

SHIFT LOCK SYSTEM

1998 Toyota Supra

1997-98 AUTOMATIC TRANSMISSIONS
Toyota Shift Lock System

Chevrolet/Geo: 1997-98 Prizm

Lexus:

1997; LX450

1997-98; ES300, GS300, LS400, SC300, SC400

1998; GX400, LX450

Toyota:

1997; Paseo, Previa

1997-98; Avalon, Camry, Celica, Corolla, Land Cruiser,
RAV4, Supra, Tacoma, Tercel, T100, 4Runner

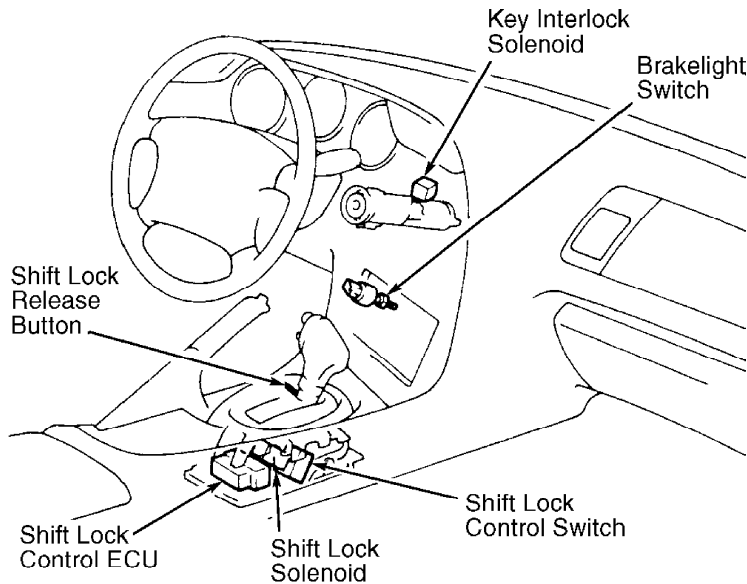
1998; Sienna

DESCRIPTION

Transmission is equipped with a electronically controlled shift lock and key lock system. See Fig. 1. Shift lock system prevents shift lever from being moved from Park unless brake pedal is depressed. In case of a malfunction, shift lever can be released by depressing shift lock override button, located near shift lever. Key lock system prevents ignition key from being moved from ACC to LOCK position on ignition switch unless shift lever is in Park.

System consists of brakelight switch, key interlock solenoid, shift lock control switch (all models except ES300, Paseo and Tercel), shift lock Electronic Control Unit (ECU), shift lock solenoid and shift lock override button. See Fig. 1.

NOTE: Previa, Sienna and T100 are equipped with cable operated shift lock system. See CABLE OPERATED SHIFT LOCK SYSTEM CHECK and ADJUSTMENTS.



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Fig. 1: Shift & Key Lock System Component Locations (Typical)
Courtesy of Toyota Motor Sales, U.S.A., Inc.

OPERATION

SHIFT LOCK SYSTEM

With ignition on, when brake pedal is depressed, an input signal is sent from brakelight switch to ECU. With shift lever in Park, an input signal from shift control switch is input to ECU, indicating shift lever is in Park. ECU then operates shift lock solenoid, so shift lever can be moved from Park.

KEY LOCK SYSTEM

With ignition in ON or ACC position and shift lever in Park, shift lock control switch opens and voltage from ECU to key interlock solenoid is turned off. When key interlock solenoid is turned off, ignition key can be turned from ACC to LOCK position on ignition switch.

COMPONENT TESTS

NOTE: If ignition is left in ACC or ON position with shift lever in any gear range except Park for about one hour, ECU then operates to release lock mechanism.

ELECTRONIC CONTROL UNIT (ECU)

Access ECU. See Fig. 1. ECU is under center console, in front or back of shifter. Turn ignition on. Backprobing ECU harness connector with DVOM, check voltage between designated terminals. Voltage should be as specified. See appropriate SHIFT LOCK SYSTEM PIN VOLTAGES table. For circuit identification, see appropriate wiring diagram in WIRING DIAGRAMS.

NOTE: Ground (GND) terminal is also referred to as "E" terminal.

SHIFT LOCK SYSTEM PIN VOLTAGES (AVALON & CAMRY)

Application & Terminals	Description	Voltage
ECU		
ACC - GND	Ignition Switch In ACC Position	10-14
IG - GND	Ignition Switch In ON Position	10-14
STP - GND	Depress Brake Pedal	10-14
KLS - GND	Ignition Switch In ACC, Shifter In "P" Position	0
KLS - GND	Ignition Switch In ACC, Shifter Not In "P" Position	7.5-11.5
KLS - GND	(1) Ignition Switch In ACC, Shifter Not In "P" Position	6-9
Shift Lock Solenoid		
SLS+ - GND	Ignition Switch In ACC, Shifter In "P" Position	0
SLS+ - GND	Depress Brake Pedal	8-13.5
SLS+ - GND	Ignition Switch In ACC, Shifter Not In "P" Position	0
Shift Lock Control Switch		
P1 - P	Ignition Switch ON, Shifter In "P" Position, Depress Brake Pedal	0
P1 - P	Ignition Switch In ON,	

	Shifter Not In "P" Position	9-13.5
P2 - P	Ignition Switch In ACC, Shifter In "P" Position	9-13.5

(1) - Voltage measurement after one second.

NOTE: Ground (GND) terminal is also referred to as "E" terminal.

SHIFT LOCK SYSTEM PIN VOLTAGES (CELICA, COROLLA, ES300, GS300 (1997), GS400, LAND CRUISER, LX450, LX470, PASEO, PRIZM, TACOMA & TERCEL)

Application & Terminals	Description	Voltage
ECU		
ACC - GND	Ignition Switch In ACC Position	10-14
IG - GND	Ignition Switch In ON Position	10-14
STP - GND	Depress Brake Pedal	10-14
KLS - GND	Ignition Switch In ACC, Shifter In "P" Position	0
KLS - GND	Ignition Switch In ACC, Shifter Not In "P" Position	(2) 10-14
KLS - GND	(1) Ignition Switch In ACC, Shifter Not In "P" Position	6-9
Shift Lock Solenoid		
SLS+ - SLS-	Ignition Switch In ACC, Shifter In "P" Position	0
SLS+ - SLS-	Depress Brake Pedal	8-13.5
SLS+ - SLS-	Depress Brake Pedal, (After 20 Seconds)	5.5-9.5
SLS+ - SLS-	Ignition Switch In ACC, Shifter Not In "P" Position	0
Shift Lock Control Switch		
P1 - P	Ignition Switch In ON Position, Shifter In "P" Position, Depress Brake Pedal	0
P1 - P	Ignition Switch In ON, Shifter Not In "P" Position	9-13.5
P2 - P	Ignition Switch In ACC, Shifter In "P" Position	9-13.5
P2 - P	Ignition Switch In ACC, Shifter Not In "P" Position	0

(1) - Voltage measurement after one second.

(2) - Voltage is 7.5-11 volts on 1997-98 ES300.

NOTE: Ground (GND) terminal is also referred to as "E" terminal.

SHIFT LOCK SYSTEM PIN VOLTAGES (1998 GS300 & 1998 GS400)

Application & Terminals	Description	Voltage
ECU		
ACC - GND	Ignition Switch In ACC Position	10-14
ACC - GND	Ignition Switch In ON Position	10-14
KLS - GND	Ignition Switch In ACC, Shifter In "P" Position	0

KLS - GND	.....	(1) Ignition Switch In ACC, Shifter Not In "P" Position	.....	6-9
SLS+ - GND	.....	Ignition Switch In ON, Shifter In "P" Position	.....	0
SLS+ - GND	.....	Ignition Switch In ON, Depress Brake Pedal	.....	3-6
SLS+ - GND	.....	Ignition Switch In ON, Release Brake Pedal	.....	0
SLS+ - GND	.....	Ignition Switch In ACC, Shifter Not In "P" Position	.....	3-6
P1 - GND	.....	Shifter In "P" Position	.....	0
P1 - GND	.....	Shifter Not In "P" Position	.....	10-14

(1) - Voltage measurement after one second.

NOTE: Ground (GND) terminal is also referred to as "E" terminal.

SHIFT LOCK SYSTEM PIN VOLTAGES (LS400)

Application & Terminals	Description	Voltage
ECU		
ACC - GND	..... Ignition Switch In ACC Position	..... 10-14
IG - GND	..... Ignition Switch In ON Position	..... 10-14
STP - GND	..... Depress Brake Pedal	..... 10-14
KLS - GND	..... Ignition Switch In ACC, Shifter In "P" Position	..... 1.5 Or Less
KLS - GND	..... Ignition Switch In ACC, Shifter Not In "P" Position	..... 8.5-10.5
KLS - GND	..... (1) Ignition Switch In ACC, Shifter Not In "P" Position	..... 7-8.5
Shift Lock Solenoid		
SLS+ - SLS-	..... Ignition Switch In ACC, Shifter In "P" Position	..... 0
SLS+ - SLS-	..... Depress Brake Pedal	..... 8.8-12.5
SLS+ - SLS-	..... Depress Brake Pedal, (After 20 Seconds)	..... 6.5-9.2
SLS+ - SLS-	..... Ignition Switch In ACC, Shifter Not In "P" Position	..... 0
Shift Lock Control Switch		
P1 - P	..... Ignition Switch In ON Position, Shifter In "P" Position, Depress Brake Pedal	..... 0
P1 - P	..... Ignition Switch In ON, Shifter Not In "P" Position	..... 10-14
P2 - P	..... Ignition Switch In ACC, Shifter In "P" Position	..... 10-14
P2 - P	..... Ignition Switch In ACC, Shifter Not In "P" Position	..... 0

(1) - Voltage measurement after one second.

NOTE: Ground (GND) terminal is also referred to as "E" terminal.

SHIFT LOCK SYSTEM PIN VOLTAGES (RAV4)

Application & Terminals	Description	Voltage
ECU		

ACC - GND	.....	Ignition Switch In ACC Position	.....	10-14
IG - GND	.....	Ignition Switch In ON Position	.....	10-14
STP - GND	.....	Depress Brake Pedal	.....	10-14
KLS - GND	.....	Ignition Switch In ACC, Shifter In "P" Position	.....	0
KLS - GND	.....	Ignition Switch In ACC, Shifter Not In "P" Position	.....	7.5-11
KLS - GND	.....	(1) Ignition Switch In ACC, Shifter Not In "P" Position	.....	5.5-10
Shift Lock Solenoid				
SLS+ - GND	.....	Ignition Switch In ACC, Shifter In "P" Position	.....	0
SLS+ - GND	.....	Depress Brake Pedal	.....	8-14
SLS+ - GND	.....	Ignition Switch In ACC, Shifter Not In "P" Position	.....	0
Shift Lock Control Switch				
P1 - P	.....	Ignition Switch In ON Position, Shifter In "P" Position, Depress Brake Pedal	.....	0
P1 - P	.....	Ignition Switch In ON, Shifter Not In "P" Position	.....	10-14
P2 - P	.....	Ignition Switch In ACC, Shifter In "P" Position	.....	10-14

(1) - Voltage measurement after one second.

NOTE: Ground (GND) terminal is also referred to as "E" terminal.

SHIFT LOCK SYSTEM PIN VOLTAGES (SC300, SC400, SUPRA & 4RUNNER)

Application & Terminals	Description	Voltage
ECU		
ACC - GND	..... Ignition Switch In ACC Position	10-14
IG - GND	..... Ignition Switch In ON Position	10-14
STP - GND	..... Depress Brake Pedal	10-14
KLS - GND	..... Ignition Switch In ACC, Shifter In "P" Position	0
KLS - GND	..... Ignition Switch In ACC, Shifter Not In "P" Position	7.5-11
KLS - GND	..... (1) Ignition Switch In ACC, Shifter Not In "P" Position	6-9.5
Shift Lock Solenoid		
SLS+ - SLS-	..... Ignition Switch In ACC, Shifter In "P" Position	0
SLS+ - SLS-	..... Depress Brake Pedal	8-13.5
SLS+ - SLS-	..... Depress Brake Pedal (After 20 Seconds)	6-8.5
SLS+ - SLS-	..... Ignition Switch In ACC, Shifter Not In "P" Position	0
Shift Lock Control Switch		
P1 - P	..... Ignition Switch In ON Position, Shifter In "P" Position, Depress Brake Pedal	0
P1 - P	..... Ignition Switch In ON, Shifter Not In "P" Position	9-13.5
P2 - P	..... Ignition Switch In ACC, Shifter In "P" Position	9-13.5
P2 - P	..... Ignition Switch In ACC, Shifter Not In "P" Position	0

(1) - Voltage measurement after one second.

SHIFT LOCK SOLENOID

1) Disconnect electrical connector from shift lock solenoid. Using ohmmeter, measure resistance between shift lock solenoid terminals. See WIRING DIAGRAMS.

2) Replace shift lock solenoid if resistance is not within specification. See SHIFT LOCK SOLENOID RESISTANCE SPECIFICATIONS table. Apply battery voltage between shift lock solenoid terminals. Replace shift lock solenoid if operating sound cannot be heard.

SHIFT LOCK SOLENOID RESISTANCE SPECIFICATIONS

Application	Ohms
Avalon, Camry, Paseo, Tacoma (A-43D) & Tercel	30-35
Celica, Corolla, GS300, GS400, Prizm & 4Runner	21-27
Land Cruiser, LS400, LX450, LX470, SC300, SC400, Supra & Tacoma (A-340E/F)	20-28
ES300	29-36
RAV4	26-33

KEY INTERLOCK SOLENOID

1) Disconnect electrical connector from key interlock solenoid. Using ohmmeter, measure resistance between key interlock solenoid terminals. See WIRING DIAGRAMS.

2) Replace key interlock solenoid if resistance is not 12-17 ohms. Apply battery voltage between of key interlock solenoid terminals. Replace key interlock solenoid if operating sound cannot be heard.

SHIFT LOCK CONTROL SWITCH

Disconnect electrical connector from shift lock control switch. Using ohmmeter, check continuity between specified terminals in relation to shift lever. See WIRING DIAGRAMS. See SHIFT LOCK CONTROL SWITCH CONTINUITY table. Replace switch if continuity is not as specified.

NOTE: Continuity must be checked in accordance with position of release button on shift lever and shift lever position.

SHIFT LOCK CONTROL SWITCH CONTINUITY

Shift Lever Position & Condition	Terminals
Any Other Gear Except Park	P & P2
Park & Release Button Not Pushed	P & P1
Park & Release Button Is Pushed	P & P1 Or P & P2

CABLE OPERATED SHIFT LOCK SYSTEM CHECK

Previa & Sienna

Ensure shift lock cable does not interfere with wiring harness. Ensure ignition switch turns to LOCK position when shift lever is in "P" position. Ensure brake pedal returns fully. Ensure shift lock is released when brake pedal is depressed with ignition

switch at ACC, ON or START position.

T100

Ensure parking lock cable is lubricated and does not scrape or knock during component operation. Place shift lever in "P" position and ensure lever is locked when parking lock cable is pushed .28" (7 mm). Ensure shift lever is released when parking lock cable is free. Ensure free play at tip of shift lever is .24" (6 mm).

ADJUSTMENTS

SHIFT LOCK PIN

Previa

Adjust pin length by loosening and tightening nut. Pin length should be .012" (.3 mm) above or .028" (.7 mm) below shift lever assembly surface. With pin within length specifications, tighten nut to 18 ft. lbs. (25 N.m). See Fig. 2.

