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SECTION 9A

BODY WIRING SYSTEM

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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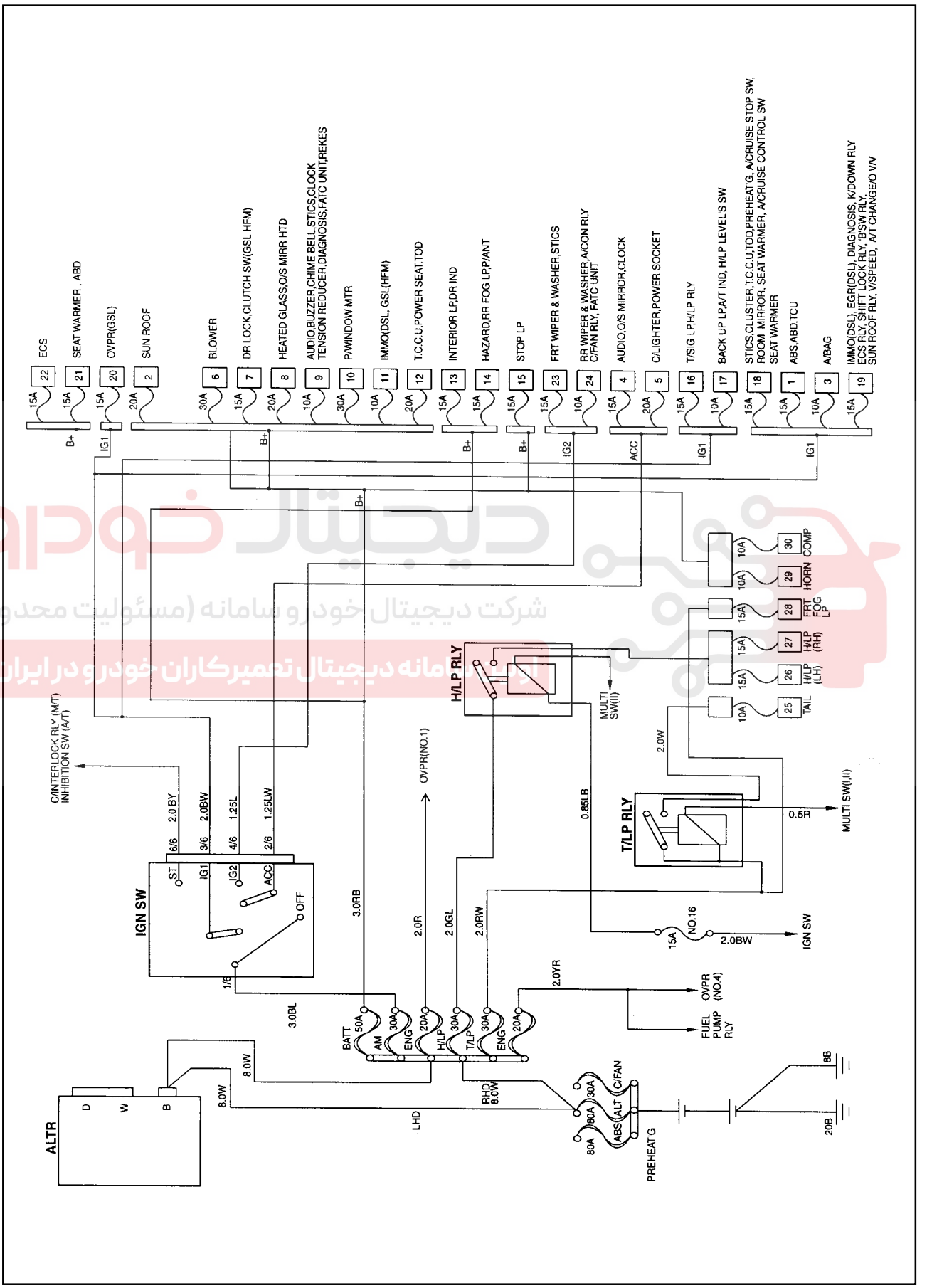
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SCHEMATIC AND ROUTING DIAGRAMS

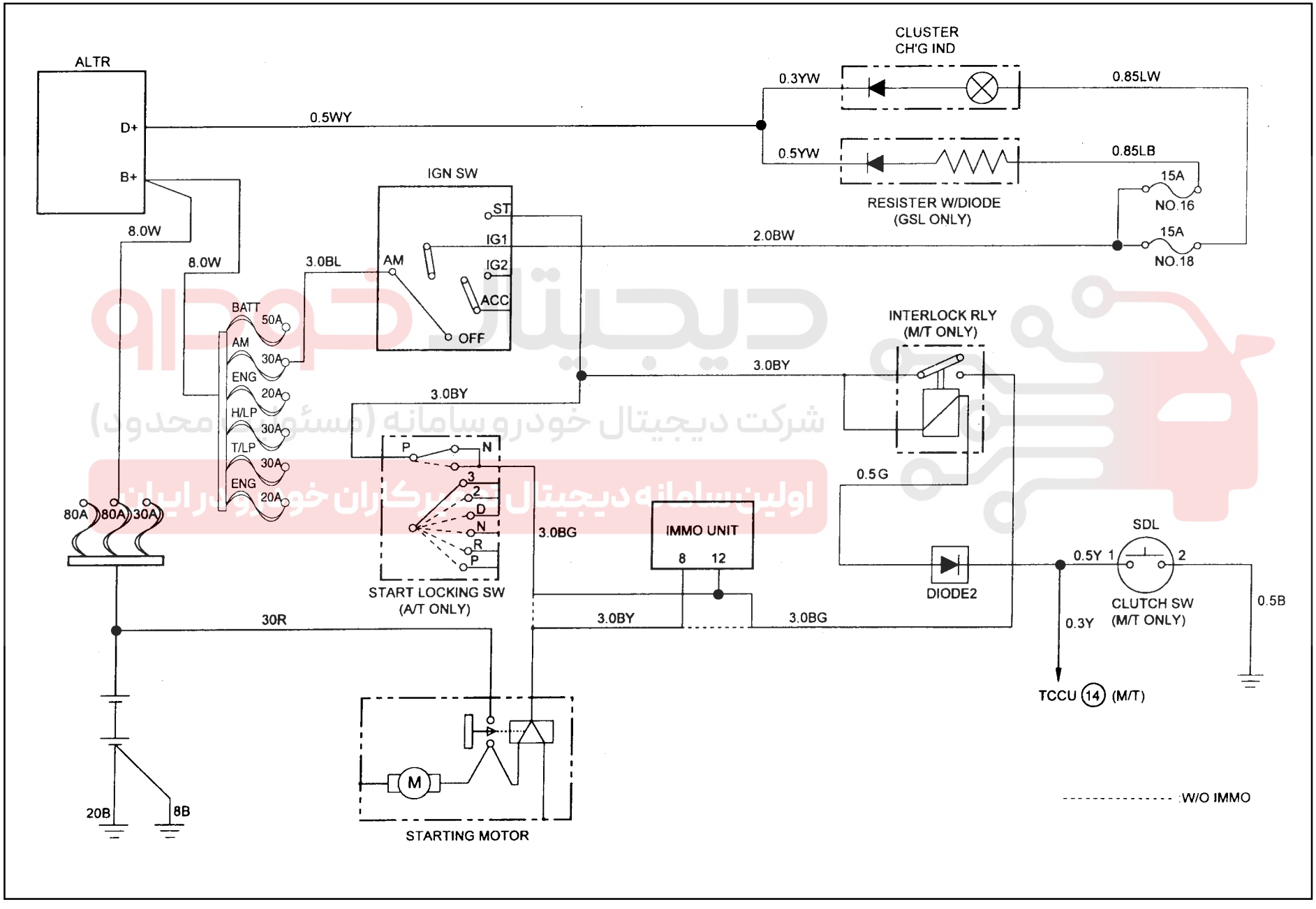
POWER DISTRIBUTION



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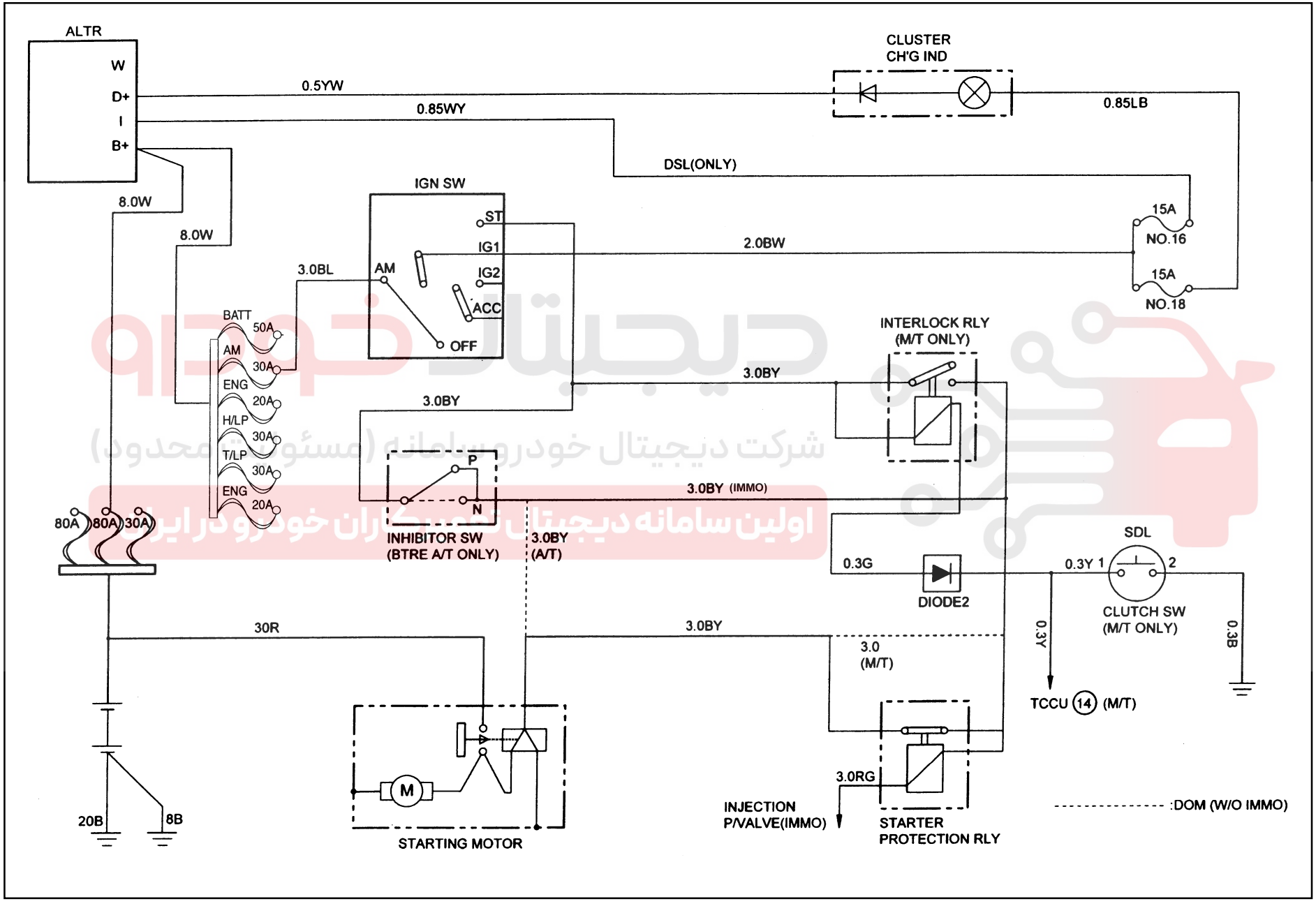
STARTING & CHARGING (GASOLINE HFM)



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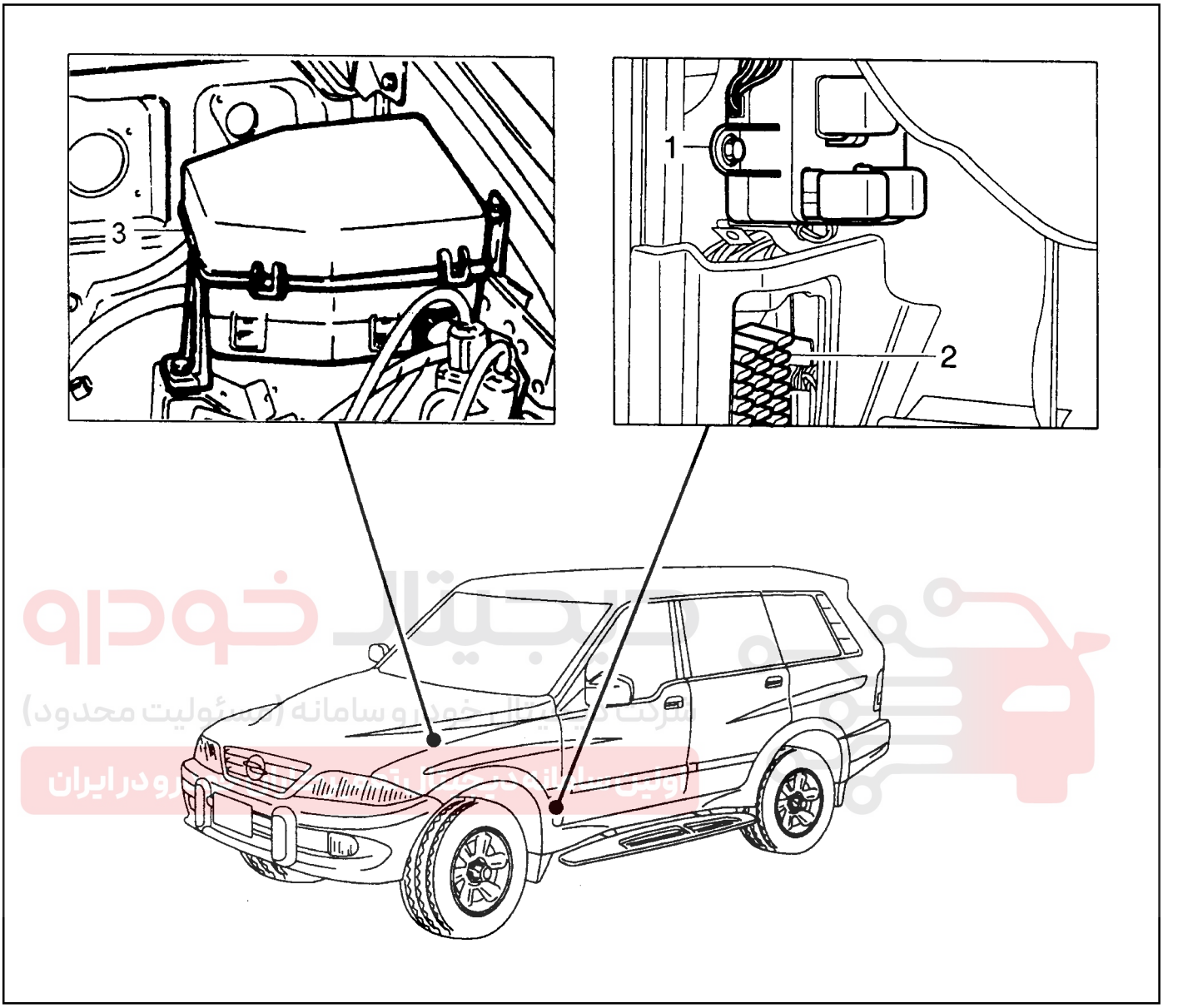
STARTING & CHARGING (DIESEL)



