CIRCUIT OPERATION

For 1996 models a vehicle alarm system is available as original equipment. Three different functions are integrated into the Theft Alarm System:

5. The main function of the system is to offer easy–to–use remote locking and unlocking of the vehicle (Central Locking).
6. Anti–Theft System function.
7. Engine Immobilisation function.

NOTE: The Theft Alarm ECU (Z163) is fully programmable to meet different market requirements; therefore some of features listed will vary dependent on vehicle model or territory.

ALARM COMPONENTS

1. Theft Alarm Unit (Z163)
2. Handset Transmitter
3. Lock Actuators (M114, M122, M117, M125, M132)
4. Alarm Bonnet Switch (X212) (Not on all vehicles!)
5. Right Front Door Key Switch (X202)
6. Door Switches (X150, X118, X142, X163)
7. Rear End Door Switch (X265)
8. Direction Indicator Lamps (Hazard Lamps)
9. Horns (K128, K134)
10. Theft Alarm LED (Included in the Instrument Cluster (Z142))

CENTRAL LOCKING FUNCTION

Central Locking is controlled by the Theft Alarm Unit (Z163) and may be locked by using the driver's door key, sill button(s) or handset. The vehicle may be unlocked by using the handset or EKA code.

NOTE: The central door locking system will shut down for a period of approximately 15 seconds if the Theft Alarm Unit (Z163) determines that the Lock Actuators could be overheating.

ANTI–THEFT SYSTEM FUNCTION

The alarm system offers the following forms of protection:

- Perimetric protection against unauthorised opening of all doors, tailgate, and bonnet.
- Engine crank inhibit against unauthorised engine crank.
- Electronic engine immobilisation against unauthorised engine start.

NOTE: Perimetric protection is also triggered by the driver's door sill switch being lifted and the ignition switch being turned on.

Perimetric Protection

The system is perimetrically armed whenever the vehicle is central door locked using the driver's door key or the handset.

Theft Alarm Disarming

(Perimetric Mode)

The theft alarm can be disarmed with the handset or the driver's door key.

PARTIALLY ARMED MODE

The system will enter the “partially armed” mode whenever one of the following conditions is valid during theft alarm arming:

- a door, tailgate, or bonnet is open.

The engine will be immobilised and cranking is inhibited. The alarm will sound if ignition is turned to start position. The alarm will protect the following:

- If any of the doors caused partial arming, then opening the tailgate or bonnet will sound the alarm.
- If the tailgate caused partial arming, then the opening of any doors or the bonnet will sound the alarm.
- If the bonnet caused partial arming, then the opening of any doors or tailgate will sound the alarm. Volumetric protection is also armed.
- If two of the above cause partial arming, then the third is still protected.

If the doors, tailgate or bonnet is subsequently closed, after a 5 second delay, the system will fully arm.

ENGINE CRANKING

It is only possible to crank the engine when ignition is on and the alarm disabled.

HORNS (K128, K134)

When an intrusion is detected the Horns (K128, K134) will sound and the hazard lamps flash (where territorial regulations allow) for 30 seconds . The alarm must be retriggered before the horns (K128, K134) will sound again.

INERTIA SWITCH

An inertia switch is incorporated in the Theft Alarm Unit (Z163). If ignition is on and the vehicle receives an impact sufficient to activate the inertia switch, the unit will signal to unlock central locking actuators and flash hazard lights. Central locking will remain disabled for a period of 0 to 5 minutes. To reset, turn ignition off and then on after the time period has elapsed.

ENGINE IMMOBILISATION FUNCTION

The engine will be immobilised whenever the theft alarm is armed.

The vehicle may only be mobilised by using the handset or the driver’s door key.

The electronic engine immobilisation is controlled jointly by the engine management system’s Electronic Control Module (ECM) (Z132) and the Theft Alarm Unit (Z163).

When the Theft Alarm Unit (Z163) immobilises the vehicle, it sends a signal to the ECM. The ECM then immobilises the engine management system until a mobilise signal is received from the Theft Alarm Unit (Z163).

VEHICLE STATUS INDICATION

Vehicle status is indicated by up to three devices:

1. Hazard lamps
2. Theft Alarm LED (contained in the Instrument Cluster (Z142))
3. Horns (K128, K134)

Hazard Lamps

When the vehicle arms in either mode, the hazard lamps will flash up to three times when the alarm is armed and one time when disarmed.

Theft Alarm LED

- Slow Flash: Immobilised or immobilised and armed
- Rapid Flash: Volumetrically armed
- Intermittent Rapid Flash: Perimetrically armed
- No Flash for 10 Seconds: Mislock
- Continuous: Driver's door open (or ignition on) and immobilised

NOTE: The Theft Alarm LED may also be used to indicate other conditions.

HANDSET TRANSMITTER RESYNCHRONISATION

The Theft Alarm Unit (Z163) will remain synchronised with the handset unless:

- The handset's batteries have been removed
- The vehicle's battery has been disconnected

NOTE: All handsets must be resynchronised when the vehicle's battery has been disconnected.

To resynchronise a handset the vehicle must be in an unlocked and disarmed state. Resynchronisation consists of 4 presses of either the lock or unlock button.

HANDSET LOW BATTERY WARNING

When the handset batteries are low, the Theft Alarm Unit (Z163) will enter the "low battery mode". The Theft Alarm LED will flash to indicate "low battery mode", and the hazard lamps will not flash when the alarm is disarmed.

POWER UP MODE

The alarm system always remembers the state it was left in when power was removed. If the alarm powers up in an alarmed state, it will enter a special "power up mode".

BUILT IN TEST PROCEDURE

The built in test procedure is accessed as follows:

1. Starting conditions: ignition off, doors unlocked, alarm disarmed, bonnet switch depressed.
2. Carry out instructions 3 to 7 within 2 seconds.
3. Release bonnet switch.
4. Switch ignition on.
5. Open driver's door.
6. Switch ignition off.
7. Switch ignition on.

If alarm is correctly accessed, the horns will sound briefly and the Theft Alarm LED and hazard lamps will flash. The following checks can then be made:

Perimetric Testing

1. Open and close driver's door or tailgate – Theft Alarm LED and Hazard lamps will flash.
2. Depress and release bonnet switch – Theft Alarm LED and Hazard lamps will flash.
3. Pull the driver's door sill button up – Theft alarm LED and Hazard lamps will flash.
4. Turn driver's door key lock cylinder – Theft Alarm LED and Hazard lamps will flash.

HANDSET INITIALISATION

The Theft Alarm Unit (Z163) must be programmed whenever handsets are replaced. The serial communications line is used to activate the "learn mode" of the Theft Alarm Unit (Z163). Then the handset(s) to be initialised must be made to transmit their coded data to the Theft Alarm Unit (Z163).

