

GENERAL

Security Equipped Vehicles Only

This section applies only to those vehicles equipped with the optional security system.

NOTE

Disarming function may require practice. The key fob button **must** be pressed twice within 1.5 seconds to send the disarm command. The action is very similar to double-clicking a computer mouse. Light quick taps work best; very hard or very slow taps are less likely to work.

See [Figure 3-24](#). The key fob sends a RF signal to activate all remote TSSM functions. The left front turn signal switch wire serves as the vehicle's antenna. If the TSSM does not respond (no confirmation at arming/disarming system) or responds weakly (limited range, won't consistently arm/disarm or synchronize), follow the Test 3.14 flow chart.

Job/Time Code Values

Dealership technicians filing warranty claims should use the job/time code values printed in **bold text** underneath the appropriate repair.

DIAGNOSTICS

Diagnostic Tips

- Verify key fob battery voltage is at least 2.9 volts. See [Section 3.25 TSSM MAINTENANCE](#).
- Interference from physical surroundings may affect RF transmission. Place fob next to left handgrip and disarm with two clicks or move motorcycle to a new location and retest.
- Check for damage to antenna wire. Does left turn signal work?

NOTE

See [Section 3.7 ARMING/DISARMING SECURITY SYSTEM \(TSSM\)](#). Use only the proper key fob for your market and TSSM package.

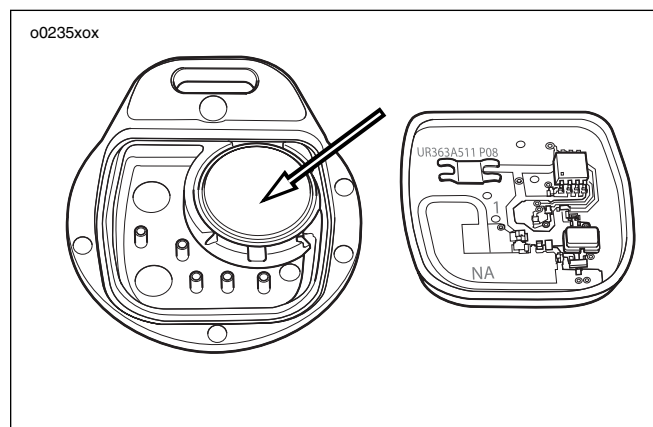


Figure 3-24. Key Fob Battery

Diagnostic Notes

The reference numbers below correlate with the circled numbers on the [Test 3.14](#) flow charts.

1. After a battery disconnect, the TSSM will not enter the configuration mode on the first attempt. All attempts to assign a fob or enter the configuration mode will require at least two attempts.

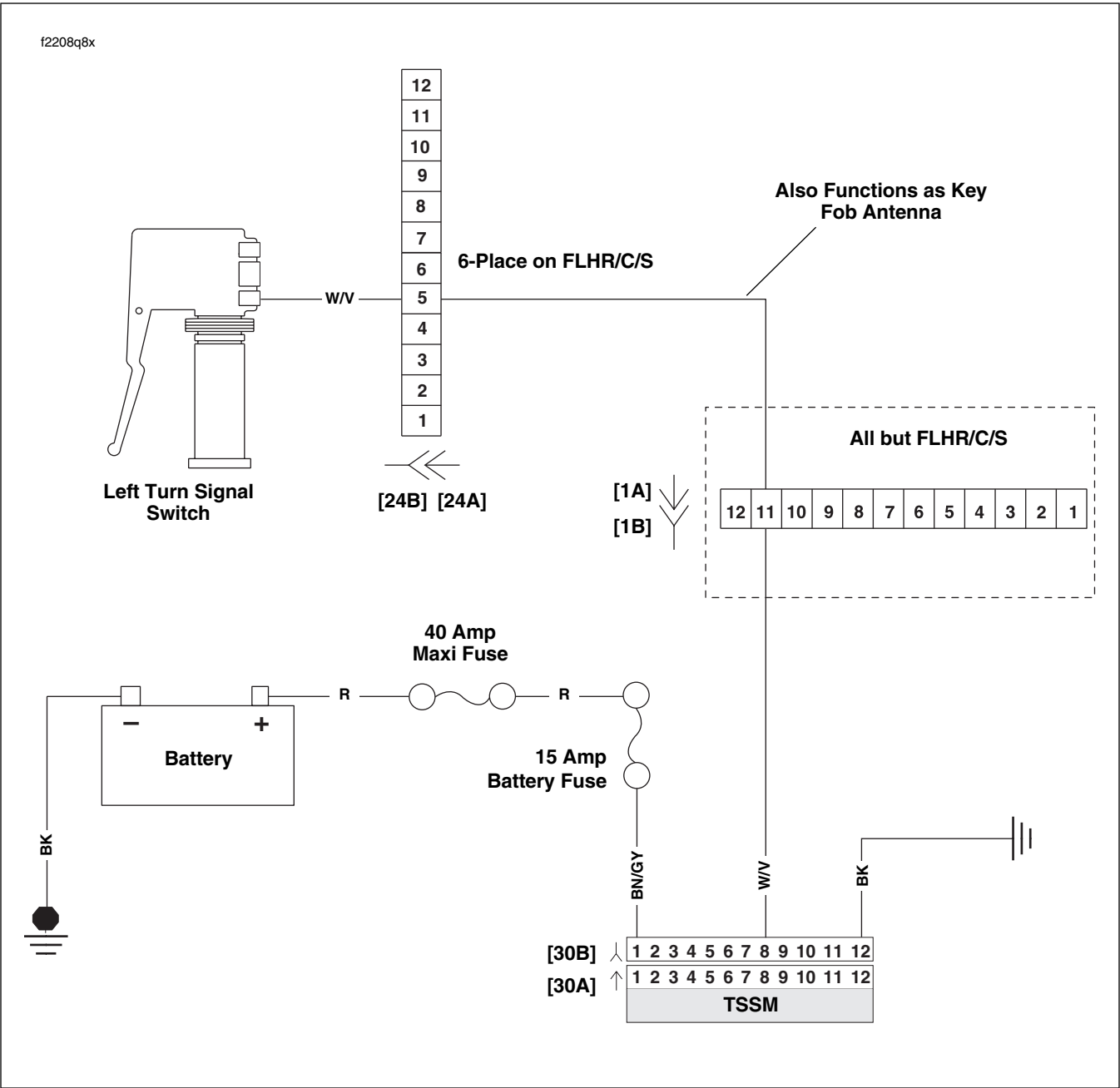


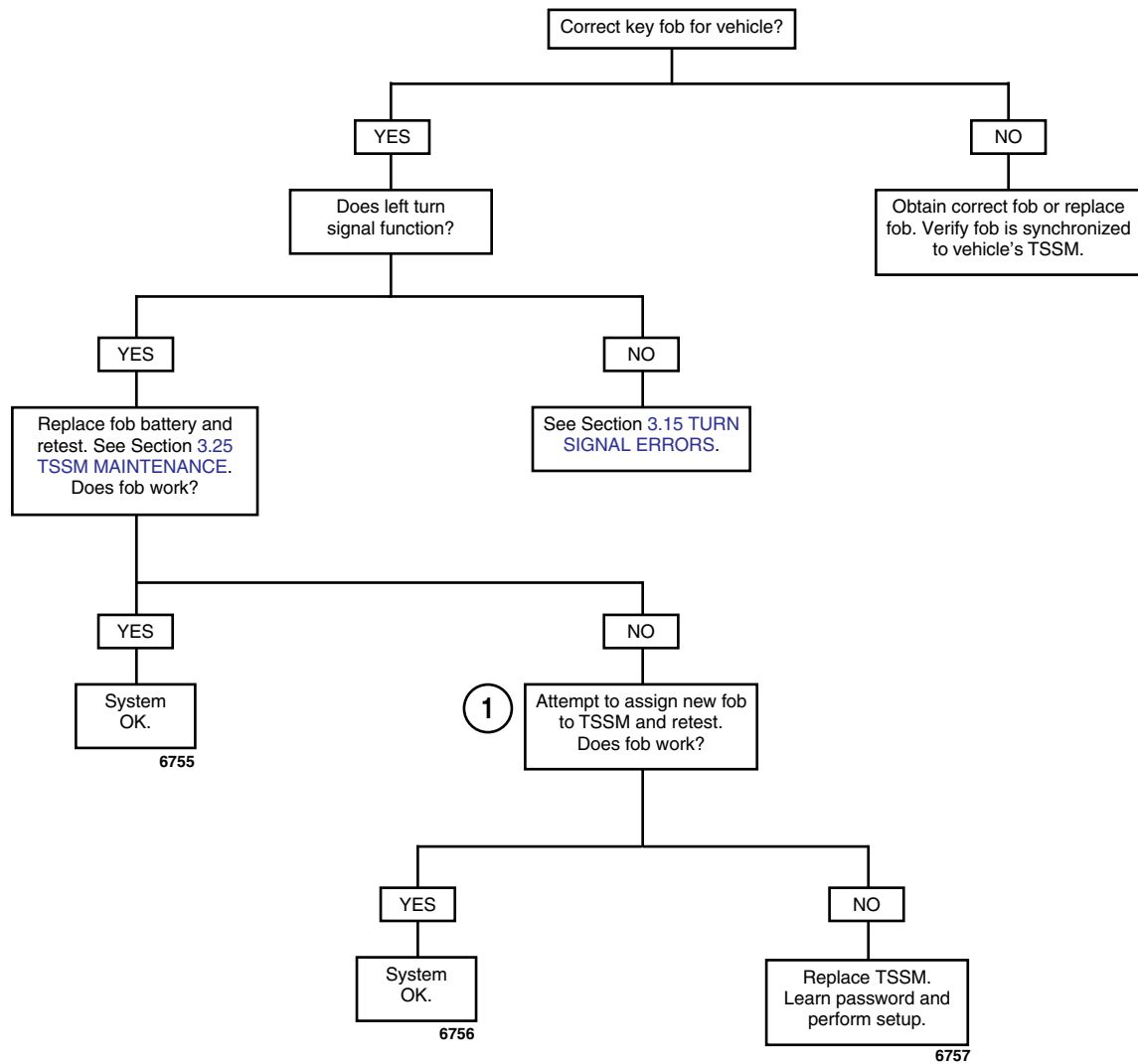
Figure 3-25. Antenna Circuit

Table 3-19. Wire Harness Connectors in [Figure 3-25](#).

NO.	DESCRIPTION	MODEL	TYPE	LOCATION
[1]	Main to Interconnect Harness	FLHT/C	12-Place Deutsch (Black)	Inner Fairing - Right Radio Support Bracket
		FLTR	12-Place Deutsch (Black)	Inner Fairing - Below Radio (Right Side)
[24]	Left Handlebar Switch Controls	FLHT/C/U	12-Place Deutsch	Inner Fairing - Left Fairing Support Brace
		FLTR	12-Place Deutsch	Inner Fairing - Left Side of Radio Bracket
		FLHR/C/S	6-place Deutsch	Inside Headlamp Nacelle
[30]	TSSM	All	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)

Test 3.14

FOB SIGNAL TO TSSM WEAK OR FAILS



GENERAL

The turn signals will automatically cancel either based on the speed/acceleration of the vehicle or based upon turn completion. See Section [3.4 TSM/TSSM TURN SIGNAL FUNCTIONS](#).

For turn signal diagnostics, refer to [Table 3-20](#).

Job/Time Code Values

Dealership technicians filing warranty claims should use the job/time code values printed in **bold text** underneath the appropriate repair.

DIAGNOSTICS

Diagnostic Tips

- DTC B1121 and B1122 will illuminate the security lamp.
- DTC B1141 will not illuminate the security lamp.
- When the TSM/TSSM is in four-way flasher mode, a fault on either the left or right turn lamp output will not cause either DTC B1121 and DTC B1122 to be set. If fault occurs on both left and right outputs, then both DTC B1121 and DTC B1122 will be set.
- When the TSM/TSSM detects an over current (or short to ground) condition, it will turn off the turn lamp outputs. The outputs will be automatically reactivated once the fault is removed.

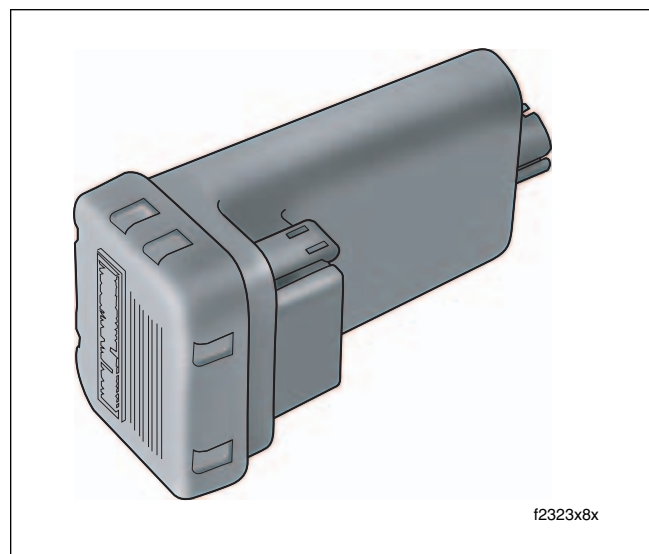


Figure 3-26. TSM/TSSM

Table 3-20. Turn Signal Errors

SYMPTOM	START WITH FLOW CHART	DTC(S)
Turn signals will not cancel upon turn completion	Turn Signal Error 1A (Part 1 of 2)	N/A
Turn signals cancel erratically	Turn Signal Error 1A (Part 2 of 2)	N/A
Turn signals will not flash, 4-way flashers inoperable	Turn Signal Error 2A	B1121, B1122, B1141
Left or right turn signals flash at double the normal rate while all bulbs are working	Turn Signal Error 3A	N/A

f2438a9x

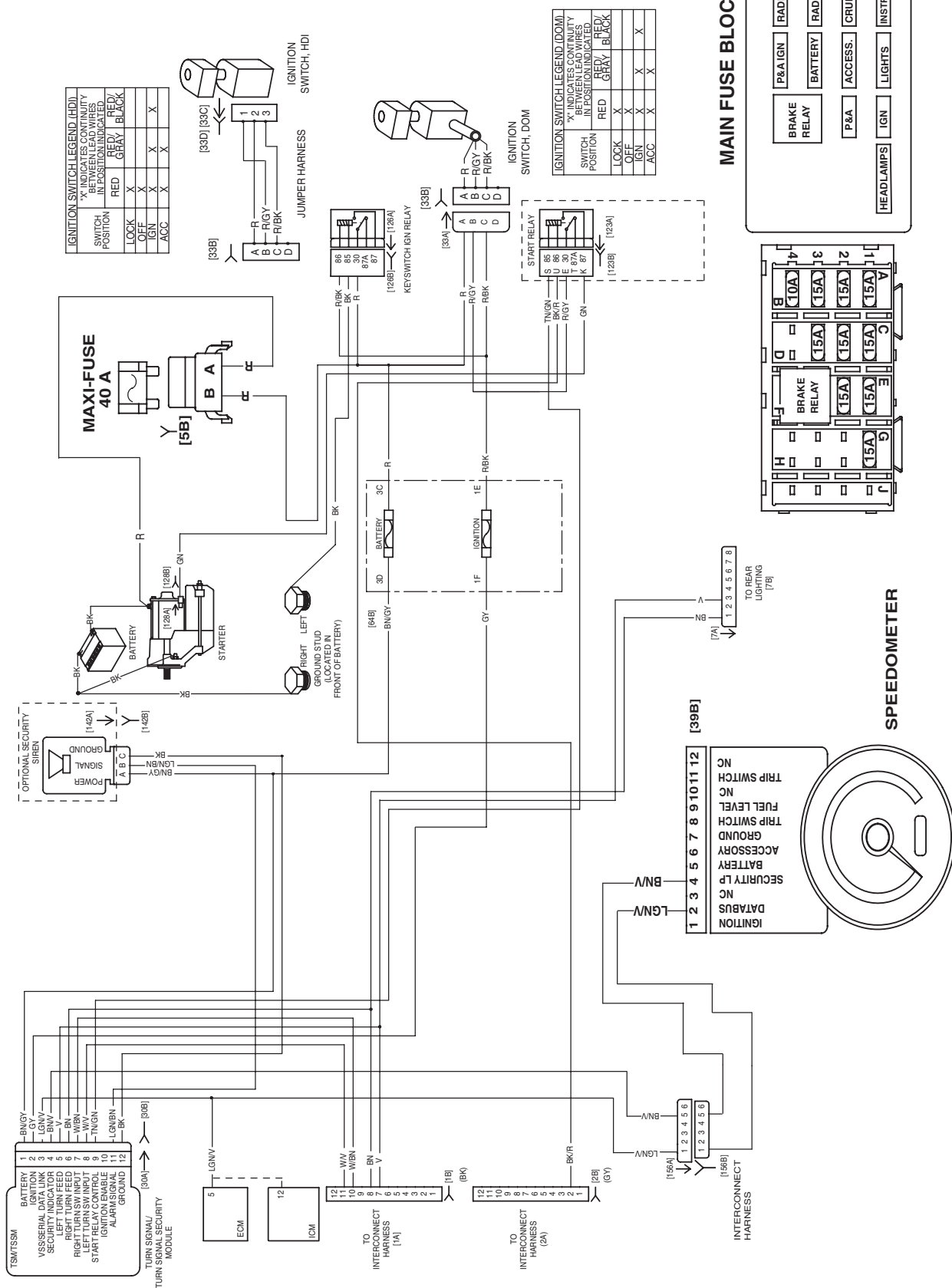


Figure 3-27. Turn Signal Circuit: FLHX, FLHT/C/U, FLTR

f2437a9x

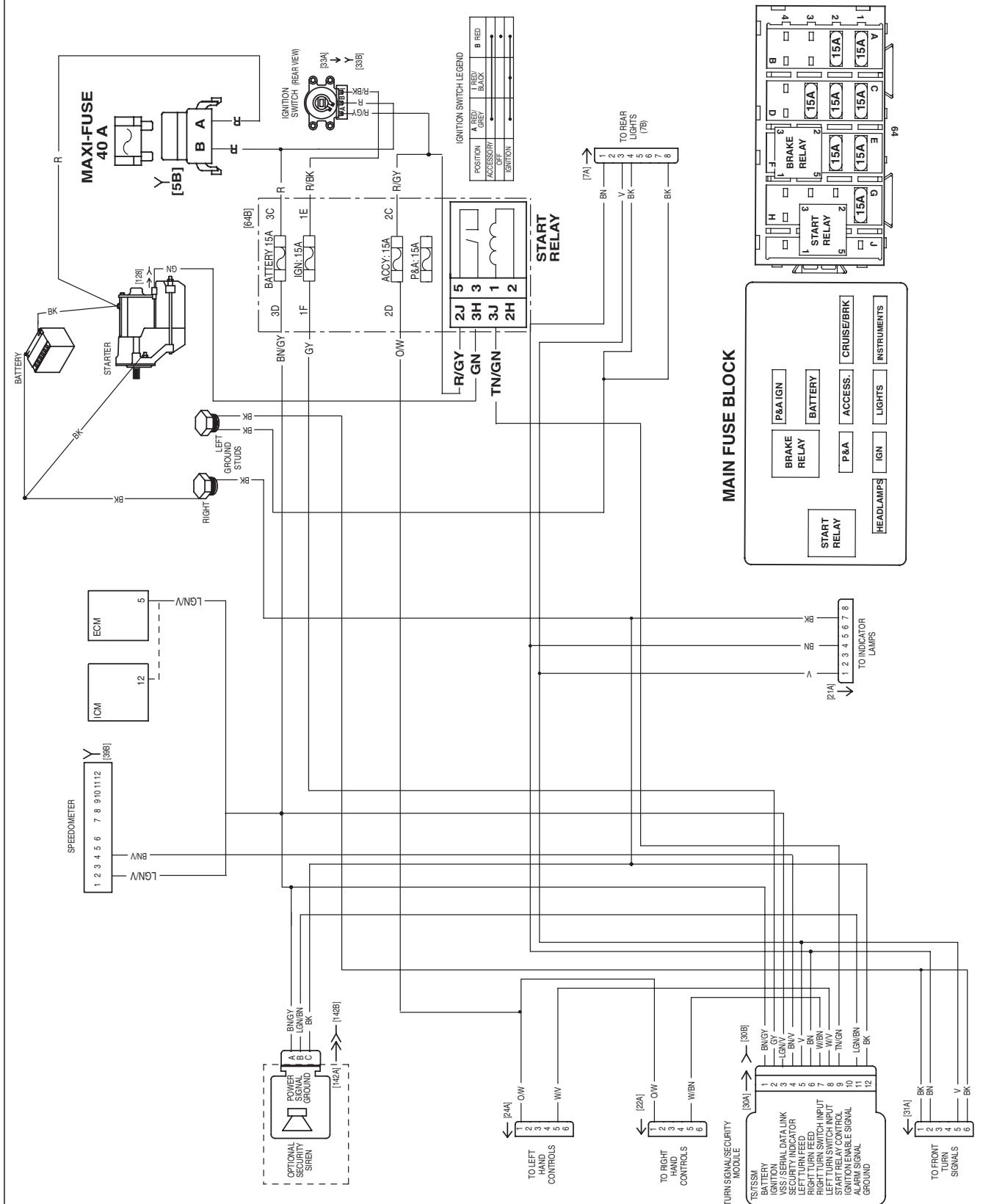


Figure 3-28. Turn Signal Circuit: FLHR/C/S

Diagnostic Notes:

All Turn Signal Flow Charts

The reference numbers below correlate with the circled numbers on the turn signal flow charts.

