

Telematics Control Unit (TCU) Installation.

Read this document fully before starting any actions. It is your responsibility to follow the instructions as outlined below.

NOTES:

- This tutorial is written specifically for most 2015 thru 2018 US Ford and Lincoln models that utilize CGEA 1.3 vehicle architecture. It is possible to retrofit other year and models of Ford and Lincoln vehicles as long as the vehicle utilizes CGEA 1.2/1.3 vehicle architecture. (Note: With CGEA 1.2, the feature set will be reduced to location services and WIFI hotspot, if the TCU is so equipped.) See this thread for general instructions for US vehicles: [Sync Connect Retrofit \(in any Ford\) - Ford F150 Forum](#).
- SYNC Connect modems have base part number 14G087 and 14G229. They are identical and interchangeable.
- Vehicles with Sync 2 / MFT can be used if the APIM firmware strategy is at least EM5T-14D205-AD, and the vehicle network supports CGEA 1.3.
- Canadian vehicles will use 754-05-xx (754G5G1/754G5G2) rather than 754-06-xx (754G6G1/754G6G2) for US models for Block 5 data. Canadian TCU's will not work in the US, and vice versa.

System Components:

Telematics Communication Module (TCU):

Telematics Communication Unit JL3T-14G087-Cx, or equivalent. KT1T-14G087-Fx can also be used but the firmware will need to be downgraded to the latest available for the JL3T-14G087-xx units.

Sync Connect GSM Antenna:

Ford PIFA Antenna HL3T-19K351-AA.

HL3T-19K351-AA is Ford's engineering number. The part number to order is HL3Z-19A390-A, or
2019 Ford F-150 PIFA Antenna KT1Z-19A390-A.

GSM Antenna Harness:

JL3Z-18812-E, Cable Assembly - Extension - Ford F-150 (JL3Z-18812-E),
or

GIMAX GSM 3m Antenna Extension Cable FAKRA Female - Female Code D Adapter.
Bingfu Fakra Code Z Female to Female Vehicle Antenna Extension Cable 2m 6.5 feet.

TCU Power and Data Wiring Harness parts:

WPT-242 Power/Data Connector/Pigtail C4803A for TCU.

WPT-977 Data Connector C2122 for HS3 CAN-BUS. (For pre-2018 vehicles.)

2 each twisted pair 20-gauge wire. (Ethernet pair twisted wire can be used for the HS3-CAN connection.)
Wire loom.

Optional components:

2nd GSM Antenna:

2017 Ford F-150 PIFA Antenna HL3T-19K351-AA (HL3Z-19A390-A).

Shark Fin Antenna to replace Black Puck Antenna (F-150):

2015-2018 OEM FORD Roof Antenna, Shark Fin with LTE:

JL3T-19K351-AA5DST-xx

JL3Z-19A390-ACPTM

GPS Navigation System Antenna Cable:

Ford (JL3Z-18812-AC)

GPS Antenna Cable Splitter:

GL3Z-10E928-AA

Antenna Cable to TCU, LTE:

JL3Z-18812-C

Installation:

Fabricate and Install TCU Power/Data Harnesses.

Install TCU.

Install PIFA Antenna. (NOTE: PIFA antenna MUST be bolted to metal ground.)

Install Antenna Cable.

Fabricate and Install TCU Power/Data Harness:

TCU Connector C4803A:

Pin 1 = VBATT +12VDC
Pin 13 = GND
Pin 8 = HS3 CAN +
Pin 16 = HS3 CAN –

BCM Connector C2280C Pin 16 (F10/5A)
Ground (G303) on the passenger side back wall.
HS3 CAN-Bus Test C2122 Pin 1
HS3 CAN-Bus Test C2122 Pin 2

Power/Ground:

For F-150 with Power Retractable Running Boards (Instead of BCM, option):
Power (+12VDC), Retractable Running Board module connector C3313B, Pin 1, 20ga.
Ground, Retractable Running Board module connector C3313B, Pin 4, 20ga.
Optional: Utilize the ground (G303) on the passenger side back wall.