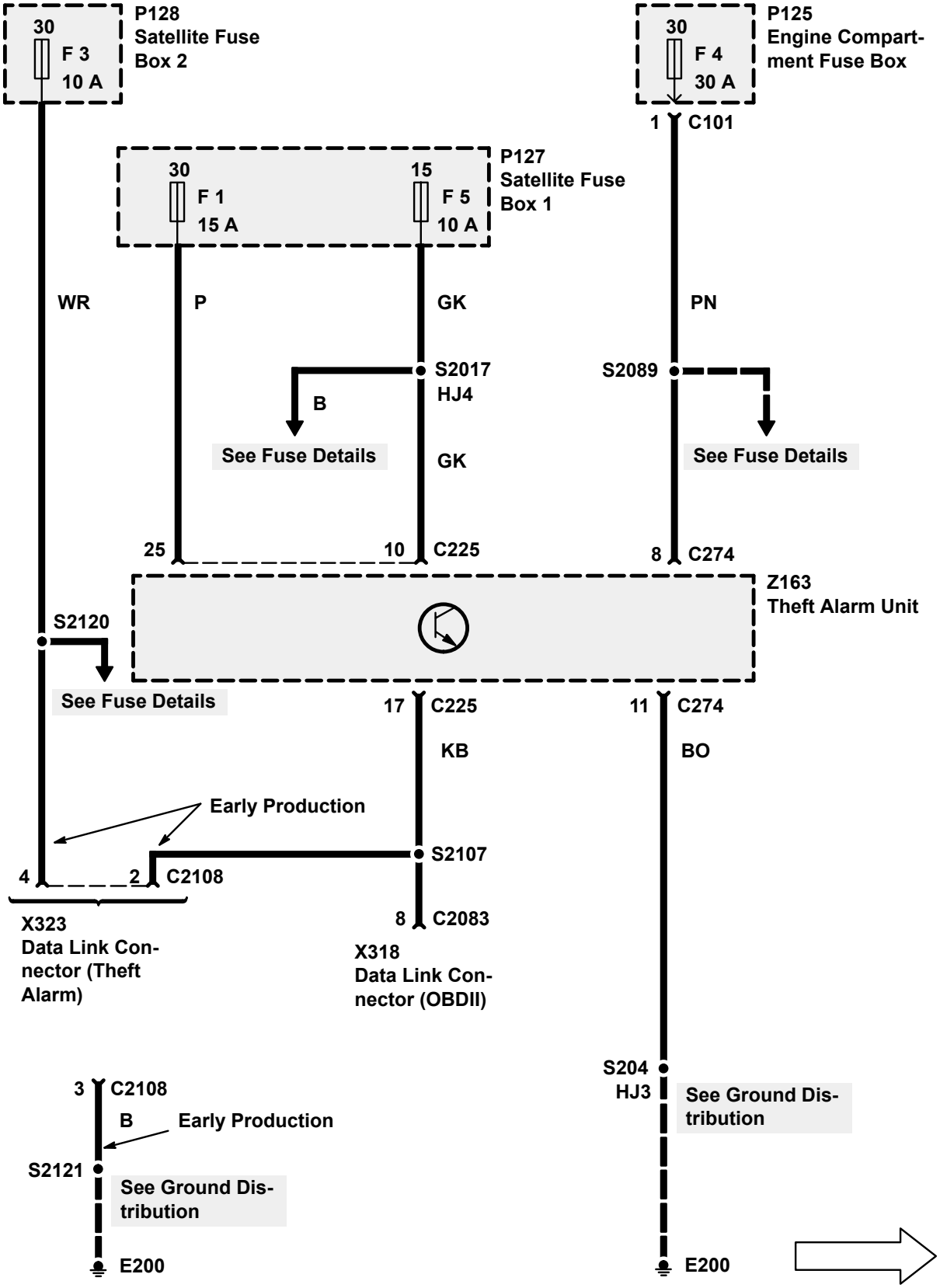
NOTE: All handset(s) must be programmed during the same learn mode period. It is not possible to simply add a handset to the Theft Alarm Unit (Z163) which has been programmed to other handsets.

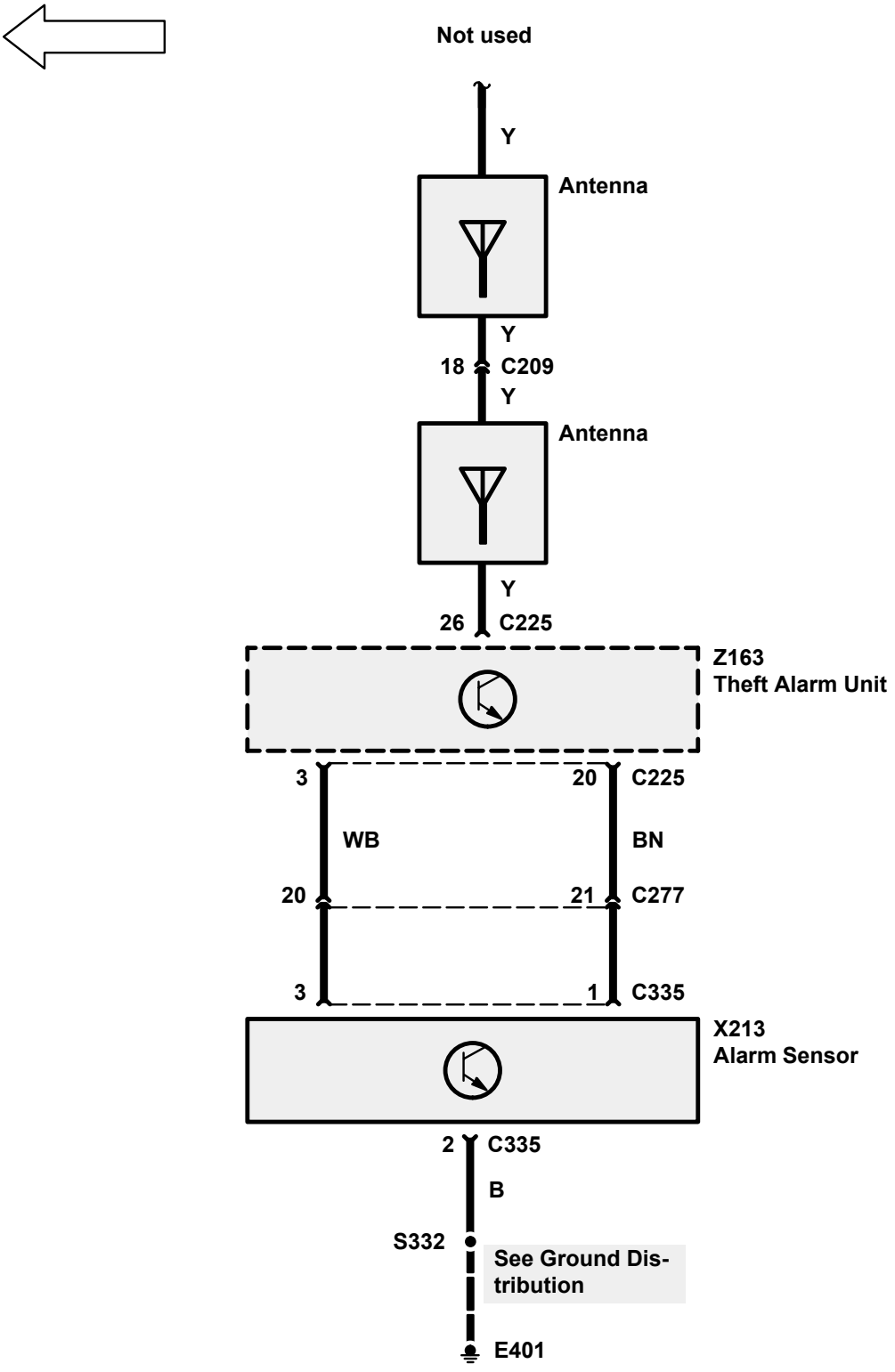
When the "learn mode" of the Theft Alarm Unit (Z163) has been accessed, the handset(s) are programmed using the following procedure:

