38 Pin Connector Pin 5 (+) Lt Green Pin 6 (-) Blue	38 Pin Connector Pin 17 Blue
Avalon	2013 - 2018	Under Front Left Seat	Under Front Right Seat	38 Pin Connector Pin 2 (+) White or Pink Pin 3 (-) Red or Violet	38 Pin Connector Pin 5 (+) Gray or Red Pin 6 (-) Brown or White	38 Pin Connector Pin 17 Lt Green
Camry	2012 - 2018	Under Front Left Seat	Under Front Right Seat	38 Pin Connector Pin 2 (+) Yellow Pin 3 (-) Pink	38 Pin Connector Pin 5 (+) Lt Green Pin 6 (-) Blue	38 Pin Connector Pin 17 Red
Highlander	2014 - 2018	Under Front of Center Console	Under Front of Center Console	38 Pin Connector Pin 2 (+) Lt Green Pin 3 (-) Blue	38 Pin Connector Pin 5 (+) White or Lt Green Pin 6 (-) Black or Blue	38 Pin Connector Pin 17 Lt Green
Prius	2010 - 2011	Under Front Right Seat	In Dash Below Radio	38 Pin Connector Pin 2 (+) Lt Green Pin 3 (-) Blue	38 Pin Connector Pin 5 (+) Lt Green Pin 6 (-) Blue	38 Pin Connector Pin 17 Green
Prius	2016 - 2017	Under Front Right Seat	In Dash Below Radio	38 Pin Connector Pin 2 (+) Beige Pin 3 (-) Green	38 Pin Connector Pin 5 (+) Lt Green Pin 6 (-) Blue	38 Pin Connector Pin 17 Lt Green
Sienna	2011 - 2014	Under Front Right Seat	Behind Center Console	38 Pin Connector Pin 2 (+) White Pin 3 (-) Red	38 Pin Connector Pin 5 (+) Blue Pin 6 (-) Lt Green	38 Pin Connector Pin 17 Red
Sienna	2015 - 2017	Under Front Right Seat	Behind Center Console	38 Pin Connector Pin 2 (+) Blue Pin 3 (-) Lt Green	38 Pin Connector Pin 5 (+) Blue Pin 6 (-) Lt Green	38 Pin Connector Pin 17 Red

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Vehicle Connections

Lexus

Model	Years	OEM Amp Location	Safety Connect Module Location	Safety Connect Module Input Audio	Safety Connect Module Output Audio	Telematics Mute Trigger
CT200h	2011 - 2017	Under Front Right Seat	In Dash Above Radio	38 Pin Connector Pin 2 (+) Lt Green Pin 3 (-) Blue	38 Pin Connector Pin 5 (+) Green Pin 6 (-) Brown	38 Pin Connector Pin 17 Blue
ES300h	2013 - 2017	Under Front Left Seat	Under Front Right Seat	38 Pin Connector Pin 2 (+) Black Pin 3 (-) Yellow	38 Pin Connector Pin 5 (+) Black Pin 6 (-) Yellow	38 Pin Connector Pin 17 Black
ES350	2016 - 2017	Under Front Left Seat	Under Front Right Seat	38 Pin Connector Pin 2 (+) Black Pin 3 (-) Yellow	38 Pin Connector Pin 5 (+) Black Pin 6 (-) Yellow	38 Pin Connector Pin 17 Black
GX460	2010 - 2017	Under Front Right Seat	In Dash to the Right of Radio	38 Pin Connector Pin 2 (+) Lt Green or Red Pin 3 (-) Blue or White	38 Pin Connector Pin 5 (+) Lt Green Pin 6 (-) Blue	38 Pin Connector Pin 17 Pink
HS250h	2010 - 2012	Under Front Right Seat	In Dash Above Radio	38 Pin Connector Pin 2 (+) Lt Green Pin 3 (-) Blue	38 Pin Connector Pin 5 (+) Lt Green Pin 6 (-) Blue	38 Pin Connector Pin 17 Gray
IS200T	2016 - 2017	Right Rear Side in Rear Cargo Area	Behind Instrument Cluster	38 Pin Connector Pin 2 (+) Beige Pin 3 (-) Pink	38 Pin Connector Pin 5 (+) Beige Pin 6 (-) Pink	38 Pin Connector Pin 17 Black
IS250 IS350	2010 - 2013	Right Rear Side in Rear Cargo Area	Right Side of Dash Behind Glovebox	38 Pin Connector Pin 2 (+) Blue Pin 3 (-) Lt Green	38 Pin Connector Pin 5 (+) Lt Green Pin 6 (-) Red	38 Pin Connector Pin 17 White
IS250 IS350	2014 - 2015	Right Rear Side in Rear Cargo Area	Behind Instrument Cluster	38 Pin Connector Pin 2 (+) Beige Pin 3 (-) Pink	38 Pin Connector Pin 5 (+) Beige Pin 6 (-) Pink	38 Pin Connector Pin 17 Black
IS350	2016 - 2017	Right Rear Side in Rear Cargo Area	Behind Instrument Cluster	38 Pin Connector Pin 2 (+) Beige Pin 3 (-) Pink	38 Pin Connector Pin 5 (+) Beige Pin 6 (-) Pink	38 Pin Connector Pin 17 Black
IS250C IS350C	2010 - 2015	Right Rear Side in Rear Cargo Area	Right Side of Dash Behind Glovebox	38 Pin Connector Pin 2 (+) Black Pin 3 (-) Gray	38 Pin Connector Pin 5 (+) Black Pin 6 (-) Gray	38 Pin Connector Pin 17 Pink
IS-F	2010	Right Rear Side in Rear Cargo Area	Right Side of Dash Behind Glovebox	38 Pin Connector Pin 2 (+) Blue Pin 3 (-) Lt Blue	38 Pin Connector Pin 5 (+) Lt Green Pin 6 (-) Red	38 Pin Connector Pin 17 White
IS-F	2011 - 2014	Right Rear Side in Rear Cargo Area	Right Side of Dash Behind Glovebox	38 Pin Connector Pin 2 (+) Blue Pin 3 (-) Lt Green	38 Pin Connector Pin 5 (+) Lt Green Pin 6 (-) Red	38 Pin Connector Pin 17 White
NX Series	2015 - 2018	Behind Right Rear Side Panel in Rear Cargo Area	In Dash Above Radio	38 Pin Connector Pin 2 (+) Pink or White Pin 3 (-) Red	38 Pin Connector Pin 5 (+) Yellow or Red Pin 6 (-) Black or White	38 Pin Connector Pin 17 Black
RC Series	2015 - 2017	Right Rear Side in Rear Cargo Area	Behind Instrument Cluster	38 Pin Connector Pin 2 (+) Beige Pin 3 (-) Pink	38 Pin Connector Pin 5 (+) Beige Pin 6 (-) Pink	38 Pin Connector Pin 17 Black

