INSTRUCTIONS

-J06322 2016-05-09

BOOM! SECONDARY AUDIO AMPLIFIER EXPANSION KIT

GENERAL

Kit Number

76000748

Models

For model fitment information, see the P&A Retail Catalog or the Parts and Accessories section of www.harley-davidson.com (English only).

Installation Requirements

Prior or concurrent installation of a fairing-mounted amplifier is required for proper installation of this kit. See the P&A retail catalog or the Parts and Accessories section of www.harley-davidson.com (English only) for Audio Amplifier Kit part numbers and fitments.

FLHTKSE and FLTRUSE models require separate purchase of 69200714.

This kit is not compatible with premium bag liners. Fitted saddlebag linings require trimming to accommodate amplifier mount and harness cover.

NOTICE

Radio EQ MUST be updated by a Harley-Davidson dealer BEFORE operating the audio system. Operating the audio system prior to radio EQ update will IMMEDIATELY damage the speakers. (00645d)

Radio EQ update using the Digital Technician® II diagnostic tool is:

- Recommended **before** speaker INSTALLATION
- Required **before** audio system OPERATION.
- Only available through authorized Harley-Davidson dealers.

⚠ WARNING

The rider's safety depends upon the correct installation of this kit. Use the appropriate service manual procedures. If the procedure is not within your capabilities or you do not have the correct tools, have a Harley-Davidson dealer perform the installation. Improper installation of this kit could result in death or serious injury. (00333a)

NOTE

This instruction sheet references service manual information. A service manual for this year/model motorcycle is required for this installation. One is available from a Harley-Davidson dealer.

The purchase of this kit entitles you to a specially developed sound equalization software that is used with the Advanced Audio System. This unique equalization was designed to optimize the performance and sound response of the BOOM! Audio fairing lower speakers. Even if this kit is not installed by a Harley-Davidson dealer, this special equalization software is available without charge from any dealer through Digital Technician II. Dealer labor rates may apply for the upgrade procedure.

Electrical Overload

NOTICE

It is possible to overload your vehicle's charging system by adding too many electrical accessories. If the combined electrical accessories operating at any one time consume more electrical current than the vehicle's charging system can produce, the electrical consumption can discharge the battery and cause damage to the vehicle's electrical system. See an authorized Harley-Davidson dealer for advice about the amount of current consumed by additional electrical accessories or for necessary wiring changes. (00211c)

⚠ WARNING

When installing any electrical accessory, be certain not to exceed the maximum amperage rating of the fuse or circuit breaker protecting the affected circuit being modified. Exceeding the maximum amperage can lead to electrical failures, which could result in death or serious injury. (00310a)

The amplifier installed with this Amplifier Expansion Kit requires up to **8 amps** extra current from the electrical system.

Kit Contents

See Figure 14 and Table 2.

PREPARATION

⚠ WARNING

To prevent accidental vehicle start-up, which could cause death or serious injury, remove main fuse before proceeding. (00251b)

NOTE

See the service manual. Remove main fuse.

⚠ WARNING

Disconnect negative (-) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00049a)

1. See the service manual to perform the following generalized steps:
   a. Remove seat. Retain all seat mounting hardware.
   b. Remove the ECM caddy from the top of the battery.

c. Disconnect both battery cables, negative battery cable first.

d. Remove right side cover.

e. Remove left side cover.

f. Remove the two bolts securing the electrical caddy under the left side cover.

g. See Figure 1. Remove the wire trough cover.

Figure 1. Wire Trough

INSTALLATION: GENERAL (ALL MODELS)

Verify that the primary amp is installed per the instruction sheet shipped with that kit.

- **Simultaneous Installation:** Route the wire harness from the primary amp kit. Make all electrical connections except stock OE [162] and/or primary amp output [313].
- **Upgrade Installation:** Disconnect any 4-way connectors at [313] and [162]. This may include fairing lower speakers, saddlebag cover speakers or rear pods speakers. Disconnect only the 4-way portion of any rear speaker pods. Those connections may be made at stock OE [162] and/or primary amplifier output [313]. Speaker connections at [162] and [313] will be addressed in the wire harness section of the install.

1. See the service manual. Remove the left saddlebag. If any bag liners are present, remove them.

2. See Figure 2. Place the left saddlebag on a protected surface with mounting side face up. Use the template (3) to cut the opening for the saddlebag amp [288].

   a. With a hobby knife or scissors, cut opening for connector marked by the dotted line on the template.

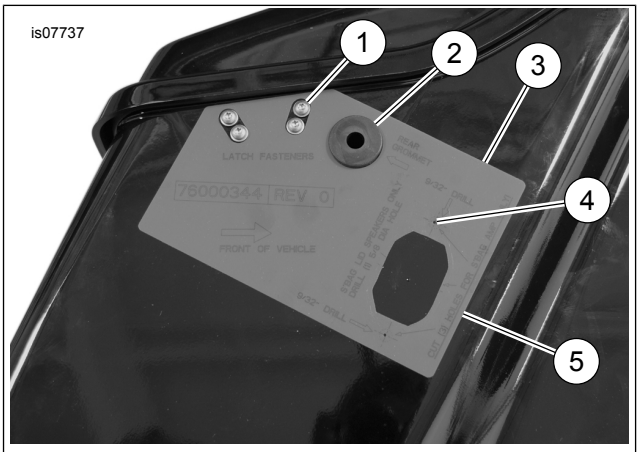
   b. Place template on saddlebag, align the grommet (2) and latch fasteners (1) and trace the cut outline for connector. If cover speakers are present from previous install, LH speaker wires will be in this location. Remove the wire and grommet.

   c. Center punch two locations for the 9/32 drill.

   d. Verify size of opening with pin side connector from wire harness (See Figure 14 item 10).

   e. Cut opening for connector.

