

## Section 12K Telematics

### ATTENTION

Before performing any service operation or other procedure described in this Section, refer to Section 00 Warnings, Cautions and Notes for correct workshop practices with regard to safety and/or property damage.

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# 1 General Information

With the following exceptions, MY 2004 WK Series Telematics information carries over from MY 2003 VY and V2 Series vehicles:

- wiring diagrams (refer to [2 Principles of Operation](#) and [5.2 Diagnostic Charts](#)).

For all other Telematics general information, refer to [Section 12K, 1 General Information](#) in the MY 2003 VY and V2 Series Service information.

## NOTE

Refer to the relevant MY 2004 WK Series Section for all external references contained in the MY 2003 VY and V2 Series, [Section 12K Telematics](#). This is to verify that there are no differences in the MY 2004 WK Series Service information that will affect the service procedures referenced from MY 2003 VY and V2 Series Service information.

## 2 Principles of Operation

Except for the following headings and accompanying text, illustrations and/or tables, MY 2004 WK Series Telematics principles of operation information carries over from MY 2003 VY and V2 Series vehicles:

- Interior Rear View Mirror,
- Audio System Interface,
- Battery Voltage,
- Backup Battery Charger,
- Serial Data,
- Driver's Door Ajar Switch,
- Passenger Door Ajar Switches,
- Alarm Input (Theft Deterrent Horn),
- Telematics Antenna, and
- Fuel Pump Relay Drive Circuit.

For other principles of operation information not contained within this Section, refer to [Section 12K Telematics](#) in the MY 2003 VY and V2 Series Service information.

### NOTE

Refer to the relevant MY 2004 WK Series Section for all external references contained in the MY 2003 VY and V2 Series, [Section 12K Telematics](#). This is to verify that there are no differences in the MY 2004 WK Series Service information that will affect the service procedures referenced from MY 2003 VY and V2 Series Service information.

## 2.1 Interior Rear View Mirror

With the exception of the following text and wiring diagram, MY 2004 WK Series interior rear view mirror information carries over from MY 2003 VY and V2 Series vehicles. For all other interior rear view mirror information, refer to [Section 12K, 2.5 Interior Rear View Mirror](#) in the MY 2003 VY and V2 Series Service Information.

### Microphone

The active microphone in the interior rear view mirror provides voice communication between the vehicle occupants and the Holden Assist Centre.

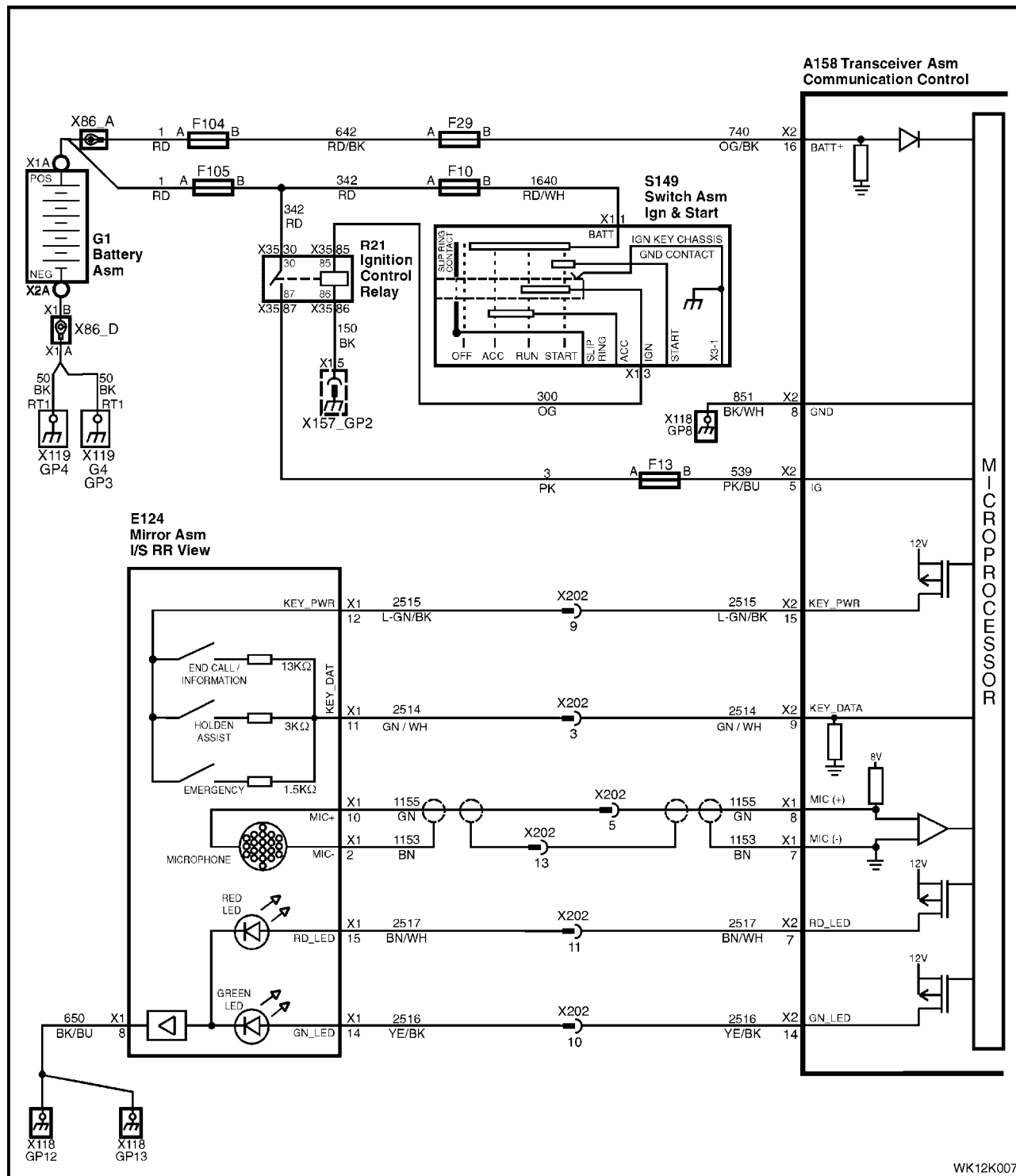


Figure 12K - 1

## 2.2 Audio System Interface

With the exception of the following wiring diagram, MY 2004 WK Series audio system interface information carries over from MY 2003 VY and V2 Series vehicles. For all other audio system interface information, refer to [Section 12K, 2.6 Audio System Interface](#) in the MY 2003 VY and V2 Series Service Information.

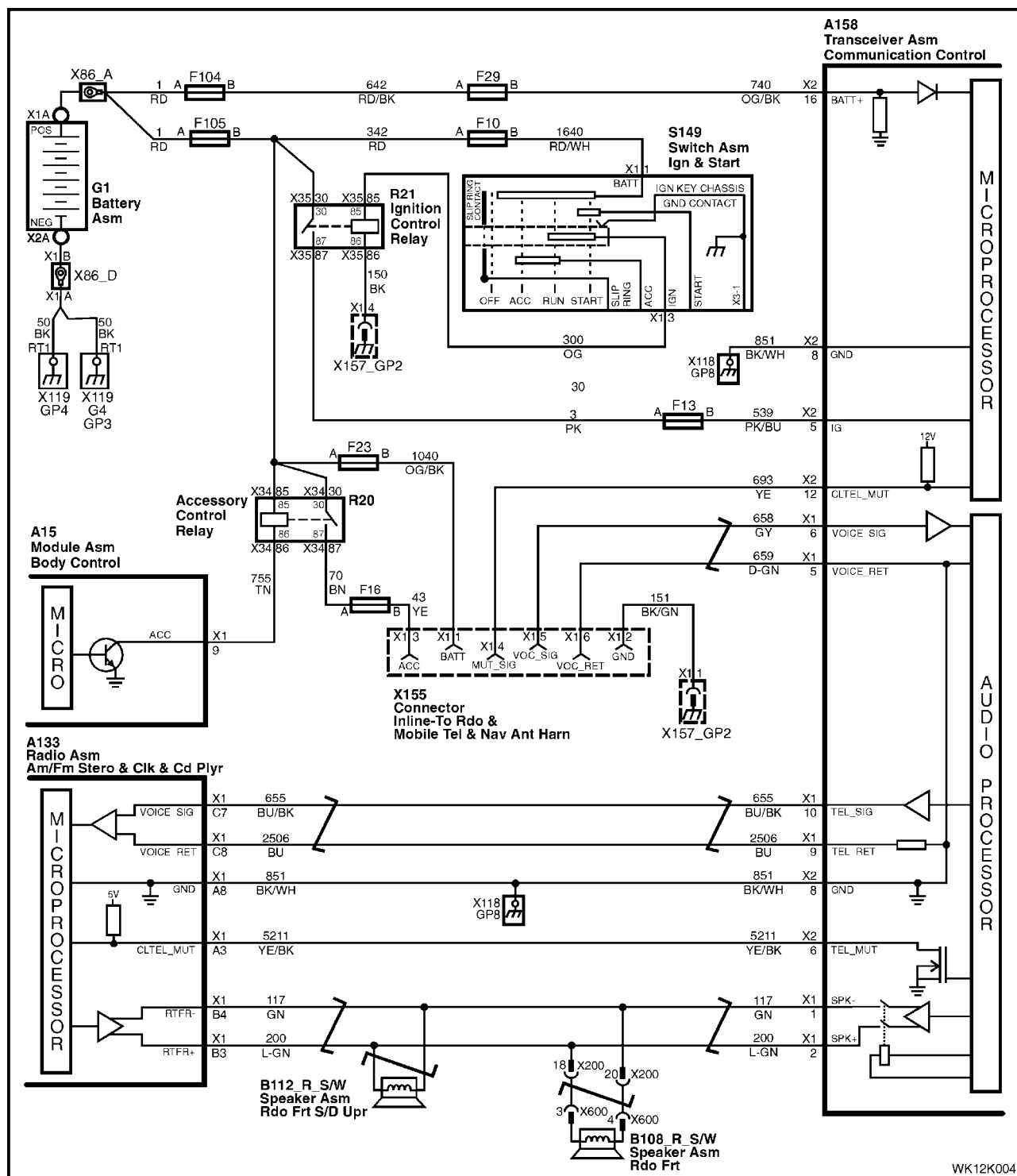


Figure 12K - 2

## 2.3 Battery Voltage

Battery voltage is applied to the telematics module X158 – 2 pin 16 at all times via circuit 740, fuse F29 and fusible link F104 (refer to Figure 12K – 3). If the battery voltage falls below a preset voltage for longer than 30 minutes, the telematics module transmits a Low Battery Alert to the Holden Assist Centre. For information on low battery voltage alert, refer to [Section 12K, 2.2 Alerts](#) in the MY 2003 VY and V2 Series Service Information. If the battery is removed the telematics module transmits a Battery Removal Alert to the Holden Assist Centre. For information on battery removal, refer to [Section 12K, 2.2 Alerts](#) in the MY 2003 VY and V2 Series Service Information.

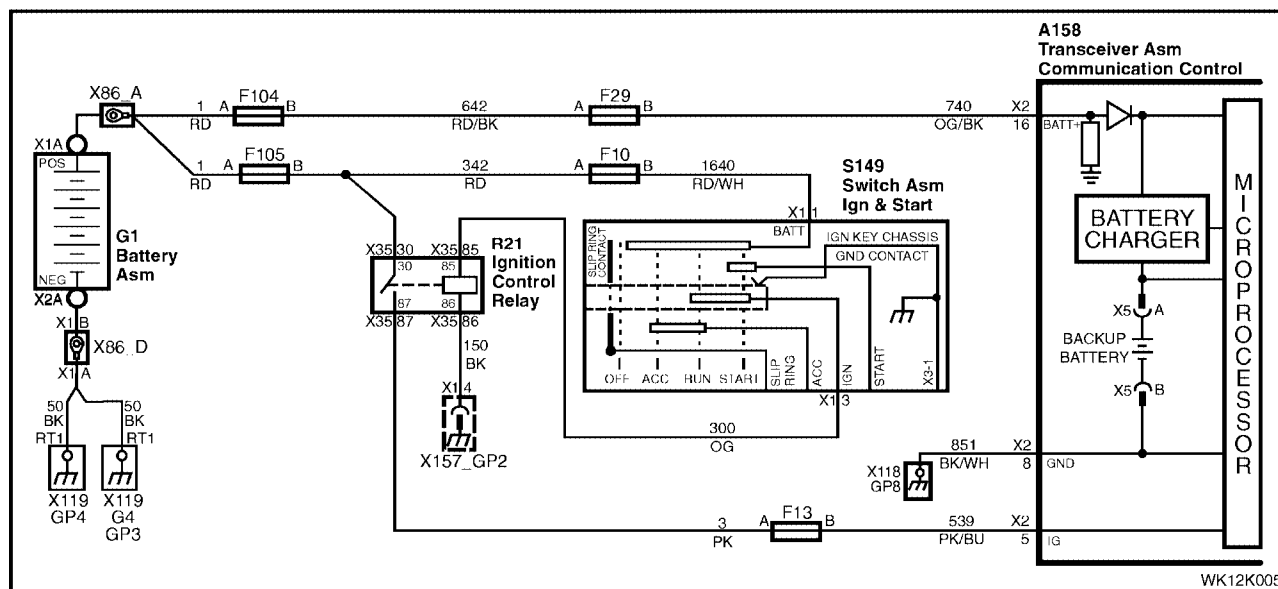


Figure 12K – 3

## 2.4 Backup Battery Charger

The telematics module constantly monitors vehicle battery voltage and backup battery voltage. The charging circuit constantly monitors the backup battery voltage to determine if the backup battery needs to be charged (at a maximum of up to 300 mA).

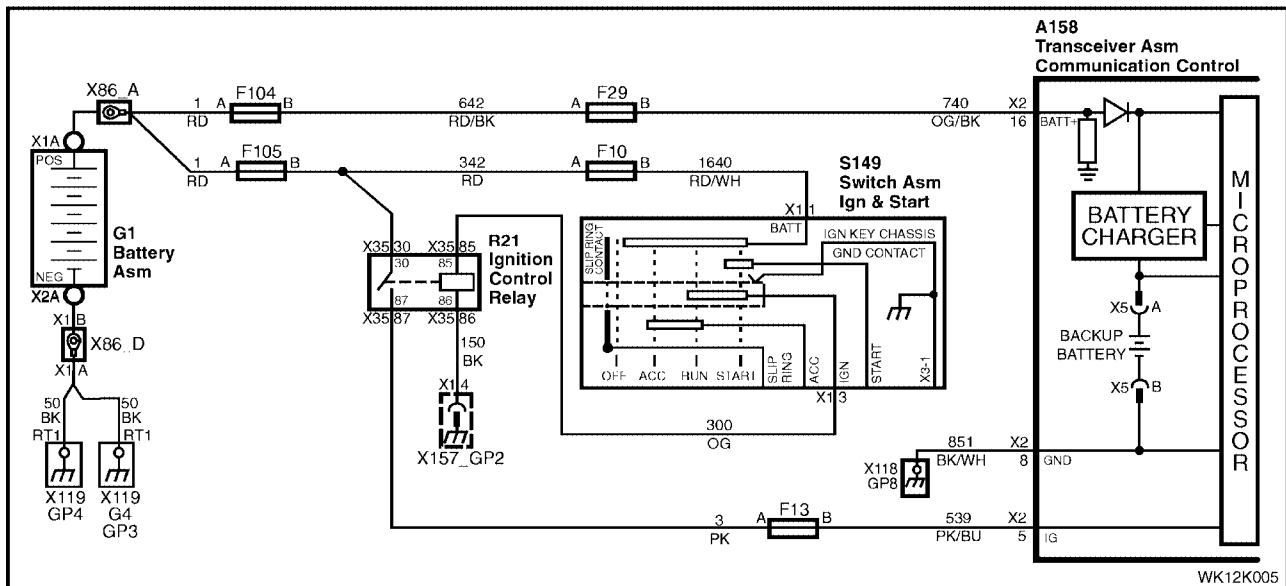


Figure 12K - 4



## 2.5 Serial Data

The telematics module monitors auxiliary serial data circuit 1061 normal mode message for the following data (refer to Figure 12K – 5):

- Airbag Deployed This Ignition Cycle from the SRS SDM, and
- Vehicle Speed from the PCM.

For information on the serial data bus and normal mode message, refer to [Section 12J, 1.2 Serial Data Communication \(Bus Master\)](#) in the MY 2003 VY and V2 Series Service Information.

If the telematics module receives a 'Remote Unlock' message from the Holden Assist Centre, the telematics module requests the BCM (via the serial data circuit) to unlock the doors. For information on the BCM door lock operation, refer to [Section 12J, 1.5 Central Door Locking](#) in the MY 2003 VY and V2 Series Service Information.

If the telematics module receives an 'Immobilise' message from the National Emergency Response Centre (NERC™), the telematics module:

- turns off the fuel pump relay (refer to [Section 12K, 2.15 Fuel Pump Relay Drive Circuit](#) in the MY 2003 VY and V2 Series Service Information) cutting off the supply of fuel to the engine, and
- requests the BCM (via the serial data circuit) to flash the indicators.

For information on BCM indicator operation, refer to [Section 12J, 1.7 Theft Deterrent System](#) in the MY 2003 VY and V2 Series Service Information.

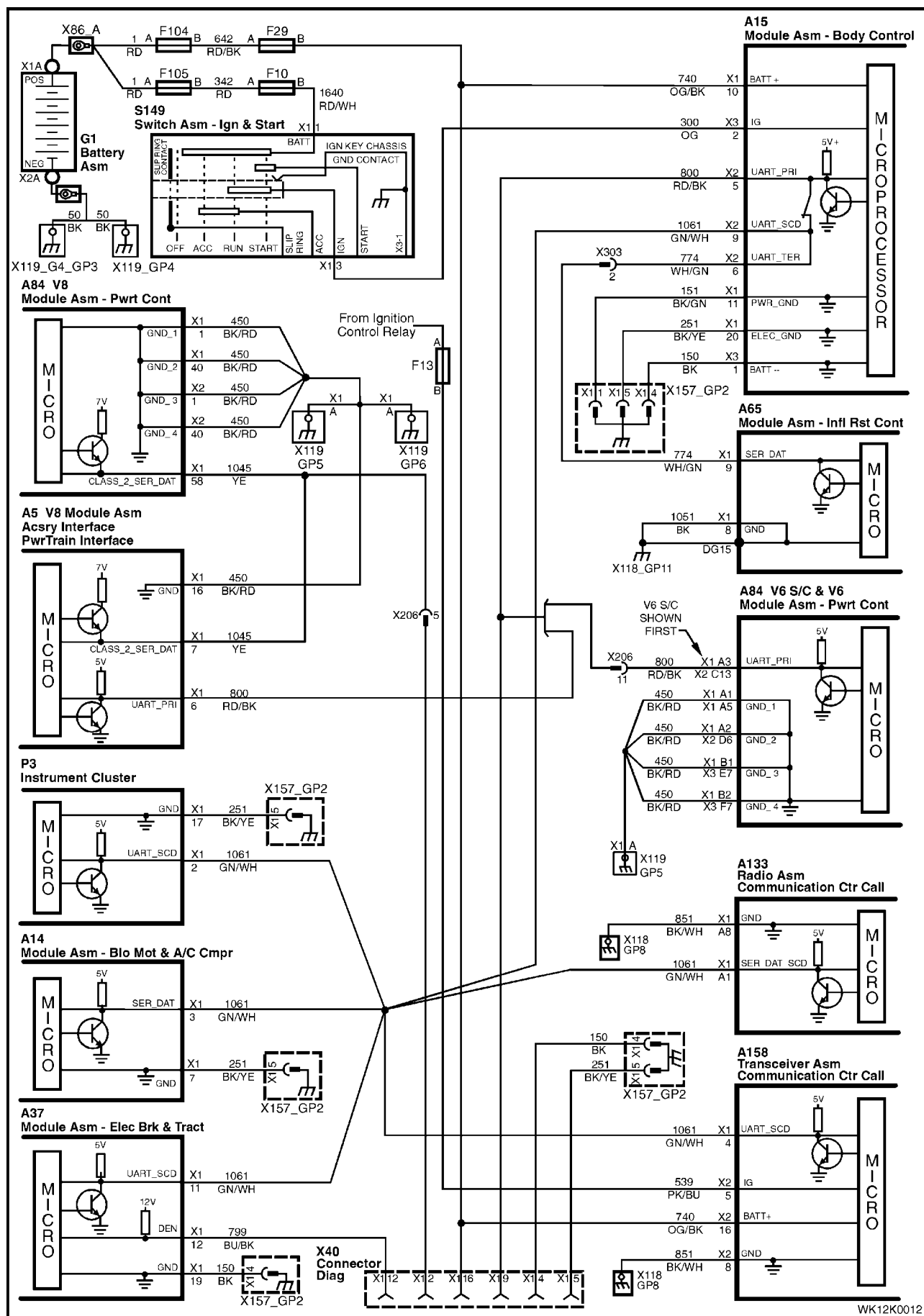


Figure 12K - 5

## 2.6 Driver's Door Ajar Switch

The telematics module uses the driver's door ajar input signal to determine if the driver's front door is opened or closed. When the driver's door is opened, the driver's door ajar switch grounds A158 – X2 pin 11 of the telematics module via circuit 746. This causes the voltage at terminal A158 – X2 pin 11 to drop to less than 0.2 volts (indicating that the driver's door is open). This low voltage at A158 – X2 pin 11 is detected by the telematics module as the driver's door open input signal. The telematics module uses this input to determine the system operating mode, refer to [Section 12K, 2.1 Operating Modes](#) in the MY 2003 VY and V2 Series Service Information.

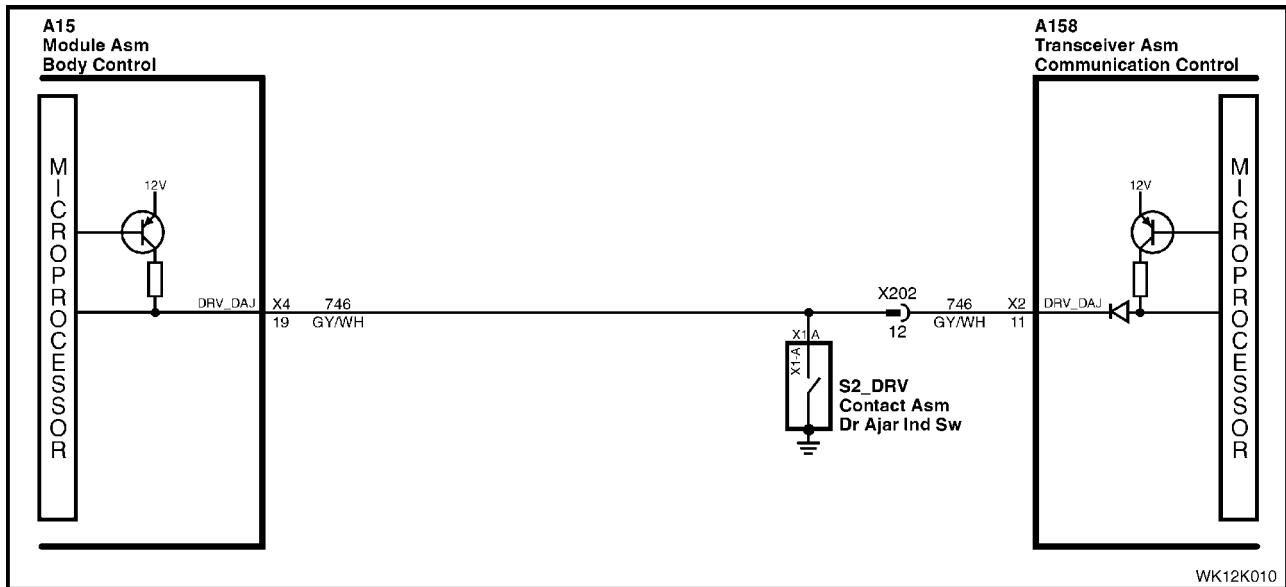
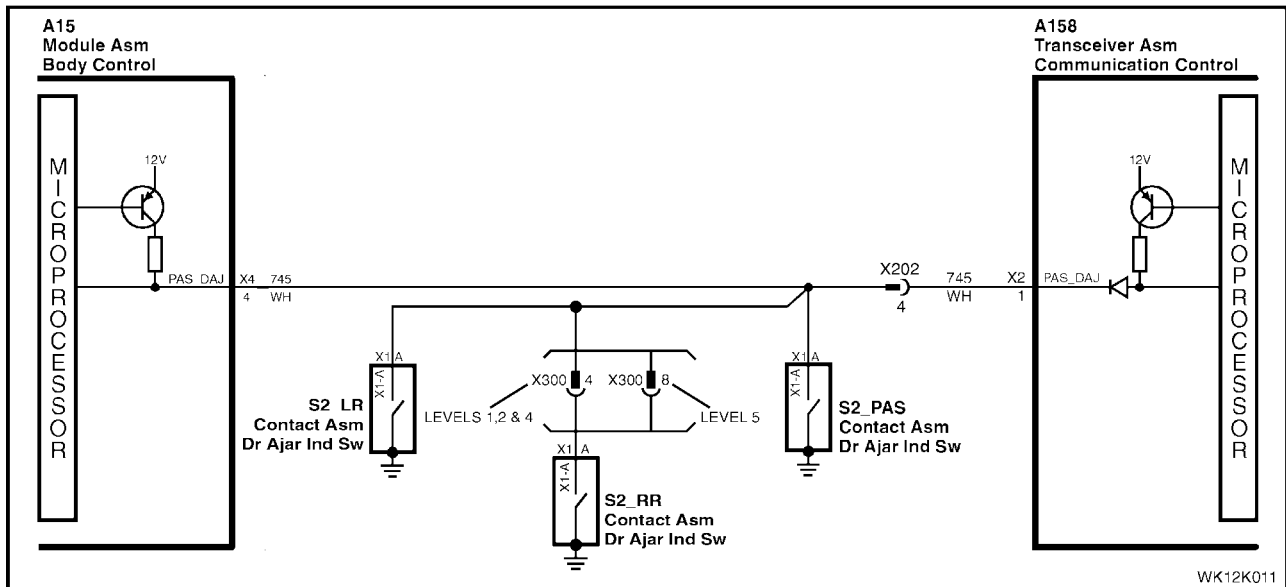


Figure 12K – 6

## 2.7 Passenger Door Ajar Switches

The telematics module uses the passenger door ajar input signal to determine if any of the passenger doors are opened. If any passenger doors are open, A158 – X2 pin 1 of the telematics module is grounded via circuit 745. This causes the voltage at A158 – X2 pin 1 to drop to less than 0.2 volts (indicating that one or more passenger doors are open). The telematics module determines this low voltage at A158 – X2 pin 1 as the passenger door open input signal. The telematics module uses this input to determine the system operating mode, refer to [Section 12K, 2.1 Operating Modes](#) in the MY 2003 VY and V2 Series Service Information.