NOTE

See [Figure 3-30](#). To connect the **SPEEDOMETER TESTER** (Part No. HD-41354) to the 3-place vehicle speed sensor connector [65], fabricate an adapter harness using the following parts:

- Two Deutsch 3-place socket housings (Part No. 72113-94BK) and six socket terminals (Part No. 72191-94).
 - Deutsch 3-place pin housing (Part No. 72103-94BK) and three pin terminals (Part No. 72190-94).
 - Six lengths of 18 gauge wire, each 6.0 in. (15 cm) long.
1. Gain access to vehicle's TSM/TSSM. Perform the following procedure:
 - a. See [Figure 3-31](#). Position TSM/TSSM in same orientation it is mounted on vehicle. Turn on ignition switch. Turn on 4-way flashers by depressing both left and right turn signal switches simultaneously. Turn ignition off; 4-way flashers should continue to flash.
 - b. Tilt module greater than 45 degrees to the left.
 - c. Repeat step a.
 - d. Tilt module greater than 45 degrees to the right.
 2. Connect **SPEEDOMETER TESTER** (Part No. HD-41354) to connector [65B]. Turn on ignition switch. set RUN/STOP switch to the RUN position. Use **SPEEDOMETER TESTER** to input a signal which duplicates a speed greater than or equal to 20 MPH (32.2 KPH). Enter 528 into the tester. If turn signals are working correctly, they will flash 20 times and then cancel.
 3. To enable diagnostic mode, See [Section 3.10 SPEEDOMETER SELF DIAGNOSTICS](#).
 4. Connect **BREAKOUT BOX** (Part No. HD-42682) (gray) between TSM/TSSM connector [30A] and wiring harness connector [30B]. See [Section 3.11 BREAKOUT BOX: TSM/TSSM](#).
 5. Closely inspect handlebar controls for pinched wiring.
 6. Remove **BREAKOUT BOX** (Part No. HD-42682) (gray) from between TSM/TSSM connector [30A] and wiring harness connector [30B]. Reconnect [30].
 7. Connect **BREAKOUT BOX** (Part No. HD-42682) (black) between wiring harness connector [24A] and left hand control harness connector [24B]. On FLHR/C/S use 6-pin Harness Adapters (Part no. HD-42962) to mate handlebar controls to Breakout Box.
 8. Connect **BREAKOUT BOX** (Part No. HD-42682) (black) between wiring harness connector [22A] and right hand

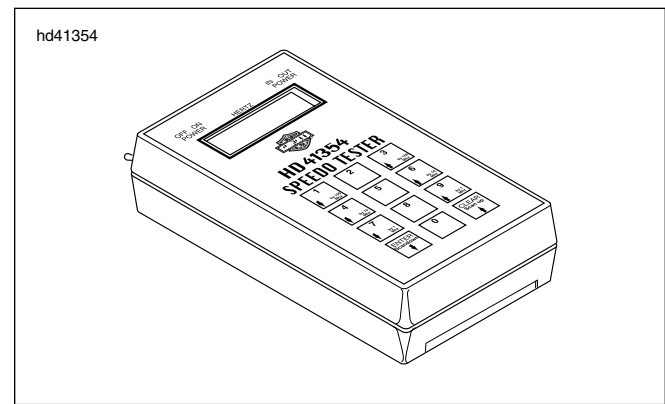


Figure 3-29. Speedometer Tester

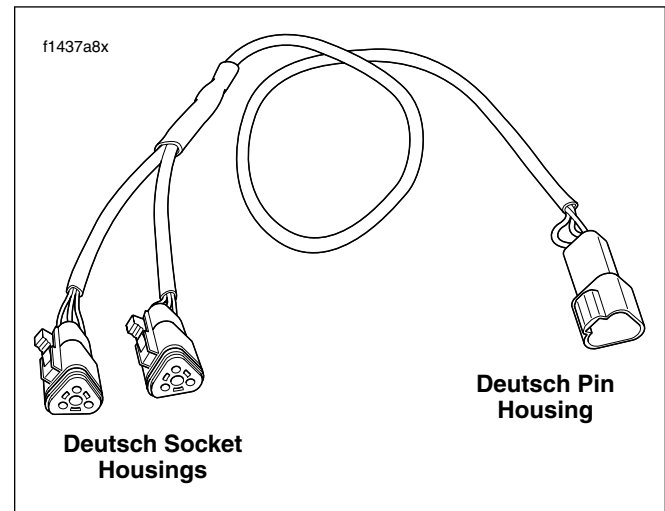


Figure 3-30. Adapter Harness

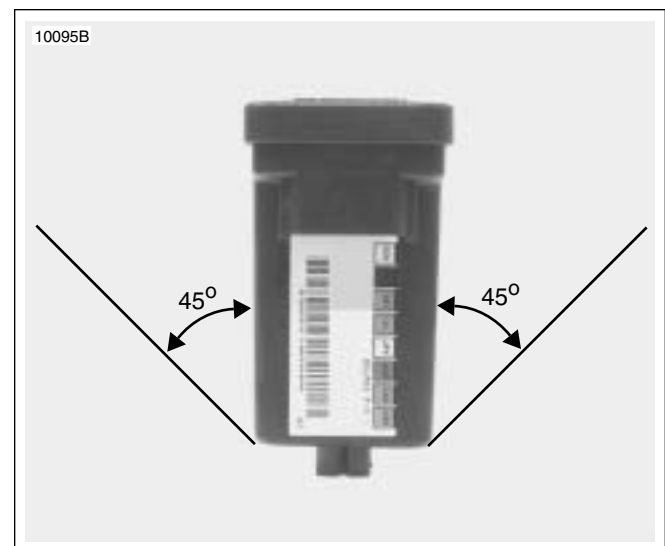


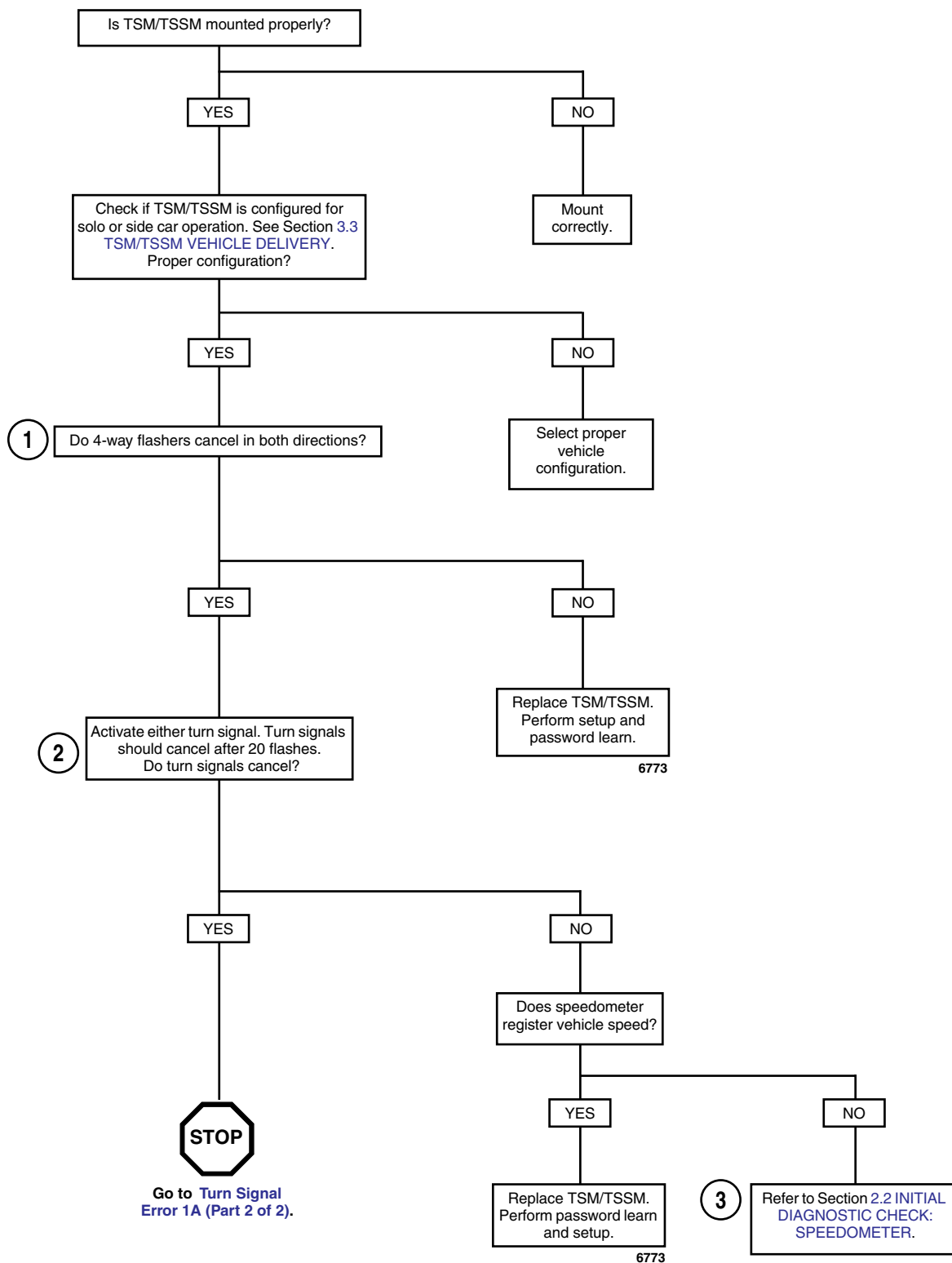
Figure 3-31. Tilting TSM/TSSM

control harness connector [22B]. On FLHR/C/S use 6-pin Harness Adapters (Part no. HD-42962) to mate handlebar controls to Breakout Box.

9. Check for corrosion at rear lighting harness connector [7], front lighting harness connector [31] and TSSM [30].

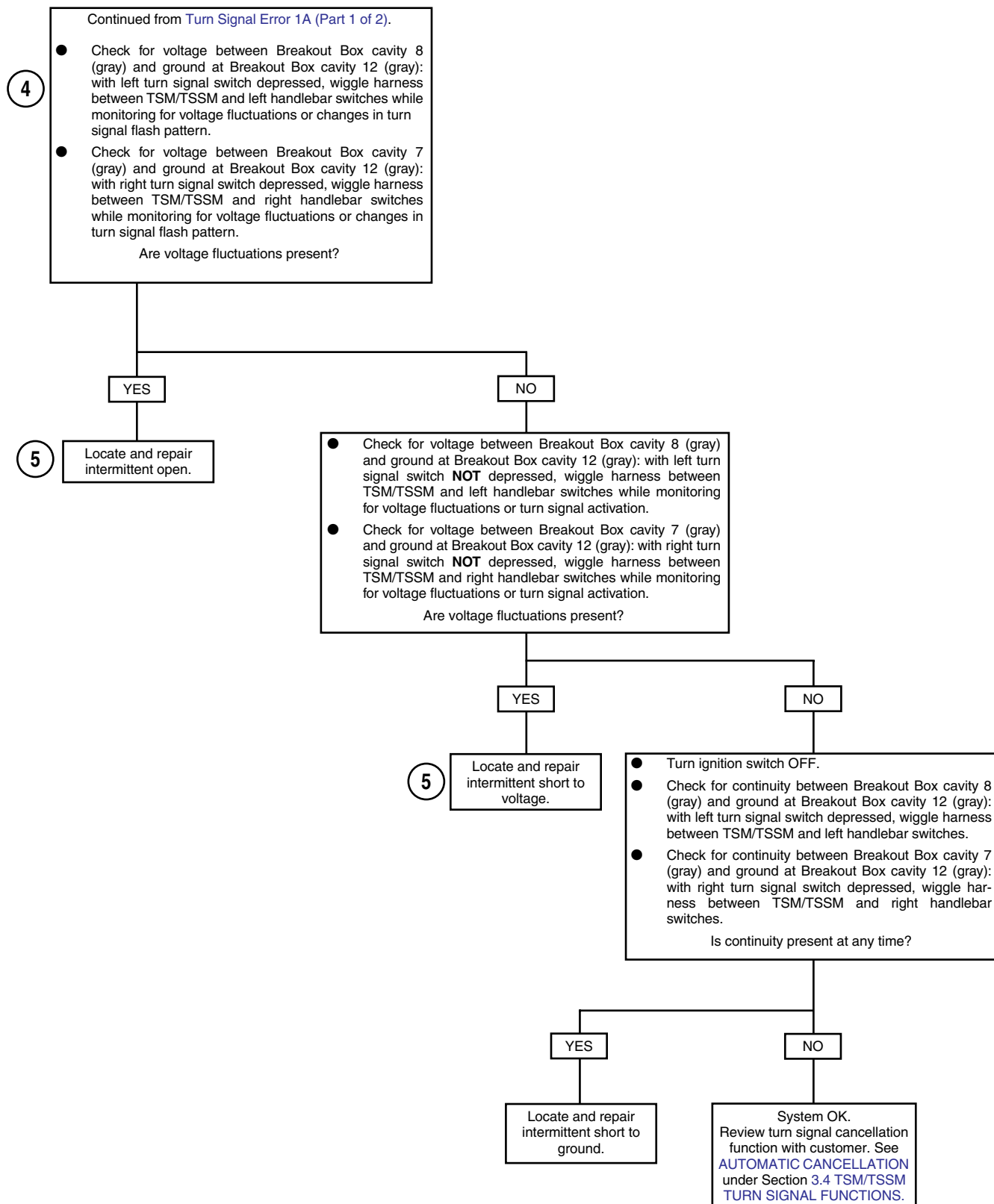
Turn Signal Error 1A (Part 1 of 2)

WILL NOT CANCEL UPON TURN COMPLETION



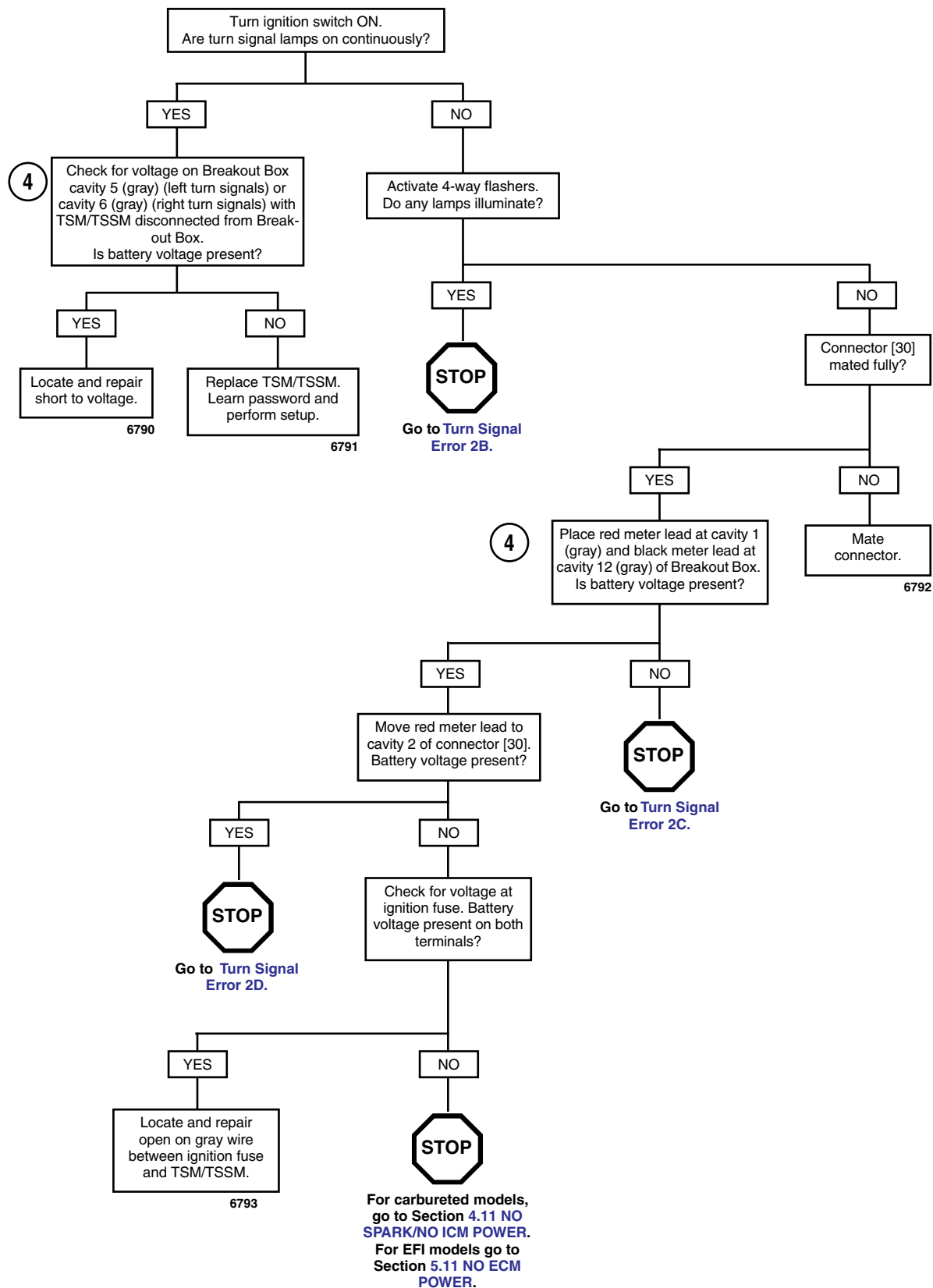
Turn Signal Error 1A (Part 2 of 2)