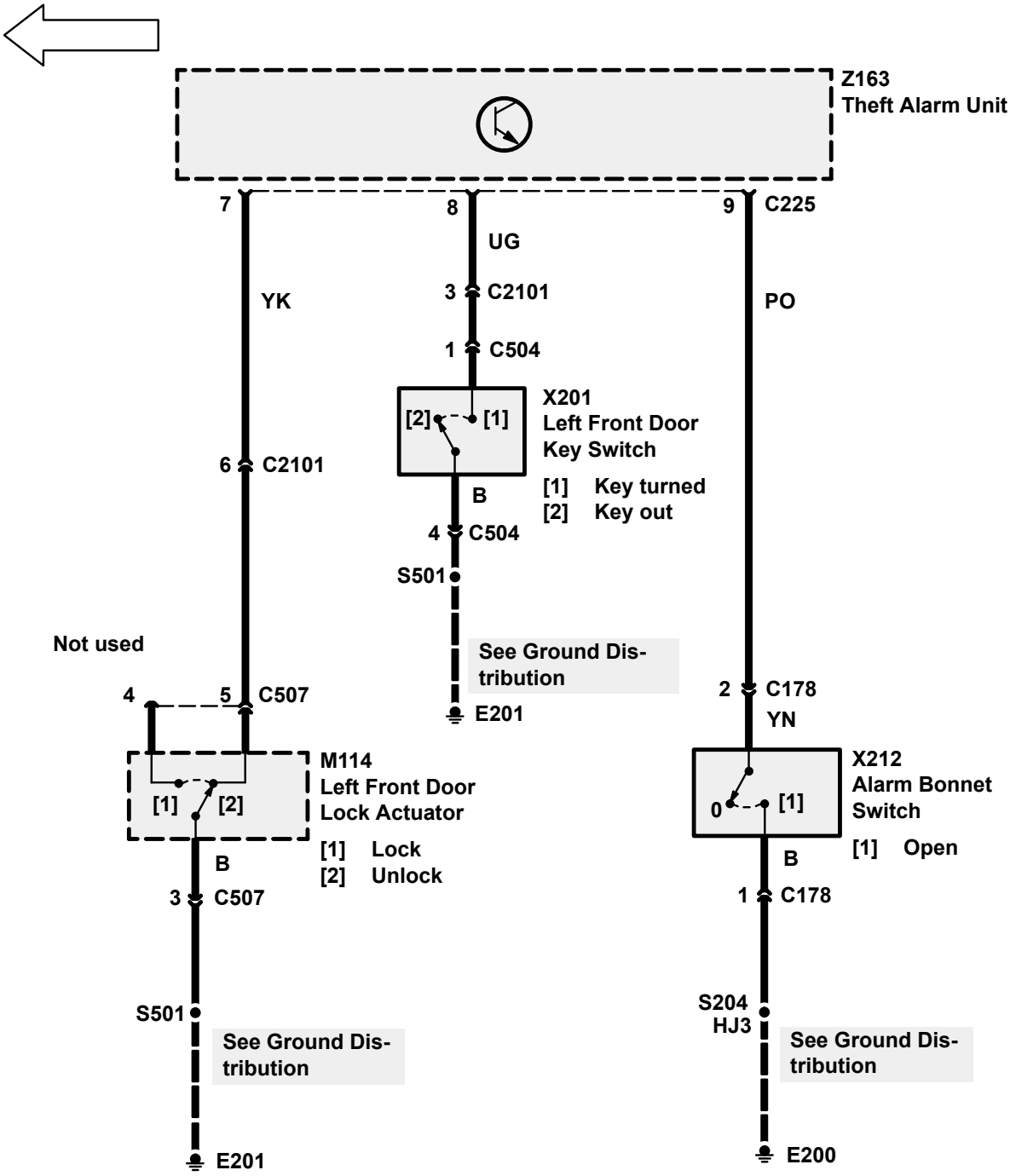
1. Starting conditions: Theft Alarm disarmed and vehicle mobilised.
2. Press the handset unlock button a minimum of 8 times.
3. If the handset has been correctly programmed, the horn will briefly sound and the hazard lamps will flash once.
4. The next handset, up to a maximum of 4, can now be programmed using the same procedure.