**Figure 12K – 7**

## 2.8 Alarm Input (Theft Deterrent Horn)

The telematics module monitors the theft deterrent horn circuit to determine if the alarm has been triggered. If the alarm has been triggered, the body control module (BCM) pulses the vehicle horns at 1 Hz. The BCM supplies 12 volts via circuit 1149 to pulse the theft deterrent horn. When the theft deterrent horn circuit is activated, the voltage at A158 – X2 pin 2 of the telematics module increases. The telematics module determines this high voltage at A158 – X2 pin 2 as the theft deterrent system having been triggered. If the vehicle theft deterrent system is triggered for longer than 20 seconds, the telematics module transmits an 'Unauthorised Entry Alert' message to the Holden Assist Centre. For further information regarding the unauthorised entry alert, refer to the *Holden Assist Handbook Supplement*.

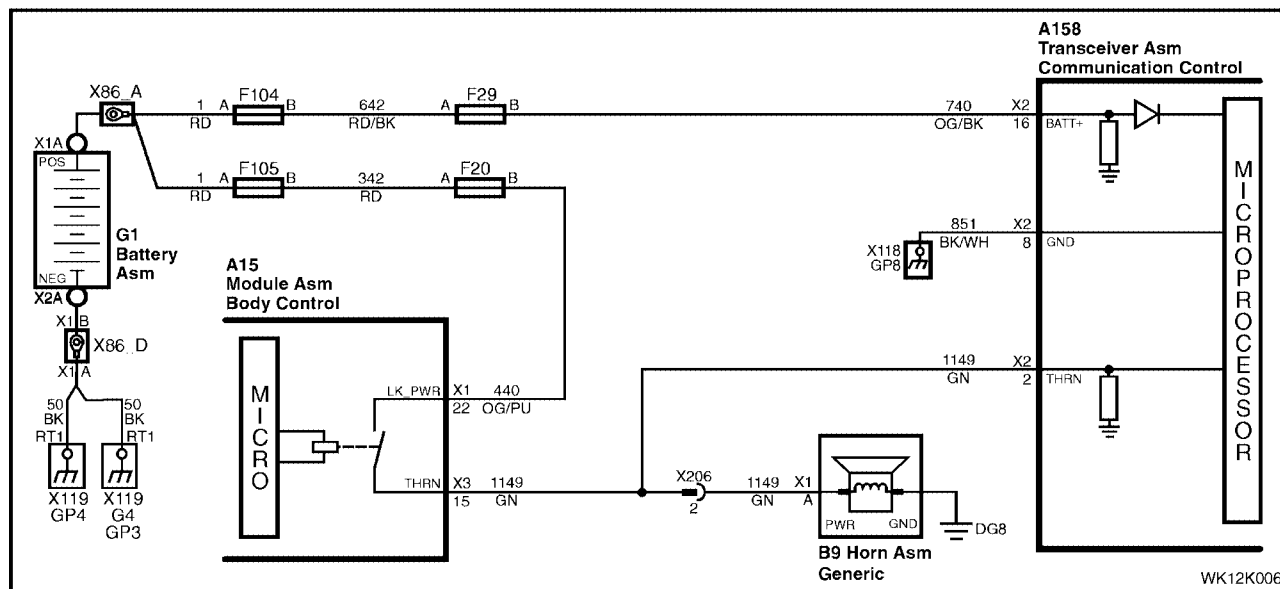


Figure 12K – 8

## 2.9 Telematics Antenna

With the exception of the following wiring diagram, MY 2004 WK Series telematics antenna information carries over from MY 2003 VY and V2 Series vehicles. For all other telematics antenna information, refer to [Section 12K, 2.14 Telematics Antenna](#) in the MY 2003 VY and V2 Series Service Information.

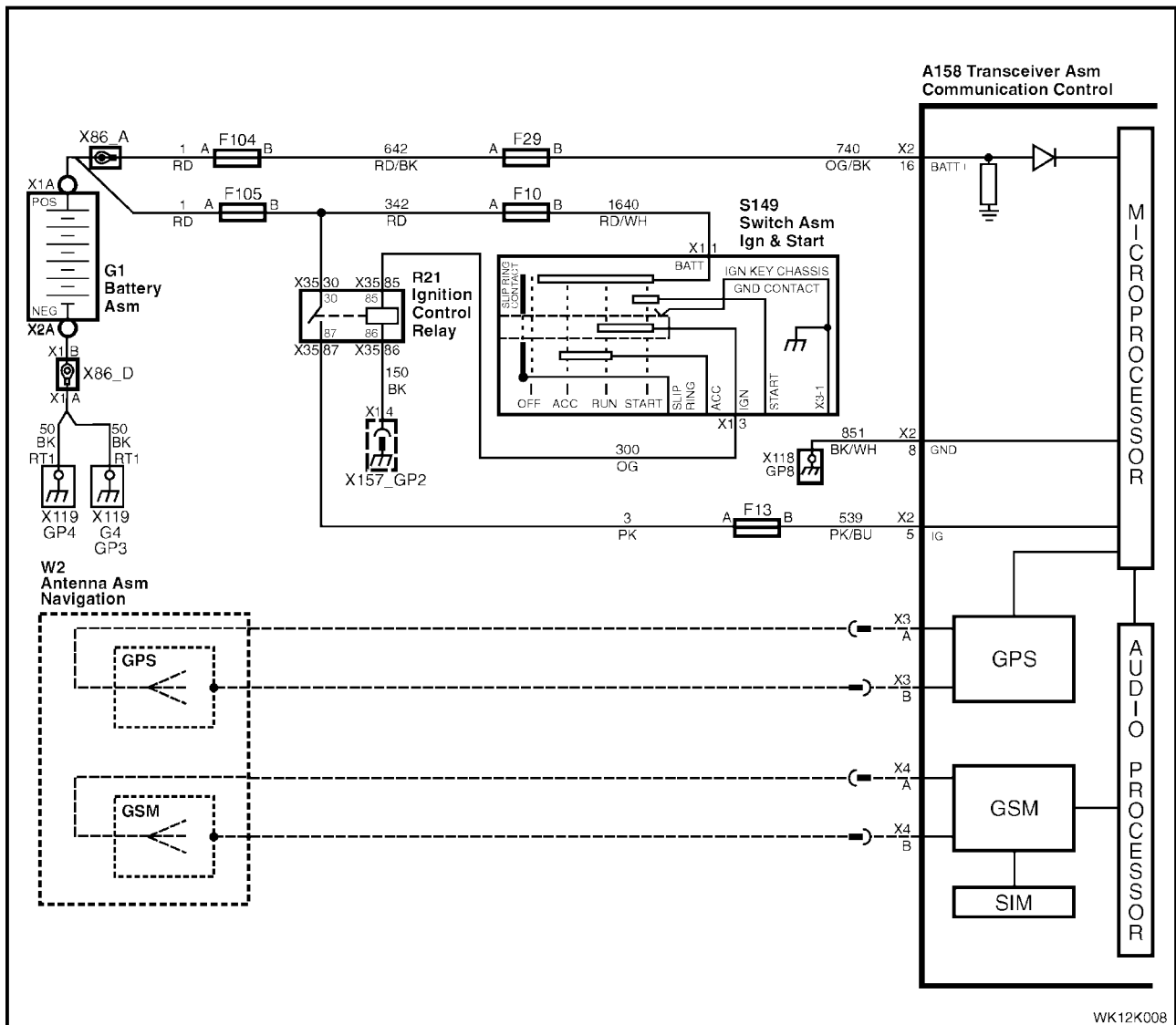


Figure 12K - 9

## 2.10 Fuel Pump Relay Drive Circuit

The PCM energises the fuel pump relay drive circuit via circuit 465, and the telematics module A158 – X1 pin 18 circuit 497 and A158 – X1 pin 19 circuit 465. The fuel pump relay drive circuit is grounded through circuit 550 at ground location X157\_GP2. The telematics module immobilises the vehicle by opening the fuel pump relay drive circuit, causing the fuel pump to stop operating. This function can be activated only by the NERC™ under instruction from the police. For information on engine immobilisation, refer to [Section 12K, 2.3 Holden Assist Remote Requests](#) in the MY 2003 VY and V2 Series Service Information.

### V6 Engine

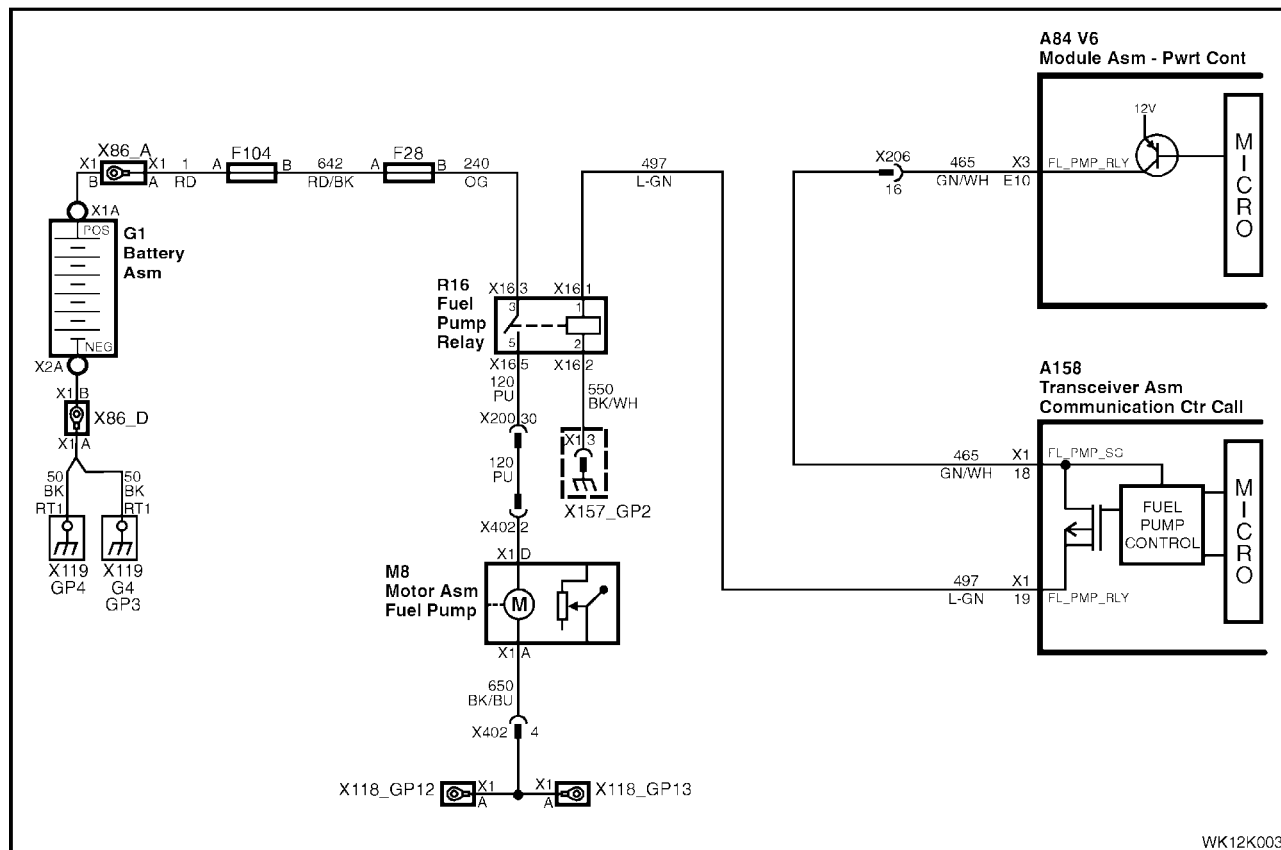


Figure 12K – 10

## V6 (Supercharged) Engine

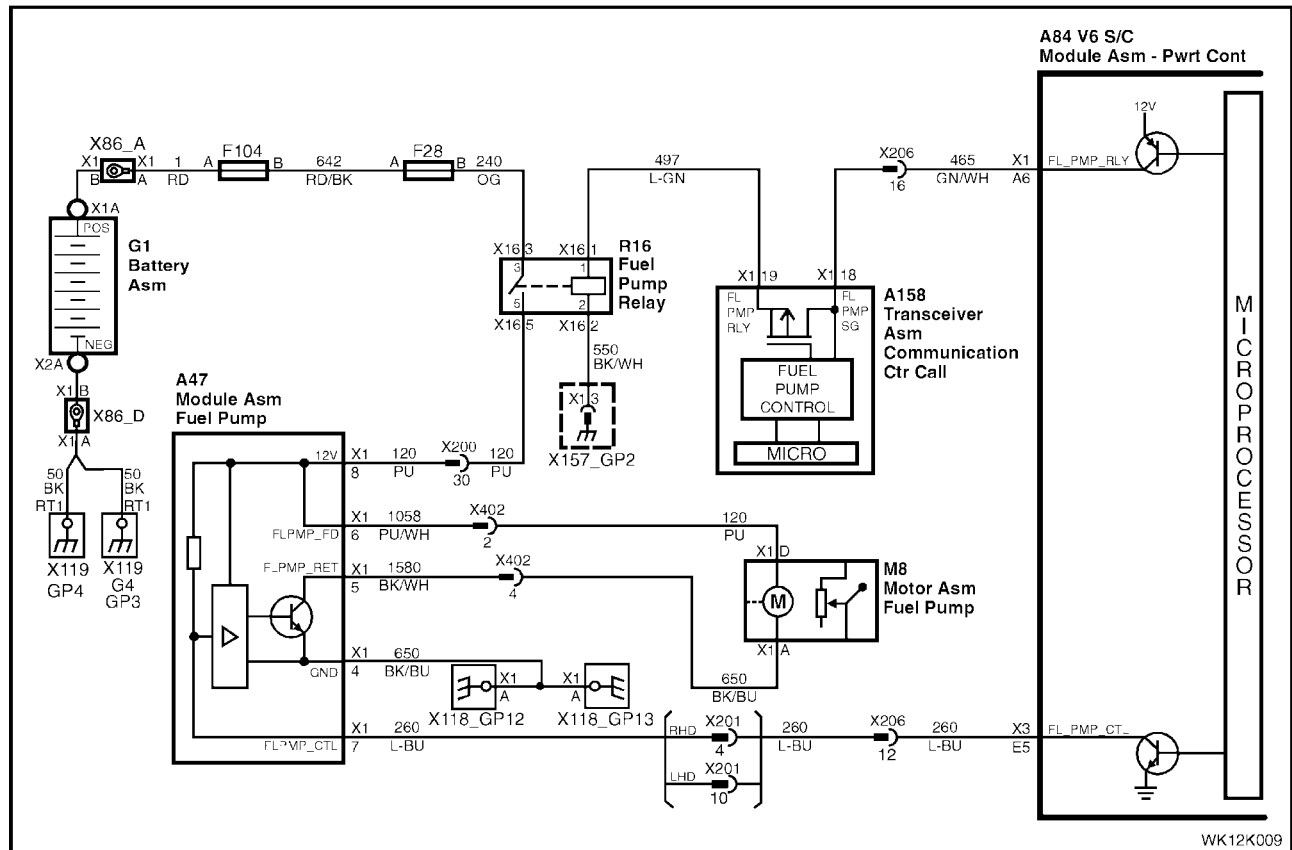


Figure 12K – 11

## GEN III V8 Engine

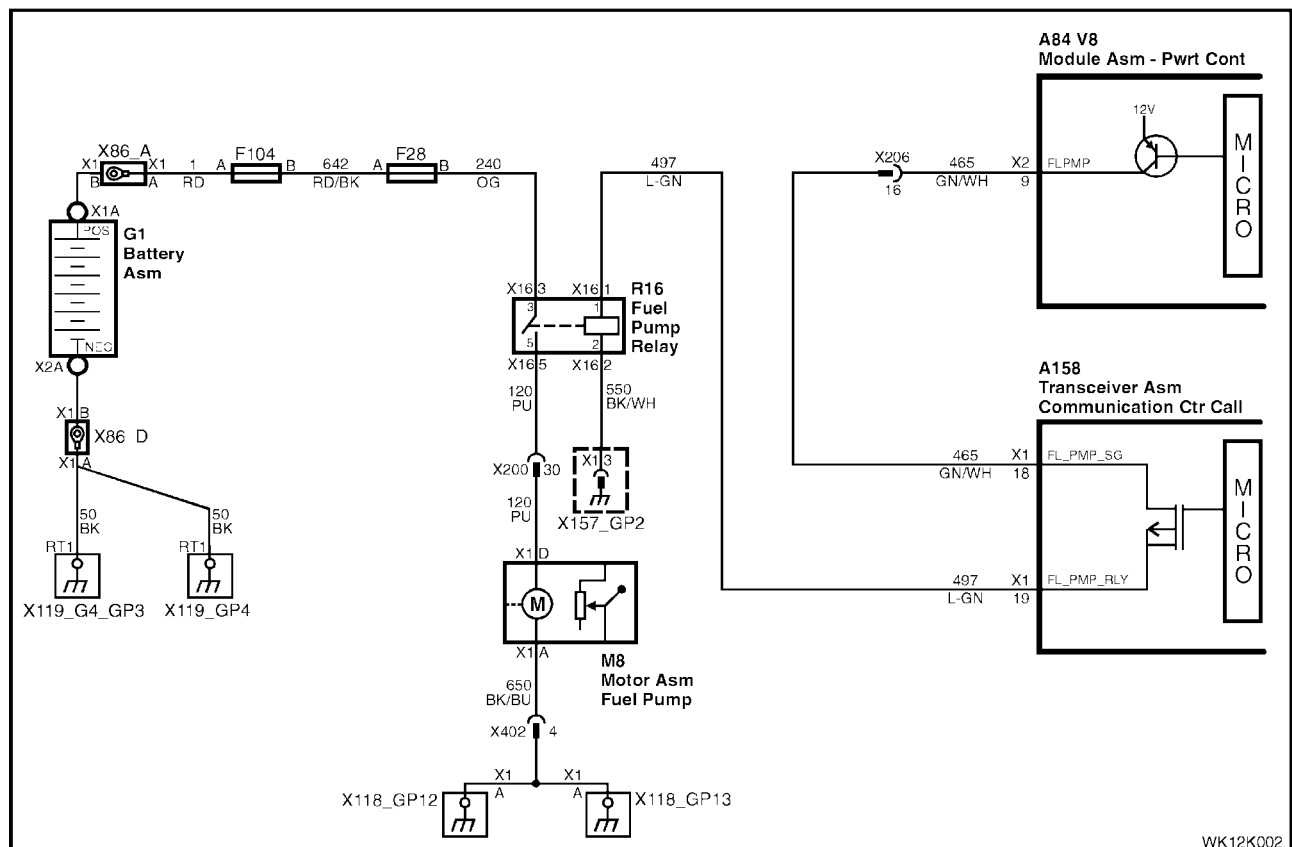


Figure 12K – 12



### 3 Service Operations

MY 2004 WK Series Telematics information carries over from MY 2003 VY and V2 Series vehicles.

For all Telematics service operations information, refer to [Section 12K Telematics, 3 Service Operations](#) in the MY 2003 VY and V2 Series Service Information.

#### NOTE

Refer to the relevant MY 2004 WK Series Section for all external references contained in the MY 2003 VY and V2 Series, [Section 12K Telematics](#). This is to verify that there are no differences in the MY 2004 WK Series Service information that will affect the service procedures referenced from MY 2003 VY and V2 Series Service information.

## 4 TECH 2 Diagnosis for Telematics

MY 2004 WK Series Telematics information carries over from MY 2003 VY and V2 Series vehicles.

For all Telematics TECH 2 diagnosis information, refer to [Section 12K Telematics, 4 TECH 2 Diagnosis](#) for Telematics in the MY 2003 VY and V2 Series Service Information.

### NOTE

Refer to the relevant MY 2004 WK Series Section for all external references contained in the MY 2003 VY and V2 Series, [Section 12K Telematics](#). This is to verify that there are no differences in the MY 2004 WK Series Service information that will affect the service procedures referenced from MY 2003 VY and V2 Series Service information.

## 5 Diagnosis

Except for the following headings and accompanying text, illustrations and/or tables, MY 2004 WK Series Telematics diagnosis information carries over from MY 2003 VY and V2 Series vehicles:

- Telematics Module Terminal Descriptions;
- Diagnostic Charts:
  - On-board Diagnostic System Check,
  - DTC 1 — No Serial Data From BCM,
  - DTC 2 — No Serial Data From Instrument,
  - DTC 3 — No Serial Data From Sensing Diagnostic Module,
  - DTC 4 — No Serial Data From Audio System,
  - DTC 5 — No Serial Data,
  - DTC 9 — Vehicle Battery Voltage Too High,
  - DTC 10 — Vehicle Battery Voltage Too Low,
  - DTC 13 — Backup Battery Timer Expired,
  - DTC 14 — Backup Battery Voltage Too High,
  - DTC 15 — Backup Battery Voltage Too Low,
  - DTC 16 — Backup Battery Not Detected,
  - DTC 17 — Microphone Not Detected,
  - DTC 18 — Microphone Circuit Voltage Too Low,
  - DTC 19 — Microphone Circuit Voltage Too High,
  - DTC 21 — Speaker Circuit Voltage Too Low,
  - DTC 22 — Speaker Circuit Voltage Too High,
  - DTC 30 — Keypad Circuit Voltage Too High,
  - DTC 42 — Fuel Pump Circuit Voltage Too Low,
  - DTC 43 — Fuel Pump Circuit Voltage Too High,
  - DTC 45 — End Call / Information Button Stuck,
  - DTC 46 — Holden Assist Button Stuck, and
  - DTC 47 — Emergency Button Stuck; and
- Symptoms Charts:
  - No Serial Data,
  - Status Indicator LEDs Do Not Illuminate,
  - Vehicle Battery Voltage,
  - Backup Battery,
  - No GPS Signal,
  - No GSM Signal,
  - Emergency Button,
  - Holden Assist Button,
  - End Call / Information Button,

- Theft Deterrent Horn,
- Driver's Door Ajar Switch,
- Passenger Door Ajar Switches,
- Microphone,
- Fuel Pump Relay Drive,
- Audio Mute,
- Audio System Interface,
- Unable to Make or Receive a Call, and
- Holden Assist Telematics System Test.