Data:

The wiring for the HS3 CAN-BUS continues along the dash back behind the ACM/APIM to the test port C2122 behind the Gateway Module where it simply plugs in. HS3 CAN-BUS wires need to be properly braided (20ga). (Ethernet pair twisted wire can be used for the HS3-CAN connection.)
Optional: If so equipped, splice into the Sony DSP HS3-CAN wiring on the driver's side back wall.

C3154A (DSP) MODULE:

Pin 1 = HS3 CAN +
Pin 11 = HS3 CAN –

Parts:

WPT-242 Power/Data Connector/Pigtail C4803A for TCU.
WPT-977 Data Connector C2122 for HS3 CAN-BUS. (For pre-2018 vehicles.)
20-gauge wire.
Wire loom or wrap.

WPT-242 Power/Data Connector/Pigtail C4803A

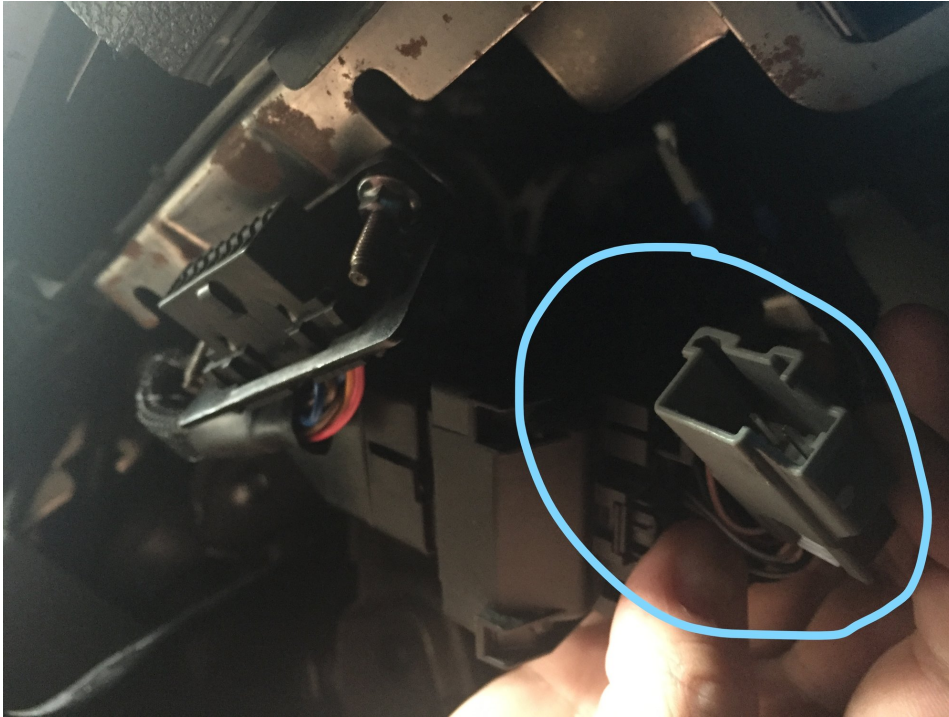


WPT-977 Data Connector C2122

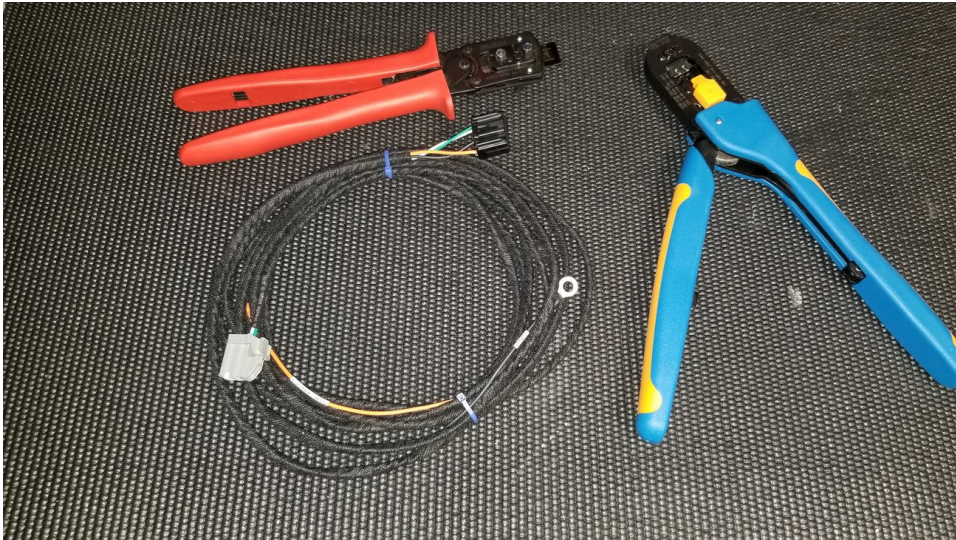


WPT-977 (Silver)
3U2Z-14S411-LUB

Test Port C2122 behind the Gateway Module



TCU Power/Data Cable



TCU, PIFA Antenna, GSM Antenna Cable Assembly JL3Z-18812-E



TCU Location



PIFA Antenna Location and GSM Antenna Cable



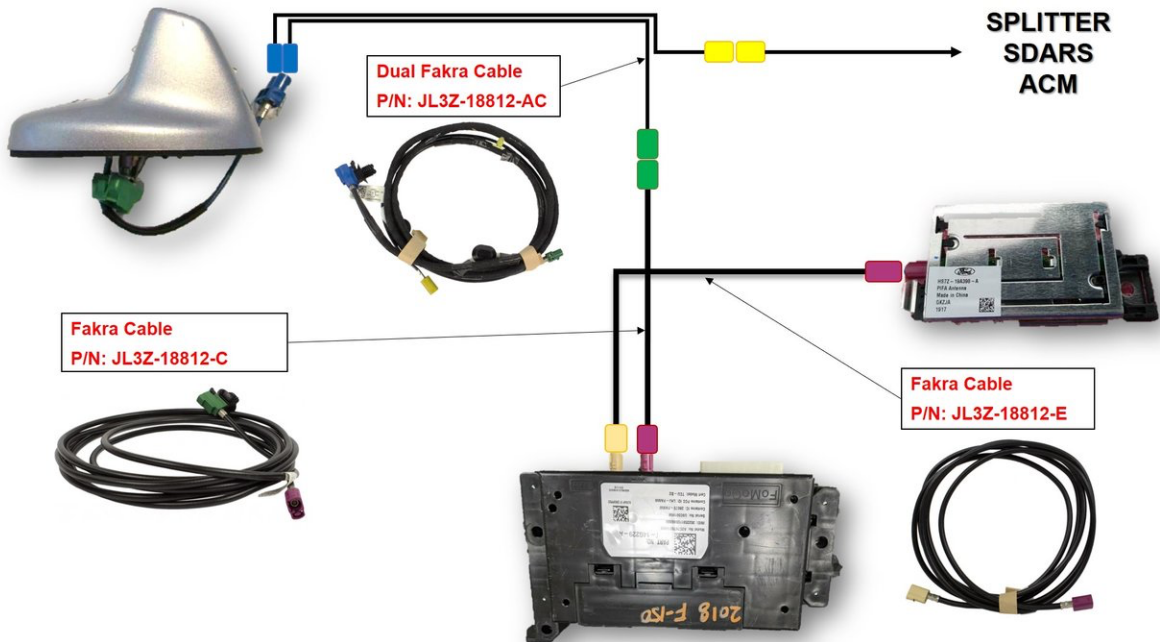
2018 Telematics Communication Unit JL3T-14G087-CF



