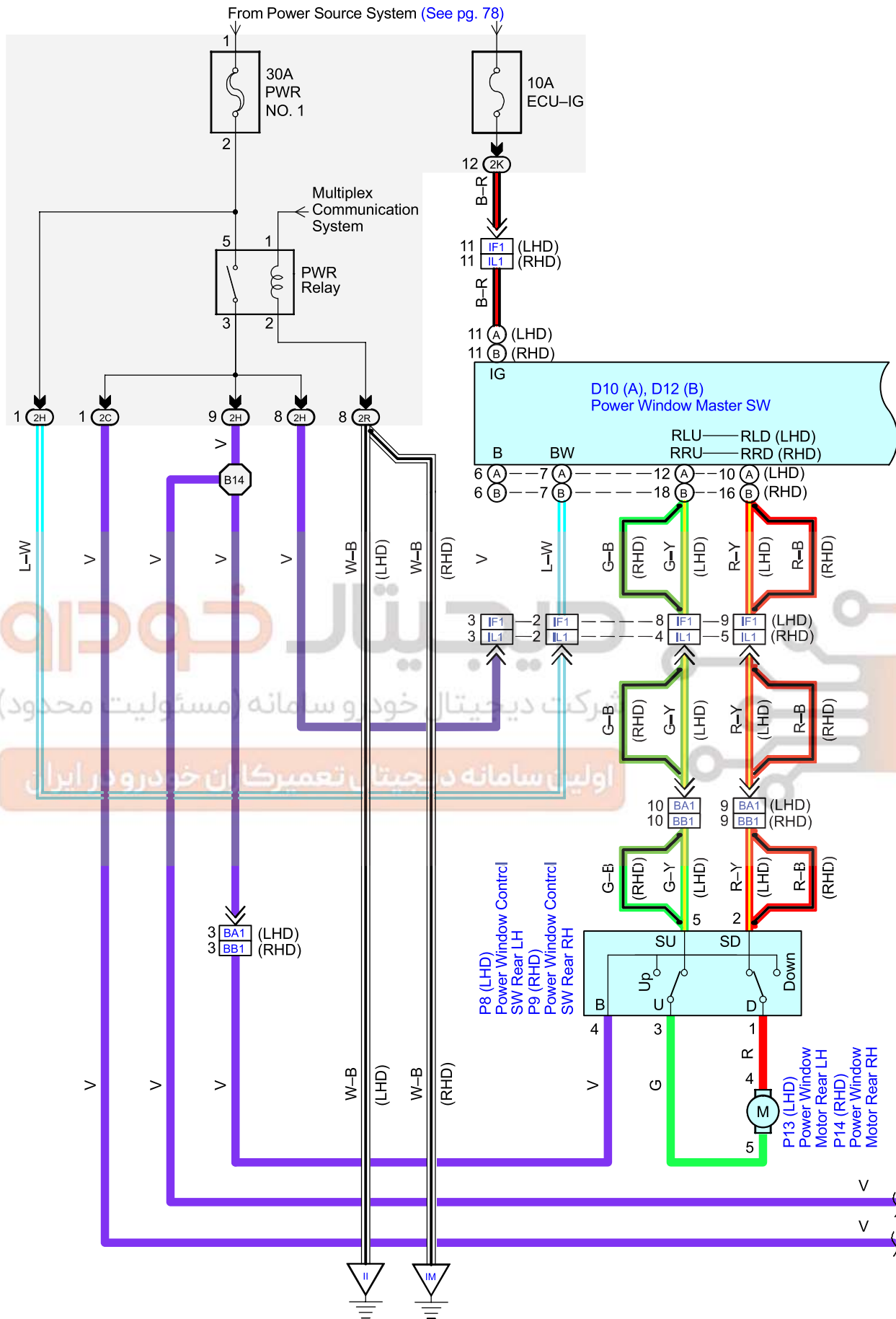