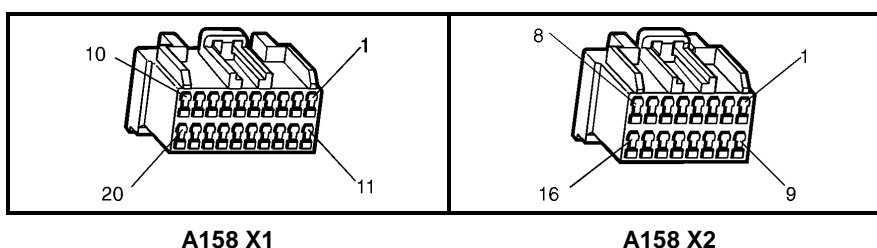
For other diagnosis information not contained within this Section, refer to [Section 12K Telematics](#) in the MY 2003 VY and V2 Series Service information.

#### NOTE

Refer to the relevant MY 2004 WK Series Section for all external references contained in the MY 2003 VY and V2 Series, [Section 12K Telematics](#). This is to verify that there are no differences in the MY 2004 WK Series Service information that will affect the service procedures referenced from MY 2003 VY and V2 Series Service information.

## 5.1 Telematics Module Terminal Descriptions

Pin No. A158	Circuit No.	Circuit Colour	IVED Abbreviation	Description	Circuit Type
X1-1	117	Green	SPK_-	Speaker Negative	Output
X1-2	200	Light Green	SPK_+	Speaker Positive	Output
X1-4	1061	Green / White	UART_SCD	Serial Data (Secondary)	I/O
X1-5	659	Dark Green	VOICE_RET	Phone Signal In Ground	Ground
X1-6	658	Grey	VOICE_SIG	Phone Signal In	Input
X1-7	1153	Brown	MIC-	Microphone Negative	Ground
X1-8	1155	Green	MIC+	Microphone Positive	Input
X1-9	2506	Blue	TEL_RET	Phone Signal Out Ground	Ground
X1-10	655	Blue / Black	TEL_SIG	Phone Signal Out	Output
X1-18	465	Green White	FL_PMP_SG	Fuel Pump Relay In	Input
X1-19	497	Light Green	FL_PMP_RLY	Fuel Pump Relay Out	Output
X2-1	745	White	PAS_DAJ	Passenger Door Ajar Switches	Input
X2-2	1149	Green	THRN	Theft Deterrent Horn Relay	Input
X2-5	539	Pink / Blue	IG	Ignition	Input
X2-6	5211	Yellow / Black	TEL_MUT	Radio Mute	Output
X2-7	2517	Brown / White	RD_LED	Red LED	Output
X2-8	851	Black / White	GND	Ground	Ground
X2-9	2514	Green / White	KEY_DAT	Key Pad Signal	Input
X2-11	746	Grey / White	DRV_DAJ	Driver's Door Ajar Switch	Input
X2-12	693	Yellow	CLTEL_MUT	Phone Mute In	Input
X2-14	2516	Yellow / Black	GN_LED	Green LED	Output
X2-15	2515	Light Green / Black	KEY_PWR	Key Pad Supply Voltage	Output
X2-16	740	Orange / Black	BATT+	Battery Positive	B+
X3-A	N/A	N/A	N/A	GPS Antenna Signal	Input
X3-B	N/A	N/A	N/A	GPS Antenna Ground	Ground
X4-A	N/A	N/A	N/A	GSM Antenna Signal	Input
X4-B	N/A	N/A	N/A	GSM Antenna Ground	Ground
X5-A	N/A	N/A	N/A	Back Up Battery Positive	7.2 Volts
X5-B	N/A	N/A	N/A	Back Up Battery Negative	Ground



## 5.2 Diagnostic Charts

With the exception of the following headings, and accompanying wiring diagrams and text, MY 2004 WK Series diagnostic charts information carries over from MY 2003 VY and V2 Series vehicles. For all other diagnostic charts information, refer to [Section 12K, 5.8 Diagnostic Charts](#) in the MY 2003 VY and V2 Series Service Information.

### On-board Diagnostic System Check

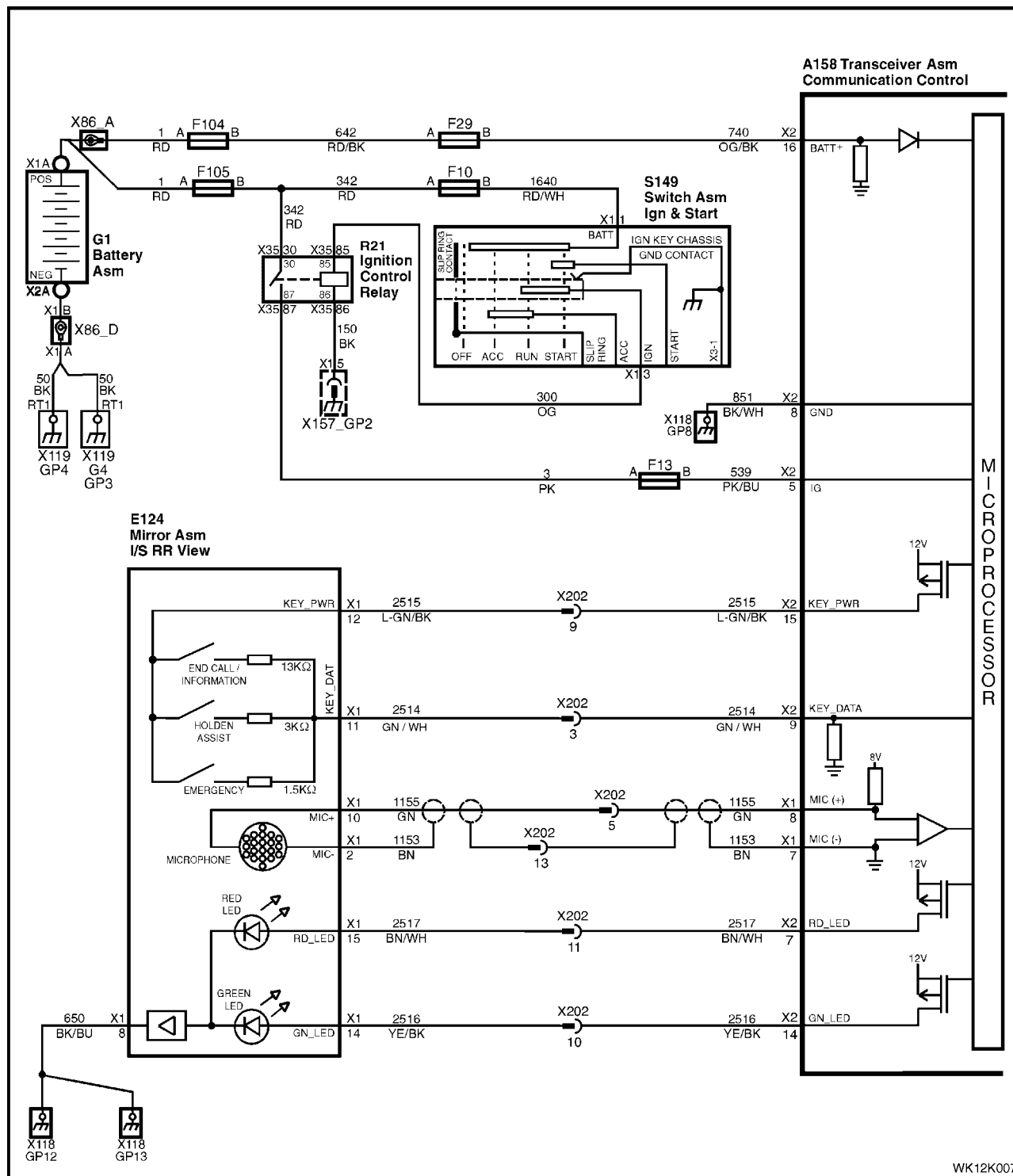


Figure 12K – 13

For information on the circuit description, and a test description and accompanying table for the on-board diagnostic system check test, refer to [Section 12K, 5.8 Diagnostic Charts](#) (On-board Diagnostic System Check) in the MY 2003 VY and V2 Series Service Information.

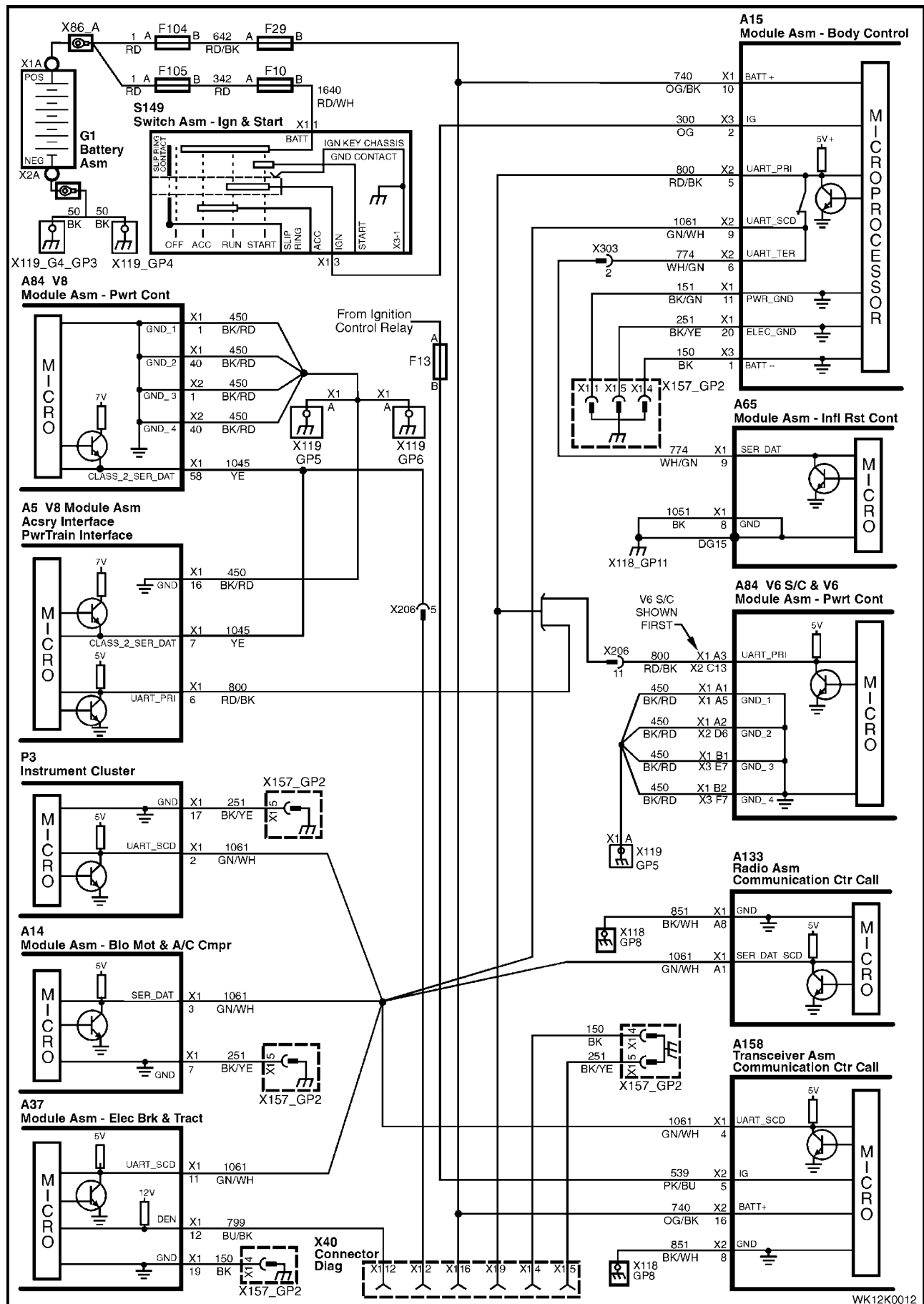
**DTC 1 — No Serial Data From BCM**

Figure 12K – 14

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to, [Section 12K, 5.8 Diagnostic Charts](#) (DTC 1 — No Serial Data From BCM) in the MY 2003 VY and V2 Series Service Information.



The diagram illustrates the electrical architecture of a vehicle's electronic control system. It features a central Microprocessor (MICRO) connected to various modules via a common data bus. The modules include:

- G1 Battery Asm:** Provides power to the system.
- S149 Switch Asm - Ign & Start:** Controls the ignition and starting functions.
- A5 V8 Module Asm:** Acscry Interface and PwrTrain Interface.
- A14 Module Asm - Blo Mot & A/C Cmpr:** Controls the blower motor and air conditioning compressor.
- A37 Module Asm - Elec Brk & Tract:** Controls the electric brake and traction.
- A84 V8 Module Asm - Pwr Cont:** Power control module.
- A15 Module Asm - Body Control:** Body control module.
- A65 Module Asm - Infl Rst Cont:** Inflation reset control module.
- A133 Radio Asm:** Radio assembly.
- A158 Transceiver Asm:** Transceiver assembly.

The diagram shows the wiring for power (BATT+, BATT-), ground (GND), and data lines (UART, SER DAT). Key components like relays (F10, F104, F105, F13), fuses (F29, F10), and connectors (X1, X2, X3, X11, X12, X13, X14, X15, X16, X17, X18, X19, X20, X21, X22, X23, X24, X25, X26, X27, X28, X29, X30, X31, X32, X33, X34, X35, X36, X37, X38, X39, X40) are labeled with their pin numbers and wire colors. The diagram is organized into sections, with each module's internal wiring and its external connections to the main system bus clearly defined.

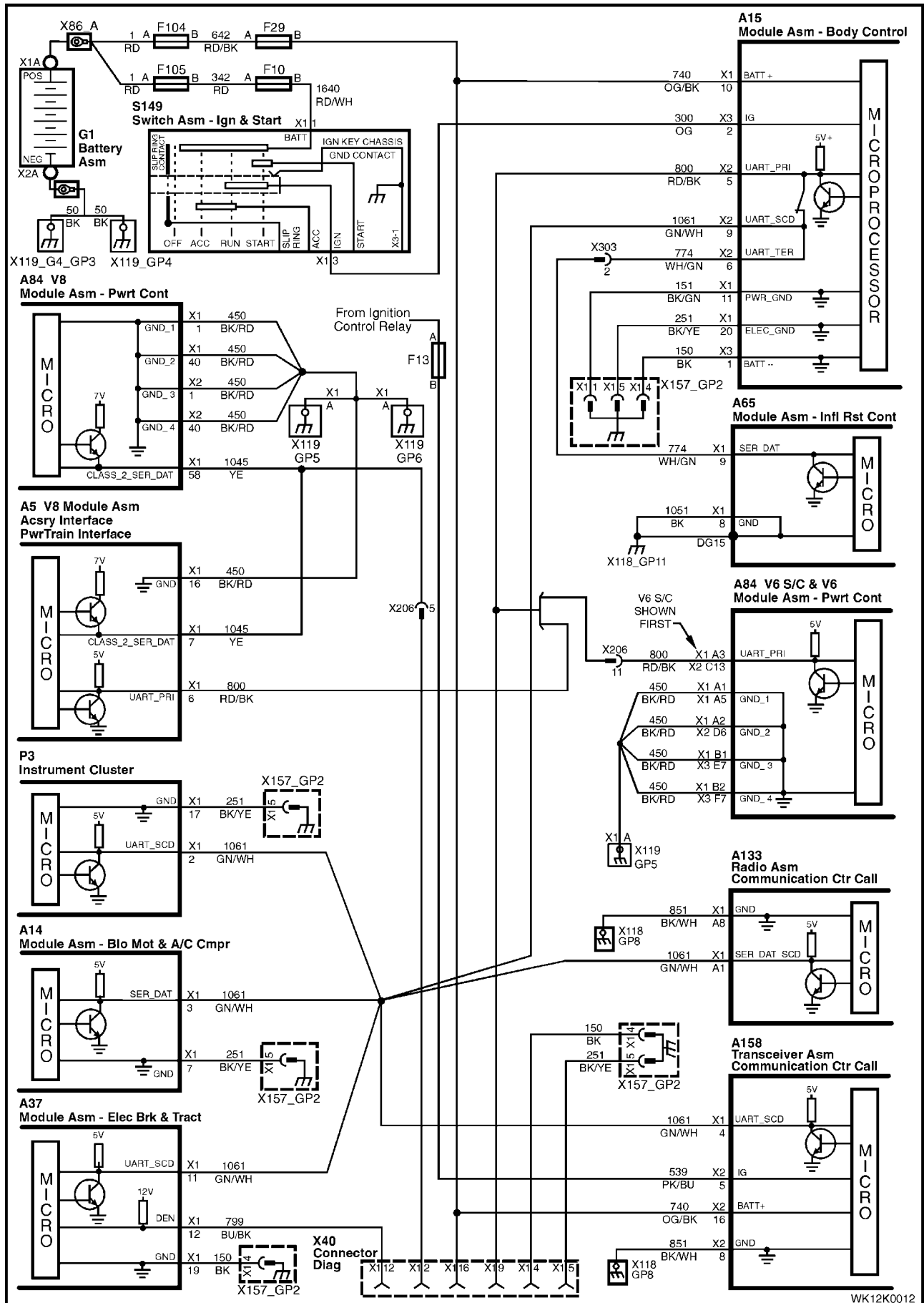
**Figure 12K – 15**

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 2 — No Serial Data From Instrument) in the MY 2003 VY and V2 Series Service Information.

# DTC 3 — No Serial Data From Sensing Diagnostic Module



For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 3 — No Serial Data From SDM (Sensing Diagnostic Module)) in the MY 2003 VY and V2 Series Service Information.

**Wiring Diagram Details:**

- Top Section:** Shows the battery assembly (G1) and ignition switch assembly (S149) connected to the main power and ground lines. The microprocessor (MICRO) is connected to the power and ground lines.
- Left Section:** Contains modules A5 (V8 Module Asm), A14 (Module Asm - Blo Mot & A/C Cmpr), and A37 (Module Asm - Elec Brk & Tract). These modules are connected to the power and ground lines.
- Right Section:** Contains modules A84 (V8 Module Asm - Pwrtrn Cont), A15 (Module Asm - Body Control), A65 (Module Asm - Infl Rst Cont), A133 (Radio Asm), and A158 (Transceiver Asm). These modules are connected to the power and ground lines.
- Central Section:** Shows the microprocessor (MICRO) and its associated control lines (UART, SER DAT) connected to the various modules.
- Bottom Section:** Contains the X40 Connector Diag and the X157\_GP2 connector, which are used to connect the modules to the vehicle's wiring harness.

**Figure 12K – 17**

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 4 — No Serial Data From Audio System) in the MY 2003 VY and V2 Series Service Information.

## DTC 5 — No Serial Data

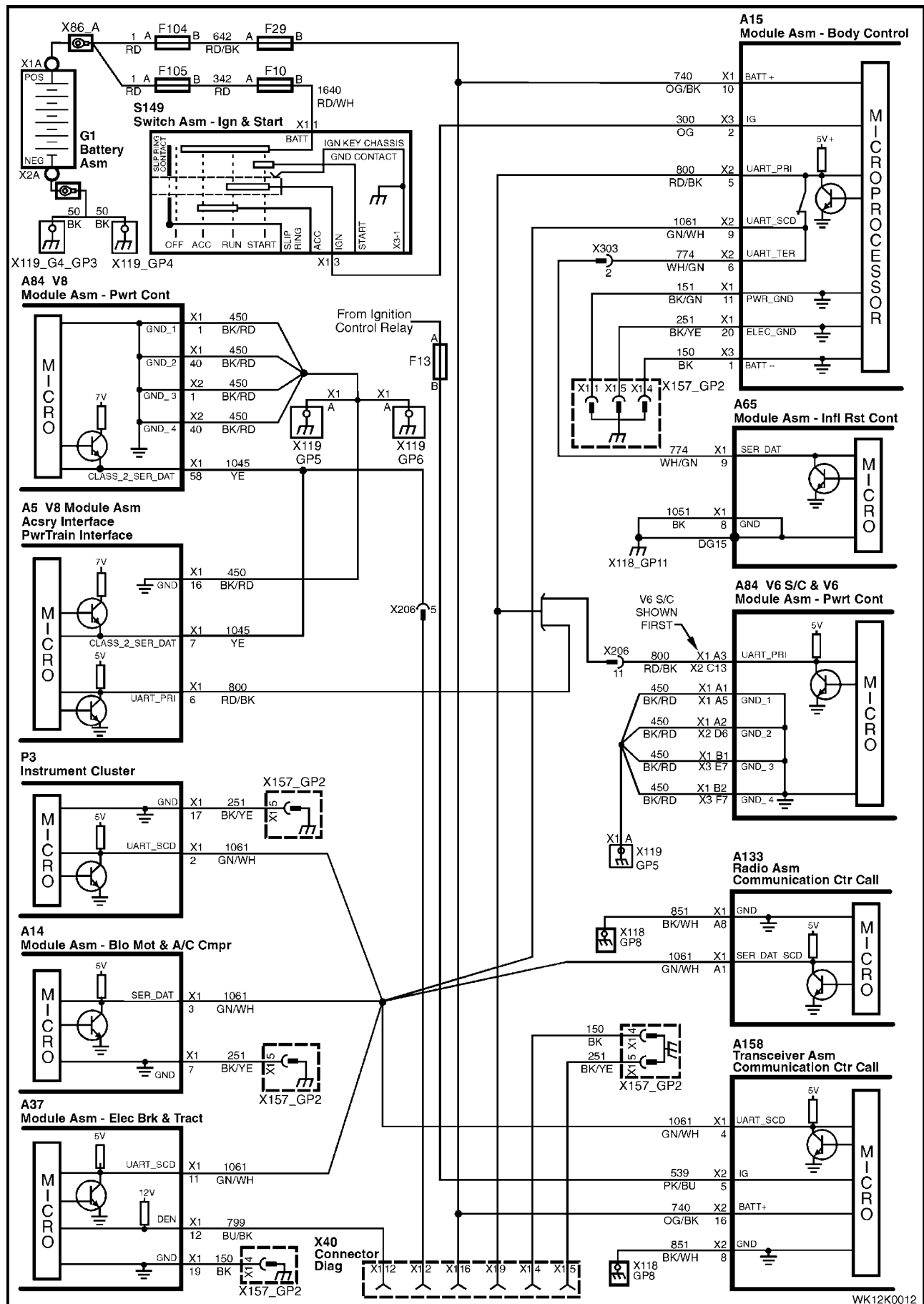


Figure 12K – 18

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 3 — No Serial Data) in the MY 2003 VY and V2 Series Service Information.



## DTC 9 — Vehicle Battery Voltage Too High

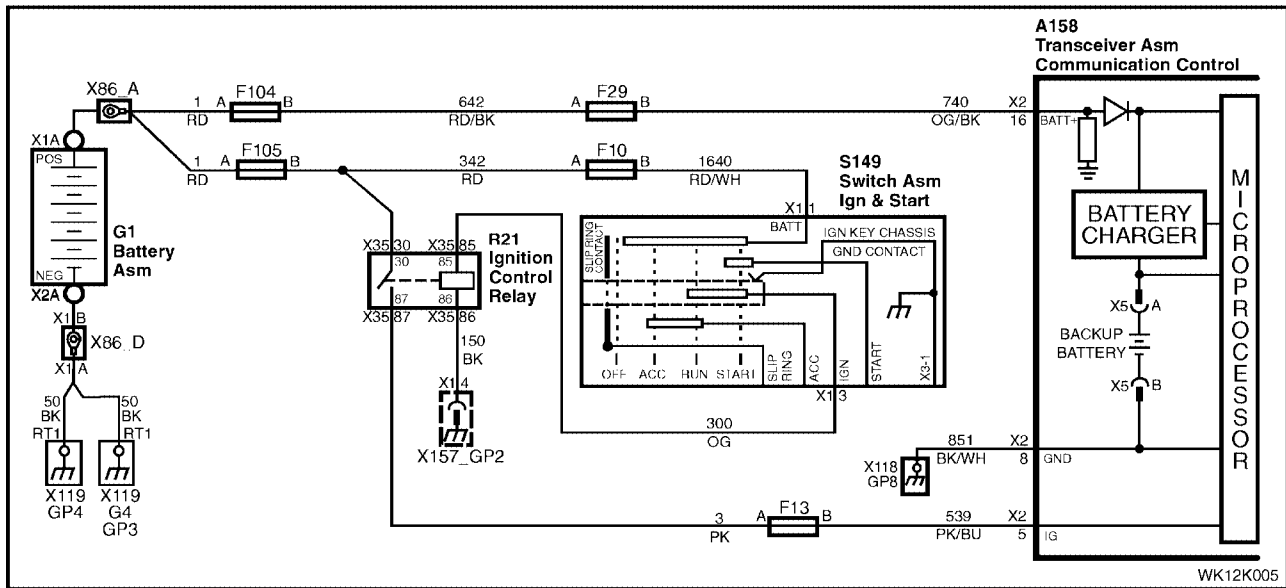


Figure 12K – 19

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 9 — Vehicle Battery Voltage Too High) in the MY 2003 VY and V2 Series Service Information.