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FUSE BOX AND RELAY

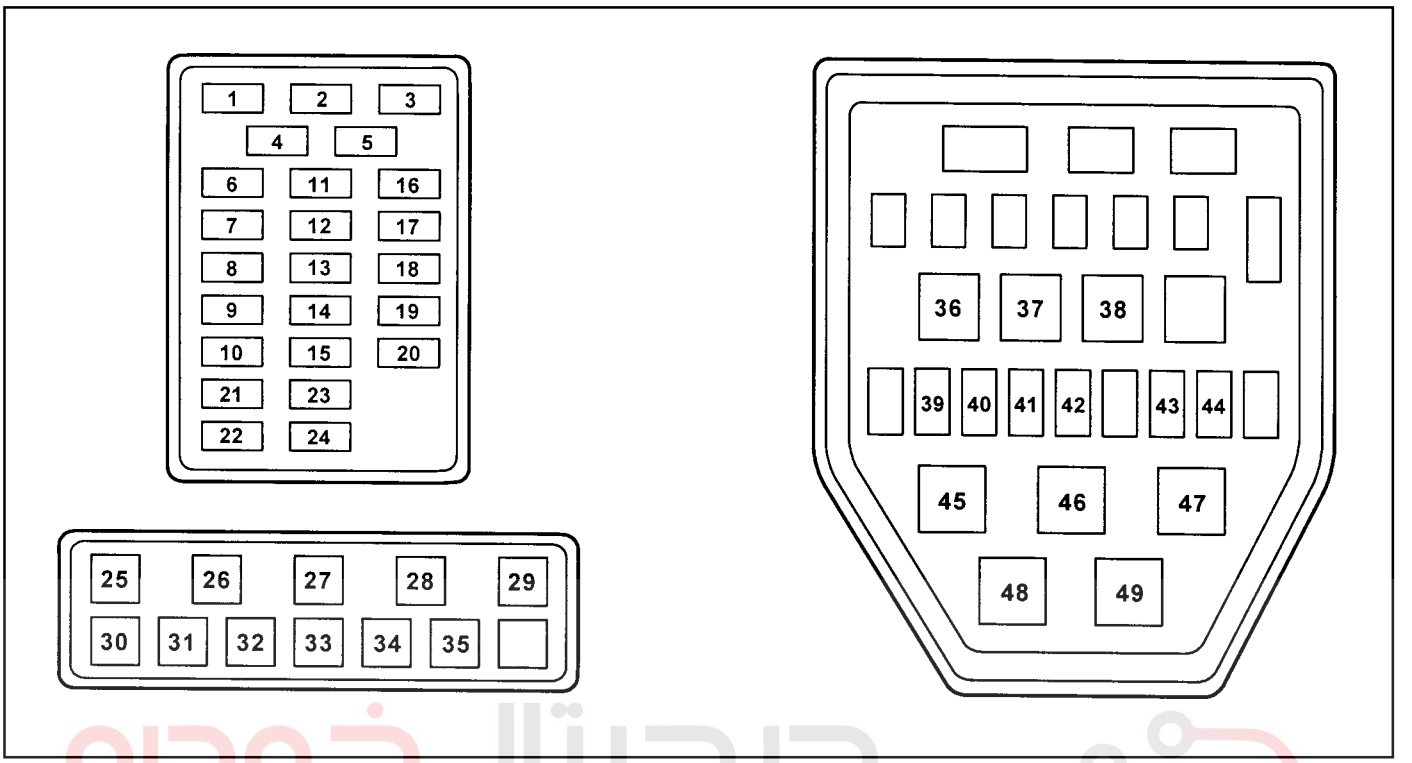


1 Interior Relay Box
2 Interior Fuse Box
3 Engine Compartment Fuse and Relay Box

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Engine Room Fuse (EF) and Relay Box



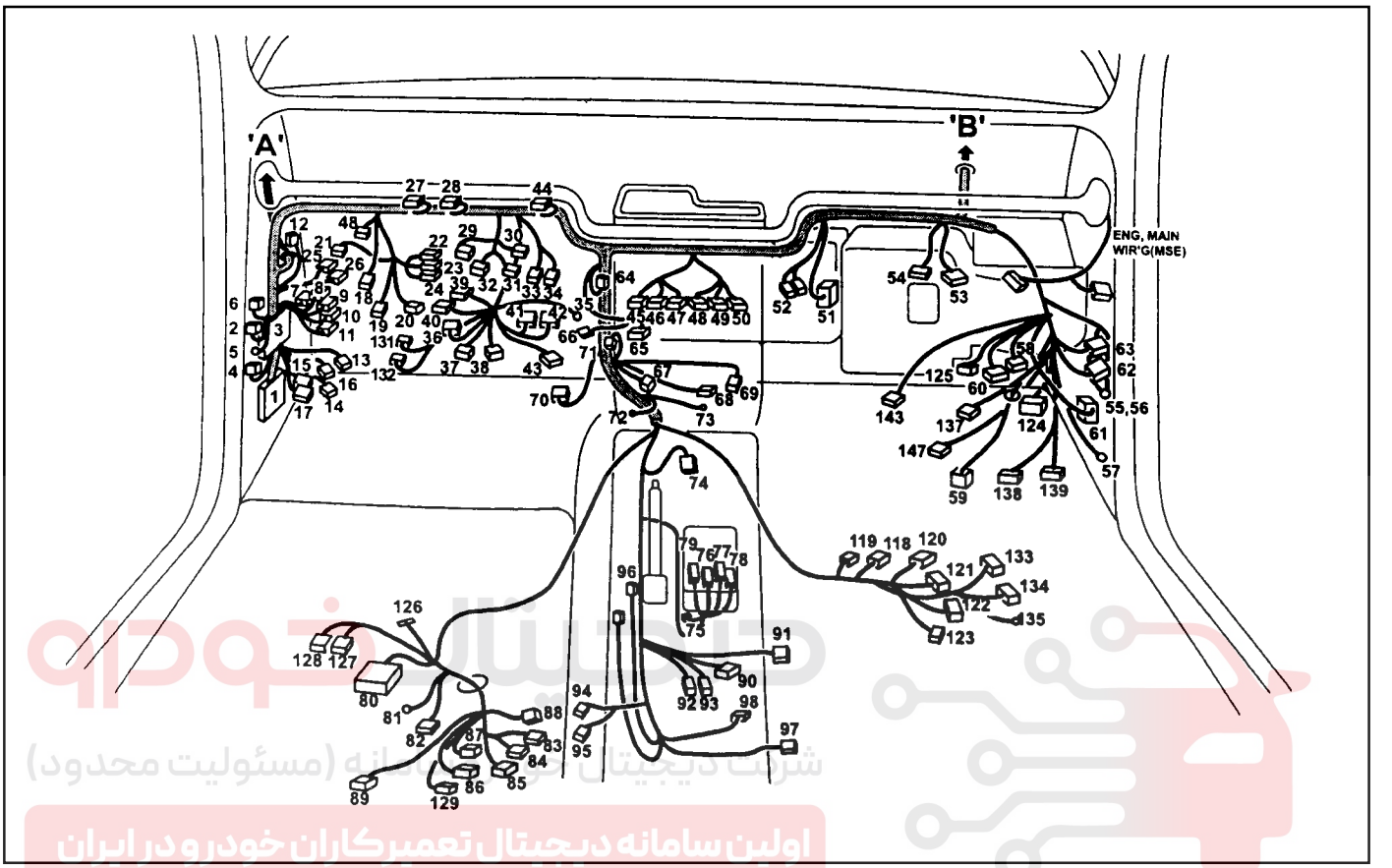
1 Fuse (15A) : ABS, ABD
2 Fuse (20A) : Sun Roof
3 Fuse (10A) : Air Bag
4 Fuse (15A) : Audio, Clock, Out Side Mirror
5 Fuse (30A) : Cigarette lighter, Power Socket
6 Fuse (30A) : Heater
7 Fuse (15A) : Door Lock
8 Fuse (30A) : Rear Heated
9 Fuse (10A) : Audio, Buzzer, Chime, Clock
10 Fuse (30A) : Power Window
11 Fuse (10A) : Immobilizer
12 Fuse (20A) : T/C
13 Fuse (15A) : Interior Lamp
14 Fuse (15A) : Hazard Lamp
15 Fuse (15A) : Stop Lamp
16 Fuse (15A) : Turn signal Lamp, Head Lamp
17 Fuse (10A) : Back up Lamp
18 Fuse (15A) : Cluster, STICS
19 Fuse (15A) : A/T, Diagnosis
20 Fuse (15A) : Over Voltage Protection Relay (Gasolin Only)
21 Fuse (15A) : Seat Heater
22 Fuse (15A) : ECS
23 Fuse (15A) : Front Wiper & Washer
24 Fuse (10A) : Rear Wiper & Washer, A/C
25 Relay : Front Wiper
26 Relay : ABS Warning Lamp
27 Relay : Flasher Unit
28 Relay : Fuel Pump (Gasoline Only)
29 Relay : Shift Lock (A/T)
30 Relay : Clutch Interlock & Neutral
31 Relay : Sun Roof
32 Relay : A/T 'B' Interlock (MB A/T)
33 Relay : Power Window
34 Relay : Rear Fog Lamp
35 Relay : ECS
36 Relay : Compressor (Diesel E/G)
Condenser Fan (Gasoline E/G)
37 Relay : Condenser Fan
38 Relay : Air Conditioner
39 Fuse (10A) : Tail Lamp
40 Fuse (15A) : Head Lamp(LH)
41 Fuse (15A) : Head Lamp(RH)
42 Fuse (15A) : Front Fog Lamp
43 Fuse (10A) : Horn
44 Fuse (10A) : Compressor
45 Relay : Resistor with Diode (Gasoline E/G)
46 Relay : Front fog Lamp
47 Relay : Condenser Fan
48 Relay : Tail Lamp
49 Relay : Horn

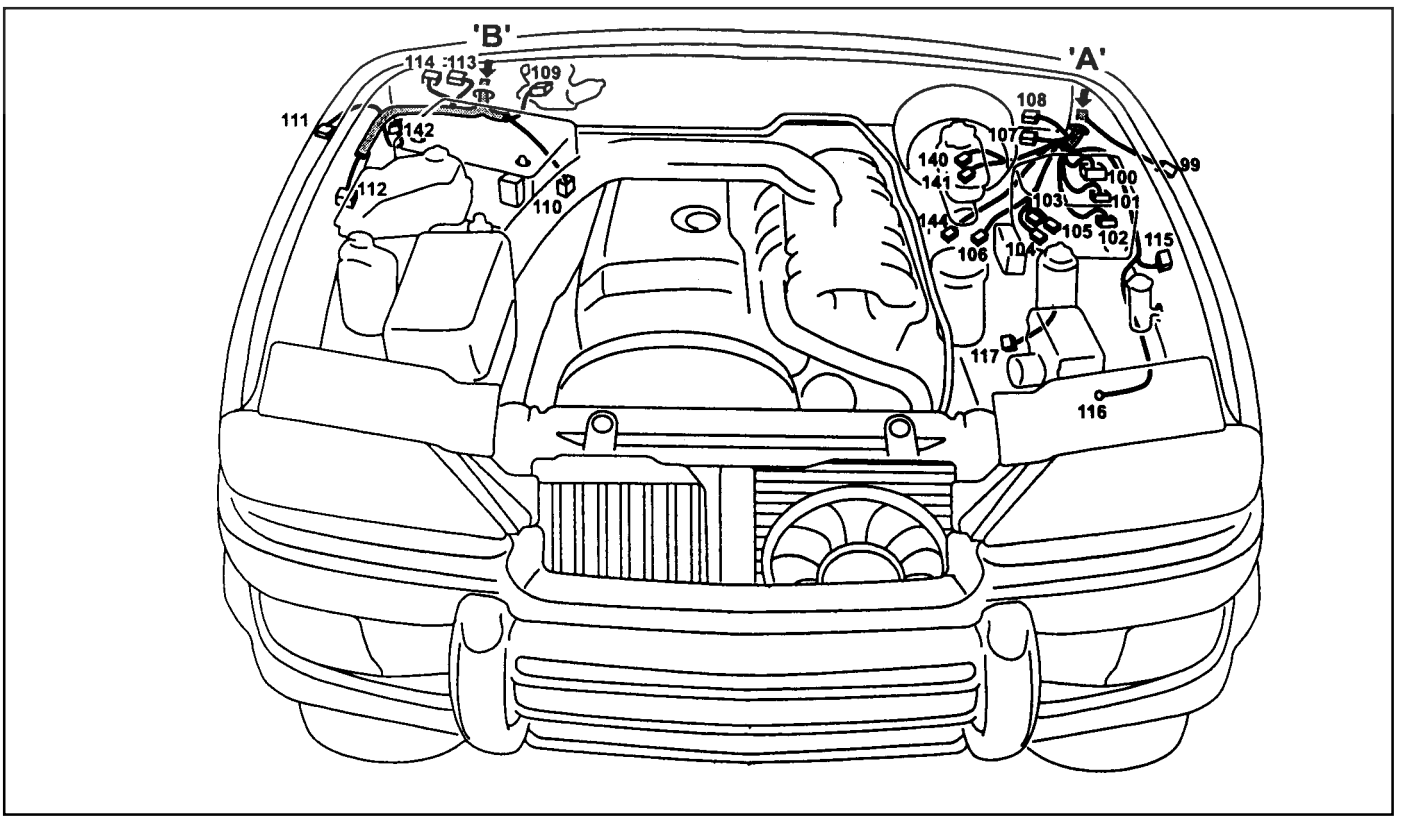
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LOCATION OF CONNECTORS BY WIRING HARNESS

MAIN





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1 Fuse Box
2 Door Lock Relay
3 Relay Box
3.1 Front Wiper Relay
3.2 ABS Warning Lamp Relay ..... ABD 5.0
3.3 Flasher Unit
3.4 Fuel Pump Relay ..... Gasoline E/G
3.5 Shift Lock Relay ..... Automatic Transmission
3.6 Clutch Interlock & Neutral Relay ..... Manual Transmission or Automatic Transmission
3.7 Sun Roof Relay
3.8 Automatic Transmission 'B' Switch Interlock ..... Automatic Transmission
3.9 Power Window Relay
3.10 Rear Fog Lamp Relay ..... Rear Fog Lamp
3.11 ECS Relay
4 Defogger Relay
5 Ground 1
6 Roof Wiring Connector
7 Diode 1
8 Front Door Wiring Connector
9 Front Door Wiring Connector
10 Front Door Wiring Connector
11 Front Door Wiring Connector
12 Kick Down Relay ..... Automatic Transmission
13 Floor Wiring Connector
14 Floor Wiring Connector
15 Floor Wiring Connector
16 ABD Floor Wiring Connector ..... ABD 5.0
17 ECS Floor Wiring Connector
18 Rear Iper & Washer Switch
19 Clutch Switch ..... Manual Transmission
19-1 Clutch Switch ..... E32 Gasoline E/G with Manual Transmission
20 Stop Lamp Switch
21 Outside Mirror Switch
22 Ignition Switch
23 Multi Function Switch
24 Multi Function Switch
25 Black Out Switch ..... Black Out Lamp
26 Black out switch ..... Black Out Lamp
27 Joint Connector (Tail)
28 Joint Connector (Ignition)
29 Cluster
30 Cluster ..... Automatic Transmission
31 Cluster
32 Cluster
33 4WD Switch ..... Except TOD
33-1 4WD Switch ..... TOD
34 Hazard Switch
35 Ground 2
36 Pedal Module ..... Gasoline E/G with MSE ECU
37 Audio Switch
38 Immobilizer ..... Crypto Type, Gasoline E/G with MSE ECU or Diesel E/G
39 Ignition Switch
40 Multi Function Switch
41 STICS
42 STICS
43 REKES ..... Remote Keyless