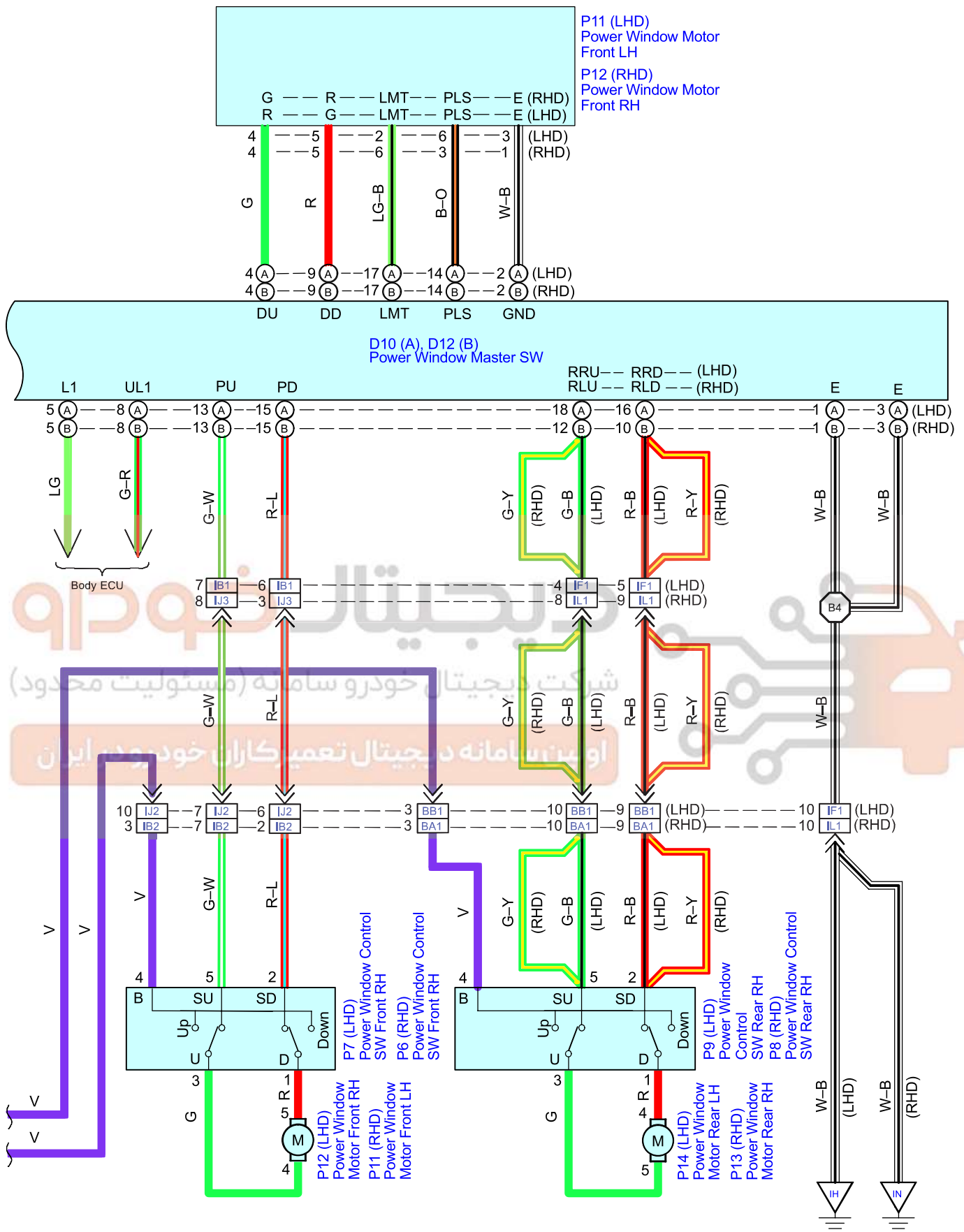