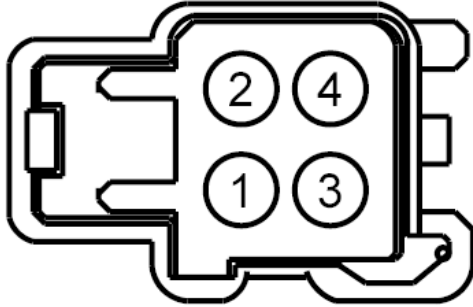
2017 PIFA Antenna HL3T-19K351-AA



Optional Shark Fin Antenna Configuration



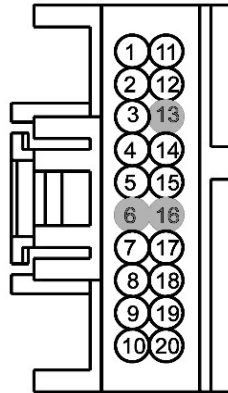
← Back Forward → ↩ C2122 ↲ →					
Connector: C2122	Description	Color	Harness	Base Part #	Service Pigtail
	TEST CONNECTOR	LT GY	14401	part# N/A	See Below



[Check for Terminal Part Numbers](#)

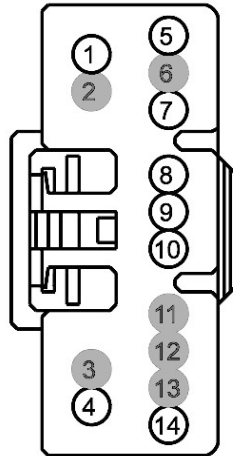
Pin	Circuit	Gauge	Circuit Function	Qualifier
1	VDB29 (GN-BU)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 3 (LOWER) HIGH	
2	VDB30 (WH-GN)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 3 (LOWER) LOW	
3	VDB08 (GY-OG)	22	CONNECTOR - DIAGNOSTIC # CAN BUS MEDIUM SPEED HIGH	
4	VDB07 (VT-OG)	22	CONNECTOR - DIAGNOSTIC # CAN BUS MEDIUM SPEED LOW	

