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ELECTRICAL SYSTEM

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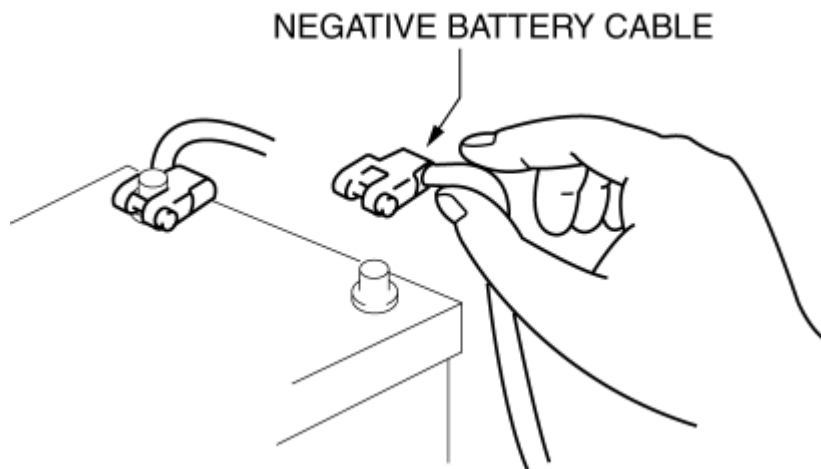
2016 – MX-5 – General Information

ELECTRICAL SYSTEM

Electrical Parts

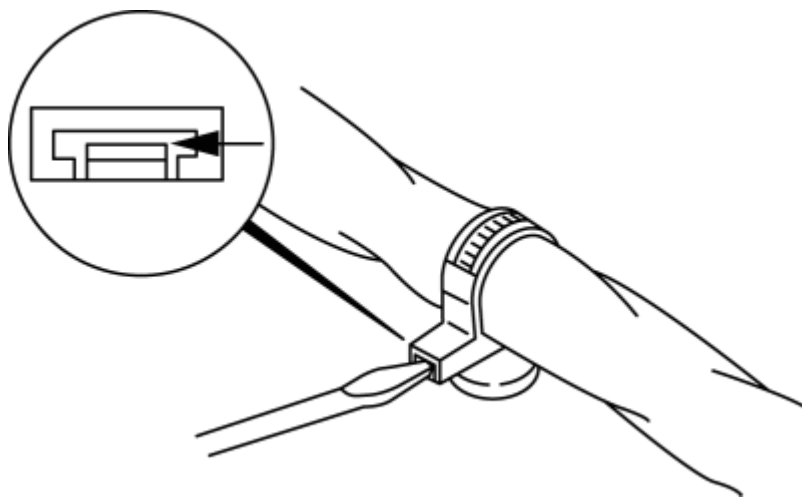
Battery cable

- Before disconnecting connectors or removing electrical parts, disconnect the negative battery cable.



Wiring Harness

- To remove the wiring harness from the clip in the engine room, pry up the hook of the clip using a flathead screwdriver.

**CAUTION:**

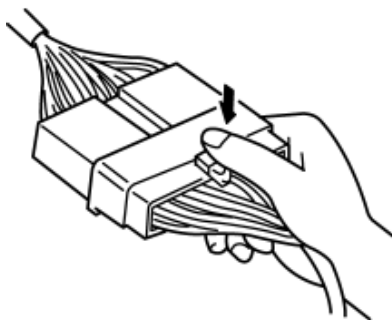
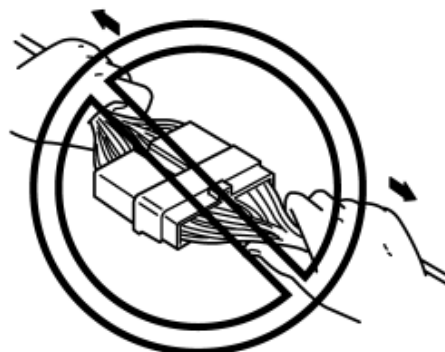
- Do not remove the wiring harness protective tape. Otherwise, the wires could rub against the body, which could result in water penetration and electrical shorting.

NO GOOD

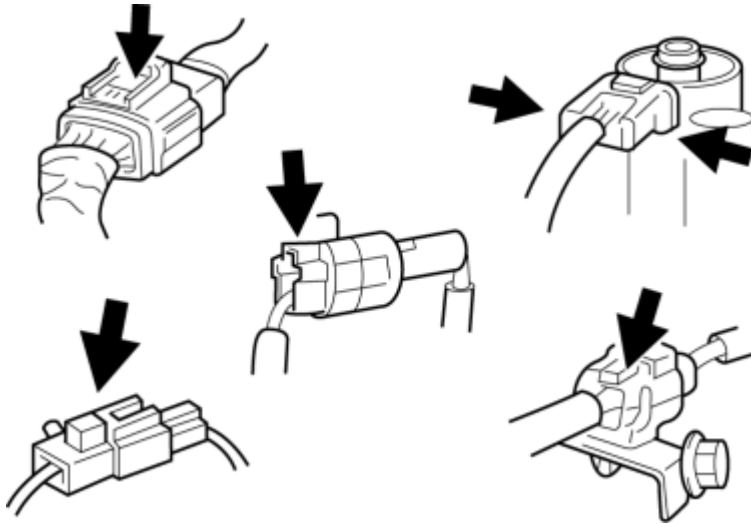
Connectors

Disconnecting connectors

- When disconnecting a connector, grasp the connectors, not the wires.

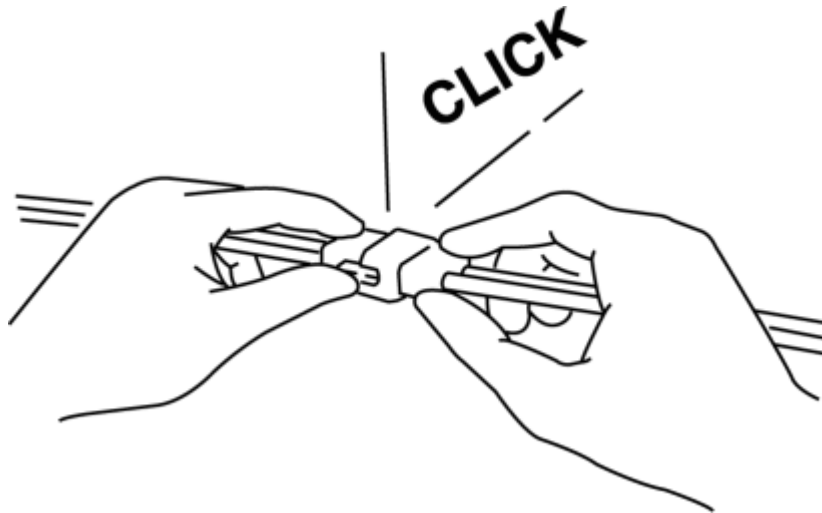
GOOD**NO GOOD**

- Connectors can be disconnected by pressing or pulling the lock lever as shown.



Locking connector

- When locking connectors, listen for a click indicating they are securely locked.

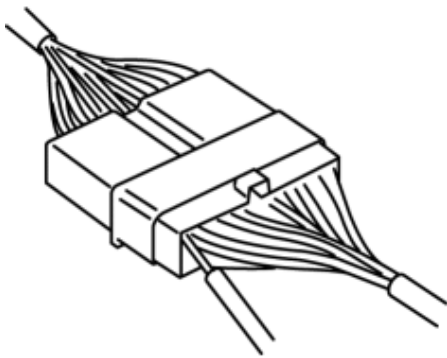


Inspection

CAUTION:

- To prevent damage to the terminal, wrap a thin wire around the tester probe before inserting into terminal.
- When a tester is used to inspect for continuity or measuring voltage, insert the tester probe from the wiring harness side.

GOOD

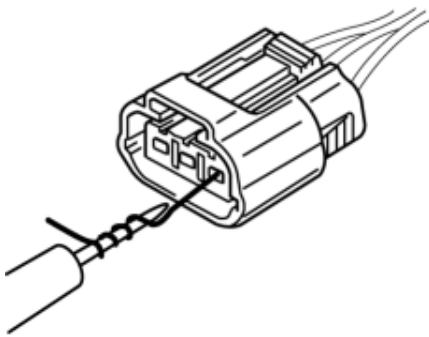


NO GOOD



- Inspect the terminals of waterproof connectors from the connector side since they cannot be accessed from the wiring harness side.

GOOD



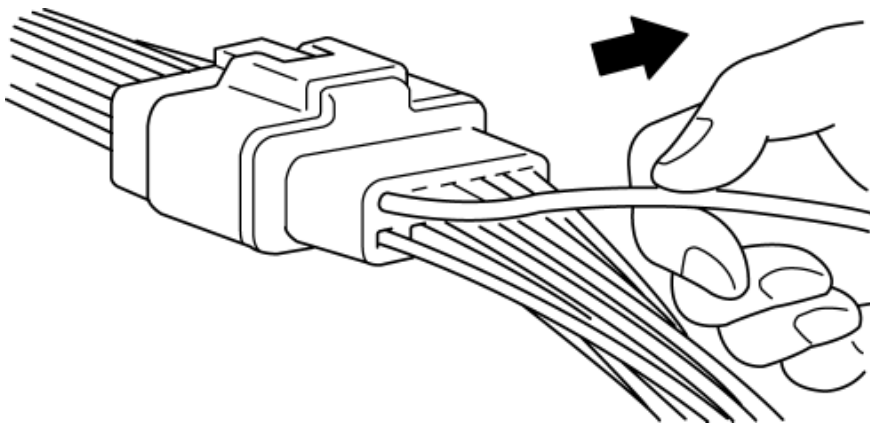
NO GOOD



Terminals

Inspection

- Pull lightly on individual wires to verify that they are secured in the terminal.

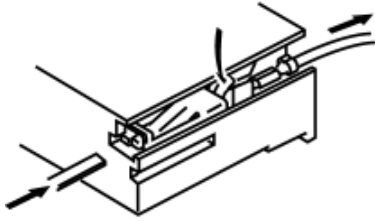


Replacement

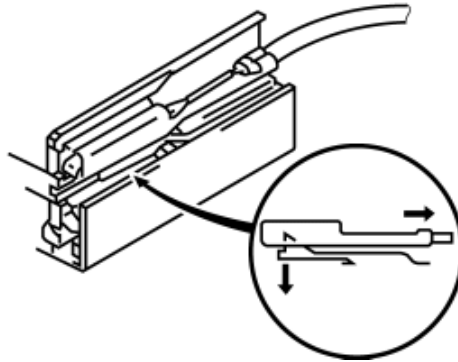
- Use the appropriate tools to remove a terminal as shown. When installing a terminal, be sure to insert it until it locks securely.

- Insert a thin piece of metal from the terminal side of the connector and with the terminal locking tab pressed down, pull the terminal out from the connector.

TYPE A



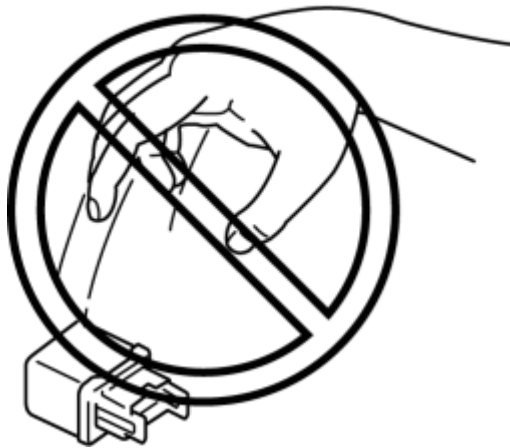
TYPE B



Sensors, Switches, and Relays

- Handle sensors, switches, and relays carefully. Do not drop them or strike them against other objects.

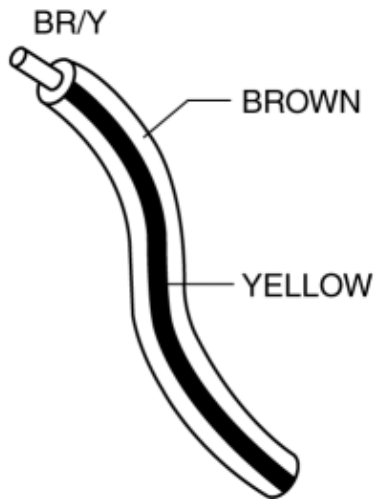
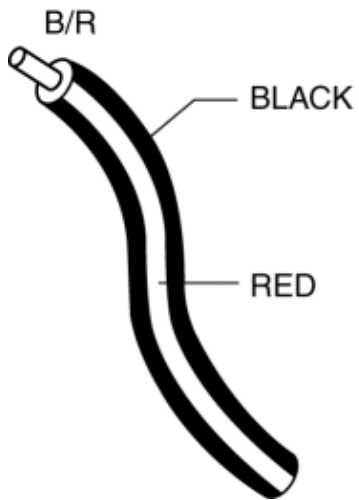
NO GOOD



Wiring Harness

Wiring color codes

- Two-color wires are indicated by a two-color code symbol.
- The first letter indicates the base color of the wire and the second is the color of the stripe.