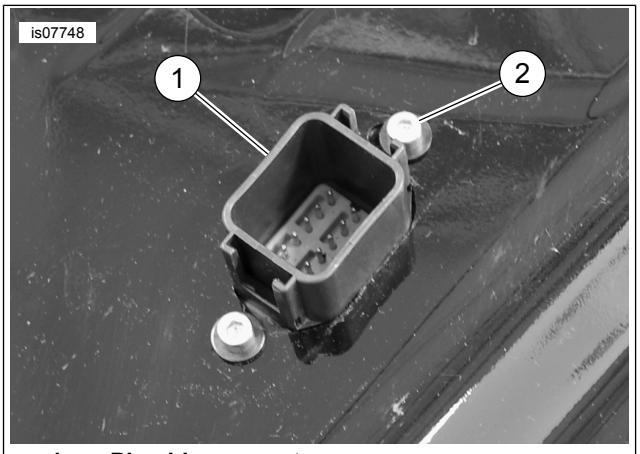
   f. Place masking tape over the two locations for the screw holes. Drill two 9/32 holes.



1. Latch fasteners
2. Grommet
3. Template
4. Screw hole location
5. Connector cut-out and hole location

Figure 2. Cut Connector Opening

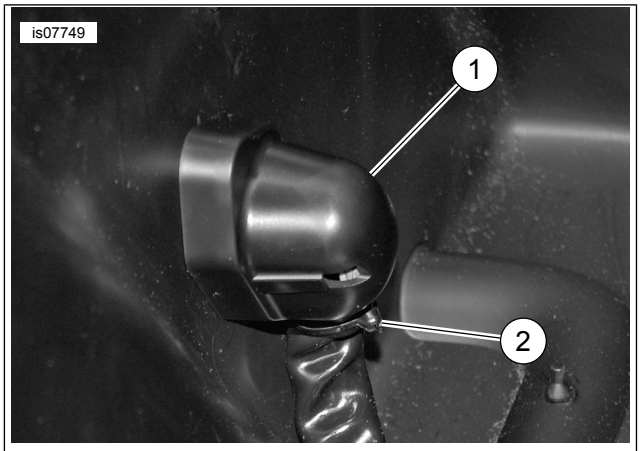
3. See Figure 3. Install pin side connector (1) of jumper harness (Figure 14 item 10) from inside the saddlebag. Secure connector with two screws and washers (2).



1. Pin side connector
2. Screws and washers

Figure 3. Pin Side Connector

4. See Figure 4. Snap the harness cover (1) over the connector. Secure with a cable strap (2). The harness routes inside the saddlebag after the amplifier is mounted.



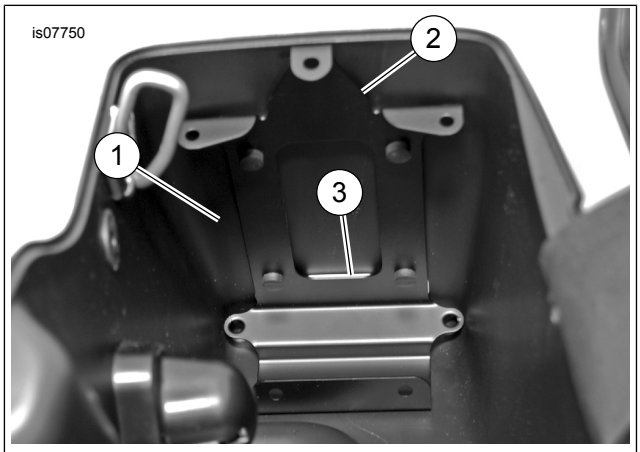
1. **Harness cover**
2. **Cable strap**

Figure 4. Harness Cover

NOTE

Verify that all four pieces of tape are contacting the saddlebag.

5. See Figure 5. Clean the inside rear and bottom surfaces of the saddlebag with a mixture of 50-70 percent isopropyl alcohol and 30-50 percent distilled water. Remove the four pieces of protective backing from the amplifier bracket (2) tape strips (3)and position as shown.



1. **Area to be cleaned**
2. **Amplifier bracket**
3. **Tape strips**

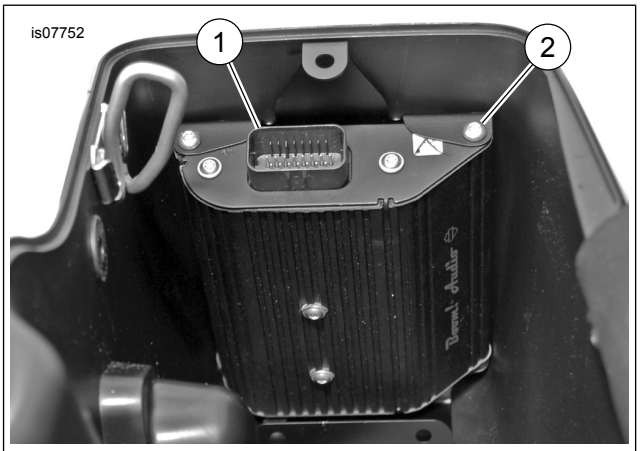
Figure 5. Amplifier Bracket Installation

6. See Figure 6. Install the amplifier pin studs (2)in the amplifier (1). Tighten to 9.4–12.2 N·m (7–9 ft-lbs). Install the grommets (3).

1. **Amplifier**
2. **Pin stud**
3. **Grommets**

Figure 6. Amplifier Pin Studs

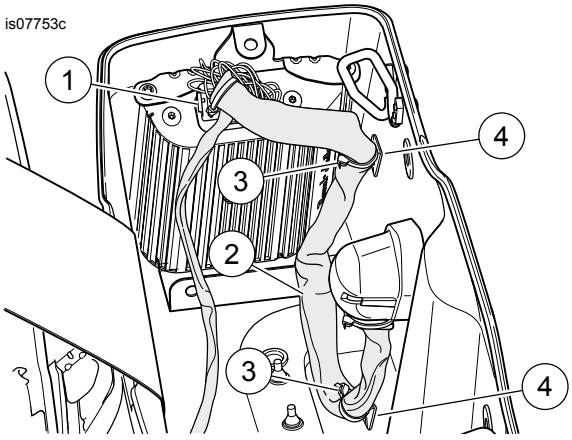
7. See Figure 7. Position the amplifier (1) with the grommets in the holes in the bottom of the amplifier bracket and slide the top into the bracket. Install the hex socket button head screws (2). Tighten to 9.4–12.2 N·m (7–9 ft-lbs).



