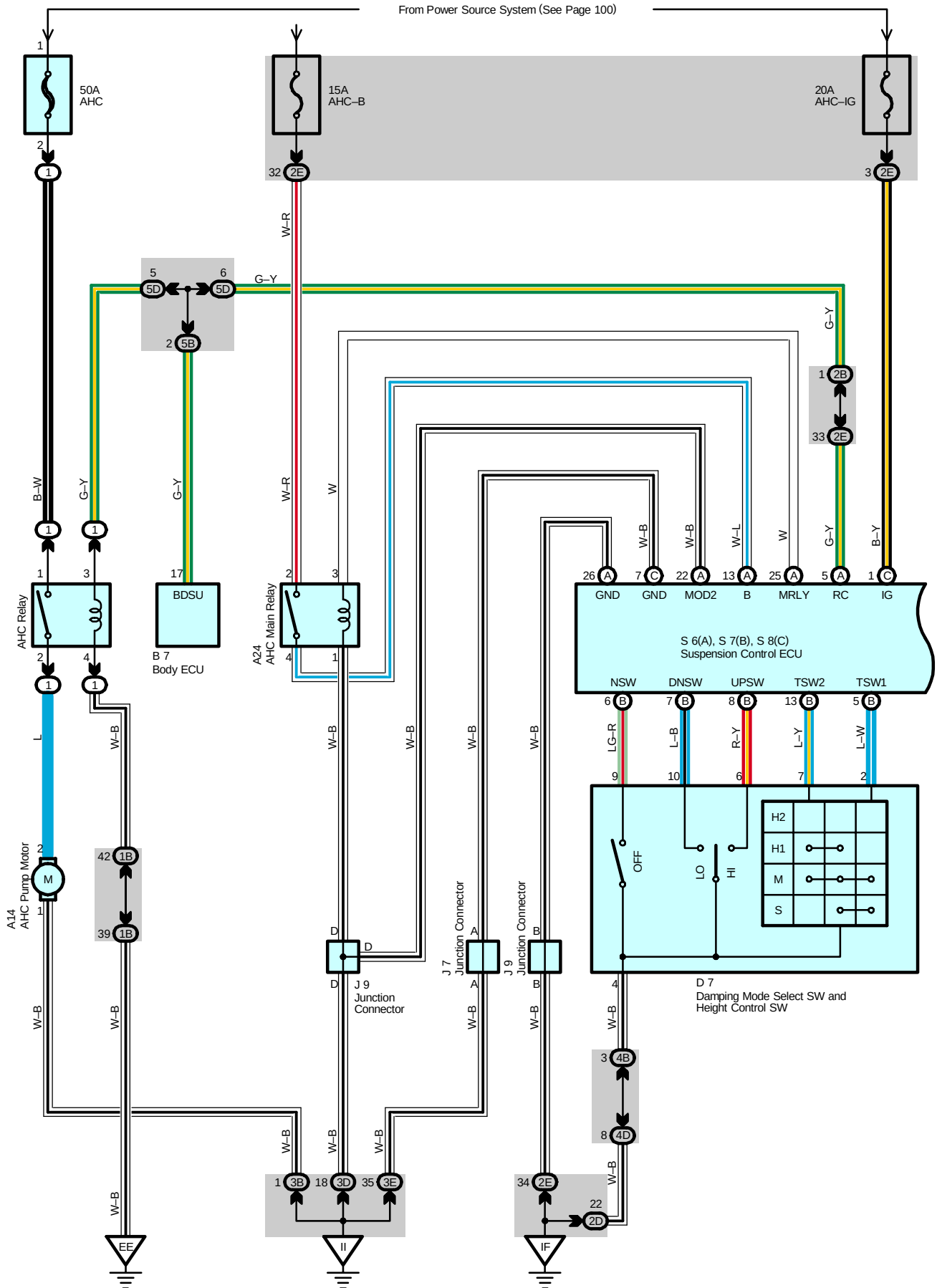
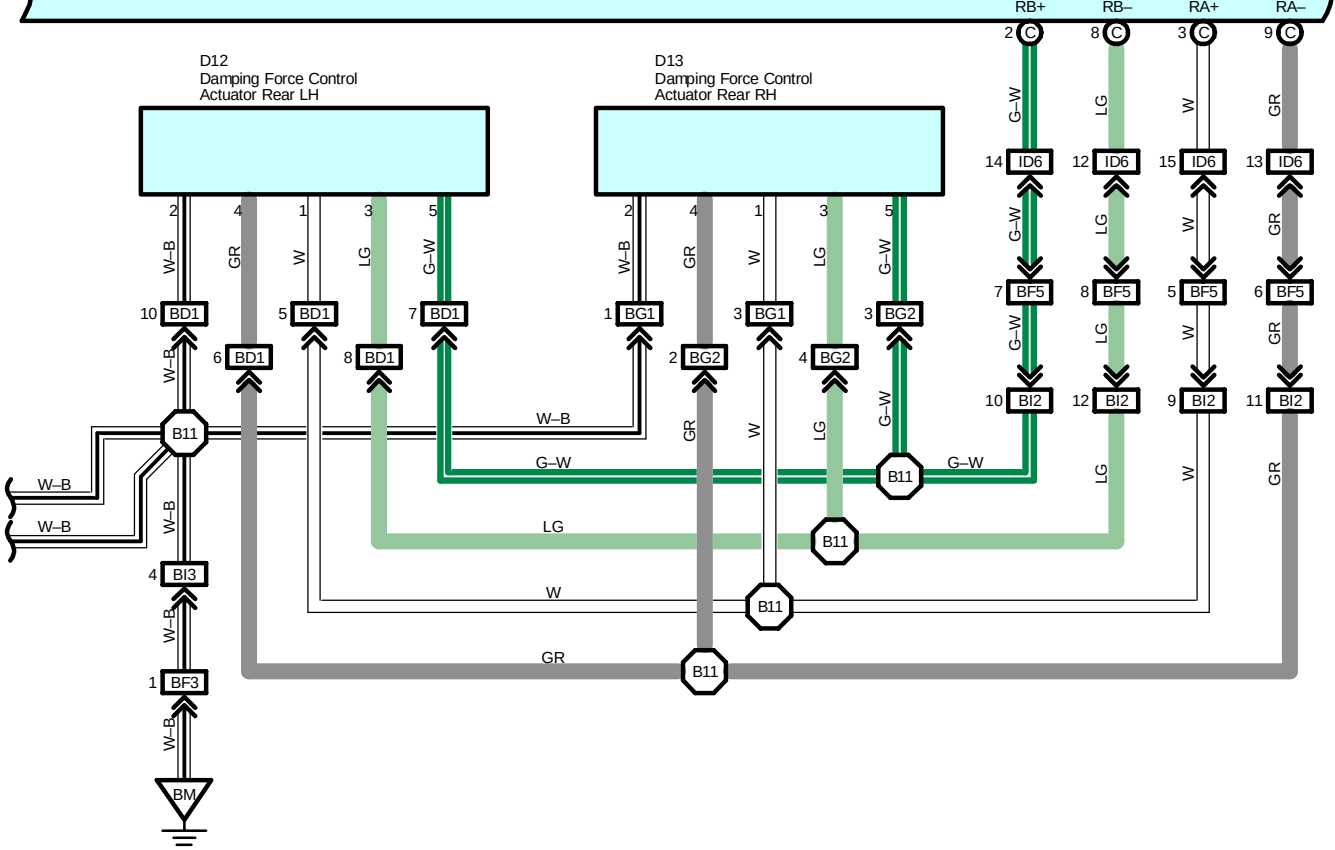
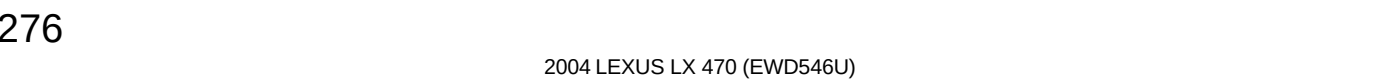