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44 Joint Connector ..... Ground
45 Door Unlock Switch
46 Front Fog Lamp Switch
47 Rear Defogger Switch
48 ECS Switch
49 Rear Fog Lamp Switch ..... Rear Fog Lamp
50 Digital Clock
51 Thermo Amplifier
52 Glove Box Lamp Switch
53 Air Conditioner Wiring Connetor
54 Glove Box Lamp
55 Ground 6
56 Ground 6 ..... Gasoline E/G
57 Ground 7 ..... Gasoline E/G
58 Wheel Speed Sensor (FR) ..... ABS 5.0 or ABD 5.0
59 O_2 Sensor ..... E32 Gasoline E/G
60 Engine Main Wiring Connector ..... Gasoline E/G with MSE ECU
61 HFM ..... Gasoline E/G with HFM ECU
61-1 MSE ..... Gasoline E/G with MSE ECU
62 Front Door Wiring Connector (Passenger Side)
63 Front door Wiring Connector (Passenger Side)
64 Joint Connector (B+)
65 Audio
66 Audio
67 Air Bag Wiring Connector
68 Chime Bell
69 Buzzer
70 Kick Down Switch ..... Automatic Transmission
71 Diode 2 ..... Manual Transmission
72 Ground 3
73 Ground 4
74 Front Cigarette Lighter
75 Diode 3 ..... Automatic Transmission, MB
76 S/E Mode Selector Switch ..... Automatic Transmission
76-1 Mode Switch ..... Automatic Transmission
77 “B” Position Switch ..... Automatic Transmission
78 “P” Position Switch ..... Automatic Transmission
79 Shift Lock Solenoid Valve ..... Automatic Transmission
80 TCCU
81 Ground 5 ..... Gasoline E/G
81-1 Ground 7 ..... Diesel E/G
82 Seat Extension Wiring Connector
83 Transmission Extension Wiring Connector ..... E23 & E32 Gasoline E/G with Manual Transmission
83-1 Transmission Extension Wiring Connector ..... Diesel E/G with MB A/T
84 Transmission Extension Wiring Connector ..... Gasoline E/G with Manual Transmission
84-1 Transmission Extension Wiring Connector ..... Diesel E/G with Manual Transmission or BTRE A/T
85 Transmission Extension Wiring Connector ..... E23 & E32 Gasoline E/G with A/T
85-1 Transmission Extension Wiring Connector ..... Diesel E/G with BTRE A/T
86 Transfer Case Motor
87 Transfer Case Motor
88 Vehicle Speed Sensor
89 Fuel Gauge
90 Acceleration Sensor ..... ABS 5.0
91 Seat Belt Switch (Passenger)
92 Seat Heater Switch
93 Head Lamp Leveling Device Switch ..... Leveling Device

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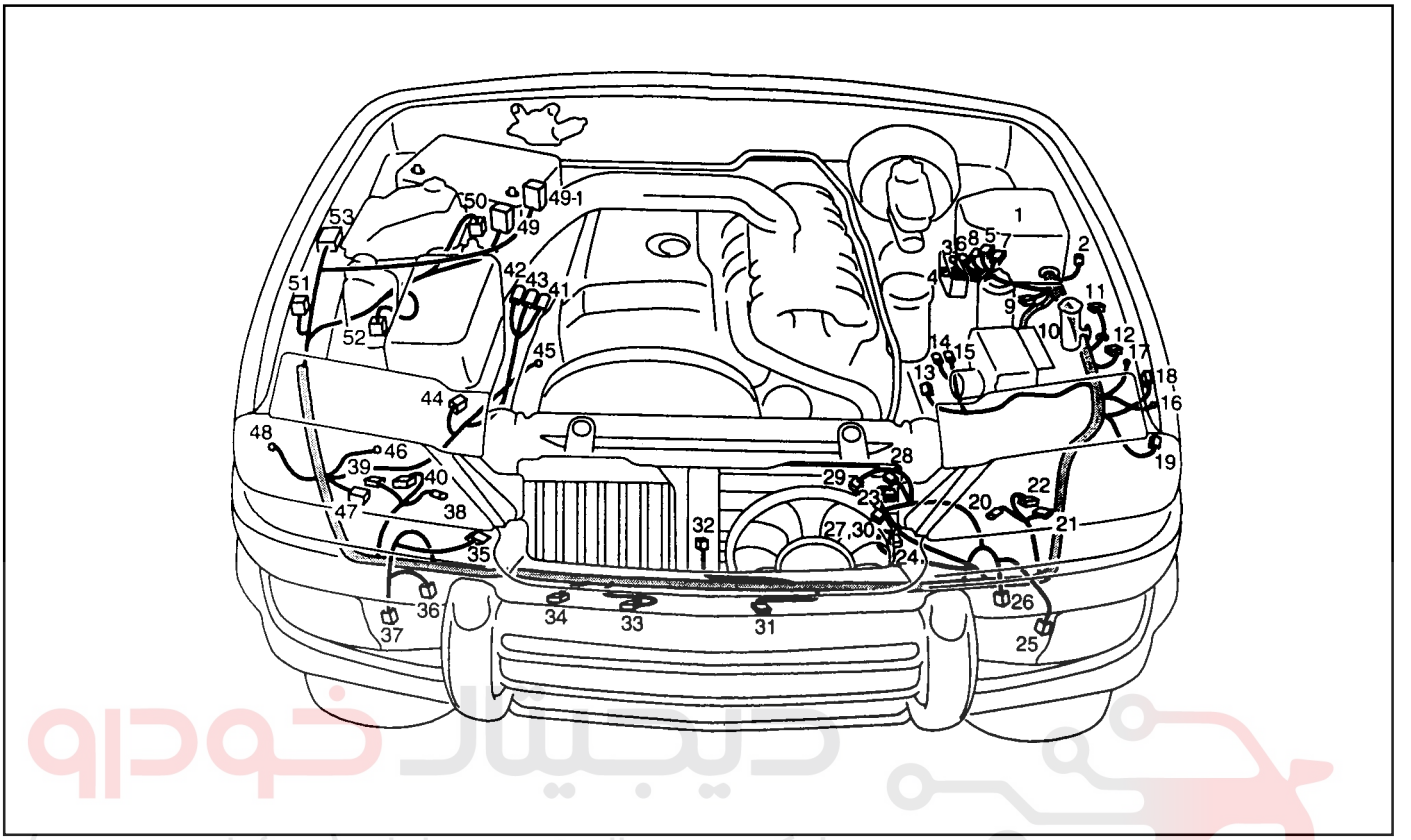
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94	Seat Belt Switch (Driver)	
95	Seat Belt Switch (Dirver)	
96	Parking Brake Switch	
97	Rear Cigarette Lighter	
98	OVPR	Gasoline E/G
99	LH Side Repeater	Rear Fog Lamp
100	Engine Wiring Connector	
101	Engine Joint Connector	
102	Engine Joint Connector	Gasoline E/G
103	ECS Engine Wiring Connector	Diesel E/G & Gasoline E/G with HFM ECU
104	ABD Engine Wiring Connector	ABD 5.0
105	ABD Engine Wiring Connector	ABD 5.0
105-1	ABS Engine Wiring Connector	ABS 5.0
106	Canister Purge Solenoid Valve	Gasoline E/G with MSE ECU
106-1	Canister Purge Solenoid Valve	E20 & E23 Gasoline E/G with FHM ECU
107	Econo/Standard Solenoid Valve	Gasoline E/G with Automatic Transmission
108	CO Potentio Meter	Gasoline E/G with HFM ECU & CO Potentio Meter
109	Front Wiper Motor	
110	O_2 Sensor	E20 or E23 Gasoline E/G
111	RH Side Repeater	
112	Engine Wiring Connector	
113	Vertical Sensor	
114	Lateral Sensor	
115	Diagnosis	
116	Joint Box	Gasoline E/G (E32)
117	Canister Purge Solenoid Valve	E32 Gasoline E/G with HFM ECU
118	Led Antenna	Rolling code type Immobilizer
119	E-key Connector	Gasoline E/G with Rolling Code Type Immobilizer
120	Receiver Unit	Gasoline E/G with Rolling Code Type Immobilizer
121	Receiver Unit	Gasoline E/G with Rolling Code Type Immobilizer
122	Receiver Antenna	Gasoline E/G with Rolling Code Type Immobilizer
123	Receiver Connector	Gasoline E/G with Rolling Code Type Immobilizer
124	ICU Connector	Gasoline E/G with Rolling Code Type Immobilizer
125	ICU	Gasoline E/G with TOD (MSE ECU 3.2 Engine Only)
126	CAN Line	Gasoline E/G with TOD (MSE ECU 3.2 Engine Only)
127	TOD	Gasoline E/G with TOD (MSE ECU 3.2 Engine Only)
128	TOD	Gasoline E/G with TOD (MSE ECU 3.2 Engine Only)
129	Transfer Case Speed Sensor	Gasoline E/G with TOD (MSE ECU 3.2 Engine Only)
130	Engine Main Wiring Connector	Gasoline E/G with MSE ECU
131	Remote Engine Start	Diesel E/G with A/T & Black Out Lamp
132	Remote Engine Start	Diesel E/G with A/T & Black Out Lamp
133	TCU	Diesel E/G with BTRE A/T
134	TCU	Diesel E/G with BTRE A/T
135	Ground 5	Diesel E/G
136	Start Protection Relay	Diesel E/G with Rolling Code Type Immobilizer
137	EGR control unit	Diesel E/G
138	ICU 1	Diesel E/G with Rolling Code Type Immobilizer
139	ICU 2	Diesel E/G with Rolling Code Type Immobilizer
140	Injection Pump Valve Extension	Diesel E/G with Rolling Code Type Immobilizer
141	Injection Pump Valve Extension	Diesel E/G with Rolling Code Type Immobilizer
142	EGR Solenoid	Diesel E/G
143	ICU led	Diesel E/G with Rolling Code Type Immobilizer
144	Immobilizer Solenoid Valve	Diesel E/G with Crypto Type Immobilizer
147	Immobilizer Unit	Diesel E/G with Crypto Type Immobilizer

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ENGINE ROOM



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1 Engine Room Relay Box
1.1 Main Wiring Connector
1.2 Main Wiring Connector
1.3 Main Wiring Connector ..... Gasoline E/G
1.4 Joint
1.5 Compressor, Condenser Fan Relay ..... Diesel E/G
1.6 Condenser Fan Relay 2
1.7 Air Conditioner Relay
1.8 Resistor with Diode ..... Gasoline E/G
1.9 Front Fog Lamp Relay
1.10 Condenser Fan Relay 1
1.11 Tail Lamp Relay
1.12 Horn Relay
2 Octane Selector ..... Gasoline E/G with HFM
3 Preheating Unit ..... Diesel E/G
4 Preheating Timer Unit ..... Diesel E/G
5 ECS Main Wiring Connector ..... ECS
6 Brake Leveling Fluid Sensor
7 ABD Main Wiring Connector ..... ABD 5.0
7-1 ABS Main Wiring Connector ..... ABD 5.0
8 ABD main Wiring Connector ..... ABD 5.0
9 Engine Temperature Sensor ..... Diesel E/G
10 ABS 5.0 ECU ..... ABS 5.0
10-1 ABD 5.0 Modulator ..... ABD 5.0
11 Front Washer Motor ..... Diesel E/G
12 Head Lamp Relay
13 Compressor ..... Air Conditioner
14 Wheel Speed Sensor ..... ABS 5.0 or ABD 5.0

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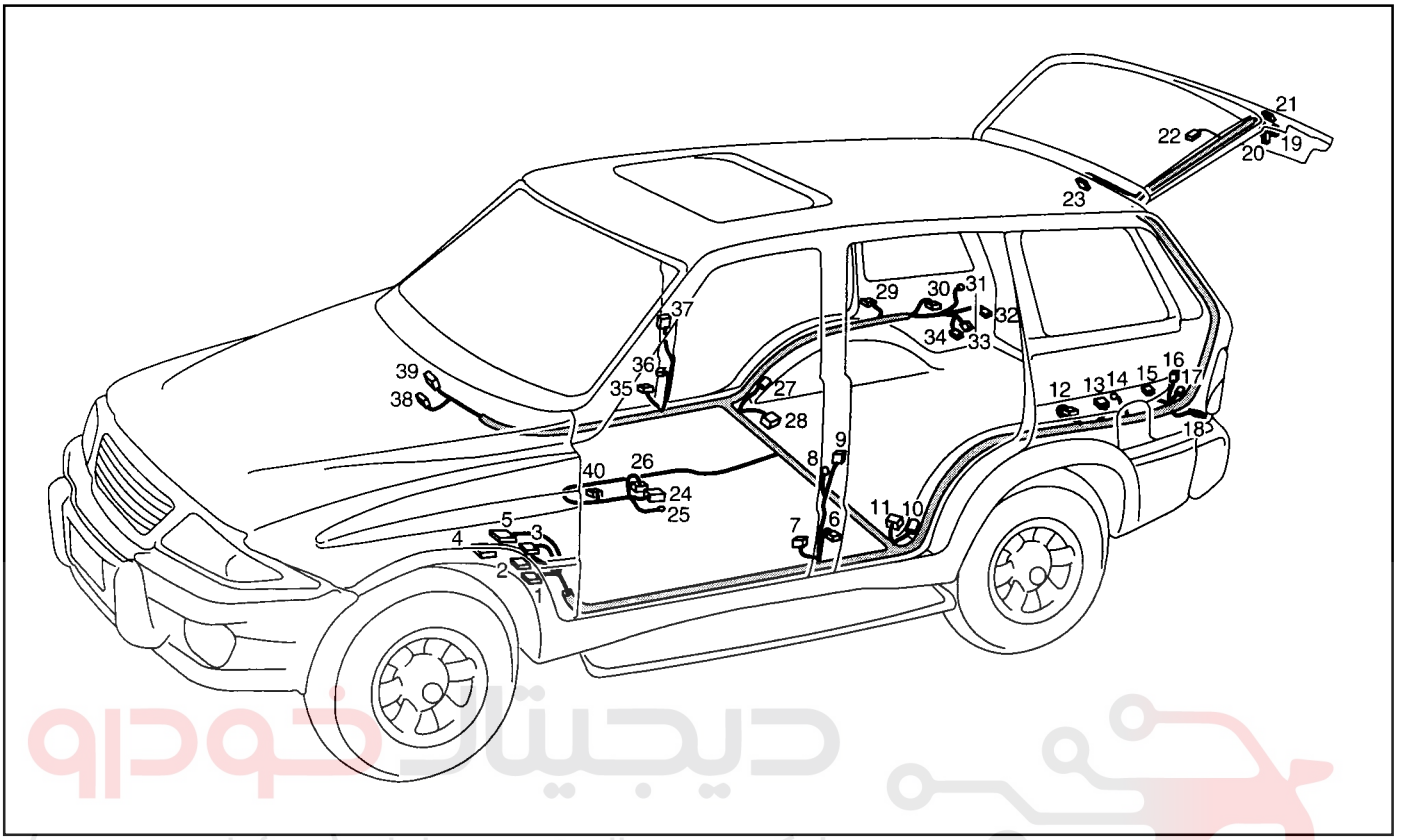
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15	LH Damper	ECS
16	Ground 1	
17	Ground 2	
18	Locking Hub Solenoid	
19	Condenser Fan Relay	Gasoline E/G
20	LH Position Lamp	
21	LH Head Lamp	
22	LH Head Lamp Leveling Device	Leveling Device
23	Thermo Switch 2	Gasoline E/G with HFM
24	Thermo Switch 3	Gasoline E/G with HFM & Air Conditioner
25	LH Front Fog Lamp	
26	LH Horn	Black Out Driving Lamp (Domestic)
27	Condenser Fan Motor	Diesel E/G
28	Black Out Driving Lamp	Black Out Driving Lamp (Domestic)
29	LH Horn	Leveling Device
30	LH Condenser Fan Motor	Gasoline E/G with Air Conditioner
31	Thermo Switch 1	Diesel E/G or Gasoline E/G with HFM
32	Resistor	Gasoline E/G with Air Conditioner
33	Thermo Switch 4	Gasoline E/G with HFM & Air Conditioner
34	Ambient Censor	Air Conditioner
35	RH Condenser Fan Motor	Gasoline E/G
36	RH Horn	
37	RH Front Fog Lamp	
38	RH Position Lamp	
39	RH Head Lamlp	
40	RH Head Lamp Leveling Device	Leveling Device
41	Wheeling Sensor	ECS
42	Wheel Speed Sensor (FR)	ABS 5.0, 5.3 or ABD 5.0, 5.3
43	RH Damper	ECS
44	Alternator Extension Connector	Gasoline E/G
45	Alternator	Gasoline E/G
46	Alternator Extension Joint box	Diesel E/G
47	Alternator Extension Connector	Diesel E/G
48	Ground 3	
49	Fusible Link Box	Gasoline E/G
49-1	Fusible Link Box	Diesel E/G
50	Receiver Dryer	Gasoline E/G with Air Conditioner
50-1	Receiver Dryer	Diesel E/G with Air Conditioner
51	Hood Switch	Diesel E/G with Black Out Driving Lamp
52	Front Washer Motor	Gasoline E/G
53	Main Wiring Connector	