Technical Bulletin

Vehicle Connections

Lexus (cont.)

Model	Years	OEM Amp Location	Safety Connect Module Location	Safety Connect Module Input Audio	Safety Connect Module Output Audio	Telematics Mute Trigger
RX Series	2010 - 2015	Under Floor Right Front Side of Luggage Compartment	On Floor Below Center Console	38 Pin Connector Pin 2 (+) Red Pin 3 (-) Pink	38 Pin Connector Pin 5 (+) Green Pin 6 (-) Red	38 Pin Connector Pin 17 Lt Green
RX Series	2016 - 2017	Behind Right Rear Side Panel in Rear Cargo Area	Center Console Below Radio Controller Panel	38 Pin Connector Pin 2 (+) Blue Pin 3 (-) Violet	38 Pin Connector Pin 5 (+) Blue Pin 6 (-) Pink	38 Pin Connector Pin 17 Beige

PAC

Technical Bulletin

Overview

Symptom: Symptoms may include the interface not turning on, the factory radio not turning on (AP4-CH41 only), no audio or intermittent audio on one or more channels.

Cause: Pins pulling out of the JST connector that plugs into the AP4 interface resulting in poor, or no connection of some circuits.

Solution: Locate pins that have pulled out of the connector and fully re-insert the pins into the harness.

If a pin has pulled completely out of the harness, see "**AP4 Connector Diagrams**" starting on page 2 for pinouts of each of the amp pro interfaces to find pin location information

Inspect The Harness To Identify Pins That May Be Causing Issues
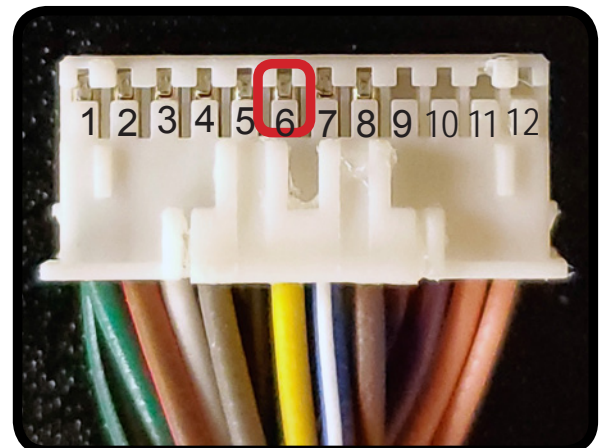
Visually inspect the AP4 harness at the JST connector that plugs into the AP4 interface. A loose pin may or may not be obviously visible. In the examples shown, a harness from the AP4-FD21 is being shown, but this applies to all of the AP4 interface harnesses.