PARKING LOCK CABLE

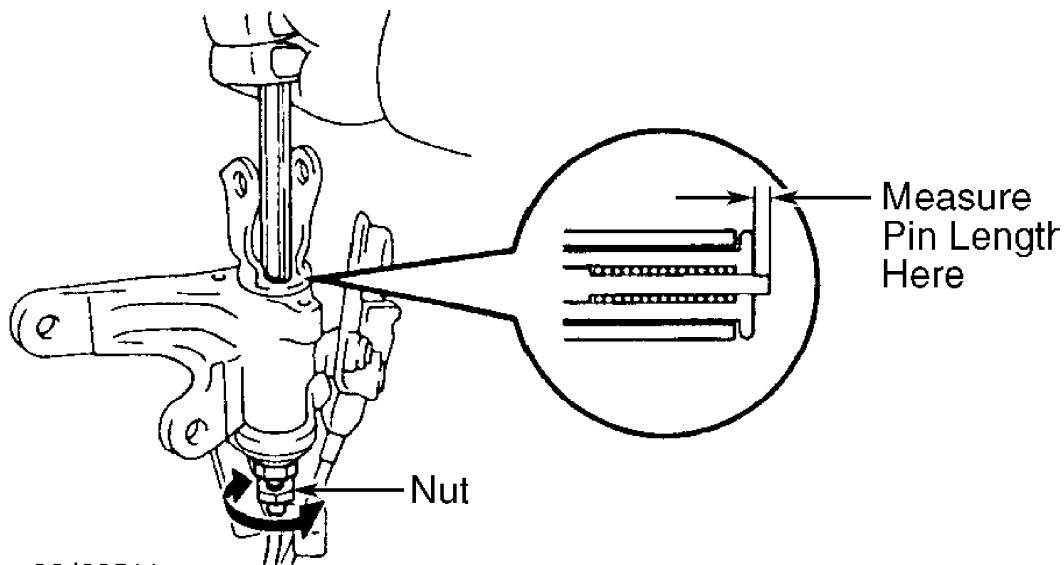
Previa & Sienna

Place shift lever in "P" position. Turn ignition switch to LOCK position. Loosen 2 nuts and ensure slide pin strikes cushion rubber. Tighten 2 nuts to 48 INCH lbs. (5.4 N.m). See Fig. 3.

SHIFT LOCK PLATE CLEARANCE

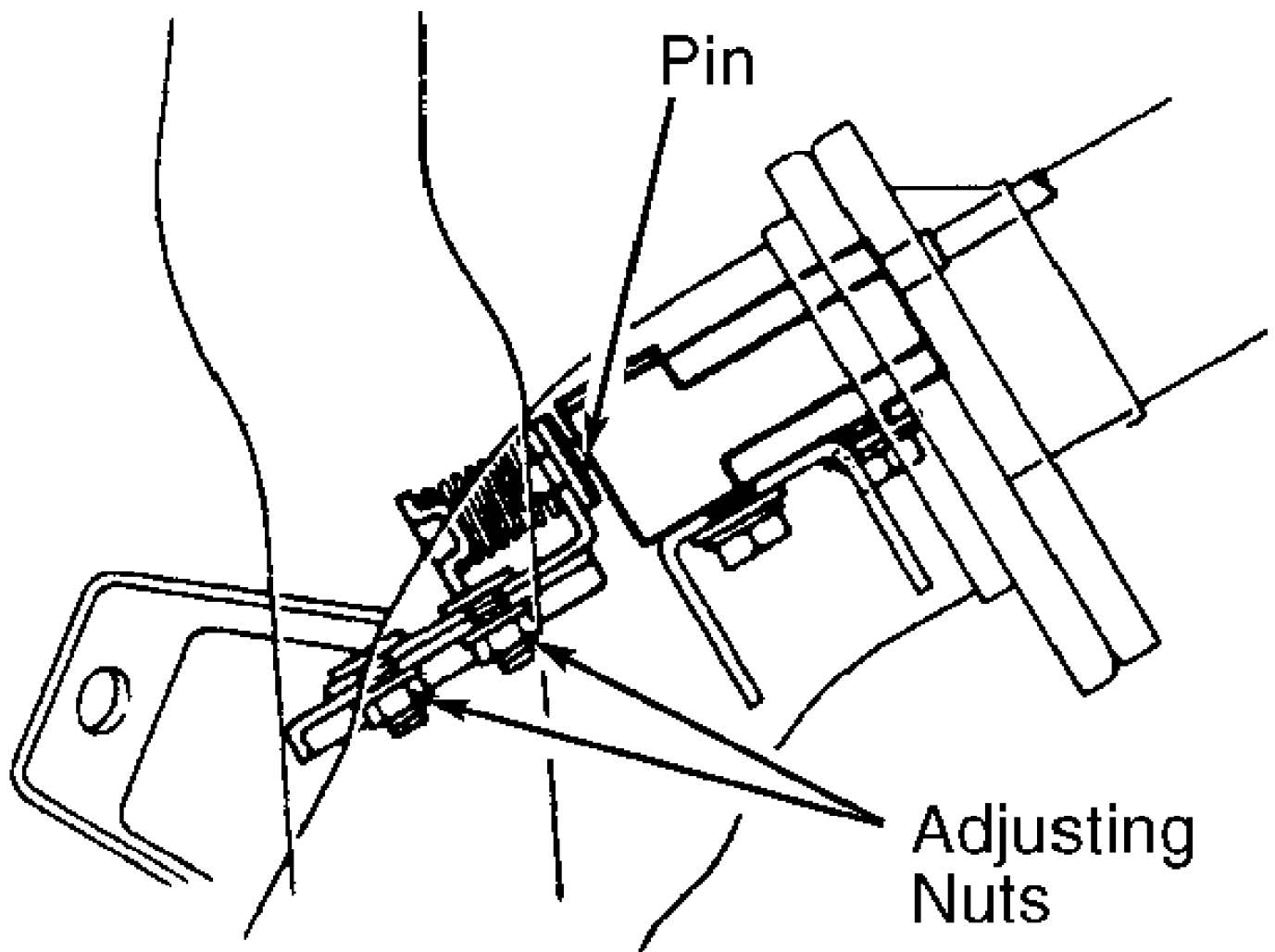
T100

Turn ignition switch key to ACC position. Set control shaft to "D" position. Measure clearance between stopper and shift lock plate. Clearance should be .039" (1.0 mm) plus or minus .031" (.8 mm). See Fig. 4. When control shaft is set to "D" position, ensure ignition key does not turn to LOCK position.



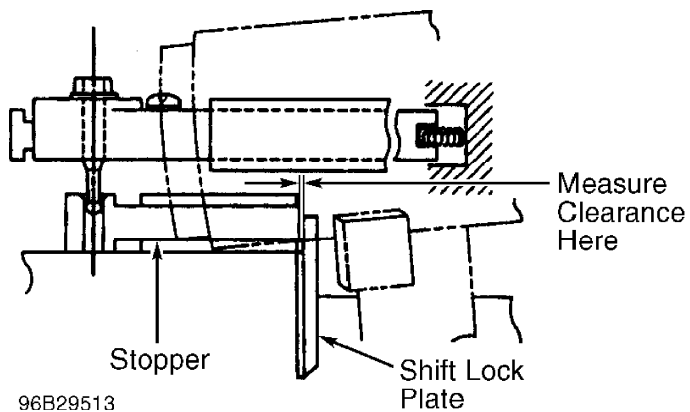
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Fig. 2: Measuring Shift Lock Pin Length (Previa)
Courtesy of Toyota Motor Sales, U.S.A., Inc.



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Fig. 3: Adjusting Parking Lock Cable (Previa & Sienna)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.



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Fig. 4: Measuring Shift Lock Plate Clearance (T100)
 Courtesy of Toyota Motor Sales, U.S.A., Inc.

WIRING DIAGRAMS

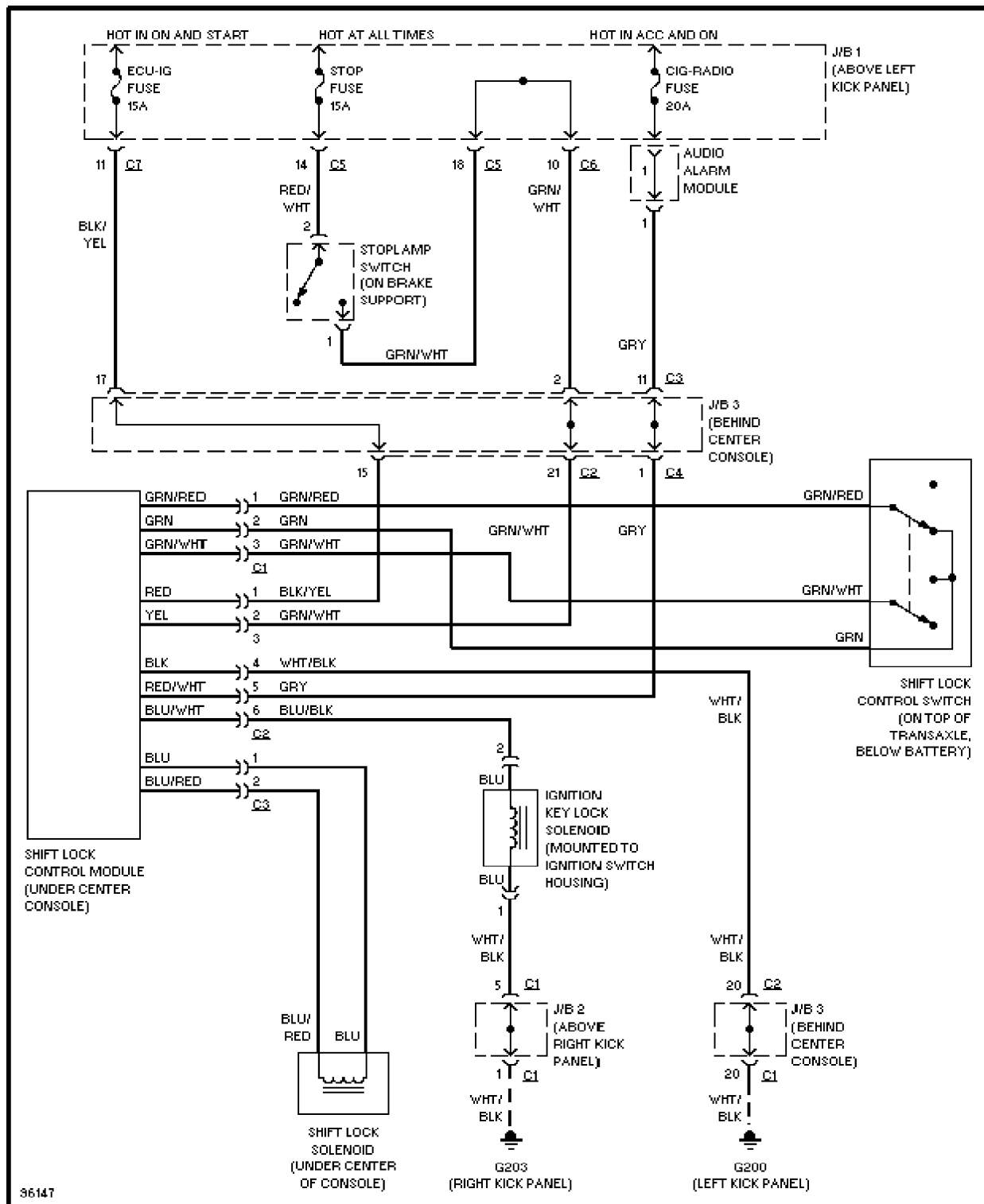


Fig. 5: Shift Interlock System Wiring Diagram (1997 Prizm)

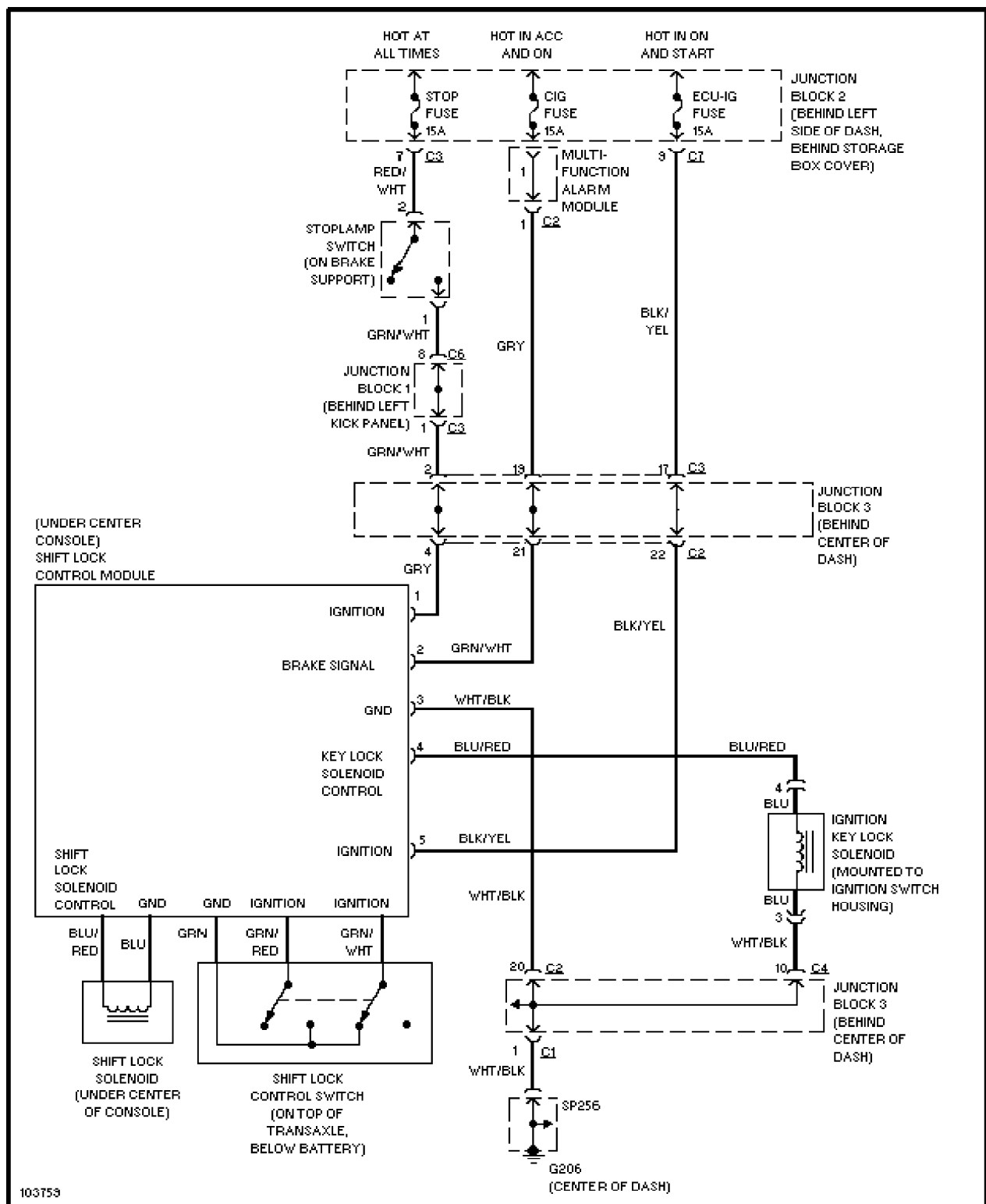


Fig. 6: Shift Interlock System Wiring Diagram (1998 Prizm)

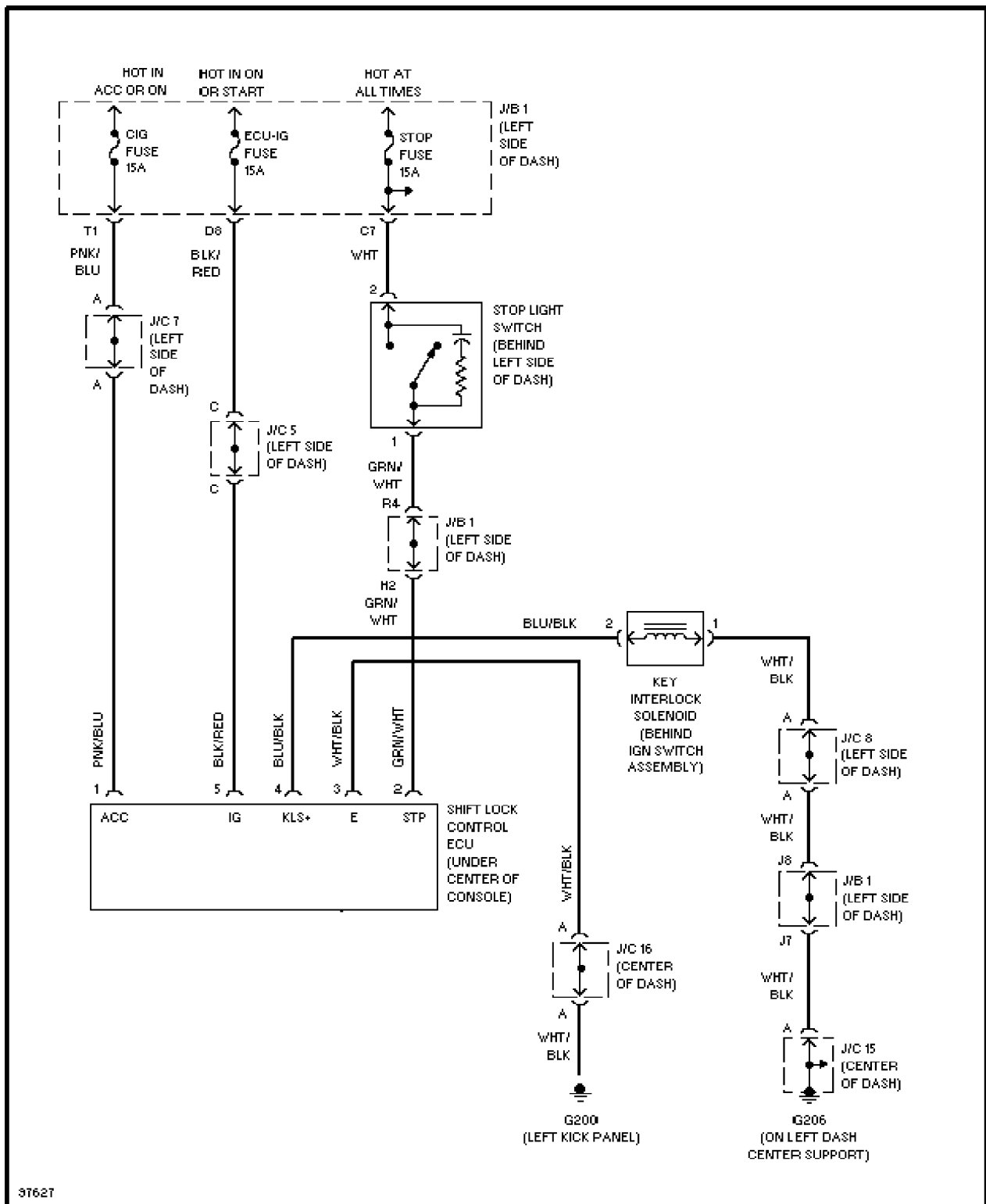


Fig. 7: Shift Interlock System Wiring Diagram (1997 ES300)