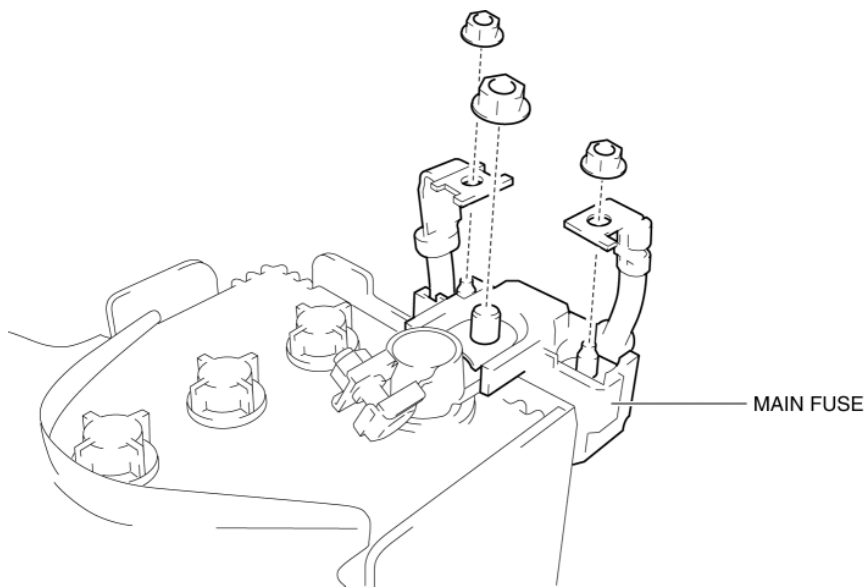


CODE	COLOR	CODE	COLOR
B	Black	O	Orange
L	Blue	P	Pink
BR	Brown	R	Red
DL	Dark Blue	SB	Sky Blue
DG	Dark Green	T	Tan
GY	Gray	V	Violet
G	Green	W	White
LB	Light Blue	Y	Yellow
LG	Light Green	-	-

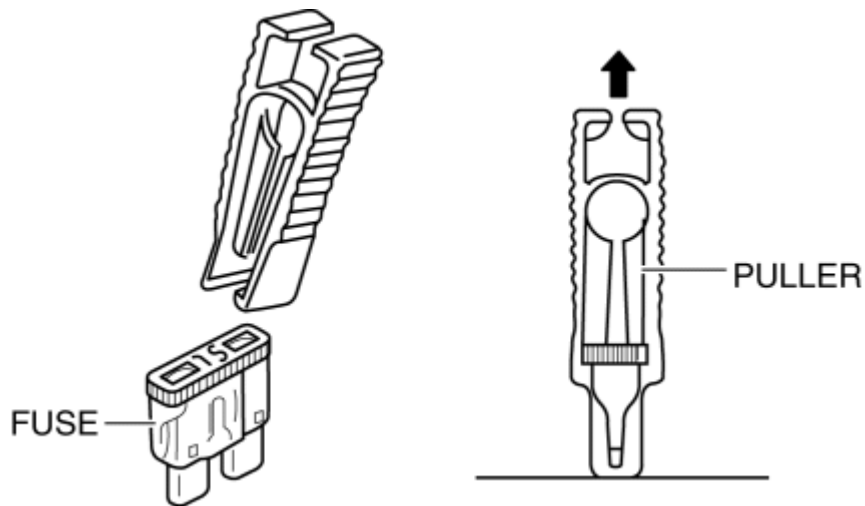
Fuse

Replacement

- When replacing a fuse, be sure to replace it with one of the same capacity. If a fuse malfunctions again, the circuit probably has a short and the wiring should be inspected.
- Be sure the negative battery terminal is disconnected before replacing a main fuse.



- When replacing a pullout fuse, use the fuse puller.

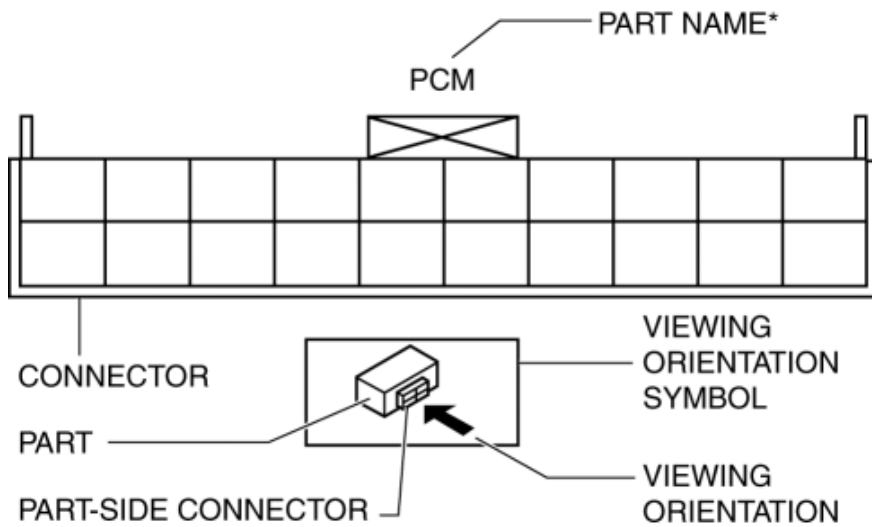


Viewing orientation for Connectors

- The viewing orientation for connectors is indicated with a symbol.
- The figures showing the viewing orientation are the same as those used in Wiring Diagrams.
- The viewing orientations are shown in the following three ways.

Part-side connector

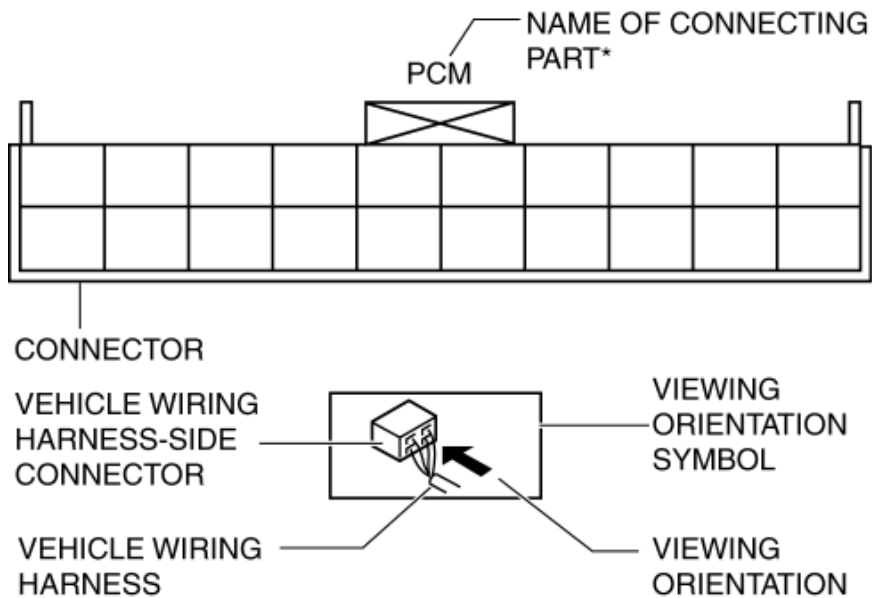
- The viewing orientation for part-side connectors is from the terminal side.



*: Part names are shown only when there are multiple connector drawings.

Vehicle harness-side connector

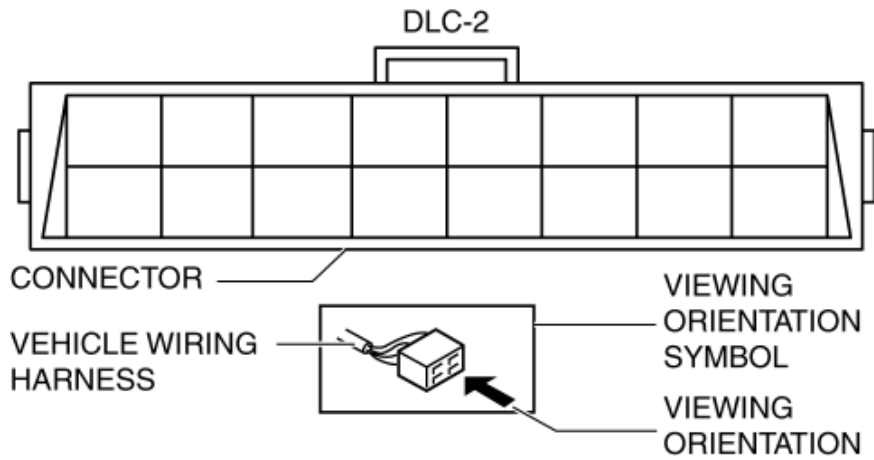
- The viewing orientation for vehicle wiring harness-side connectors is from the wiring harness side.



*: With the wiring harness-side connector, connecting part names of all connectors are displayed in the figure.

Other

- When it is necessary to show the terminal side of the vehicle wiring harness-side connectors, such as the following connectors, the viewing orientation is from the terminal side.



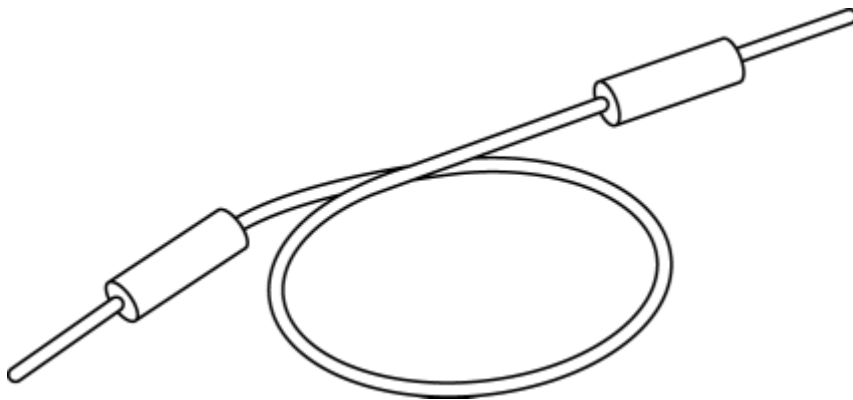
- Main fuse block and the main fuse block relays
- Data link connector
- Check connector
- Relay box

Electrical Troubleshooting Tools

Jumper wire

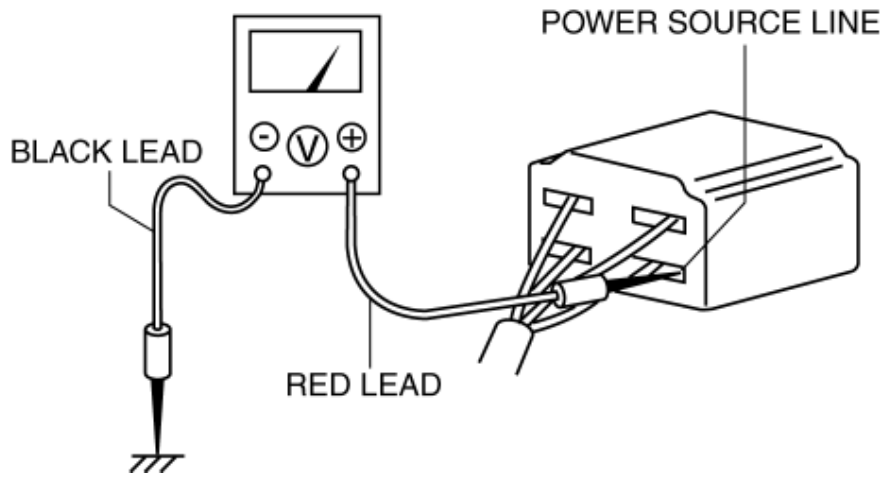
CAUTION:

- Do not connect a jumper wire from the power source line to a body ground. This may cause burning or other damage to wiring harnesses or electronic components.
- A jumper wire is used to create a temporary circuit. Connect the jumper wire between the terminals of a circuit to bypass a switch.



Voltmeter

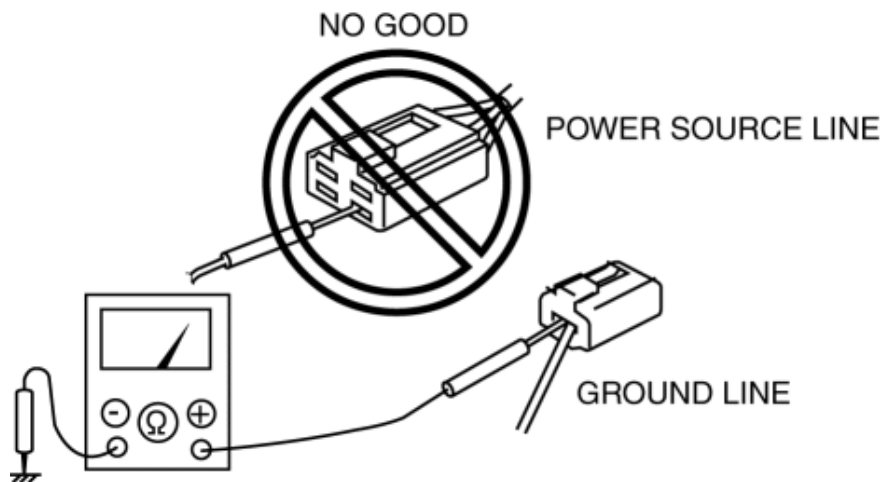
- The direct current voltmeter is used to measure circuit voltage. A voltmeter with a range of **15 V or more** is used by connecting the positive (+) probe (red lead wire) to the point where voltage will be measured and the negative (-) probe (black lead wire) to a body ground.



Ohmmeter

CAUTION:

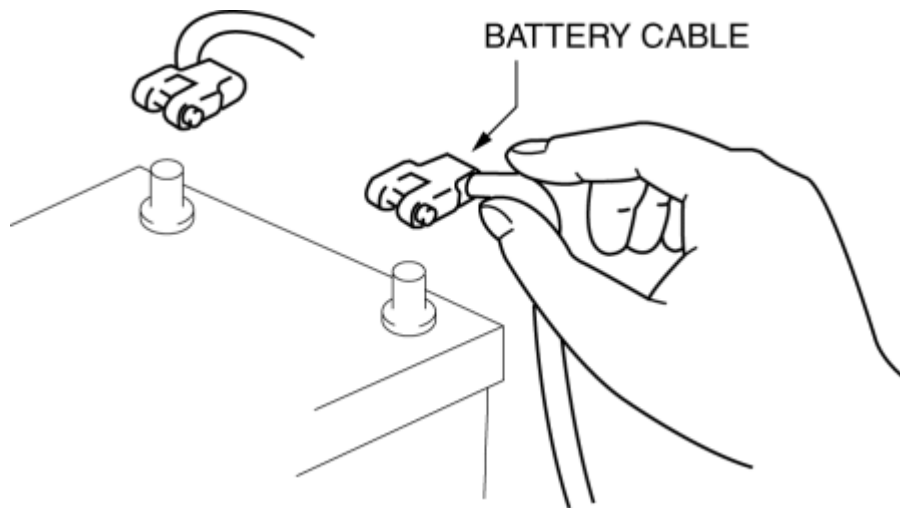
- Do not connect the ohmmeter to any circuit where voltage is applied. This will damage the ohmmeter.
- The ohmmeter is used to measure the resistance between two points in a circuit and to inspect for continuity and short circuits.