- Check for pins in the open spaces of the AP4 interface connector. Each wire should have a corresponding visible pin in the open space above it. In Fig. 1, looking at the pin opening for the 6th pin position, it appears that there is no wire in that position. However, looking at the wire side of the connector for the 6th pin position (Fig. 2), the yellow wire is populated and it's pin should be visible. This indicates that the yellow wire is not fully seated into the connector.

Fig. 1

Fig. 2
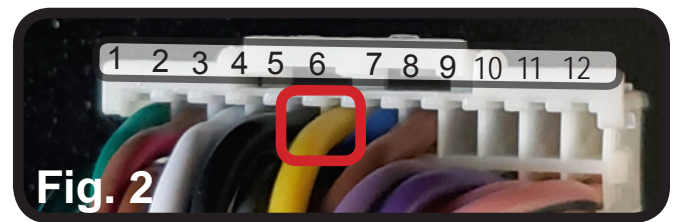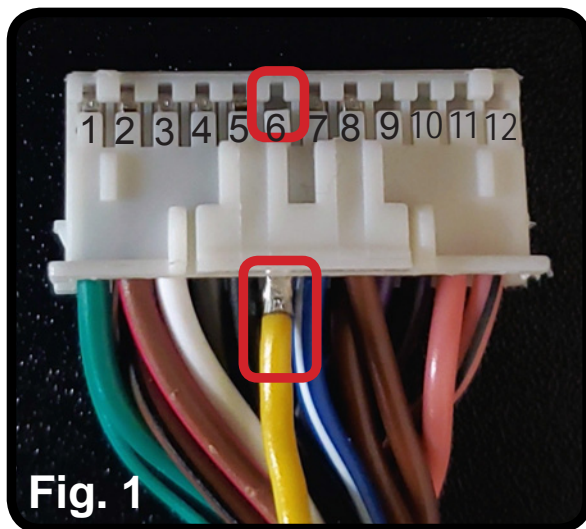
Solution

If a wire is found that is not fully seated into the connector, reinsert the wire by pushing it fully into the connector until the pin can be seen in the opening on the side of the connector. The pin should lock into place. Notice that the pin is now visible in the 6th pin position. If necessary, remove some of the tesa tape on the harness to reduce stress on the pins.

Technical Bulletin

AP4 Connector Diagrams

AP4-CH21

```
        13          1
```

Green/Black → ← Green
Violet/Black → ← Violet
← Black
← Yellow
← Blue/White
Brown → ← Brown