CANCELS ERRATICALLY



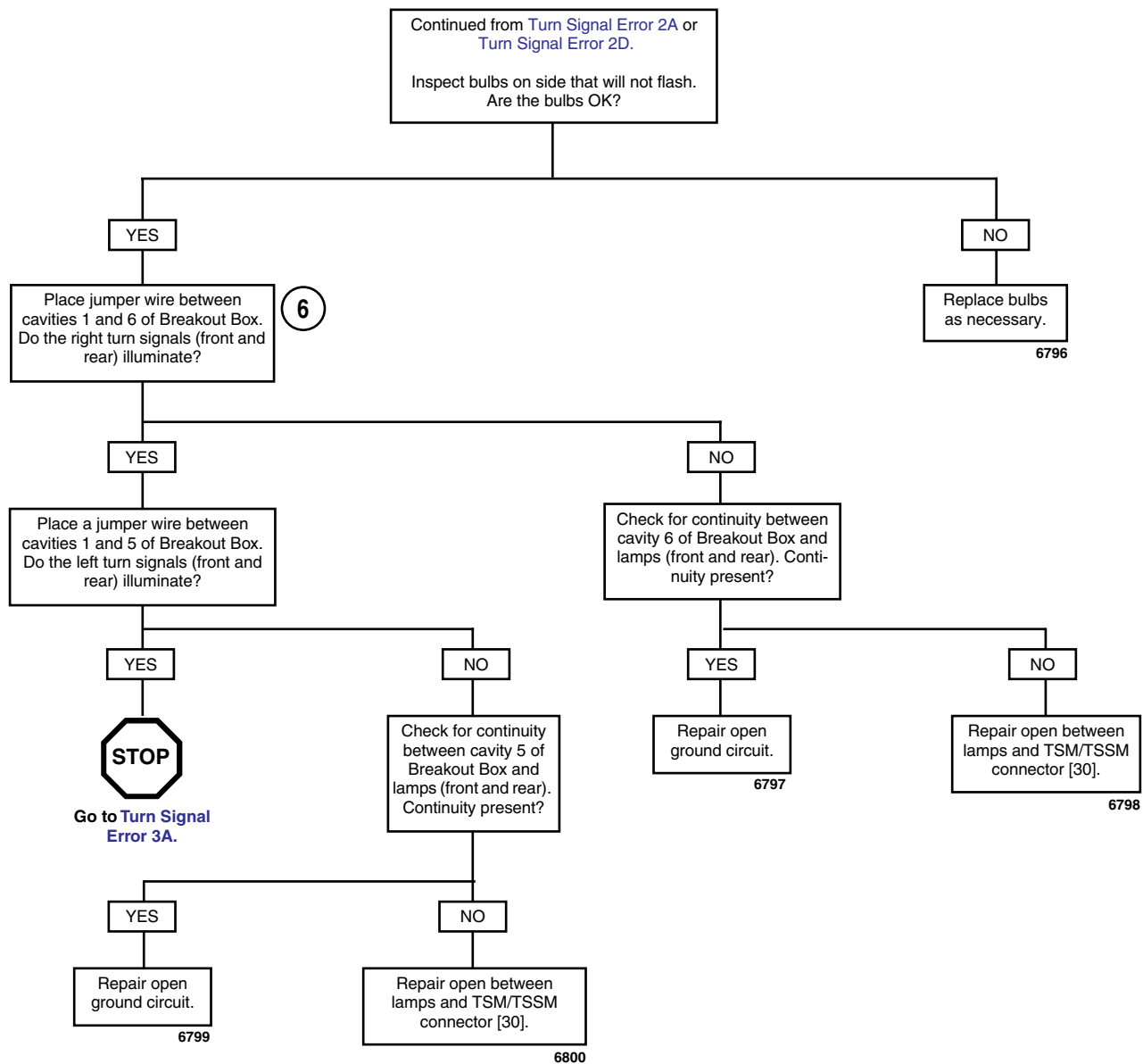
Turn Signal Error 2A

WILL NOT FLASH, 4-WAY FLASHERS INOPERABLE: DTC B1121, B1122, B1141



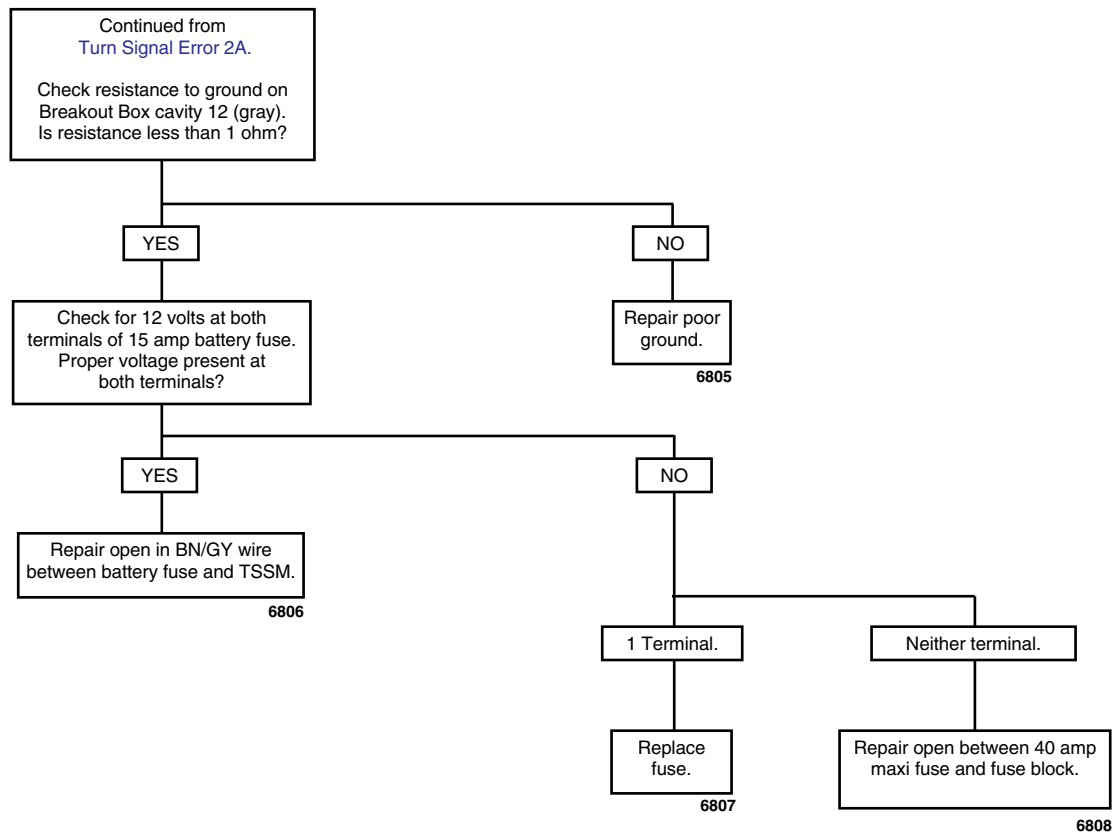
Turn Signal Error 2B

WILL NOT FLASH, 4-WAY FLASHERS INOPERABLE: DTC B1121, B1122, B1141



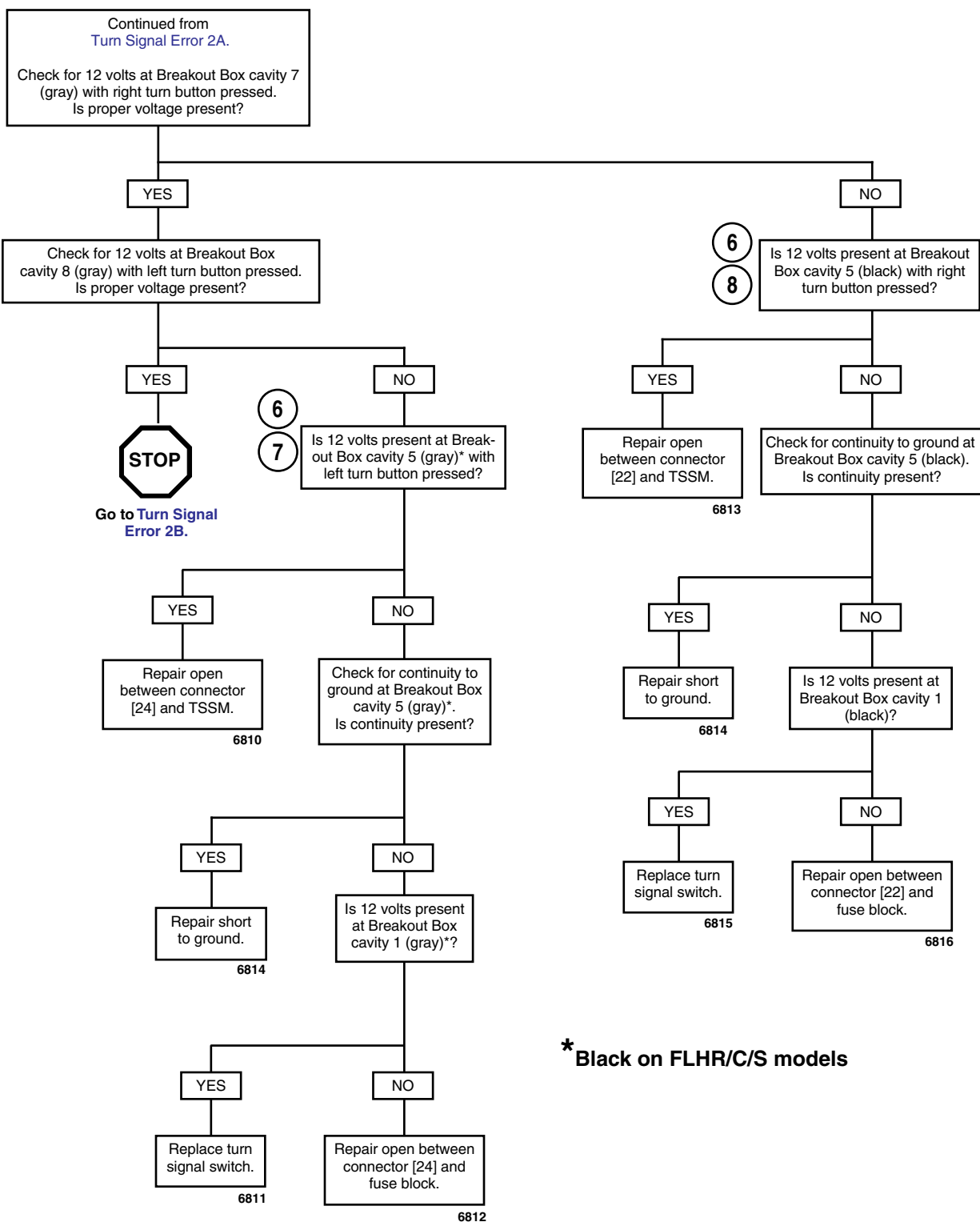
Turn Signal Error 2C

WILL NOT FLASH, 4-WAY FLASHERS INOPERABLE: DTC B1121, B1122, B1141



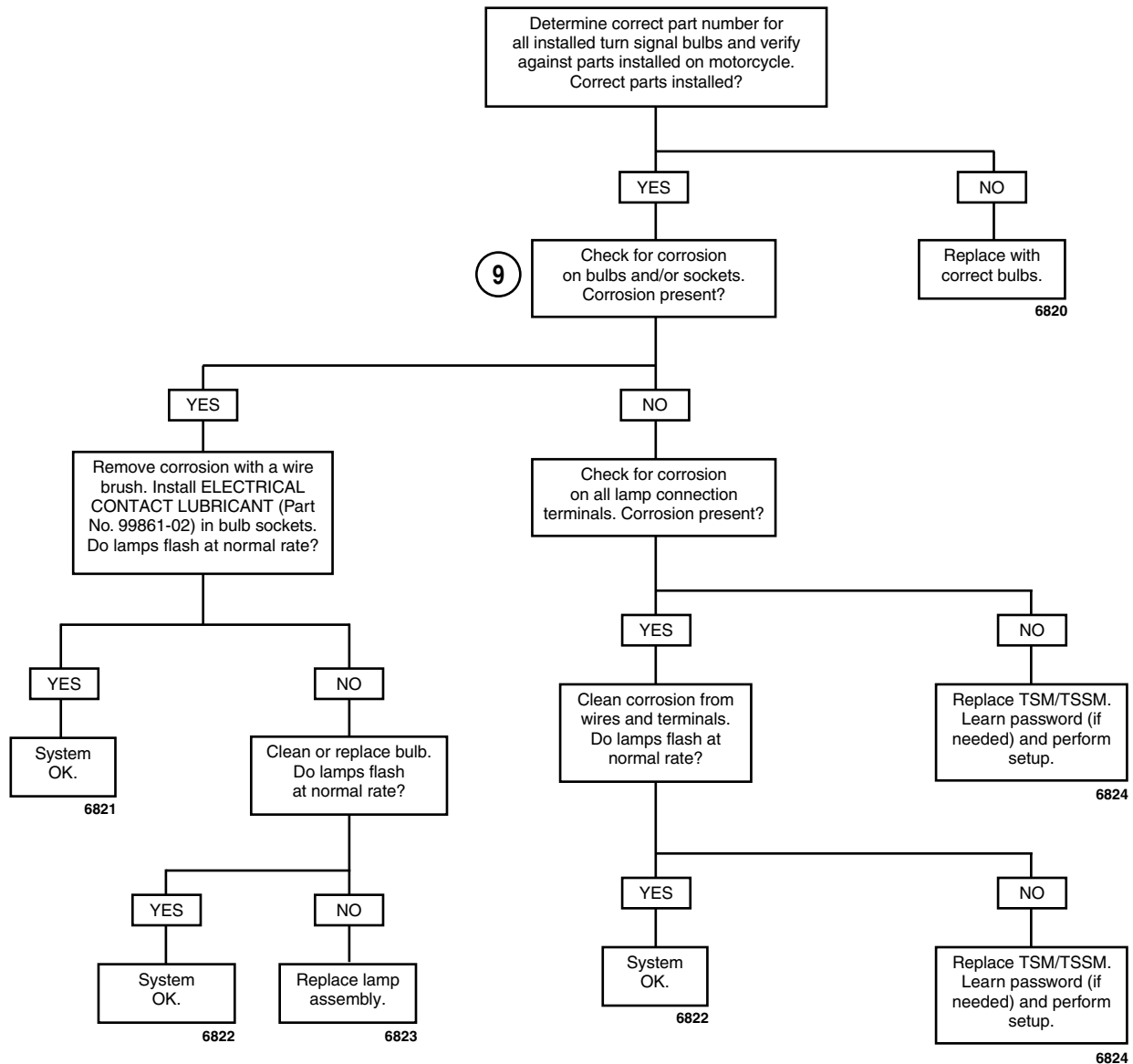
Turn Signal Error 2D

WILL NOT FLASH, 4-WAY FLASHERS INOPERABLE: DTC B1121, B1122, B1141



Turn Signal Error 3A

FLASH AT DOUBLE NORMAL RATE, ALL BULBS WORKING



GENERAL

Battery Voltage High

The TSM/TSSM continually checks the battery voltage during IGN/OFF and IGN/RUN power modes. If the voltage exceeds 16.0 volts for more than 5.0 ± 0.5 seconds, the TSM/TSSM sets DTC B0563.

DIAGNOSTICS

Diagnostic Tips

- This DTC may set when the vehicle is placed on a battery charger, on fast charge, for a long period of time.
- The TSSM does not illuminate the security lamp when this DTC is set.

Diagnostic Notes

See Section [1.7 CHARGING SYSTEM](#) tests in Section 1 to correct. Problem may be faulty voltage regulator.

GENERAL

NOTE

This section applies only to those vehicles equipped with the optional security system.

Alarm Output Low (DTC B1131) or Alarm Output High (DTC B1132)

See [Figure 3-32](#). An alarm cycle is activated when the TSSM is connected, the siren has been armed by the TSSM and a security event occurs. See [Section 3.6 SECURITY SYSTEM \(TSSM\) FUNCTIONS](#). Under normal armed operation, the siren input (terminal B) is driven low by the TSSM to trigger the audible alarm. When the siren input is driven high by the TSSM the audible alarm stops.

DIAGNOSTICS

Diagnostic Tips

- If the siren is armed and the internal siren battery is dead, shorted, disconnected, or has been charging for a period longer than 24 hours, the siren will respond with three chirps on arming instead of two.
- The internal siren battery may not charge if the vehicle's battery is less than 12.5 volts.
- If the siren does not chirp, two or three times, on a valid arming command from the TSSM, the siren is either not connected, not working, or the siren wiring was opened or shorted while the siren was disarmed.
- If the siren enters the self-driven mode where it is powered from the siren internal nine-volt battery, the turn-signal lamps will not alternately flash. If the TSSM activates the siren, the turn-signal lamps will flash. If the siren has been armed and a security event occurs, and the siren is in self-driven mode, the siren will alarm for 20 to 30 seconds and then turn off for 5 to 10 seconds. This alarm cycle will be repeated ten times if the siren is in the self-driven mode.
- If the siren does not stop alarming after it has been armed, then either the TSSM output or siren input may be shorted to ground, or the siren vehicle battery connection is open or shorted to ground, or the siren vehicle ground connection is open, or a security event has occurred. See [Section 3.6 SECURITY SYSTEM \(TSSM\) FUNCTIONS](#) for a description of alarm functions.

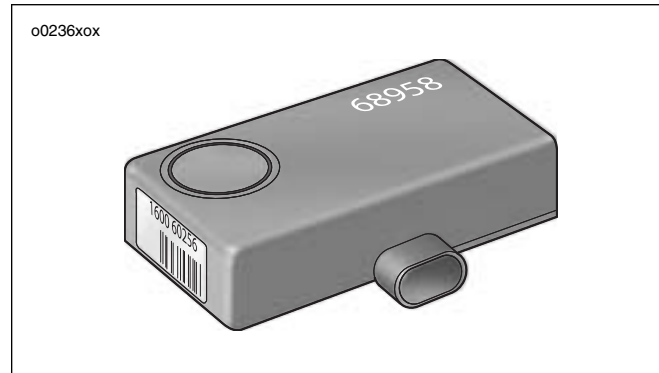


Figure 3-32. Siren

Diagnostic Notes

The reference numbers below correlate with the circled numbers on the Test 3.17 flow chart.

1. Use BREAKOUT BOX (Part No. HD-42682) and HARNESS CONNECTOR TEST KIT (Part No. HD-41404A), gray pin probe and patch cord. See [Section 3.11 BREAKOUT BOX: TSM/TSSM](#).
2. Use HARNESS CONNECTOR TEST KIT (Part No. HD-41404A), gray socket probe and patch cord.
3. Having the correct multimeter ohm scale is important for this test. Some meters may read infinity for high ohm values. If this is the case, check your ohm scale and retest.