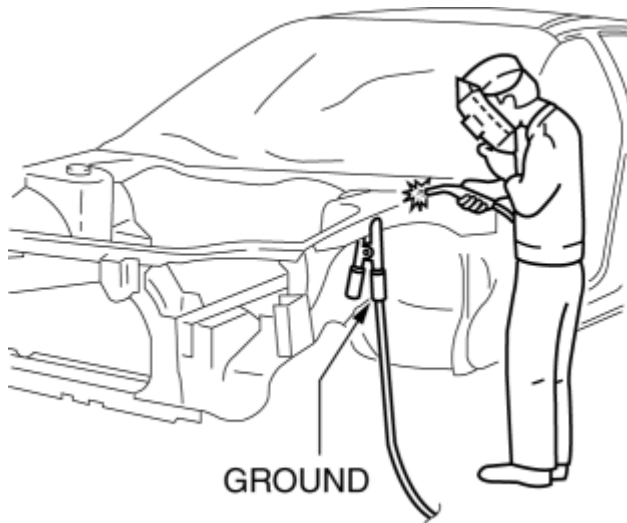
Precautions Before Welding

A vehicle has various electrical parts. To protect the parts from excessive current generated when welding, be sure to perform the following procedure.

1. Switch the ignition off (LOCK).
2. Disconnect the battery cables.



3. Securely connect the welding machine ground near the welding area.



4. Cover the peripheral parts of the welding area to protect them from weld spatter.

Ground Inspection And Disconnection/reconnection

- The ground connection is extremely important for normal electrical circuit operation, therefore, inspect and disconnect/reconnect the ground connection according to the following guidelines.
- Remove the bolt or screw of the ground to inspect for dirt or rust.
- If there is any dirt or rust, clean it.
- Securely tighten the bolt or screw to the specified tightening torque.
- Verify that parts do not interfere with the ground circuit.

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REPAIR-USE CONNECTOR REPLACEMENT PROCEDURE

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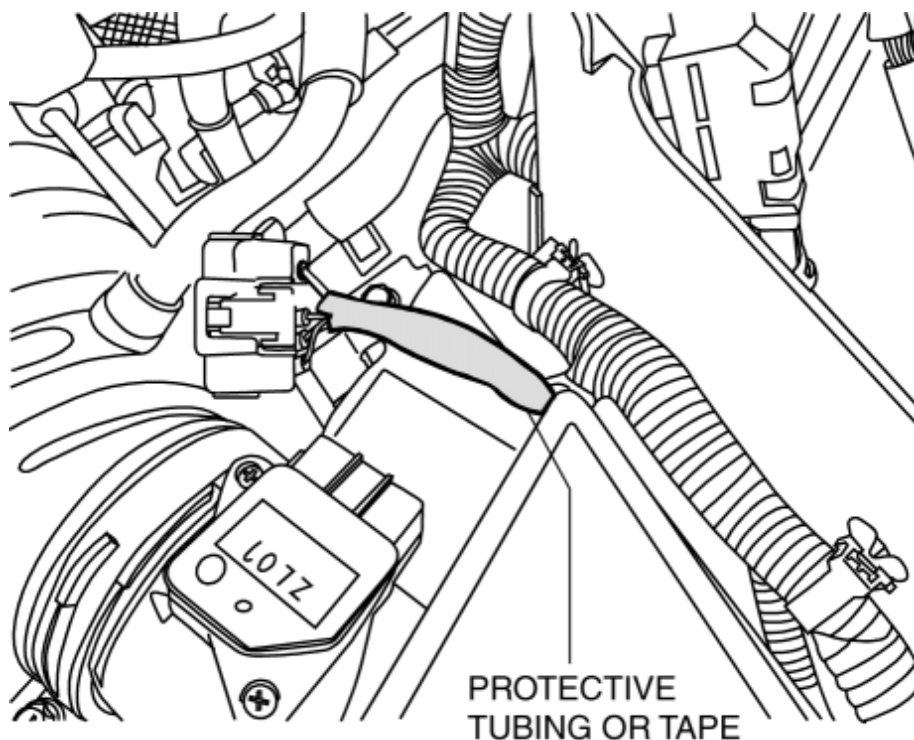
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2016 – MX-5 – General Information

REPAIR-USE CONNECTOR REPLACEMENT PROCEDURE

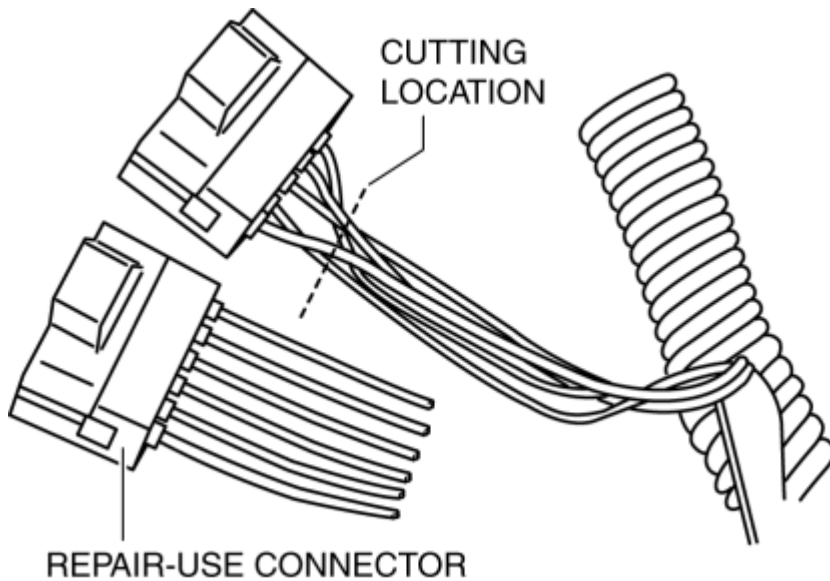
Wire Harness Cutting On Vehicle Side

1. If tubing or tape is used to protect the connector wiring harness, cut into it being careful not to cut or damage the wiring, and expose **approx. 200 mm {7.84 in}** of the wiring from the connector.



2. Cut the wiring harness once at the position near the connector so as to leave a long length of wiring harness on the vehicle side, align

the length with the repair-use connector wiring harness, and then re-cut at the wiring harness on the vehicle side or the repair-use connector wiring harness at the appropriate position.

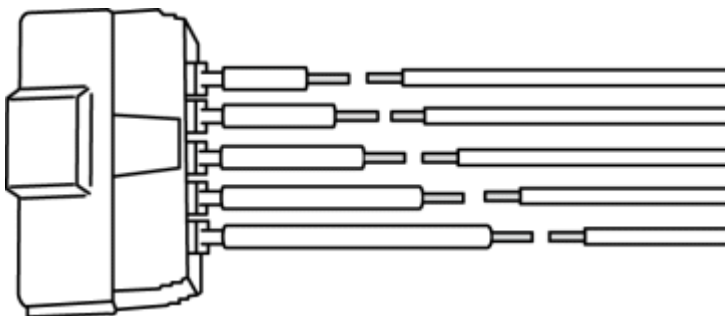


CAUTION:

- Cut longer in consideration of the amount of wiring harness length which will be soldered.
- If the cut wiring harness length is different than the repair-use wiring harness length, the following problems may occur.
- If too short: Tension will be applied to the terminal, splice or connector resulting in an open circuit.
- If too long: A short may occur due to pinching and wear of the extra length of wiring harness near the connector.

NOTE:

- If several wiring harnesses are connected to the same connector, stagger the cut positions so that the repair positions do not overlap as shown in the figure to prevent thickening of the wiring harness after repair.

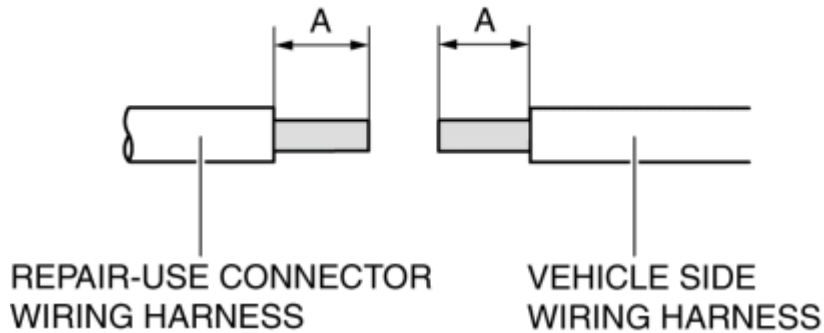


Cut Off The Insulation From The Wiring Harness On The Vehicle Side And The Repair-use Connector Wiring

Harness.

1. Cut off **approx. 10–20 mm {0.39–0.79 in}** from the ends of the wiring harness on the vehicle side and the wiring harness of the repair-use connector. (If the repair-use wiring harness is thick, core twisting can be facilitated by lengthening the amount of insulation cut)

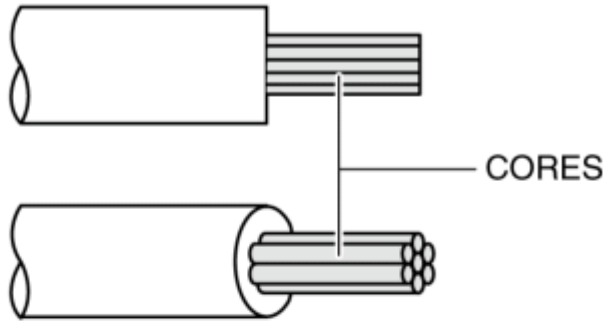
**LENGTH OF INSULATION CUT A IS
APPROX. 10–20 mm {0.39–0.79 in}**



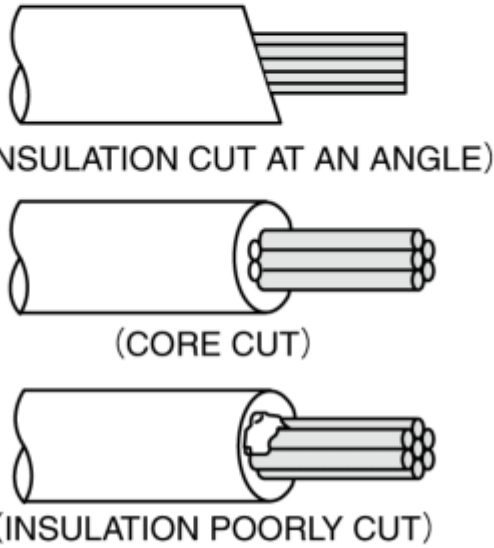
CAUTION:

- Do not damage or cut the cores of the wiring harnesses. After finishing the work, inspect the wiring harnesses for damage or cutting of the cores, and re-do the work if necessary.

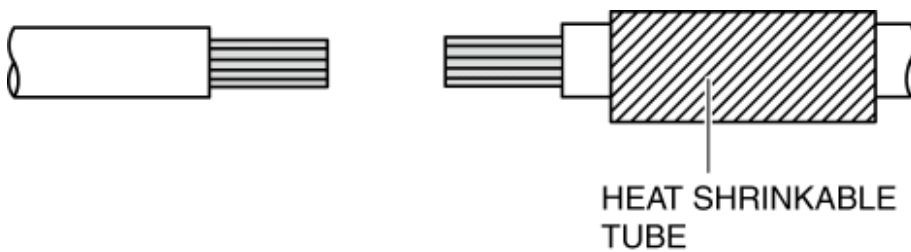
GOOD EXAMPLE



BAD EXAMPLE



2. Depending on the thickness of the wiring harness which is being repaired, select an appropriate heat shrinkable tube, and before twisting the cores together, pass them through the heat shrinkable tube.

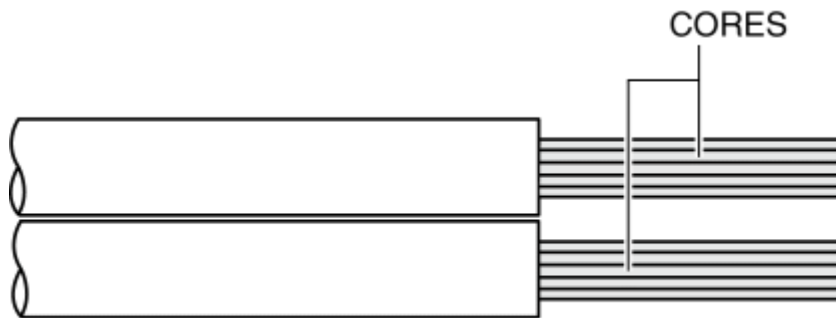


	Heat shrinkable tube		Wiring size (exterior diameter)
	Before shrinking	After shrinking	
Small	4 mm {0.2 in}	1 mm {0.04 in}	φ2 mm {0.08 in} or less
Large	8 mm {0.3 in}	2 mm {0.08 in}	φ2 mm {0.08 in} or more

NOTE:

- If the exposed area of the core in which the solder is applied is **10 mm {0.39 in}**, half the **length (25 mm {0.98 in})** of the heat shrinkable tubing can be cut and used because the total length of the heat shrinkable tubing is **50 mm {2.0 in}**.

3. Line up the cores of the wiring harnesses to be connected as shown in the figure.

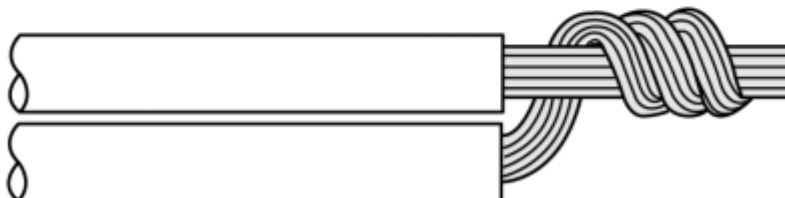


ALIGN IN THE SAME DIRECTION

4. Twist together both of the cores.

GOOD EXAMPLE

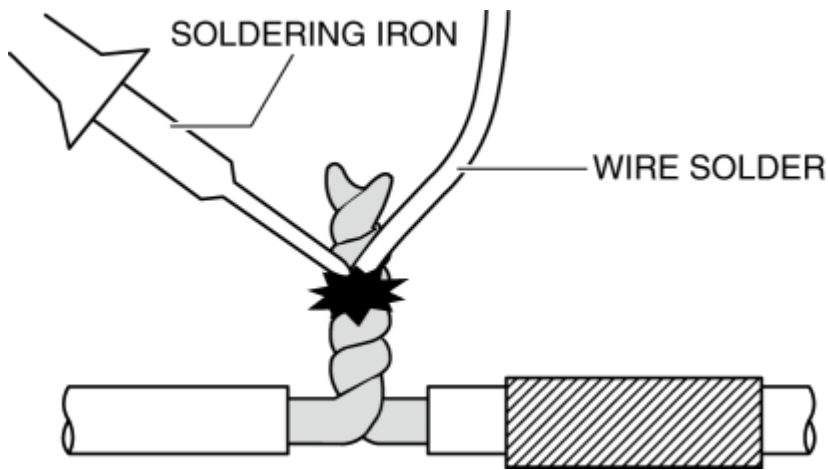
TWIST TOGETHER CORES

BAD EXAMPLE

CORE ON ONE SIDE WRAPPED AROUND OTHER CORE

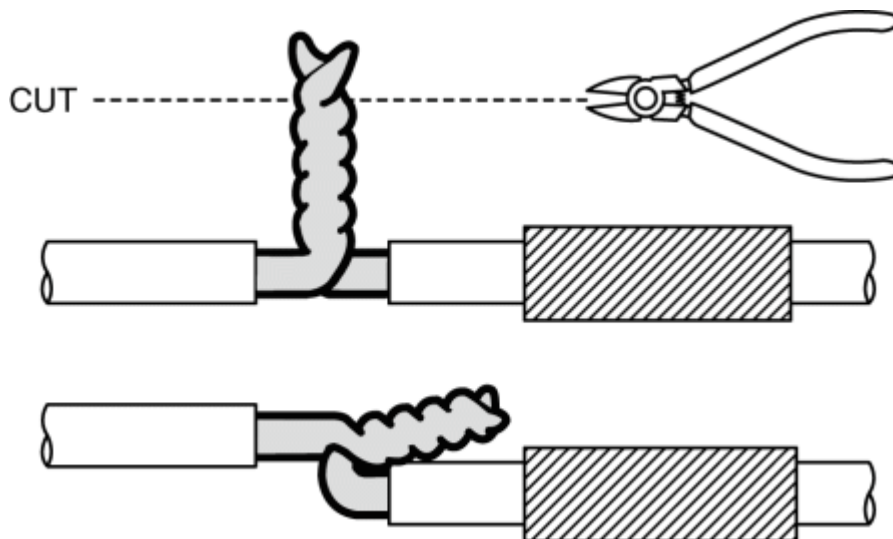
Soldering

1. Twist together firmly the cores of the wiring harnesses being connected and apply soldering in that area.

**CAUTION:**

- Soldering for a long period of time could affect the surrounding electrical circuit. Apply soldering for an extremely short period of time.