Active Height Control Suspension and Adaptive Variable Suspension







System Outline

This system is a combined system of the vehicle height adjustment system and the damping force control system.

1. Input Signals

- (1) Height control sensor signal
The vehicle height and the distance between the tire and body frame is detected, and is input to suspension control ECU TERMINALS SHFL, SHFR, SHRR.
- (2) Fluid pressure sensor signal
The hydraulic pressure is detected, and the signal is input to suspension control ECU TERMINAL PACC.
- (3) Temperature sensor signal
The fluid temperature is detected, and the signal is input to suspension control ECU TERMINAL TOIL.
- (4) Height control SW signal
Detects the changes in the target vehicle height, and the signal is input to suspension control ECU TERMINALS DNSW, UPSW.
Detects the changes in the vehicle height control, and the signal is input to suspension control ECU TERMINAL NSW.
- (5) Differential lock detection SW signal
Detects the differential lock, and the signal is input to suspension control ECU TERMINAL EXI.
- (6) L detection SW signal
Detects the transfer gear L, and the signal is input to suspension control ECU TERMINAL L4SW.
- (7) Stop light SW signal
Detects the brake signal, and the signal is input to suspension control ECU TERMINAL STP.
- (8) Generator signal
Detects whether the engine is running or not, and the signal is input to suspension control ECU TERMINAL REG.
- (9) Door courtesy SW signal
Detects whether the door is open or closed, and the signal is input to suspension control ECU TERMINAL DOOR.
- (10) Steering sensor signal
Detects the rotation number of the steering wheel, and the signal is input to suspension control ECU TERMINAL SS2+, SS2-.
- (11) Wheel speed sensor signal
Detects the wheel speed signal, and the signal is input to suspension control ECU TERMINAL FLO, FRO.
- (12) Damping mode select SW signal
Detects whether the damping force mode is selected or not, and the signal is input to suspension control ECU TERMINALS TSW1, TSW2.
- (13) Intelligent tester communication signal
The intelligent tester requirement signal is sent to suspension control ECU TERMINAL SIL. The suspension control ECU also sends back a signal to the intelligent tester.

2. Vehicle Height Adjustment Function

- (1) Vehicle height adjustment by the SW
By operating the SW, the vehicle height can be adjusted to three heights, low, normal, and high.
- (2) Automatic leveling function
The vehicle height is maintained at a certain level when the load is within the specified load capacity.
- (3) Vehicle speed detection function
The height is adjusted automatically in response to the vehicle speed.
- (4) Extra HI mode
In L range with the height at HI mode, the height is raised 20 mm automatically, when the wheels are idling on a bumpy road surface.
- (5) Vehicle height control SW
When the vehicle height control SW is turned off, the vehicle height control functions could be inhibited.

Active Height Control Suspension and Adaptive Variable Suspension

3. Damping Force Control Function

(1) Bouncing control

The front and rear wheels are independently controlled electronically, to ensure adequate damping force at all times, in response to the bumpy road surface.

(2) Harshness control

The damping force is controlled not to increase when the road condition does not require damping force, to ensure smooth and comfortable riding.

(3) Unsprung vibration control

When unsprung sympathetic vibration is detected, the damping force is controlled so that it does not decrease below a certain level, to prevent such vibration and converge it, to ensure road holding.

(4) Vehicle speed sensing control

To ensure optimal balance of comfortable riding and road holding, the minimum damping force is increased as the vehicle speed increases.

(5) Anti-roll control

When the driver makes a turn, the damping force is controlled electronically according to the condition, and slows down the vehicle rolling speed.

(6) Anti-dive control

The vehicle dive condition is detected at an early stage through braking and the vehicle wheel speed signal, and the damping force is controlled according to the condition, to slow down the dive speed when decelerating.

(7) Anti-squat control

The vehicle squat condition at acceleration is detected at an early stage, and the damping force is switched to a higher level to avoid squat.

(8) Damping mode select SW

The damping mode select SW has 4 modes, and can be changed according to the driver preference.

4. Wheel Disconnection Function

Usually the right and left wheels are connected, but when the driver turns the steering wheel, the wheels are disconnected in response to the condition. This is to prevent roll angle increase when making a turn.