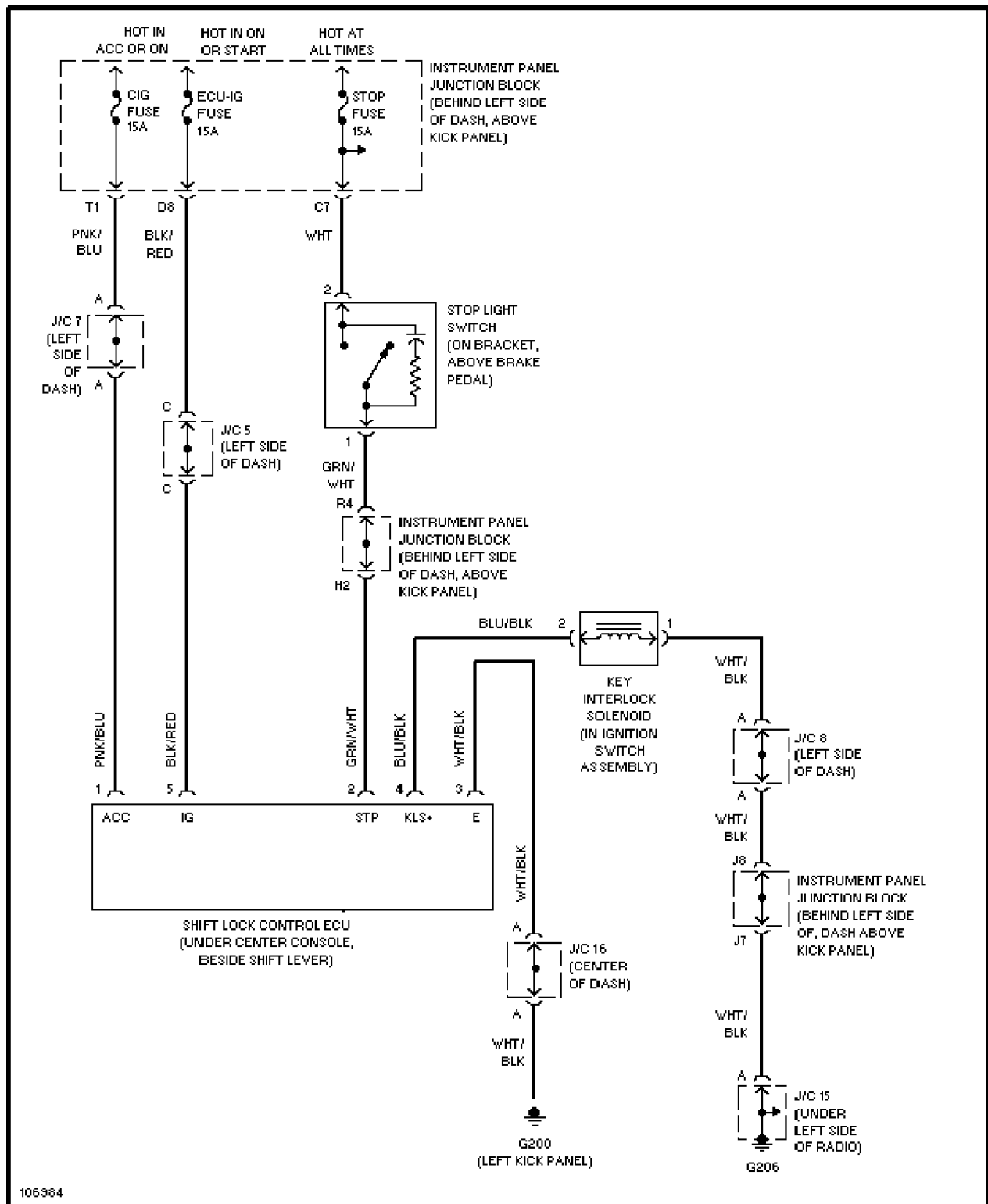
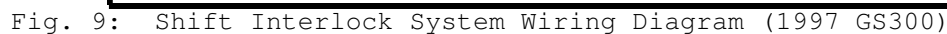


Fig. 8: Shift Interlock System Wiring Diagram (1998 ES300)



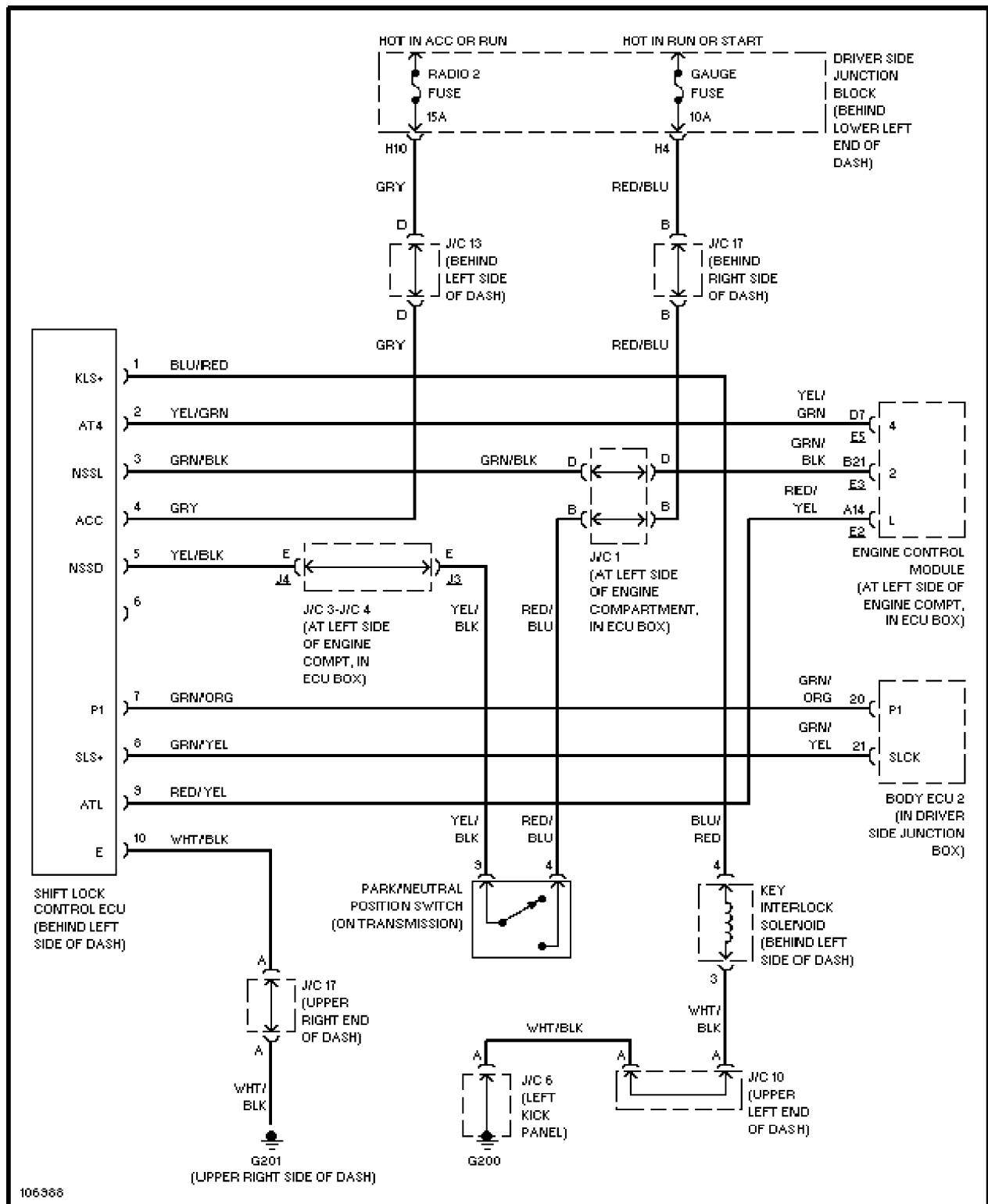


Fig. 10: Shift Interlock System Wiring Diagram (1998 GS300)

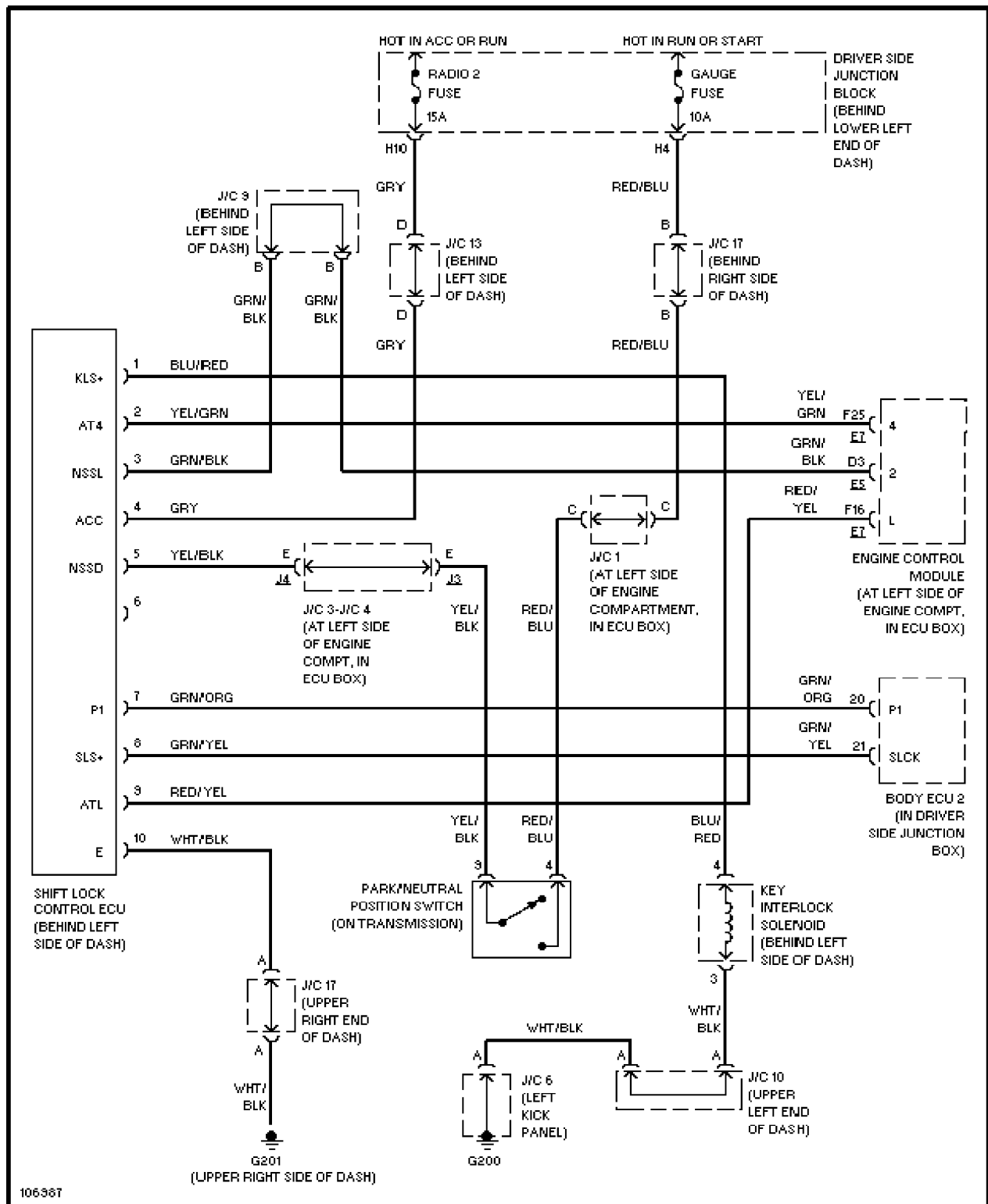


Fig. 11: Shift Interlock System Wiring Diagram (1998 GS400)



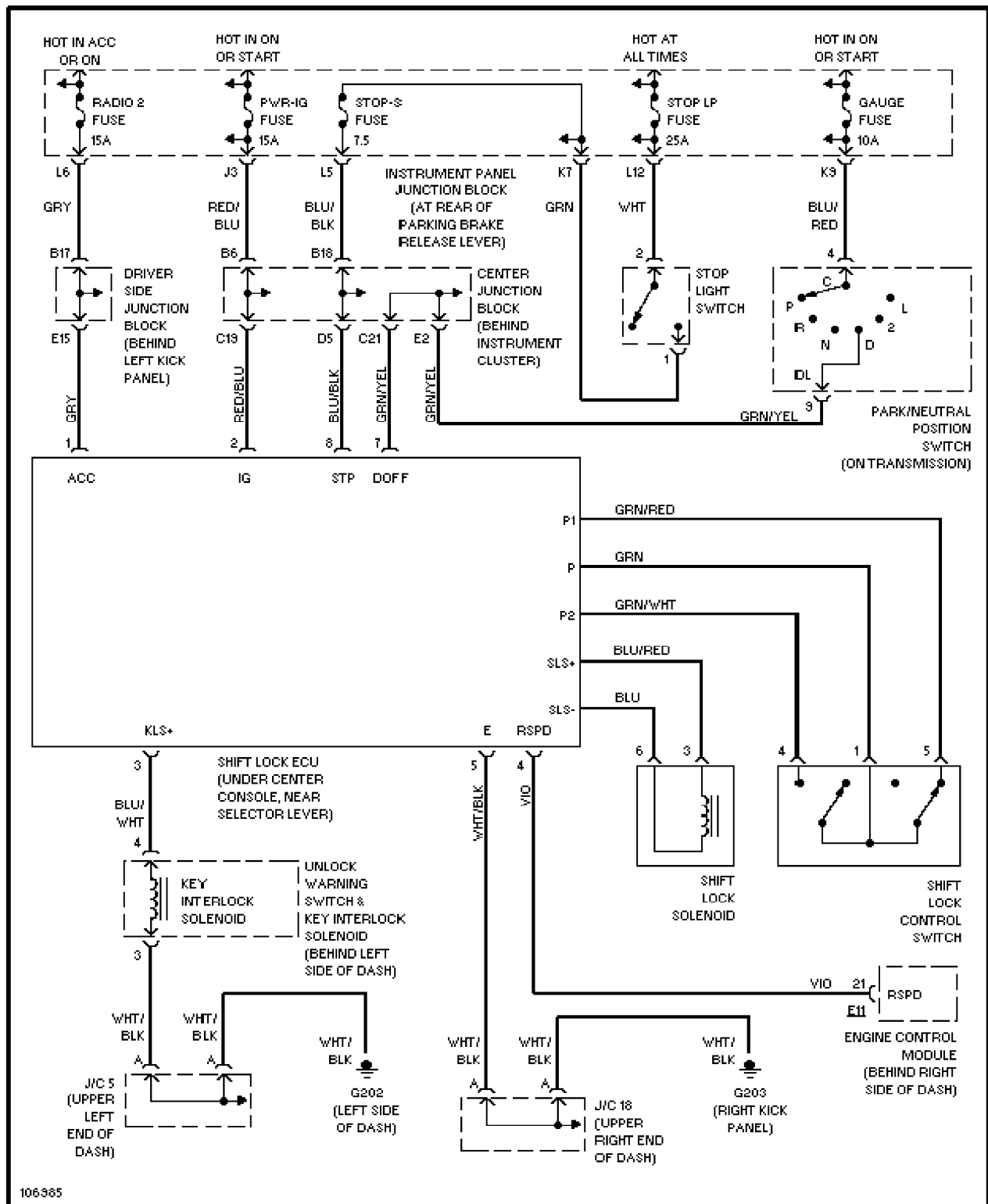


Fig. 13: Shift Interlock System Wiring Diagram (1998 LS400)