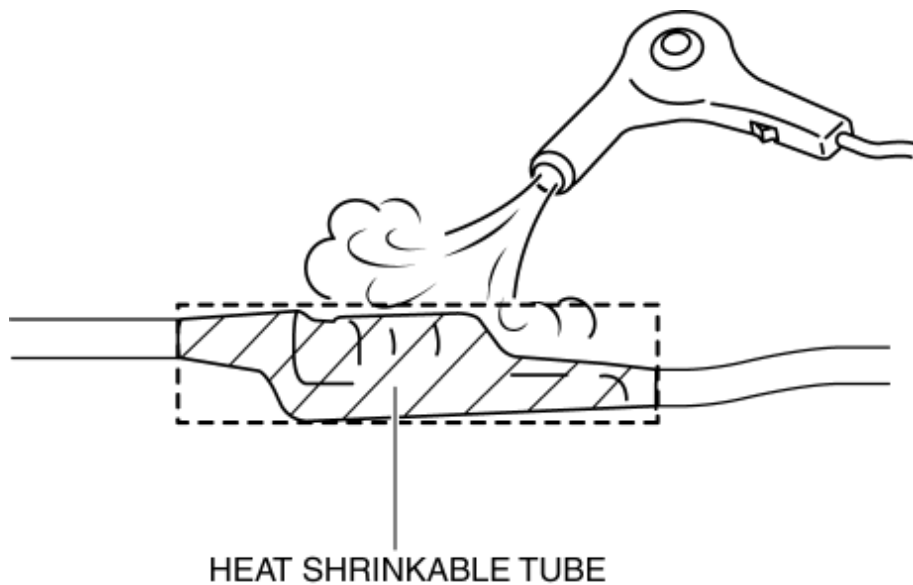
2. Cut the ends off the connected area, and apply the soldering iron tip to the wiring harness after removing any fraying.



3. Set the heat shrinkable tubing to the soldered area and shrink the heat shrinkable tubing at a temperature of **approx. 100 °C {212 °F}** using a drier.

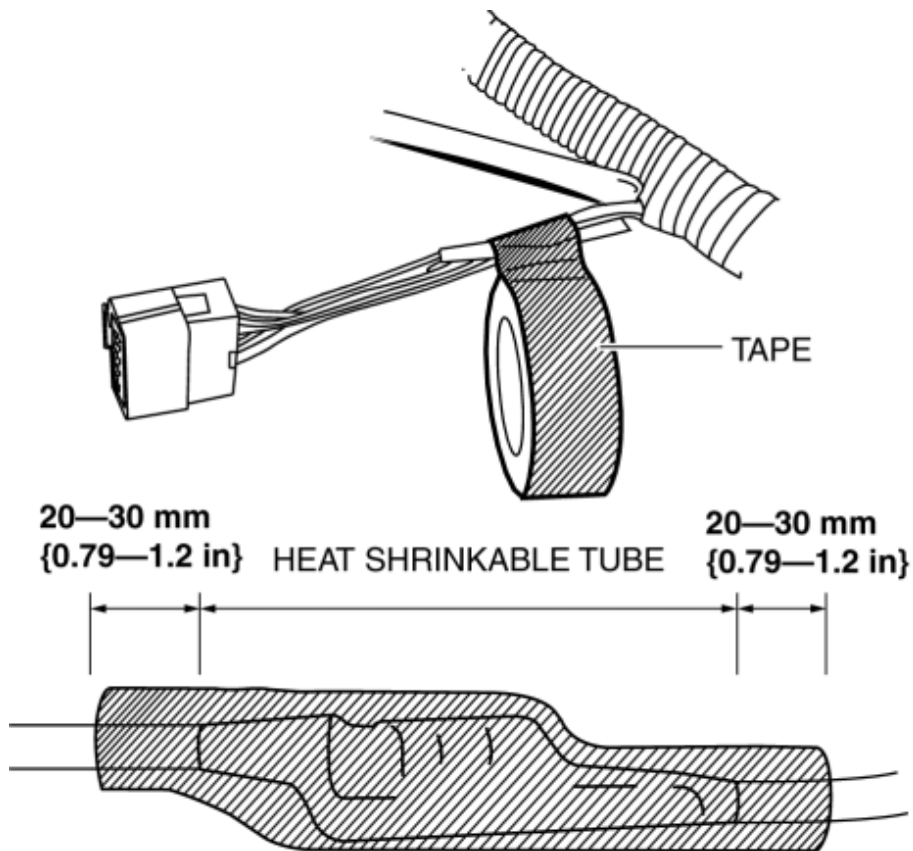
CAUTION:

- Completely shrink the heat shrinkable tubing to the wiring harness leaving no gaps.
- Perform the work being careful not to melt the insulation of the wiring harness by excessive heat.



Taping Work

1. Tape the surface of the heat shrinkable tubing.



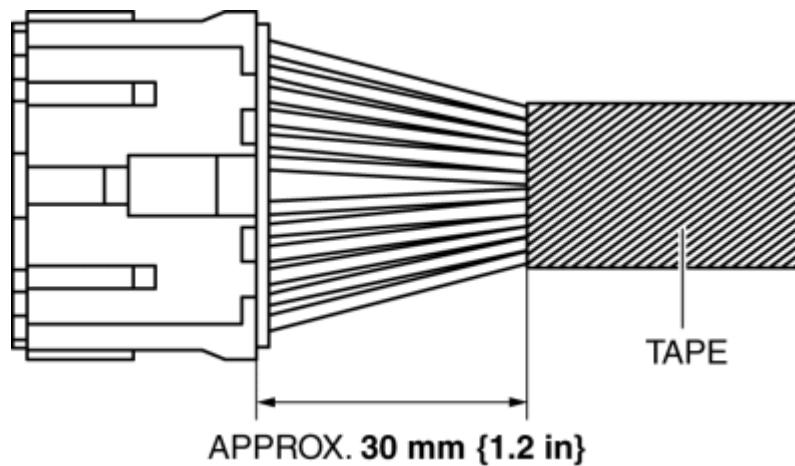
CAUTION:

- Remove moisture, oil, and dust from the area to be taped before doing the taping.
- Firmly tape the ends so that they do not peel off.
- Always superimpose the tape while wrapping.

- Wrap the tape approx. 20—30 mm {0.79—1.2 in} beyond both ends of the heat shrinkable tubing.

NOTE:

- If the wiring harness is bundled and taped, bind it **approx. 30 mm {1.2 in}** away from the connector.

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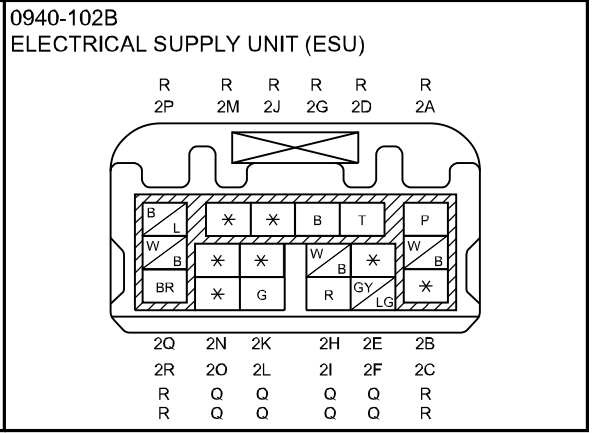
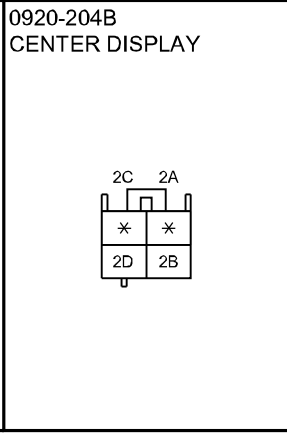
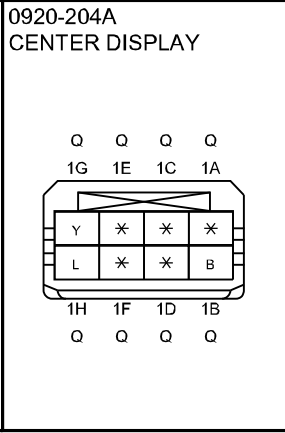
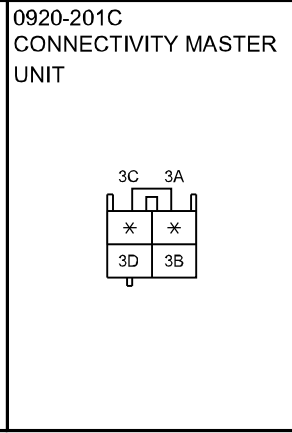
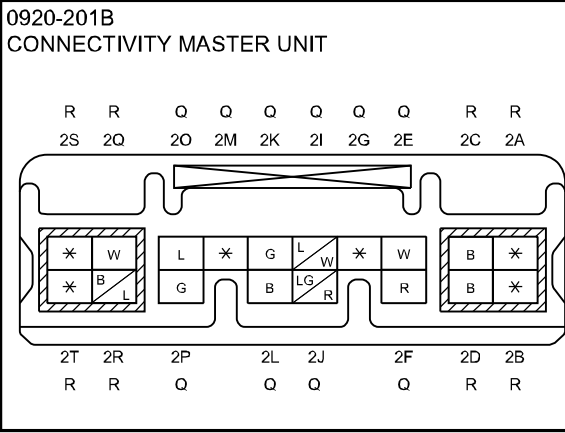
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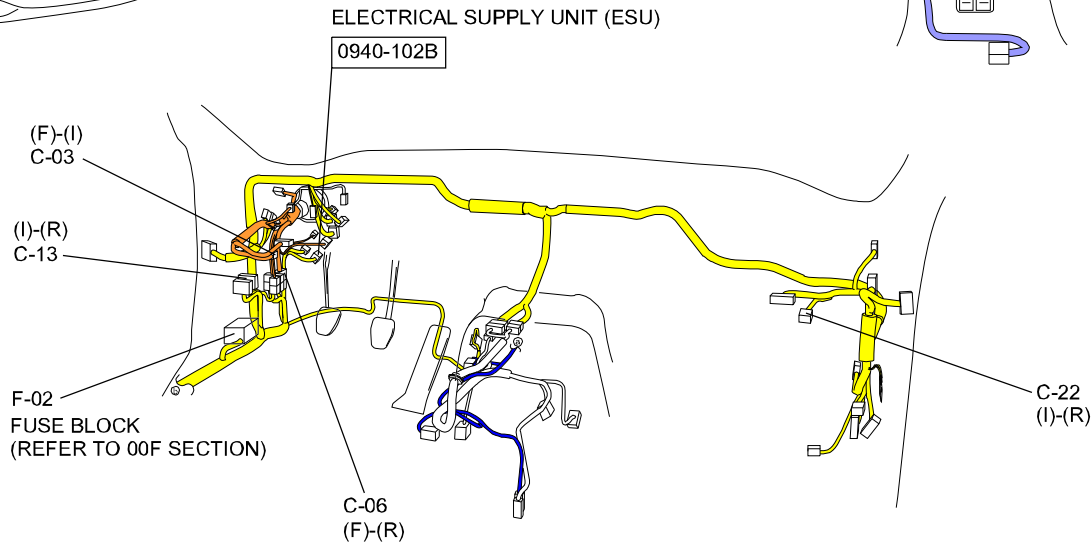
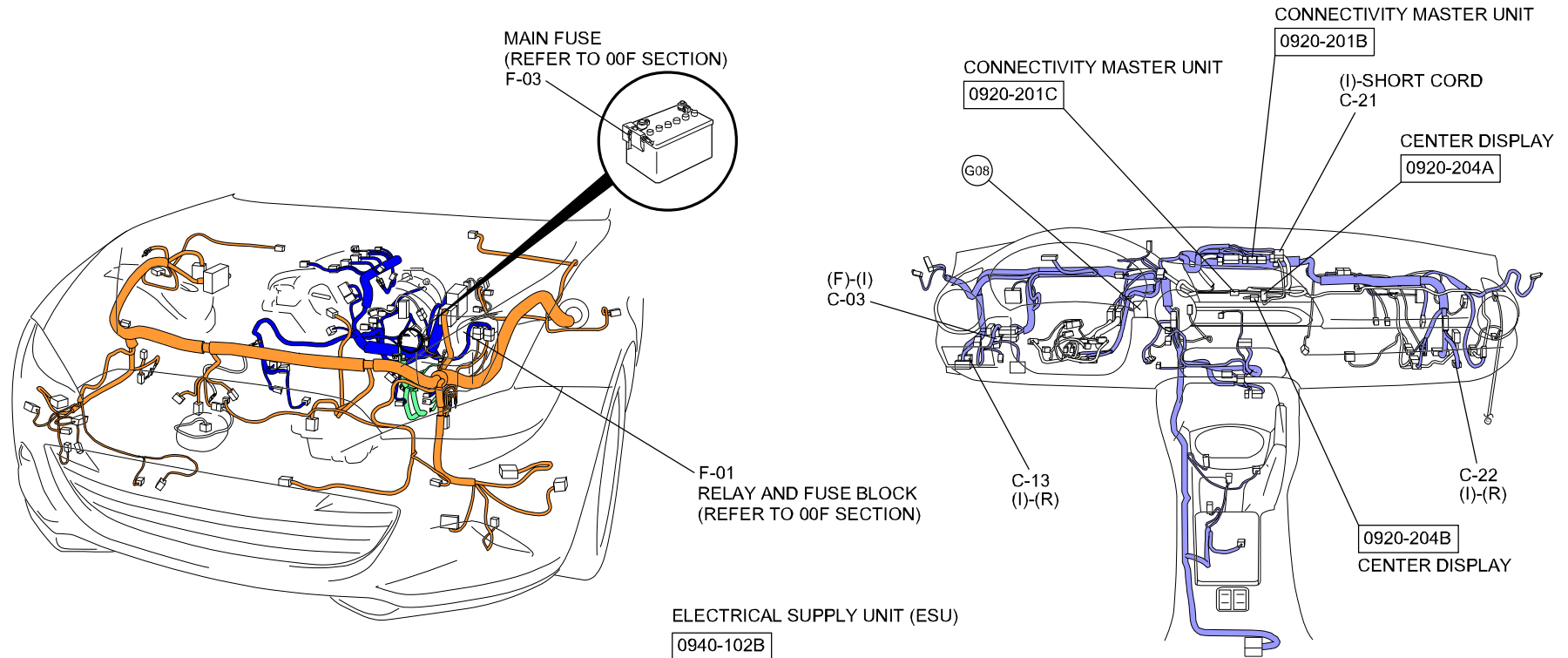
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2016 Mazda MX-5
 AUDIO SYSTEM (WITH CENTER DISPLAY / WITHOUT Bose® TYPE AUDIO)