1. **Amplifier**
2. **Hex socket button head screws**

Figure 7. Amplifier Installation

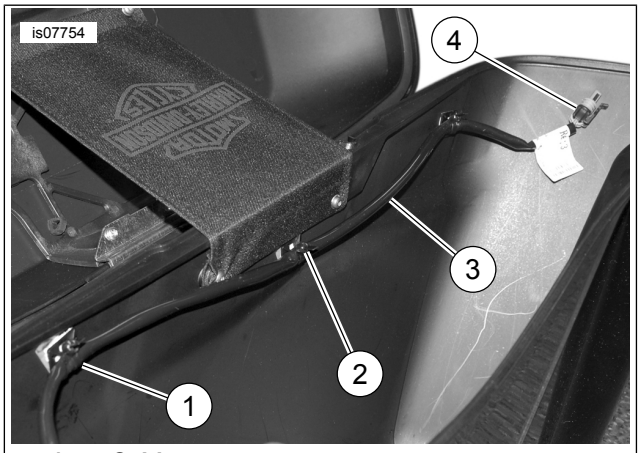
8. See Figure 8. Clean the inside bottom and side surfaces of the saddlebag with a mixture of 50-70 percent isopropyl alcohol and 30-50 percent distilled water. Connect the amplifier end of harness (2) and route the saddlebag side harness inside the left saddlebag. Secure with cable straps (3) and bases (4) as shown.



1. **Amplifier harness connector**
2. **Wire harness**
3. **Wire harness cable strap**
4. **Base**

Figure 8. Inner Harness Routing

9. See Figure 9. Clean the inside top surfaces of the saddlebag with a mixture of 50-70 percent isopropyl alcohol and 30-50 percent distilled water. Route the saddlebag speaker harness (3) inside the left saddlebag leaving enough slack to open the cover. Secure with cable straps (1) and bases (2) as shown. If cover speakers are not used, bundle the unused wire next to amplifier on the outboard side. Secure with cable strap and base.

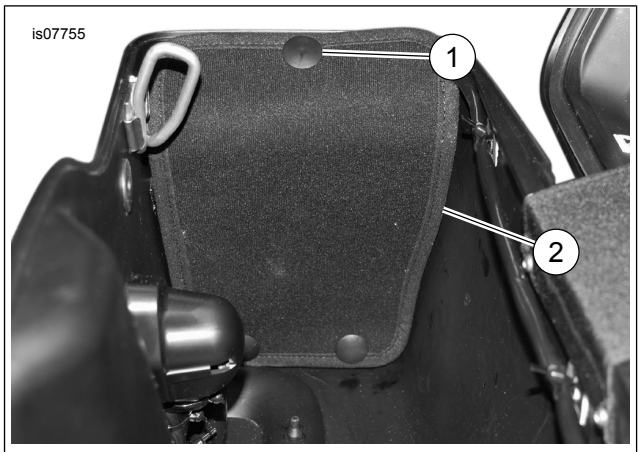


1. **Cable strap**
2. **Cable strap base**
3. **Wire harness**
4. **Speaker connector**

Figure 9. Speaker Harness Routing

10. **Saddlebag liners:** Trim saddlebag liners. Install saddlebag liners.

11. See Figure 10. Install the amplifier cover (2) on the bracket. Secure with three christmas tree fasteners (1).



1. **Christmas tree fasteners**
2. **Amplifier cover**

Figure 10. Amplifier Cover

Left-Side Saddlebag, Amplifier Harness Installation

1. See the service manual. Remove the left side cover and left side caddy.

2. See Figure 11.

   a. Locate the 2-way Delphi CAN connector [319B] (1) under the right side cover.

   b. The cap is a terminating resistor pack secured to the electrical caddy. Remove connector [319B] from the resistor pack.

   c. Connect [319A] from the harness provided with the kit (See Figure 13 item 10) to [319B] of the vehicle.

   d. If this is the only (rear) amplifier connection in this installation, connect the [319B] side of the harness (See Figure 13 item 11) from the kit back into the terminating resistor pack from step "B" above.

3.

   a. Locate connector 299 on the vehicle (under the inner faring, see service manual for location). This connector may already be connected to a faring amplifier.

   b. Install 69200921 "Y" to vehicle side 299, with one end to the faring amplifier harness.

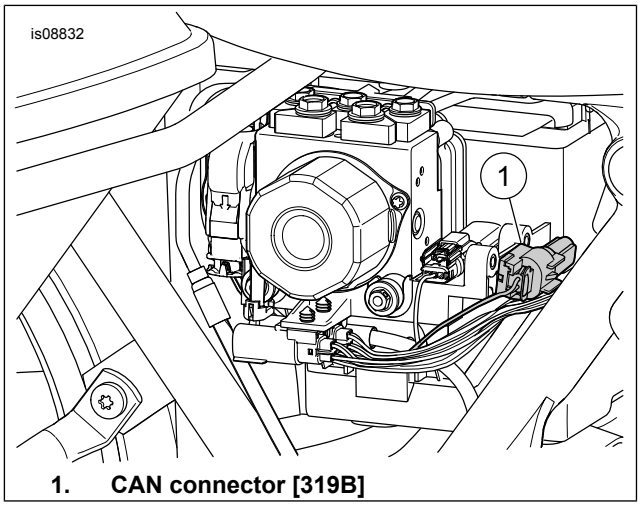
   c. Install the 69201545 jumper to the other end of the 69200921 "Y" inside the faring. (If a 69201545 jumper has already been installed on vehicle skip ahead to "f" Do not install more than one 69201545 jumper.)

   d. Route the 69201545 jumper though the inner faring and into the wire trough following the Faring harness routing.

NOTE

If more than one amplifiers installed in rear of vehicle, up to two 69200921 connectors may be used.

e. Locate the end of the 69201545 jumper under the RH side cover near the [319] connectors. If a 69201545 is present from a prior install use a 69200921 "Y" under the RH side cover to connect [299].