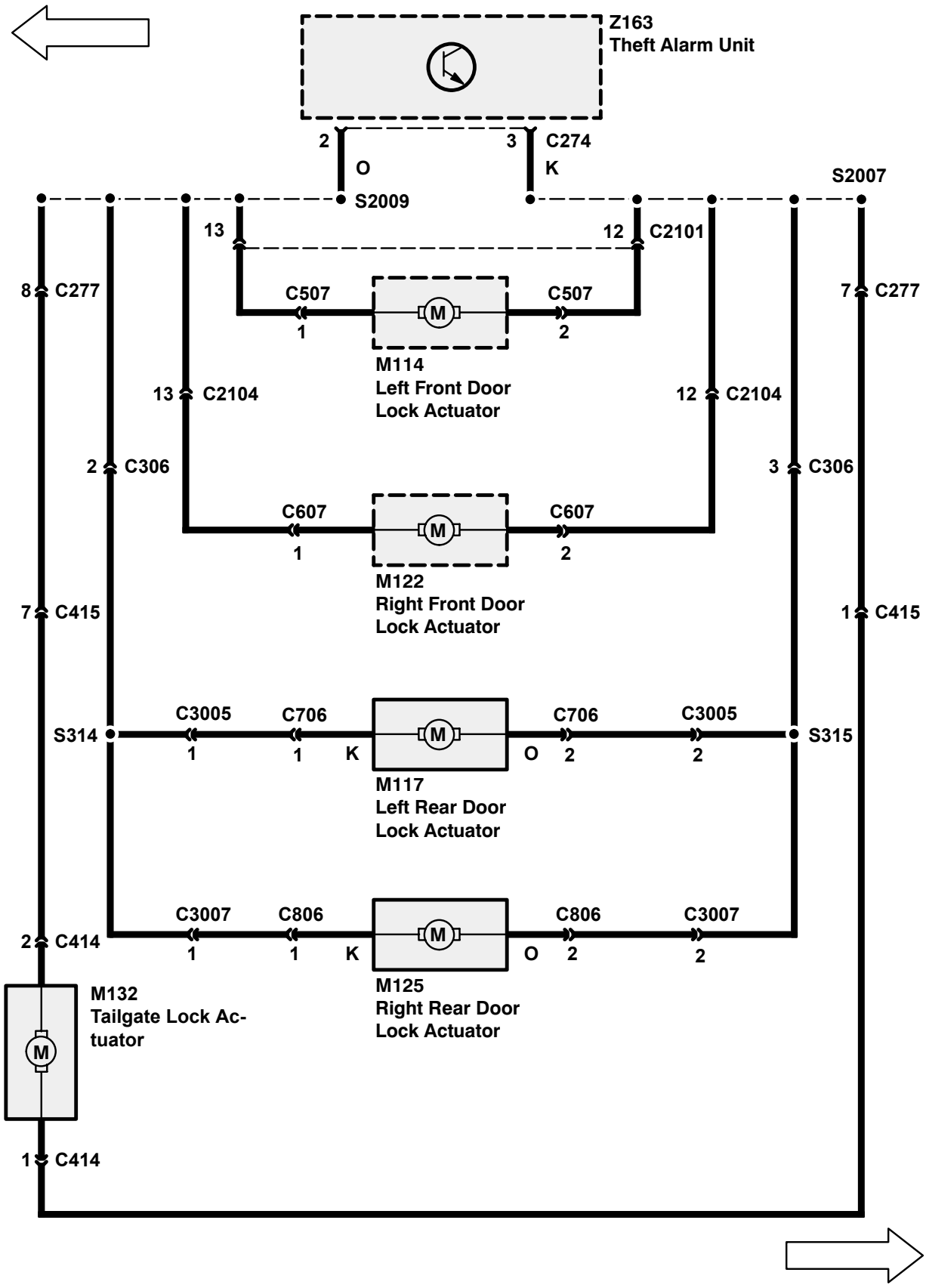
NOTE: It is very important that each handset be programmed separately. If the Theft Alarm Unit (Z163) receives key presses from two handsets, then neither handset will be programmed.

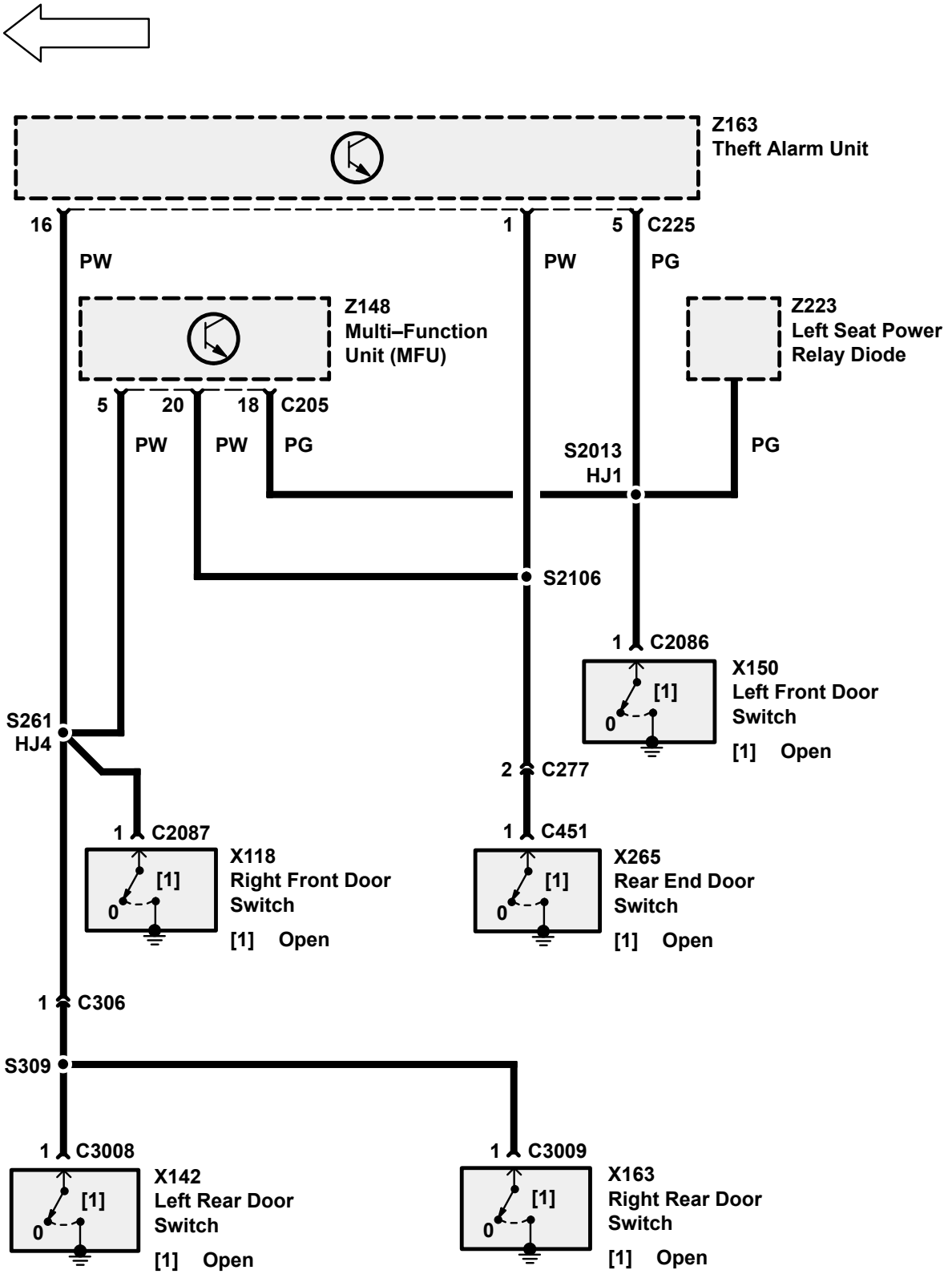
The "learn mode" is terminated using the serial communications line. If the Theft Alarm Unit (Z163) would not accept reprogramming, the original handset(s) will still function.