# Power Window with Jam Protection

System Outline

Service Hints





## Power Window with Jam Protection

### System Outline

#### 1. Manual Operation (Driver's Window)

With the ignition SW turned on and with the power window master SW in UP position, the current flowing from TERMINAL B or BW of the power window master SW flows to TERMINAL DU of the master SW to TERMINAL 4 of the power window motor to TERMINAL 5 to TERMINAL DD of the master SW to TERMINAL E to GROUND and causes the power window motor to rotate in the up direction. The window ascends only while the SW is being pushed.

In down operation, the flow of current from TERMINAL B or BW of the power window master SW to TERMINAL DD of the master SW causes the flow of current from TERMINAL 5 of the power window motor to TERMINAL 4 to TERMINAL DU of the master SW to TERMINAL E to GROUND, flowing in the opposite detection to manual up operation and causing the motor to rotate in reverse, lowering the window.

#### 2. Auto Down Operation (Driver's Window)

When the driver's window SW is pushed strongly to the down side, the current flowing to TERMINAL B or BW of the power window master SW flows to the down contact point and auto down contact point of the driver's SW.

This activates the relay (Down side) inside the power window master SW and the hold circuit also turns on at the same time, so the relay (Down side) remains activated even when the SW is released.

Current flows at this time from TERMINAL B or BW of the power window master SW to TERMINAL DD to TERMINAL 5 of the power window motor to TERMINAL 4 to TERMINAL DU of the power window master SW to TERMINAL E to GROUND, so the motor continues to operate until the driver's window is fully down.

When the driver's window finishes down operation and the hold circuit goes off, so the relay (Down side) also turns off. This stops the current flowing from TERMINAL B or BW of the power window master SW to TERMINAL DD is cut off, so the power window motor stops and auto down operation stops.

When the driver's SW is pulled to the up side during auto down operation, the hold circuit is turned off so the current flowing from TERMINAL B or BW of the power window master SW to TERMINAL DD is cut off and the power window motor stops. If the SW remains pulled up the relay (Up side) is activated, so current flows from TERMINAL B or BW of the power window master SW to TERMINAL DU to TERMINAL 4 of the power window motor to TERMINAL 5 to TERMINAL DD to TERMINAL E to GROUND, the power window motor rotates in the up direction and manual up operation occurs while the SW is pulled up.

#### 3. Manual Operation (Front RH Window)

With the power window control SW front RH pulled to the up side, the current flowing from TERMINAL 4 of the power window control SW flows to TERMINAL 3 of the power window control SW to TERMINAL 4 of the power window motor to TERMINAL 5 to TERMINAL 1 of the power window control SW to TERMINAL 2 to TERMINAL PD of the master SW to TERMINAL E to GROUND and causes the power window motor front RH to rotate in the up direction. The up operation continues only while the power window control SW is pulled to the up side. When the window descends, the current flowing to the motor flows in the opposite direction, from TERMINAL 5 to TERMINAL 4, and the motor rotates in reverse. When the window lock SW is pushed to the lock side, the ground circuit to the front RH window becomes open.

As a result, even if Open/Close operation of the front RH window is tried, the current from TERMINAL E of the power window master SW is not grounded and the motor does not rotate, so the front RH window can not be operated and window lock occurs.

#### 4. Manual Operation (Rear LH, RH Window)

With the power window control SW rear LH, RH pulled to the up side, the current flowing from TERMINAL 4 of the power window control SW flows to TERMINAL 3 of the power control SW to TERMINAL 4 of the power window motor to TERMINAL 5 to TERMINAL 1 of the power window control SW to TERMINAL 2 to TERMINAL RLD or RRD of the master SW to TERMINAL E to GROUND and causes the power window motor rear LH, RH to rotate in the up direction. The up operation continues only while the power window control SW is pulled to the up side. When the window descends, the current flowing to the motor flows in the opposite direction, from TERMINAL 5 to TERMINAL 4, and the motor rotates in reverse. When the window lock SW is pushed to the lock side, the ground circuit to the rear LH, RH window becomes open.

As a result, even if Open/Close operation of the rear LH, RH window is tried, the current from TERMINAL E of the power window master SW is not grounded and the motor does not rotate, so the rear LH, RH window can not be operated and window lock occurs.

#### 5. Key Off Power Window Operation

With the ignition SW turned from on to off, the body ECU operates and current flows from the ECU-B fuse to TERMINAL 1 of the body ECU to TERMINAL 8 to TERMINAL 2 of the power relay to TERMINAL 1 to GROUND for about 43 seconds. The same as normal operation, the current flows from the PWR NO.1 fuse to TERMINAL 3 of the power relay to TERMINAL 5 to TERMINAL B or BW of the power window master SW and TERMINAL 4 (Front RH, Rear LH, RH) of the power window control SW. As a result, for about 43 seconds after the ignition SW is turned off, the functioning of this ECU makes it possible to raise and lower the power window. Also, by opening the front doors (Door courtesy SW on) within about 43 seconds after turning the ignition SW to off, a signal is input to TERMINAL (C) 1 of the body ECU. As a result, the POWER relay turned off, and up and down movement of the power window stops.