1. CAN connector [319B]

Figure 11. CAN Connector [319B], Under Right Side Cover

4. See the service manual to install the left side caddy.

5. See the service manual to remove the top caddy.

6. Route the battery terminal branch to the battery terminals.

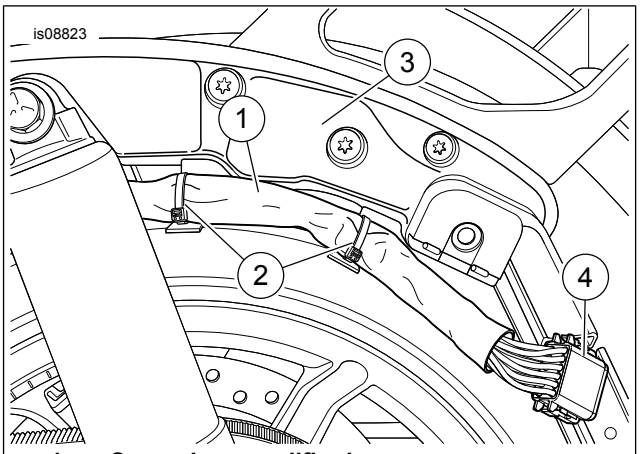
   a. Remove the B- and B+ battery terminals.

   b. Position the B+ ring terminal on the positive battery terminal, install the bolt.

   c. Position the - ring terminal on the negative battery terminal, install the bolt. Tighten both bolts to 6.8–7.9 N·m (60–70 **in-lbs**).

   d. Position the in-line fuse holder in a location that can be easily accessed.

7. See Figure 12. Route [288] under the fender support and behind shock under fender strut, through opening between frame and fender. Secure with cable straps as shown. Secure the amplifier harness to the main harness with a cable strap. Make sure that cable routing is sufficient to account for full travel of the rear suspension.



1. Secondary amplifier harness
2. Cable strap
3. Fender support
4. Connector [288B]

Figure 12. Harness Routing

HARNESS ROUTING

1. a. Connect RADIO rear channel output [162] to input of secondary amplifier at [296] of 69200490.

   b. **FLHX and FLTRX models:** Use jumper (69200489) to connect stock harness [162] located under fairing, to connect to [296] of (69200490). Route jumper in wire trough.

   c. Upgrade: If this is installation is an upgrade from a prior install of saddlebag cover speakers or rear pods, then the jumper (69200489) should already be installed.

   d. If the jumper (69200489) is connected from the primary amp at [313] to covers or rear pods, then disconnect them from the primary amp at [313].

   e. If the jumper (69200489) is connected to [162] in the fairing, then leave it in place. Disconnect the other end from the cover speakers or rear pods.

   f. Connect pin side of jumper (69200489) to socket side connector [296] of (69200490). Install wire trough cover.

   g. **FLHTCU and FLHTK:** Use Rear Speaker Interconnect (69200714) located behind the passenger backrest flap to connect to [296] of (69200490).

   h. Upgrade: If jumper (69200489) is connected from the primary amplifier [313] to the Rear Speaker Interconnect (69200714), then disconnect both 4-way ends of the jumper. Discard jumper.

   i. Connect the 4-way pin side of the Rear Speaker Interconnect (69200714), installed with primary amplifier, to the mating 4-way socket side [296] of (69200490). Install wire trough cover if removed.

   j. **FLHTKSE and FLTRUSE models:** Requires separate purchase of (69200714). Insert 69200714 between the 16-way sides between connector [162A and B] located under the passenger backrest flap. Locate [296] on the vehicle harness (near rear lighting connector 7) and remove cap. Connect 4-way pin side of connector [296] to the (input) socket side of (69200490) [296].

2. Connect Rear Speaker Pod Output: Use pin side connection [297] from secondary amplifier harness (69200490); to 4-way socket side connector of the rear pods. **FLHX and FLTRX models:** Connect rear speaker pods to [297] of (69200490) (if equipped). Cap [297] if not used. **FLHTCU and FLHTK:** Connect the 4-way socket side of (69200714) to the mating 4-way pin side of (69200490) at [297]. **FLHTKSE and FLTRUSE models:** Connect the 4-way socket side of (69200714) to the mating 4-way pin side of (69200490) at [297]. Cap the unused 4-way pin side of (69200714) with the cap from the vehicle connector. Do not connect the 4-way pin side of rear Speaker Interconnect to [296] of 69200490.

3. Connect Saddlebag Cover Speaker Output: Use 2-way pin side connection [298] from secondary amplifier harness (69200490) to 2-way socket side connector (if equipped).

   a. RH side: Connect 2-way pin side connector of secondary amplifier output [298] to RH 2-way saddlebag cover speaker harness (69200641). Connector location is shown in the saddlebag cover kit. Saddlebag cover speaker harness (69200642) provided with cover speaker kit will not be used with this kit. Upgrade: If speaker covers are already present from a prior install, remove the "Y" harness (69200642). Connector [298] on (69200490) will replace it for the RH saddlebag.

   b. The LH cover speaker connection is made inside the LH saddlebag as part of the (69200488) harness. See figure 9. Upgrade: If cover speakers are present from a prior install, remove the harness (69200641) from inside the LH saddlebag. The 2-way connector provided with harness (69200488) will replace it.

4. Secure with harness with cable straps and install the wire trough.

5. See the service manual to install the LH side cover.

6. Place the LH saddlebag on the supports. Tip the top of the bag out to get behind it and connect the mating sides of the 18-way [288]. It is keyed so it can only go in one way. There will be a "click" when fully seated. Finish installing the LH side saddlebag.

7. Cap any unused 4-way pin-side connectors with (72632-10) provided with (692000478) and [313] or from stock vehicle at [162].