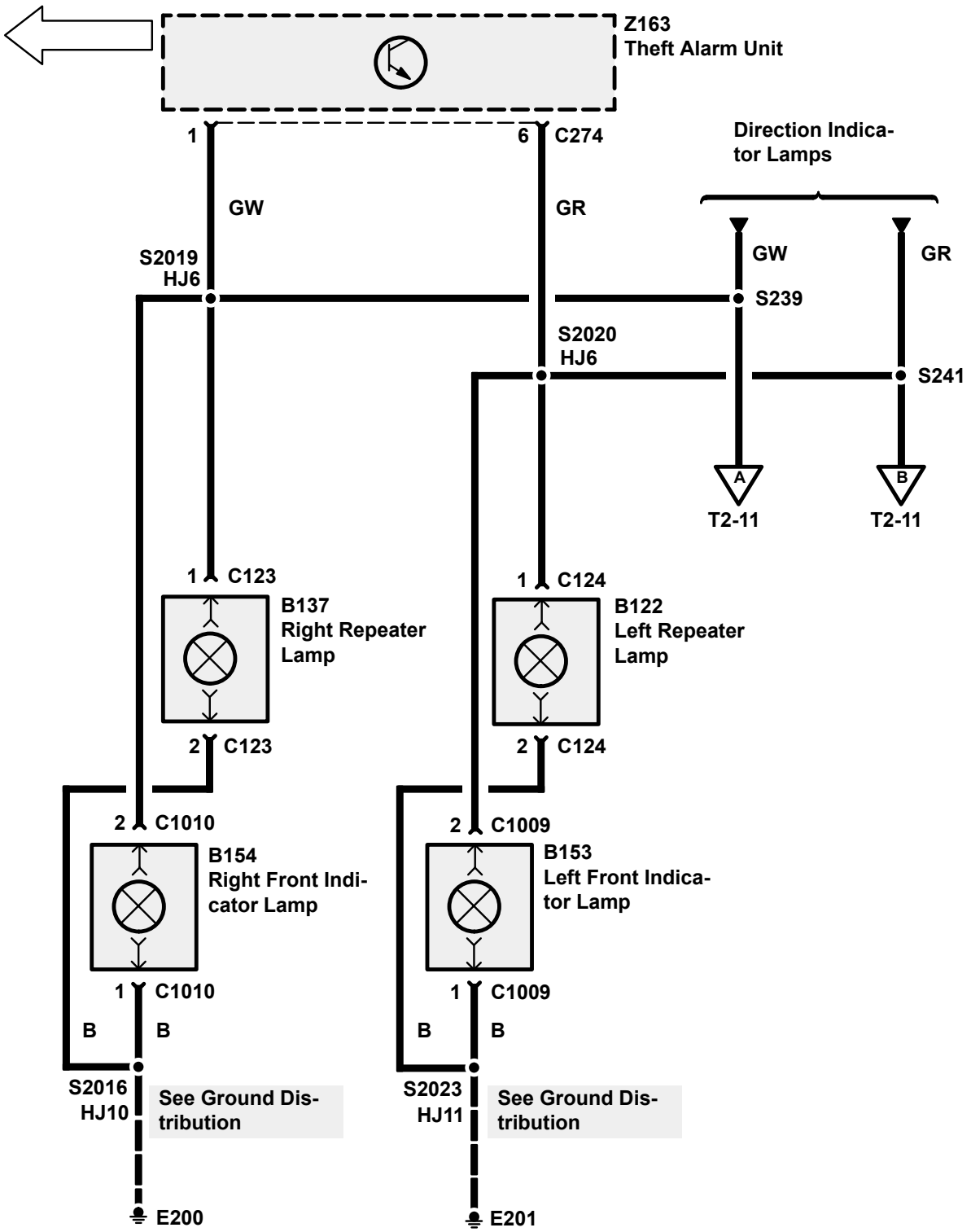

P128
Satellite Fuse Box 2
30
F 3
10 A
P125
Engine Compartment Fuse Box
30
F 4
30 A
1 C101
P127
Satellite Fuse Box 1
30
F 1
15 A
15
F 5
10 A
WR
P
GK
PN
S2017
HJ4
B
See Fuse Details
GK
S2089
See Fuse Details
25
10 C225
8 C274
Z163
Theft Alarm Unit
S2120
See Fuse Details
17 C225
KB
11 C274
BO
Early Production
S2107
4
2 C2108
8 C2083
X323
Data Link Connector (Theft Alarm)
X318
Data Link Connector (OBDII)
S204
HJ3
See Ground Distribution
3 C2108
B
Early Production
S2121
See Ground Distribution
E200
E200