C3154A AUDIO DIGITAL SIGNAL PROCESSING (DSP) MODULE

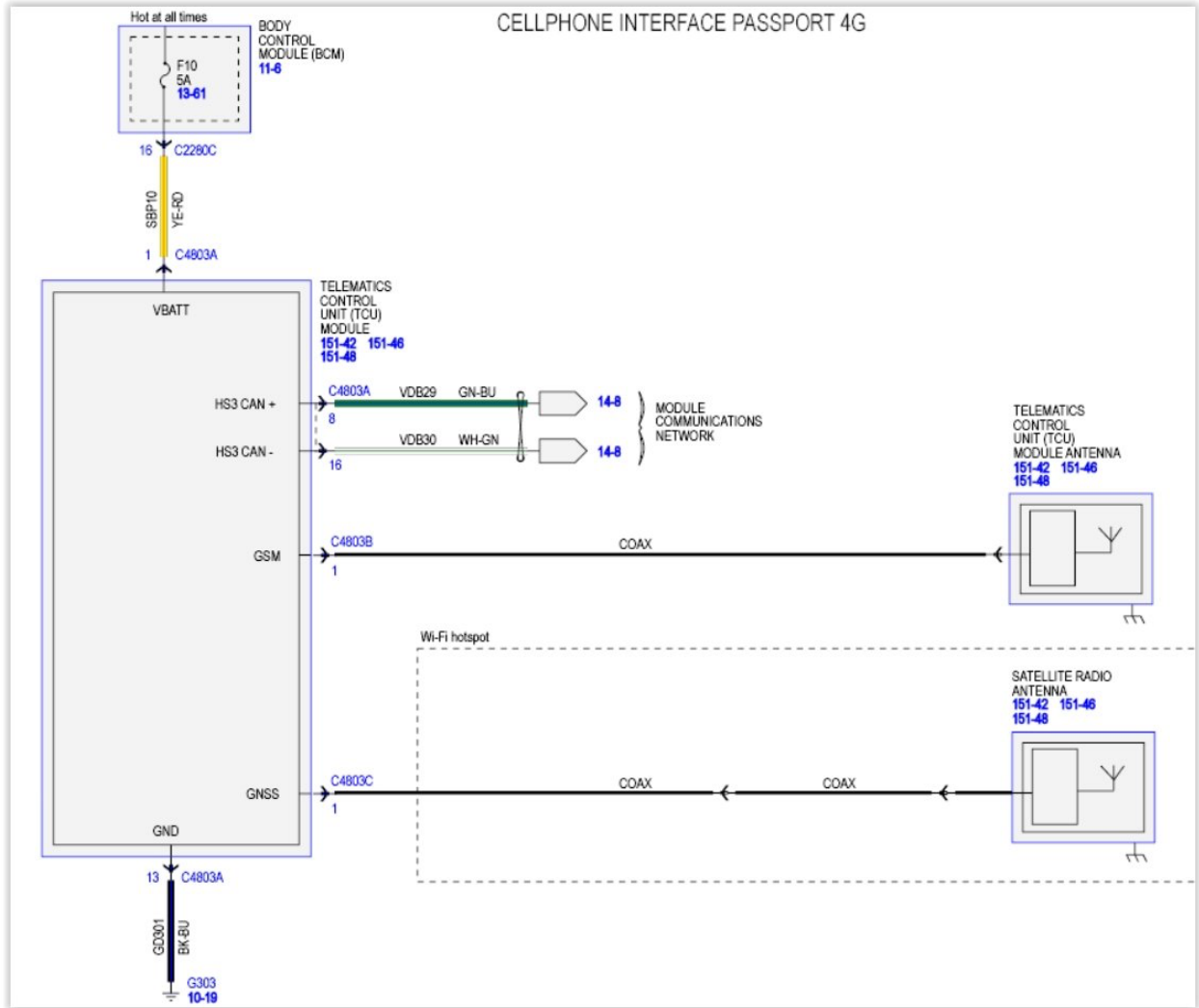


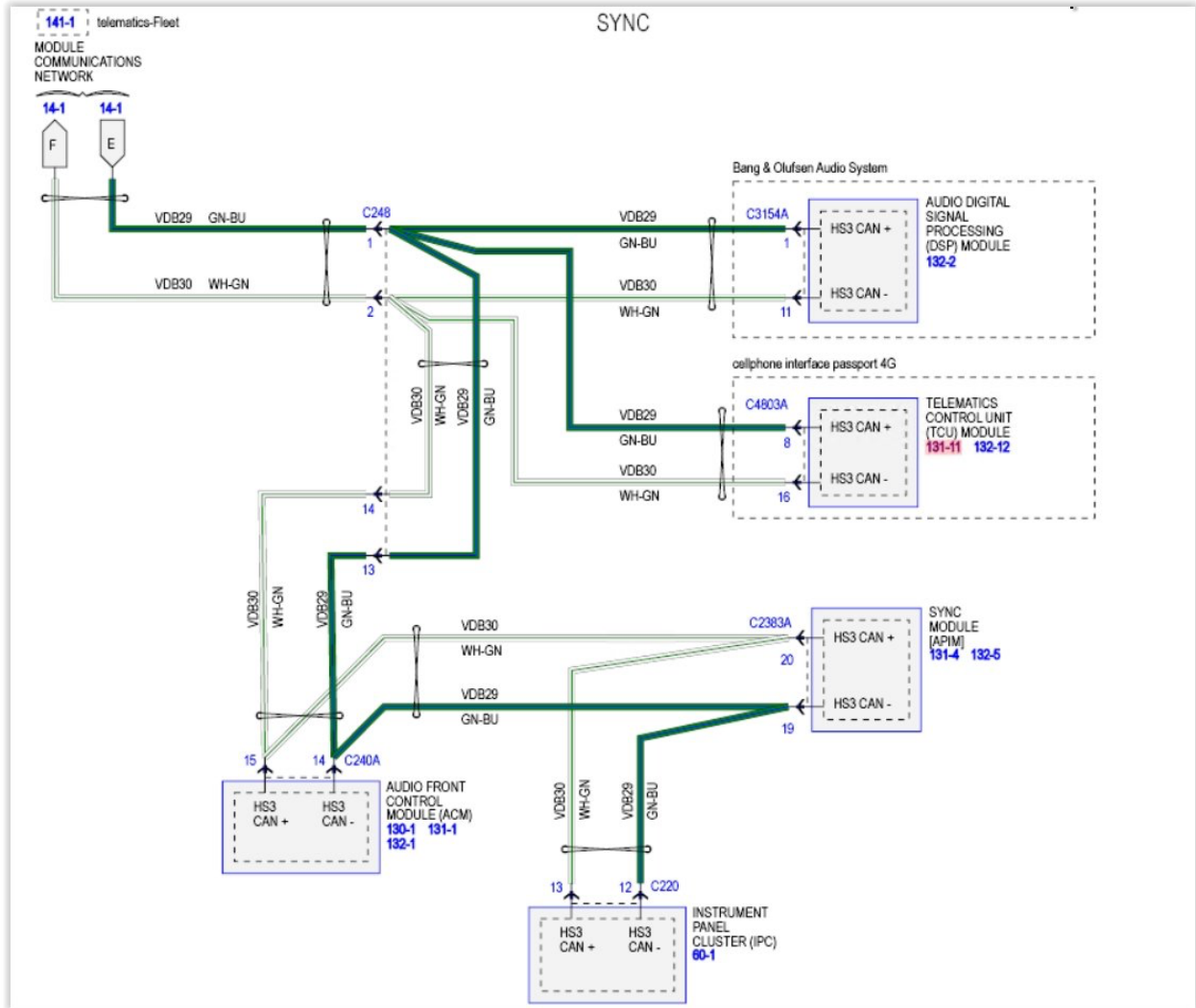
Pin	Circuit	Gauge	Circuit Function	Qualifier
1	VDB29 (GN-BU)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 3 (LOWER) HIGH	
2	VME09 (GN)	26	CTRL MOD. - AUDIO # SPEAKER LEFT REAR (WOOFER) +	
3	SME56 (BN)	26	CTRL MOD. - AUDIO # SUBWOOFER 2ND ENABLE	
4	VME12 (WH)	26	CTRL MOD. - AUDIO # SPEAKER RIGHT REAR (WOOFER) +	
5	VME80 (VT)	26	CTRL MOD. - MULTIMEDIA GATEWAY MODULE # ALERT 1 (+)	
6	*	*	Not Used	
7	VME07 (WH)	26	CTRL MOD. - AUDIO # SPEAKER LEFT FRONT DOOR (WOOFER) +	
8	VME22 (VT)	26	CTRL MOD. - AUDIO # SUBWOOFER/AMPLIFIER AUDIO +	
9	VME10 (VT)	26	CTRL MOD. - AUDIO # SPEAKER RIGHT FRONT DOOR (WOOFER) +	