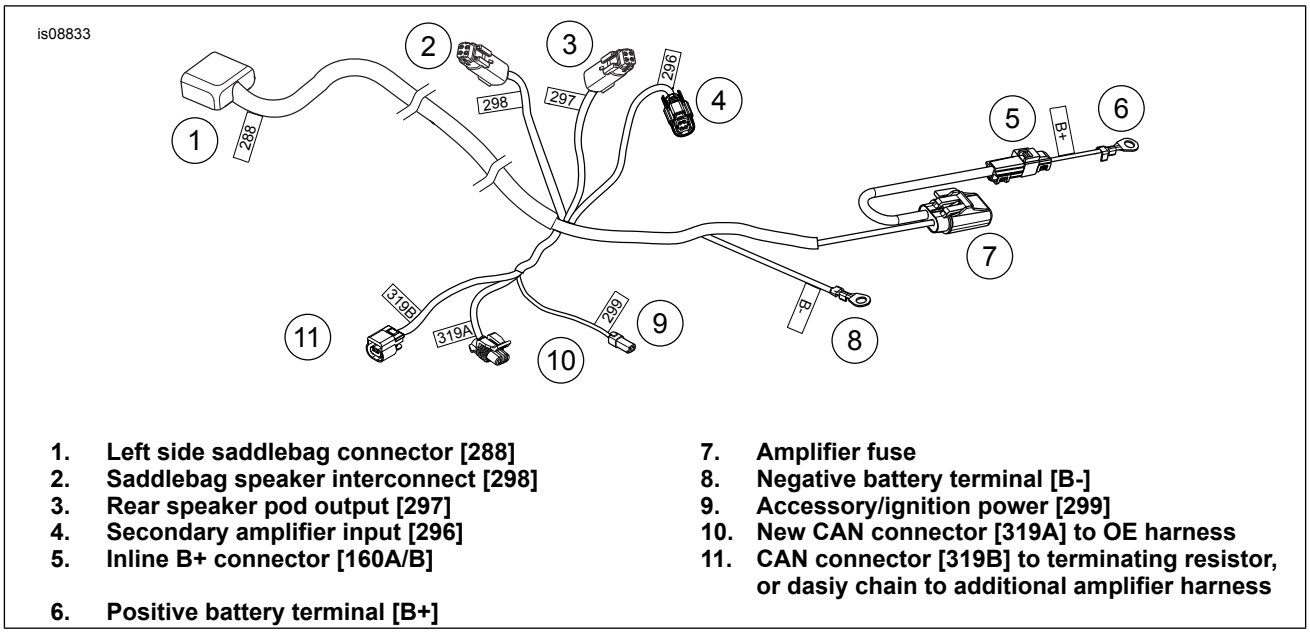
8. Locate unused speaker connectors and additional wire length under the seat. It may be a good idea to label unused connectors with tape in case of future upgrades.

9. If fairing lower speakers are used, connect the 4-way socket side from the harness provided with that kit to [313] of the primary amplifier.

⚠ WARNING

Be sure that steering is smooth and free without interference. Interference with steering could result in loss of vehicle control and death or serious injury. (00371a)

10. Make sure that the harness does not interfere with steering or movement of the front suspension. Secure with cable straps.



1. **Left side saddlebag connector [288]**
2. **Saddlebag speaker interconnect [298]**
3. **Rear speaker pod output [297]**
4. **Secondary amplifier input [296]**
5. **Inline B+ connector [160A/B]**
6. **Positive battery terminal [B+]**
7. **Amplifier fuse**
8. **Negative battery terminal [B-]**
9. **Accessory/ignition power [299]**
10. **New CAN connector [319A] to OE harness**
11. **CAN connector [319B] to terminating resistor, or dasiy chain to additional amplifier harness**

Figure 13. Wire Harness

COMPLETION

NOTE

*To prevent possible damage to the sound system, verify that the ignition switch is OFF **before** attaching the battery cables.*

⚠ WARNING

Connect positive (+) battery cable first. If positive (+) cable should contact ground with negative (-) cable connected, the resulting sparks can cause a battery explosion, which could result in death or serious injury. (00068a)

1. See the service manual. Connect the battery terminal branch to the battery terminals (red positive cable first).
   a. Position the + ring terminal onto the positive battery terminal. Install the bolt.
   b. Position the in-line fuse holder in a location that can be easily accessed.
   c. Position the - ring terminal onto the negative battery terminal. Install the bolt.
   d. Tighten both bolts to 6.8–7.9 N·m (60–70 **in-lbs**).
2. Apply a light coat of petroleum jelly or corrosion retardant material to battery terminals.
3. Install the ECM caddy per the service manual.
4. See the service manual. Install seat. After installing seat, pull up on the seat to verify that it is secure.
5. Install main fuse.

Table 1. Connector Table for Secondary Amplifier Harness (69200490)

Connector	Description
[288]	18-way saddlebag connector
[296]	Secondary amplifier input (from radio rear channel)
[297]	Rear speaker pod output
[298]	Right saddlebag cover speaker output