Service Hints

S6 (A), S8 (C) Suspension Control ECU

(C) 1–Ground : Approx. 12 volts with ignition SW at ON or ST position

(A) 1–Ground : Approx. 12 volts with brake pedal depressed

(A) 26, (C) 7–Ground : Always continuity

S5 Stop Light SW

2–1 : Closed with brake pedal depressed

○ : Parts Location

Code	See Page	Code	See Page	Code	See Page
A14	68	D1	68	H15	74
A24	70	D7	71	J7	72
A38	74	D8	71	J9	72
A41	C 70	D10	74	J18	72
A42	D 70	D11	74	S5	73
B7	70	D12	74	S6	A 73
B9	70	D13	74	S7	B 73
C15	B 71	F1	68	S8	C 73
C17	D 71	G2	68	T1	69
C22	74	H11	69	V2	69
C36	71	H12	69	V11	73

○ : Relay Blocks

Code	See Page	Relay Blocks (Relay Block Location)
1	22	Engine Room R/B (Engine Compartment Left)

**: Junction Block and Wire Harness Connector**

Code	See Page	Junction Block and Wire Harness (Connector Location)
1A	24	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)
1B	24	Engine Room No.2 Wire and Engine Room J/B (Engine Compartment Left)
2B	28	Engine Room No.2 Wire and Cowl Side J/B LH (Left Kick Panel)
2D	28	Dash Wire and Cowl Side J/B LH (Left Kick Panel)
2E		
2Q	30	Instrument Panel Integration Wire and Cowl Side J/B LH (Left Kick Panel)
3B	40	Engine Room No.2 Wire and Cowl Side J/B RH (Right Kick Panel)
3D	40	Dash Wire and Cowl Side J/B RH (Right Kick Panel)
3E		
3Q	42	Instrument Panel Integration Wire and Cowl Side J/B RH (Right Kick Panel)
4B	52	Dash Wire and J/B No.4 (Instrument Panel Center)
4D		
5B	56	Dash Wire and J/B No.5 (Behind the Combination Meter)
5C		
5D	56	Engine Room No.2 Wire and J/B No.5 (Behind the Combination Meter)
7B	64	Dash Wire and J/B No.7 (Behind the Grove Box)
7C		
7D	64	Engine Room No.2 Wire and J/B No.7 (Behind the Grove Box)

**: Connector Joining Wire Harness and Wire Harness**

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EB1	78	Engine Wire and Transmission Wire (On the Transmission)
EE1	78	Engine Room Main Wire and Alternator Wire (Near the Battery)
ID5	80	Dash Wire and Floor No.1 Wire (Left Kick Panel)
ID6		
II5	82	Dash Wire and Column Wire (Near the Ignition SW)
IO3	82	Engine Wire and Dash Wire (Behind the Glove Box)
IU2	84	Instrument Panel Integration Wire and Dash Wire (Behind the Glove Box)
IX1	86	Instrument Panel Integration Wire and Engine Wire (Behind the Glove Box)
Ie2	86	Dash Wire and Dash Wire (Behind the Combination Meter)
BD1	90	Frame No.2 Wire and Frame Wire (Near the Left Rear Suspension Support)
BD2		
BF3	90	Floor No.3 Wire and Floor No.1 Wire (Left Rear Side Quarter Panel)
BF5		
BG1	92	Frame No.3 Wire and Frame Wire (Near the Right Rear Suspension Support)
BG2		
BI1	92	Frame Wire and Floor No.3 Wire (Left Side of Rear Floor Crossmember)
BI2		
BI3		

**: Ground Points**

Code	See Page	Ground Points Location
EC	78	Rear Bank of Right Cylinder Head
EE	78	Front Left Side of Fender Apron
IF	80	Set Bolt of Cowl Side J/B LH
II	80	Set Bolt of Cowl Side J/B RH
BM	90	Left Rear Side Quarter Panel

**: Splice Points**

Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
E4	78	Engine Wire	B11	92	Frame Wire