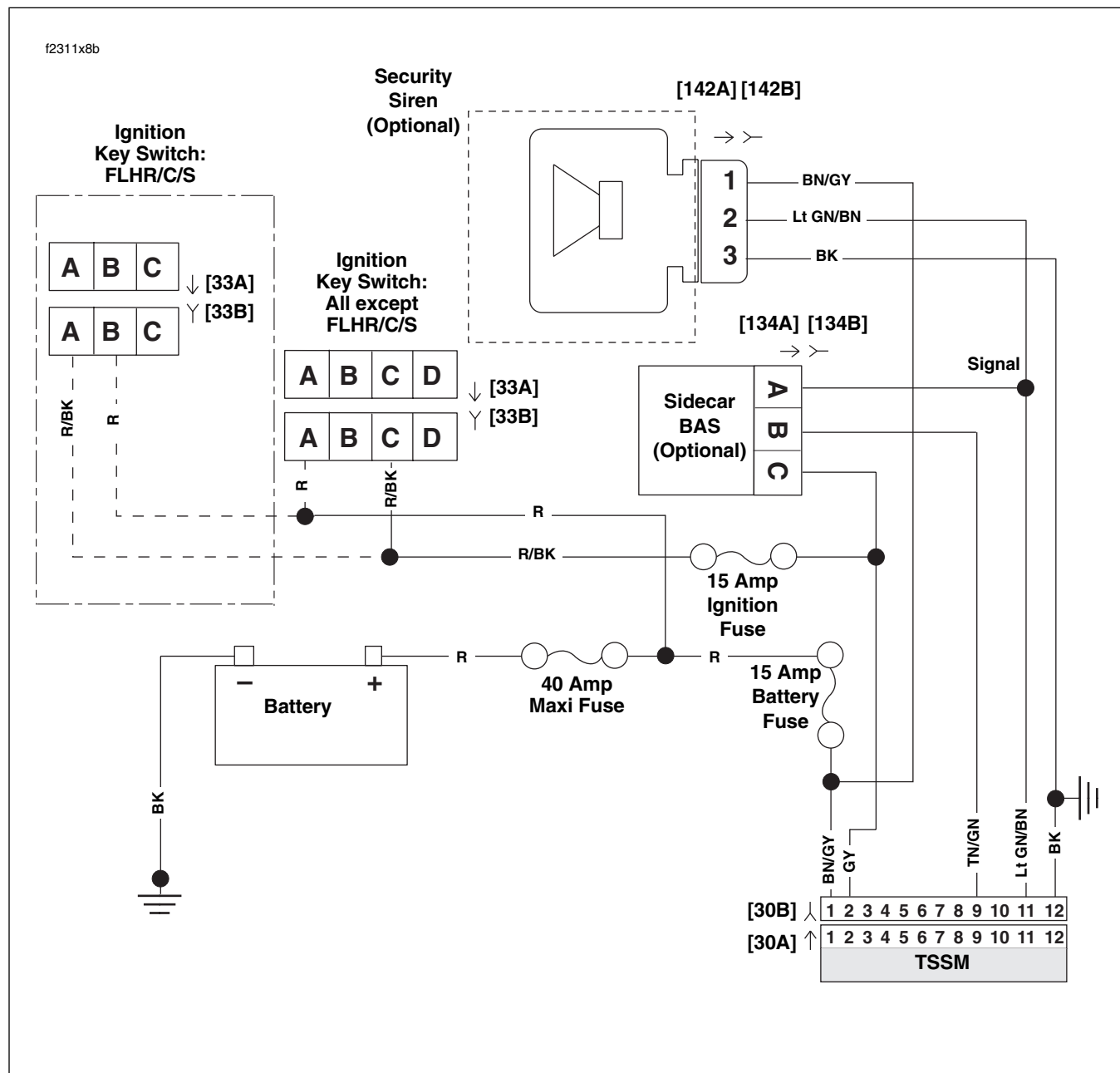


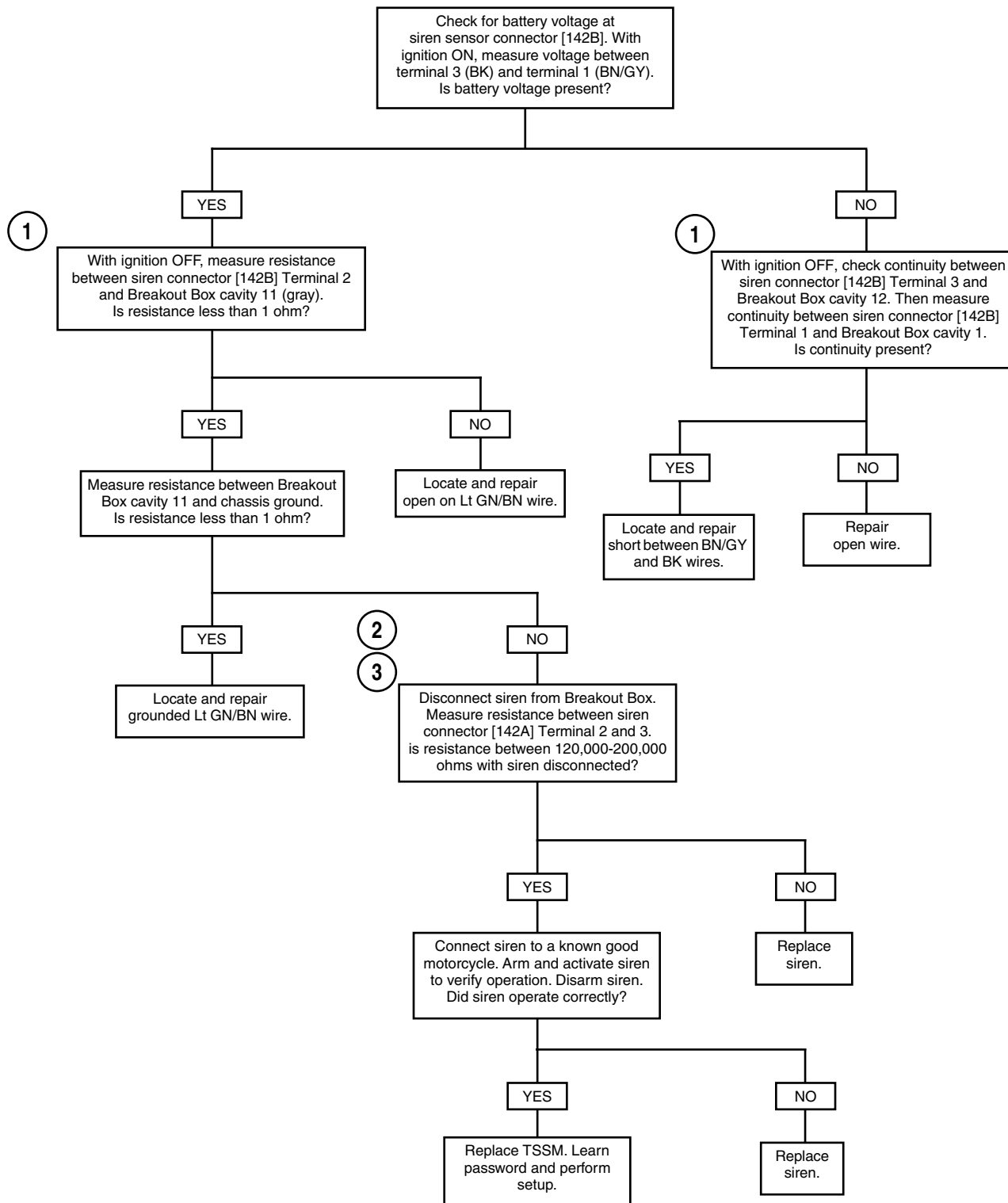
Figure 3-33. Siren Circuit

Table 3-21. Wire Harness Connectors in Figure 3-33.

NO.	DESCRIPTION	TYPE	LOCATION
[30]	TSM/TSSM	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)
[134]	Sidecar BAS	3-Place Packard	Under Seat
[142]	Siren	3-Place Packard	Under Right Side Cover (Behind Electrical Bracket)

Test 3.17

ALARM OUTPUT: DTC B1131, B1132



Clear DTC's using speedometer self diagnostics. See Section 3.10 SPEEDOMETER SELF DIAGNOSTICS. Confirm proper operation with no check engine lamp.

GENERAL

Starter Output High

With the TSM/TSSM disarmed, ignition ON and RUN/STOP switch set to RUN the starter relay is grounded. Battery voltage is applied to the starter relay and coil which are grounded through the TSM/TSSM. This DTC is set when that ground is not established through the TSM/TSSM.

DIAGNOSTICS

Diagnostic Notes

The reference numbers below correlate with the circled numbers on the Test 3.18 flow charts.

1. Connect BREAKOUT BOX (Part No. HD-42682) (gray) to wire harness connector [30] leaving TSM/TSSM disconnected. See Section 3.11 [BREAKOUT BOX: TSM/TSSM](#).

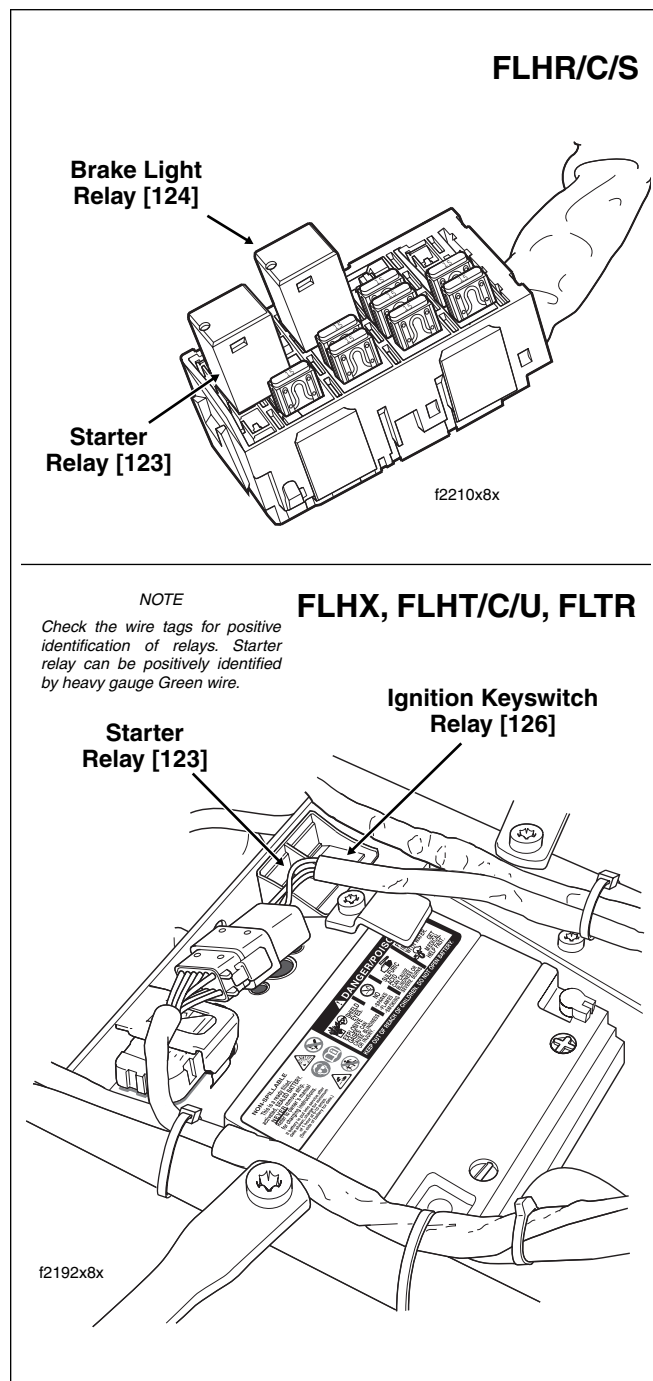


Figure 3-34. Locate Starter Relay

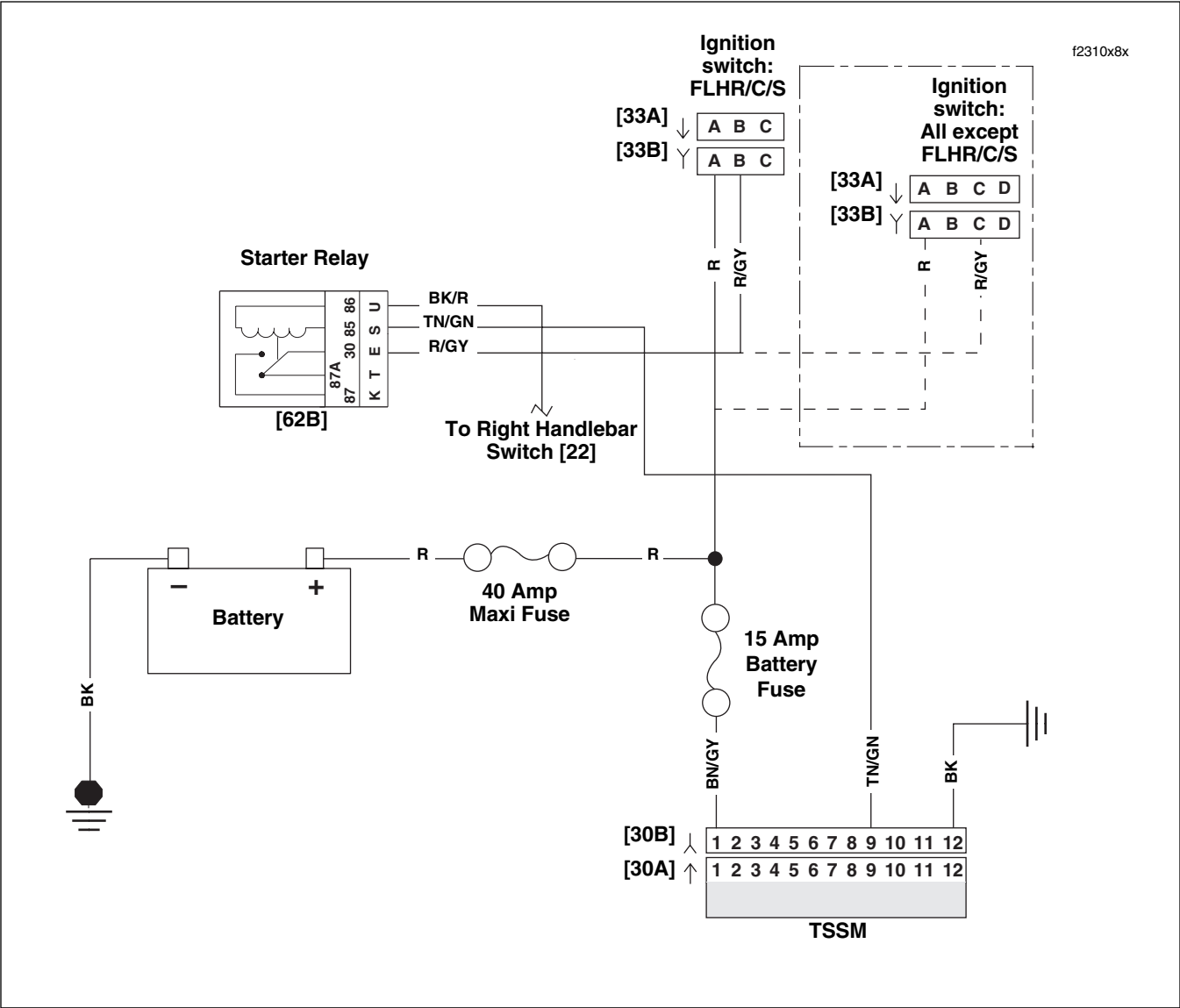
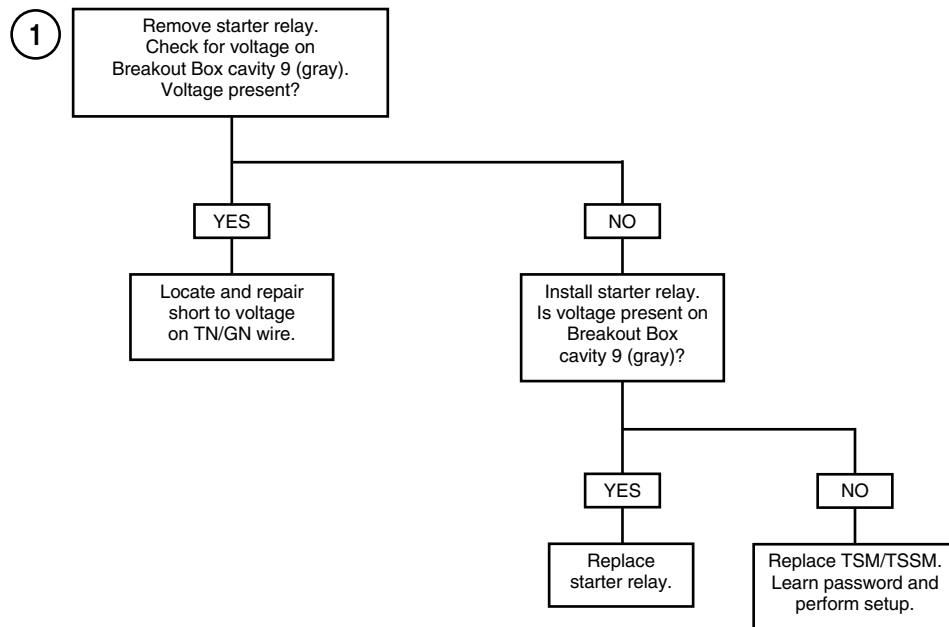


Table 3-22. Wire Harness Connectors in Figure 3-35.

NO.	DESCRIPTION	MODEL	TYPE	LOCATION
[30]	TSSM	All	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)
[62]	Starter Relay	FLHR/C/S	Fuse Block	Fuse Block (Under Left Side Cover)
		FLTR, FLHT/C/U	Relay Connector	Rear of Battery Box - Left Side (Under Seat)

Test 3.18

STARTER OUTPUT HIGH: DTC B1134



Clear DTC's using speedometer self diagnostics. See Section 3.10 [SPEEDOMETER SELF DIAGNOSTICS](#). Confirm proper operation with no check engine lamp.

GENERAL

Accelerometer Fault

This DTC indicates a failure which requires replacement of the TSM/TSSM.

NOTE

When DTC B1135 is set, the tip-over engine shutdown, TSSM tamper alarm and bank angle sensors are disabled. The security lamp will also illuminate on vehicles with security systems.

GENERAL

Sidecar BAS Low (DTC B1151), High (DTC B1152) or Out of Range (DTC B1153)

These DTC's are set when a TSM/TSSM is configured for sidecar use and a fault is detected with the sidecar BAS.