## DTC 10 — Vehicle Battery Voltage Too Low

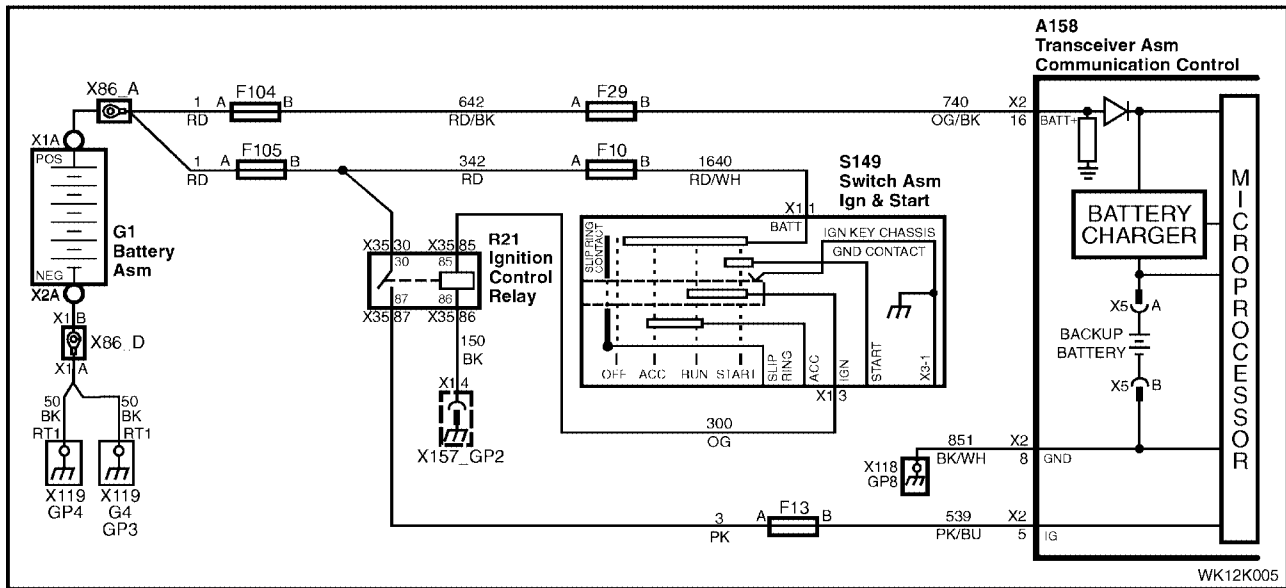


Figure 12K – 20

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 10 — Vehicle Battery Voltage Too Low) in the MY 2003 VY and V2 Series Service Information.

## DTC 13 — Backup Battery Timer Expired

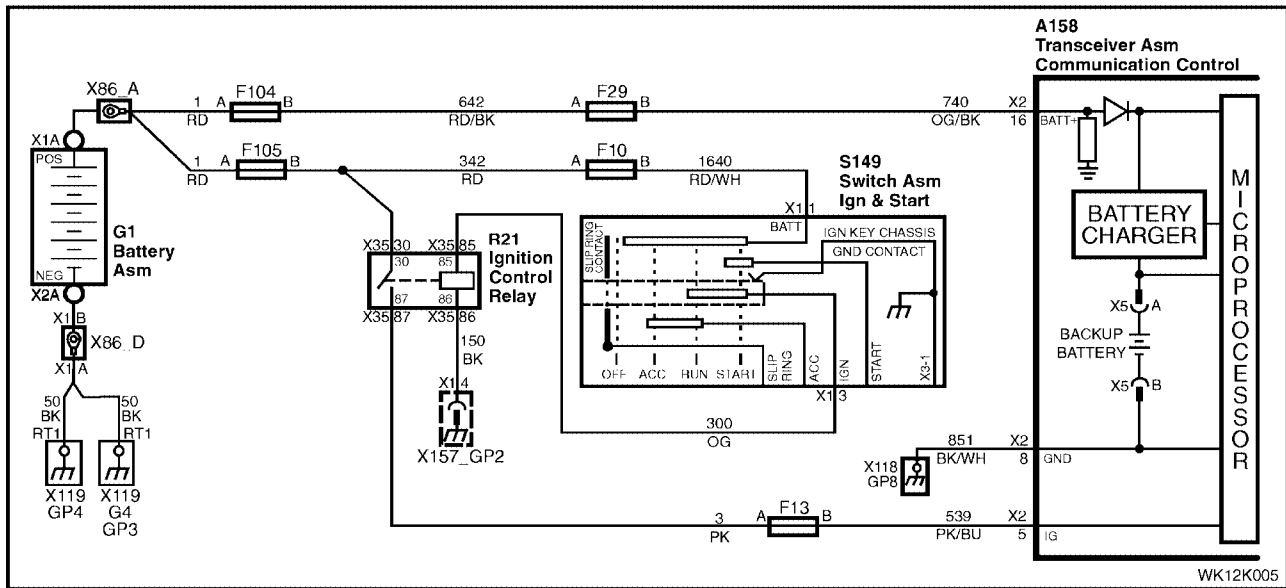


Figure 12K – 21

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 13 — Backup Battery Timer Expired) in the MY 2003 VY and V2 Series Service Information.

## DTC 14 — Backup Battery Voltage Too High

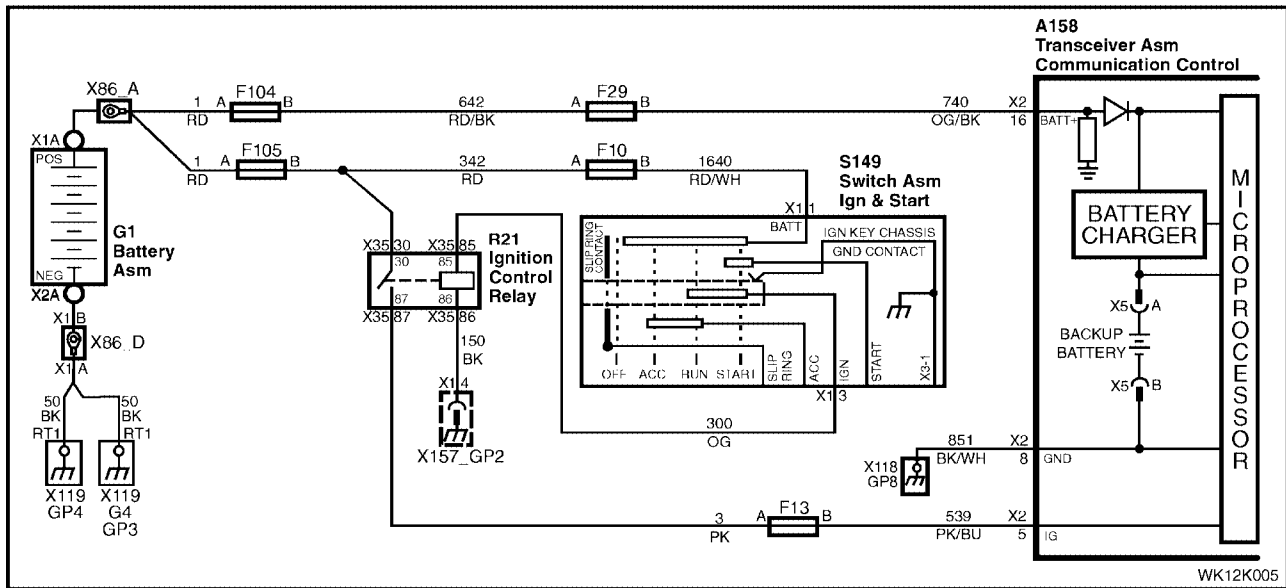


Figure 12K – 22

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 14 — Backup Battery Voltage Too High) in the MY 2003 VY and V2 Series Service Information.

## DTC 15 — Backup Battery Voltage Too Low

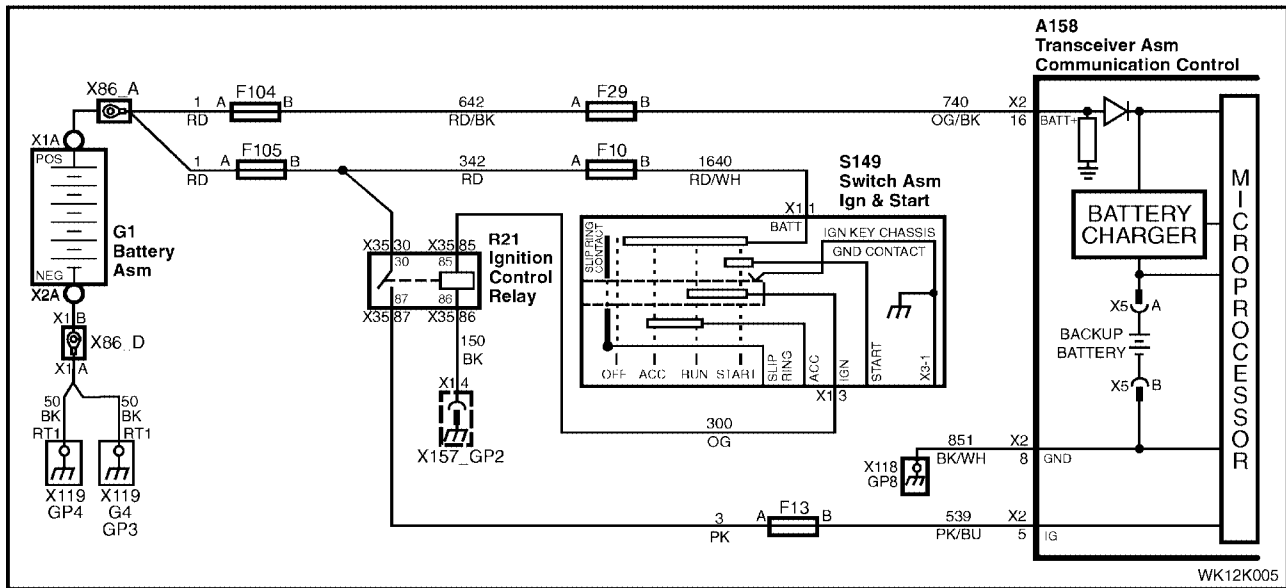


Figure 12K – 23

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 15 — Backup Battery Voltage Too Low) in the MY 2003 VY and V2 Series Service Information.

## DTC 16 — Backup Battery Not Detected

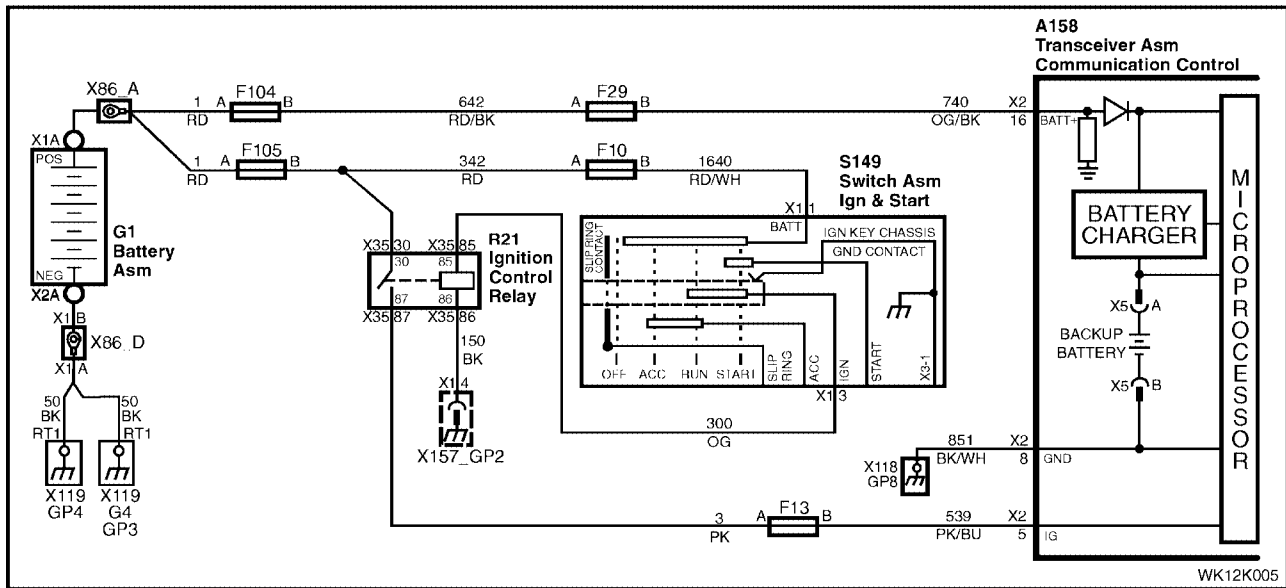


Figure 12K – 24

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 16 — Backup Battery Not Detected) in the MY 2003 VY and V2 Series Service Information.

## DTC 17 — Microphone Not Detected

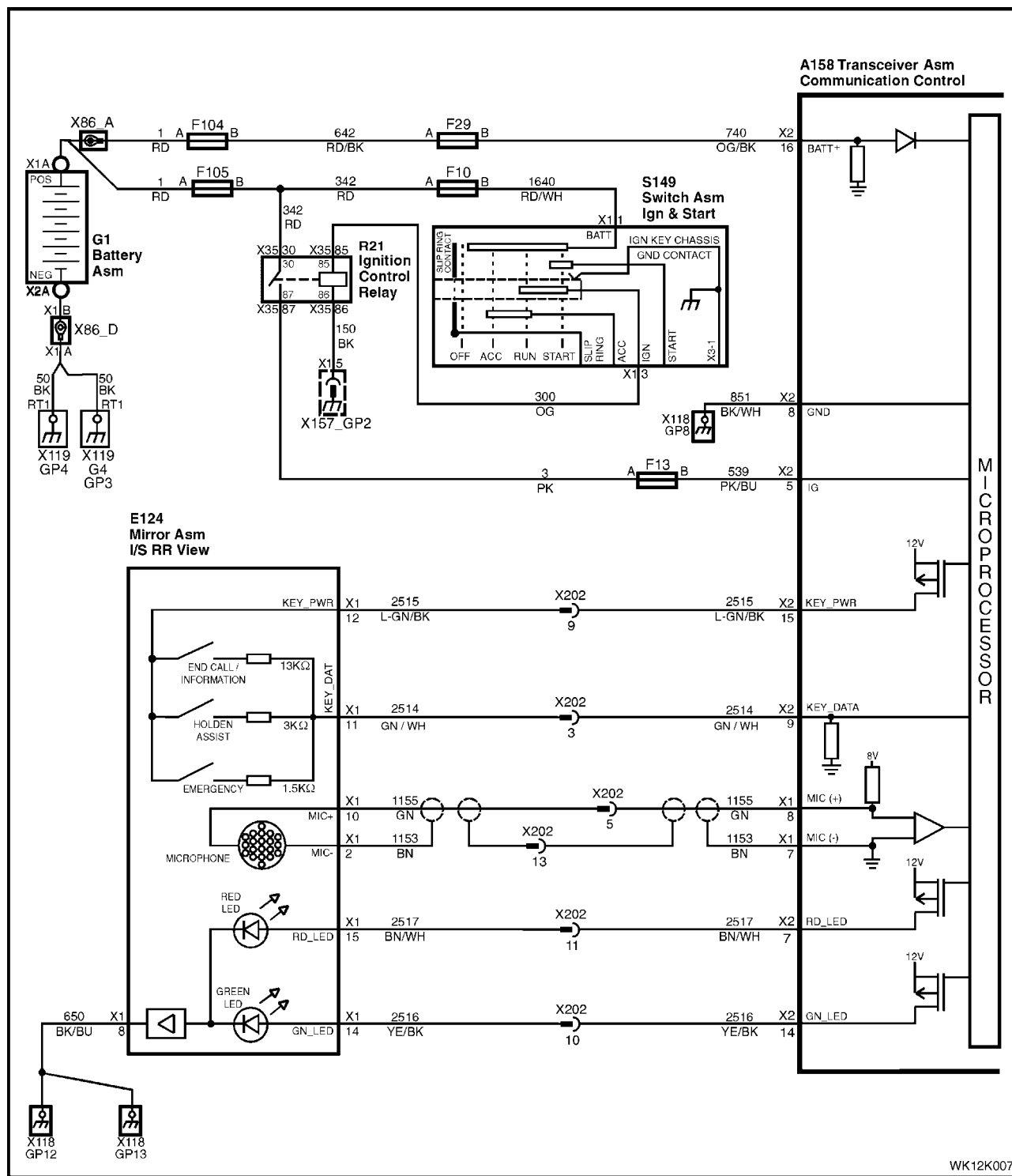


Figure 12K – 25

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 17 — Microphone Not Detected) in the MY 2003 VY and V2 Series Service Information.

## DTC 18 — Microphone Circuit Voltage Too Low

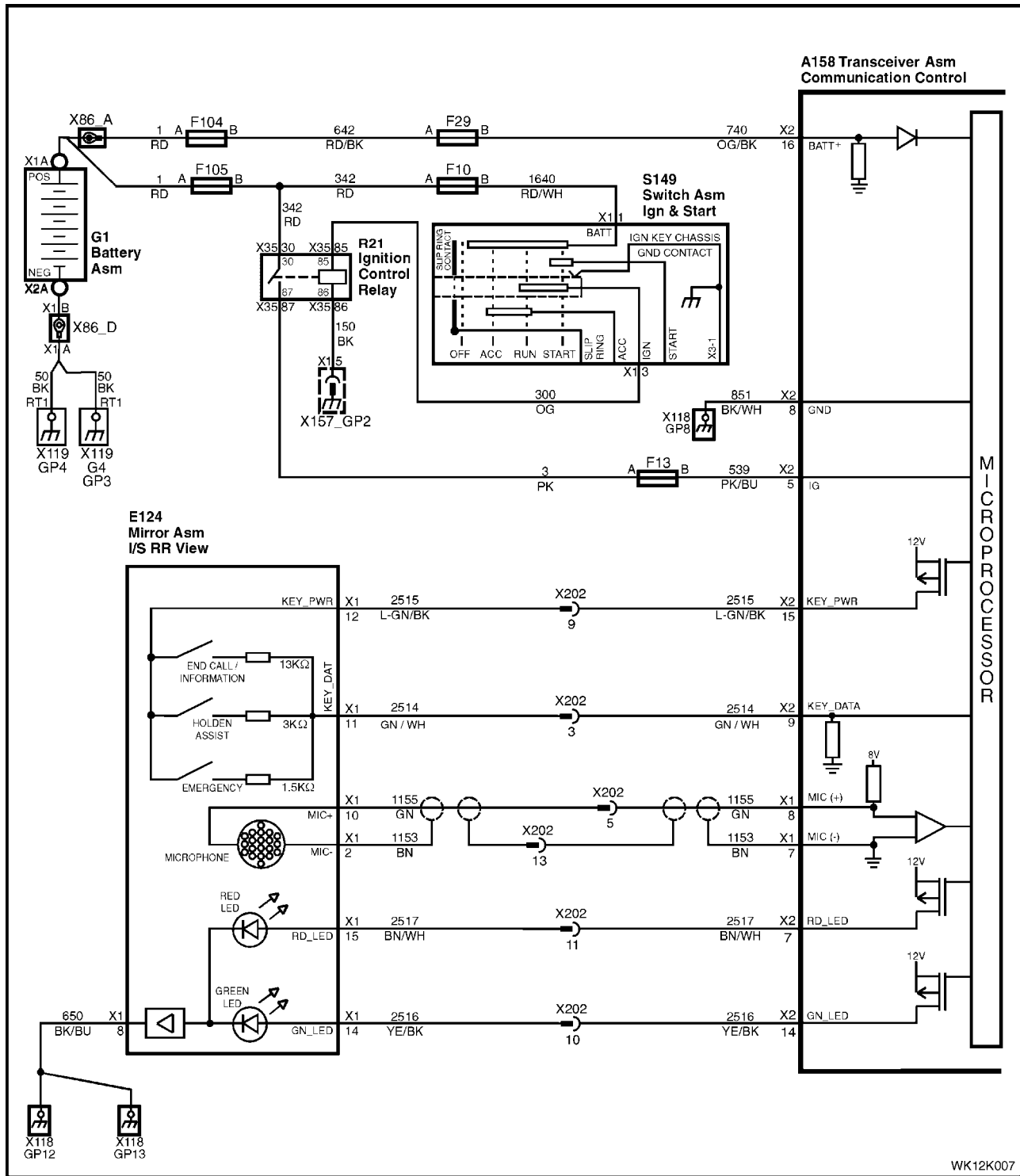


Figure 12K – 26

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 18 — Microphone Circuit Voltage Too Low) in the MY 2003 VY and V2 Series Service Information.



**Wiring Diagram Details:**

- G1 Battery Asm:**
  - POS: X1A
  - NEG: X2A
  - X1B
  - X86\_D
  - X1A
  - 50 BK RT1
  - 50 BK RT1
  - X119 GP4
  - X119 GP3
- R21 Ignition Control Relay:**
  - X35 30
  - X35 85
  - X35 87
  - X35 86
  - 150 BK
  - X15
  - X157\_GP2
- S149 Switch Asm Ign & Start:**
  - X1 1
  - BATT
  - IGN KEY CHASSIS
  - GND CONTACT
  - OFF
  - ACC
  - RUN
  - START
  - SLIP
  - RING
  - ACC
  - IGN
  - START
  - X3-1
  - 300 OG
  - X13
  - X118 GP8
  - 851 BK/WH
  - 539 PK/BU
- E124 Mirror Asm I/S RR View:**
  - KEY\_PWR
  - END CALL / INFORMATION
  - 13KΩ
  - HOLDEN ASSIST
  - 3KΩ
  - EMERGENCY
  - 1.5KΩ
  - MIC+
  - MIC-
  - MICROPHONE
  - RED LED
  - RD\_LED
  - GREEN LED
  - GN\_LED
  - 650 BK/BU
  - X118 GP12
  - X118 GP13
- A158 Transceiver Asm Communication Control:**
  - BATT+
  - GND
  - IG
  - 12V
  - 8V
  - 12V
  - 12V
  - MICROPROCESSOR

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Page 12K-41

## DTC 21 — Speaker Circuit Voltage Too Low

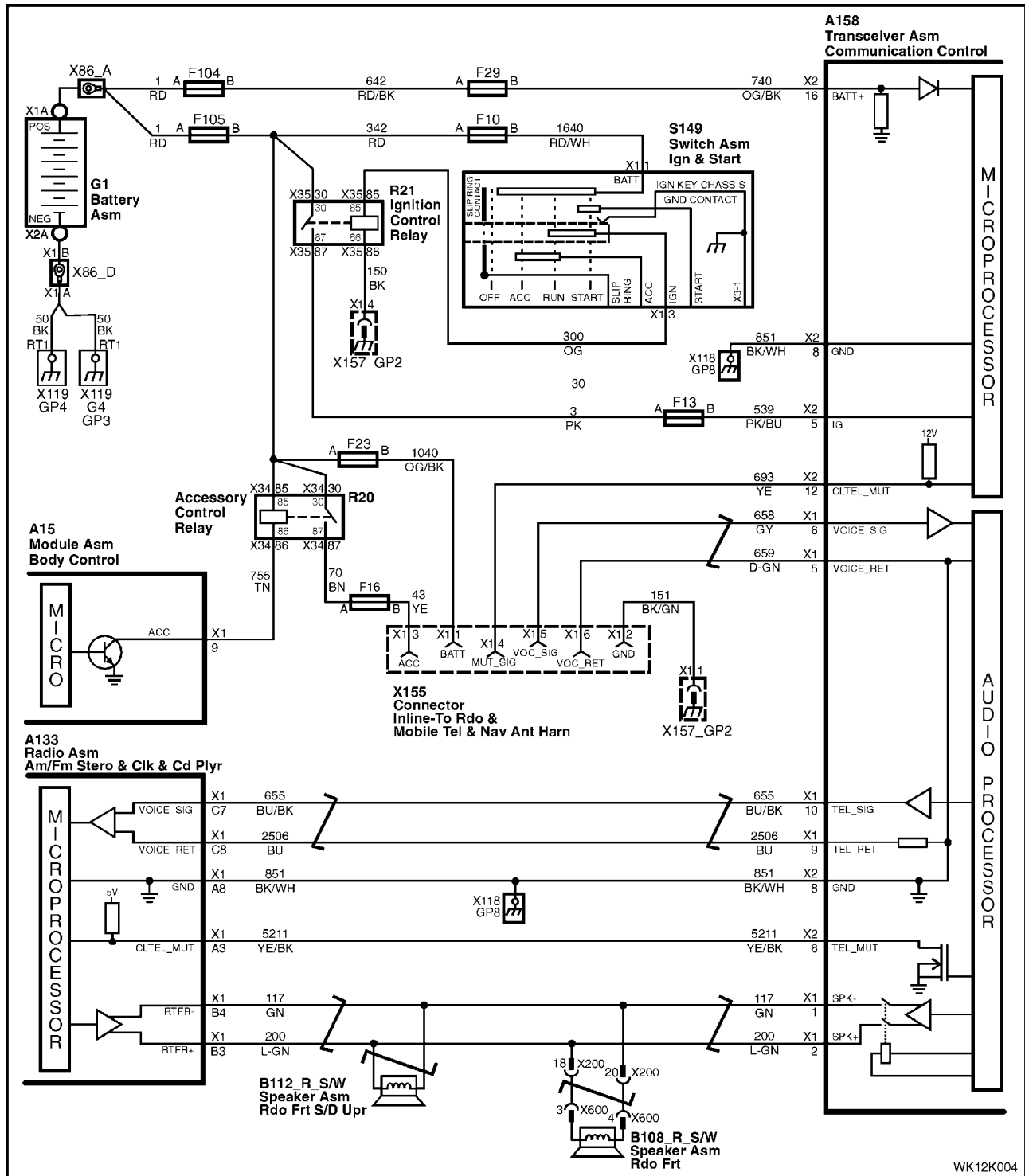


Figure 12K – 28

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 21 — Speaker Circuit Voltage Too Low) in the MY 2003 VY and V2 Series Service Information.