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FLOOR



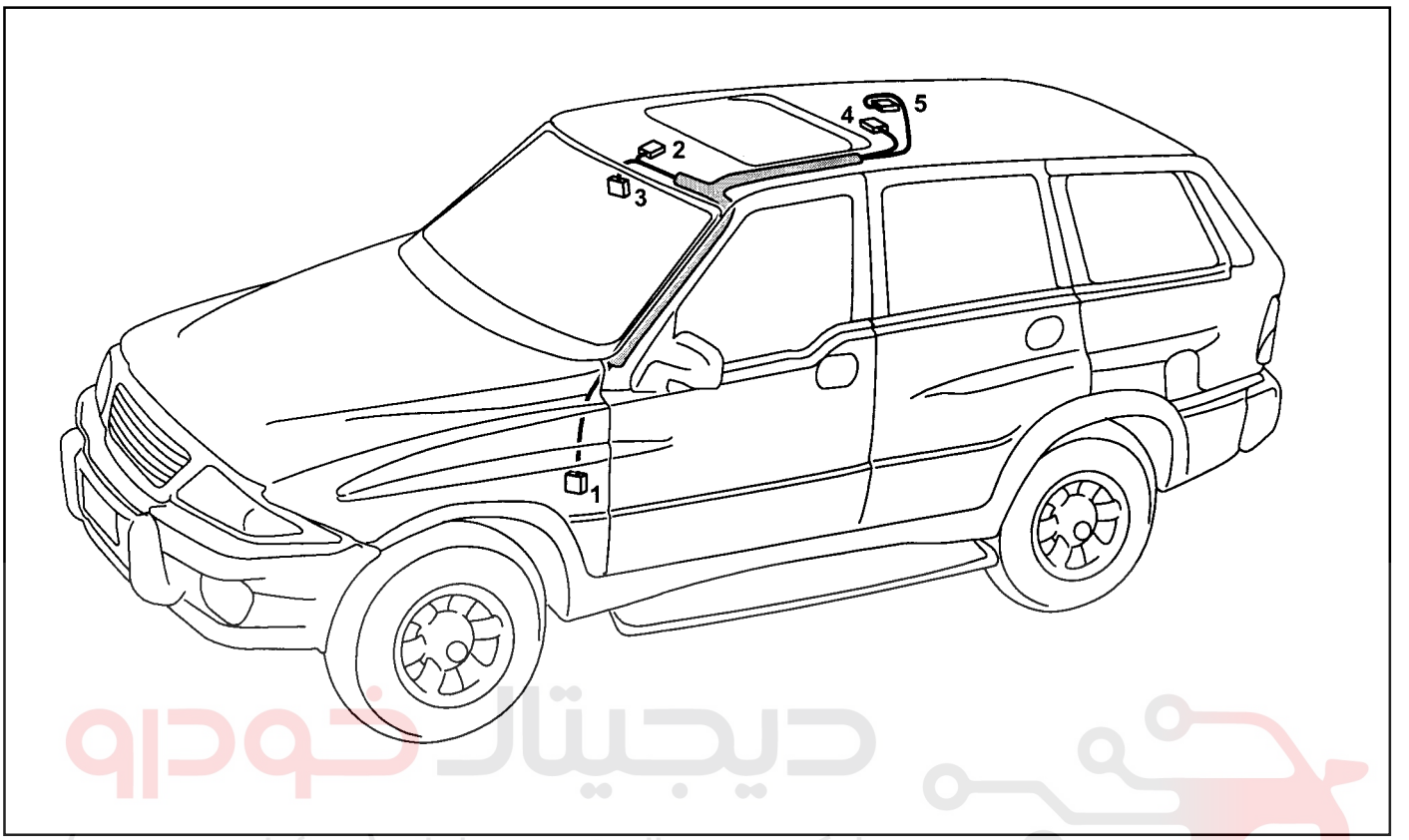
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

1 ECS Main Wiring Connector ..... ECS
2 Main Wiring Connector
3 Main Wiring Connector
4 Main Wiring Connector
5 ABD Main Wiring Connector ..... ABD
6 LH Front Door Switch
7 LH Tension Reducer
8 Ground 1
9 LH Rear Door Wiring Connector
10 Wheel Speed Sensor (RL) ..... ABD, ABS
11 Damper (RL) ..... ECS
12 LH Rear Door Switch
13 LH Rear Speaker
14 Ground 2
15 Power Socket
16 Power Antenna
17 Diode
18 LH Rear Combination Lamp
19 Tail Gate Wiring Connector
20 Tail Gate Wiring Connector
21 Tail Gate Wiring Connector
22 Rear Heated
23 Luggage Lamp
24 ABD ECU ..... ABD
25 Ground 4 ..... ABD
26 ECS ..... ECS
27 Wheel Speed Sensor (RR) ..... ABD, ABS
28 Damper (RR) ..... ECS
29 RH Rear Door Switch
30 RH Rear Speaker
31 Ground 3
32 RH Rear Combination Lamp
33 Trailer Connector
34 Rear Washer Motor
35 RH Tension Reducer
36 RH Front Door Switch
37 RH Rear Door Wiring Connector
38 RH Front Door Wiring Connector
39 Wheel Speed Sensor (RR) ..... ABD, ABS
40 Acceleration Sensor ..... ABD

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ROOF



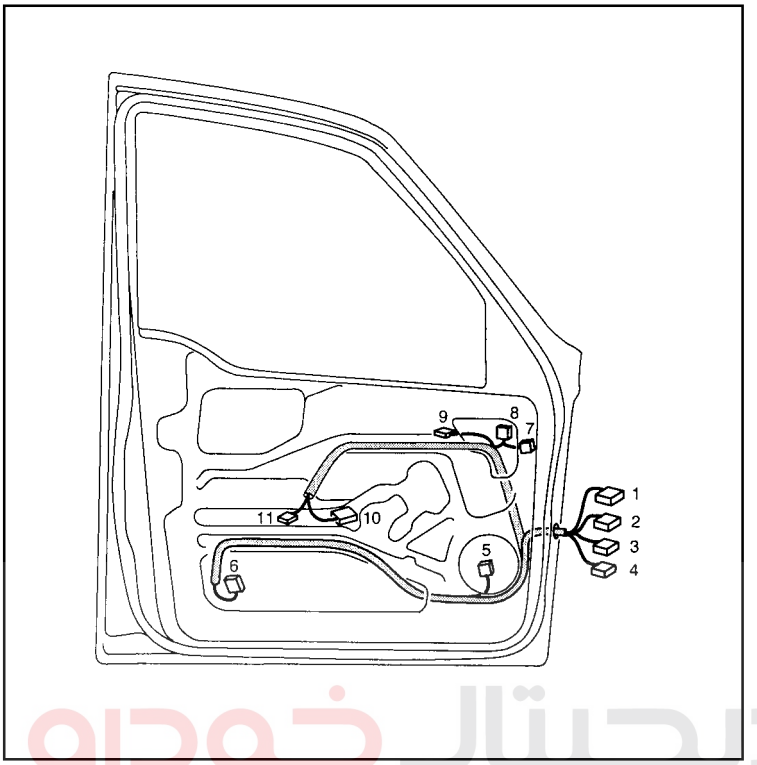
1 Main Wiring Connector
2 Room Lamp
3 Inside Mirror
4 Sun Roof Motor
5 Map Lamp

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)
اولین سامانه دیجیتال تعمیرکاران خودرو

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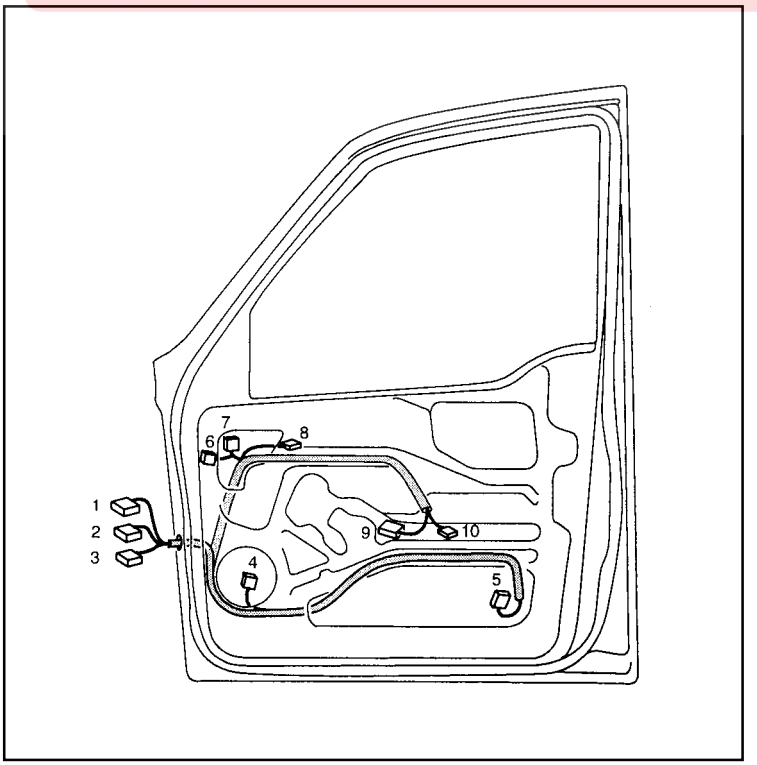
DRIVER'S DOOR



1 Main Wiring Connector
2 Main Wiring Connector
3 Main Wiring Connector
4 Main Wiring Connector
5 Speaker
6 Door Lock Actuator
7 Outside Mirror Motor
8 Tweeter Speaker Wiring Connector
9 Power Window Motor
10 Power Window Switch
11 Door Courtesy Lamp

دیجیتال خودرو
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

PASSENGER'S DOOR

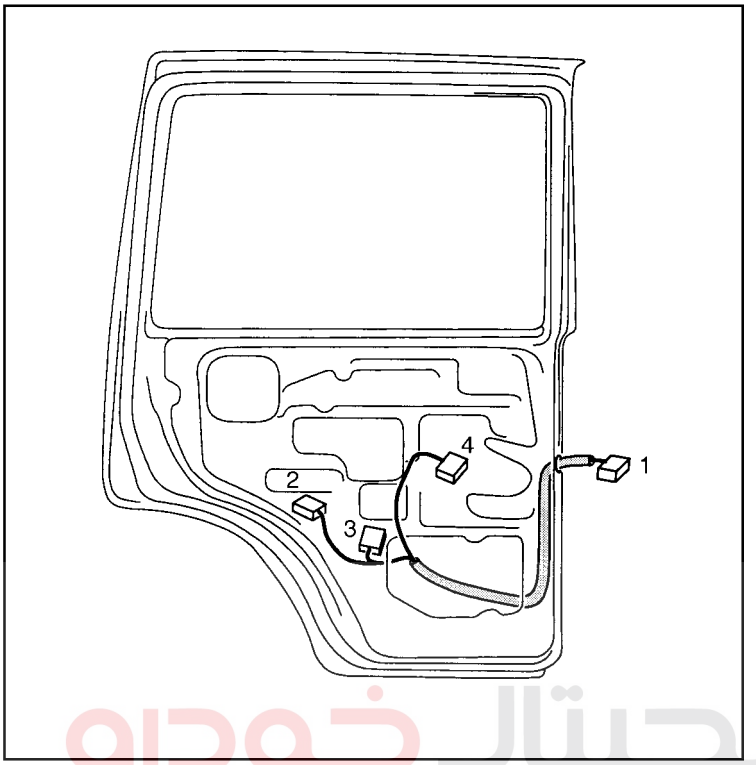


1 Main Wiring Connector
2 Main Wiring Connector
3 Floor Wiring Connector
4 Speaker
5 Door Lock Actuator
6 Outside Mirror Motor
7 Tweeter Speaker Wiring Connector
8 Power Window Motor
9 Power Window Switch
10 Door Courtesy Lamp

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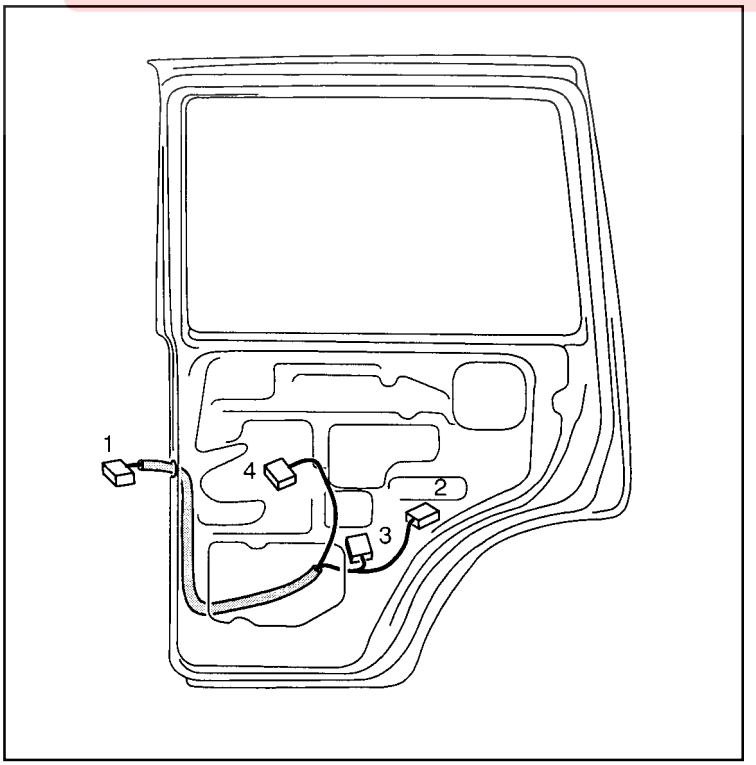
REAR LEFT DOOR