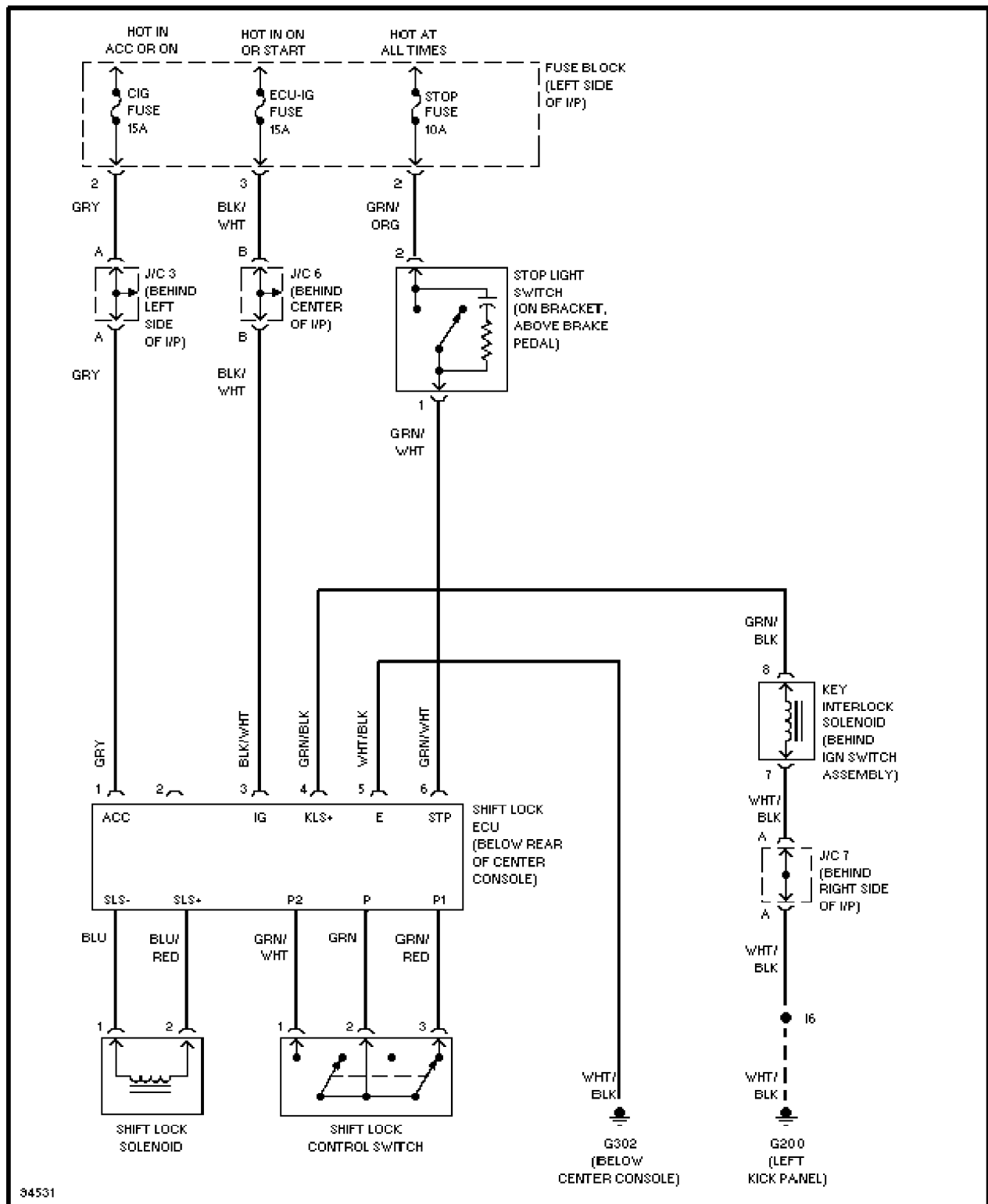


Fig. 14: Shift Interlock System Wiring Diagram (1997 LX450)

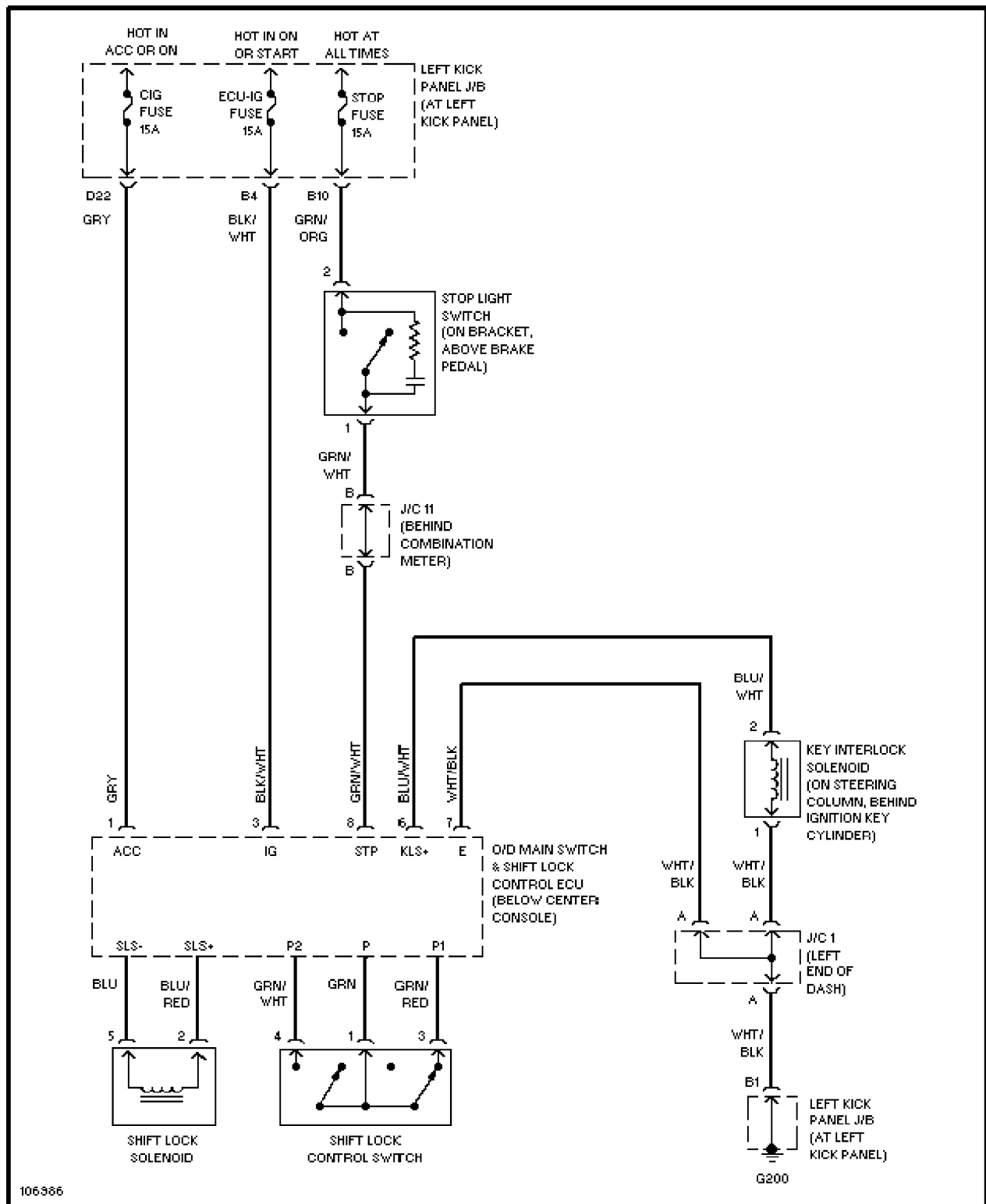


Fig. 15: Shift Interlock System Wiring Diagram (1998 LX470)

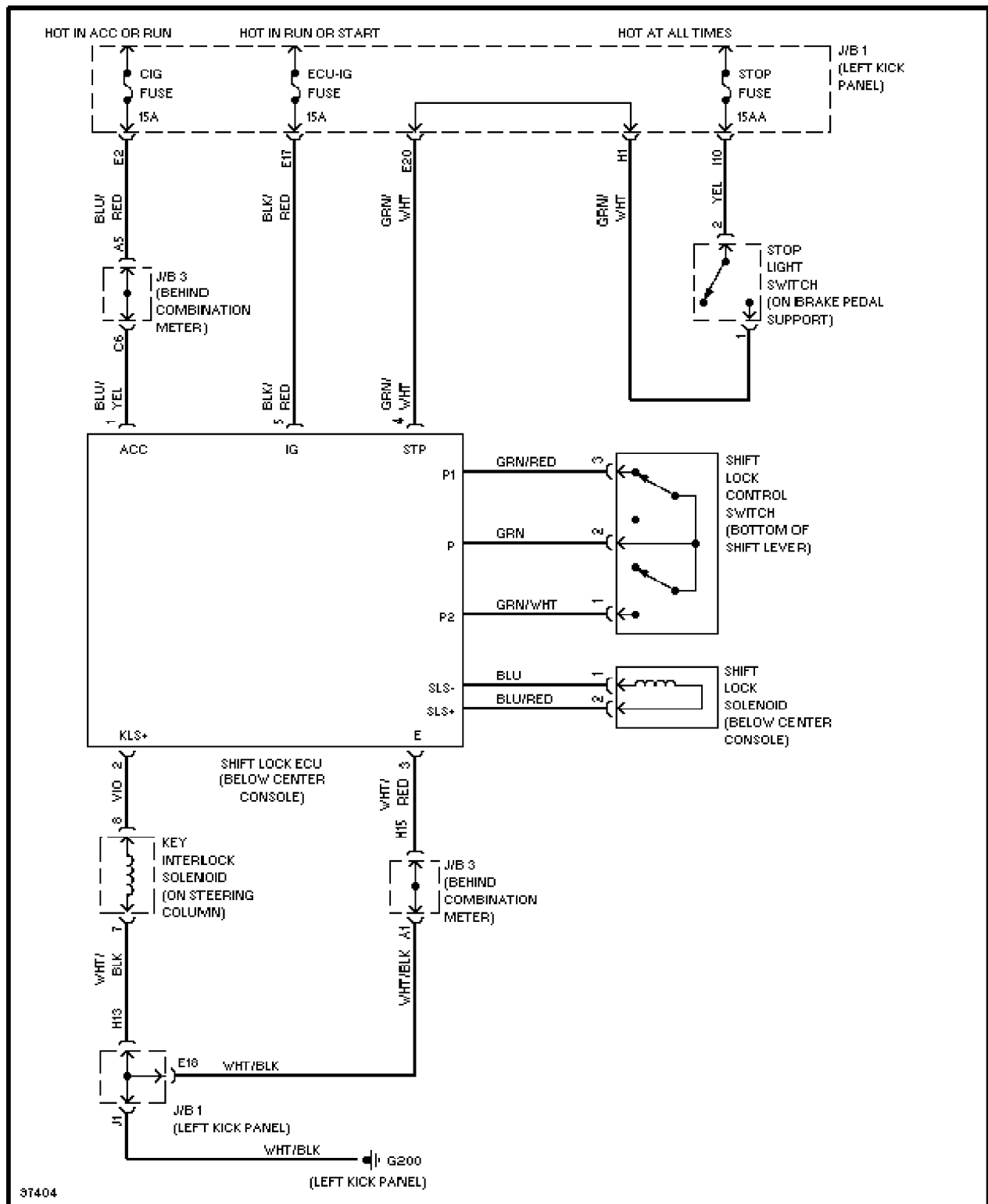


Fig. 16: Shift Interlock System Wiring Diagram (1997 SC300 & SC400)

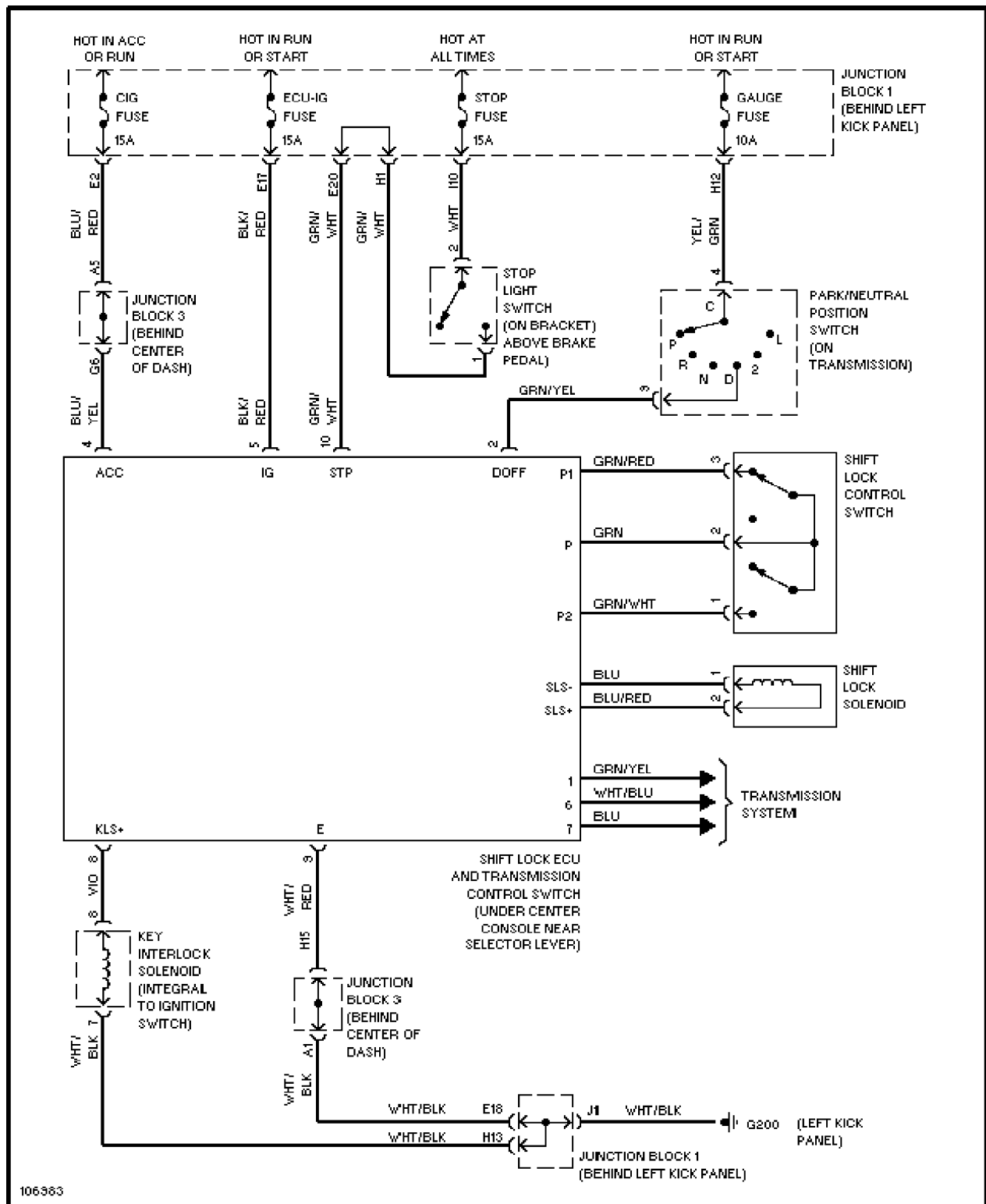


Fig. 17: Shift Interlock System Wiring Diagram (1998 SC300 & SC400)