The diagram illustrates the electrical system for a vehicle, showing the following components and their connections:

- Battery:** G1 Battery Asm, connected to BATT+ and GND.
- Ignition System:** S149 Switch Asm Ign & Start, connected to IGN KEY CHASSIS, GND CONTACT, and various ignition positions (OFF, ACC, RUN, START, SLIP, RING, ACC, IGN, START).
- Relays:**
  - R21 Ignition Control Relay, connected to X35, X36, X37, X38, X39, X40, X41, X42, X43, X44, X45, X46, X47, X48, X49, X50, X51, X52, X53, X54, X55, X56, X57, X58, X59, X60, X61, X62, X63, X64, X65, X66, X67, X68, X69, X70, X71, X72, X73, X74, X75, X76, X77, X78, X79, X80, X81, X82, X83, X84, X85, X86, X87, X88, X89, X90, X91, X92, X93, X94, X95, X96, X97, X98, X99, X100, X101, X102, X103, X104, X105, X106, X107, X108, X109, X110, X111, X112, X113, X114, X115, X116, X117, X118, X119, X120, X121, X122, X123, X124, X125, X126, X127, X128, X129, X130, X131, X132, X133, X134, X135, X136, X137, X138, X139, X140, X141, X142, X143, X144, X145, X146, X147, X148, X149, X150, X151, X152, X153, X154, X155, X156, X157, X158, X159, X160, X161, X162, X163, X164, X165, X166, X167, X168, X169, X170, X171, X172, X173, X174, X175, X176, X177, X178, X179, X180, X181, X182, X183, X184, X185, X186, X187, X188, X189, X190, X191, X192, X193, X194, X195, X196, X197, X198, X199, X200, X201, X202, X203, X204, X205, X206, X207, X208, X209, X210, X211, X212, X213, X214, X215, X216, X217, X218, X219, X220, X221, X222, X223, X224, X225, X226, X227, X228, X229, X230, X231, X232, X233, X234, X235, X236, X237, X238, X239, X240, X241, X242, X243, X244, X245, X246, X247, X248, X249, X250, X251, X252, X253, X254, X255, X256, X257, X258, X259, X260, X261, X262, X263, X264, X265, X266, X267, X268, X269, X270, X271, X272, X273, X274, X275, X276, X277, X278, X279, X280, X281, X282, X283, X284, X285, X286, X287, X288, X289, X290, X291, X292, X293, X294, X295, X296, X297, X298, X299, X300, X301, X302, X303, X304, X305, X306, X307, X308, X309, X310, X311, X312, X313, X314, X315, X316, X317, X318, X319, X320, X321, X322, X323, X324, X325, X326, X327, X328, X329, X330, X331, X332, X333, X334, X335, X336, X337, X338, X339, X340, X341, X342, X343, X344, X345, X346, X347, X348, X349, X350, X351, X352, X353, X354, X355, X356, X357, X358, X359, X360, X361, X362, X363, X364, X365, X366, X367, X368, X369, X370, X371, X372, X373, X374, X375, X376, X377, X378, X379, X380, X381, X382, X383, X384, X385, X386, X387, X388, X389, X390, X391, X392, X393, X394, X395, X396, X397, X398, X399, X400, X401, X402, X403, X404, X405, X406, X407, X408, X409, X410, X411, X412, X413, X414, X415, X416, X417, X418, X419, X420, X421, X422, X423, X424, X425, X426, X427, X428, X429, X430, X431, X432, X433, X434, X435, X436, X437, X438, X439, X440, X441, X442, X443, X444, X445, X446, X447, X448, X449, X450, X451, X452, X453, X454, X455, X456, X457, X458, X459, X460, X461, X462, X463, X464, X465, X466, X467, X468, X469, X470, X471, X472, X473, X474, X475, X476, X477, X478, X479, X480, X481, X482, X483, X484, X485, X486, X487, X488, X489, X490, X491, X492, X493, X494, X495, X496, X497, X498, X499, X500, X501, X502, X503, X504, X505, X506, X507, X508, X509, X510, X511, X512, X513, X514, X515, X516, X517, X518, X519, X520, X521, X522, X523, X524, X525, X526, X527, X528, X529, X530, X531, X532, X533, X534, X535, X536, X537, X538, X539, X540, X541, X542, X543, X544, X545, X546, X547, X548, X549, X550, X551, X552, X553, X554, X555, X556, X557, X558, X559, X560, X561, X562, X563, X564, X565, X566, X567, X568, X569, X570, X571, X572, X573, X574, X575, X576, X577, X578, X579, X580, X581, X582, X583, X584, X585, X586, X587, X588, X589, X590, X591, X592, X593, X594, X595, X596, X597, X598, X599, X600, X601, X602, X603, X604, X605, X606, X607, X608, X609, X610, X611, X612, X613, X614, X615, X616, X617, X618, X619, X620, X621, X622, X623, X624, X625, X626, X627, X628, X629, X630, X631, X632, X633, X634, X635, X636, X637, X638, X639, X640, X641, X642, X643, X644, X645, X646, X647, X648, X649, X650, X651, X652, X653, X654, X655, X656, X657, X658, X659, X660, X661, X662, X663, X664, X665, X666, X667, X668, X669, X670, X671, X672, X673, X674, X675, X676, X677, X678, X679, X680, X681, X682, X683, X684, X685, X686, X687, X688, X689, X690, X691, X692, X693, X694, X695, X696, X697, X698, X699, X700, X701, X702, X703, X704, X705, X706, X707, X708, X709, X710, X711, X712, X713, X714, X715, X716, X717, X718, X719, X720, X721, X722, X723, X724, X725, X726, X727, X728, X729, X730, X731, X732, X733, X734, X735, X736, X737, X738, X739, X740, X741, X742, X743, X744, X745, X746, X747, X748, X749, X750, X751, X752, X753, X754, X755, X756, X757, X758, X759, X760, X761, X762, X763, X764, X765, X766, X767, X768, X769, X770, X771, X772, X773, X774, X775, X776, X777, X778, X779, X780, X781, X782, X783, X784, X785, X786, X787, X788, X789, X790, X791, X792, X793, X794, X795, X796, X797, X798, X799, X800, X801, X802, X803, X804, X805, X806, X807, X808, X809, X810, X811, X812, X813, X814, X815, X816, X817, X

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Page 12K-43

## DTC 30 — Keypad Circuit Voltage Too High

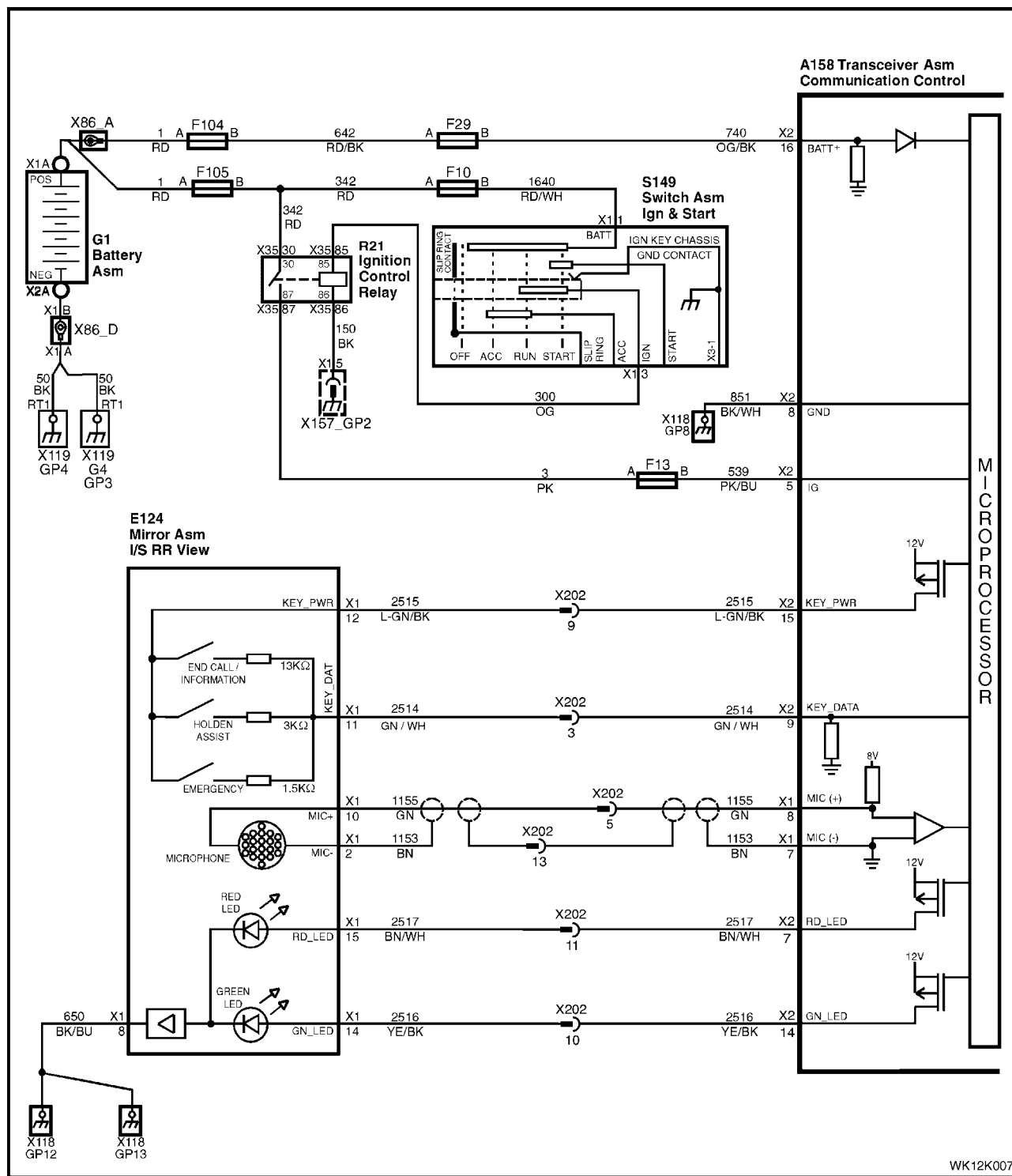


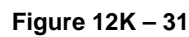
Figure 12K – 30

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 30 — Keypad Circuit Voltage Too High) in the MY 2003 VY and V2 Series Service Information.

## V6 Engine



**Figure 12K – 32**

## GEN III V8 Engine

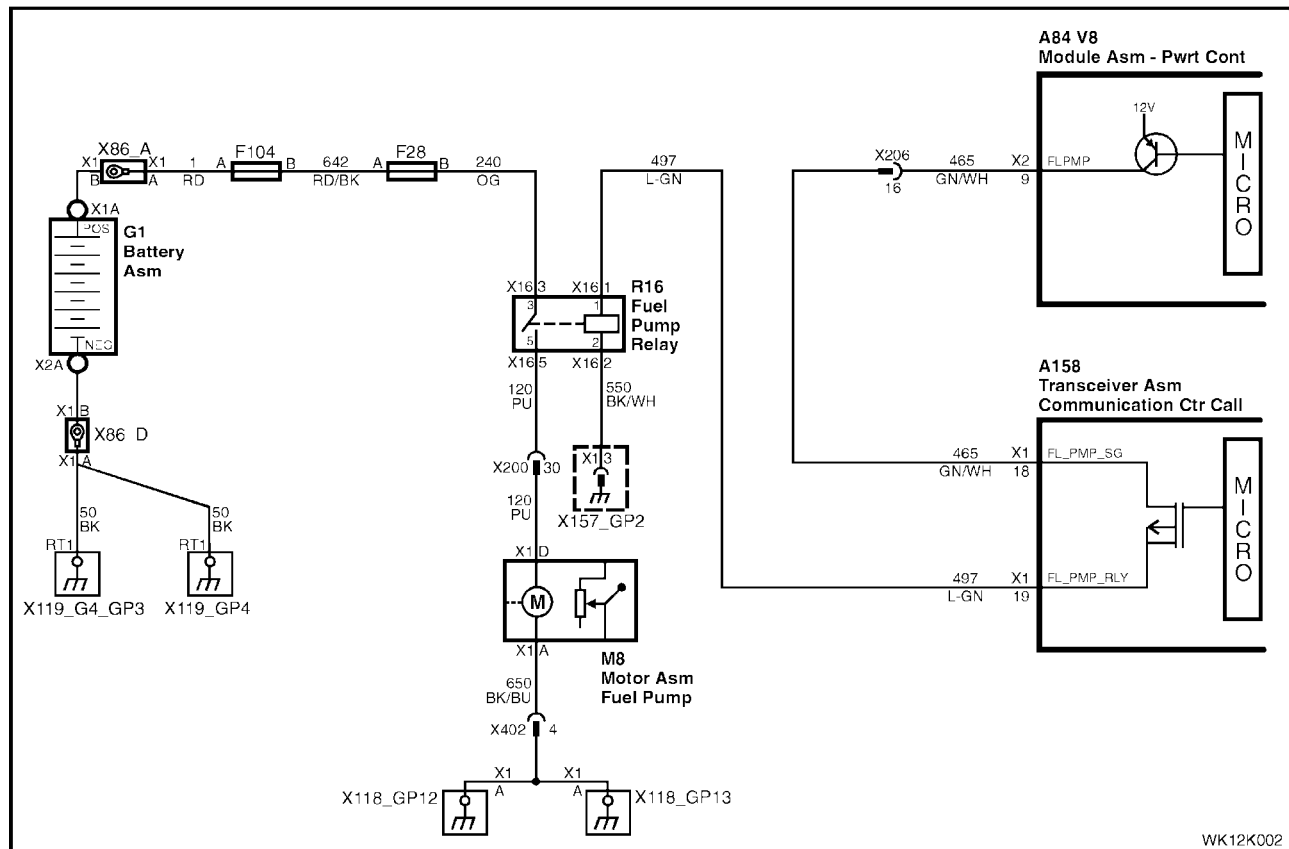


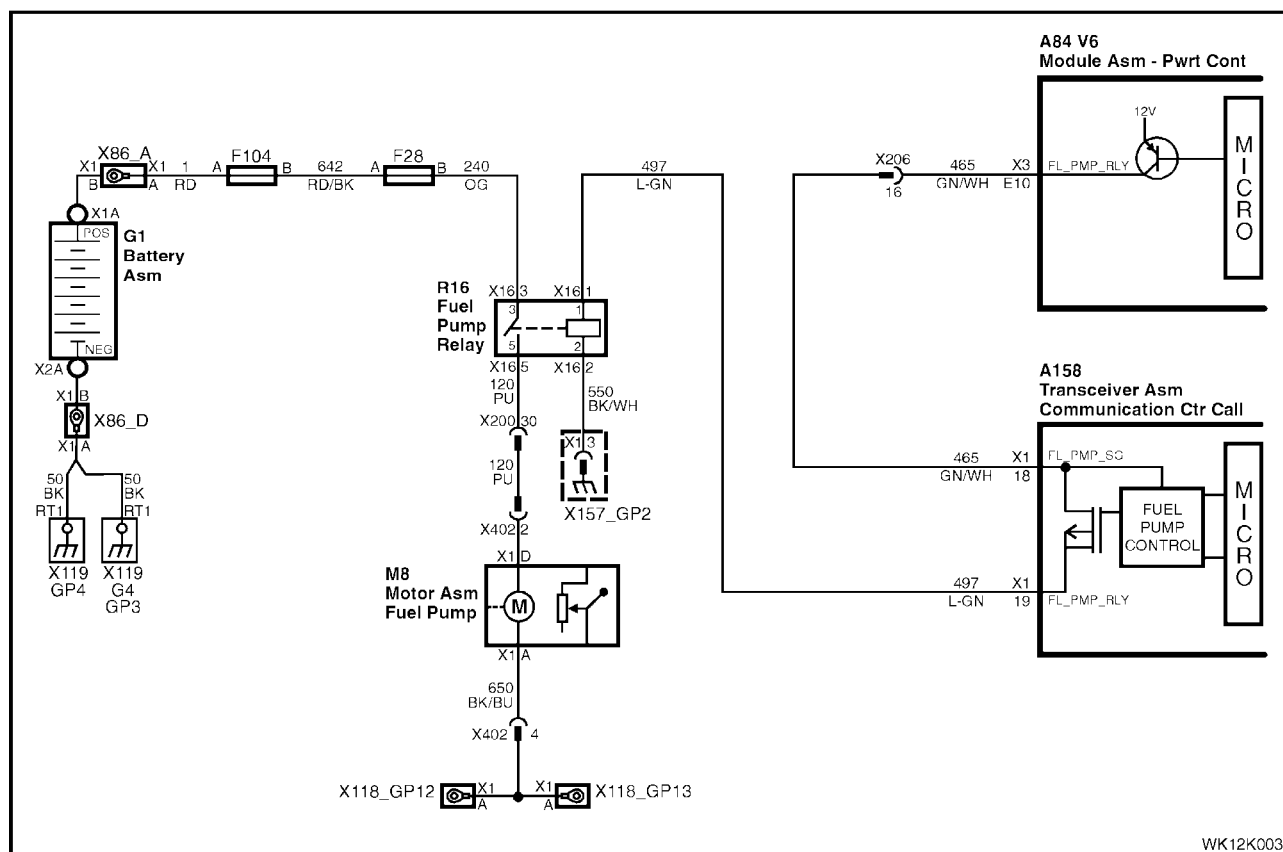
Figure 12K – 33

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 42 — Fuel Pump Circuit Voltage Too Low) in the MY 2003 VY and V2 Series Service Information.

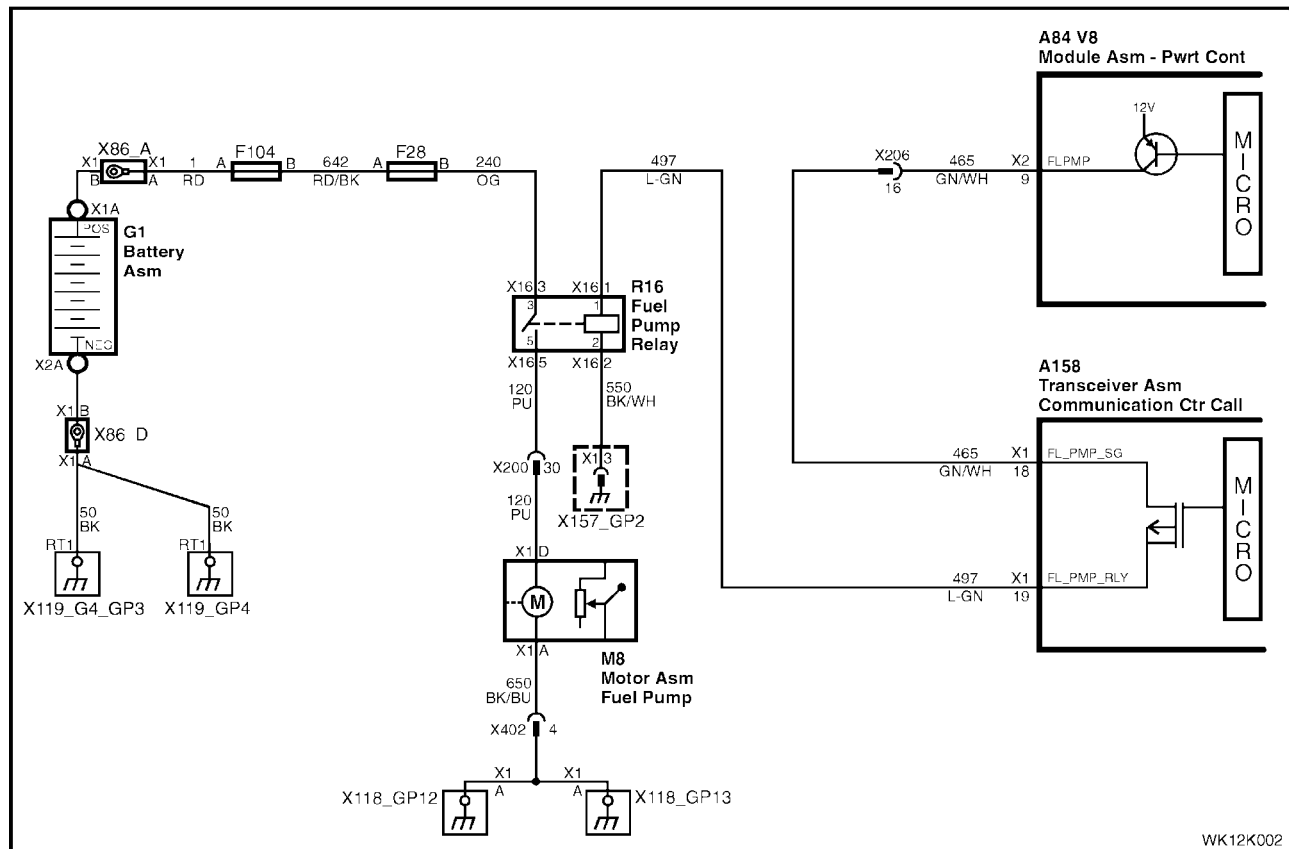
## V6 Engine



**Figure 12K – 34**

**Figure 12K – 35**

## GEN III V8 Engine





The diagram illustrates the electrical connections for a vehicle's communication system. It features several key components and their interconnections:

- Battery Asm (G1):** Connected to the main power source via X1A (POS) and X2A (NEG). It includes fuses F104 and F105, and a relay X1B.
- Ignition Control Relay (R21):** Controls the ignition system, with terminals for SUPPLY CONTACT, OFF, ACC, RUN, START, SLIP, RING, and ACC. It is connected to the Battery Asm and the Ignition Switch.
- Ignition Switch (S149):** Controls the ignition system, with terminals for BATT, IGN KEY CHASSIS, GND CONTACT, and START. It is connected to the Ignition Control Relay and the Battery Asm.
- Mirror Asm (E124):** Controls the mirror, with terminals for KEY\_PWR, KEY\_DAT, MIC+, MIC-, RED\_LED, and GREEN\_LED. It is connected to the Battery Asm and the Transceiver Asm.
- Transceiver Asm (A158):** Controls the communication system, with terminals for BATT+, GND, IG, KEY\_PWR, KEY\_DATA, MIC (+), MIC (-), RD\_LED, and GN\_LED. It is connected to the Battery Asm, Ignition Switch, Mirror Asm, and various LEDs.