SERVICE PARTS

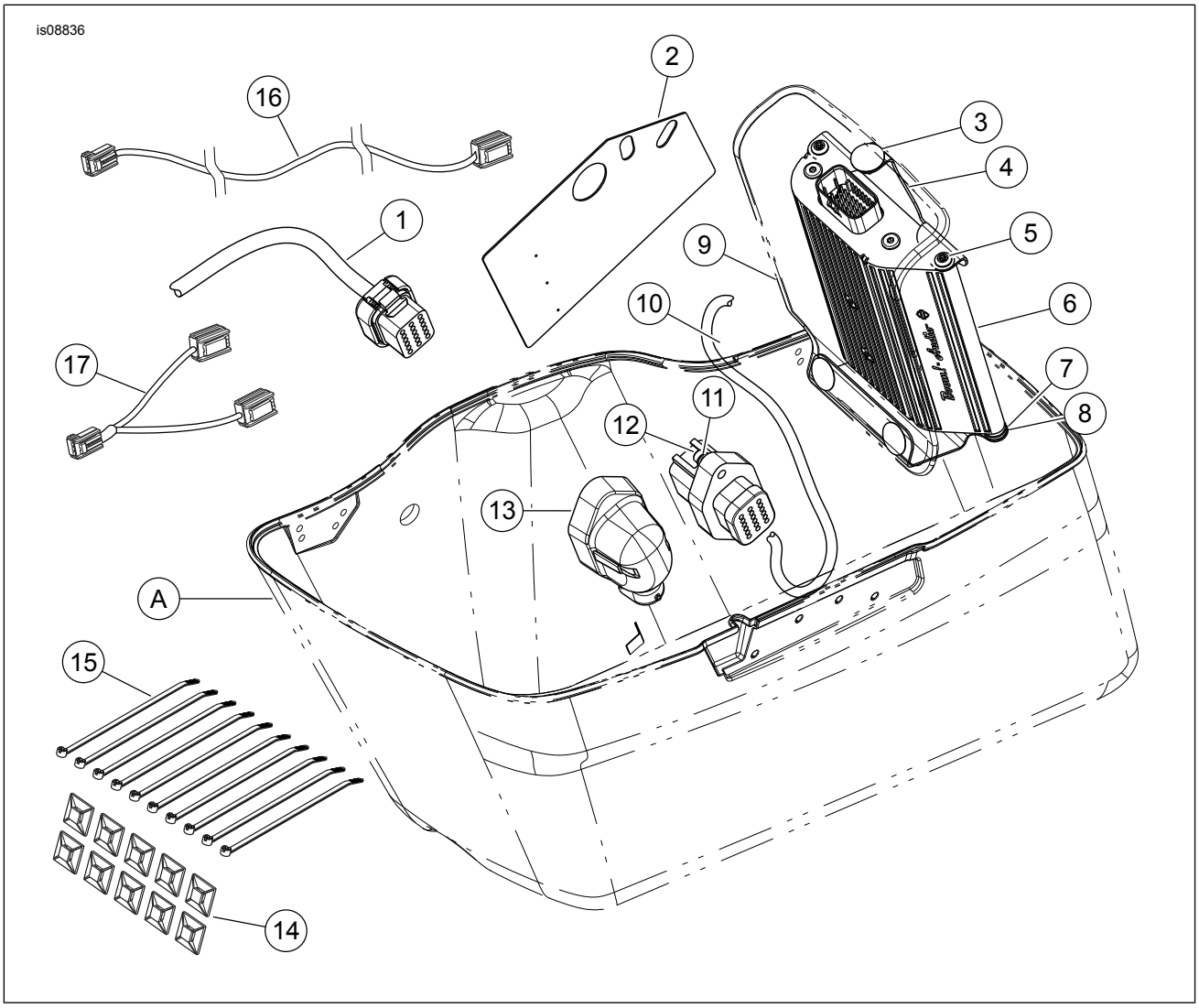


Figure 14. Service Parts, Boom! Audio Amplifier Expansion Kit

Table 2. Service Parts Table

Item	Description (Quantity)	Part Number
1	Secondary amplifier wire harness (part number 69201539)	Not Sold Separately
2	Drill template	76000344
3	Amp clip (3)	12600068
4	Saddlebag amplifier bracket	76000282A
5	Hex socket button head screws (2)	926
6	Amplifier	76000277A
7	Stud pin (2)	12600087
8	Amplifier grommet (2)	12100052
9	Saddlebag amplifier cover	Not Sold Separately
10	Saddlebag amplifier jumper wire harness (part number 69200488)	Not Sold Separately
11	M5 Flat washer (2)	6454
12	M5 Socket head cap screw (2)	3798M
13	Plug cover	Not Sold Separately
14	Cable strap base (10)	69200342
15	Cable strap (10)	10006
16	Jumper harness	69201545
17	Power connector	69200921
Items mentioned in text, but not included in kit:		
A	Saddlebag	

Wiring Diagram Information

Wire Color Codes

For Solid Color Wires: See Connector/Wiring Diagram Symbols (Typical) . The alpha code identifies wire color.

For Striped Wires: The code is written with a slash (/) between the solid color code and the stripe code. For example, a trace labeled GN/Y is a green wire with a yellow stripe.

Wiring Diagram Symbols

See Connector/Wiring Diagram Symbols (Typical) . Brackets [] indicate connector numbers. The letter inside the brackets identifies whether the housing is a socket or pin housing.

A=Pin: The letter A and the pin symbol after a connector number identifies the pin side of the terminal connectors.

B=Socket: The letter B and the socket symbol after a connector number identifies the socket side of the terminal connectors. Other symbols found on the wiring diagrams include the following:

Diode: The diode allows current flow in one direction only in a circuit.

Wire break: The wire breaks are used to show option variances or page breaks.

No Connection: Two wires crossing over each other in a wiring diagram that are shown with no splice indicating they are not connected together.

Circuit to/from: This symbol indicates a complete circuit diagram on another page. The symbol is also identifying the direction of current flow.

Splice: Splices are where two or more wires are connected together along a wiring diagram. The indication of a splice only indicates that wires are spliced to that circuit. It is not the true location of the splice in the wiring harness.

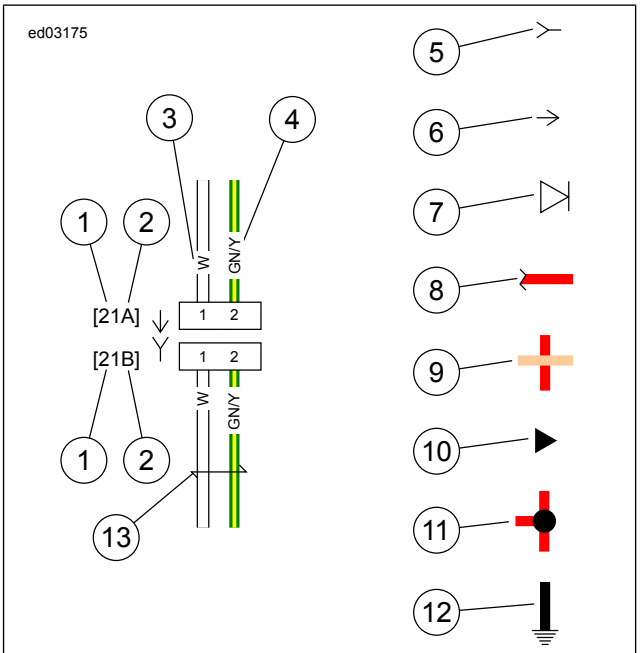
Ground: Grounds can be classified as either clean or dirty grounds. Clean grounds are identified by a (BK/GN) wire and are normally used for sensors or modules.

NOTE

Clean grounds usually do not have electric motors, coils or anything that may cause electrical interference on the ground circuit.

Dirty grounds are identified by a (BK) wire and are used for components that are not as sensitive to electrical interference.

Twisted pair: This symbol indicates that the two wires are twisted together in the harness. This minimizes the circuit's electromagnetic interference from external sources. If repairs are necessary to these wires, they should remain as twisted wires.