10	VME06 (GN)	26	CTRL MOD. - AUDIO # SPEAKER CENTER FRONT IP +	
11	VDB30 (WH-GN)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 3 (LOWER) LOW	
11	VDB30 (WH-GN)	22	CONNECTOR - DIAGNOSTIC # CAN BUS HIGH SPEED 3 (LOWER) LOW	
12	RME09 (BN)	26	CTRL MOD. - AUDIO # SPEAKER LEFT REAR (WOOFER) -	
13	*	*	Not Used	
14	RME12 (BU)	26	CTRL MOD. - AUDIO # SPEAKER RIGHT REAR (WOOFER) -	
15	RME80 (BU)	26	CTRL MOD. - MULTIMEDIA GATEWAY MODULE # ALERT 1 (-)	
16	*	*	Not Used	
17	RME07 (BN)	26	CTRL MOD. - AUDIO # SPEAKER LEFT FRONT DOOR (WOOFER) -	
18	RME22 (GN)	26	CTRL MOD. - AUDIO # SUBWOOFER/AMPLIFIER AUDIO -	
19	RME10 (OG)	26	CTRL MOD. - AUDIO # SPEAKER RIGHT FRONT DOOR (WOOFER) -	
20	RME06	26	CTRL MOD. - AUDIO #	