The diagram includes detailed wiring paths, component labels, and terminal numbers, providing a comprehensive guide for installation and troubleshooting.

**Figure 12K – 37**

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Page 12K-49

**NOTE**

In the test description for the DTC 45 — End Call / Information Button Stuck test in the MY 2003 VY and V2 Series Service information, circuit 2514 is described as having dark green wire; in MY 2004 WK Series vehicles, this circuit uses green wire.

## DTC 46 — Holden Assist Button Stuck

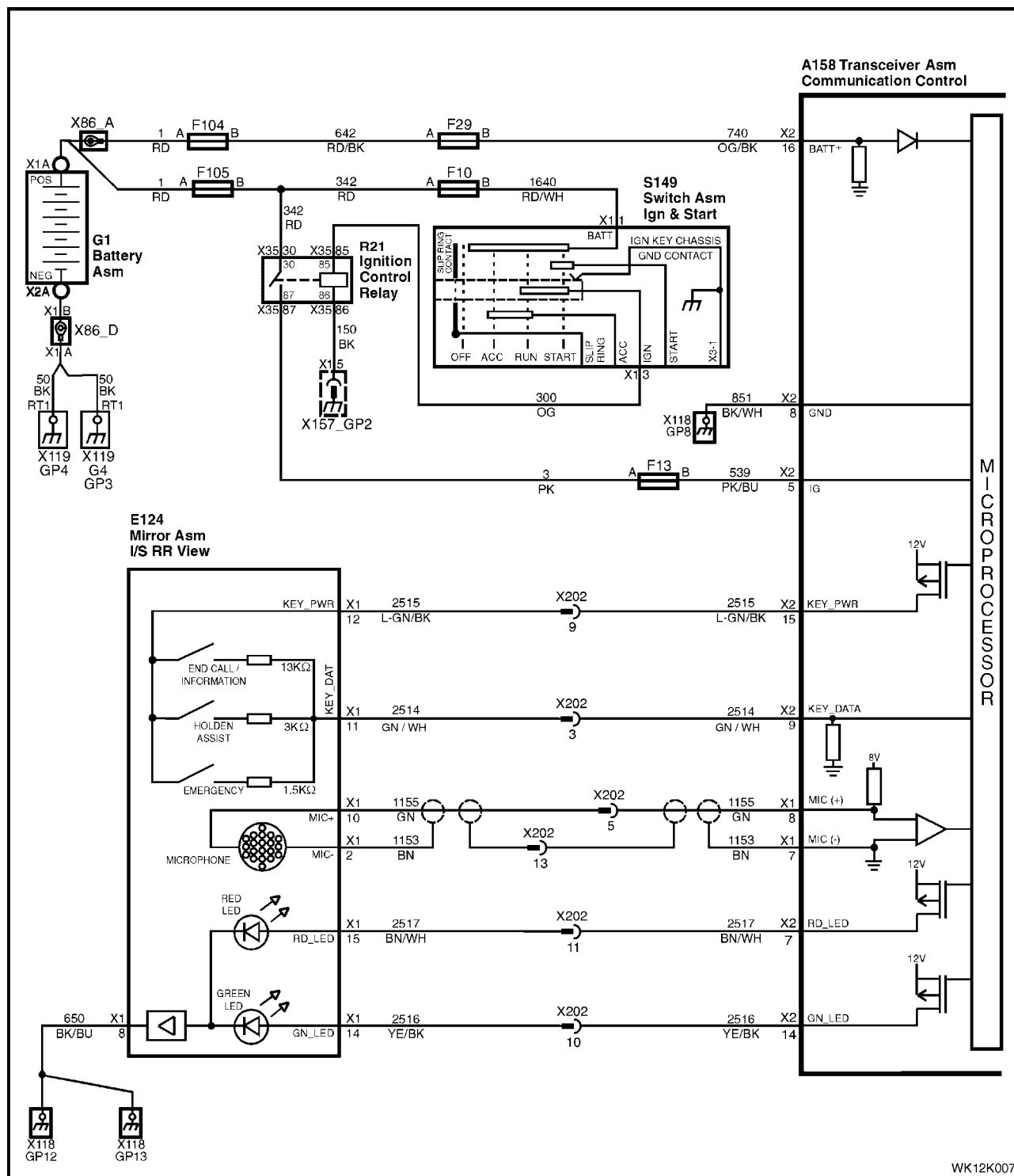


Figure 12K – 38

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K, 5.8 Diagnostic Charts](#) (DTC 46 — Holden Assist Button Stuck) in the MY 2003 VY and V2 Series Service Information.

**NOTE**

In the test description for the DTC 46 — Holden Assist Button Stuck test in the MY 2003 VY and V2 Series Service information, circuit 2514 is described as having dark green wire; in MY 2004 WK Series vehicles, this circuit uses green wire.

## DTC 47 — Emergency Button Stuck

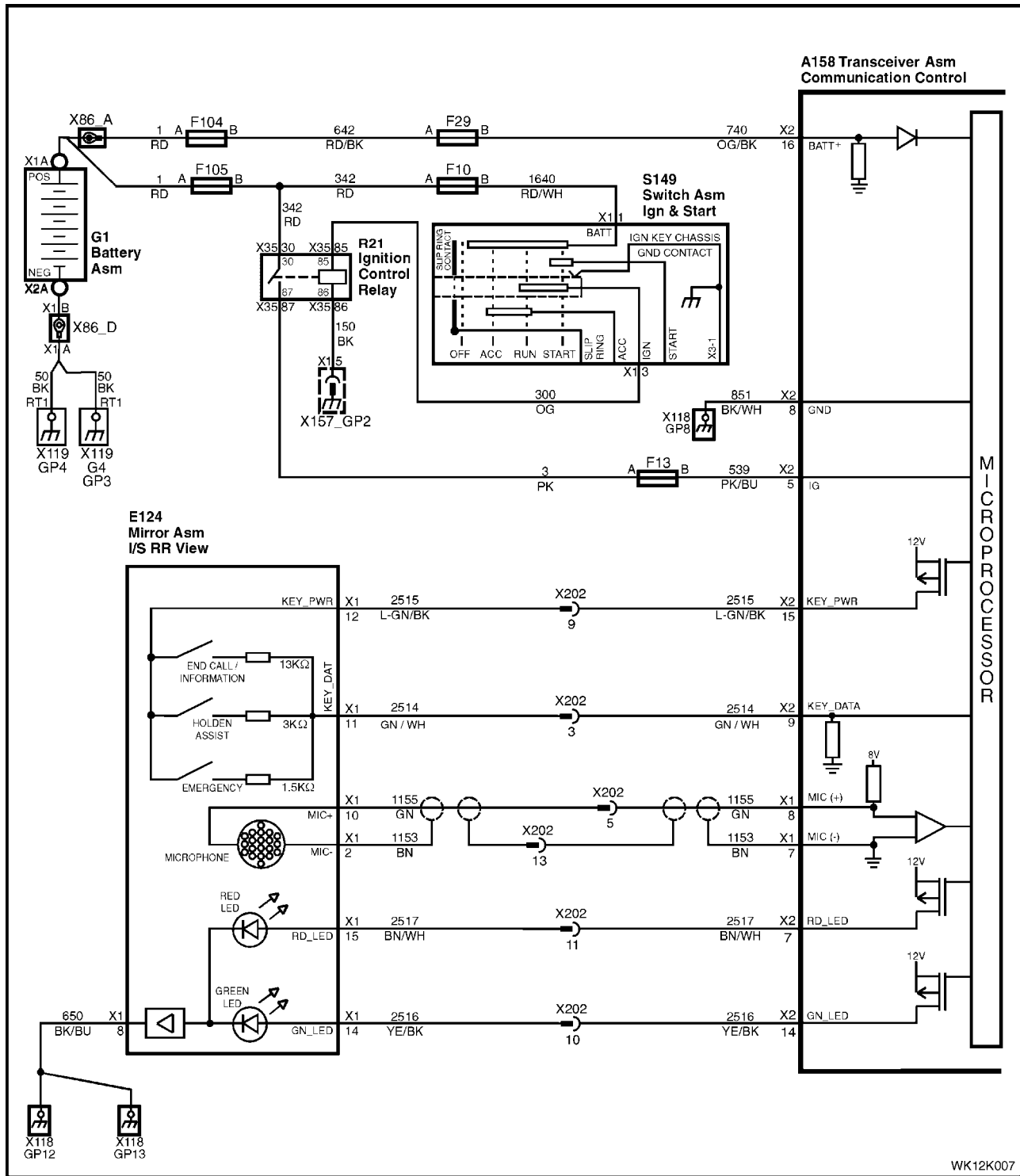


Figure 12K – 39

For information on:

- the circuit description,
- conditions for setting the DTC,
- action taken when the DTC sets, and
- a test description and accompanying table

Refer to [Section 12K Telematics, 5.8 Diagnostic Charts](#) (DTC 47 — Emergency Button Stuck) in the MY 2003 VY and V2 Series Service Information.

**NOTE**

In the test description for the DTC 47 — Emergency Button Stuck test in the MY 2003 VY and V2 Series Service information, circuit 2514 is described as having dark green wire; in MY 2004 WK Series vehicles, this circuit uses green wire.

### 5.3 Symptoms Charts

With the exception of the following headings, and accompanying wiring diagrams and text, MY 2004 WK Series symptoms charts information carries over from MY 2003 VY and V2 Series vehicles. For all other symptoms charts information, refer to [Section 12K, 5.9 Symptoms Charts](#) in the MY 2003 VY and V2 Series Service Information.

## No Serial Data

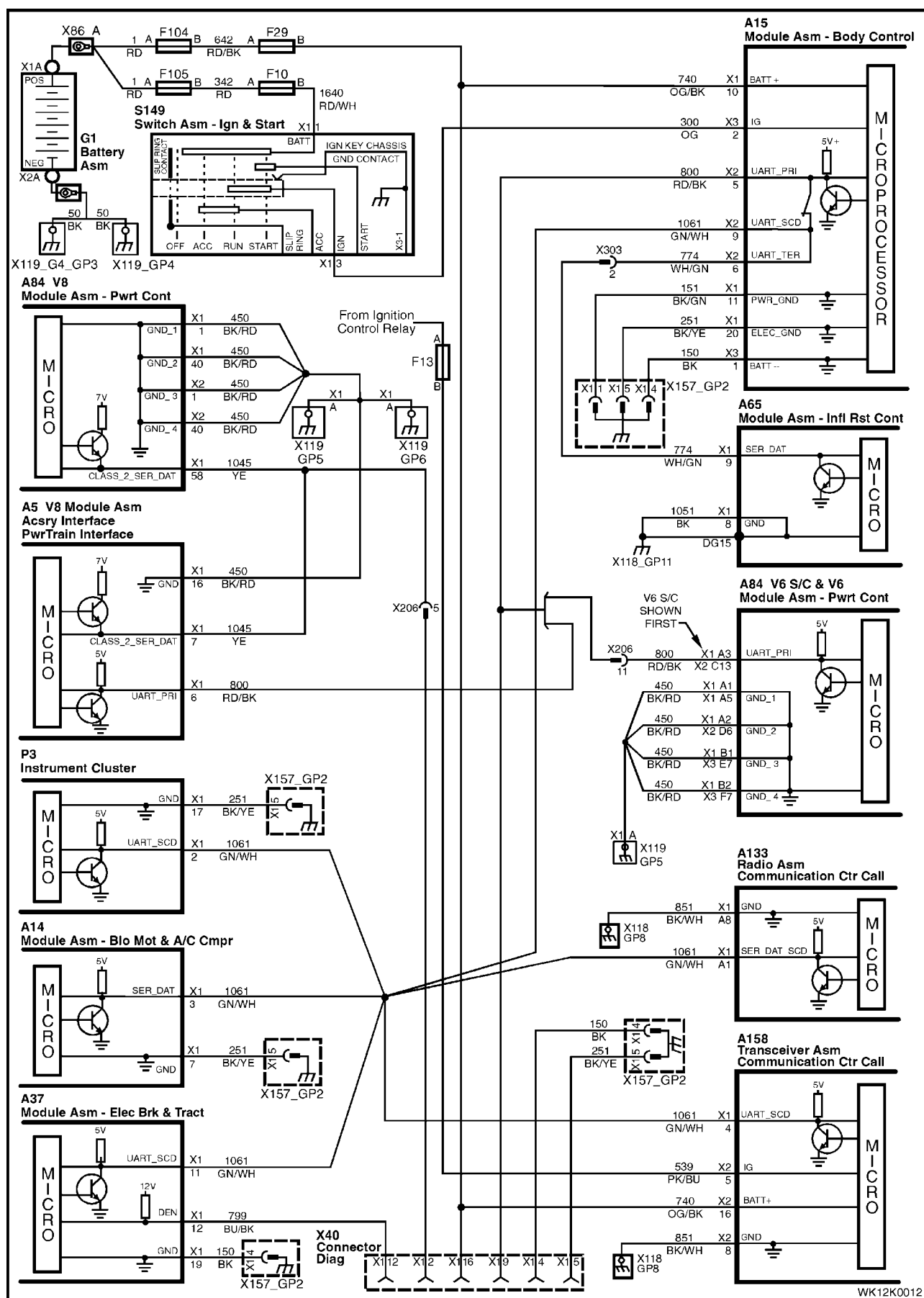


Figure 12K - 40

For information on the circuit description, and a test description and accompanying table for the No Serial Data test, refer to MY 2003 VY and V2 Series Service Information, [Section 12K, 5.9 Symptoms Charts](#) (No Serial Data) in the MY 2003 VY and V2 Series Service Information.



## Status Indicator LEDs Do Not Illuminate

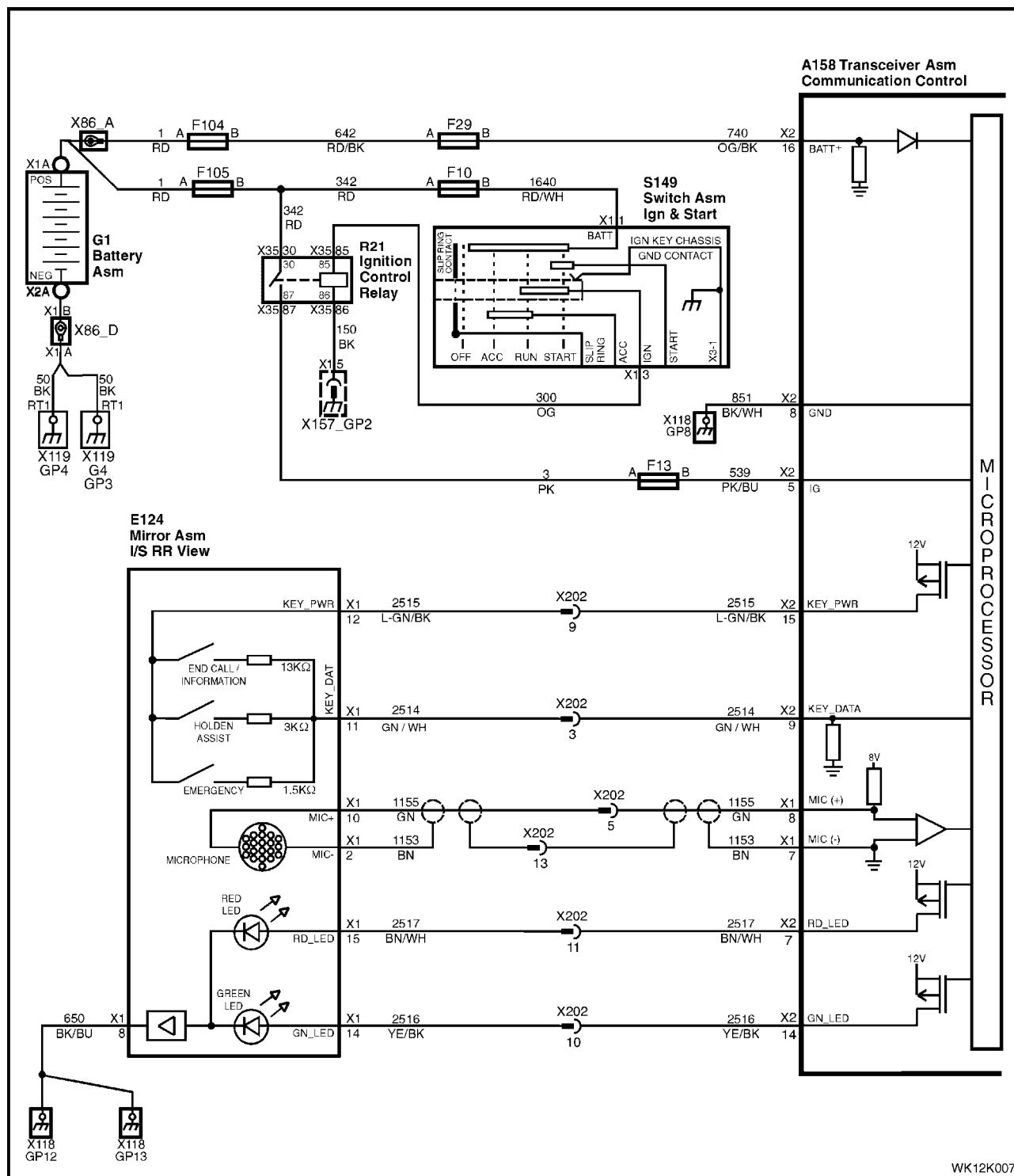


Figure 12K – 41

For information on the circuit description, and a test description and accompanying table for the Status Indicator LEDs Do Not Illuminate test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Status Indicator LEDs Do Not Illuminate) in the MY 2003 VY and V2 Series Service Information.

### NOTE

In the test description for the Status Indicator LEDs Do Not Illuminate test in the MY 2003 VY and V2 Series Service information, the reference to circuit 156 should refer to circuit 650 for MY 2004 WK Series vehicles.

## Vehicle Battery Voltage

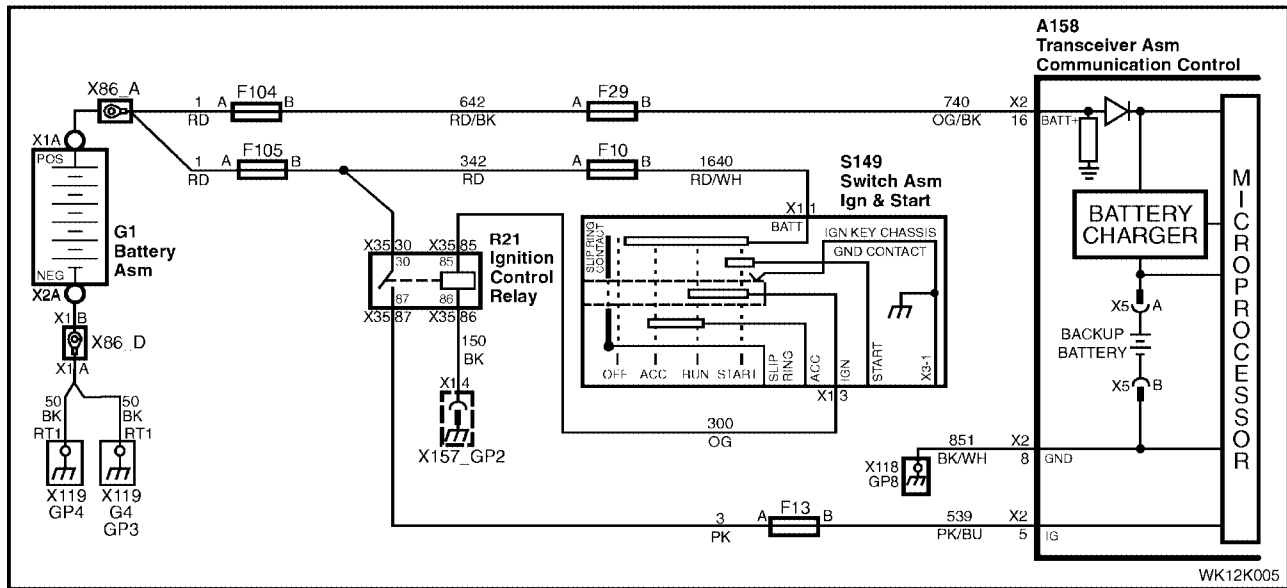


Figure 12K – 42

For information on the circuit description, and a test description and accompanying table for the Vehicle Battery Voltage test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Vehicle Battery Voltage) in the MY 2003 VY and V2 Series Service Information.

### NOTE

In the test description for the Vehicle Battery Voltage test in the MY 2003 VY and V2 Series Service information, the reference to circuit 1151 should refer to circuit 851 for MY 2004 WK Series vehicles.

## Backup Battery

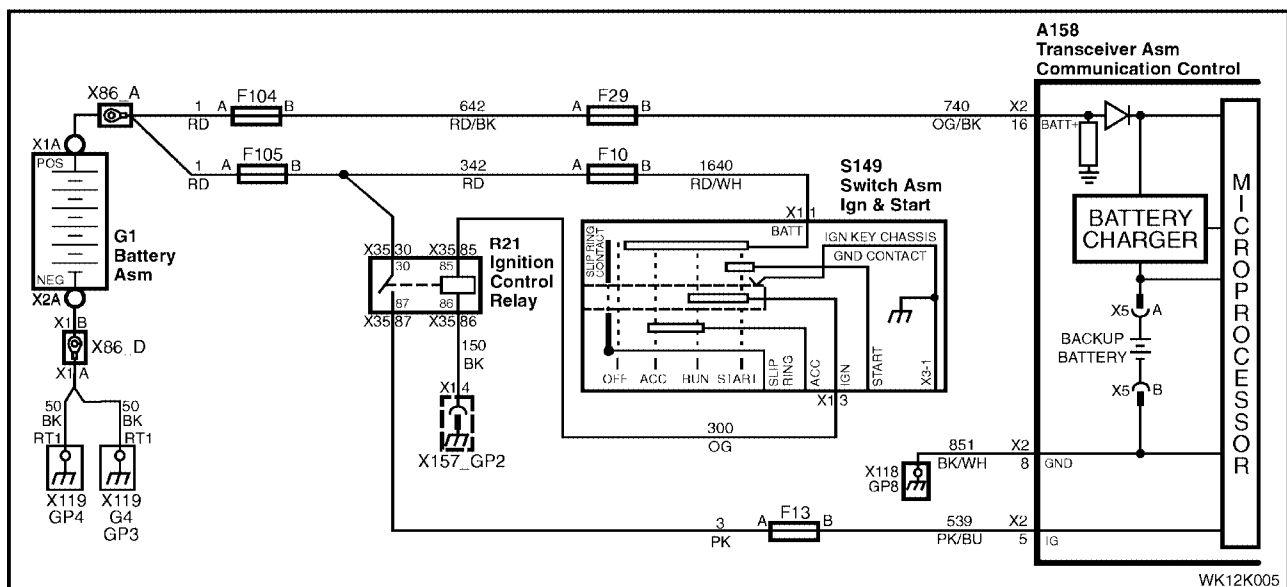


Figure 12K – 43

For information on the circuit description, and a test description and accompanying table for the Backup Battery test, refer to MY 2003 VY and V2 Series Service Information, [Section 12K, 5.9 Symptoms Charts](#) (Backup Battery) in the MY 2003 VY and V2 Series Service Information.