0920-2a



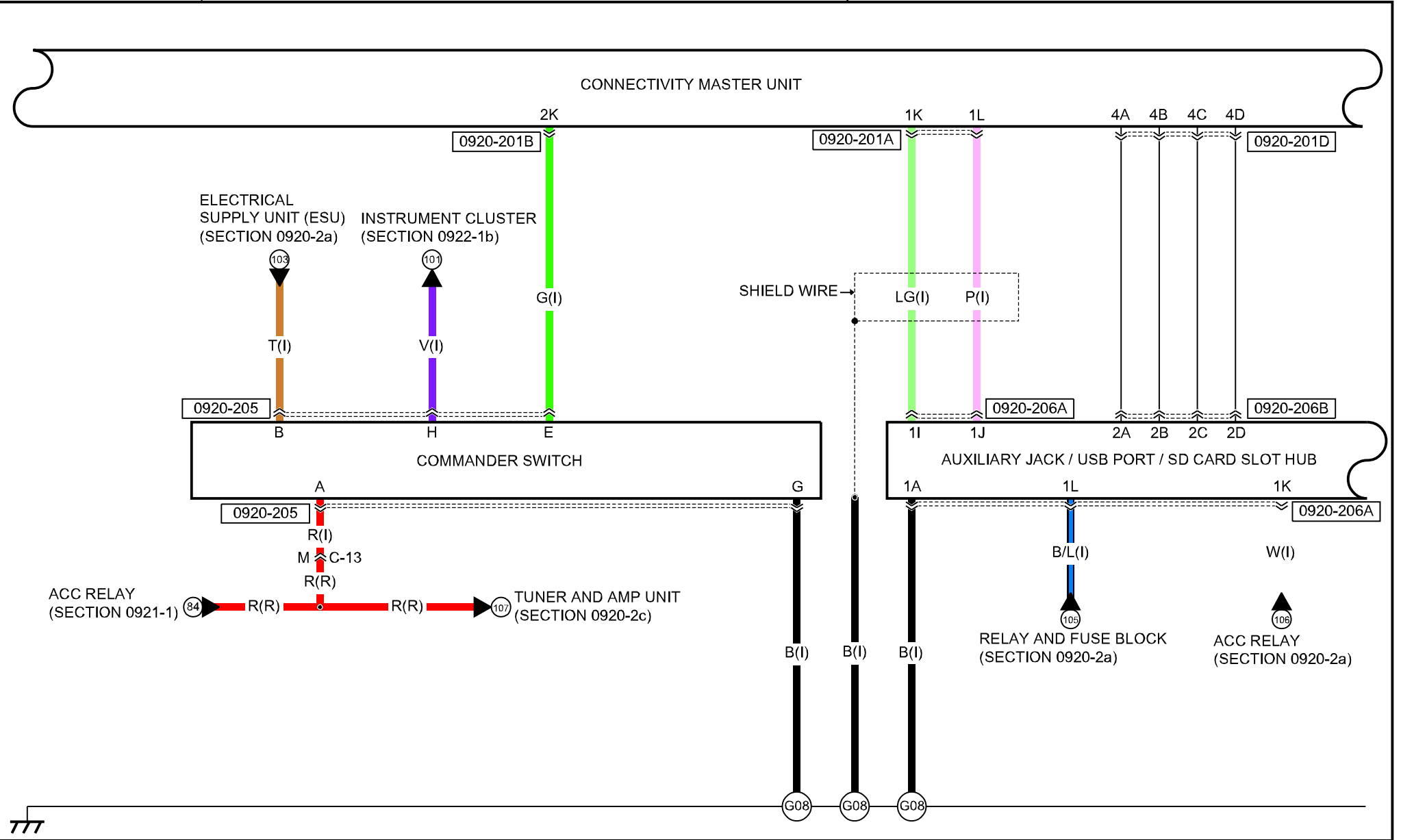
Electrical supply unit (ESU) Terminal Voltage Table (Reference)		
Terminal	Measurement condition	Voltage (V)
2B	Under any condition	B+
2D	Light switch is in ON position	B+
	Ignition is switched ON (engine off or on) Light switch is in OFF position	Voltage changes according to the tester specification, therefore determination is not possible.



- : FRONT HARNESS
- : ENGINE HARNESS
- : REAR HARNESS
- : INSTRUMENT PANEL HARNESS
- : EMISSION HARNESS

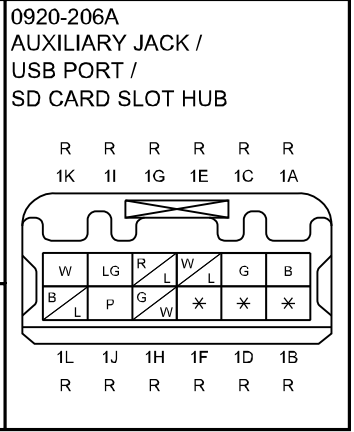
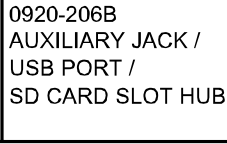
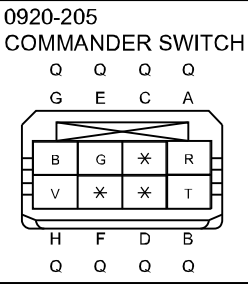
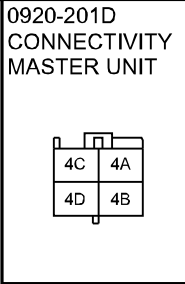
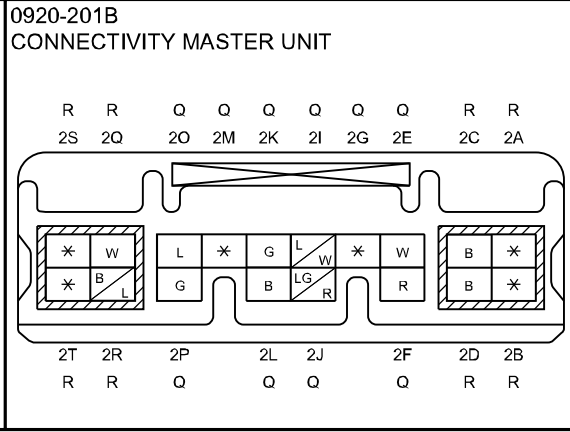
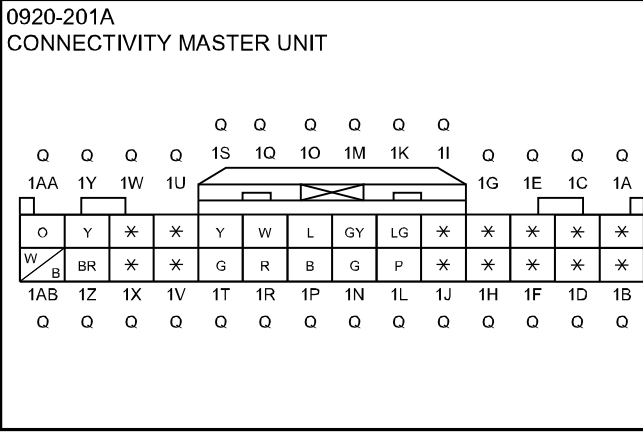
2016 Mazda MX-5
 AUDIO SYSTEM (WITH CENTER DISPLAY / WITHOUT Bose® TYPE AUDIO)

0920-2b



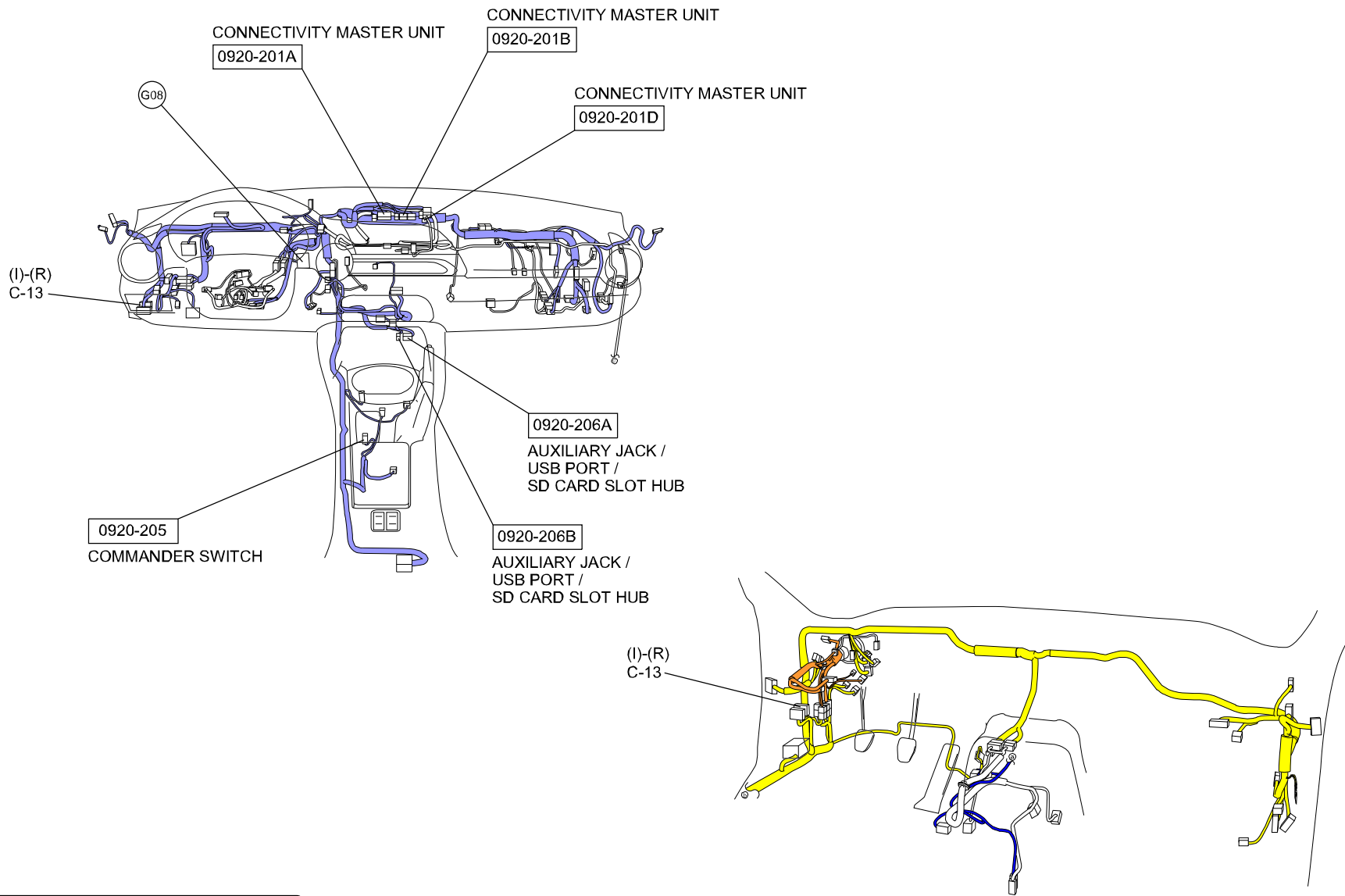
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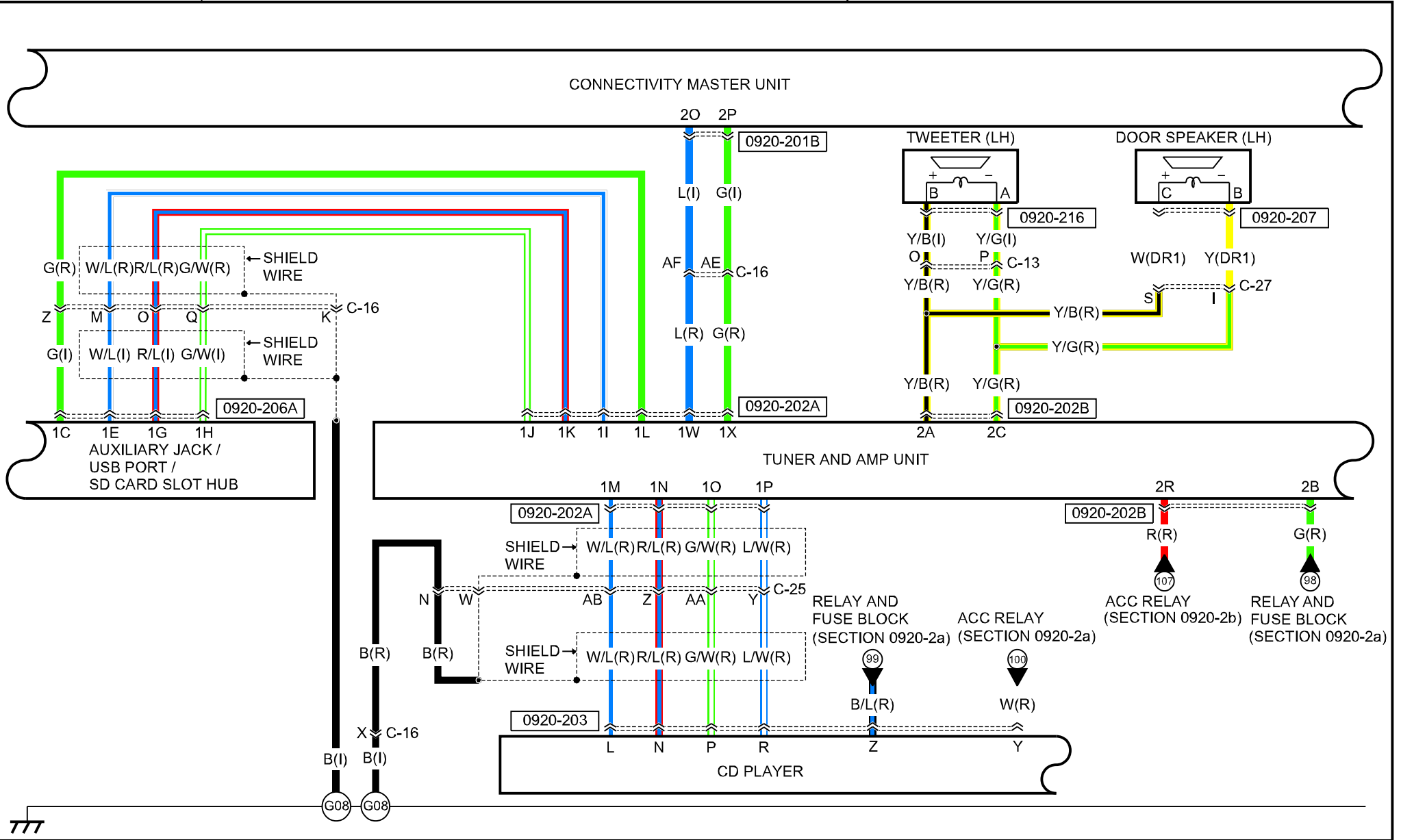