1. **Connector number**
2. **Terminal code (A=pin, B=socket)**
3. **Solid wire color**
4. **Striped wire color**
5. **Socket symbol**
6. **Pin symbol**
7. **Diode**
8. **Wire break**
9. **No connection**
10. **Circuit to/from**
11. **Splice**
12. **Ground**
13. **Twisted pair**

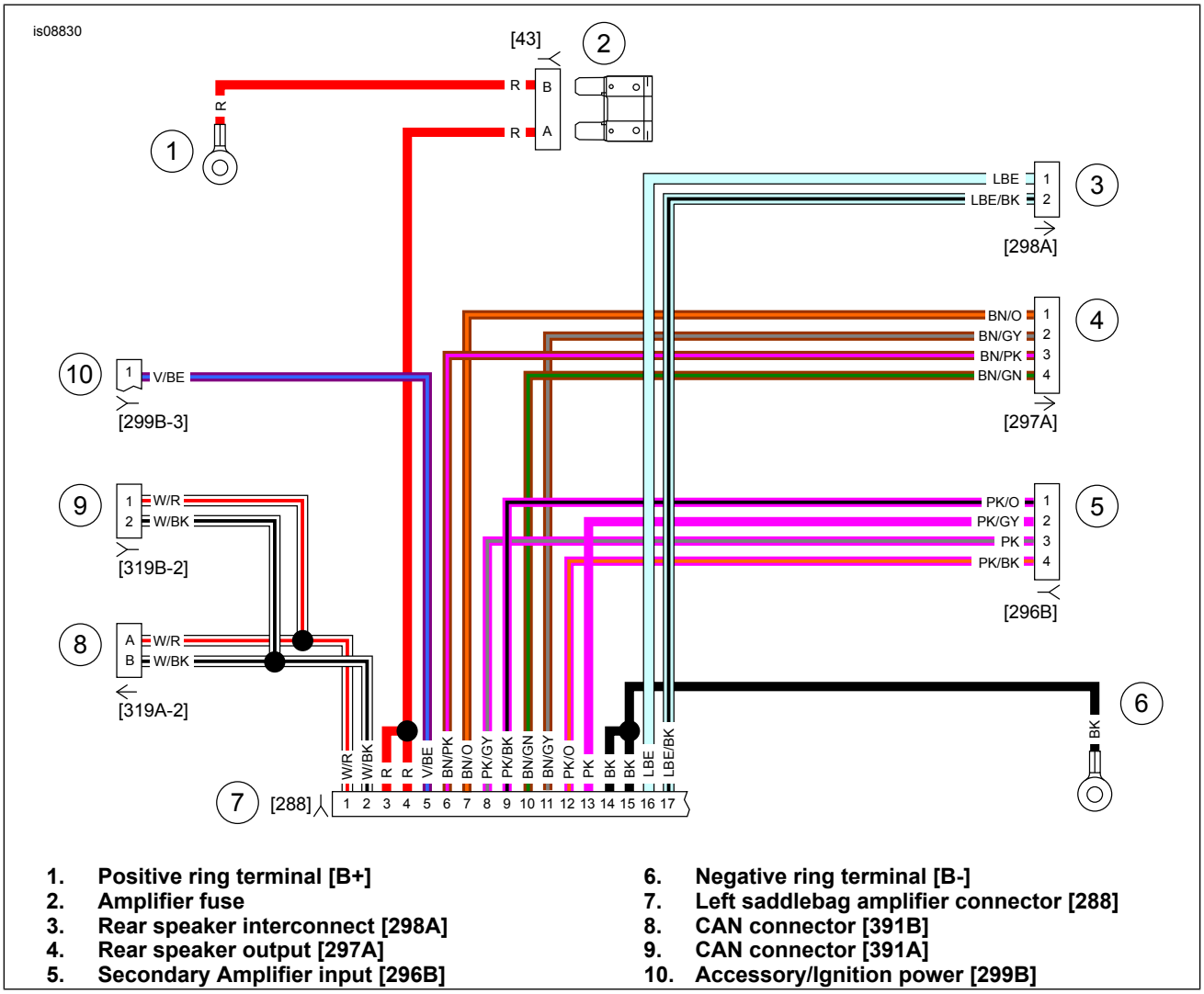
Figure 15. Connector/Wiring Diagram Symbols

Table 3. Wire Color Codes

ALPHA CODE	WIRE COLOR
BE	Blue
BK	Black
BN	Brown
GN	Green
GY	Gray
LBE	Light Blue
LGN	Light Green