Pink →
Pink/Black →

```
        24          12
```

AP4-CH31
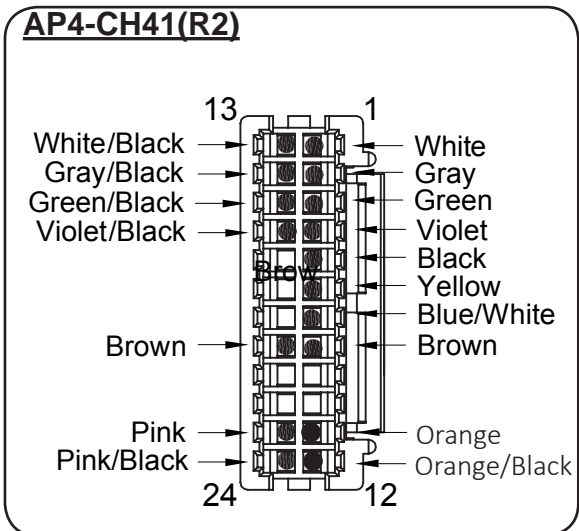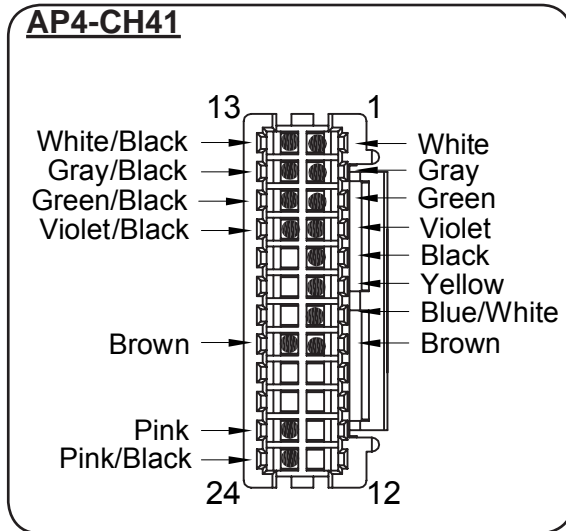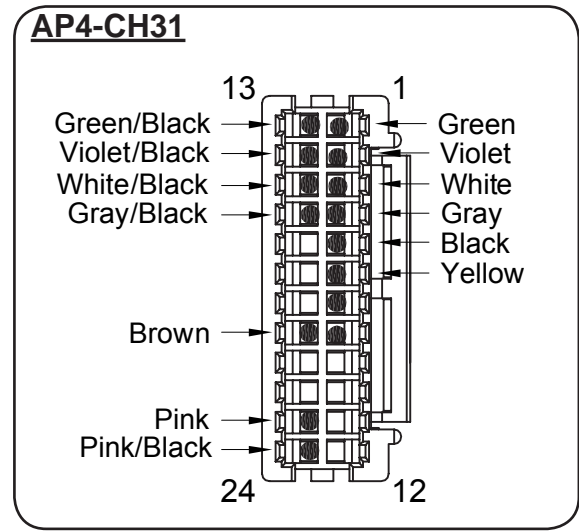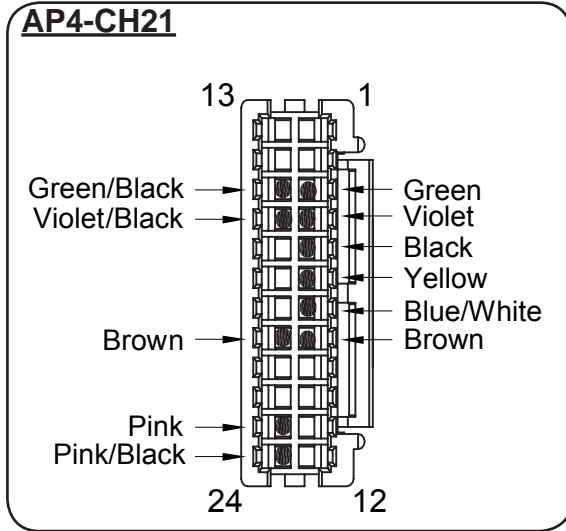
```
        13          1
```

Green/Black → ← Green
Violet/Black → ← Violet
White/Black → ← White
Gray/Black → ← Gray
← Black
← Yellow

Brown →

Pink →
Pink/Black →

```
        24          12
```

AP4-CH41

```
        13          1
```

White/Black → ← White
Gray/Black → ← Gray
Green/Black → ← Green
Violet/Black → ← Violet
← Black
← Yellow
← Blue/White
Brown → ← Brown

Pink →
Pink/Black →

```
        24          12
```

AP4-CH41(R2)

```
        13          1
```

White/Black → ← White
Gray/Black → ← Gray
Green/Black → ← Green
Violet/Black → ← Violet
Brown ← Black
← Yellow
← Blue/White
Brown → ← Brown

Pink → ← Orange
Pink/Black → ← Orange/Black

```
        24          12
```

AP4-FD11

```
        13          1
```

White/Blue → ← White/Red
White/Black → ← White
Gray/Black → ← Gray
← Black
← Yellow
Blue/White → ← Blue/White
Brown → ← Brown

Pink →
Pink/Black →

```
        24          12
```

AP4-FD21

```
        13          1
```

Green/Black → ← Green
Brown/Black → ← Brown/Red
White/Black → ← White
Gray/Black → ← Gray
← Black
← Yellow
Blue/White → ← Blue/White
Brown → ← Brown
Violet →
Violet/Black →
Pink →
Pink/Black →

```
        24          12
```

PAC

AP4 Connector Diagrams (cont.)

AP4-GM61

Black → 2
Green →
Pink →
Pink/Black → 16 ... 15
1 ← Yellow
← Blue/White
← Brown
← Brown
← Orange/Whit
← Orange/Black
← Orange

AP4-TY11

2 ... 1
White/Blue →
White/Black →
Gray/Black →
Red →
Brown →
24 ... 23
← White/Red
← White
← Gray
← Black
← Yellow
← Blue/White
← Brown
← Pink
← Pink/Black
← Brown

AP4-TY12

2 ... 1
Green/Black →
White/Black →
Gray/Black →
Red →
Brown →
Brown/White →
Yellow/Black → 24 ... 23
← Green
← White
← Gray
← Black
← Yellow
← Blue/White
← Brown
← Pink
← Pink/Black
← Brown

AP4-TY13

2 ... 1
White/Blue →
White/Black →
Gray/Black →
Red →
Brown →
Brown/White →
Yellow/Black →
24 ... 23
← White/Red
← White
← Gray
← Black
← Yellow
← Blue/White
← Brown
← Pink
← Pink/Black