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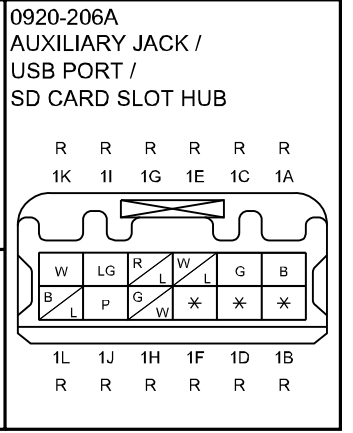
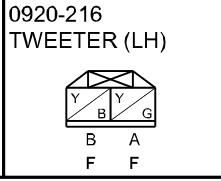
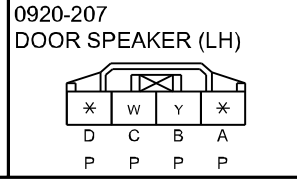
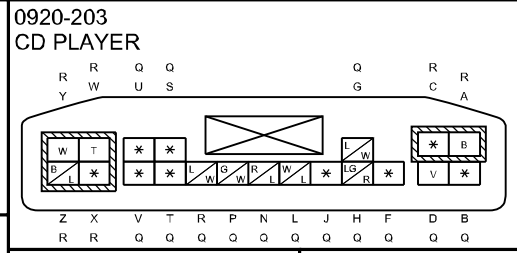
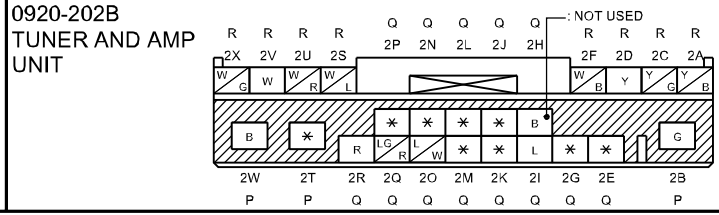
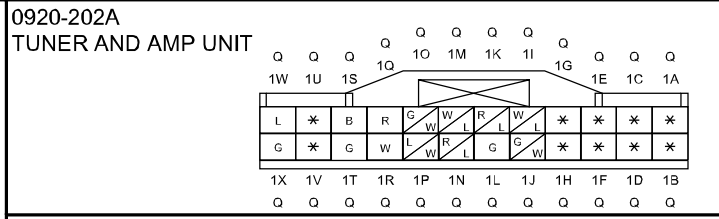
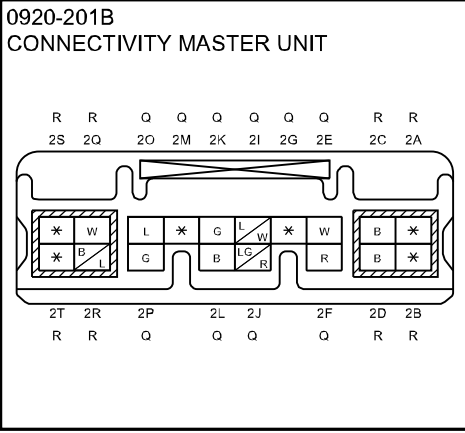


- FRONT HARNESS
- EMISSION HARNESS
- REAR HARNESS
- INSTRUMENT PANEL HARNESS



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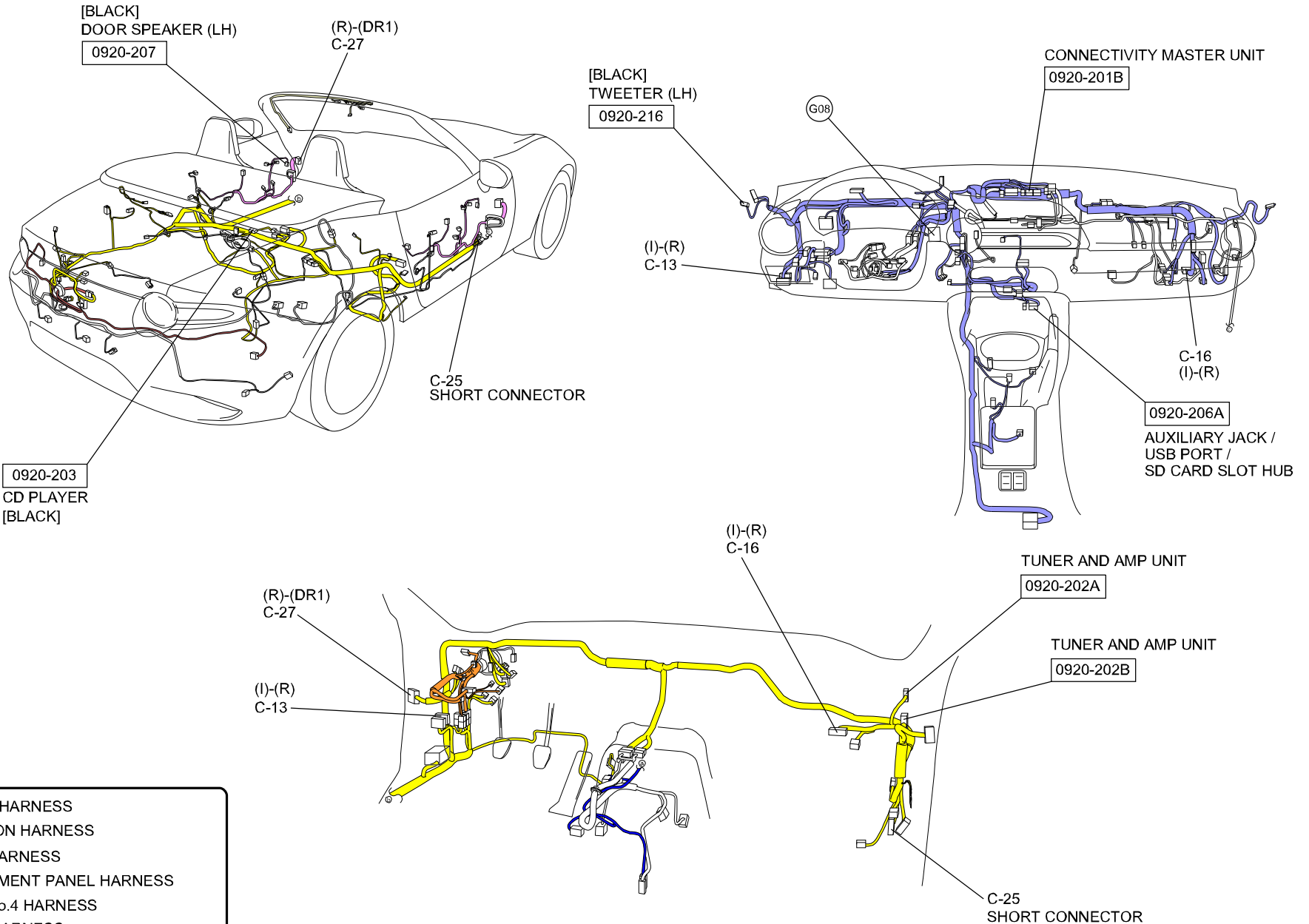


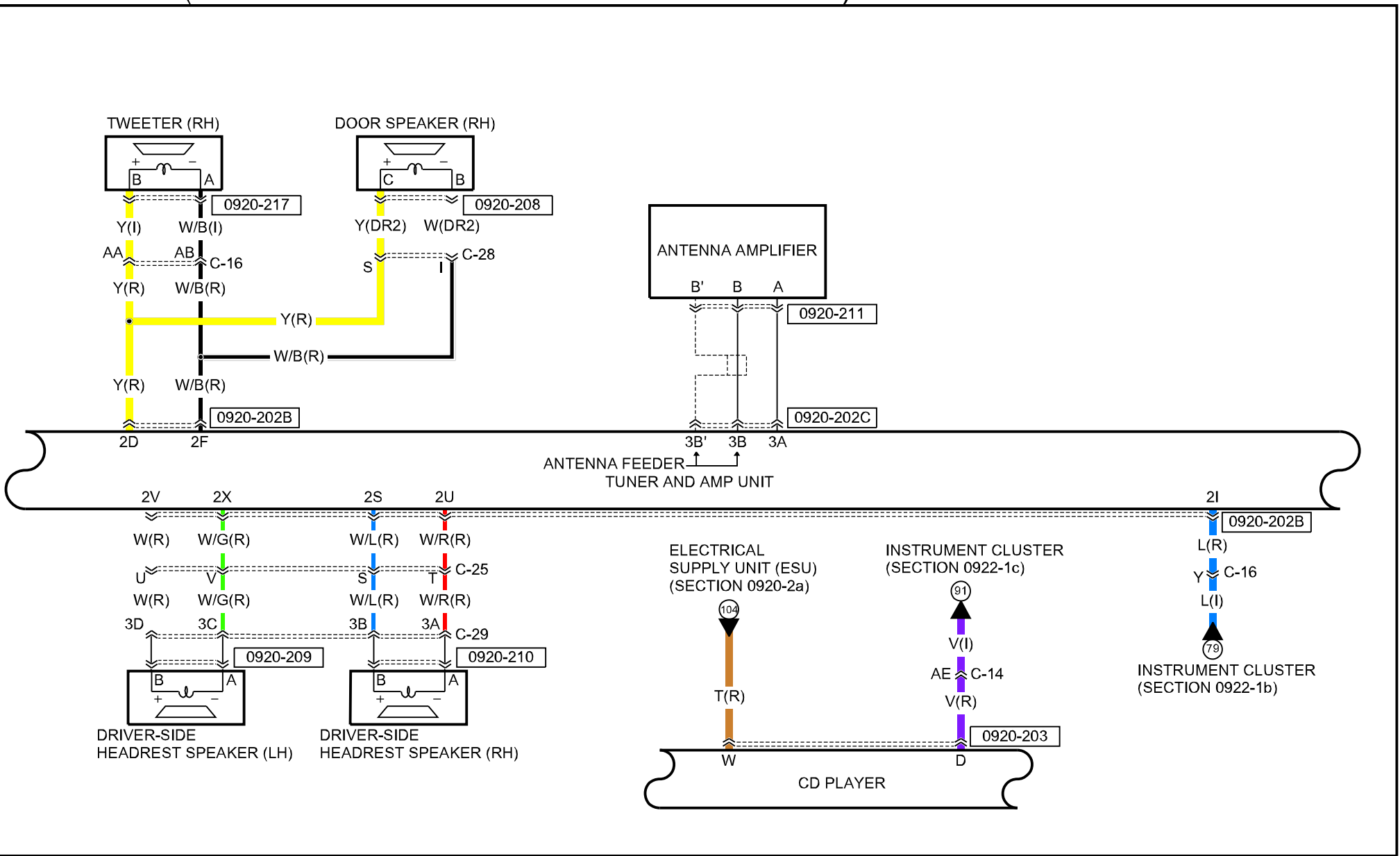
Door speaker
 Door speaker resistance
 Without Bose®: 3.4—4.6 ohms