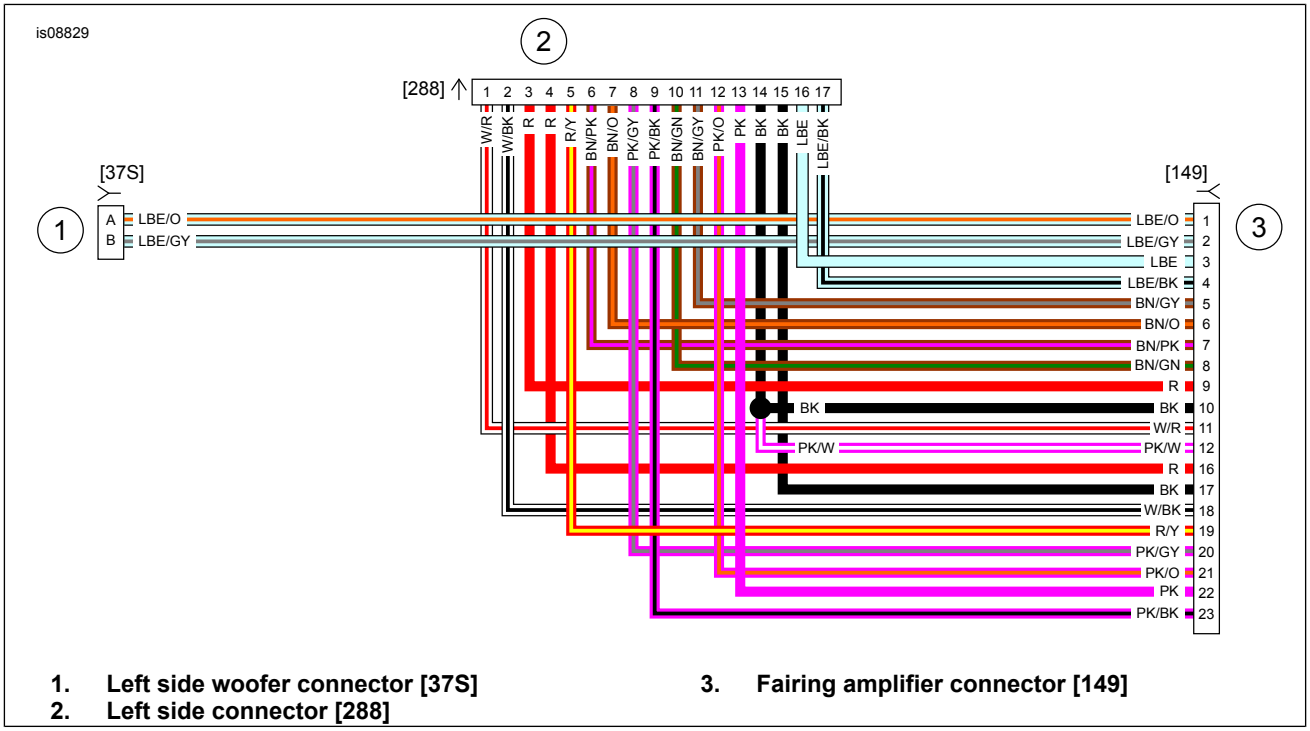
Table 3. Wire Color Codes

ALPHA CODE	WIRE COLOR
O	Orange
PK	Pink
R	Red
TN	Tan
V	Violet
W	White
Y	Yellow



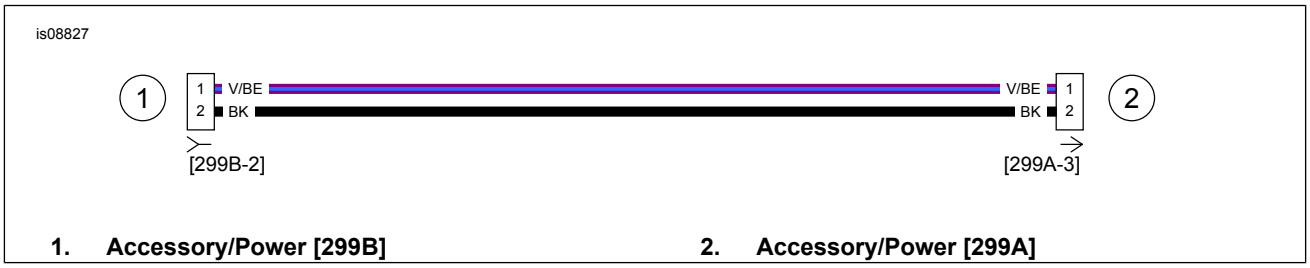
1. **Positive ring terminal [B+]**
2. **Amplifier fuse**
3. **Rear speaker interconnect [298A]**
4. **Rear speaker output [297A]**
5. **Secondary Amplifier input [296B]**
6. **Negative ring terminal [B-]**
7. **Left saddlebag amplifier connector [288]**
8. **CAN connector [391B]**
9. **CAN connector [391A]**
10. **Accessory/Ignition power [299B]**

Figure 16. Saddlebag Speaker Wire Harness



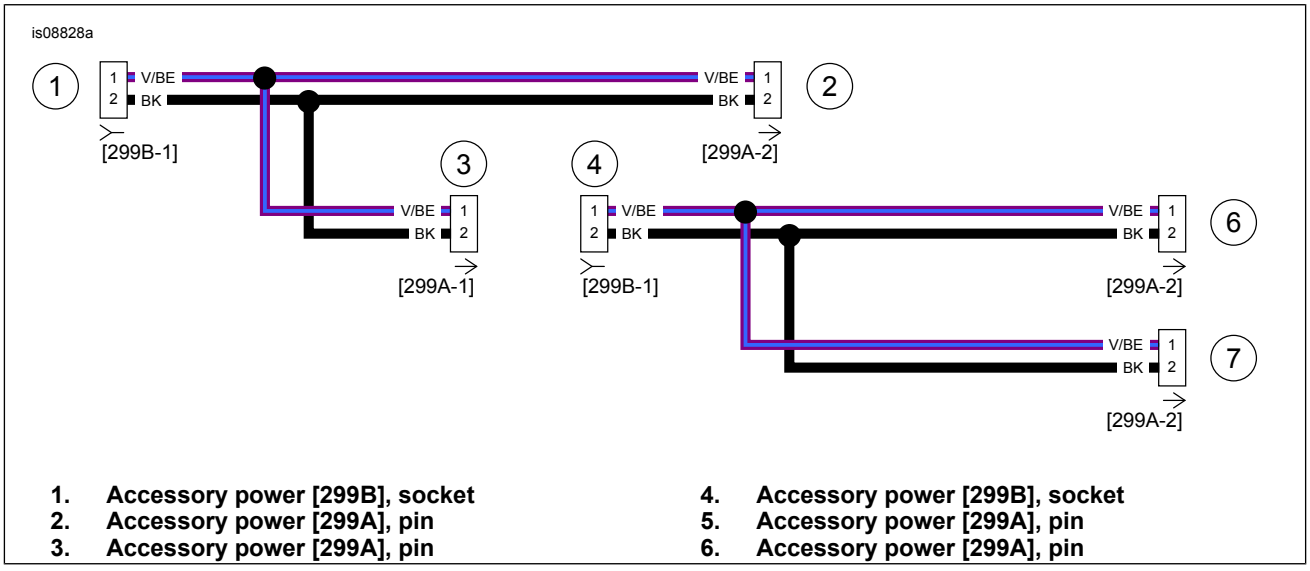
1. Left side woofer connector [37S]
2. Left side connector [288]
3. Fairing amplifier connector [149]

Figure 17. Left side saddlebag speaker Wire Harness



1. Accessory/Power [299B]
2. Accessory/Power [299A]

Figure 18. Rear Jumper Wire Harness



1. Accessory power [299B], socket
2. Accessory power [299A], pin
3. Accessory power [299A], pin
4. Accessory power [299B], socket
5. Accessory power [299A], pin
6. Accessory power [299A], pin

Figure 19. Accessory Power Harness