## No GPS Signal

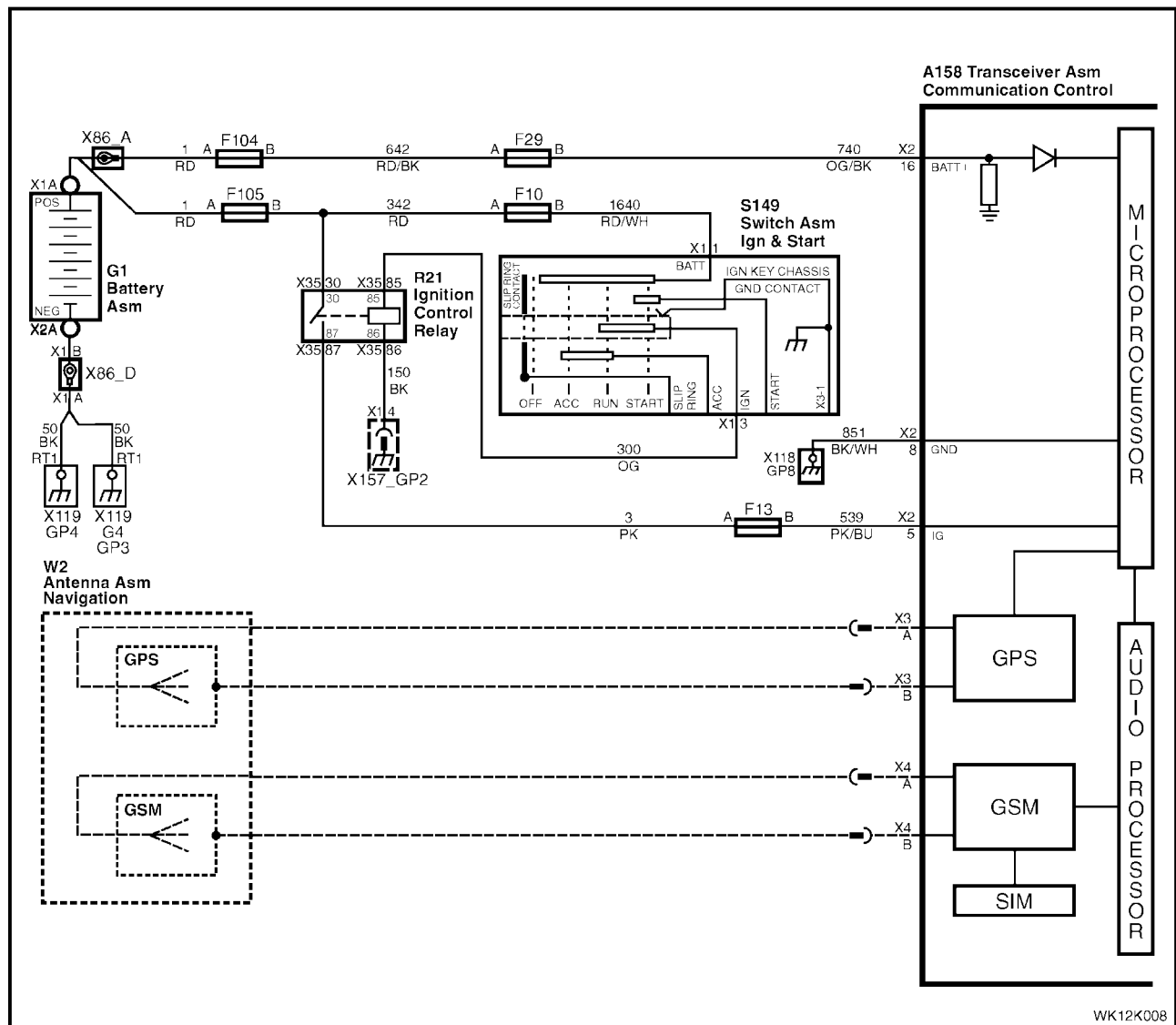
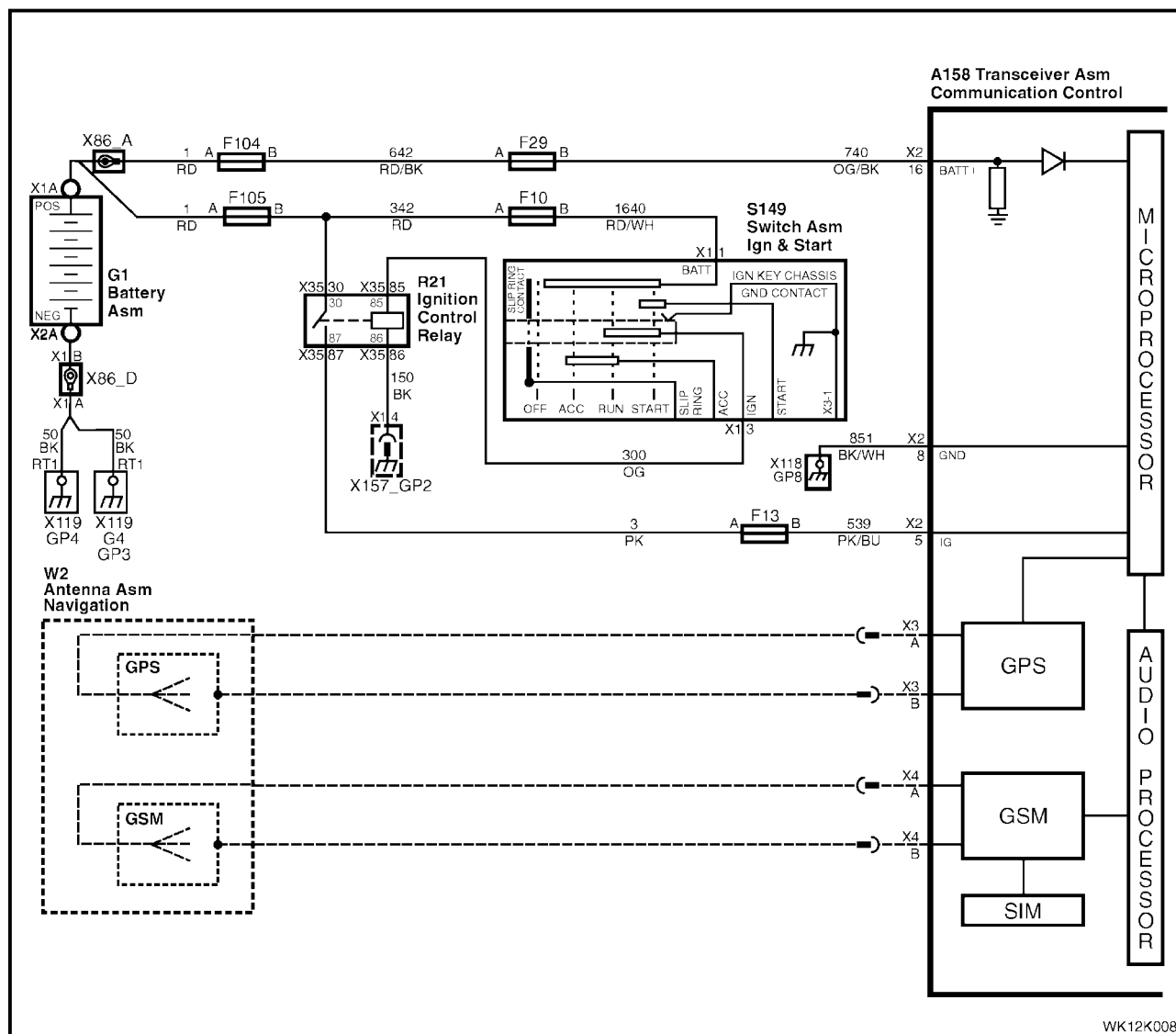


Figure 12K – 44

For information on the circuit description, and a test description and accompanying table for the No GPS Signal test, refer to MY 2003 VY and V2 Series Service Information, [Section 12K, 5.9 Symptoms Charts](#) (No GPS Signal) in the MY 2003 VY and V2 Series Service Information.

## No GSM Signal



**Figure 12K – 45**

For information on the circuit description, and a test description and accompanying table for the No GSM Signal test, refer to [Section 12K, 5.9 Symptoms Charts](#) (No GSM Signal) in the MY 2003 VY and V2 Series Service Information.

## Emergency Button

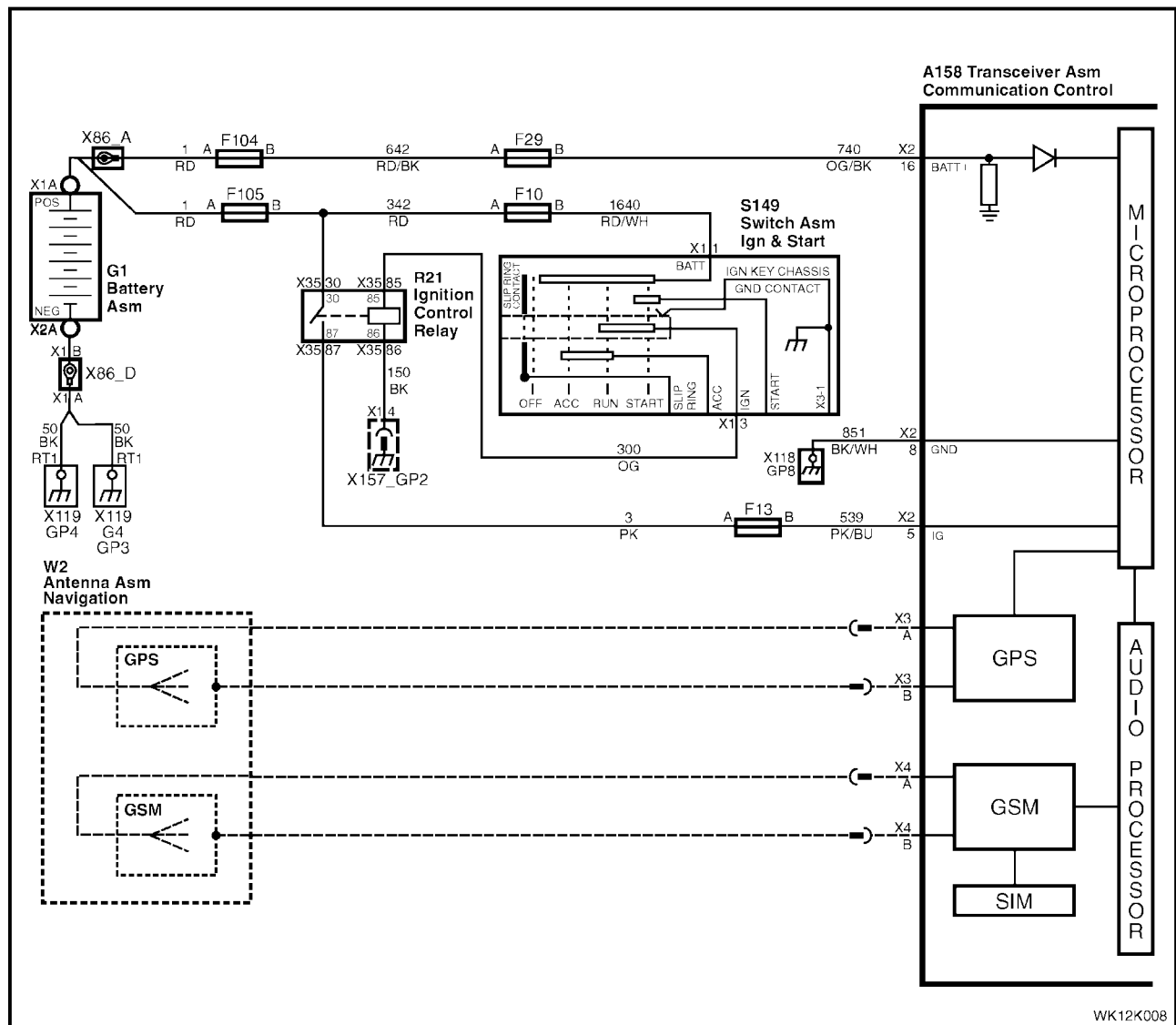


Figure 12K – 46

For information on the circuit description, and a test description and accompanying table for the Emergency Button test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Emergency Button) in the MY 2003 VY and V2 Series Service Information.

## Holden Assist Button

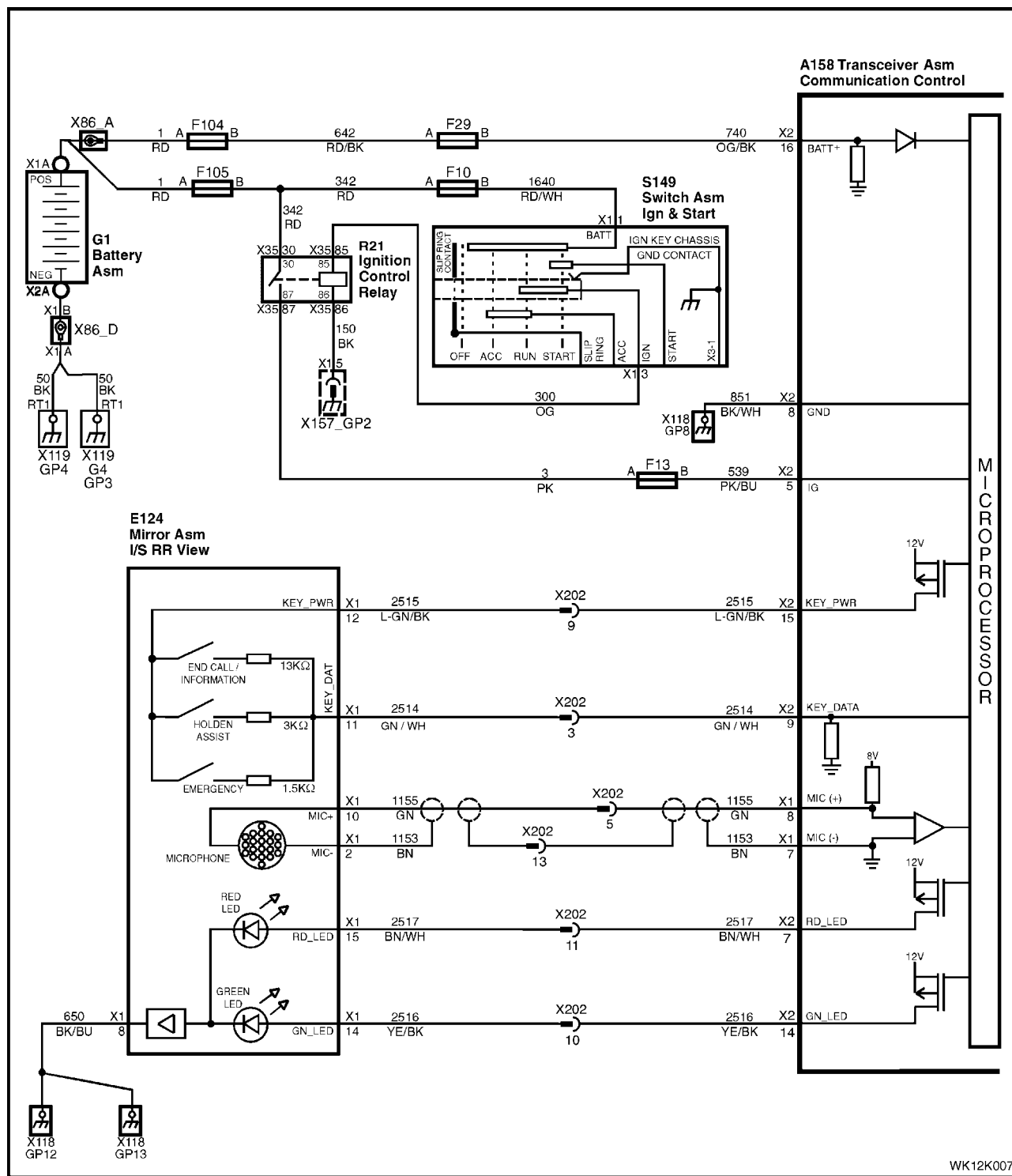


Figure 12K – 47

For information on the circuit description, and a test description and accompanying table for the Holden Assist Button test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Holden Assist Button) in the MY 2003 VY and V2 Series Service Information.

## End Call / Information Button

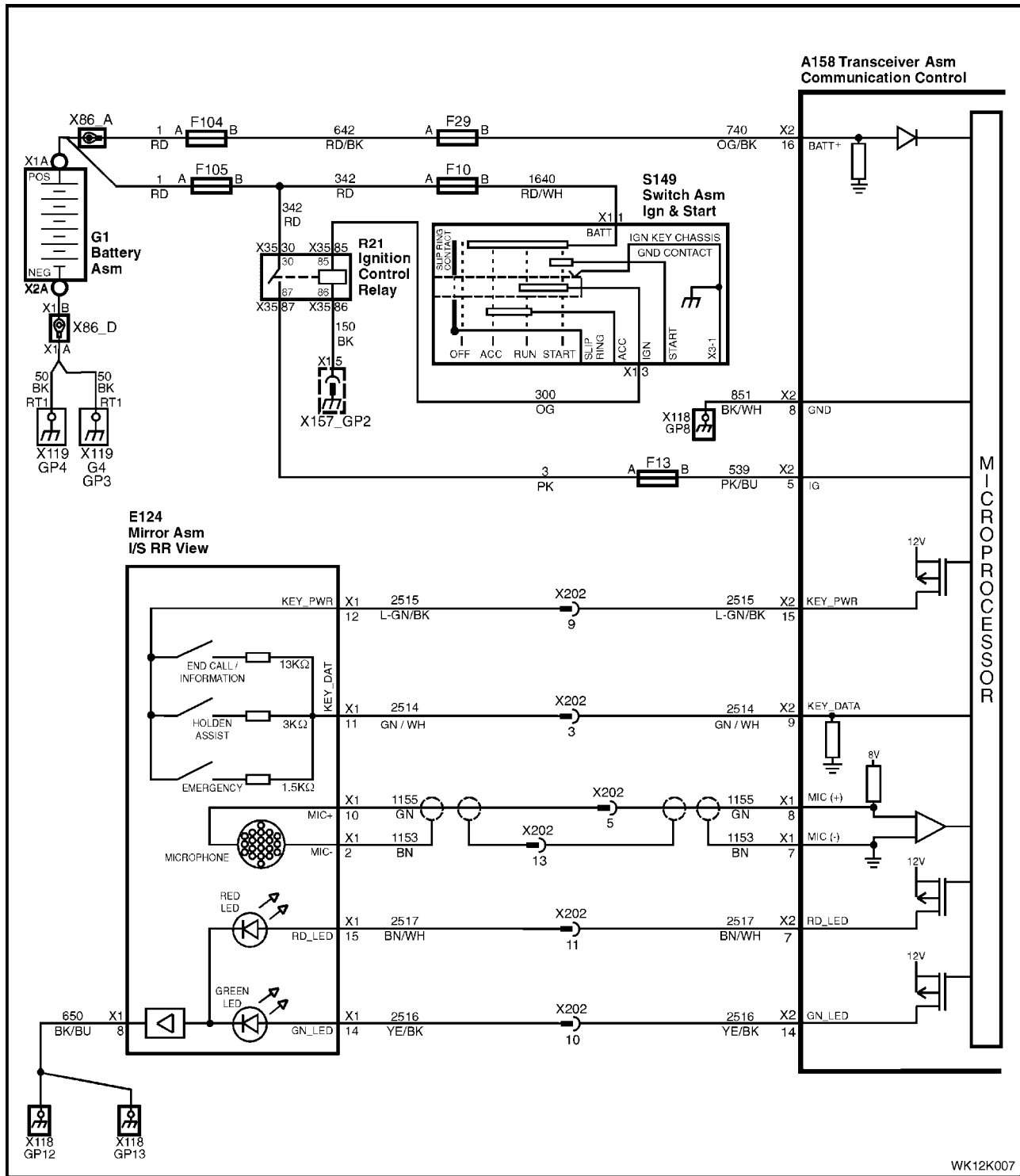


Figure 12K – 48

For information on the circuit description, and a test description and accompanying table for the End Call / Information Button test, refer to [Section 12K, 5.9 Symptoms Charts](#) (End Call / Information Button) in the MY 2003 VY and V2 Series Service Information.

### NOTE

In the test description for the End Call / Information Button test in the MY 2003 VY and V2 Series Service information:

- Circuit 2514 is described as having dark green wire; in MY 2004 WK Series vehicles, circuit 2514 uses green wire.
- The reference to circuit 156 should refer to circuit 650 for MY 2004 WK Series vehicles.

[illegible]

For information on the circuit description, and a test description and accompanying table for the Theft Deterrent Horn Circuit test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Theft Deterrent Horn Circuit) in the MY 2003 VY and V2 Series Service Information.

In the test description for the Theft Deterrent Horn Circuit test in the MY 2003 VY and V2 Series Service information, the reference to circuit 1128 should refer to circuit 1149 for MY 2004 WK Series vehicles.

**A15**  
Module Asm  
Body Control

**A158**  
Transceiver Asm  
Communication Control

Wiring diagram showing the connection between the **A15 Module Asm Body Control** and the **A158 Transceiver Asm Communication Control**.

The diagram illustrates the internal wiring of both assemblies and the central harness connecting them.

**Assembly A15 (Module Asm Body Control):**

- Contains a **MICROPROCESSOR**.
- Power is supplied to a 12V source.
- The driver circuit **DRV\_DAJ** is connected to the microprocessor.
- Connector **X4** (Pin 19, GY/WH) is used for external wiring.

**Assembly A158 (Transceiver Asm Communication Control):**

- Contains a **MICROPROCESSOR**.
- Power is supplied to a 12V source.
- The driver circuit **DRV\_DAJ** is connected to the microprocessor.
- Connector **X2** (Pin 11, GY/WH) is used for external wiring.

**Central Harness:**

- Connector **X202** (Pin 12, GY/WH) connects the two assemblies.
- The harness includes a **S2\_DRV Contact Asm Dr Ajar Ind Sw** (Pin A, X1-A).

For information on the circuit description, and a test description and accompanying table for the Driver's Door Ajar Switch test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Driver's Door Ajar Switch) in the MY 2003 VY and V2 Series Service Information.

In the test description for the Driver's Door Ajar Switch test in the MY 2003 VY and V2 Series Service information, the reference to circuit 126 should refer to circuit 746 for MY 2004 WK Series vehicles.



## Passenger Door Ajar Switches

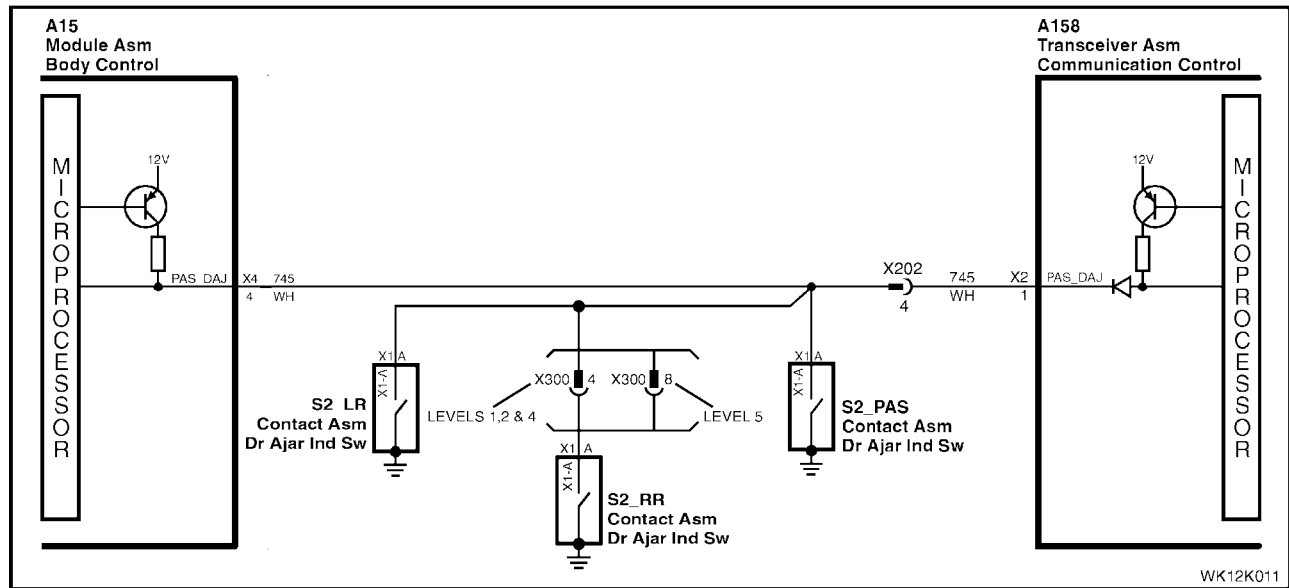


Figure 12K – 51

For information on the circuit description, and a test description and accompanying table for the Passenger Door Ajar Switches test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Passengers Door Ajar Switches) in the MY 2003 VY and V2 Series Service Information.