**Service Hints****D10 (A), D12 (B) Power Window Master SW**

B, BW–Ground : Approx. 12 volts with the ignition SW at ON position or key off power window operation

E–Ground : Always continuity

DU–Ground : Approx. 12 volts with the ignition SW on and the master SW (Driver's window) at UP position

DD–Ground : Approx. 12 volts with the ignition SW on and the master SW (Driver's window) at DOWN or AUTO DOWN position

**Window Lock SW**

Open with the window lock SW at LOCK position

**○ : Parts Location**

Code		See Page	Code	See Page	Code	See Page
D10	A	38 (LHD)	P8	39 (LHD)	P13	39 (LHD)
		48 (RHD)		49 (RHD)		49 (RHD)
D12	B	38 (LHD)	P9	39 (LHD)	P14	39 (LHD)
		48 (RHD)		49 (RHD)		49 (RHD)
P6		39 (LHD)	P11	39 (LHD)		
		49 (RHD)		49 (RHD)		
P7		39 (LHD)	P12	39 (LHD)		
		49 (RHD)		49 (RHD)		

**○ : Junction Block and Wire Harness Connector**

Code	See Page	Junction Block and Wire Harness (Connector Location)
2C		Instrument Panel Wire and Driver Side J/B
2H	26	Floor Wire and Driver Side J/B
2K		
2R		Instrument Panel Wire and Driver Side J/B

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

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
BA1	60 (LHD)	Rear Door LH Wire and Floor Wire (Left Center Pillar)
	72 (RHD)	Rear Door LH Wire and Floor No.2 Wire (Left Center Pillar)
BB1	60 (LHD)	Rear Door RH Wire and Floor No.2 Wire (Right Center Pillar)
	72 (RHD)	Rear Door RH Wire and Floor Wire (Right Center Pillar)
IB1	55 (LHD)	Front Door LH Wire and Instrument Panel Wire (Left Kick Panel)
IB2	67 (RHD)	
IF1	55 (LHD)	Front Door LH Wire and Floor Wire (Left Kick Panel)
IJ2	58 (LHD)	Front Door RH Wire and Instrument Panel Wire (Right Kick Panel)
	70 (RHD)	
IJ3	58 (LHD)	Front Door Wire and Instrument Panel Wire (Right Kick Panel)
	70 (RHD)	
IL1	70 (RHD)	Front Door RH Wire and Floor Wire (Right Kick Panel)

## Power Window with Jam Protection

### ▽ : Ground Points

Code	See Page	Ground Points Location
II	<a href="#">55 (LHD)</a>	Instrument Panel Reinforcement LH
IM	<a href="#">67 (RHD)</a>	Instrument Panel Reinforcement RH
IH	<a href="#">55 (LHD)</a>	Right Kick Panel
IN	<a href="#">67 (RHD)</a>	Left Kick Panel

### ○ : Splice Points

Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
B4	<a href="#">60 (LHD)</a>	Floor Wire	B14	<a href="#">60 (LHD)</a>	Floor Wire
	<a href="#">72 (RHD)</a>			<a href="#">72 (RHD)</a>	

# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

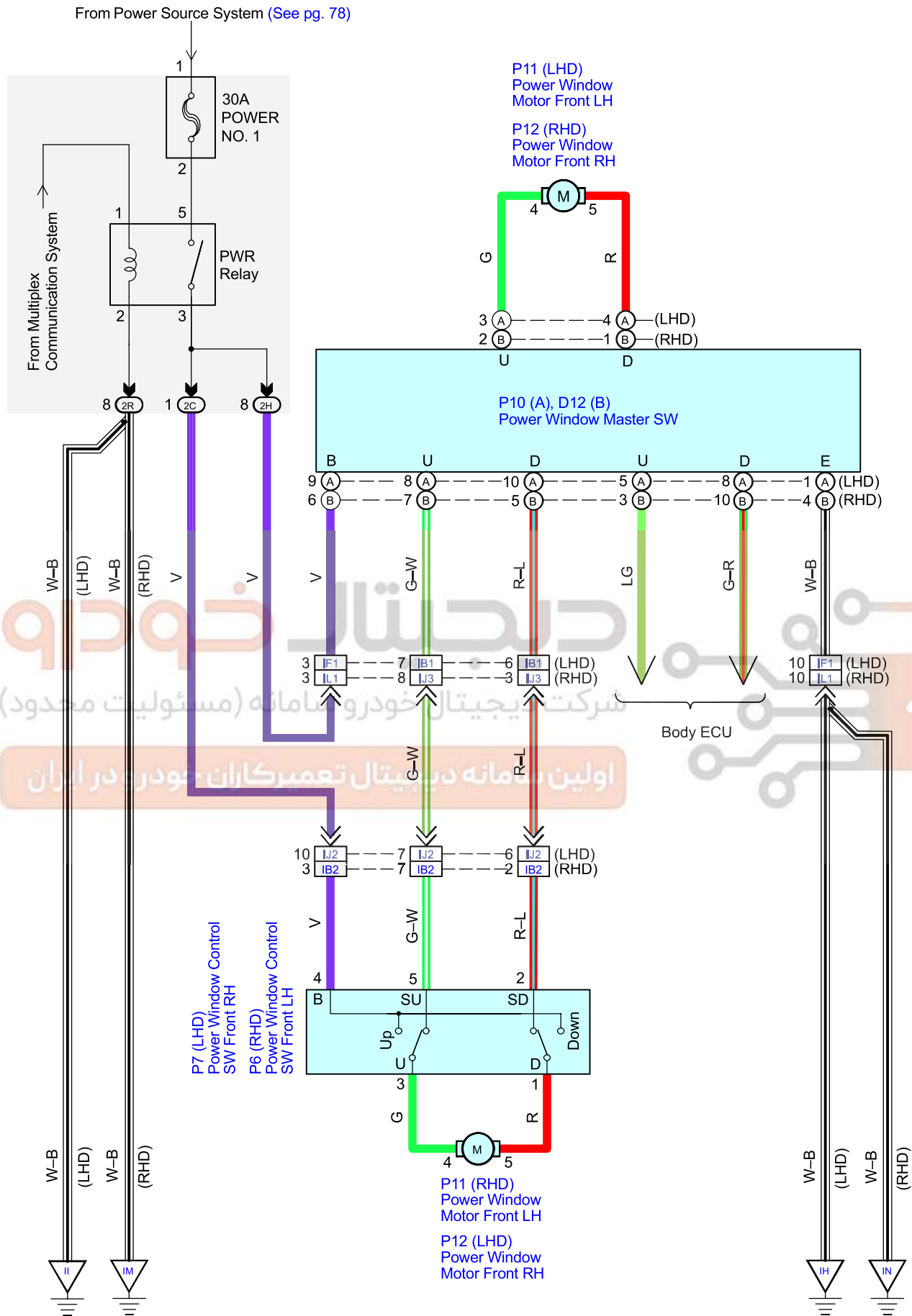
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



Power Window without Jam Protection

System Outline

Service Hints



## System Outline

### 1. Manual Operation (Driver's Window)

With the ignition SW turned on and with the power window master SW in UP position, the current flowing from TERMINAL B or BW of the power window master SW flows to TERMINAL DU of the master SW to TERMINAL 4 of the power window motor to TERMINAL 5 to TERMINAL DD of the master SW to TERMINAL E to GROUND and causes the power window motor to rotate in the up direction. The window ascends only while the SW is being pushed.

In down operation, the flow of current from TERMINAL B or BW of the power window master SW to TERMINAL DD of the master SW causes the flow of current from TERMINAL 5 of the power window motor to TERMINAL 4 to TERMINAL DU of the master SW to TERMINAL E to GROUND, flowing in the opposite detection to manual up operation and causing the motor to rotate in reverse, lowering the window.

### 2. Auto Down Operation (Driver's Window)

When the driver's window SW is pushed strongly to the down side, the current flowing to TERMINAL B or BW of the power window master SW flows to the down contact point and auto down contact point of the driver's SW.

This activates the relay (Down side) inside the power window master SW and the hold circuit also turns on at the same time, so the relay (Down side) remains activated even when the SW is released.

Current flows at this time from TERMINAL B or BW of the power window master SW to TERMINAL DD to TERMINAL 5 of the power window motor to TERMINAL 4 to TERMINAL DU of the power window master SW to TERMINAL E to GROUND, so the motor continues to operate until the driver's window is fully down.

When the driver's window finishes down operation and the hold circuit goes off, so the relay (Down side) also turns off. This stops the current flowing from TERMINAL B or BW of the power window master SW to TERMINAL DD is cut off, so the power window motor stops and auto down operation stops.