1 Floor Wiring Connector
2 Door Lock Actuator
3 Power Window Motor
4 Power Window Switch

دیجیتال خودرو
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

REAR RIGHT DOOR

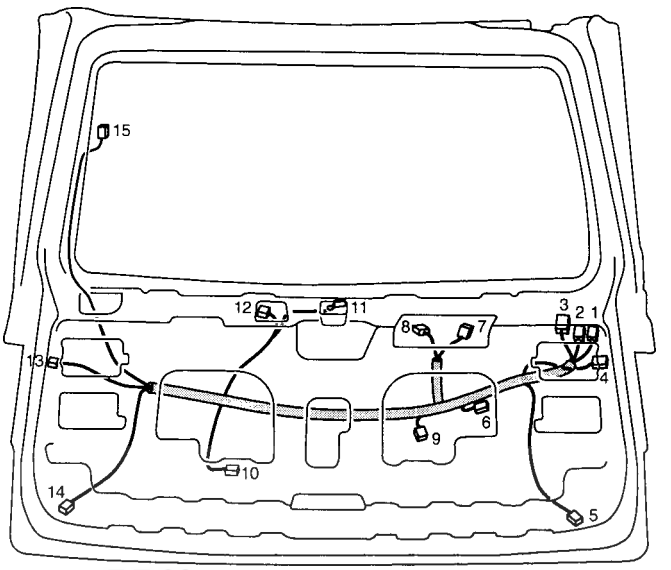


1 Floor Wiring Connector
2 Door Lock Actuator
3 Power Window Motor
4 Power Window Switch

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TAIL GATE

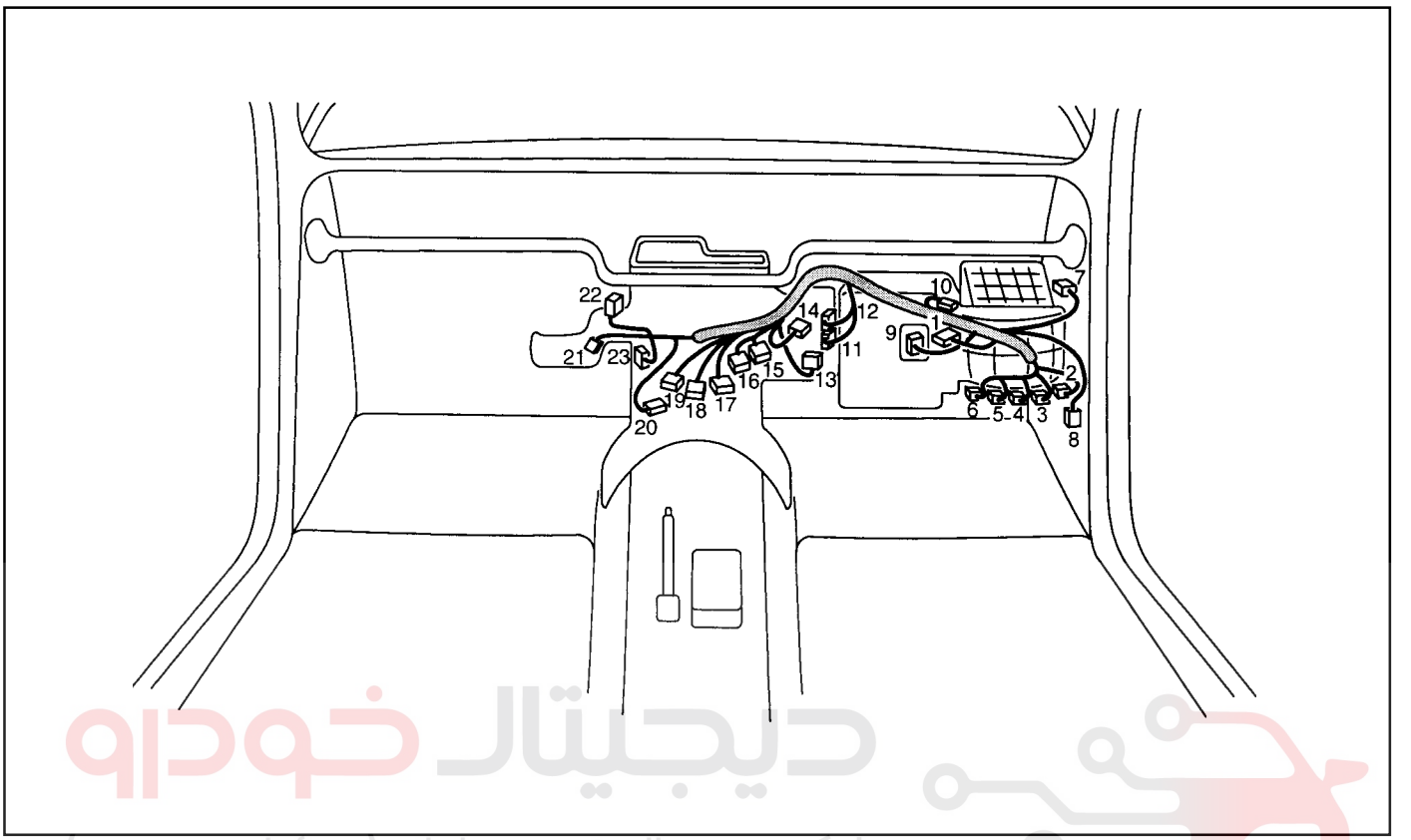


1 Floor Wiring Connector
2 Floor Wiring Connector
3 Floor Wiring Connector
4 LH Rear Combination Lamp
5 LH Rear Fog Lamp
6 Joint Connector (Ground)
7 Rear Wiper Motor
8 LH License Lamp
9 Tail Gate Switch
10 Door Lock Actuator
11 High Mounted Stop Lamp
12 RH License Lamp
13 RH Rear Combination Lamp
14 RH Rear Fog Lamp
15 Rear Heated

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SEMI AUTOMATIC AIR CONDITIONER



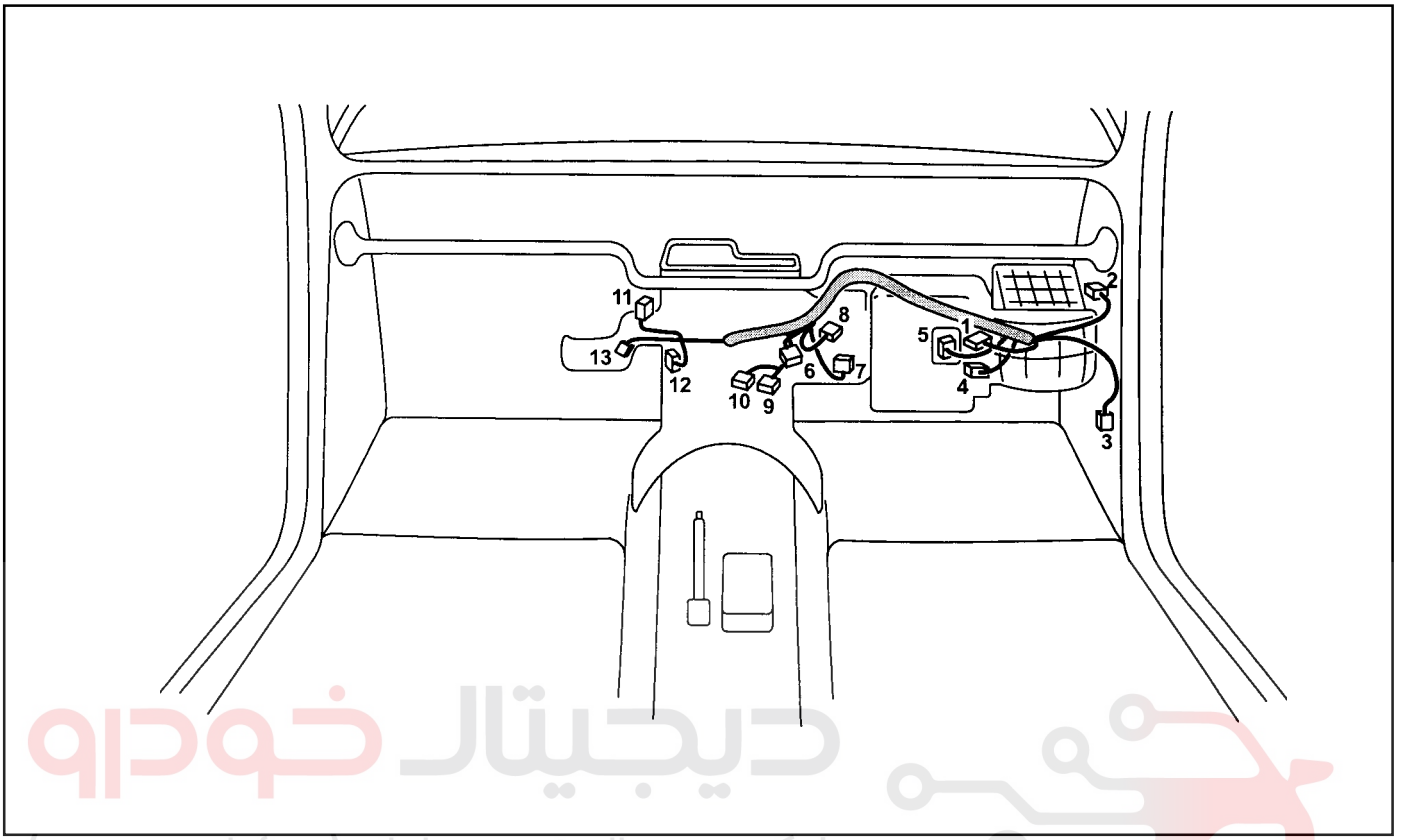
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شرکت دیجیتال خودرو سامانه (مسئولیت محدود)
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1 Main Connector
2 Air Conditioner Relay 2
3 LO Relay
4 ML Relay
5 MH Relay
6 HI Relay
7 Intake Actuator
8 Blower Motor
9 Resistor
10 Diode
11 Amplifier
12 Amplifier
13 Temp Actuator
14 Blower Relay
15 Water Temperature Sensor
16 Air Conditioner Switch
17 Fan Switch (Auto)
18 PTC
19 Control
20 Mode Switch
21 In Car Sensor
22 Sun Sensor
23 Mode Actuator

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FULL AUTOMATIC AIR CONDITIONER



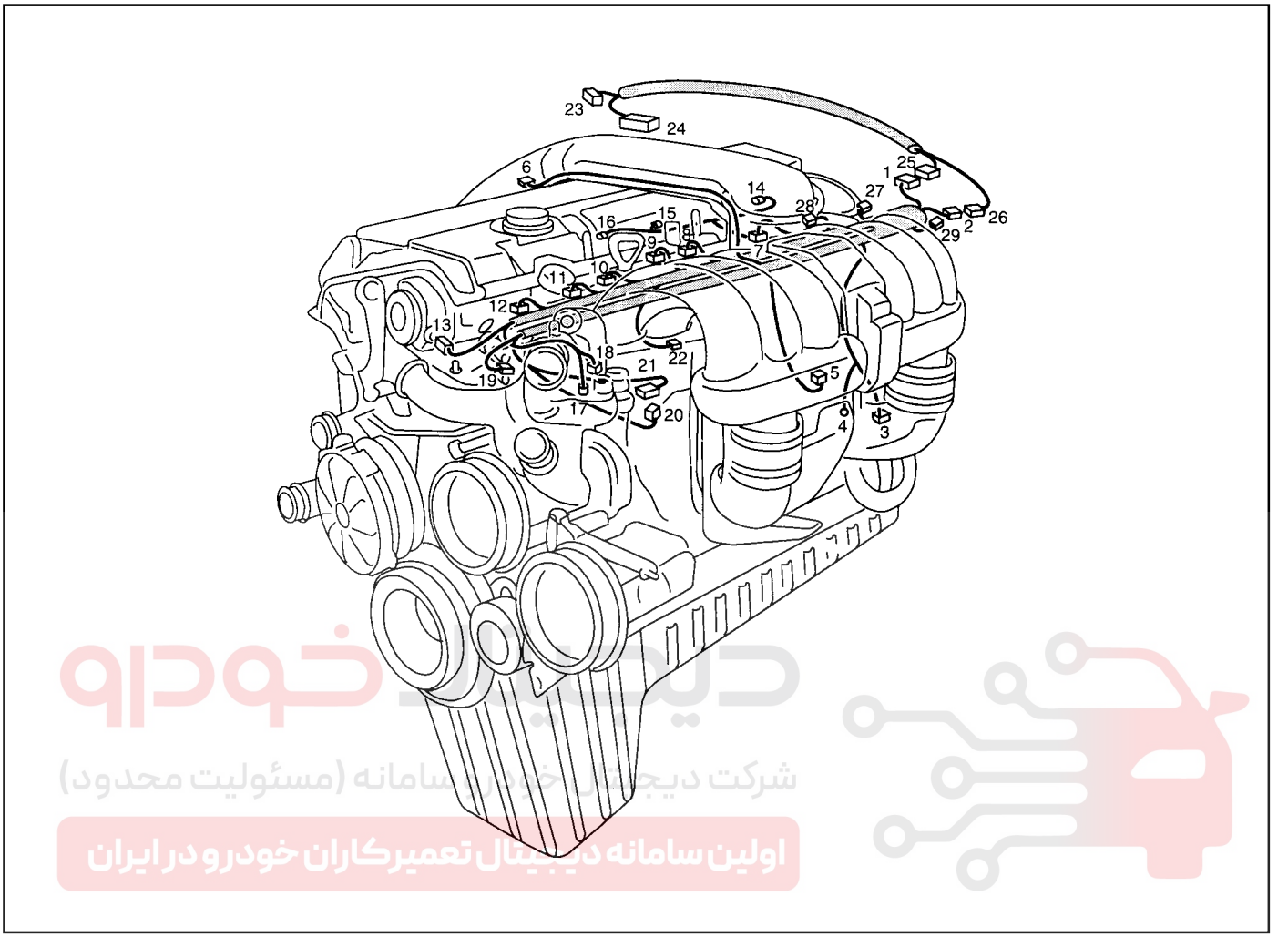
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سامانه دیجیتال تعمیرکاران خودرو ایران

1 Main Connector
2 Intake Actuator
3 Blower Relay
4 HI Relay
5 Power TR
6 Water Temperature Sensor
7 Temp Actuator
8 Blower Relay
9 Control (A)
10 Control (B)
11 Sun Sensor
12 Mode Actuator
13 In Car Sensor

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GASOLINE ENGINE (MSE)