Table 3-23. Models Affected

VEHICLE	EFI	CARBURETOR
SECURITY	Yes	Yes
NO SECURITY	Yes	Yes

DIAGNOSTICS

Diagnostic Tips

- The smart siren cannot be disarmed when the ignition switch is on and a bank angle sensor is installed. If the ignition switch triggers the security alarm, then the switch must be turned off to disarm the siren.
- Use DIGITAL TECHNICIAN (Part No. HD-44750) to ensure sidecar learn.
- Ensure that no other circuits are tied to terminal 11 of the TSSM.
- If a sidecar is installed without the bank angle sensor kit then the TSM/TSSM will continue to operate in Solo mode on a sidecar bike.
- If the bank angle sensor is removed without disabling sidecar learning then the TSSM will set a DTC until sidecar learning is disabled using Digital Technician or the bank angle sensor is reinstalled.
- The software is designed to prevent the TSM/TSSM from switching to sidecar mode unless the entire system is operating properly (no DTC's set).
- The bank angle sensor cannot be detected when the security function is in the alarm mode (that is, lights flashing, siren sounding).
- A sidecar tip-over event cannot be detected when the security function is in the alarm mode (that is, lights flashing, siren sounding).
- A short to ground fault cannot be detected when the security function is in the alarm mode (that is, lights flashing, siren sounding).
- A short to battery fault cannot be detected **unless** the security function is in the alarm mode (that is, lights flashing, siren sounding).

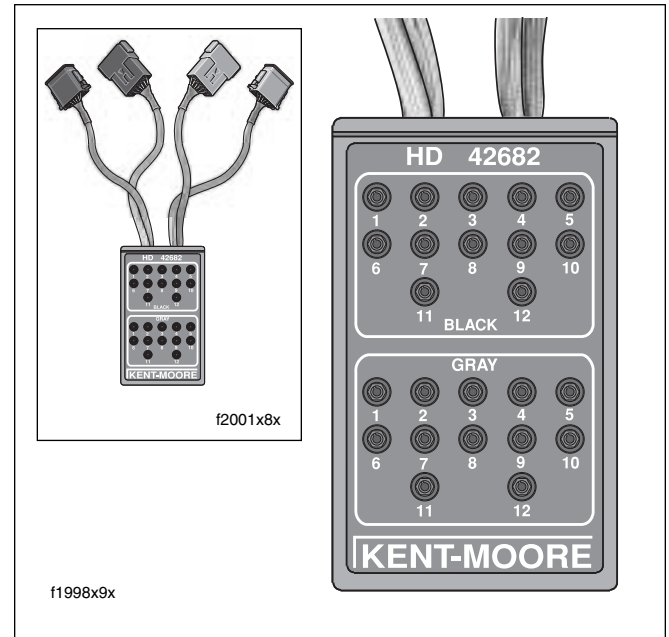


Figure 3-36. Breakout Box (Part No. HD-42682)



Figure 3-37. Harness Connector Test Kit (Part No. HD-41404A)

- An out of range fault cannot be detected when the security function is in the alarm mode (that is, lights flashing, siren sounding).

Diagnostic Notes

The reference numbers below correlate with the circled numbers on the Test 3.20 flow chart.

1. Use BREAKOUT BOX (Part No. HD-42682) and HARNESS CONNECTOR TEST KIT (Part No. HD-41404A), gray pin probe and patch cord. See Section 3.11 [BREAKOUT BOX: TSM/TSSM](#). See [Figure 3-37](#).
2. Use HARNESS CONNECTOR TEST KIT (Part No. HD-41404A), gray pin probe and patch cord.

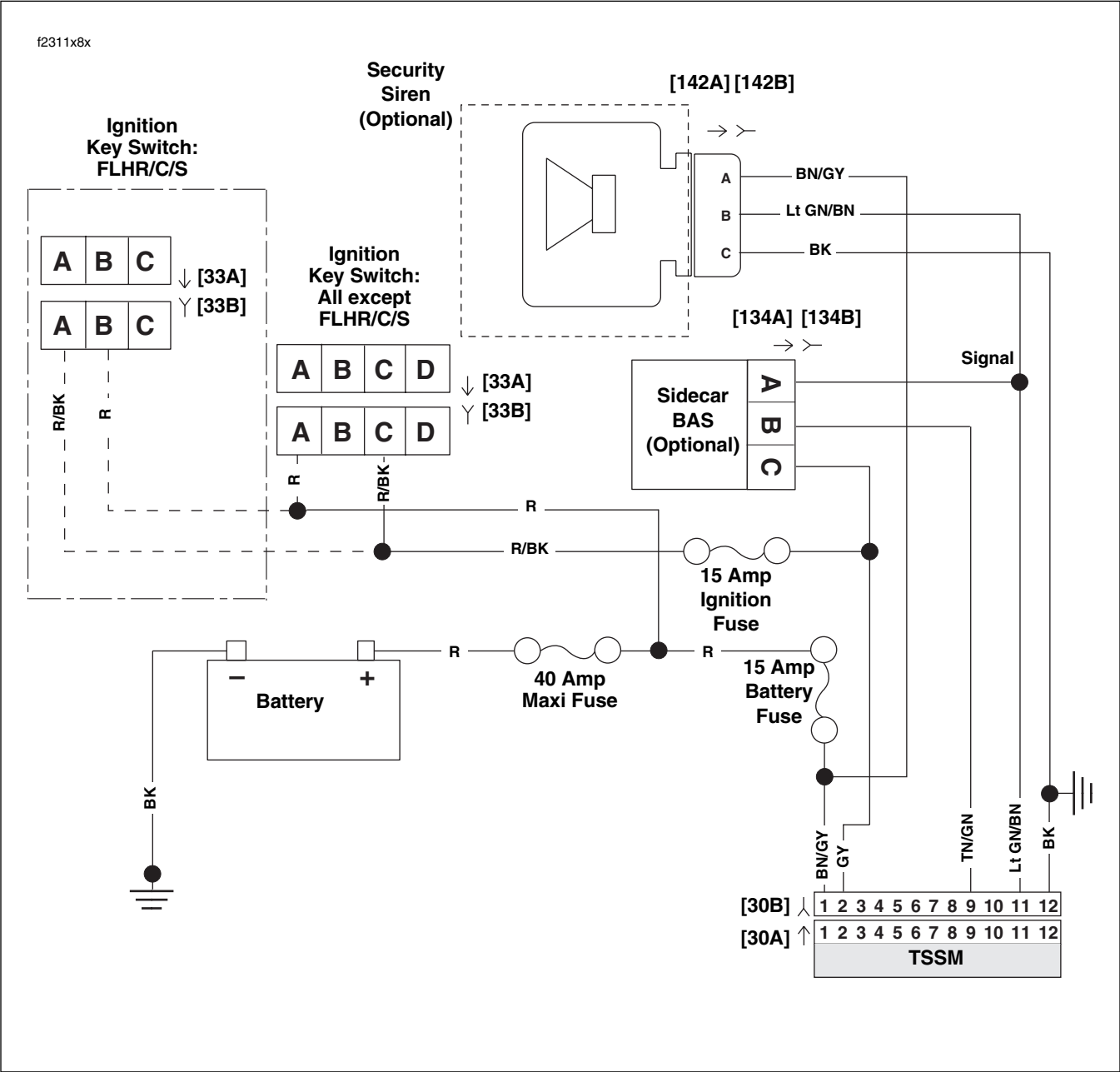


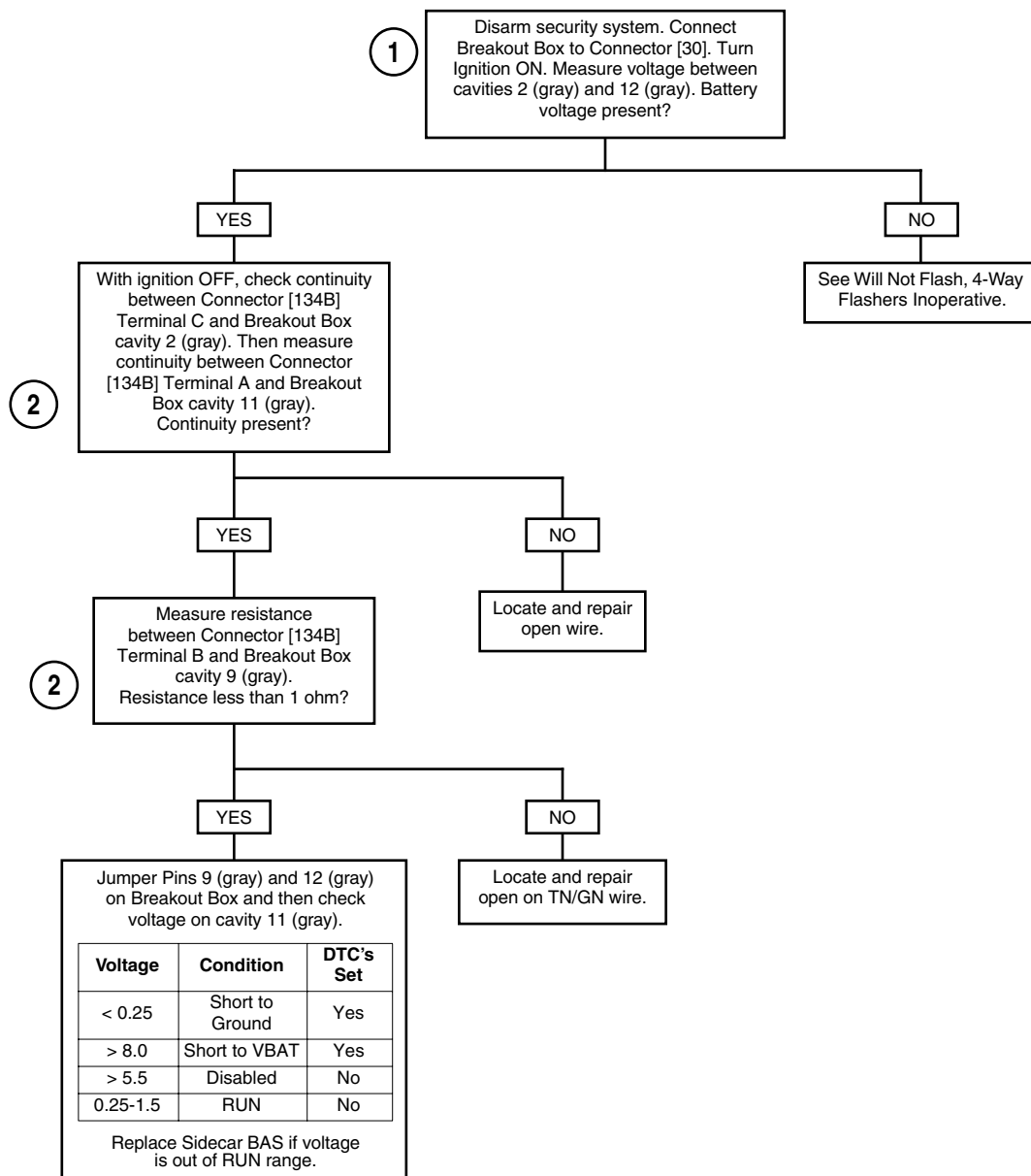
Figure 3-38. Siren Circuit

Table 3-24. Wire Harness Connectors in [Figure 3-38](#).

NO.	DESCRIPTION	TYPE	LOCATION
[30]	TSM/TSSM	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)
[134]	Sidecar BAS	3-Place Packard	Under Seat
[142]	Siren	3-Place Packard	Under Right Side Cover (Behind Electrical Bracket)

Test 3.20

SIDE CAR BAS: DTC B1151, B1152, B1153



Clear DTC's using speedometer self diagnostics. See Section 3.10 **SPEEDOMETER SELF DIAGNOSTICS**. Confirm proper operation with no check engine lamp.

GENERAL

Loss of ICM/ECM Serial Data

The serial data connector provides a means for the ICM or ECM, TSM/TSSM and speedometer to communicate their current status. When all operating parameters on the serial data bus are within specifications, a state of health message is sent between the components. A DTC U1016 indicates that the ICM/ECM is not capable of sending this state of health message.

Table 3-25. Code Description

DTC	DESCRIPTION
U1016	Loss of all ECM serial data (state of health)
U1255	Serial data error/missing message

DIAGNOSTICS

Diagnostic Notes

The reference numbers below correlate with the circled numbers on the Test 3.21 flow chart.

1. Connect BREAKOUT BOX (Part No. HD-42682) (gray) between TSM/TSSM connector [30A] and wire harness connector [30B]. See Section 3.11 BREAKOUT BOX: TSM/TSSM.

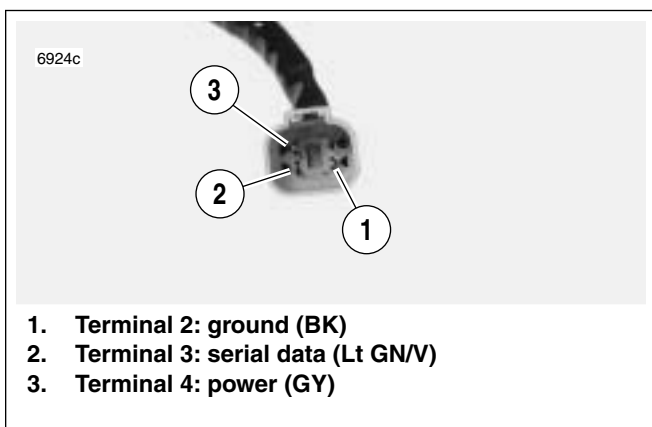


Figure 3-39. Data Link Connector

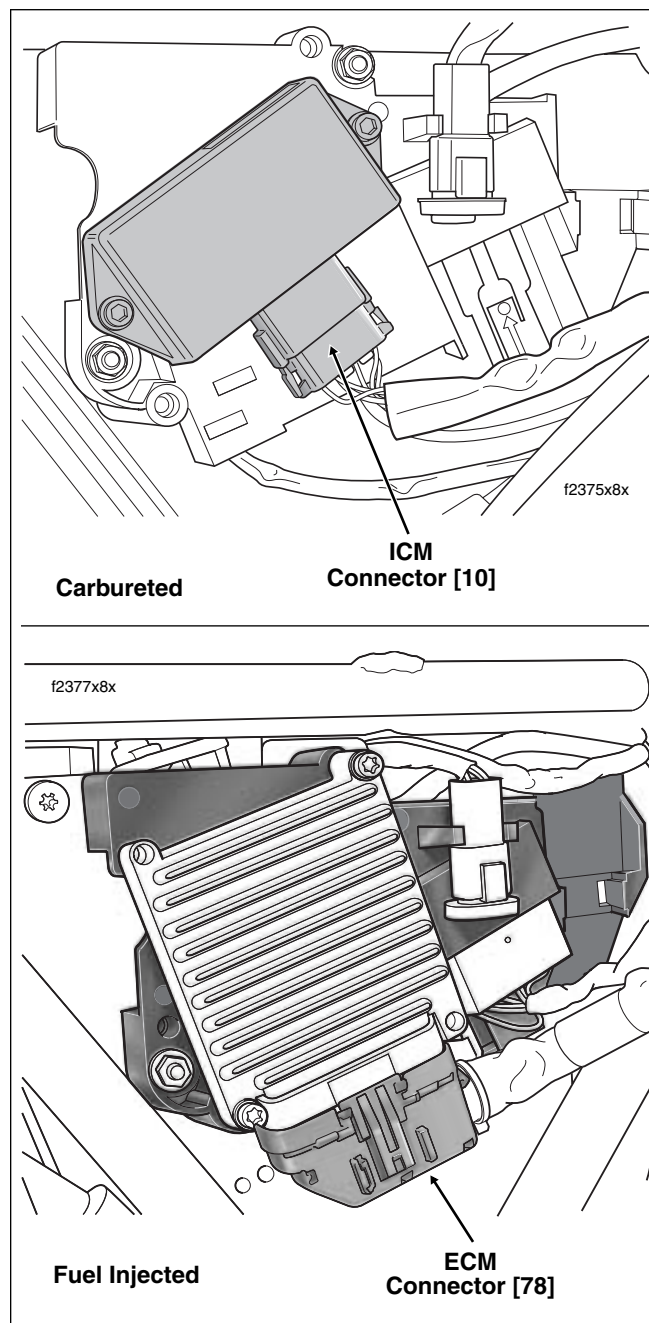


Figure 3-40. Electrical Bracket (Under Right Side Cover)

2. Connect BREAKOUT BOX (Part No. HD-42682) (black) between ICM connector [10A] and wiring harness connector [10B]. See Section 4.6 BREAKOUT BOX: ICM
3. Connect BREAKOUT BOX (Part No. HD-43876) between wire harness and ECM. See Section 5.7 BREAKOUT BOX: EFI.

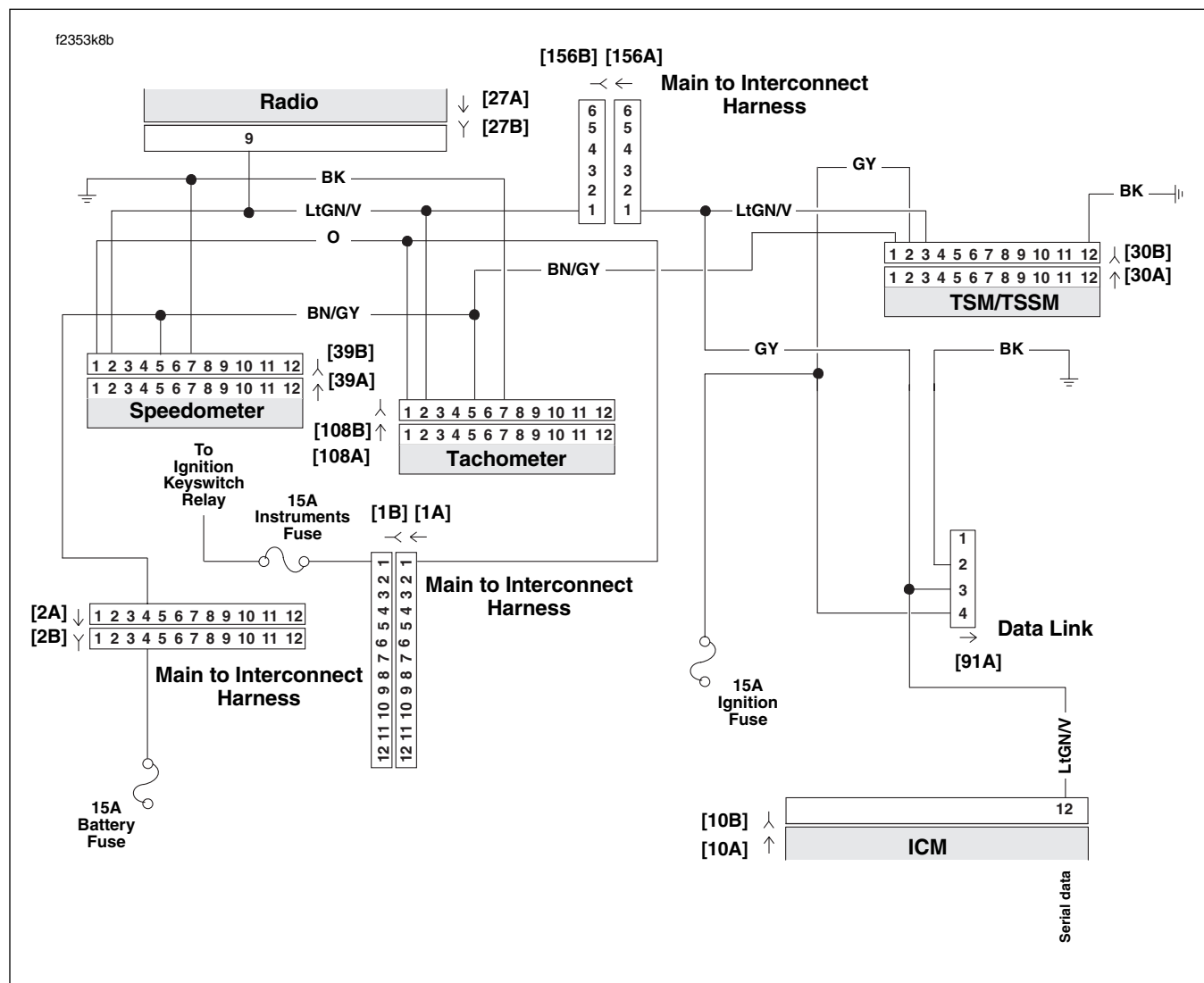


Figure 3-41. Serial Data Circuit: FLHT/C (Carbureted)

Table 3-26. Wire Harness Connectors in Figure 3-41.