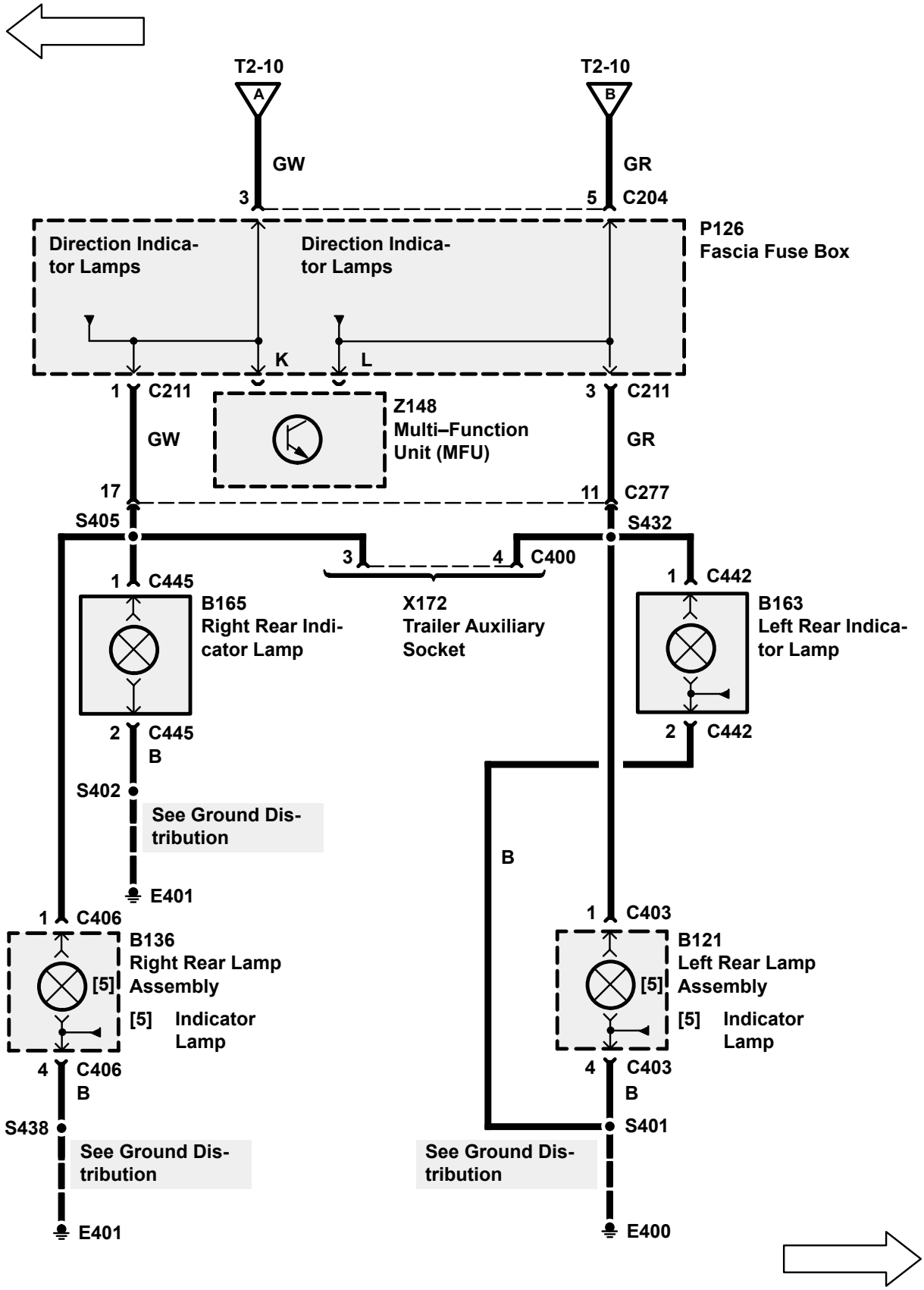

Not used
Y
Antenna
Y
18 C209
Y
Antenna
Y
26 C225
Z163
Theft Alarm Unit
3
20 C225
WB
BN
20
21 C277
3
1 C335
X213
Alarm Sensor
2 C335
B
S332
See Ground Distribution
E401

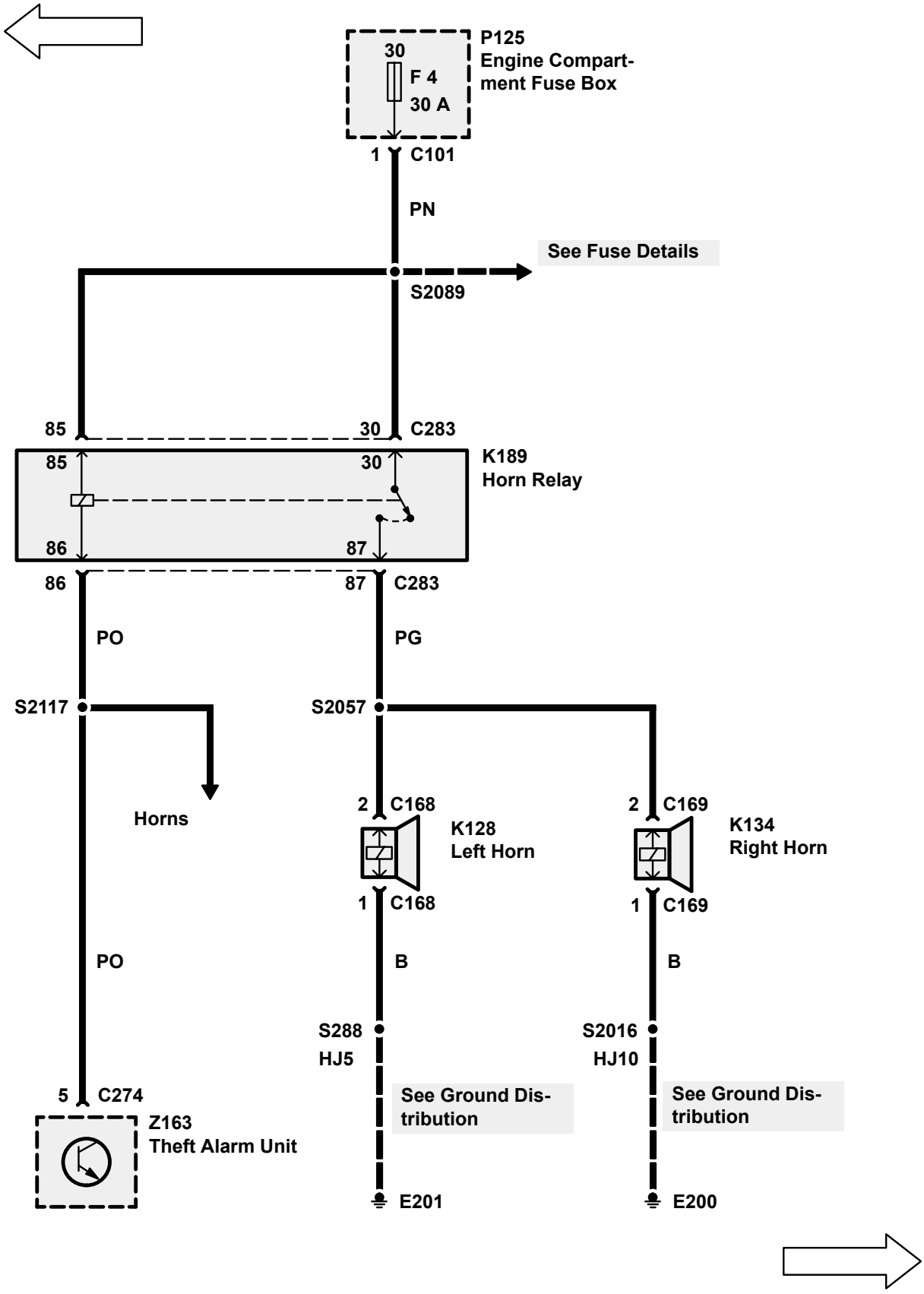

Z163
Theft Alarm Unit
7
8
9
C225
UG
YK
3
C2101
PO
1
C504
X201
Left Front Door
Key Switch
[2]
[1]
[1] Key turned
[2] Key out
6
C2101
B
4
C504
S501
See Ground Distribution
E201
Not used
4
5
C507
2
C178
YN
M114
Left Front Door
Lock Actuator
[1]
[2]
[1] Lock
[2] Unlock
X212
Alarm Bonnet
Switch
0
[1]
[1] Open
B
3
C507
1
C178
S501
See Ground Distribution
S204
HJ3
See Ground Distribution
E201
E200