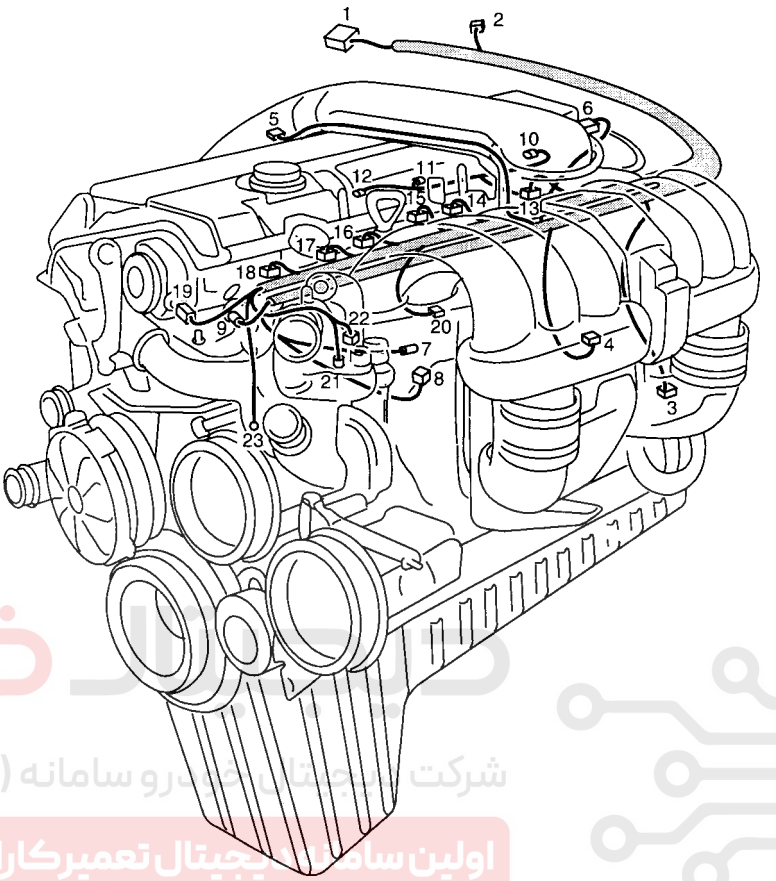
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1 ECU Main Wiring Connector
2 ECU Main Wiring Connector
3 Crankshaft Position Sensor
4 Oil Pressure Switch
5 Knock Sensor 2
6 Hot-Film Air Mass Sensor
7 Injector 6
8 Injector 5
9 Injector 4
10 Injector 3
11 Injector 2
12 Injector 1
13 Camshaft Adjustment Magnet
14 Ignition Coil 3
15 Ignition Coil 2
16 Ignition Coil 1
17 Temperature Sensor (Gauge)
18 Double Sensor
19 Camshaft Position Sensor
20 Knock Sensor 1
21 Throttle Regulating Unit
22 Resonance Flap
23 Main Wiring Connector
24 ECU
25 ECU Engine Wiring Connector
26 ECU Engine Wiring Connector

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GASOLINE ENGINE (HFM)



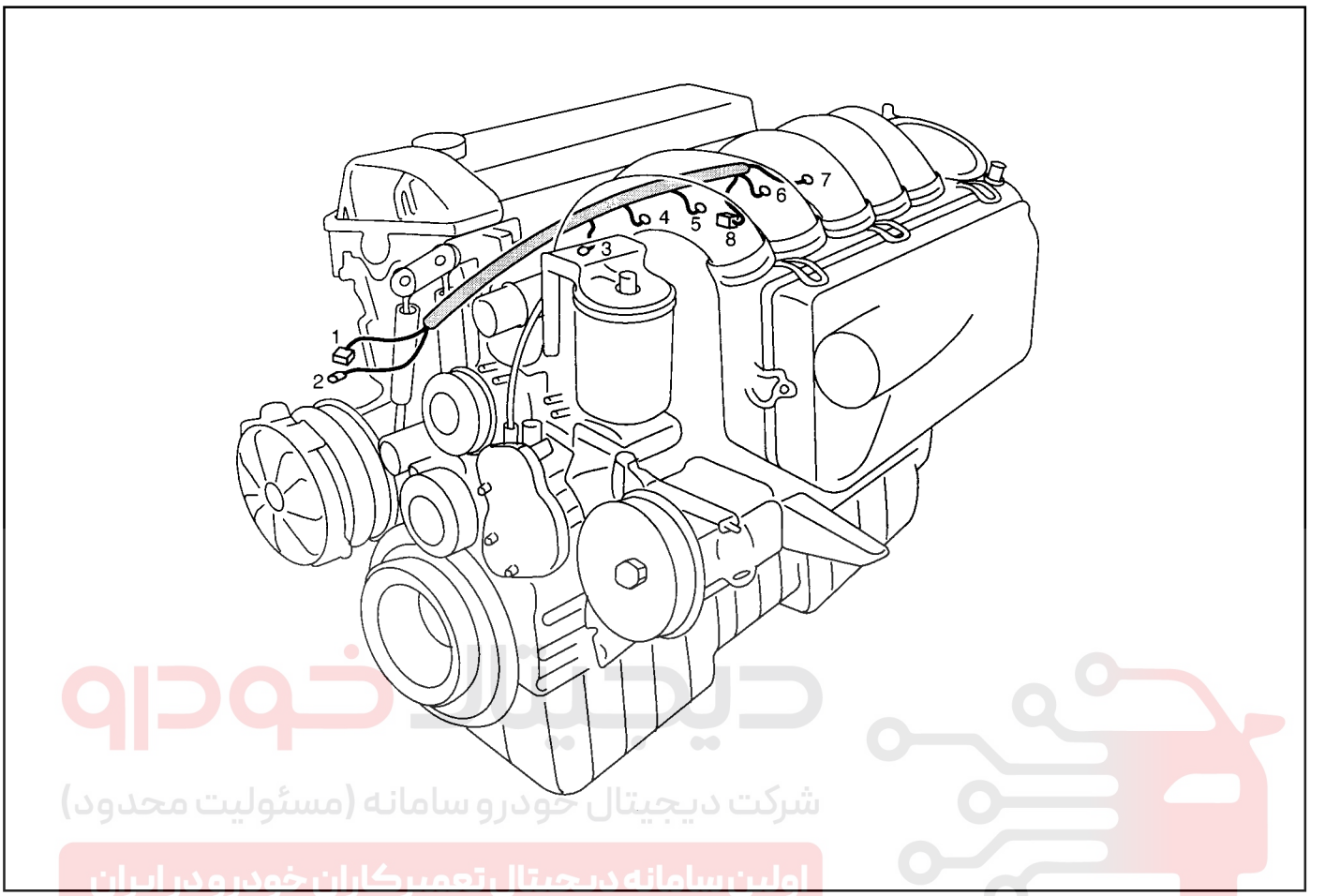
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اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

1 ECU
2 Main Wiring Connector
3 Crankshaft Position Sensor
4 Knock Sensor
5 Hot-Film Air Mass Sensor
6 Aspiration Sensor
7 Throttle Regulating Unit
8 Knock Sensor
9 Camshaft Position Sensor
10 Ignition Coil 3
11 Ignition Coil 2
12 Ignition Coil 1
13 Injector 6
14 Injector 5
15 Injector 4
16 Injector 3
17 Injector 2
18 Injector 1
19 Camshaft Adjustment Magnet
20 Resonance Flap
21 Temperature Sensor (Gauge)
22 Double Sensor
23 Ground

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DIESEL ENGINE



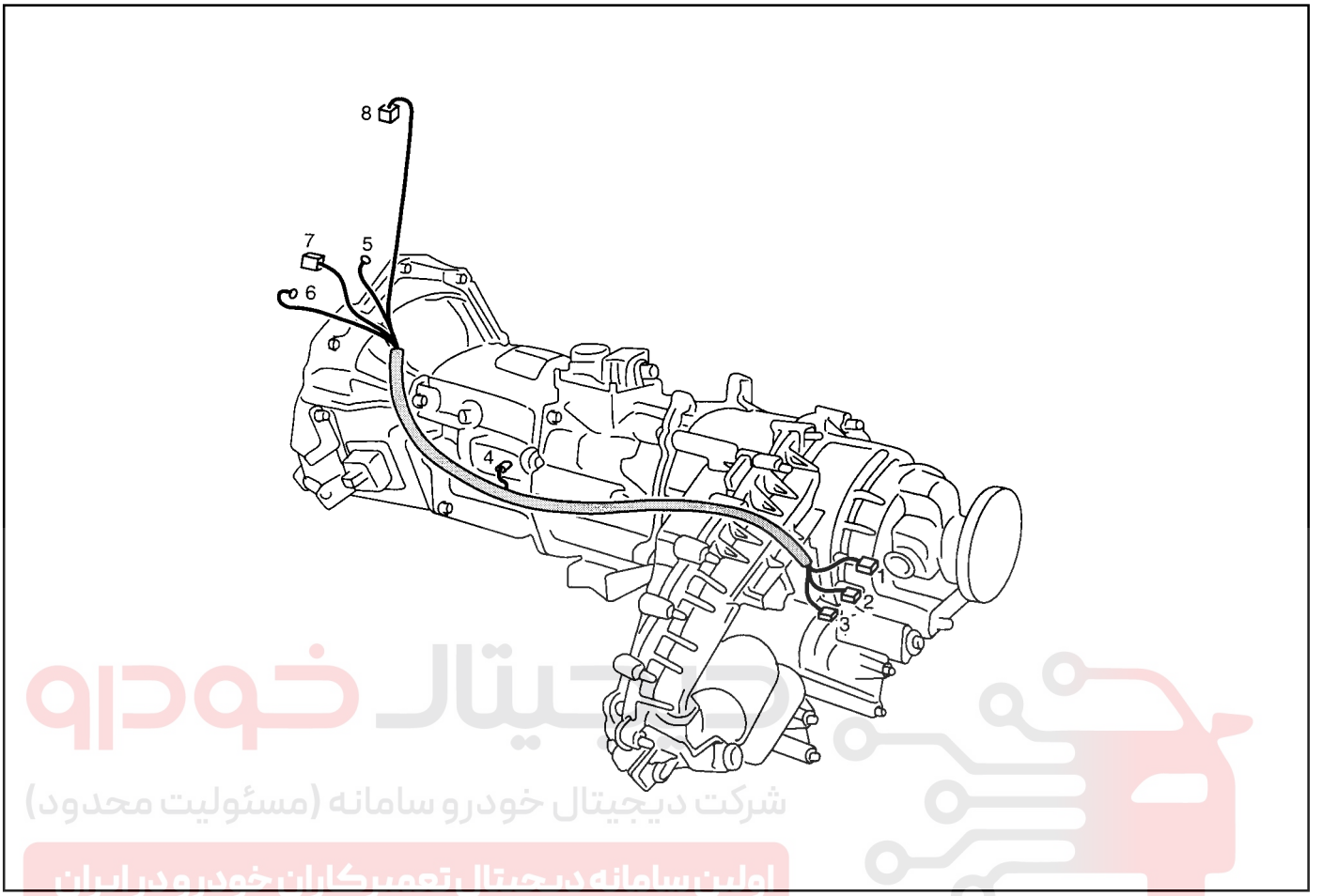
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اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

1 Preheating Unit
2 Main Wiring Connector
3 Glow Plug 1
4 Glow Plug 2
5 Glow Plug 3
6 Glow Plug 4
7 Glow Plug 5
8 Water Temperature Sensor (Gauge)

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MANUAL TRANSMISSION



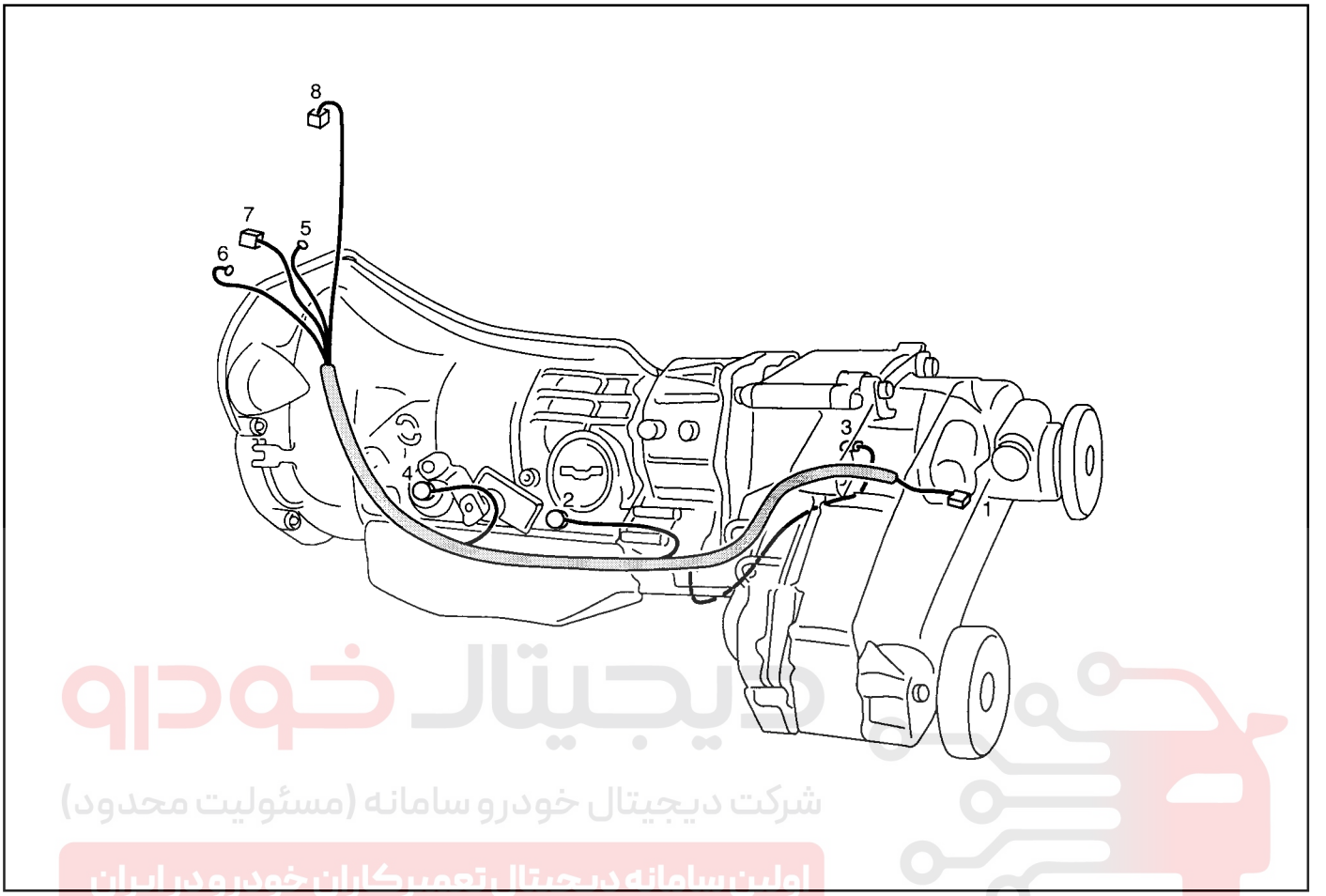
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اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

1 Main Wiring Connector ..... Diesel E/G
2 Main Wiring Connector ..... Gasoline E/G
3 Main Wiring Connector ..... Gasoline (E32, E23) E/G
4 Back Up Switch
5 Oil Pressure Switch
6 Start Motor Solenoid
7 Micro Switch
8 Speed Sensor (Turbo Diesel Engine Only)

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AUTOMATIC TRANSMISSION (BENZ)