NO.	DESCRIPTION	TYPE	LOCATION
[1]	Main to Interconnect Harness	12-Place Deutsch (Black)	Inner Fairing - Right Radio Support Bracket
[2]	Main to Interconnect Harness	12-Place Deutsch (Gray)	Inner Fairing - Right Fairing Support Brace
[10]	ICM	12-Place Deutsch	Under Right Side Cover
[27]	Radio	23-Place Amp	Inner Fairing - Back of Radio (Right Side)
[30]	TSM/TSSM	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)
[39]	Speedometer	12-Place Packard	Inner Fairing (Back of Speedometer)
[91]	Data Link	4-Place Deutsch	Under Right Side Cover
[108]	Tachometer	12-Place Packard	Inner Fairing (Back of Tachometer)
[156]	Main to Interconnect Harness	6-Place Deutsch	Inner Fairing - Right Fairing Support Brace

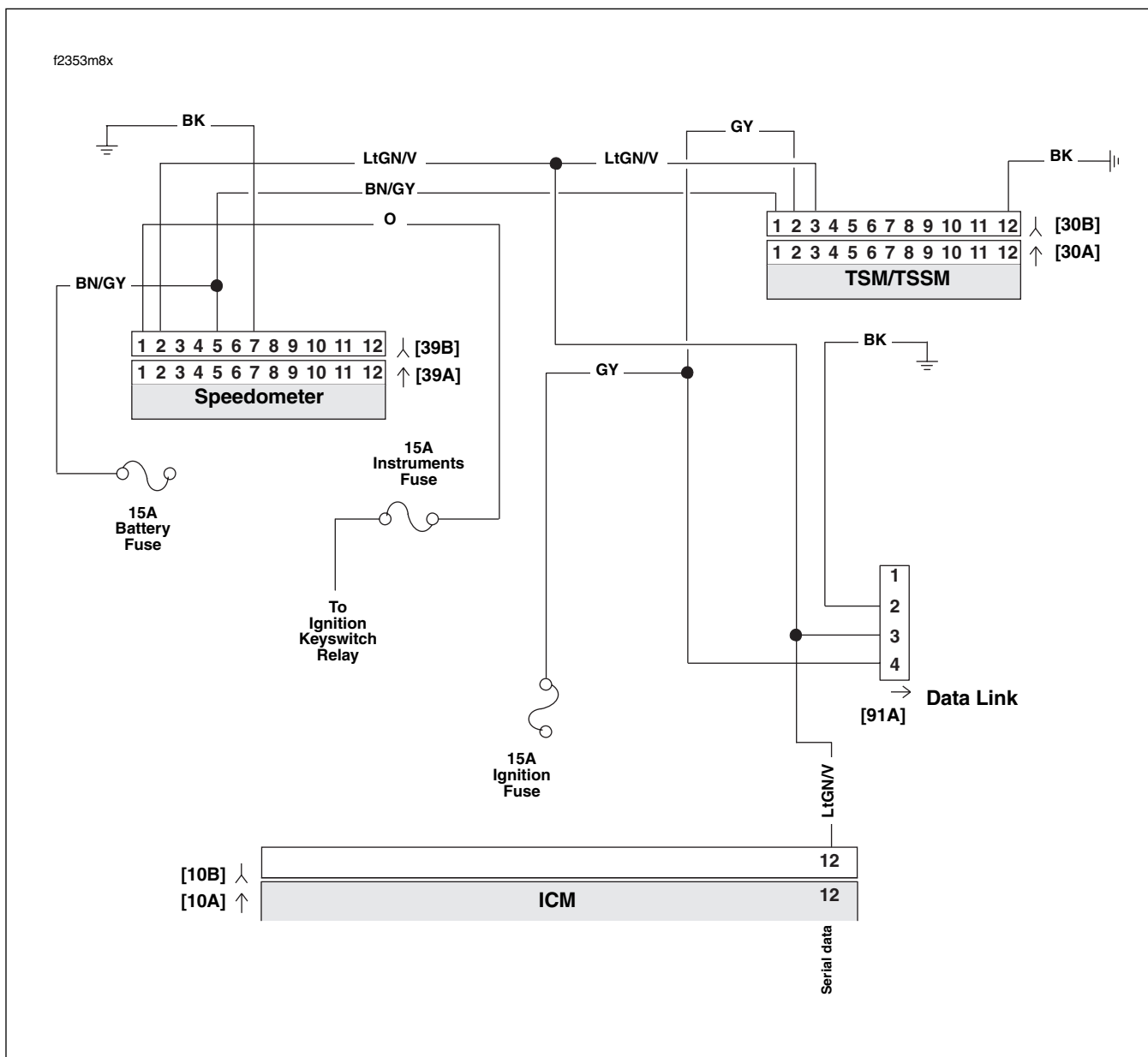


Figure 3-42. Serial Data Circuit: FLHR/S (Carbureted)

Table 3-27. Wire Harness Connectors in Figure 3-42.

NO.	DESCRIPTION	TYPE	LOCATION
[10]	ICM	12-Place Deutsch	Under Right Side Cover
[30]	TSM/TSSM	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)
[39]	Speedometer	12-Place Packard	Under Console (Back of Speedometer)
[91]	Data Link	4-Place Deutsch	Under Right Side Cover

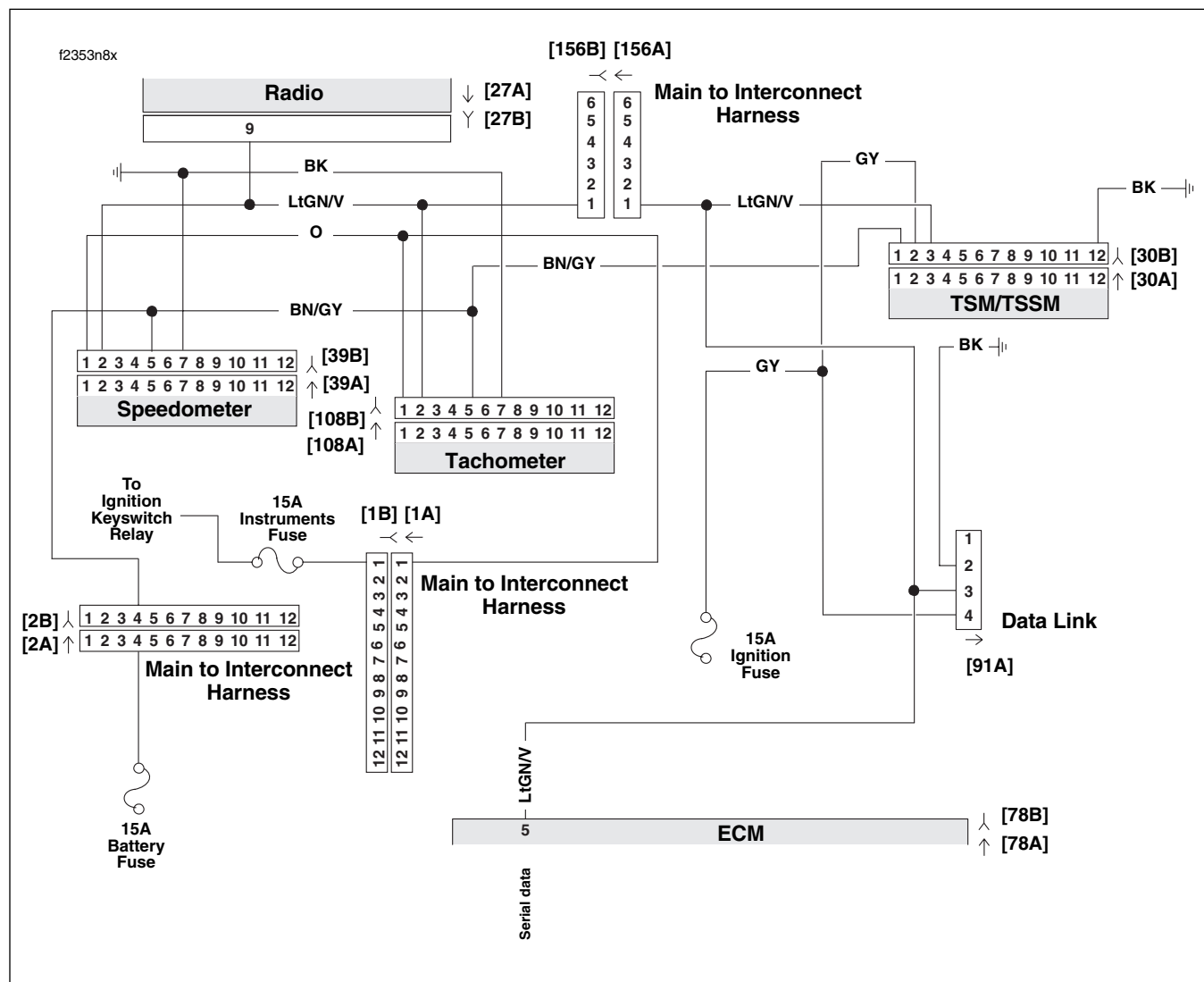


Figure 3-43. Serial Data Circuit: FLHX, FLHT/C/U, FLTR (Fuel Injected)

Table 3-28. Wire Harness Connectors in Figure 3-43.

NO.	DESCRIPTION	MODEL	TYPE	LOCATION
[1]	Main to Interconnect Harness	FLHT/C	12-Place Deutsch (Black)	Inner Fairing - Right Radio Support Bracket
		FLTR	12-Place Deutsch (Black)	Inner Fairing - Below Radio (Right Side)
[2]	Main to Interconnect Harness	FLHT/C	12-Place Deutsch (Gray)	Inner Fairing - Right Fairing Support Brace
		FLTR	12-Place Deutsch (Gray)	Inner Fairing - Below Radio (Right Side)
[27]	Radio	All	23-Place Amp	Inner Fairing - Back of Radio (Right Side)
[30]	Turn Signal/Security Module	All	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)
[39]	Speedometer	FLHT/C	12-Place Packard	Inner Fairing (Back of Speedometer)
		FLTR	12-Place Packard	Under Bezel (Back of Speedometer)
[78]	ECM	All	36-Place Packard	Under Right Side Cover
[91]	Data Link	All	4-Place Deutsch	Under Right Side Cover
[108]	Tachometer	FLHT/C	12-Place Packard	Inner Fairing (Back of Tachometer)
		FLTR	12-Place Packard	Under Bezel (Back of Tachometer)
[156]	Main to Interconnect Harness	FLHT/C	6-Place Deutsch	Inner Fairing - Right Fairing Support Brace
		FLTR	6-Place Deutsch	Inner Fairing - Below Radio (Right Side)

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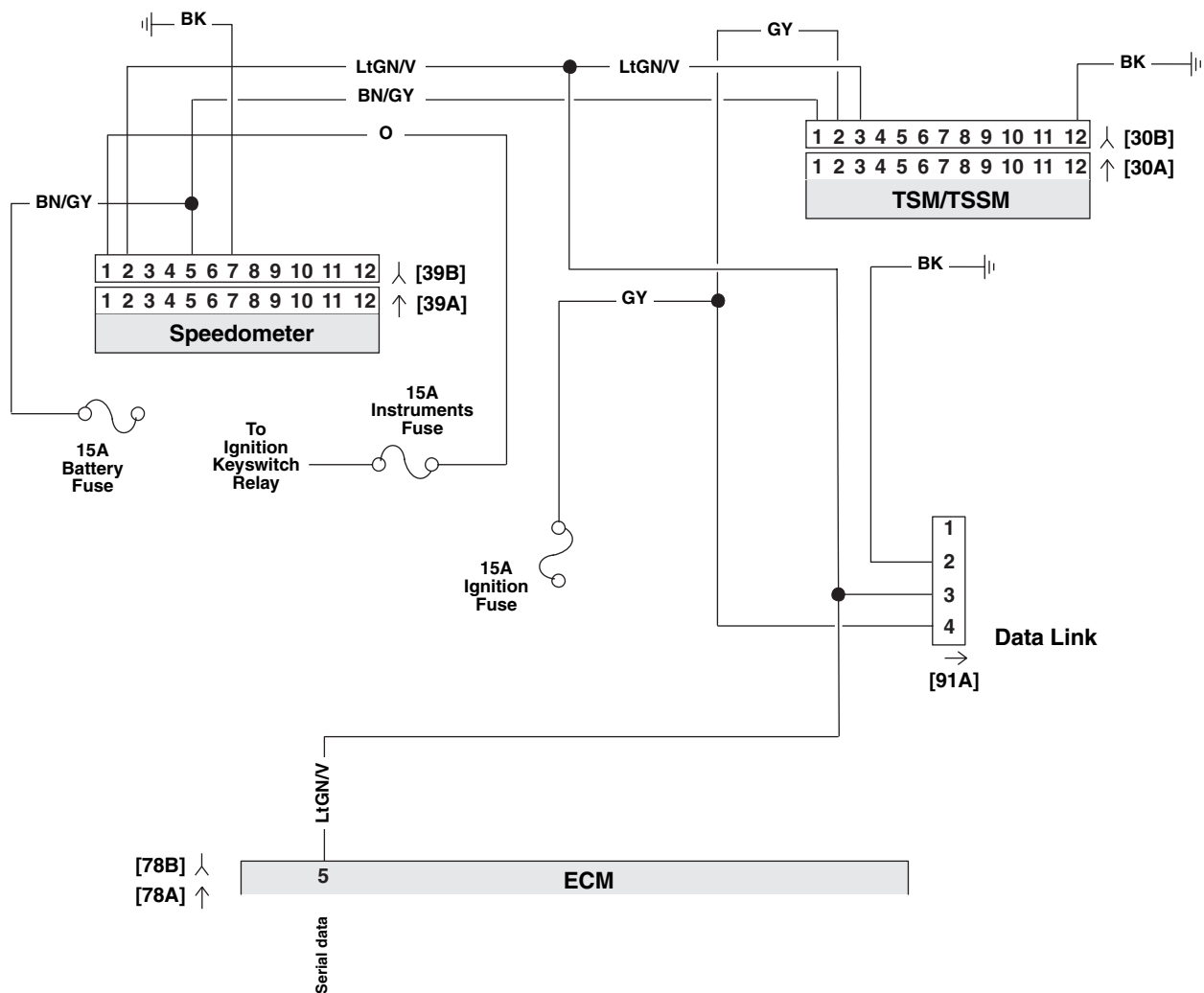


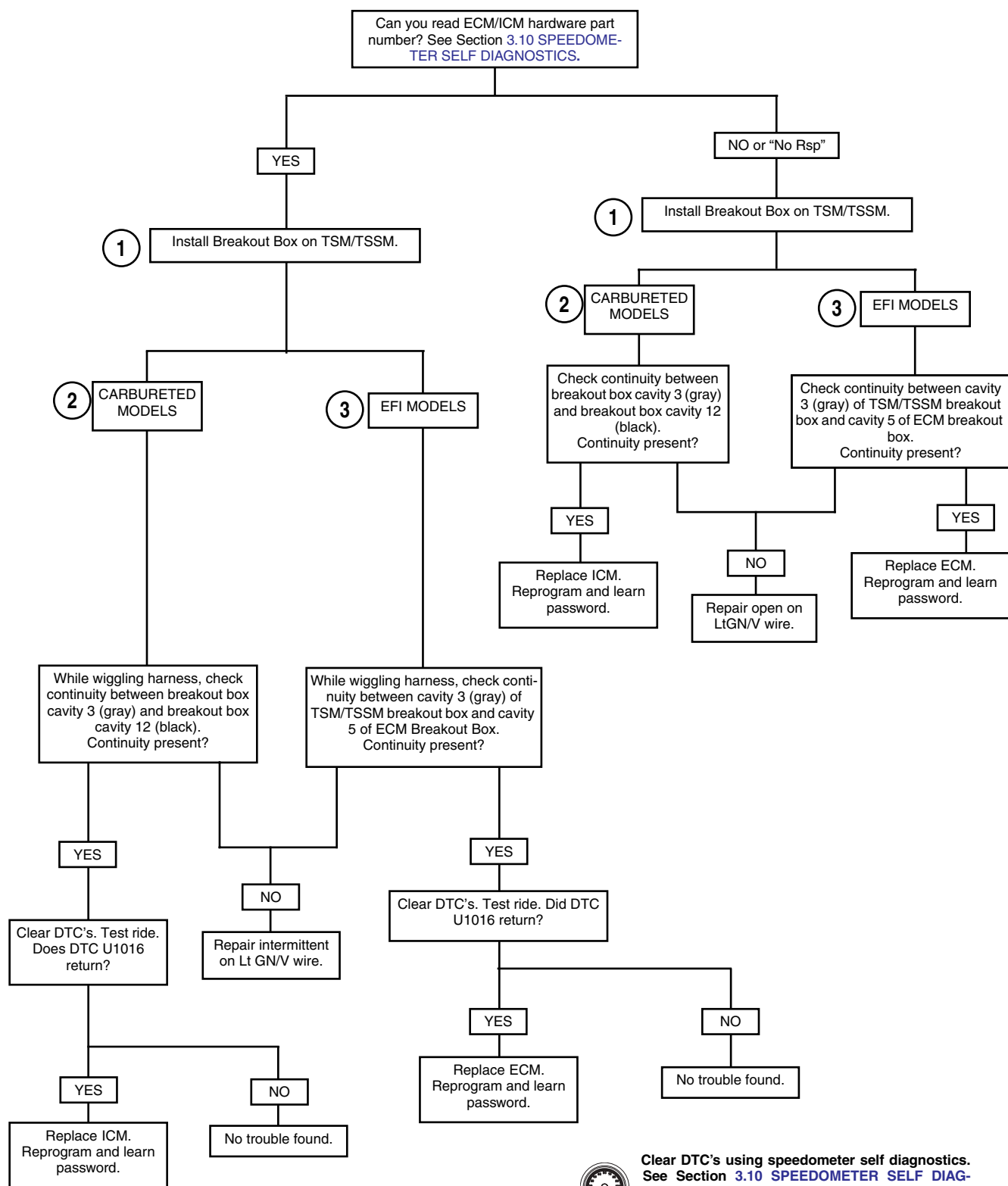
Figure 3-44. Serial Data Circuit: FLHR/C/S (Fuel Injected)

Table 3-29. Wire Harness Connectors in Figure 3-44.