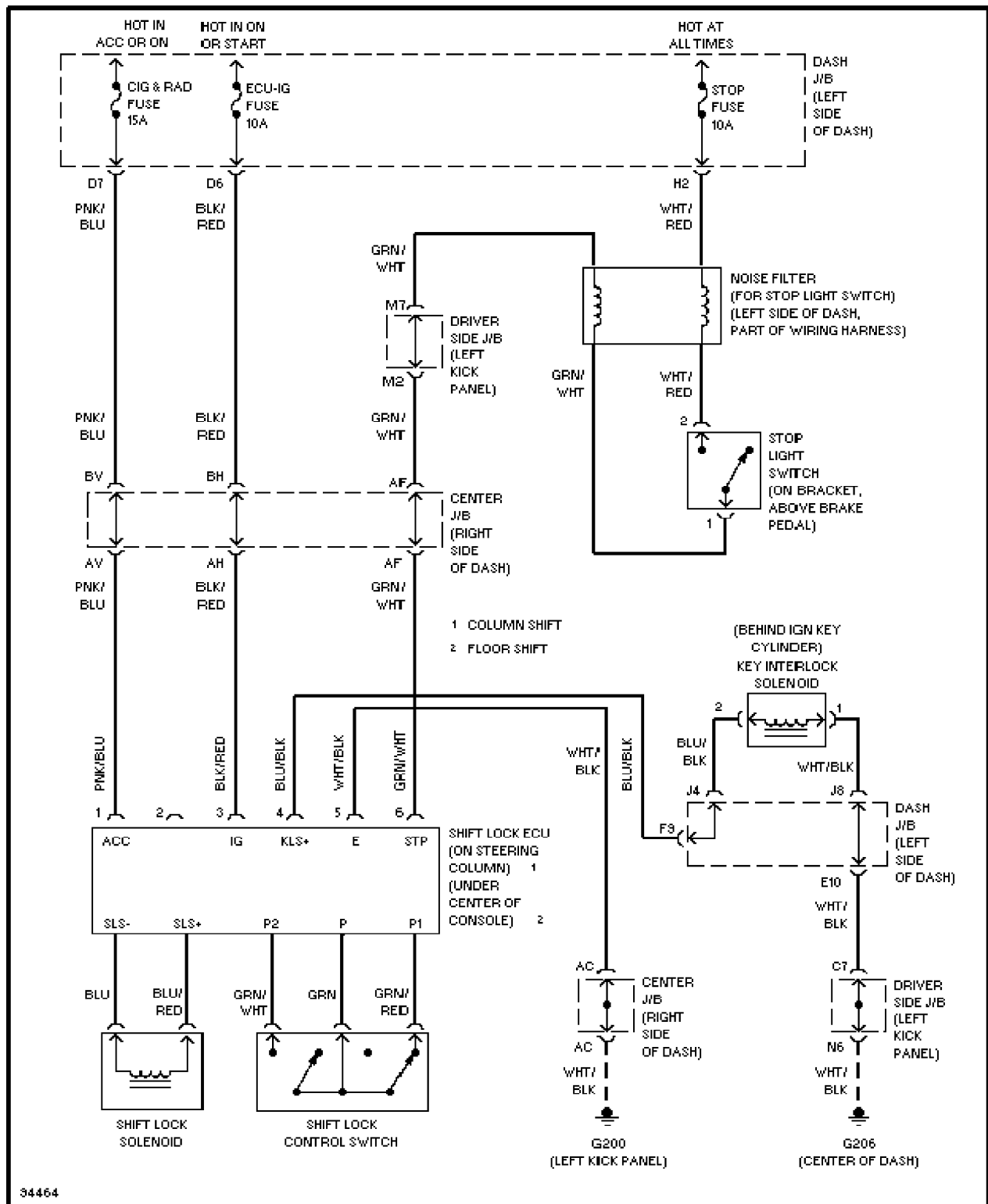


Fig. 18: Shift Interlock System Wiring Diagram (1997 Avalon)

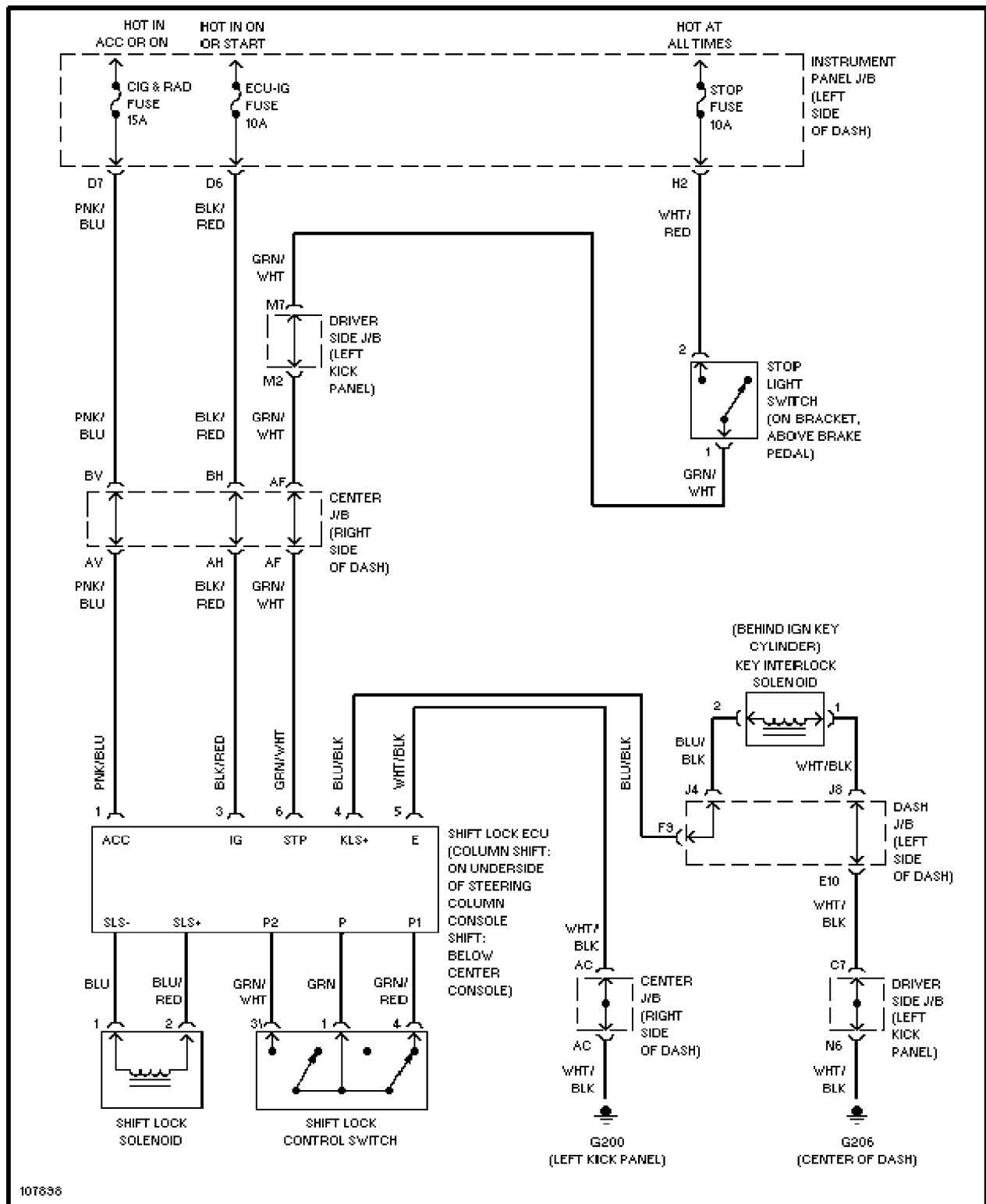
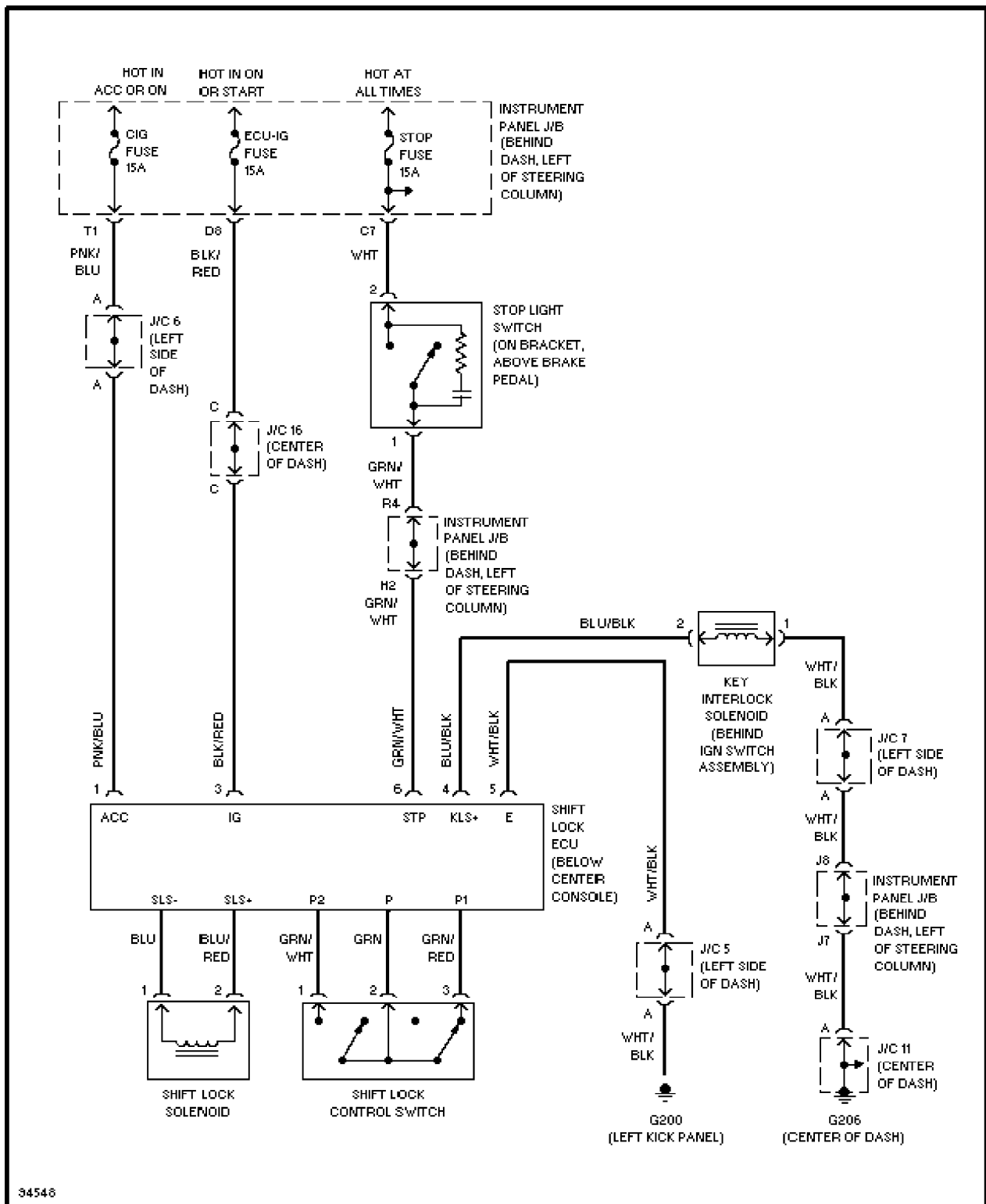
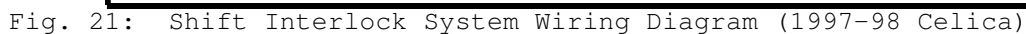


Fig. 19: Shift Interlock System Wiring Diagram (1998 Avalon)



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Fig. 20: Shift Interlock System Wiring Diagram (1997-98 Camry)



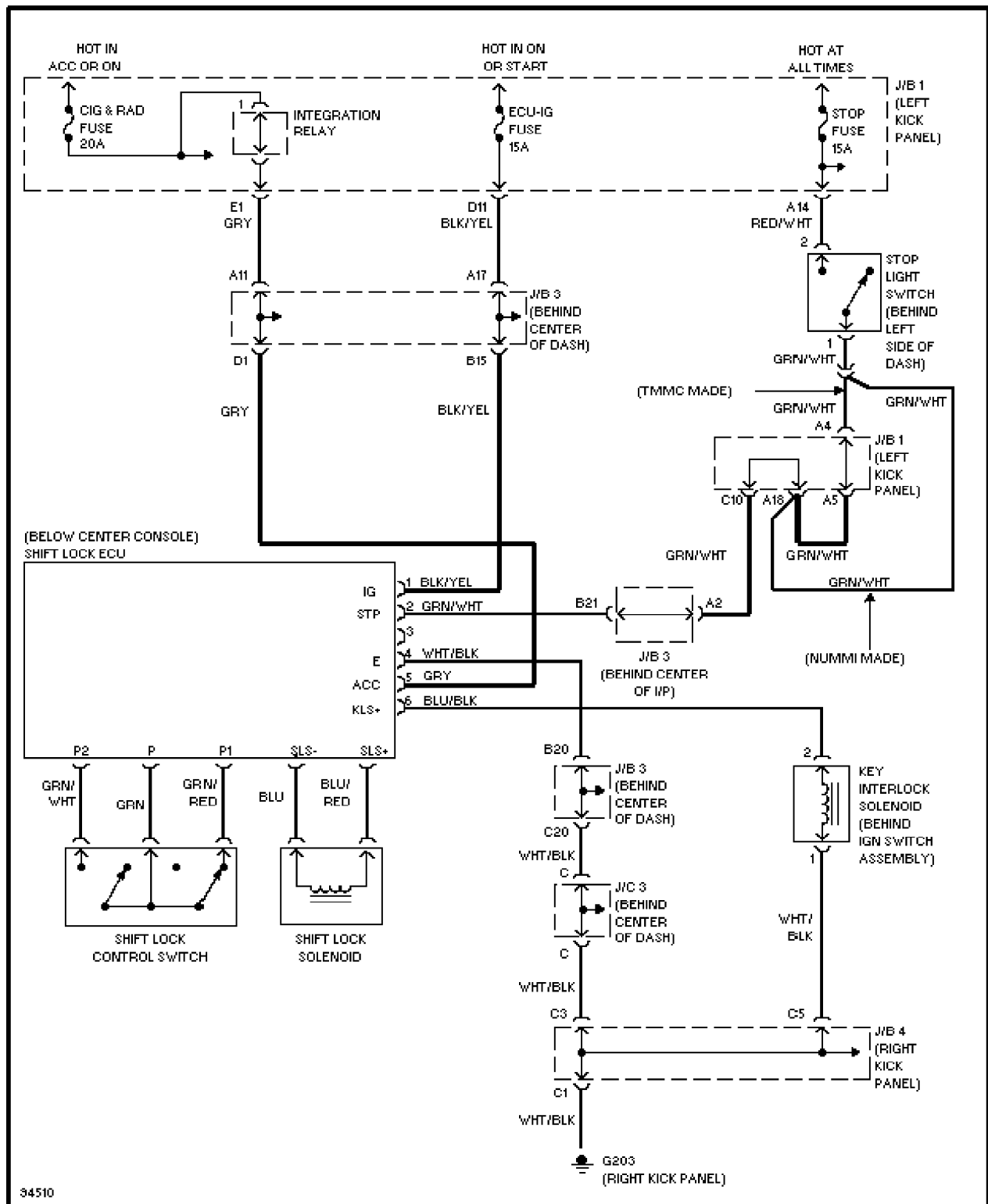


Fig. 22: Shift Interlock System Wiring Diagram (1997 Corolla)