C3313B Power Running Board Module



Pin	Circuit	Gauge	Circuit Function	Qualifier	Terminal Part Number
1	SBB50 (YE-RD)	16	FUSE - 50 OR CIRCUIT BREAKER		3M5T-14474-HBA
2	*	*	Not Used		N/A
3	*	*	Not Used		N/A
4	GD348 (BK-YE)	16	GROUND - PILLAR C OR QUARTER PANEL RIGHT		3M5T-14474-HBA
5	CPR47 (GY-BN)	22	CTRL MOD. - POWER RUNNING BOARDS # SENSOR +		5F9T-14474-BA
6	*	*	Not Used		N/A
7	VDB07 (VT-OG)	22	CONNECTOR - DIAGNOSTIC # CAN BUS MEDIUM SPEED LOW		5F9T-14474-CA
8	VDB06 (GY-OG)	22	CONNECTOR - DIAGNOSTIC # CAN BUS MEDIUM SPEED HIGH		5F9T-14474-CA
9	VPR43 (GY-BU)	22	SENSOR. - POWER RUNNING BOARDS # DRIVER POSITION		5F9T-14474-BA
10	VPR46 (GY-OG)	22	SENSOR. - POWER RUNNING BOARDS # PASSENGER POSITION		5F9T-14474-BA
11	*	*	Not Used		N/A
12	*	*	Not Used		N/A
13	*	*	Not Used		N/A
14	RPR47 (BU-GN)	22	CTRL MOD. - POWER RUNNING BOARDS # SENSOR -		5F9T-14474-BA





Female	Male	Keying Code	Color	RAL	Single way application in		Multi way application in USCAR
					Europe	USCAR	
		A	Jet Black	9005	Radio with phantom supply	Radio with phantom supply	Not defined
		B	Cream	9001	Radio without phantom supply	Radio without phantom supply	Not defined
		C	Signal Blue	5005	GPS telematics or navigation	GPS	GPS / GSM
		D	Claret Violet	4004	GSM	GSM	Not defined
		E	Leaf Green	6002	TV1	TV (UHF / SDARS terrestrial (XM))	TV1 (UHF) / TV2
		F	Nut Brown	8011	TV2	TV (VHF) / SDARS terrestrial (Sirius)	TV1 (VHF) / TV2
		G	Blue Gray	7031	Remote Keyless Entry	SDARS terrestrial (interoperable)	SDARS satellite / terrestrial
		H	Heather Violet	4003	GPS telematics and navigation	GPS telematics and navigation	Not defined
		I	Beige	1001	Remote	Bluetooth Controlled Parking Heating	Not defined
		K	Curry	1027	Diversity radio	SDARS satellite	Not defined
		L	Carmine Red	3002	Not defined	Not defined	Not defined
		M	Pastel Orange	2003	Not defined	Keyless entry / Tire pressure monitoring	Not defined
		N	Pastel Green	6019	Not defined	Not defined	Not defined
		Z	Water Blue	5021	Neutral (fits all)	Neutral (fits all)	Neutral (fits all)