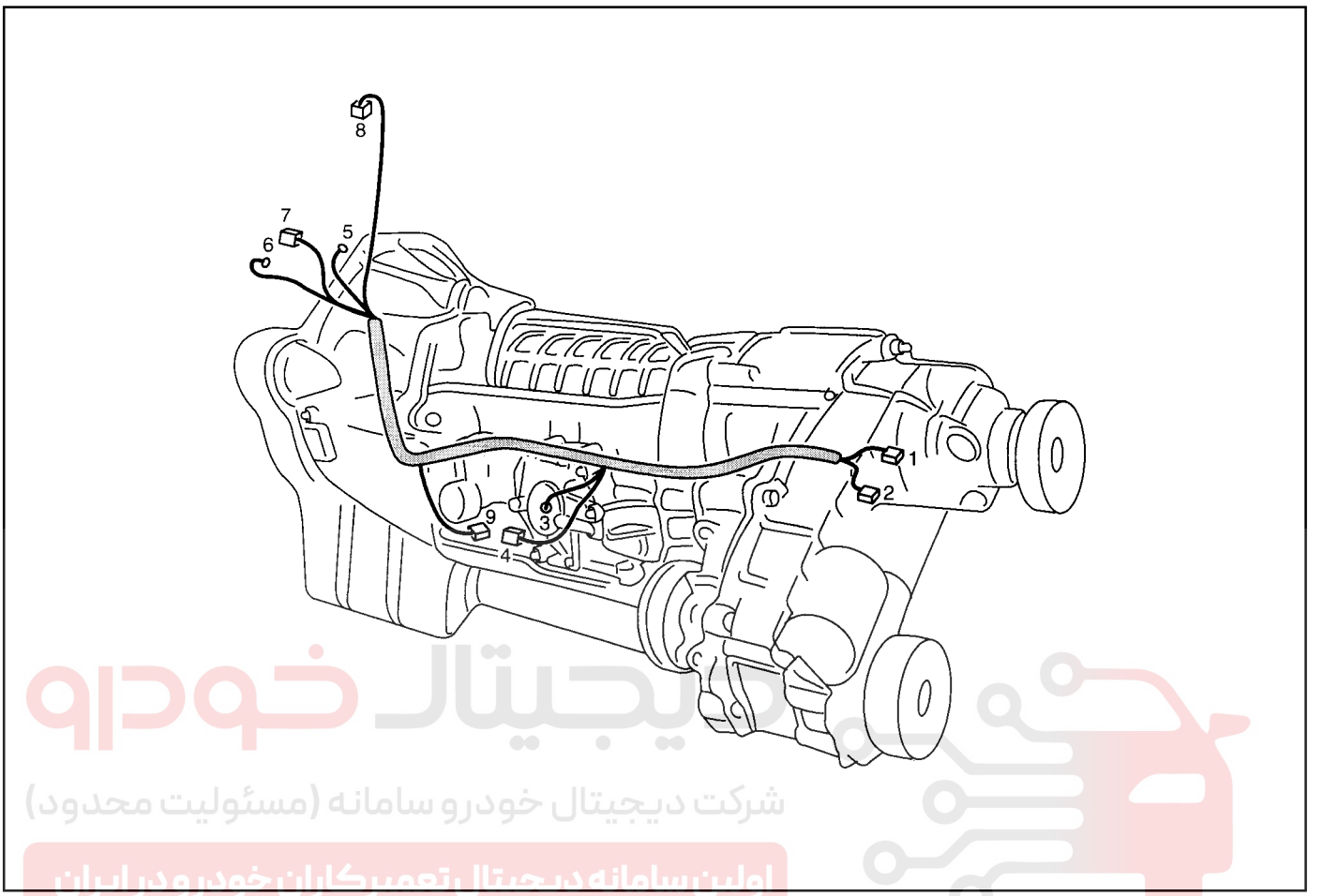
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اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

1 Main Wiring Connector
2 Start Lock Switch
3 Automatic Transmission Change Over Valve
4 Transmission Overload Protection Switch ..... Gasoline E/G
5 Oil Pressure Switch
6 Start Solenoid
7 Micro Switch ..... Diesel E/G
8 Speed Sensor ..... Turbo Diesel E/G

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AUTOMATIC TRANSMISSION (BTRA)



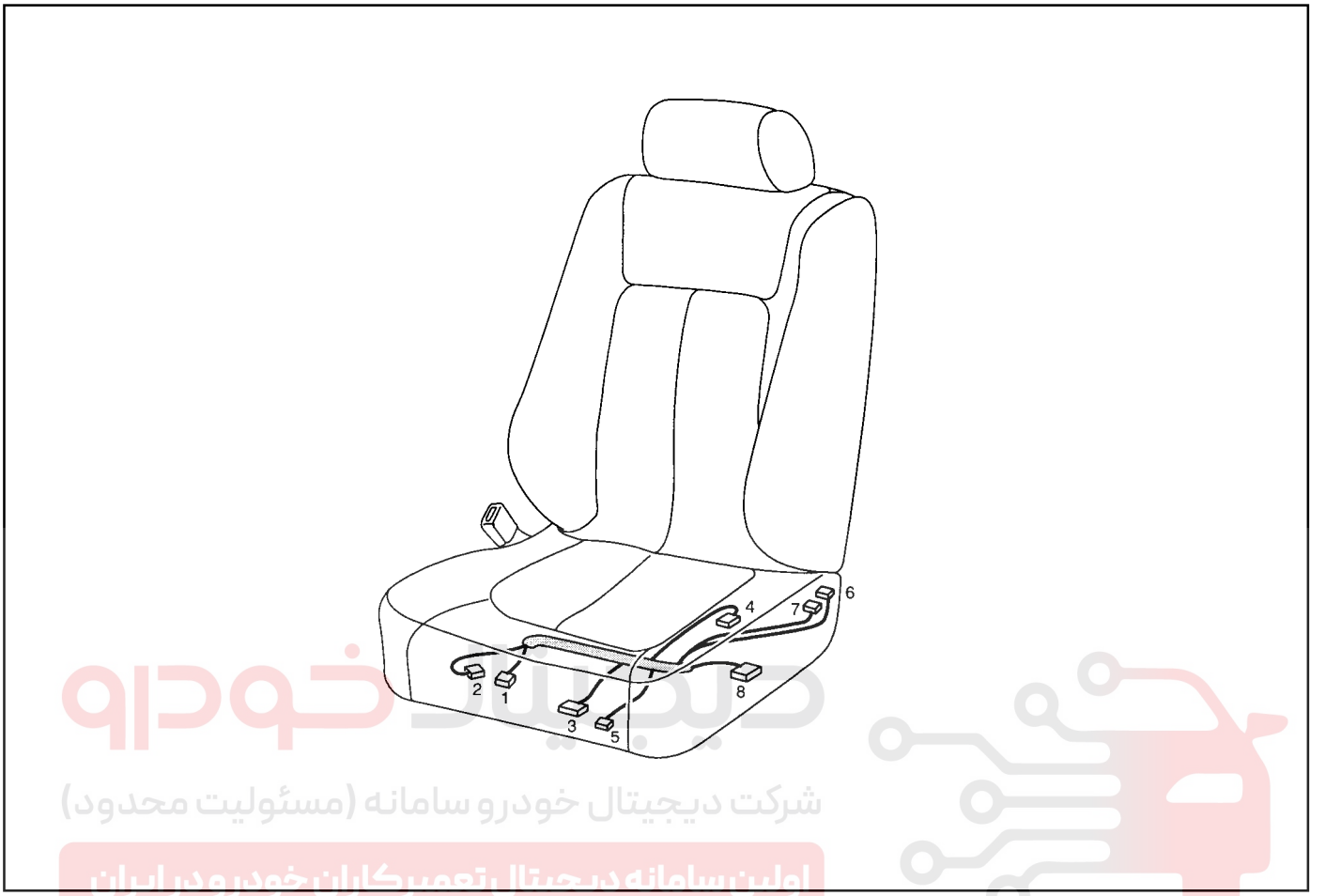
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1 Main Wiring Connector
2 Main Wiring Connector
3 Transmission
4 Transmission Lever
5 Oil Pressure Switch ..... Diesel E/G
6 Start Motor Solenoid
7 Throttle Position Sensor ..... Diesel E/G
8 Speed Sensor ..... Turbo Diesel E/G
9 Inhibitor Switch

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DRIVER'S SEAT



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اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

1 Main Wiring Connector
2 Tilt Motor
3 Heater Control Unit
4 Height Motor
5 Slide Motor
6 Back Seat Wiring Connector
7 Seat Heater
8 Driver Seat Switch

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SECTION 9B

LIGHTING SYSTEM

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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SPECIFICATIONS

BULB USAGE CHART

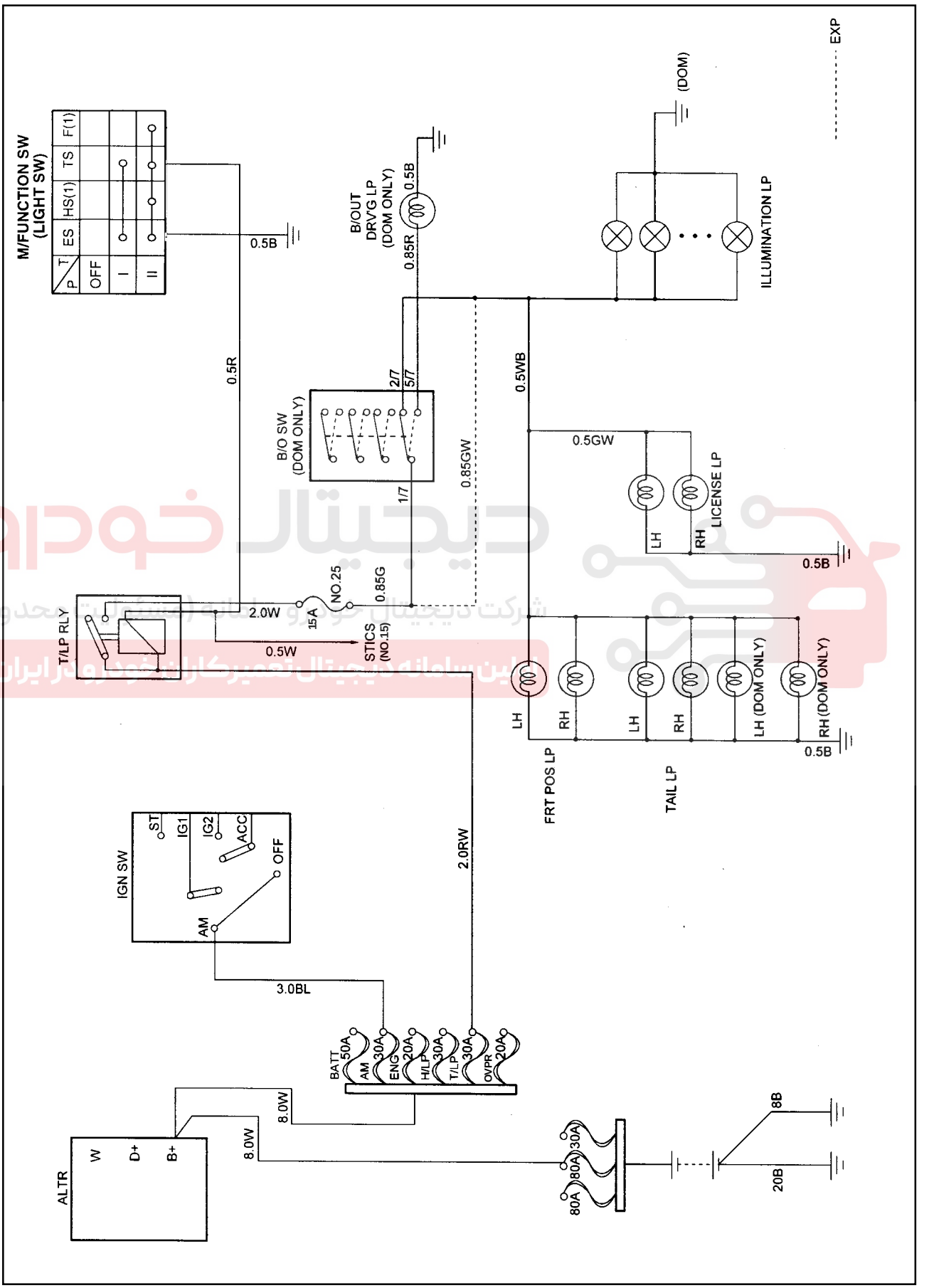
Application			Watt/Quantity
Head Lamp	Low (Philips H4)		55W / 2
	Hi (Philips H1)	Hi	55W / 2
		Low	55W / 2
Rear	Tail Lamp		5W / 4
	Brake Lamp		21W / 4
	High Mounted Stop Lamp		21W / 1
	Reverse Lamp		21W / 2
	Fog Lamp*		55W / 2
Front	Turn Signal Lamp		21W / 2
	Position Lamp		5W / 2
Interior	Front Lamp		8W / 2
	Rear Lamp		10W / 1
	Luggage Lamp		8W / 1
	Door Courtesy Lamp		5W / 4

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SCHEMATIC AND ROUTING DIAGRAMS