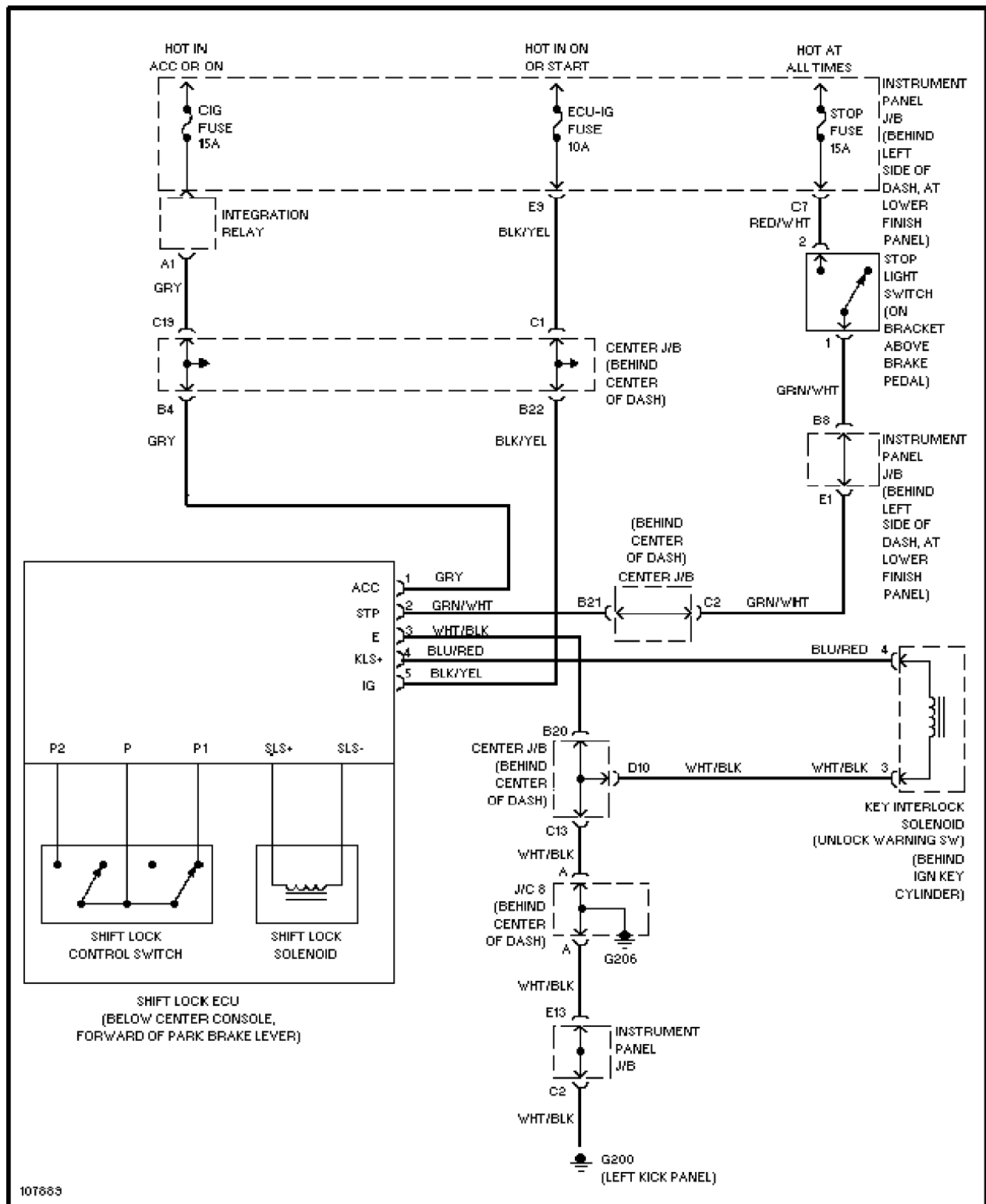


Fig. 23: Shift Interlock System Wiring Diagram (1998 Corolla)

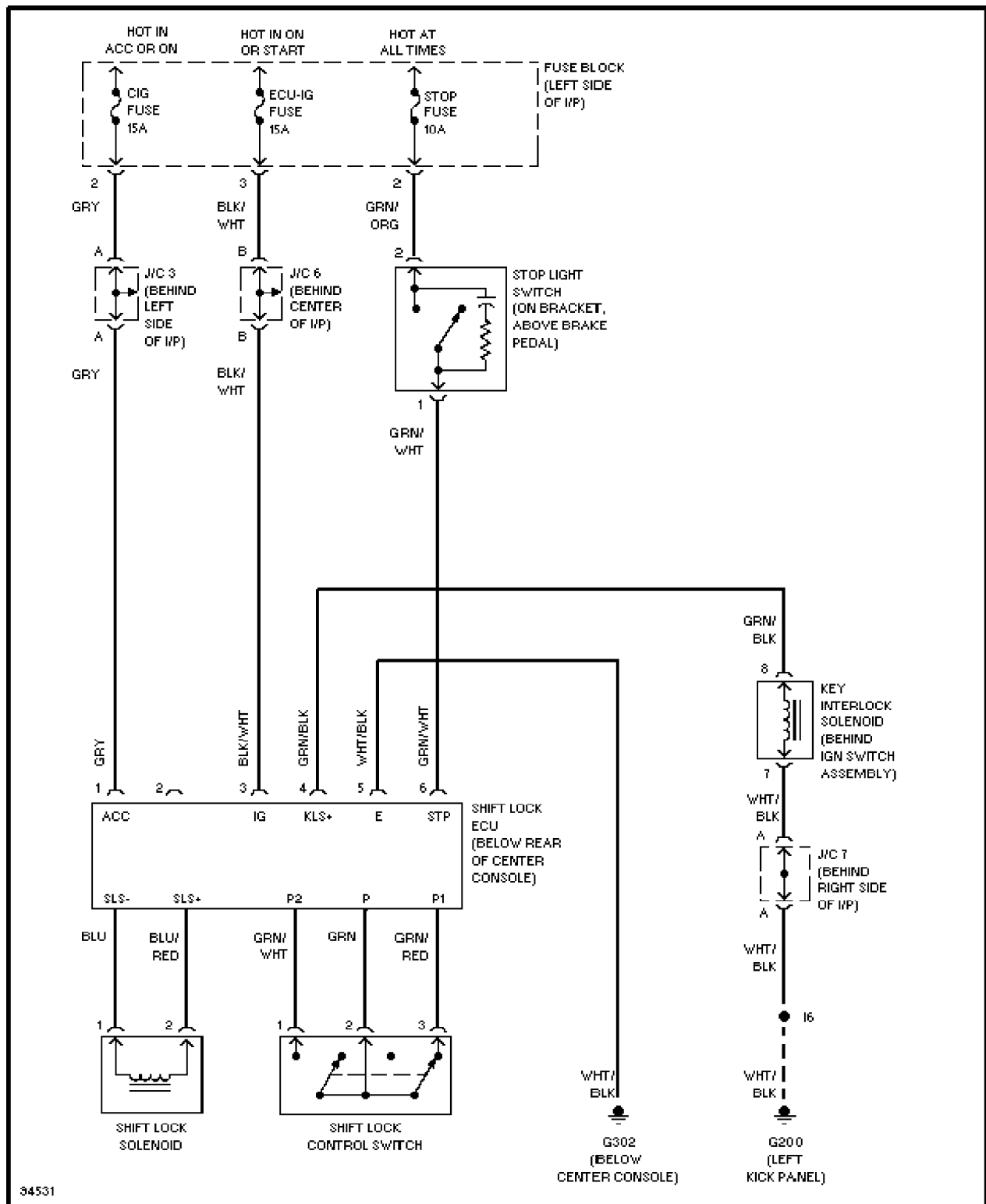


Fig. 24: Shift Interlock System Wiring Diagram (1997 Land Cruiser)

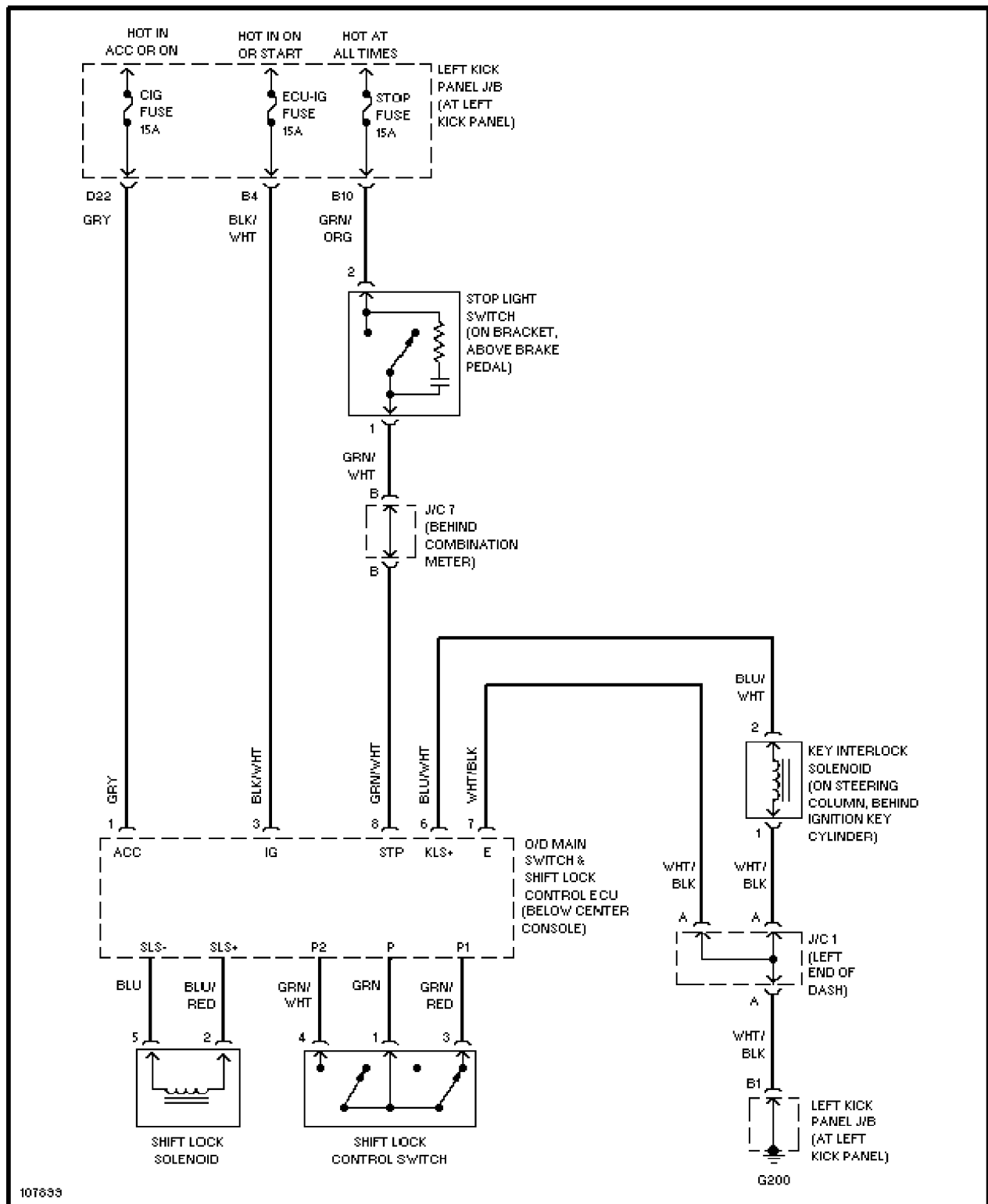
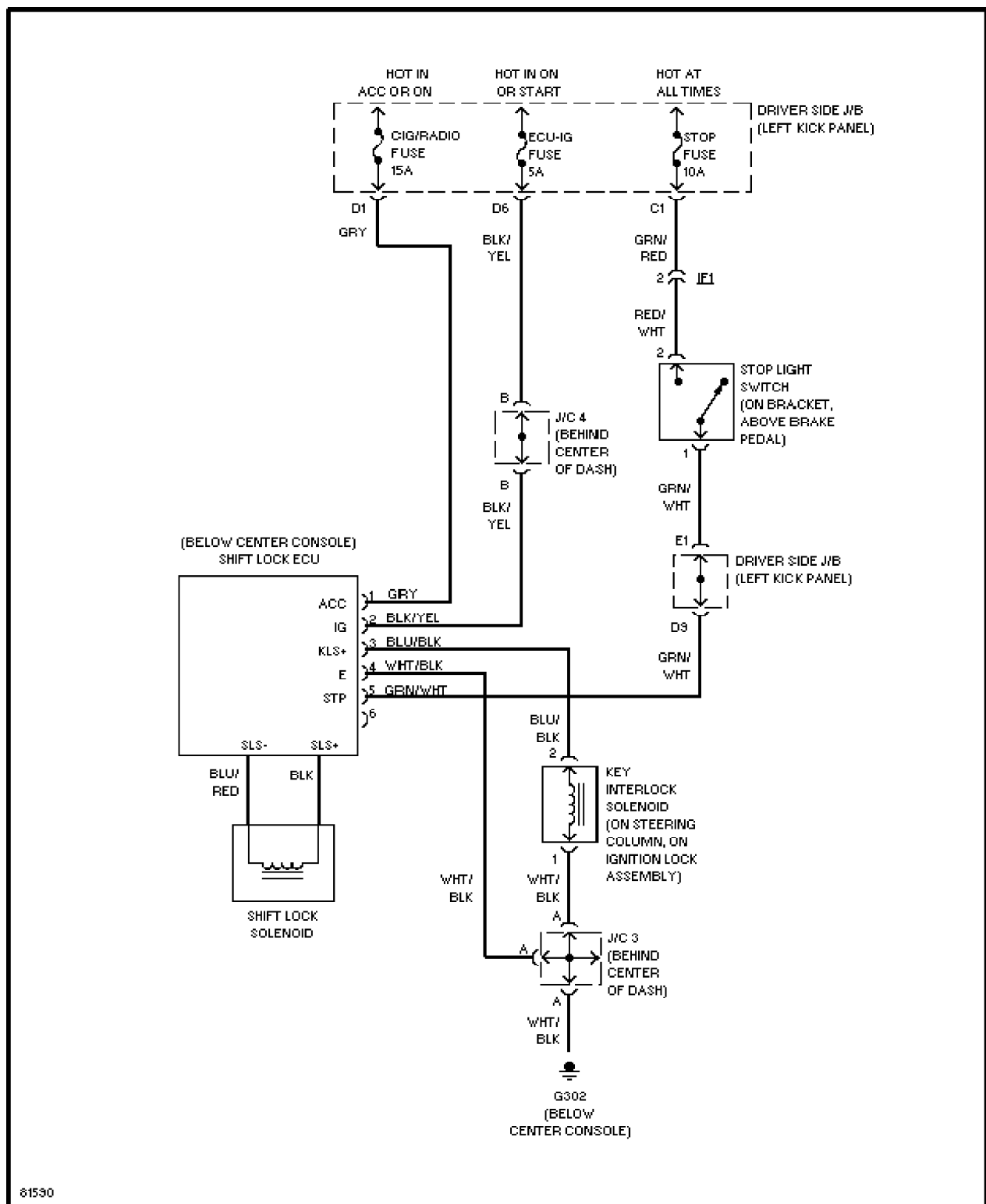
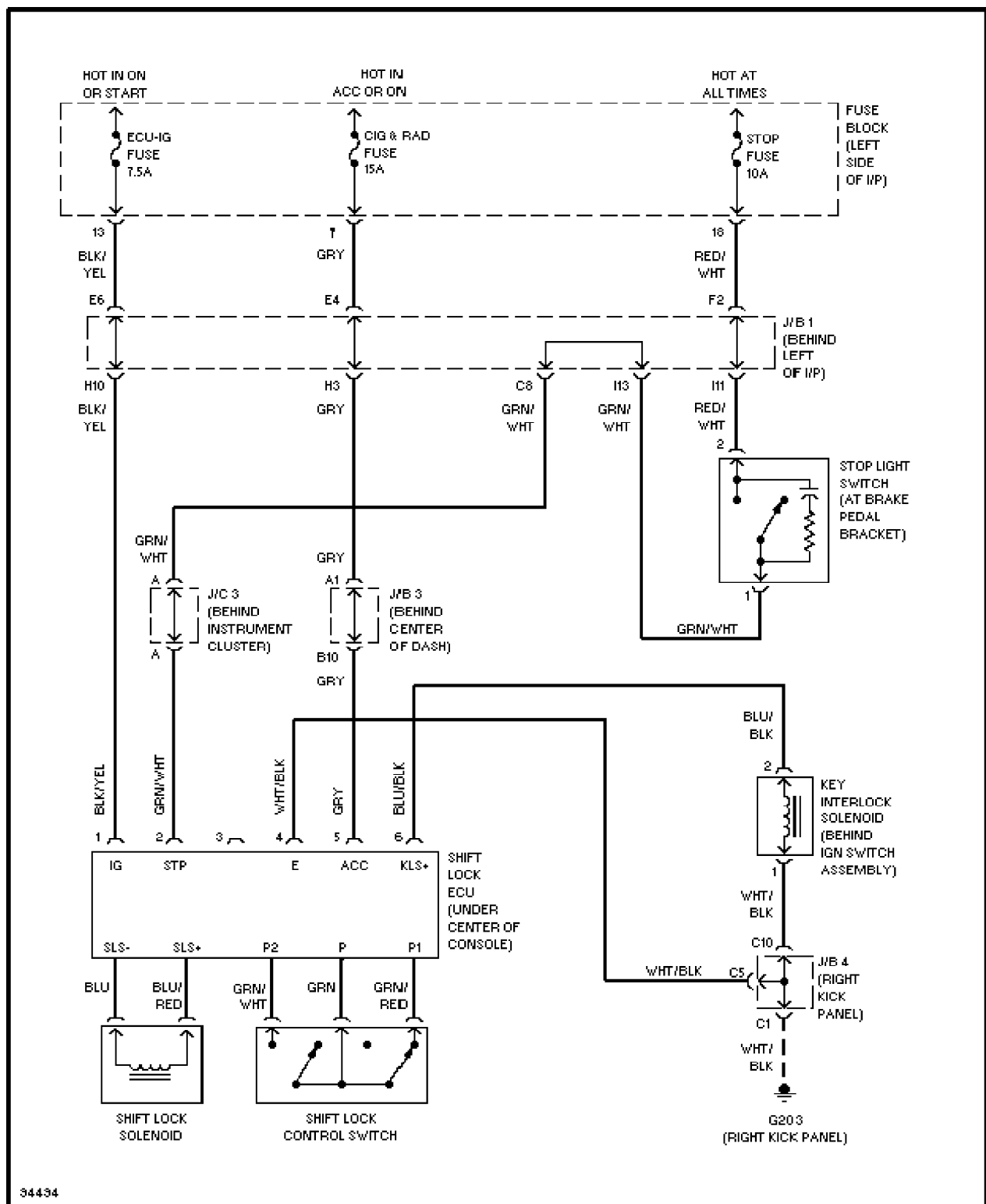