## Microphone

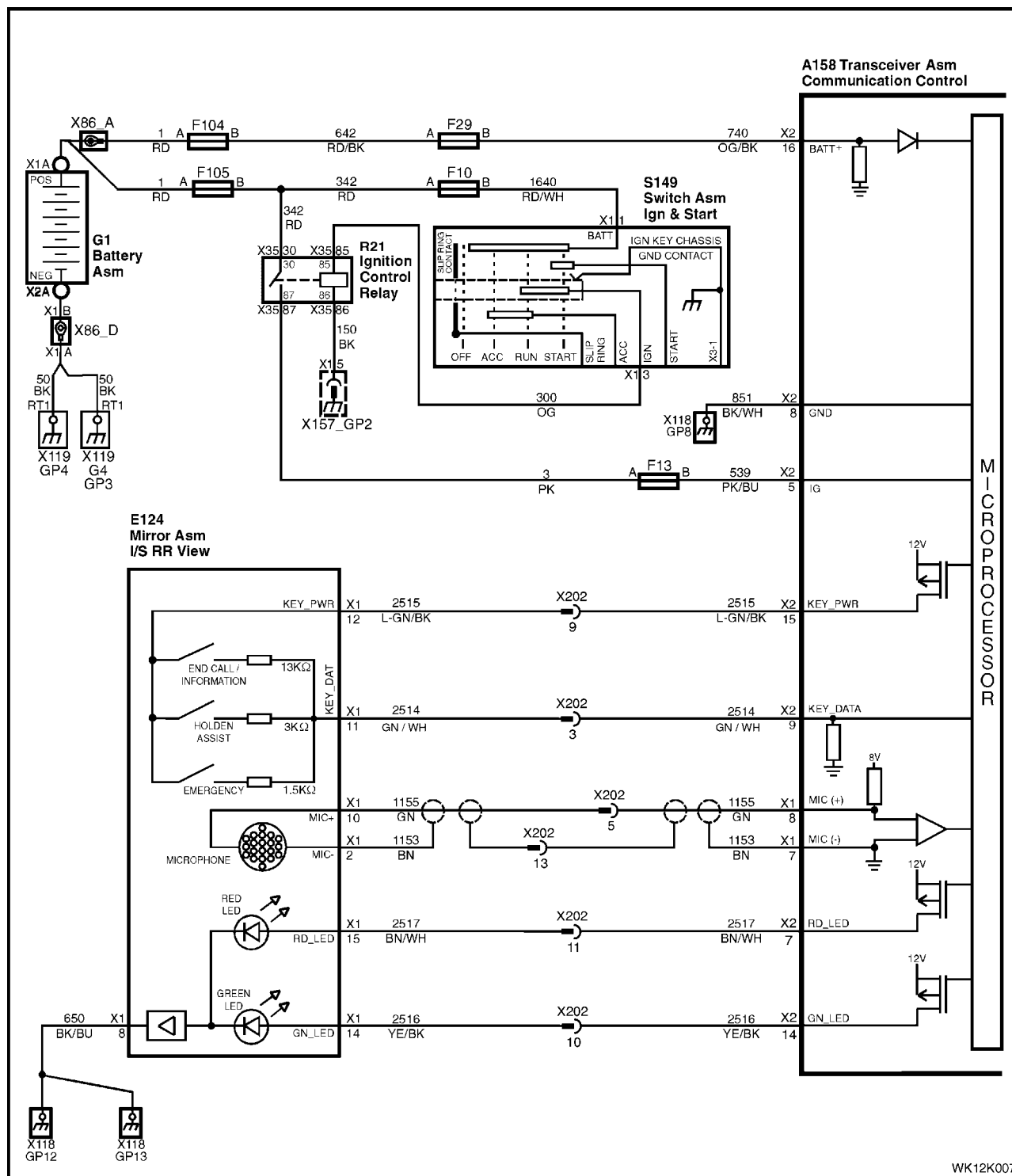
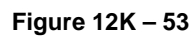


Figure 12K – 52

For information on the circuit description, and a test description and accompanying table for the Microphone test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Microphone) in the MY 2003 VY and V2 Series Service Information.

## V6 Engine



**Figure 12K – 54**

## GEN III V8 Engine

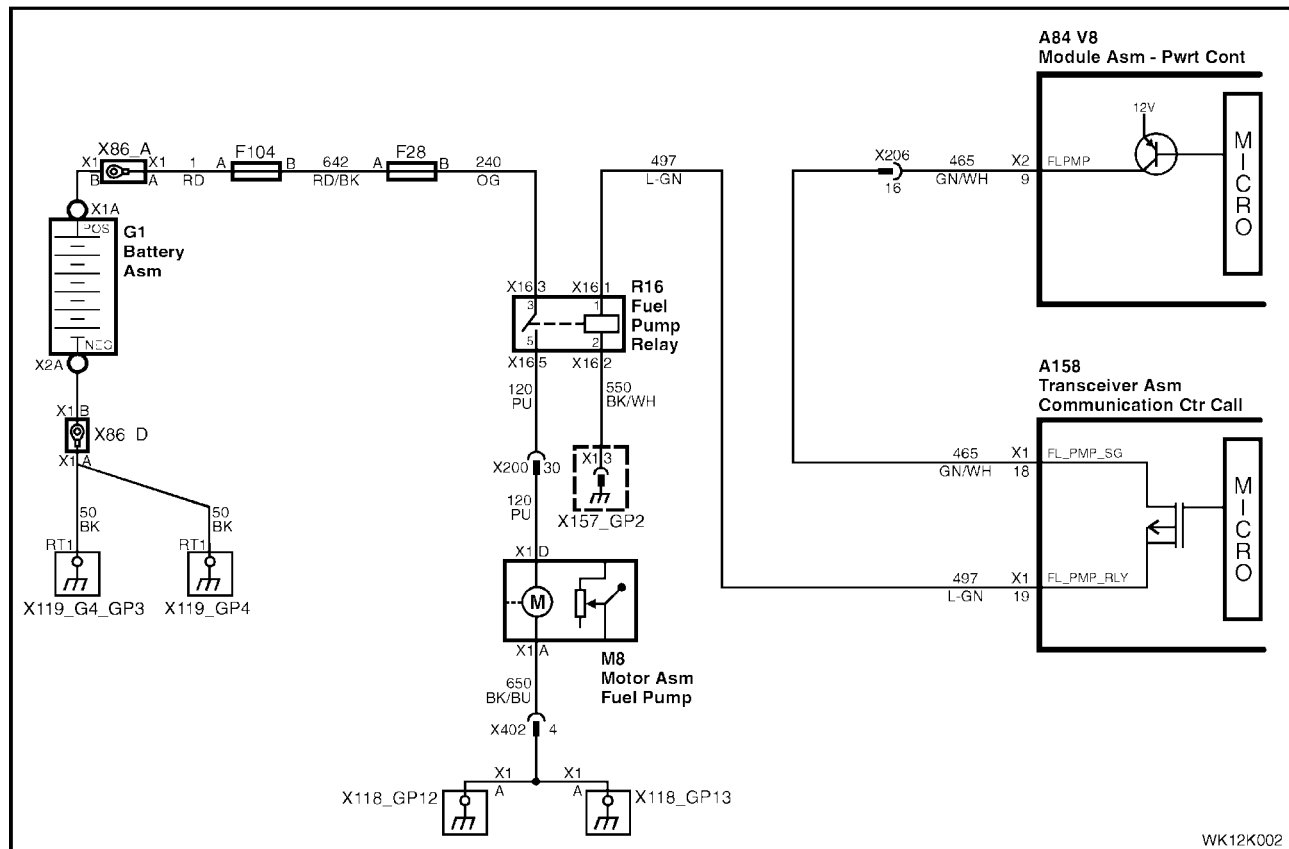


Figure 12K – 55

For information on the circuit description, and a test description and accompanying table for the Fuel Pump Relay Drive Circuit test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Fuel Pump Relay Drive Circuit) in the MY 2003 VY and V2 Series Service Information.

**NOTE**

In the test description for the Fuel Pump Relay Drive Circuit test in the MY 2003 VY and V2 Series Service information:

- A58 – X1 pin 19 should refer to A58 – X1 pin 18 in step 3 of the table, for MY 2004 WK Series vehicles.
- A58 – X1 pin 18 should refer to A58 – X1 pin 19 in step 4 of the table, for MY 2004 WK Series vehicles.

## Audio Mute

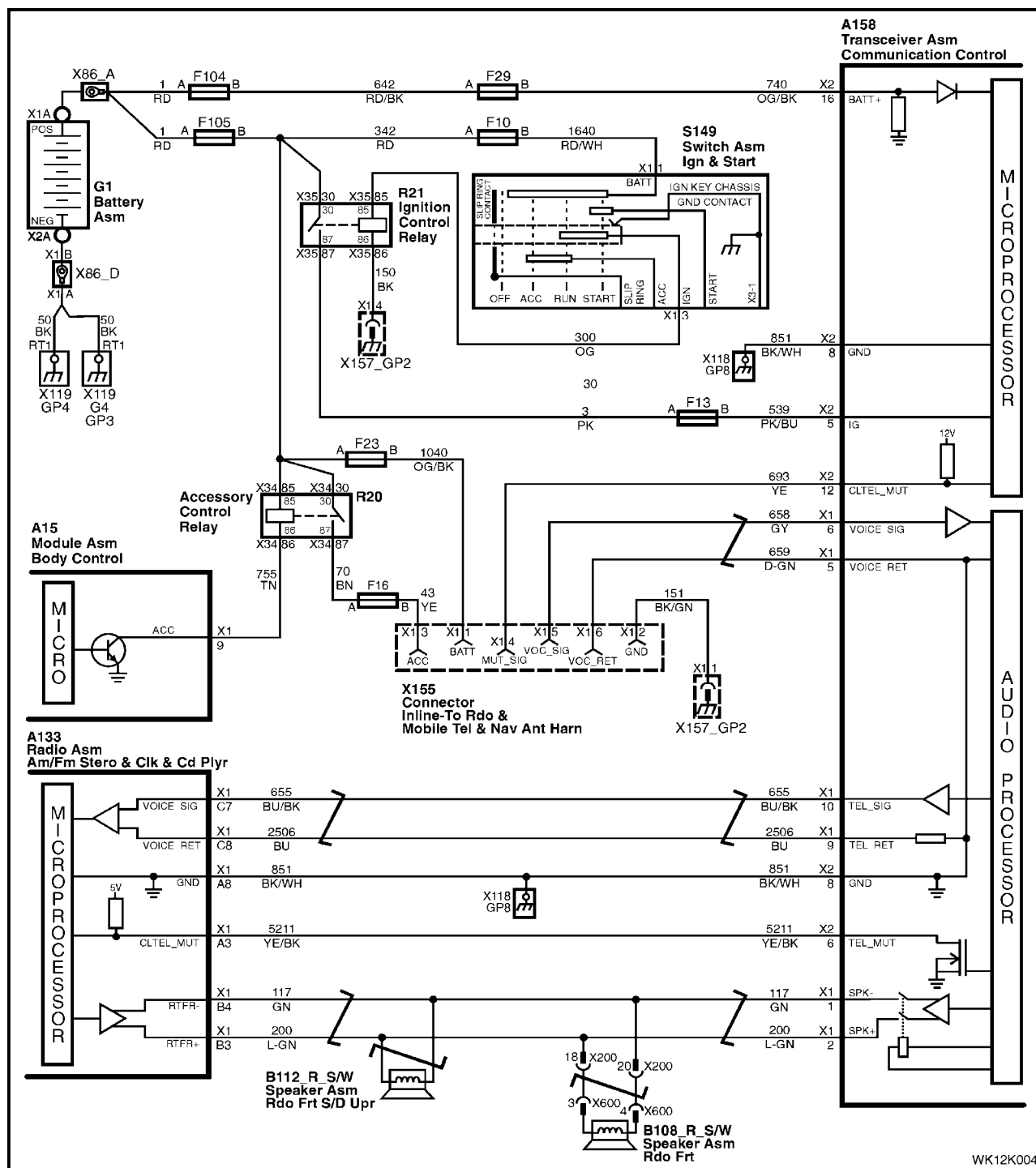


Figure 12K – 56

For information on the circuit description, and a test description and accompanying table for the Audio Mute Circuit test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Audio Mute Circuit) in the MY 2003 VY and V2 Series Service Information.

### NOTE

In the test description for the Audio Mute Circuit test in the MY 2003 VY and V2 Series Service information:

- References to circuit 656 should refer to circuit 5211 in MY 2004 WK Series vehicles.
- A58 – X1 pin 4 (circuit 693) should refer to A58 – X1 pin 12 for MY 2004 WK Series vehicles.
- References to connector X158 should refer to connector A158 for MY 2004 WK Series vehicles.

## Audio System Interface

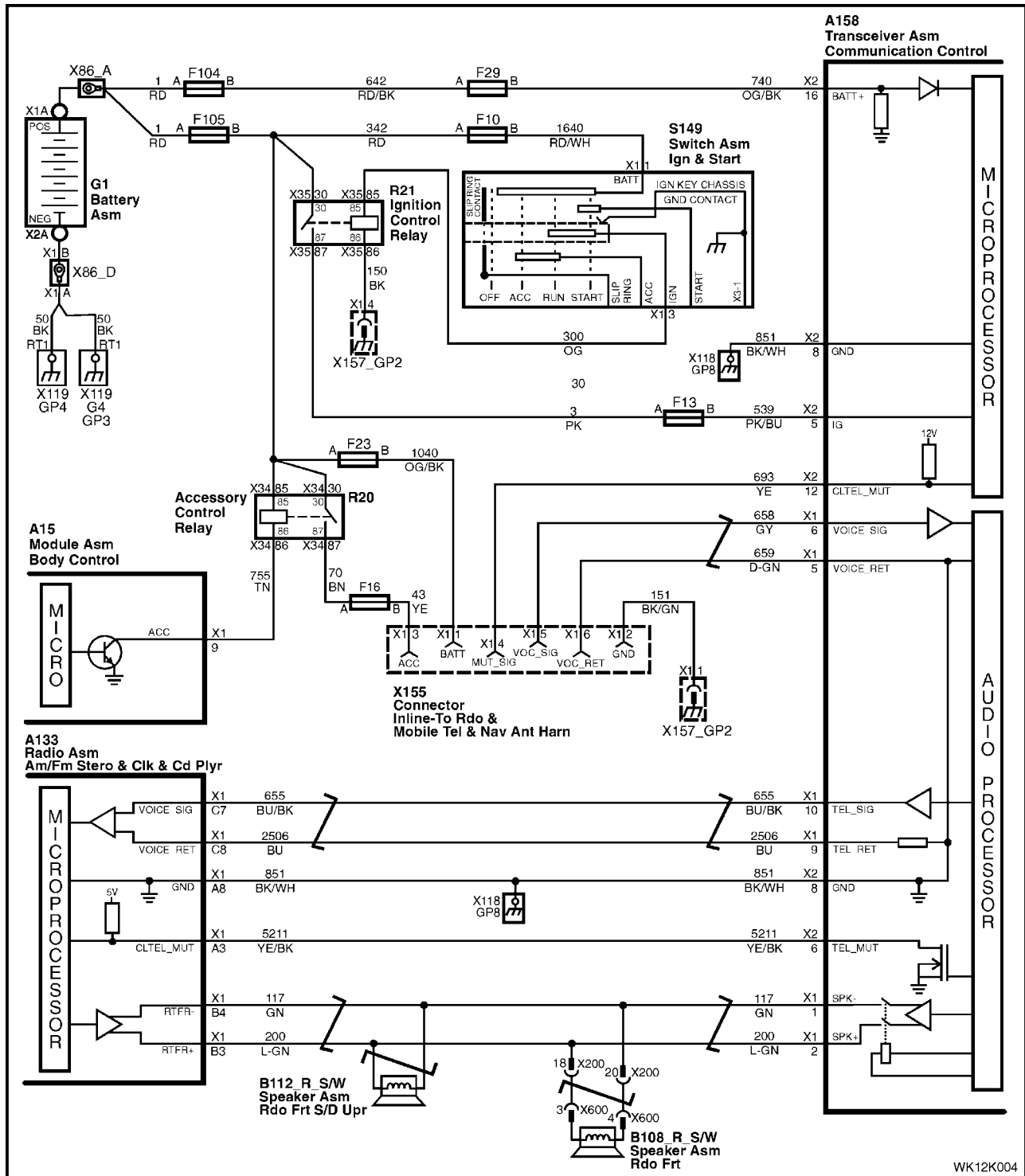


Figure 12K - 57

For information on the circuit description, and a test description and accompanying table for the Audio System Interface test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Audio System Interface) in the MY 2003 VY and V2 Series Service Information.

## Unable to Make or Receive a Call

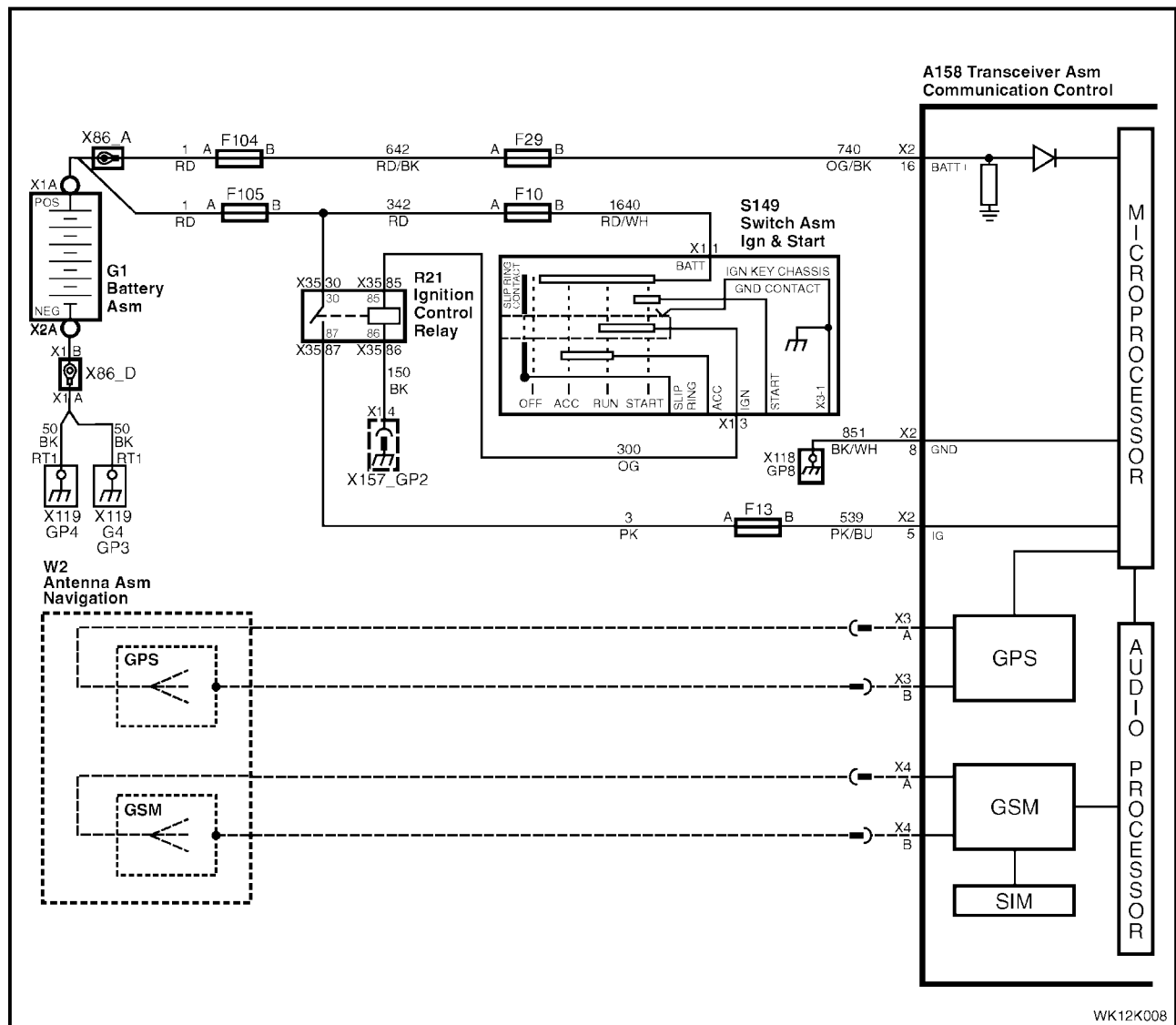


Figure 12K – 58

For information on the circuit description, and a test description and accompanying table for the Unable to Make or Receive a Call test, refer to [Section 12K, 5.9 Symptoms Charts](#) (Unable to Make or Receive a Call) in the MY 2003 VY and V2 Series Service Information.

## Holden Assist Telematics System Test

This Holden Assist Telematics System Test should be performed only as the final steps in the telematics on-board diagnostic system check. All other steps in the on-board diagnostic system check must be completed and have been successful before performing this Holden Assist Telematics System Test:

- 1 Switch the ignition on.
- 2 Connect TECH 2 to the vehicle.
- 3 From the TECH 2 Telematics Application Menu:
  - a Select F1: DATA DISPLAY / F1: GLOBAL POSITIONING SYSTEM, then scroll to GPS 2D or 3D FIX and note the current TIME OF LAST KNOWN GPS FIX.
  - b Select F1: DATA DISPLAY / F2: GSM, scroll to GSM SIGNAL STRENGTH and note the current GSM signal strength.
- 4 Position the vehicle where the TIME OF LAST KNOWN GPS FIX display is updating and the GSM SIGNAL STRENGTH is greater than -90 dBm.

### NOTE

You may need to switch between the data list using the Next List and Previous List soft keys.

- 5 Program the telematics module into Active Mode (refer to F5: Program / Operating Mode in [Section 12K Telematics](#) in the MY 2003 VY and V2 Series Service Information). Disconnect TECH 2 from the vehicle.
- 6 Press the Holden Assist Button.
- 7 When the call is answered, identify yourself and your retail outlet, and request a Holden Assist Telematics System Test. (For example, "Hello, this is Robert Smith from Jonestown Holden, could you please perform a Holden Telematics System Test?")
- 8 The Holden Assist operator will then perform a Holden Telematics System Test. During the test the operator will inform you that you pressed the Holden Assist button and they have received a 'fix' on the location of the vehicle.
- 9 Depending on the current Holden Assist telematics system status, the operator can either remotely unlock the doors or enable the telematics module service mode. The operator will inform which function they are going to perform. If the operator is going to perform a remote unlock, perform step 9a; if the operator is going to enable service mode, perform step 9b.
  - a Remote unlock — the operator will send a remote request to unlock the vehicle:
    - (1) Lower the driver's window.
    - (2) Shut and lock all doors.
    - (3) The operator will send a remote unlock request, the doors should then unlock within 30 seconds (this time to unlock will vary depending on SMS traffic).
    - (4) On receiving a verification message that the doors have unlocked, the operator will inform you that the system has passed the Holden Assist Telematics Test.
    - (5) Thank the Holden Assist operator.
    - (6) Press the End Call / Information button to end the call.
  - b Remote enable — the operator will send a remote request to enable service mode:
    - (1) On receiving a verification message that the service mode has been enabled, the operator will inform you that that the system has passed the Holden Assist Telematics Test.
    - (2) Thank the Holden Assist operator.
    - (3) Press the End Call / Information button to end the call.
    - (4) Connect TECH 2 to the vehicle.
    - (5) From the Telematics Application Menu, Select F1: DATA DISPLAY / F0: INPUTS AND OUTPUTS, scroll to OPERATING MODE. The operating mode should display SERVICE.
    - (6) Program the telematics module into Active Mode (refer F5: Program / F1: Operating Mode in [Section 12K Telematics](#) in the MY 2003 VY and V2 Series Service Information).



- 10 Press the Emergency Button.
- 11 When the call is answered, identify yourself and your retail outlet, and request a Holden Telematics System Test. (For example, "Hello, this is Robert Smith from Jonestown Holden, could you please perform a Holden Telematics System Test?").
- 12 The NERC<sup>TM</sup> then performs a Holden Telematics System Test. During the test the operator will inform you that you pressed the emergency button and they have received a 'fix' on the location of the vehicle. The operator will then end the call.
- 13 If all the above steps have been completed successfully the system has passed the Holden Telematics System Test.

## **6 Torque Wrench Specifications**

MY 2004 WK Series Telematics information carries over from MY 2003 VY and V2 Series vehicles.

For all Telematics torque wrench specification information, refer to [Section 12K, 6 Torque Wrench Specifications](#) in the MY 2003 VY and V2 Series Service Information.