When the driver's SW is pulled to the up side during auto down operation, the hold circuit is turned off so the current flowing from TERMINAL B or BW of the power window master SW to TERMINAL DD is cut off and the power window motor stops. If the SW remains pulled up the relay (Up side) is activated, so current flows from TERMINAL B or BW of the power window master SW to TERMINAL DU to TERMINAL 4 of the power window motor to TERMINAL 5 to TERMINAL DD to TERMINAL E to GROUND, the power window motor rotates in the up direction and manual up operation occurs while the SW is pulled up.

### 3. Manual Operation (Front RH Window)

With the power window control SW front RH pulled to the up side, the current flowing from TERMINAL 4 of the power window control SW flows to TERMINAL 3 of the power window control SW to TERMINAL 4 of the power window motor to TERMINAL 5 to TERMINAL 1 of the power window control SW to TERMINAL 2 to TERMINAL PD of the master SW to TERMINAL E to GROUND and causes the power window motor front RH to rotate in the up direction. The up operation continues only while the power window control SW is pulled to the up side. When the window descends, the current flowing to the motor flows in the opposite direction, from TERMINAL 5 to TERMINAL 4, and the motor rotates in reverse. When the window lock SW is pushed to the lock side, the ground circuit to the front RH window becomes open.

As a result, even if Open/Close operation of the front RH window is tried, the current from TERMINAL E of the power window master SW is not grounded and the motor does not rotate, so the front RH window can not be operated and window lock occurs.

### 4. Manual Operation (Rear LH, RH Window)

With the power window control SW rear LH, RH pulled to the up side, the current flowing from TERMINAL 4 of the power window control SW flows to TERMINAL 3 of the power control SW to TERMINAL 4 of the power window motor to TERMINAL 5 to TERMINAL 1 of the power window control SW to TERMINAL 2 to TERMINAL RLD or RRD of the master SW to TERMINAL E to GROUND and causes the power window motor rear LH, RH to rotate in the up direction. The up operation continues only while the power window control SW is pulled to the up side. When the window descends, the current flowing to the motor flows in the opposite direction, from TERMINAL 5 to TERMINAL 4, and the motor rotates in reverse. When the window lock SW is pushed to the lock side, the ground circuit to the rear LH, RH window becomes open.

As a result, even if Open/Close operation of the rear LH, RH window is tried, the current from TERMINAL E of the power window master SW is not grounded and the motor does not rotate, so the rear LH, RH window can not be operated and window lock occurs.

### 5. Key Off Power Window Operation

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## Power Window without Jam Protection

### Service Hints

#### P10 (A), D12 (B) Power Window Master SW

B, BW–Ground : Approx. 12 volts with the ignition SW at ON position or key off power window operation

E–Ground : Always continuity

DU–Ground : Approx. 12 volts with the ignition SW on and the master SW (Driver's window) at UP position

DD–Ground : Approx. 12 volts with the ignition SW on and the master SW (Driver's window) at DOWN or AUTO DOWN position

#### Window Lock SW

Open with the window lock SW at LOCK position

### ○ : Parts Location

Code		See Page	Code		See Page	Code		See Page
D12	B	48 (RHD)	P7		39 (LHD)	P11		49 (RHD)
	P6	49 (RHD)	P10	A	39 (LHD)	P12		39 (LHD)

### ○ : Junction Block and Wire Harness Connector

Code	See Page	Junction Block and Wire Harness (Connector Location)
2C	26	Instrument Panel Wire and Driver Side J/B
2H		Floor Wire and Driver Side J/B (Lower Finish Panel)
2R		Instrument Panel Wire and Driver Side J/B

### □ : Connector Joining Wire Harness and Wire Harness

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
IB1	55 (LHD)	Front Door LH Wire and Instrument Panel Wire (Left Kick Panel)
IB2	67 (RHD)	
IF1	55 (LHD)	Front Door LH Wire and Floor Wire (Left Kick Panel)
IJ2	58 (LHD)	Front Door RH Wire and Instrument Panel Wire (Right Kick Panel)
IJ3	70 (RHD)	
IL1	70 (RHD)	

### ▽ : Ground Points

Code	See Page	Ground Points Location
IH	55 (LHD)	Left Kick Panel
II	55 (LHD)	Instrument Panel Reinforcement LH
IM	67 (RHD)	Instrument Panel Reinforcement RH
IN	67 (RHD)	Right Kick Panel