NO.	DESCRIPTION	TYPE	LOCATION
[30]	TSM/TSSM	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)
[39]	Speedometer	12-Place Packard	Under Console (Back of Speedometer)
[78]	ECM	36-Place Packard	Under Right Side Cover
[91]	Data Link	4-Place Deutsch	Under Right Side Cover

Test 3.21

LOSS OF ICM/ECM SERIAL DATA: DTC U1016



GENERAL

Loss of Speedometer Serial Data

The serial data line provides a means for the speedometer, ICM/ECM and TSM/TSSM to communicate their current status. When all operating parameters are within specifications, a state of health message is sent between the components. A DTC U1255 (only reported by the TSM/TSSM or speedometer) indicates that no messages were present during power up of the current key cycle. A DTC U1097 indicates that there was communication on the data bus since power up, but was lost or interrupted during that key cycle.

Table 3-30. Code Description

DTC	DESCRIPTION
U1097	Loss of all speedometer serial data (state of health)
U1255	Serial data error/missing message

DIAGNOSTICS

Diagnostic Notes

The reference numbers below correlate with the circled numbers on the test 3.22 flow chart.

1. Connect BREAKOUT BOX (Part No. HD-42682) as follows:
 - a. Mate gray pin housing on Breakout Box with TSM/TSSM harness connector [30B]. Leave TSM/TSSM connector [30A] disconnected.
 - b. Mate black pin housing on Breakout Box with harness connector [39B] using INSTRUMENT HARNESS ADAPTERS (Part No. HD-46601). Leave speedometer connector [39A] disconnected.

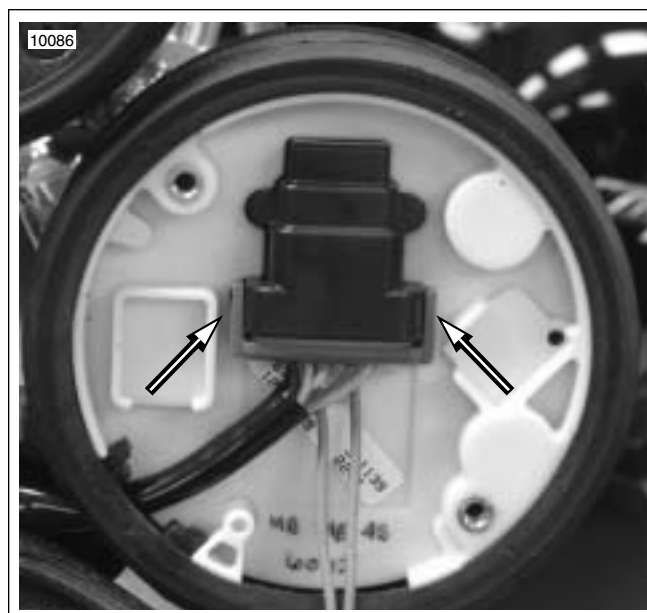


Figure 2-45. Speedometer Connector [39]

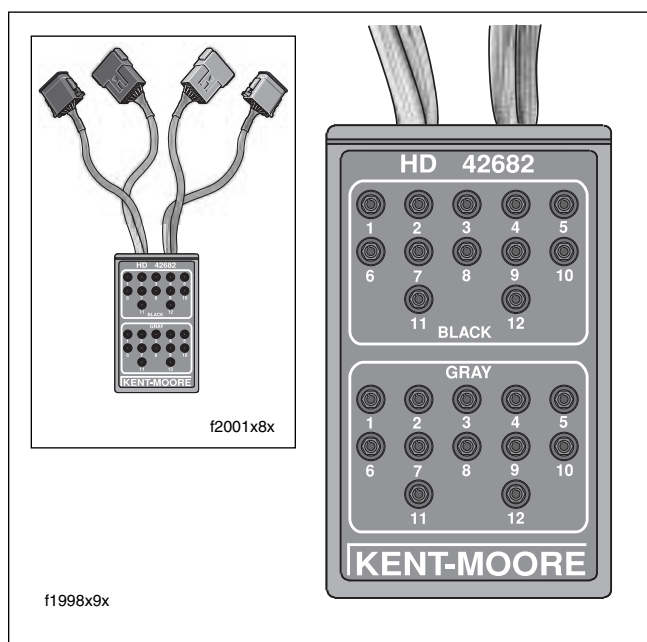


Figure 2-46. Breakout Box (Part No. HD-42682)

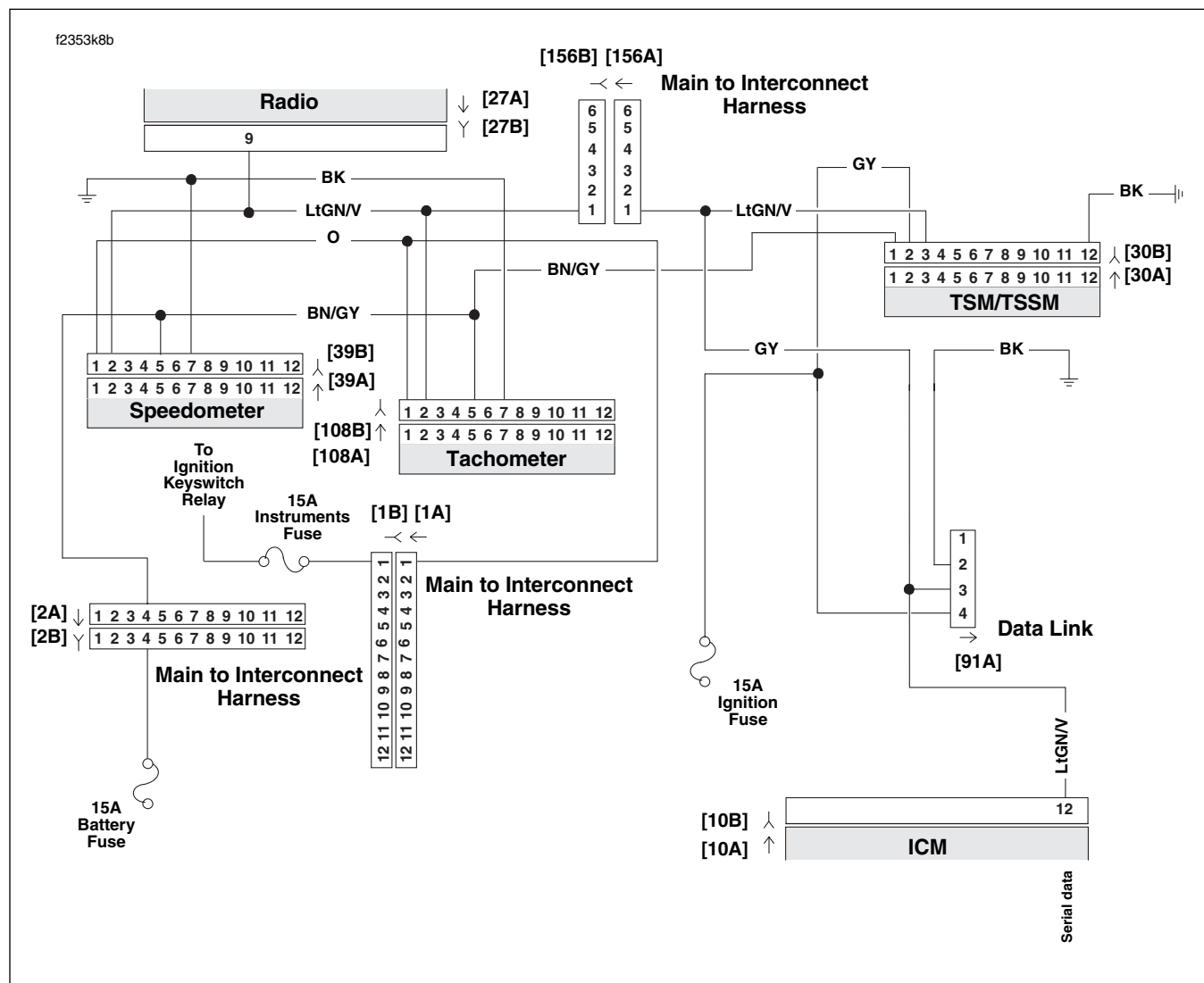


Figure 3-47. Serial Data Circuit: FLHT/C (Carbureted)

Table 3-31. Wire Harness Connectors in Figure 3-47.

NO.	DESCRIPTION	TYPE	LOCATION
[1]	Main to Interconnect Harness	12-Place Deutsch (Black)	Inner Fairing - Right Radio Support Bracket
[2]	Main to Interconnect Harness	12-Place Deutsch (Gray)	Inner Fairing - Right Fairing Support Brace
[10]	ICM	12-Place Deutsch	Under Right Side Cover
[27]	Radio	23-Place Amp	Inner Fairing - Back of Radio (Right Side)
[30]	TSM/TSSM	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)
[39]	Speedometer	12-Place Packard	Inner Fairing (Back of Speedometer)
[91]	Data Link	4-Place Deutsch	Under Right Side Cover
[108]	Tachometer	12-Place Packard	Inner Fairing (Back of Tachometer)
[156]	Main to Interconnect Harness	6-Place Deutsch	Inner Fairing - Right Fairing Support Brace

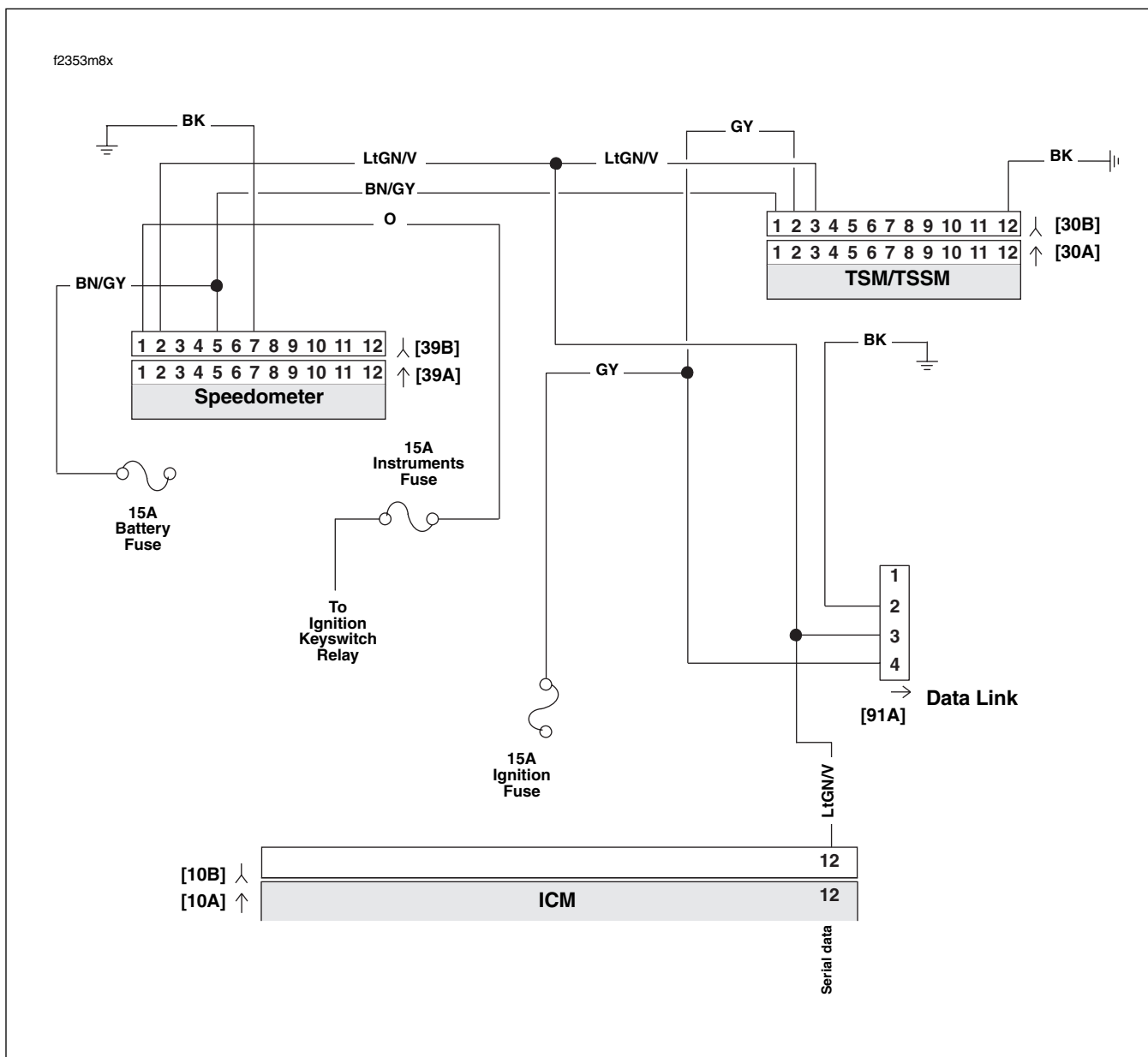


Figure 3-48. Serial Data Circuit: FLHR/S (Carbureted)

Table 3-32. Wire Harness Connectors in Figure 3-48.

NO.	DESCRIPTION	TYPE	LOCATION
[10]	ICM	12-Place Deutsch	Under Right Side Cover
[30]	TSM/TSSM	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)
[39]	Speedometer	12-Place Packard	Under Console (Back of Speedometer)
[91]	Data Link	4-Place Deutsch	Under Right Side Cover

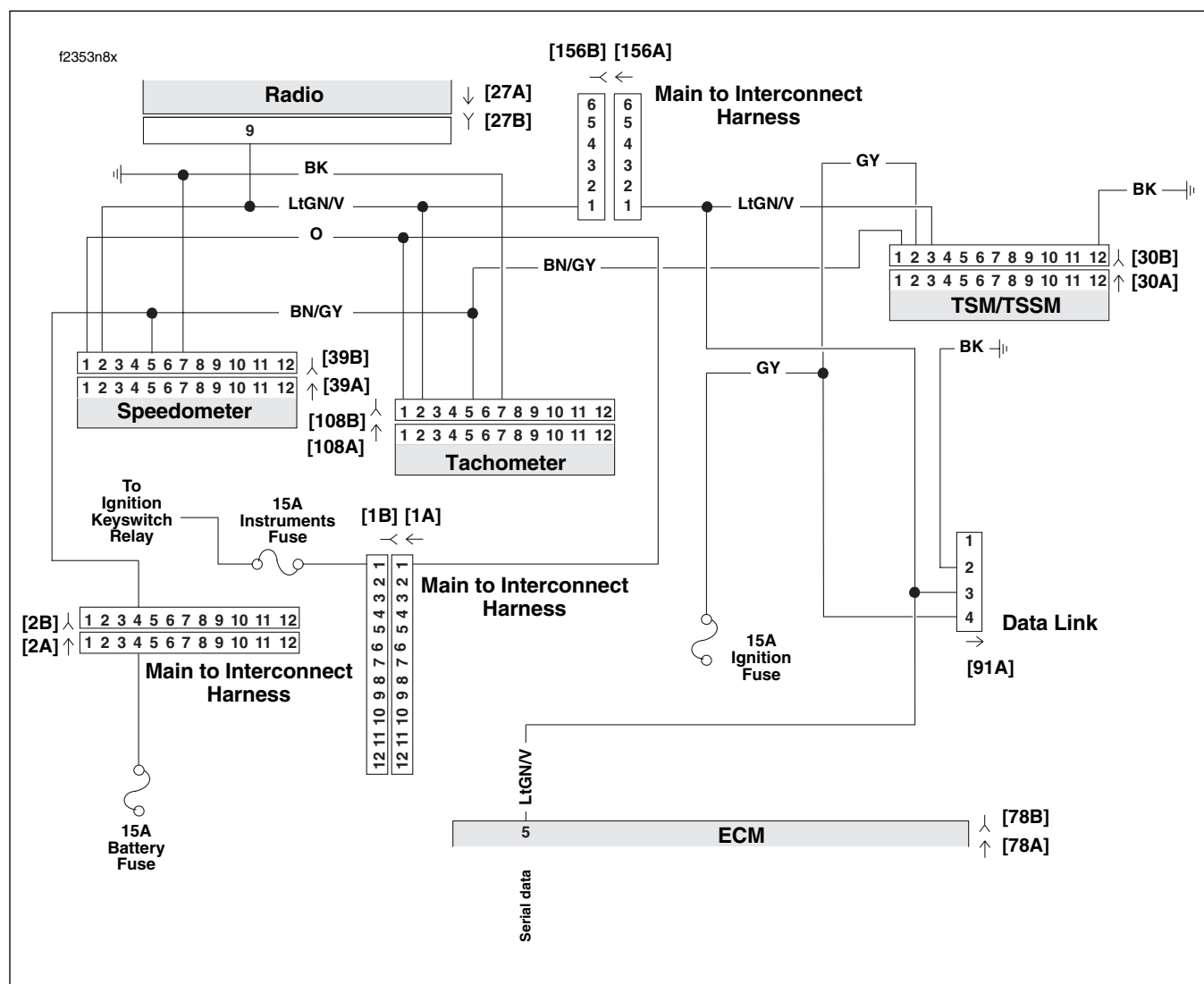


Figure 3-49. Serial Data Circuit: FLHX, FLHT/C/U, FLTR (Fuel Injected)

Table 3-33. Wire Harness Connectors in Figure 3-49.