Tweeter
 Tweeter resistance
 Without Bose®: 3.4—4.6 ohms

2016 Mazda MX-5
 AUDIO SYSTEM (WITH CENTER DISPLAY / WITHOUT Bose® TYPE AUDIO)

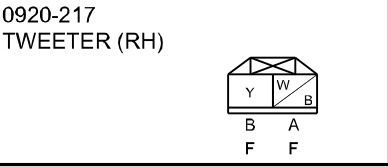
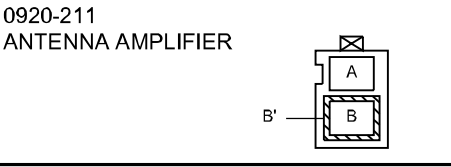
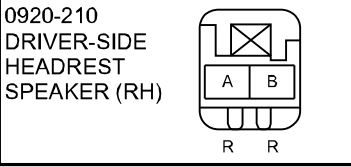
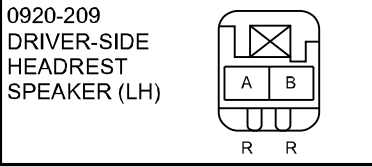
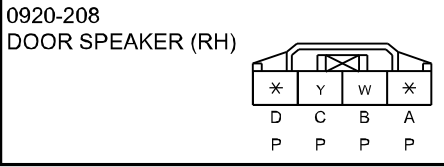
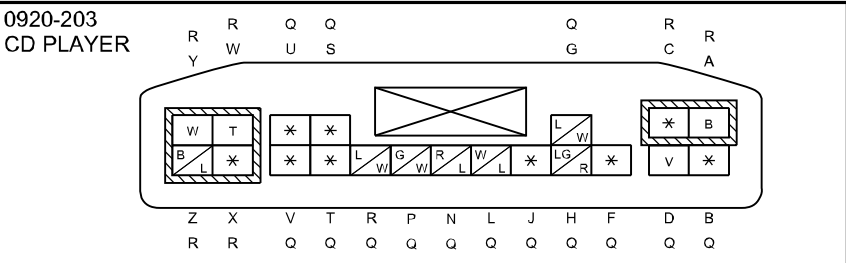
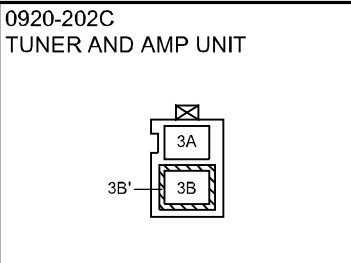
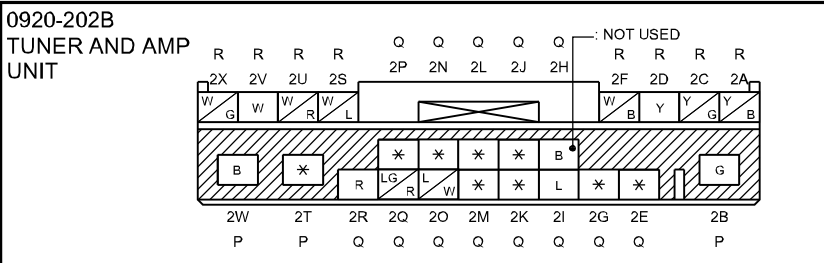
0920-2c





2016 Mazda MX-5 AUDIO SYSTEM (WITH CENTER DISPLAY / WITHOUT Bose® TYPE AUDIO)

0920-2d



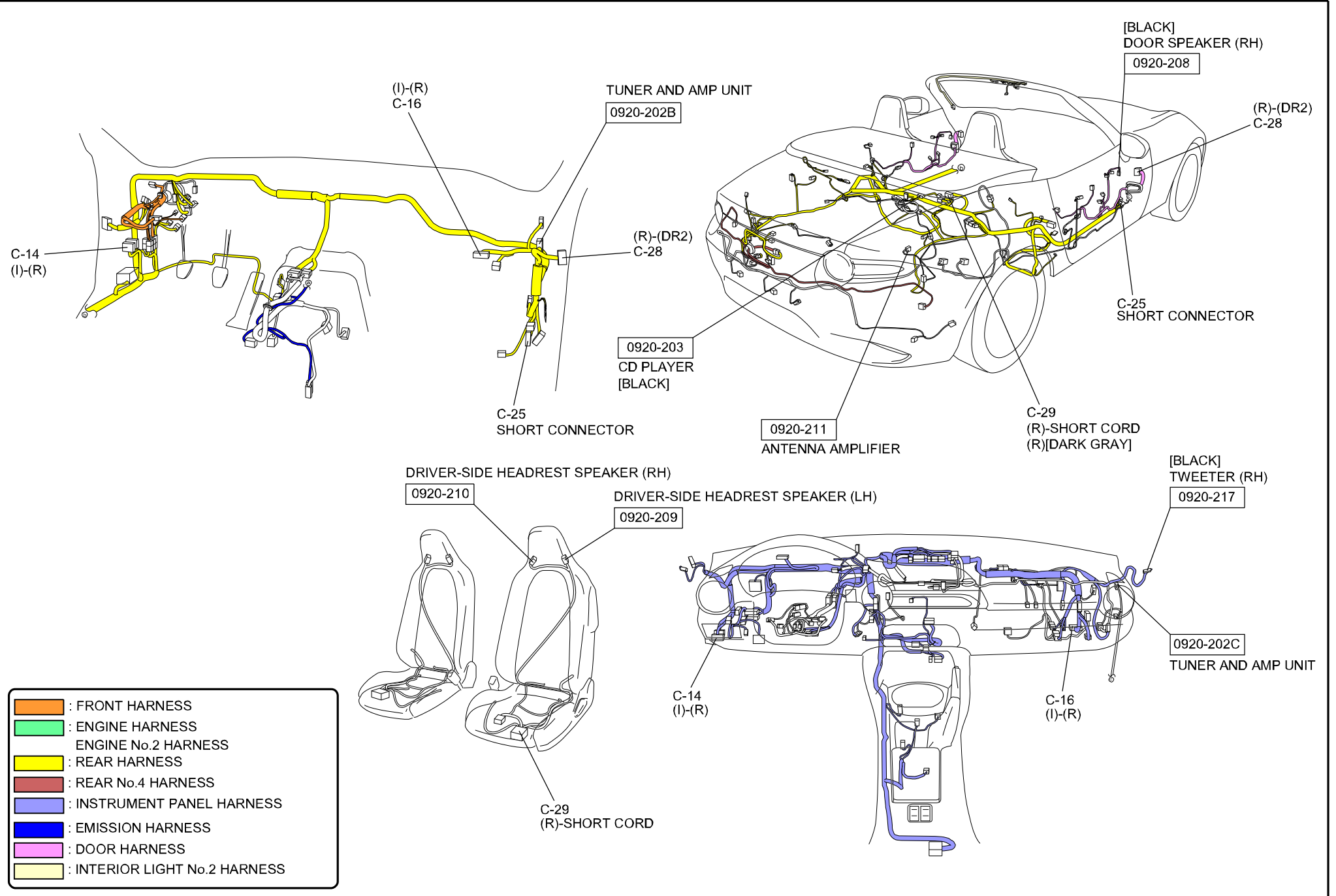
Door speaker
Door speaker resistance
Without Bose®: 3.4—4.6 ohms

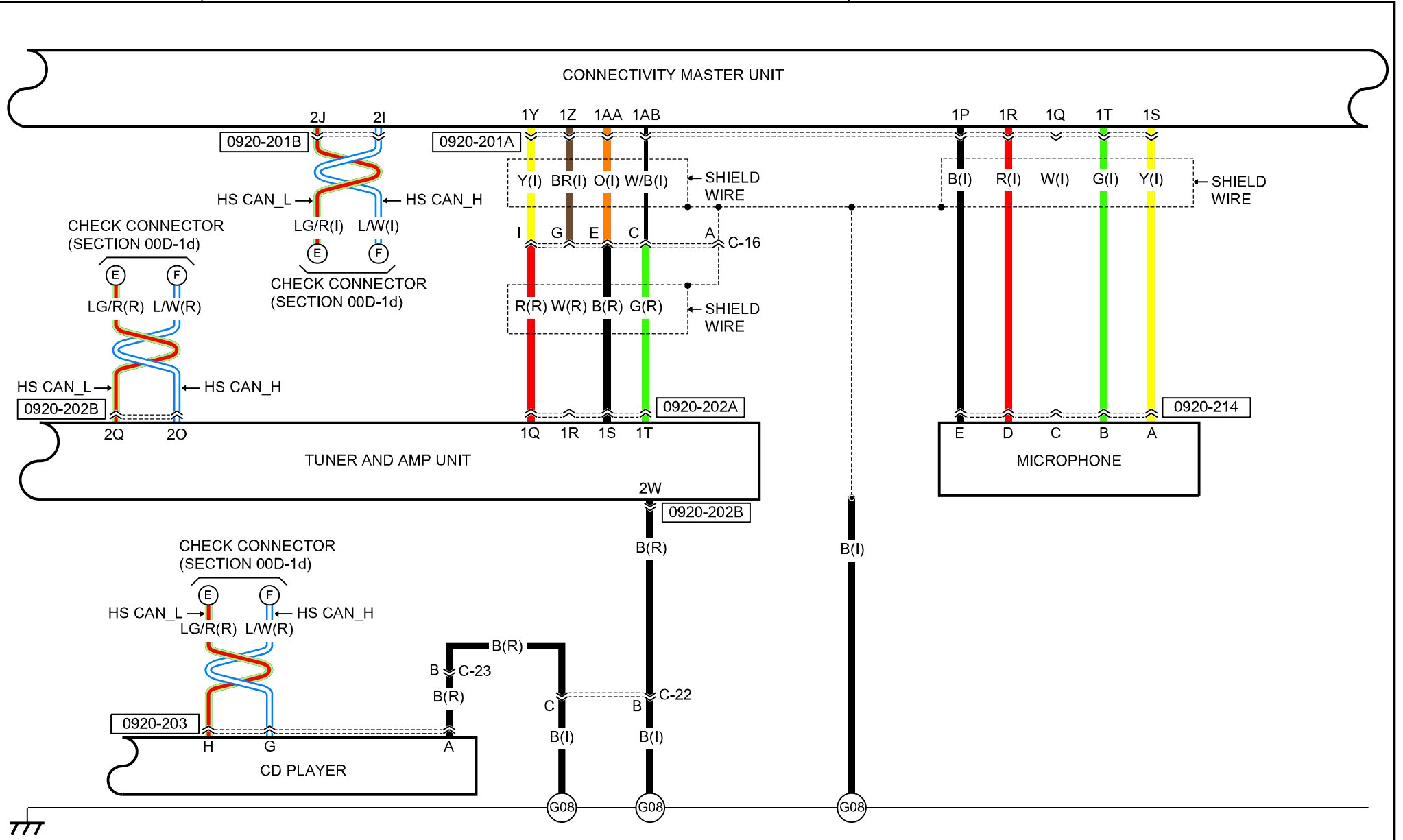
Headrest speaker
Headrest speaker resistance
Without Bose®: 3.4—4.6 ohms

Tweeter
Tweeter resistance
Without Bose®: 3.4—4.6 ohms

2016 Mazda MX-5
 AUDIO SYSTEM (WITH CENTER DISPLAY / WITHOUT Bose® TYPE AUDIO)

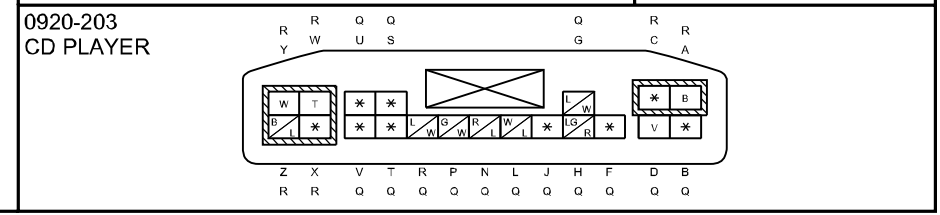
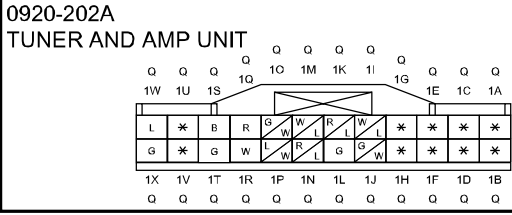
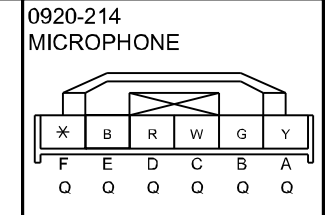
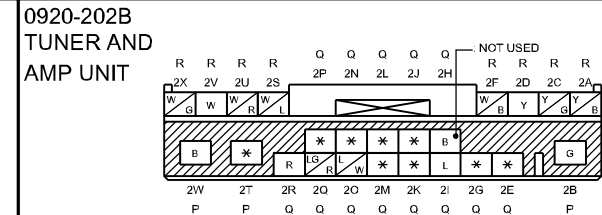
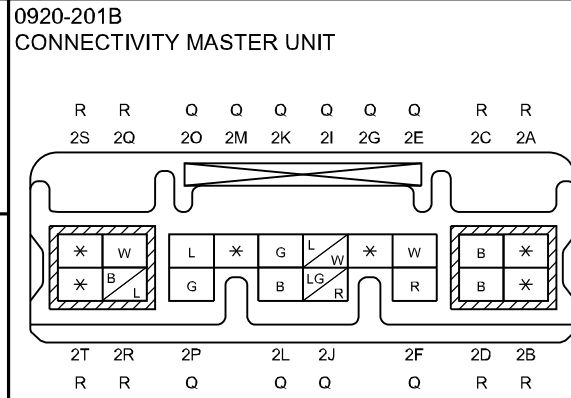
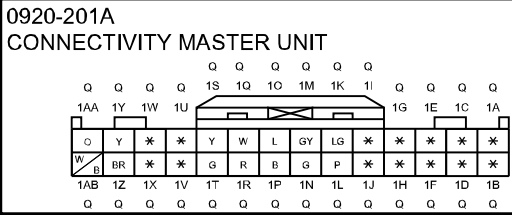
0920-2d