Fig. 25: Shift Interlock System Wiring Diagram (1998 Land Cruiser)



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Fig. 26: Shift Interlock System Wiring Diagram (1997 Paseo)



34434

Fig. 27: Shift Interlock System Wiring Diagram (1997 RAV4)

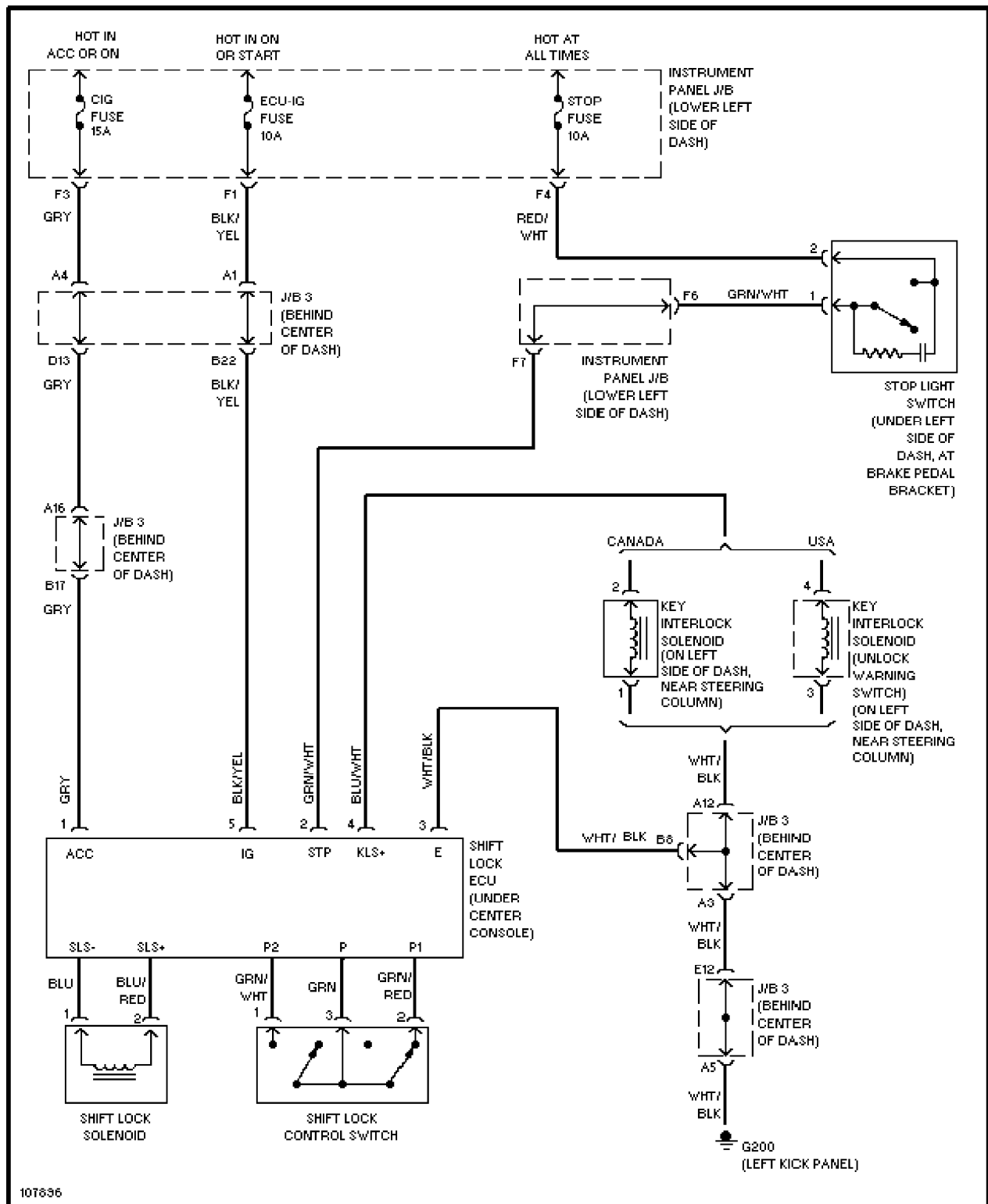


Fig. 28: Shift Interlock System Wiring Diagram (1998 RAV4)

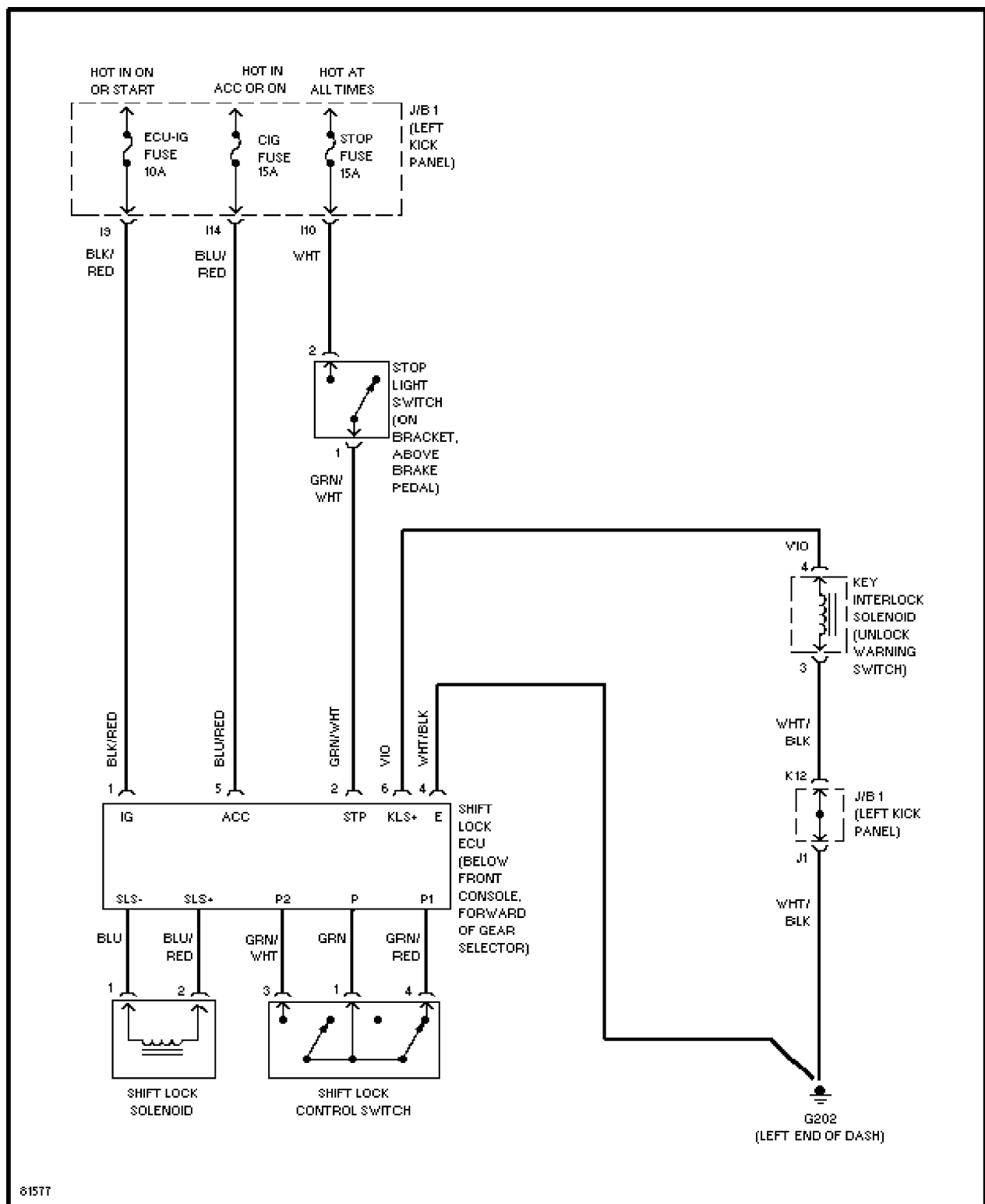


Fig. 29: Shift Interlock System Wiring Diagram (1997-98 Supra)

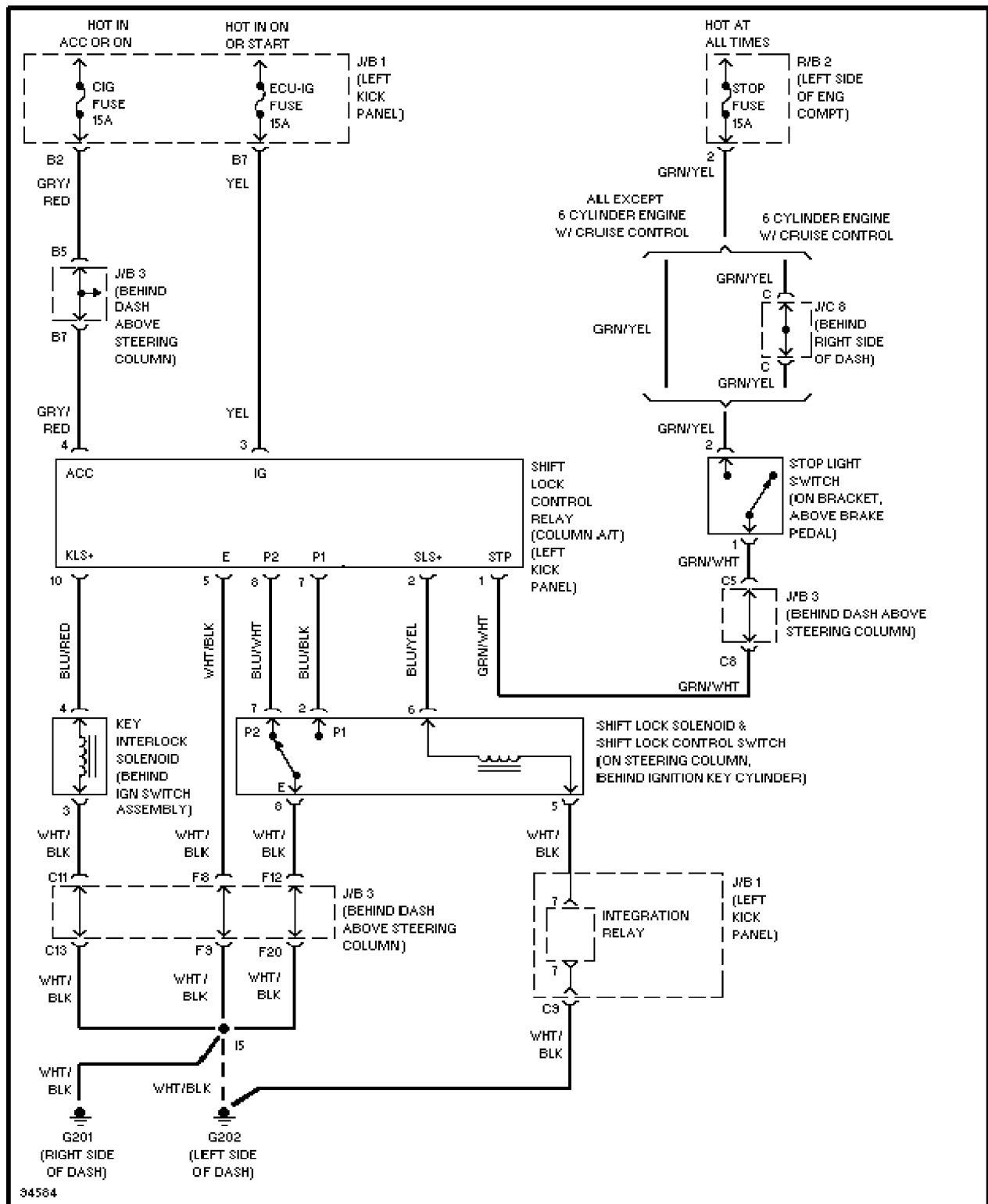


Fig. 30: Shift Interlock System Wiring Diagram (1997 Tacoma - With Column Shift)

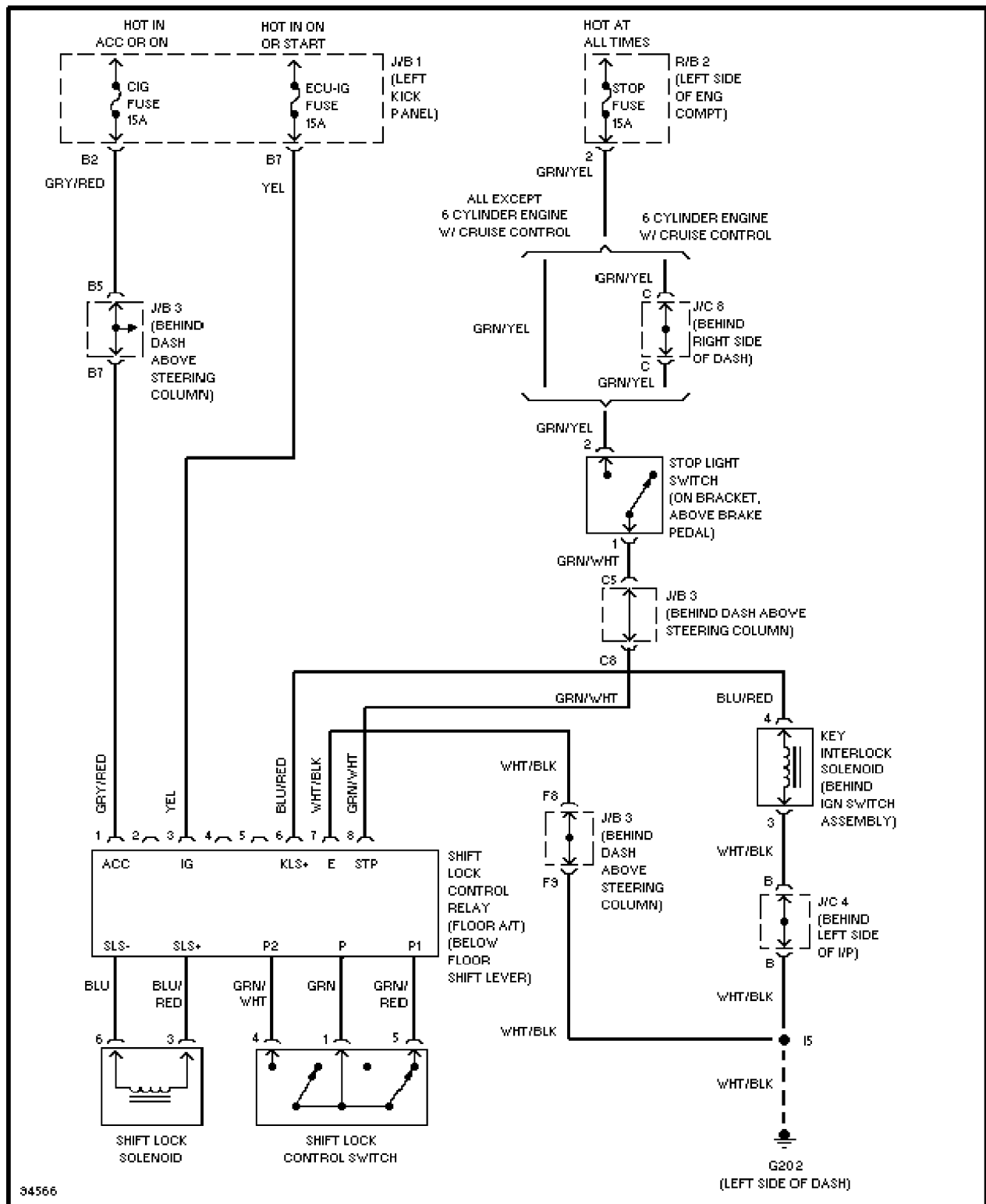


Fig. 31: Shift Interlock System Wiring Diagram (1997 Tacoma - With Floor Shift)