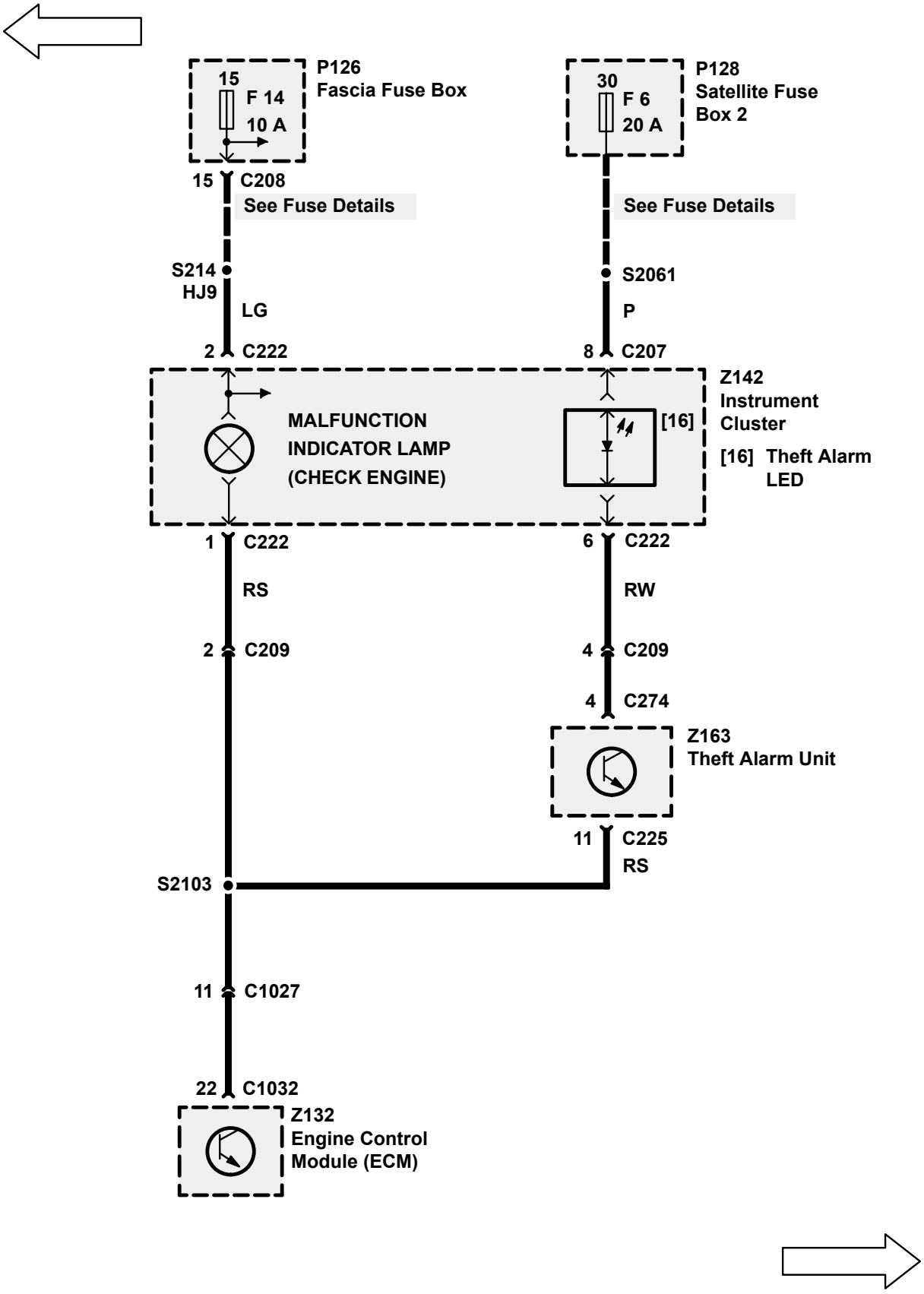

Z163
Theft Alarm Unit
2
O
3
C274
K
S2009
S2007
13
12
C2101
8
C277
C507
1
C507
2
7
C277
M114
Left Front Door
Lock Actuator
13
C2104
12
C2104
2
C306
3
C306
C607
1
C607
2
M122
Right Front Door
Lock Actuator
7
C415
1
C415
S314
C3005
1
C706
1
K
C706
O
2
C3005
2
S315
M117
Left Rear Door
Lock Actuator
C3007
1
C806
1
K
C806
O
2
C3007
2
2
C414
M125
Right Rear Door
Lock Actuator
M132
Tailgate Lock Actuator
1
C414

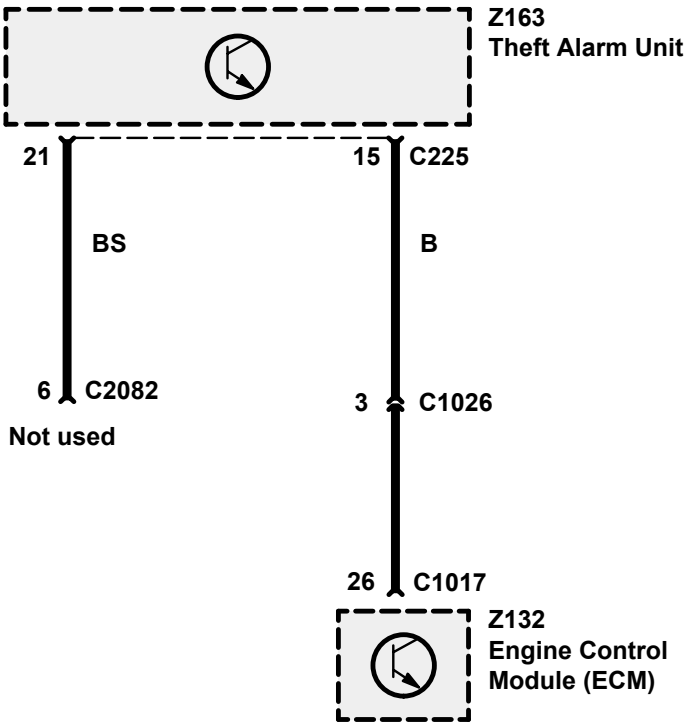

Z163
Theft Alarm Unit
16
PW
1
PW
5
C225
PG
Z148
Multi–Function
Unit (MFU)
Z223
Left Seat Power
Relay Diode
5
20
18
C205
PW
PW
PG
S2013
HJ1
PG
S2106
1
C2086
X150
Left Front Door
Switch
[1] Open
S261
HJ4
2
C277
1
C2087
X118
Right Front Door
Switch
[1] Open
1
C451
X265
Rear End Door
Switch
[1] Open
1
C306
S309
1
C3008
X142
Left Rear Door
Switch
[1] Open
1
C3009
X163
Right Rear Door
Switch
[1] Open