NO.	DESCRIPTION	MODEL	TYPE	LOCATION
[1]	Main to Interconnect Harness	FLHT/C	12-Place Deutsch (Black)	Inner Fairing - Right Radio Support Bracket
		FLTR	12-Place Deutsch (Black)	Inner Fairing - Below Radio (Right Side)
[2]	Main to Interconnect Harness	FLHT/C	12-Place Deutsch (Gray)	Inner Fairing - Right Fairing Support Brace
		FLTR	12-Place Deutsch (Gray)	Inner Fairing - Below Radio (Right Side)
[27]	Radio	All	23-Place Amp	Inner Fairing - Back of Radio (Right Side)
[30]	TSM/TSSM	All	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)
[39]	Speedometer	FLHT/C	12-Place Packard	Inner Fairing (Back of Speedometer)
		FLTR	12-Place Packard	Under Bezel (Back of Speedometer)
[78]	ECM	All	36-Place Packard	Under Right Side Cover
[91]	Data Link	All	4-Place Deutsch	Under Right Side Cover
[108]	Tachometer	FLHT/C	12-Place Packard	Inner Fairing (Back of Tachometer)
		FLTR	12-Place Packard	Under Bezel (Back of Tachometer)
[156]	Main to Interconnect Harness	FLHT/C	6-Place Deutsch	Inner Fairing - Right Fairing Support Brace
		FLTR	6-Place Deutsch	Inner Fairing - Below Radio (Right Side)

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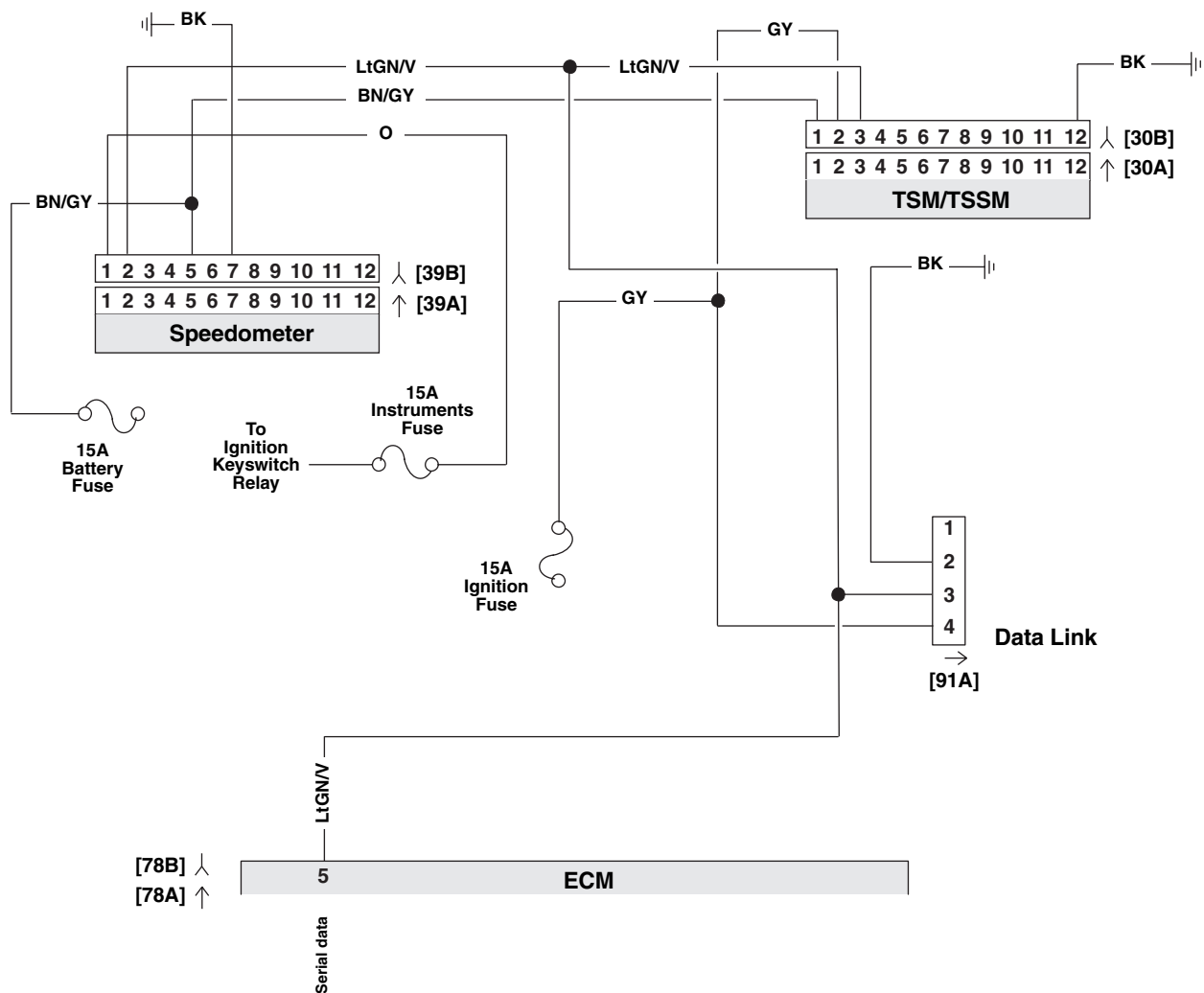


Figure 3-50. Serial Data Circuit: FLHR/C/S (Fuel Injected)

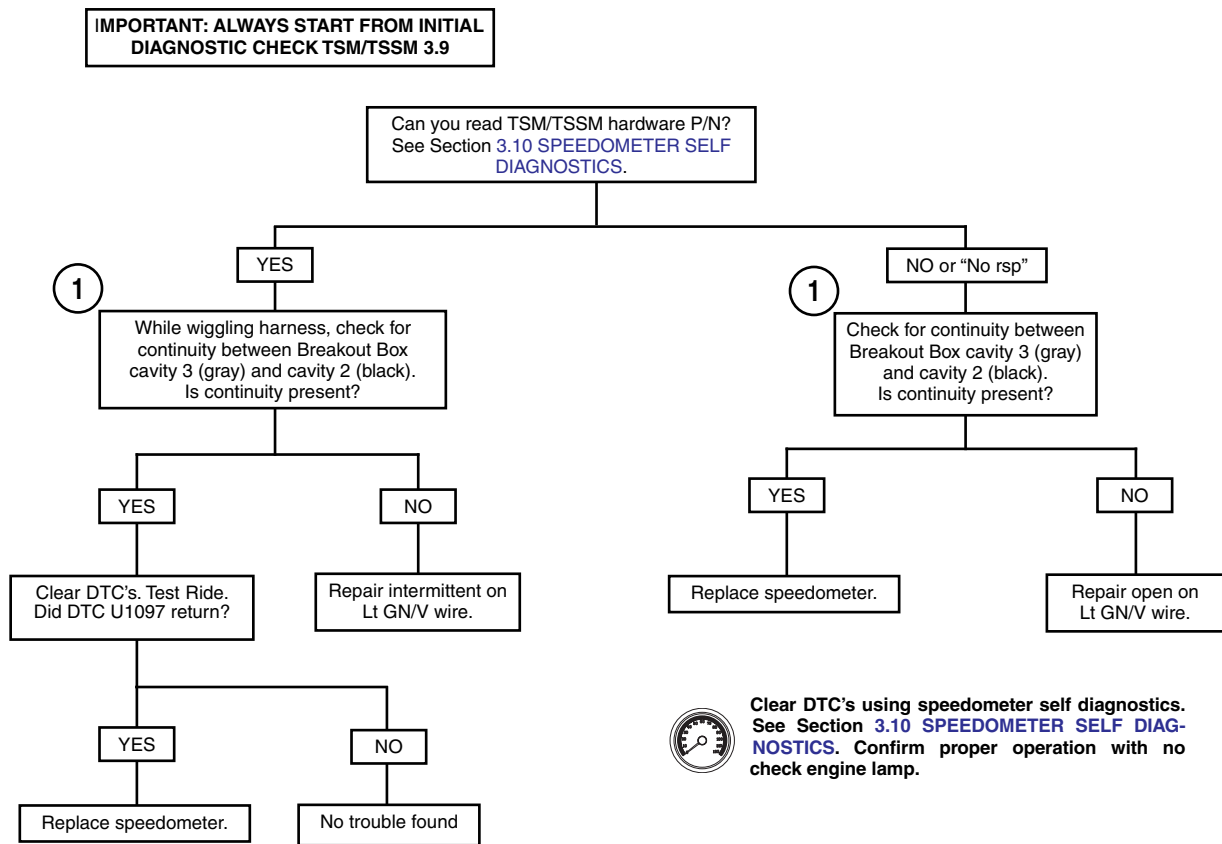
Table 3-34. Wire Harness Connectors in Figure 3-50.

NO.	DESCRIPTION	TYPE	LOCATION
[30]	TSM/TSSM	12-Place Deutsch	Cavity in Crossmember at Rear of Battery Box (Under Seat)
[39]	Speedometer	12-Place Packard	Under Console (Back of Speedometer)
[78]	ECM	36-Place Packard	Under Right Side Cover
[91]	Data Link	4-Place Deutsch	Under Right Side Cover

Test 3.22

LOSS OF SPEEDOMETER SERIAL DATA: DTC

U1097, U1255



GENERAL

Serial Data Low or Serial data Open/High

See [Figure 3-51](#). The typical serial data voltage range is 0 volts (inactive) to 7 volts (active). Due to the short pulse, voltages will be much lower on a DVOM. In analog mode, a DVOM reading serial data will show continuous voltage when active, typically 0.6-0.8 volts. The range for acceptable operations is 0-7.0 volts.

Table 3-35. Code Description

DTC	DESCRIPTION
U1300	Serial data low
U1301	Serial data open/high

DIAGNOSTICS

Diagnostic Tips

- If serial data is shorted, these DTC's will automatically cause the check engine lamp to illuminate. The odometer will read “Bus Er” in this condition.
- DTC's P1009 and P1010 may accompany DTC's U1300 and U1301.
- If a U1300, U1301 or “BUS Er” is present on **carbureted** models, perform diagnostic procedures listed in [Section 4.10 STARTS, THEN STALLS](#).
- If a U1300, U1301 or “BUS Er” is present on **EFI** models, perform diagnostic procedures listed in [Section 5.12 STARTS, THEN STALLS](#).

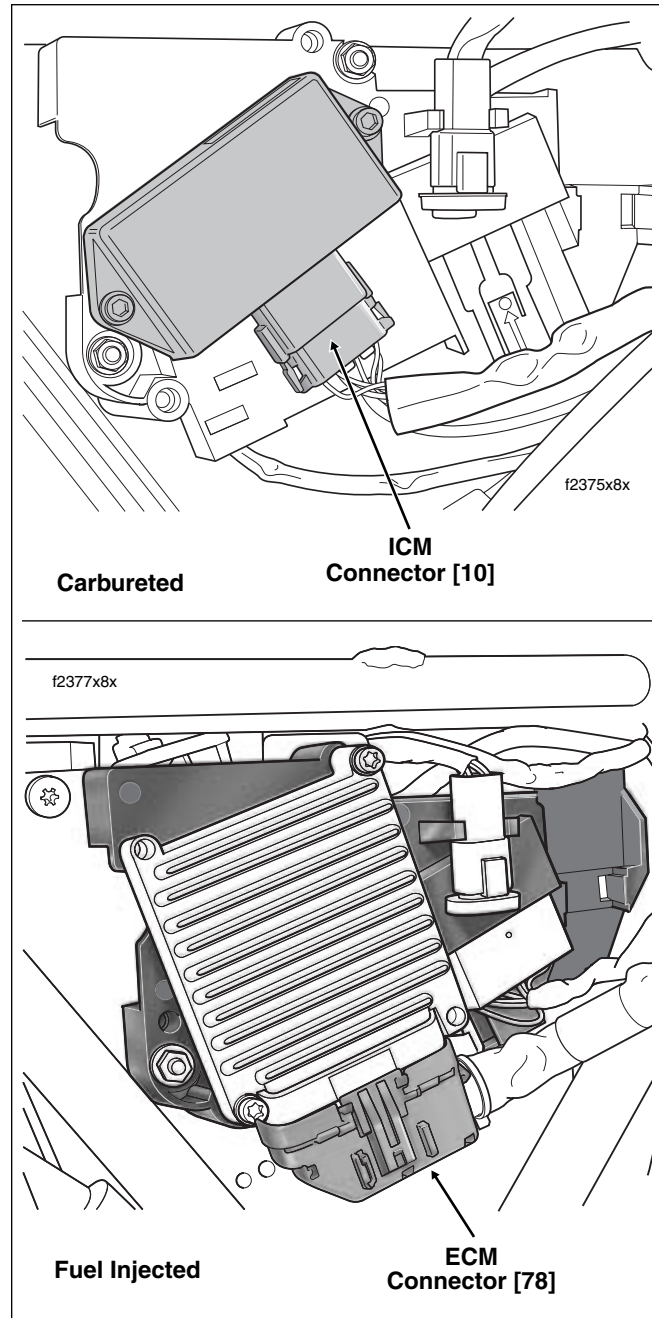


Figure 3-51. Electrical Bracket (Under Right Side Cover)

GENERAL

If the ECM/ICM or TSM/TSSM is faulty, follow the instructions in the Touring Service Manual for ECM/ICM or TSM/TSSM replacement. Then, to determine if password learn is necessary, refer to [Table 3-36](#).

Table 3-36. Password Learn

DEVICE REPLACED	IS PASSWORD LEARN NECESSARY
ECM	Yes
ICM	Yes
TSM	No*
TSSM	Yes
*If a TSM has been replaced by a TSSM, or a TSSM has been replaced by a TSM, password learn is necessary.	

PASSWORD LEARNING

To perform password learning procedure, refer to [Table 3-37](#). When finished, continue with all instructions under Section [3.3 TSM/TSSM VEHICLE DELIVERY](#).

Always perform all appropriate instructions under Section [3.3 TSM/TSSM VEHICLE DELIVERY](#) after TSM/TSSM replacement or removal.

IMPORTANT NOTE

Do not forget to enter a personal code for TSSM vehicles. If a code is not assigned and both key fobs are lost or damaged while the vehicle is armed, the TSSM must be replaced.

Table 3-37. Setting TSM/TSSM and ECM/ICM Password

NO.	ACTION	CONFIRMATION	NOTES
	Ignition must be turned off for at least 15 seconds.	With ignition turned off, Check Engine Lamp and Security Lamp will be off.	
1	Install new TSM/TSSM or ECM/ICM. Perform all steps under Section 3.3 TSM/TSSM VEHICLE DELIVERY.		
2	Set RUN/OFF switch to RUN .		
3	Turn IGN key ON .	Verify Check Engine Lamp and Security Lamp illuminate and then turn off.	TSM/TSSM enables starter relay.
4	Attempt normal start one time.	Engine starts and stalls. Check Engine Lamp illuminates and stays on.	Password has not been learned. ECM/ICM sets DTC P1009.
5	Wait ten seconds. Security lamp will illuminate and stay on.	Security Lamp illuminates.	ECM/ICM enters Password Learning mode for ten minutes. Do not cycle ignition switch or interrupt vehicle power or Password Learn will be unsuccessful.
6	Wait until Security Lamp turns off.		This takes ten minutes.
7	Quickly (within two seconds) turn IGN key OFF- ON .		ECM/ICM must not be allowed to shutdown.
8	Wait until Security Lamp turns off.		This takes ten minutes.
9	Quickly (within two seconds) turn IGN key OFF- ON .		ECM/ICM must not be allowed to shutdown.
10	Wait until Security Lamp turns off.		This takes ten minutes.
11	Quickly (within two seconds) turn IGN key OFF- ON .		ECM/ICM must not be allowed to shutdown.
12	Turn IGN key OFF . Wait 15 seconds before turning IGN on. Turn IGN switch ON and start engine to confirm successful Password Learn procedure. Clear DTC's.		
13	Perform all steps under Section 3.3 TSM/TSSM VEHICLE DELIVERY.		

GENERAL

The TSSM system uses batteries in the key fob and siren. These are the only parts requiring periodic maintenance.

KEY FOB

Schedule

Replace the key fob battery every 2 years.

Battery Replacement

1. Open the key fob case.
 - a. Place a thin blade between the 2 halves of the case.
 - b. Slowly twist the blade.
2. See [Figure 3-52](#). Replace battery (1).
 - a. Remove the original battery.
 - b. Install a **new** battery with the positive (+) side down. Use a Panasonic® 2032 or equivalent.
3. See [Figure 3-53](#). Align case and circuit board as shown. Snap case halves together.
4. While standing next to the motorcycle, press and hold the key fob button for 10-15 seconds until the security system responds with two turn signal flashes/siren chirps.

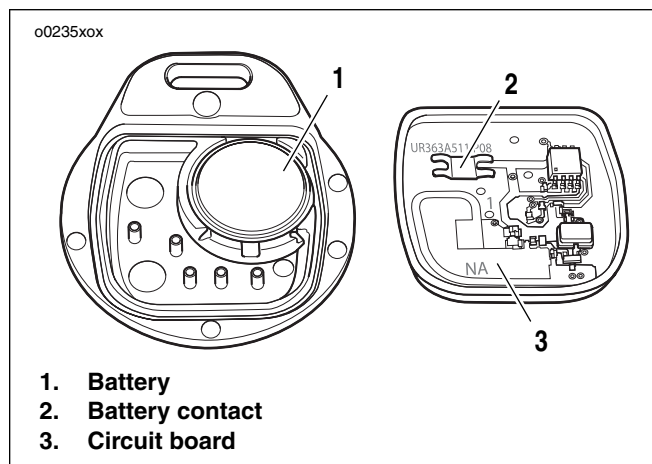


Figure 3-52. Open Key Fob Case

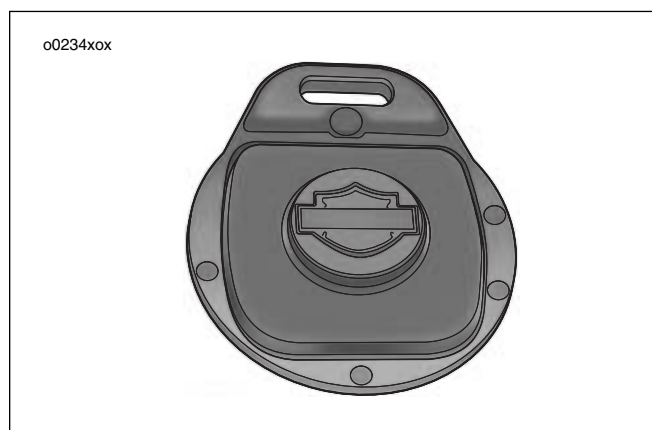


Figure 3-53. Key Fob Assembly

SIREN (IF INSTALLED)

Schedule

The siren's internal 9 volt battery is rechargeable and does not need to be replaced on a regular basis. Battery life under normal conditions is approximately three to six years.

NOTE

The internal siren battery may not charge if the vehicle's battery is less than 12.5 volts.

Battery Replacement

1. Disarm system and remove siren.
2. See [Figure 3-54](#). Remove battery cover.
 - a. Place the siren module on a flat and sturdy table with the potted section (area with epoxy covering circuit board) facing up and towards you.
 - b. Position a knife blade at a 45 degree angle to the long side of the siren case. Insert the knife blade between the siren case and battery cover at one of the two accessible corners of the battery cover. Keep the blade slightly higher towards the battery cover as this helps keep the blade away from the battery seal.
 - c. Slowly twist the blade towards the battery cover and the cover will pop off.

NOTE

*For protection against corrosion, battery terminals and battery clip are covered with a special grease. Do not wipe away this substance. Apply all available existing grease to terminals on **new** battery.*

3. See [Figure 3-54](#). Replace battery by removing old battery from polarized battery clip. Install a **new** 9 volt nickel metal hydride battery. See the Touring Parts Catalog for the correct part number.

NOTE

Only a nickel metal hydride nine-volt battery should be used in the siren.

4. See [Figure 3-54](#). Reinstall battery cover (1).
 - a. Carefully replace the rubber seal.
 - b. Align battery cover (1) with case placing round corners on cover away from connector [142A]. Snap cover into place.
5. Install siren and check operation. If siren is working properly, it will respond with two chirps after receiving the arm command.

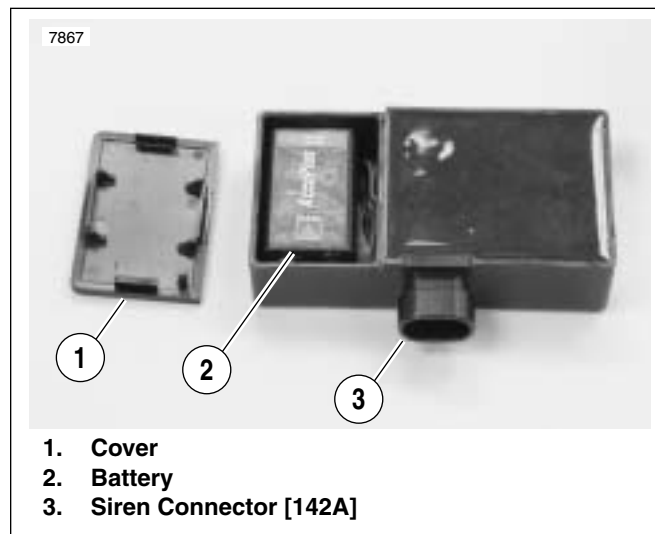


Figure 3-54. Siren Battery Compartment