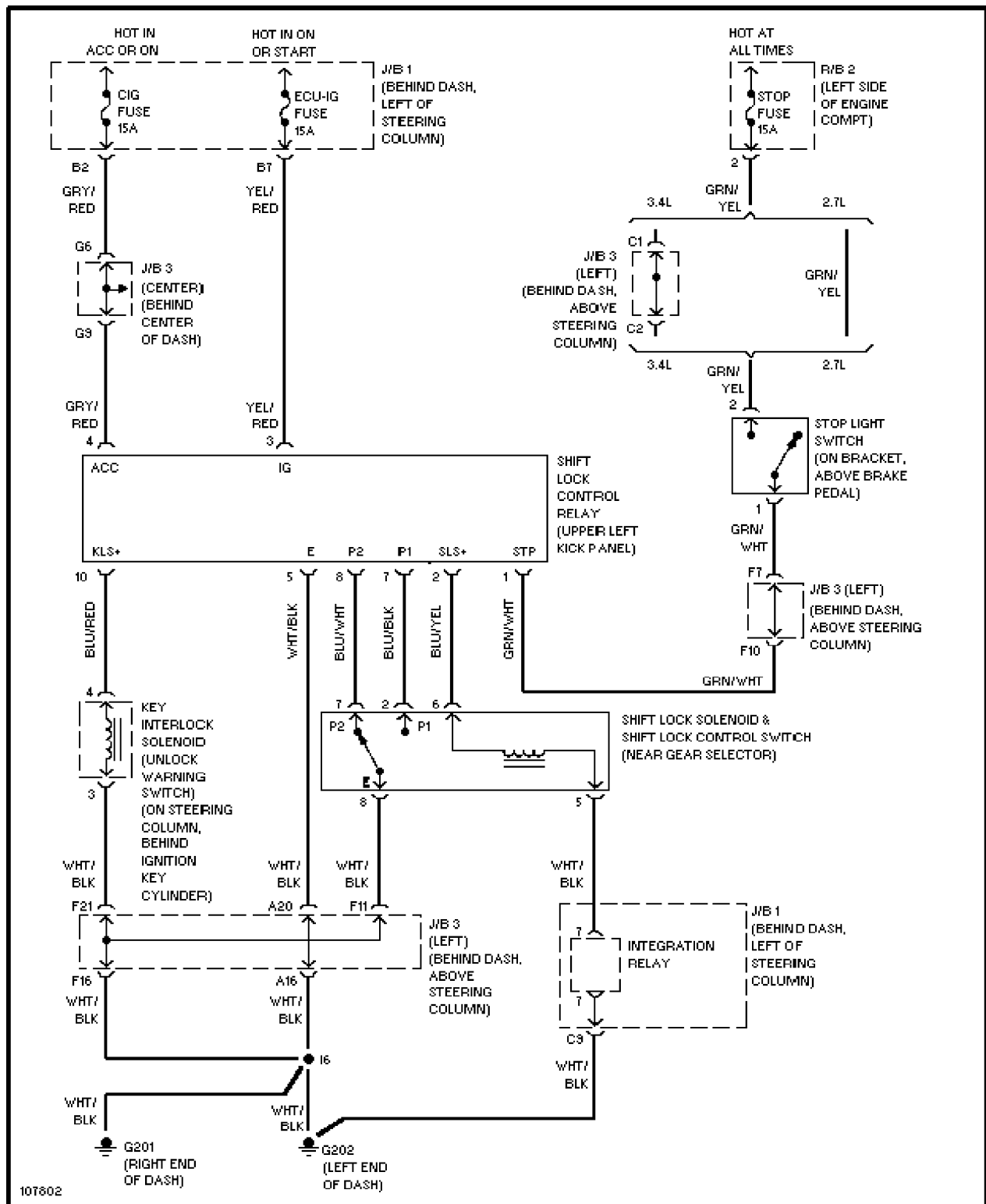


Fig. 32: Shift Interlock System Wiring Diagram (1998 Tacoma - With Column Shift)

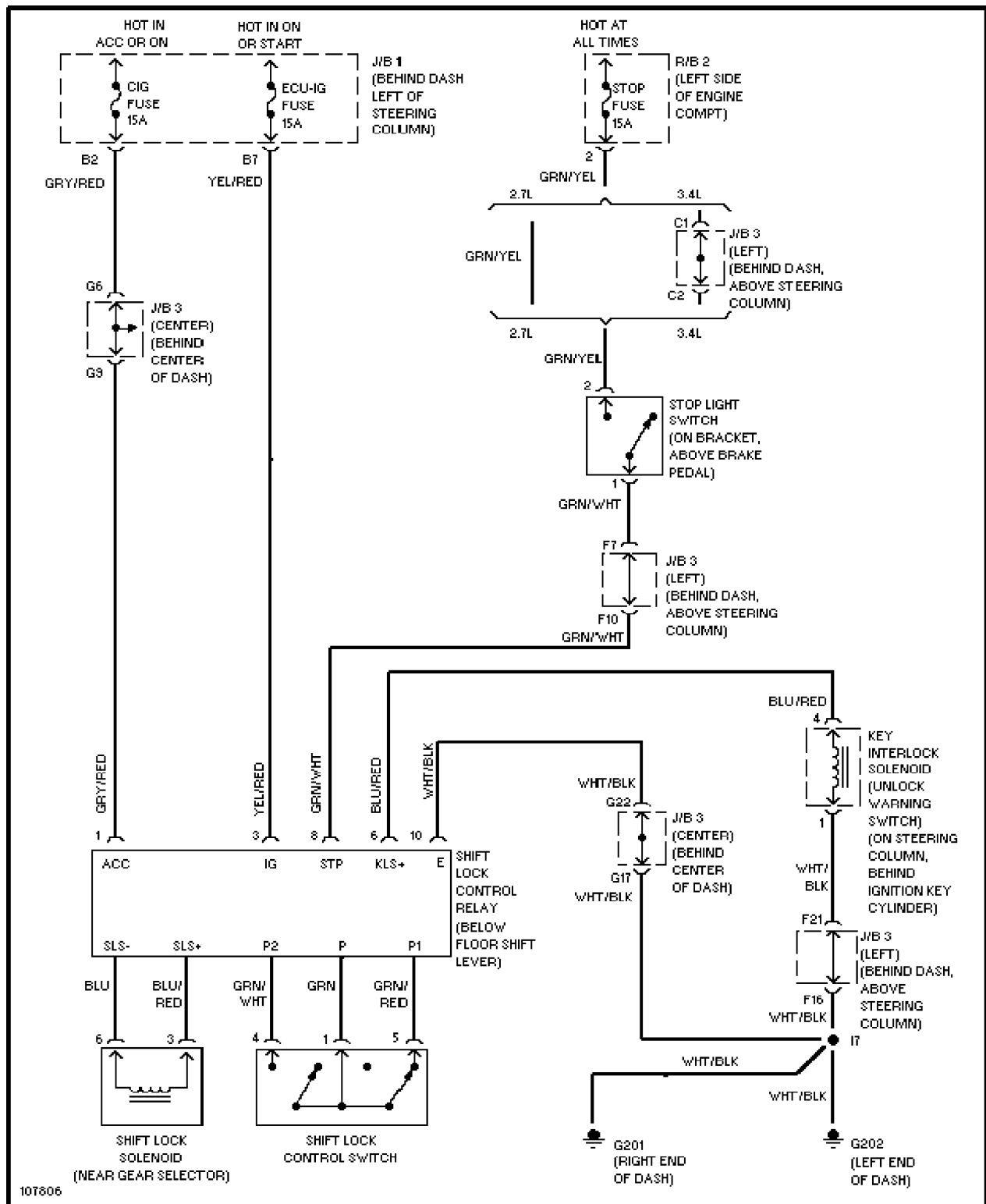


Fig. 33: Shift Interlock System Wiring Diagram (1998 Tacoma - With Floor Shift)

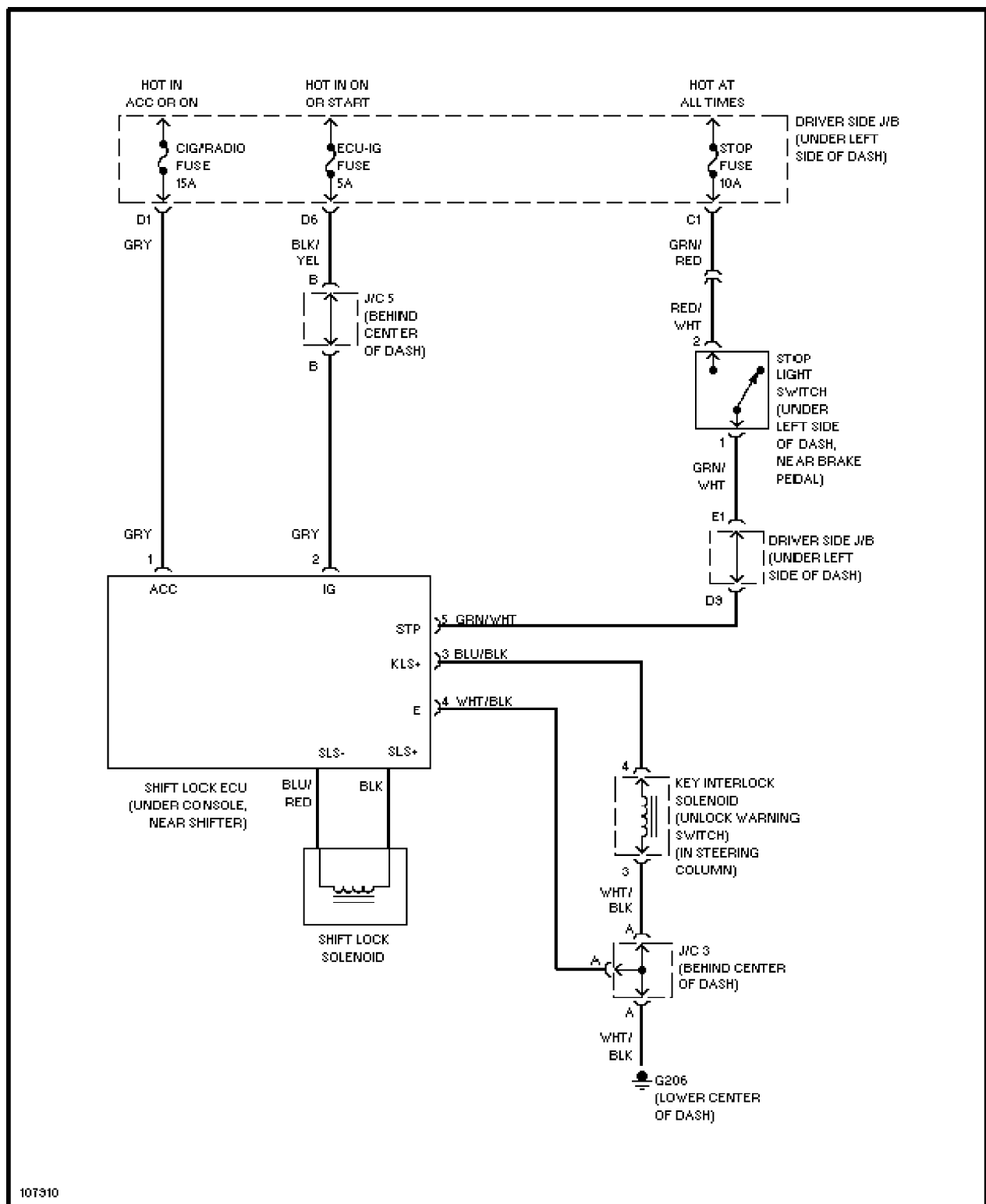
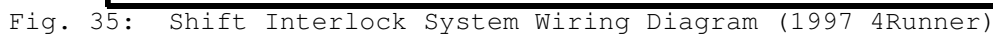


Fig. 34: Shift Interlock System Wiring Diagram (1997-98 Tercel)



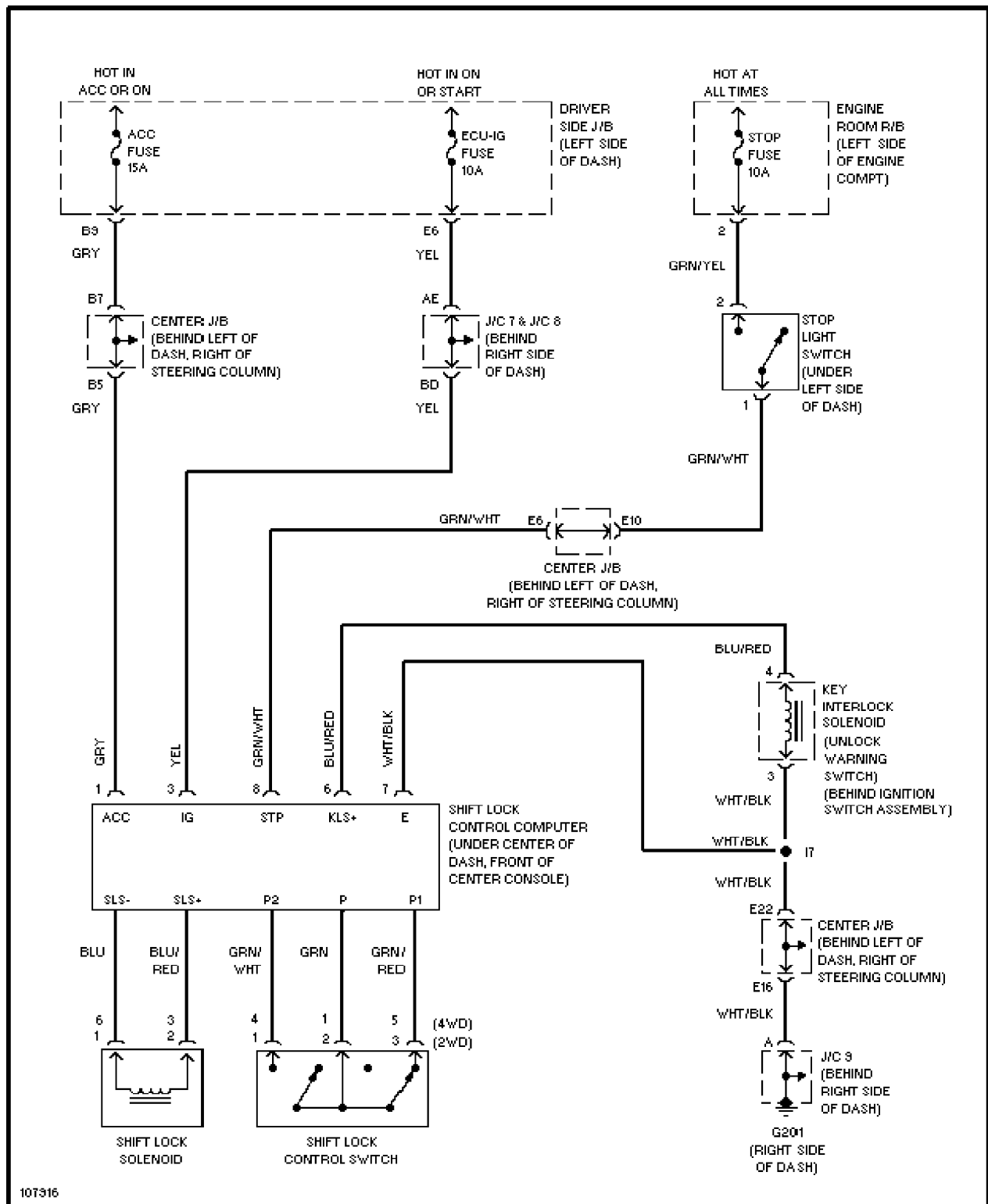


Fig. 36: Shift Interlock System Wiring Diagram (1998 4Runner)