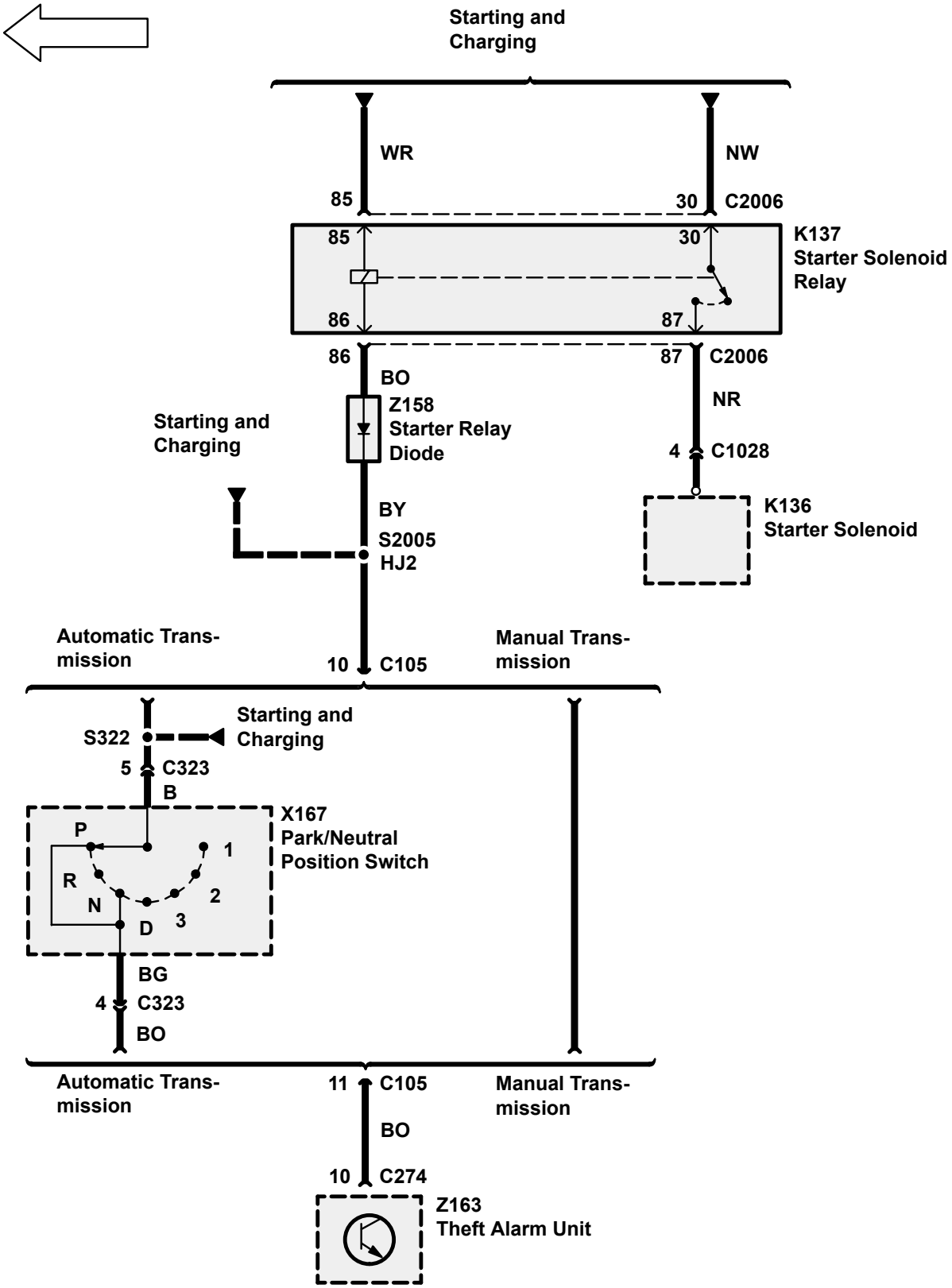

Z163
Theft Alarm Unit
1
6
C274
Direction Indicator Lamps
GW
GR
S2019
HJ6
GW
GR
S239
S2020
HJ6
S241
A
B
T2-11
T2-11
1
C123
B137
Right Repeater Lamp
2
C123
1
C124
B122
Left Repeater Lamp
2
C124
2
C1010
B154
Right Front Indicator Lamp
1
C1010
2
C1009
B153
Left Front Indicator Lamp
1
C1009
B
B
B
B
S2016
HJ10
See Ground Distribution
S2023
HJ11
See Ground Distribution
E200
E201


T2-10
A
GW
3
T2-10
B
GR
5
C204
P126
Fascia Fuse Box
Direction Indicator Lamps
Direction Indicator Lamps
K
L
1
C211
GW
3
C211
GR
Z148
Multi–Function Unit (MFU)
17
11
C277
S405
S432
3
4
C400
X172
Trailer Auxiliary Socket
1
C445
B165
Right Rear Indicator Lamp
2
C445
B
1
C442
B163
Left Rear Indicator Lamp
2
C442
S402
See Ground Distribution
E401
B
1
C406
B136
Right Rear Lamp Assembly
[5]
[5] Indicator Lamp
4
C406
B
S438
See Ground Distribution
E401
1
C403
B121
Left Rear Lamp Assembly
[5]
[5] Indicator Lamp
4
C403
B
S401
See Ground Distribution
E400


P125
Engine Compartment Fuse Box
30
F 4
30 A
1
C101
PN
See Fuse Details
S2089
85
30
C283
K189
Horn Relay
85
30
86
87
86
87
C283
PO
PG
S2117
S2057
Horns
2
C168
K128
Left Horn
1
C168
2
C169
K134
Right Horn
1
C169
PO
B
B
S288
HJ5
S2016
HJ10
See Ground Distribution
See Ground Distribution
5
C274
Z163
Theft Alarm Unit
E201
E200


P126
Fascia Fuse Box
15
F 14
10 A
P128
Satellite Fuse
Box 2
30
F 6
20 A
15 C208
See Fuse Details
See Fuse Details
S214
HJ9
LG
S2061
P
2 C222
8 C207
Z142
Instrument
Cluster
MALFUNCTION
INDICATOR LAMP
(CHECK ENGINE)
[16]
[16] Theft Alarm
LED
1 C222
6 C222
RS
RW
2 C209
4 C209
4 C274
Z163
Theft Alarm Unit
11 C225
RS
S2103
11 C1027
22 C1032
Z132
Engine Control
Module (ECM)


Z163
Theft Alarm Unit
21
15
C225
BS
B
6
C2082
Not used
3
C1026
26
C1017
Z132
Engine Control
Module (ECM)


Starting and Charging
WR
NW
85
30
C2006
85
30
K137
Starter Solenoid Relay
86
87
86
87
C2006
BO
Z158
Starter Relay Diode
NR
Starting and Charging
4
C1028
BY
S2005
HJ2
K136
Starter Solenoid
Automatic Transmission
10
C105
Manual Transmission
S322
Starting and Charging
5
C323
B
X167
Park/Neutral Position Switch
P
R
N
D
1
2
3
BG
4
C323
BO
Automatic Transmission
11
C105
Manual Transmission
BO
10
C274
Z163
Theft Alarm Unit