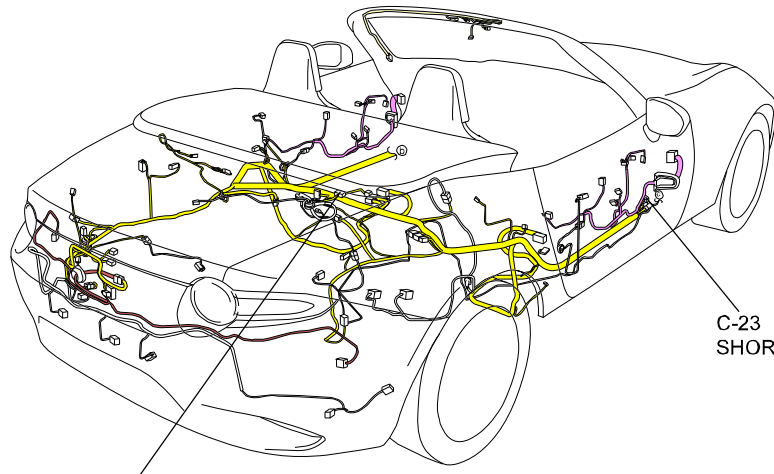




2016 Mazda MX-5 AUDIO SYSTEM (WITH CENTER DISPLAY / WITHOUT Bose® TYPE AUDIO)

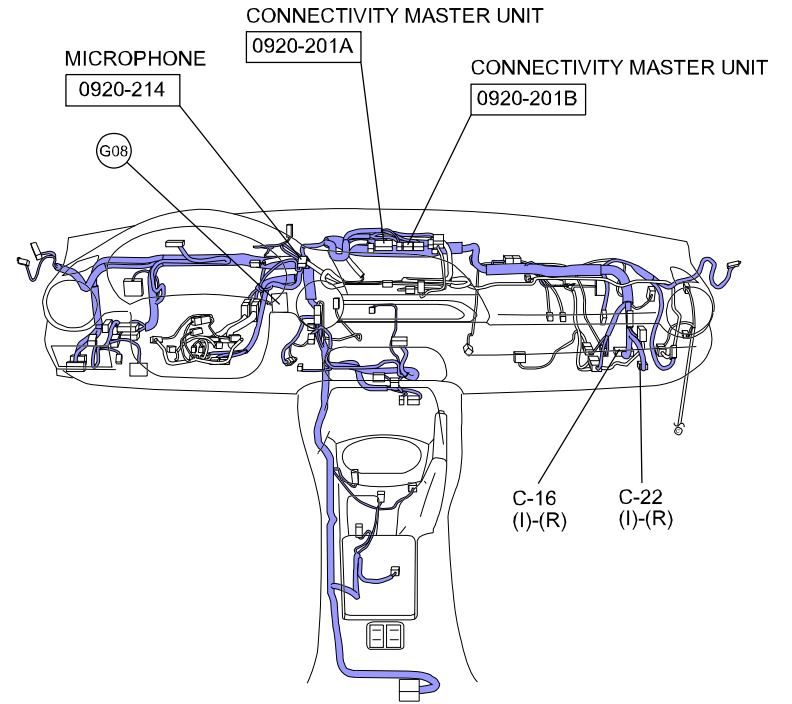
0920-2e





C-23
 SHORT CONNECTOR

0920-203
 CD PLAYER
 [BLACK]



MICROPHONE
 0920-214

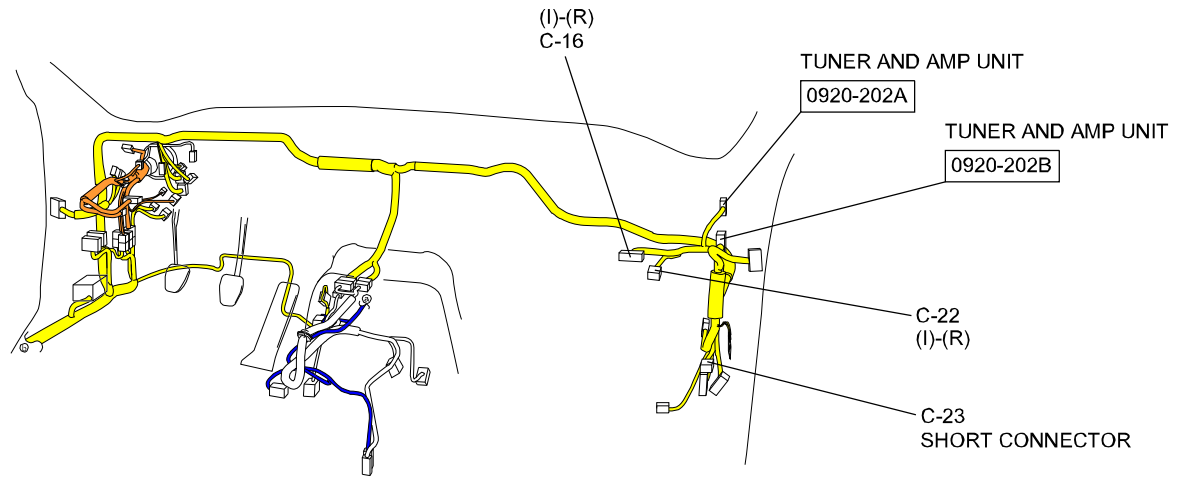
G08

CONNECTIVITY MASTER UNIT
 0920-201A

CONNECTIVITY MASTER UNIT
 0920-201B

C-16
 (L)-(R)

C-22
 (L)-(R)



(L)-(R)
 C-16

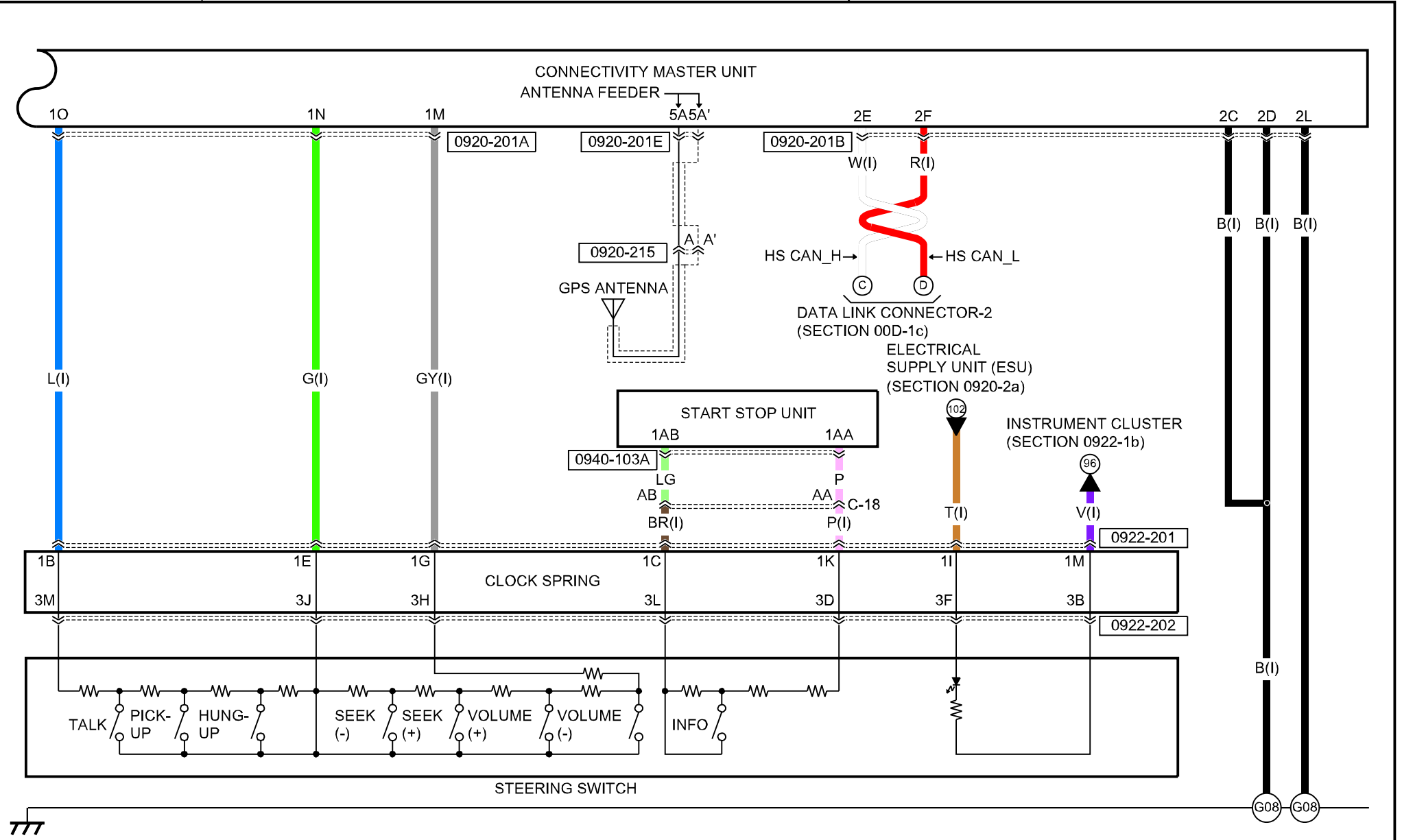
TUNER AND AMP UNIT
 0920-202A

TUNER AND AMP UNIT
 0920-202B

C-22
 (L)-(R)

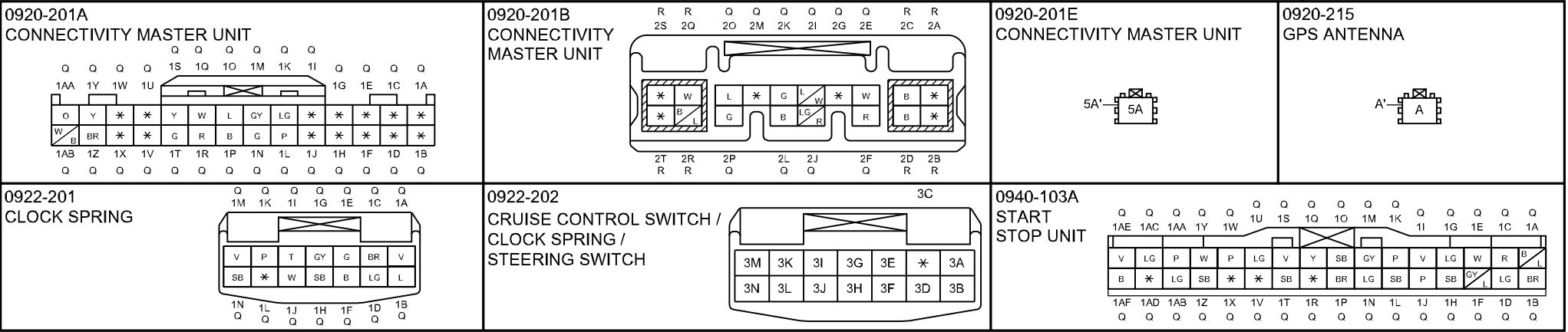
C-23
 SHORT CONNECTOR

- : FRONT HARNESS
- : EMISSION HARNESS
- : REAR HARNESS
- : INSTRUMENT PANEL HARNESS
- : REAR No.4 HARNESS
- : DOOR HARNESS
- : INTERIOR LIGHT No.2 HARNESS



2016 Mazda MX-5 AUDIO SYSTEM (WITH CENTER DISPLAY / WITHOUT Bose® TYPE AUDIO)

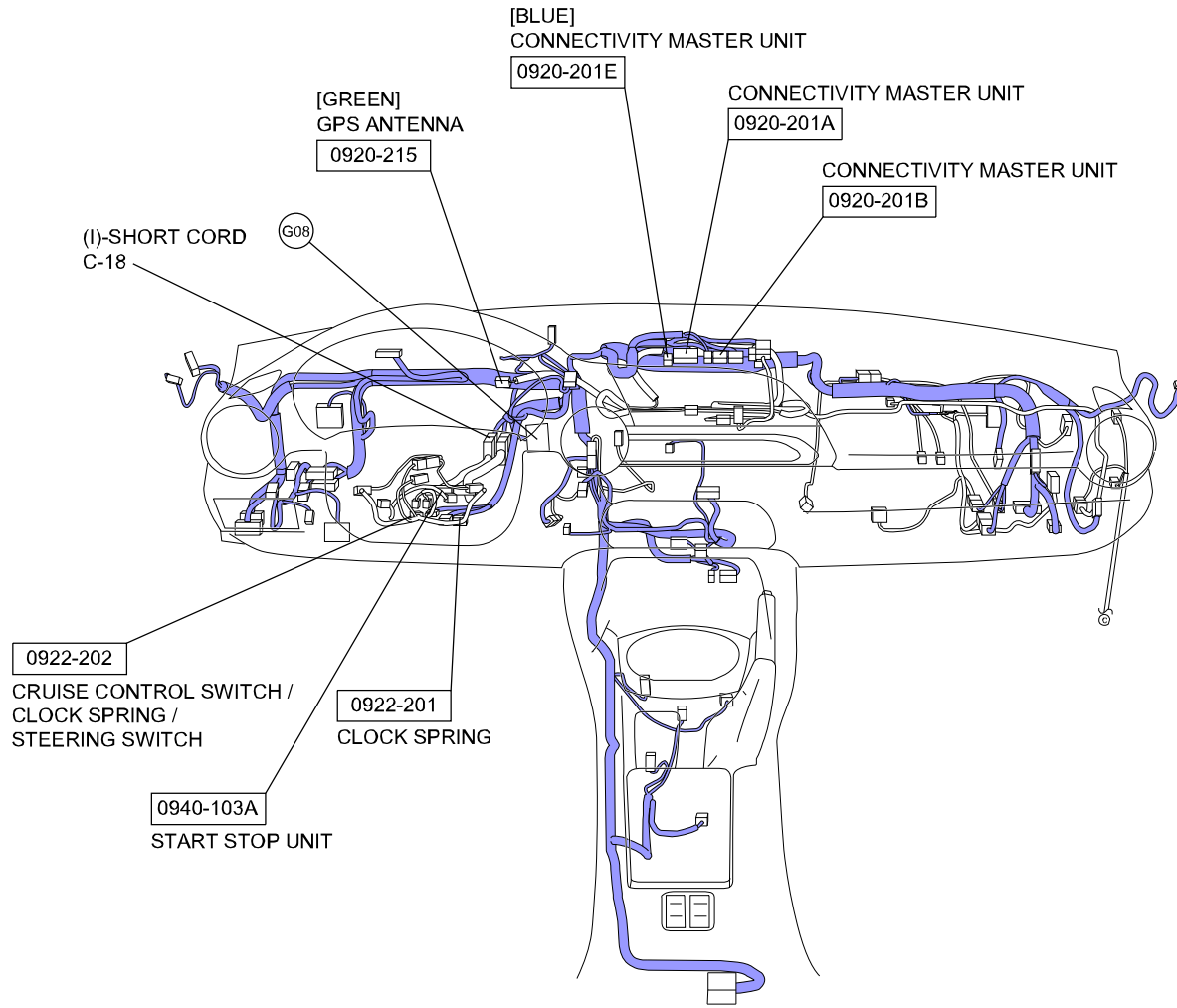
0920-2f



Start stop unit terminal voltage table (reference)		
Terminal	Measurement conditions	Voltage (V)
1AA	Up switch is pressed	1.0 or less
	Down switch is pressed	Approx. 1.2
	INFO button is pressed	Approx. 2.2
	Except above	Approx. 3.3
1AB	Under any condition	1.0 or less

2016 Mazda MX-5
AUDIO SYSTEM (WITH CENTER DISPLAY / WITHOUT Bose® TYPE AUDIO)

0920-2f



 : INSTRUMENT PANEL HARNESS