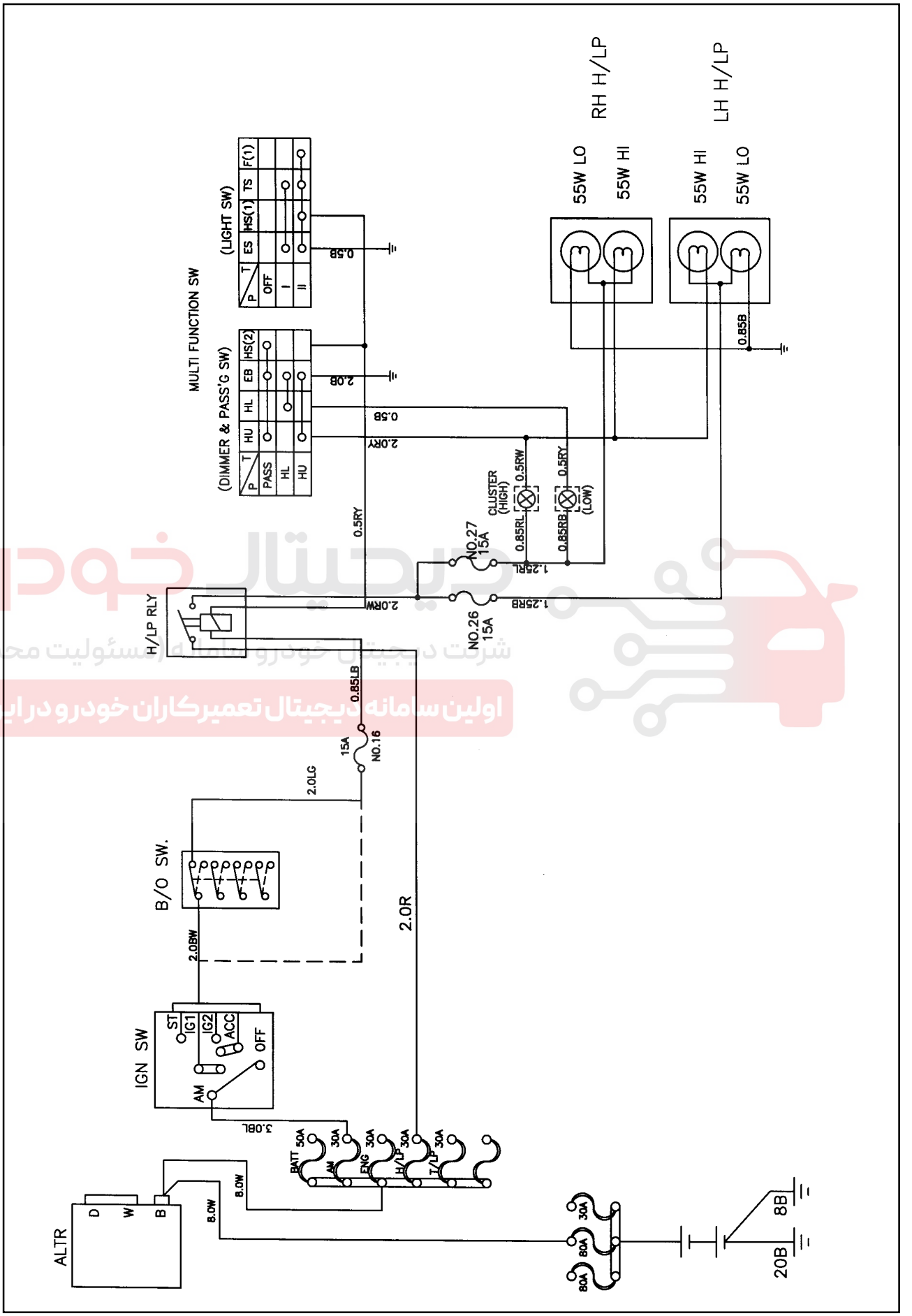
TAIL LAMP & B/O LAMP



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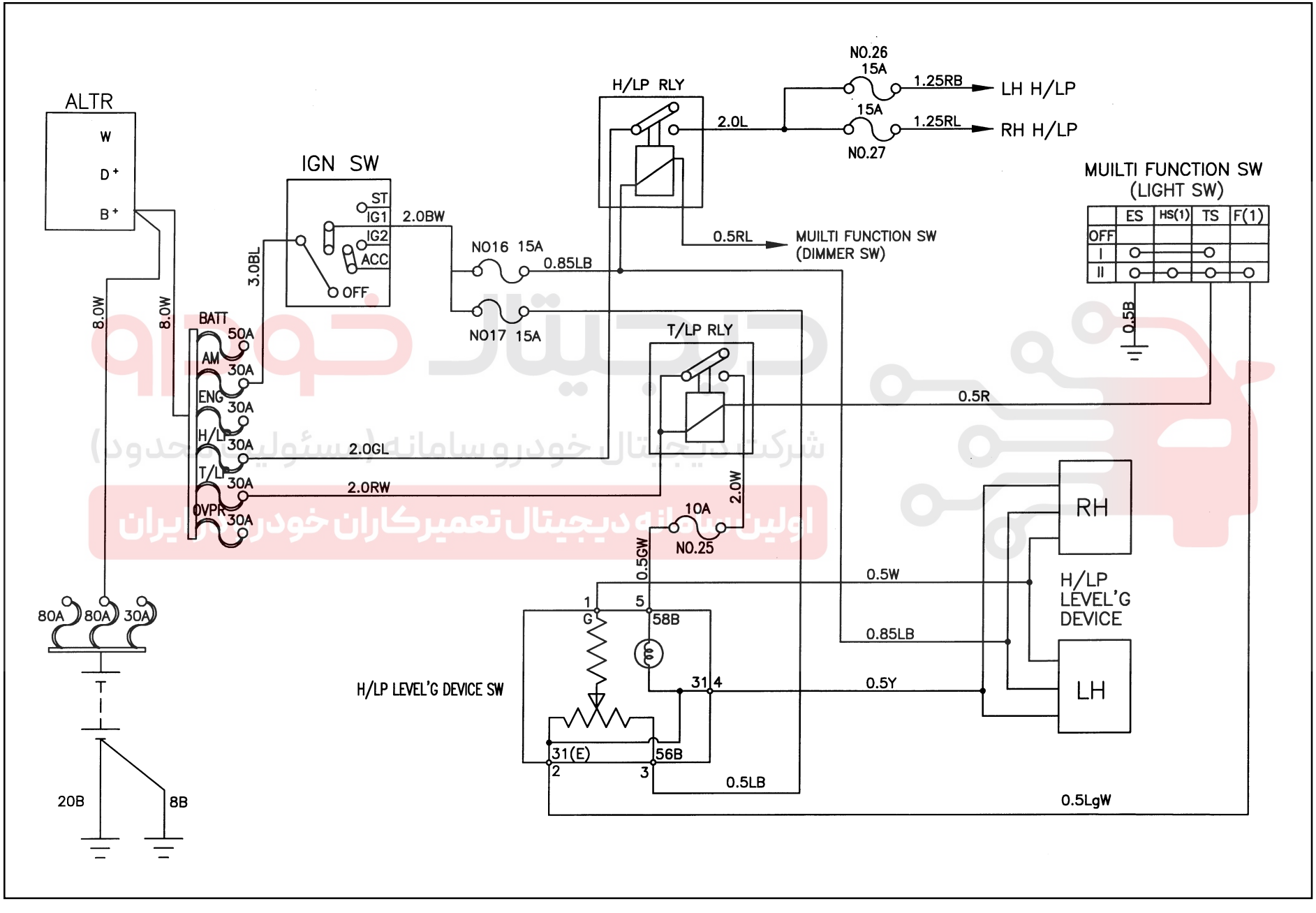
HEAD LAMP



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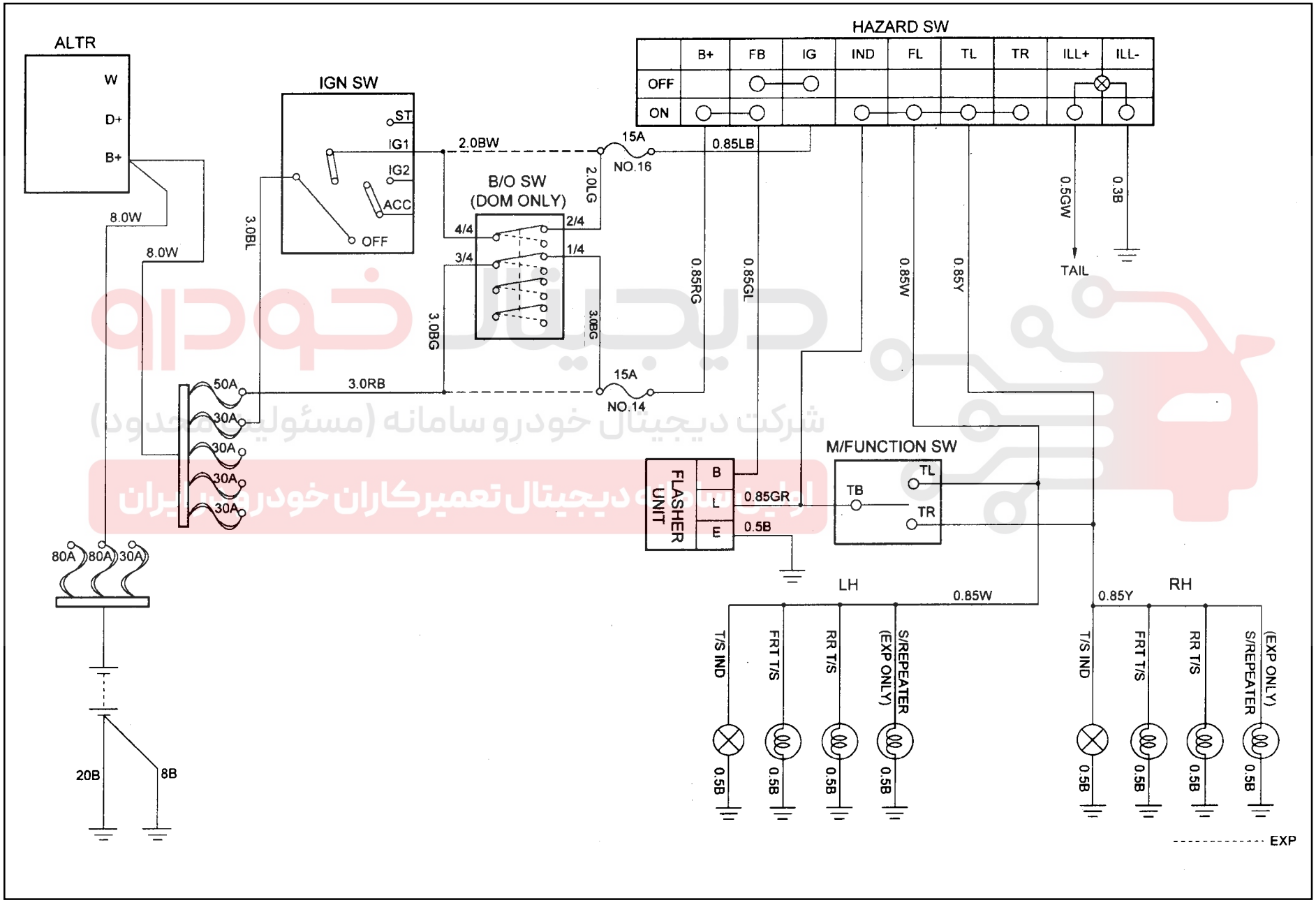
HEAD LAMP LEVELING DEVICE



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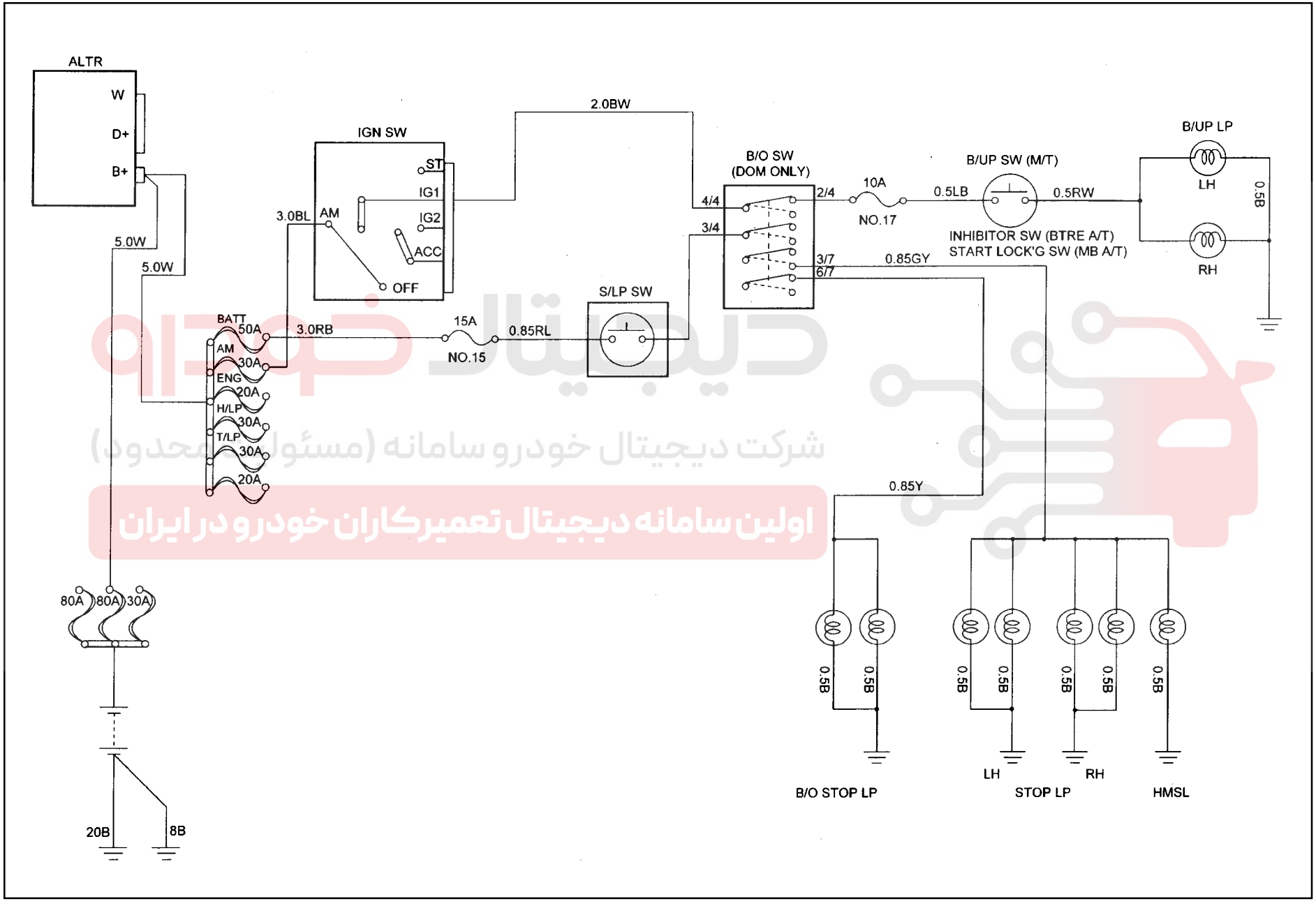
TURN SIGNAL LAMP AND HAZARD LAMP



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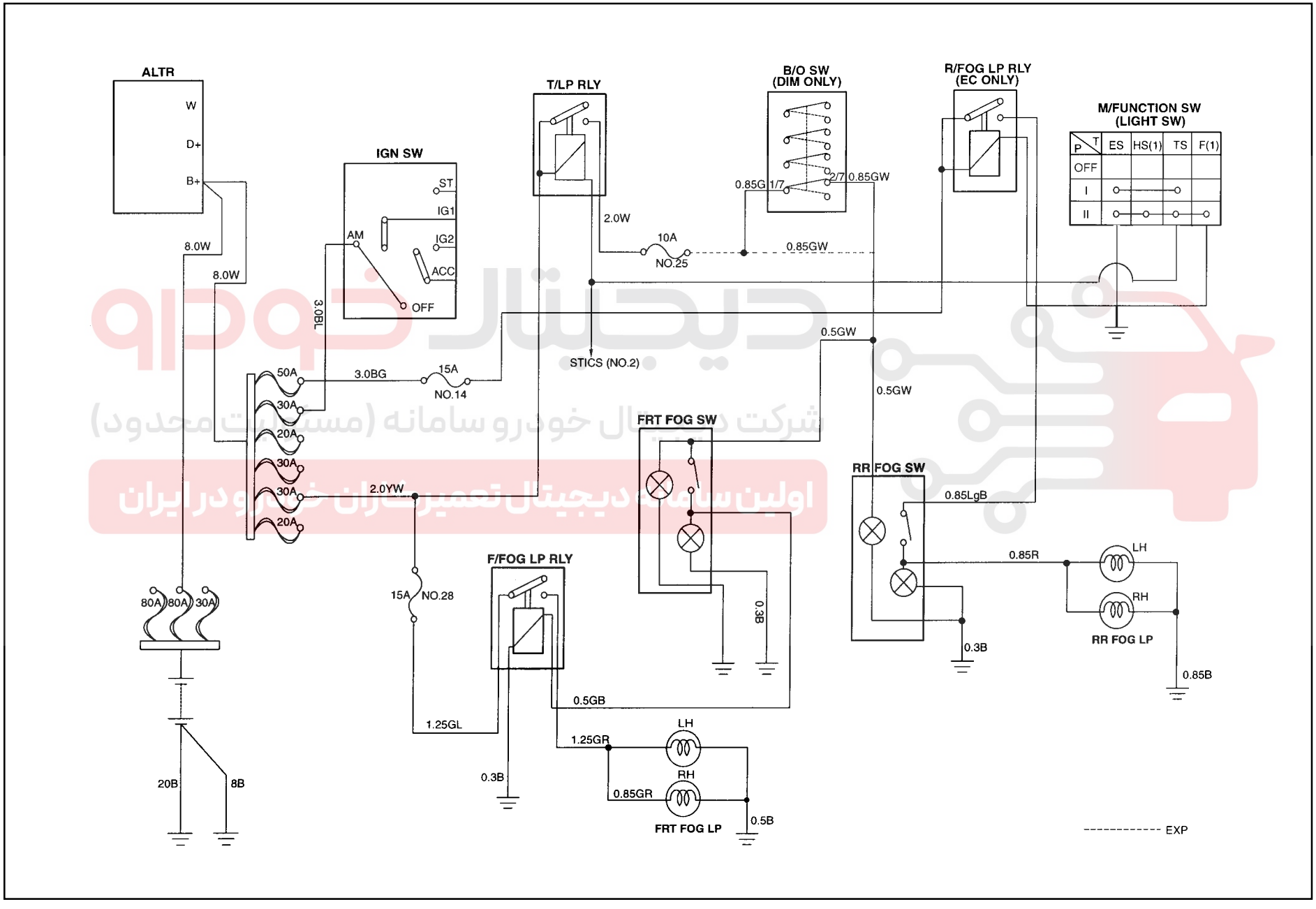
BACK-UP LAMP AND STOP LAMP



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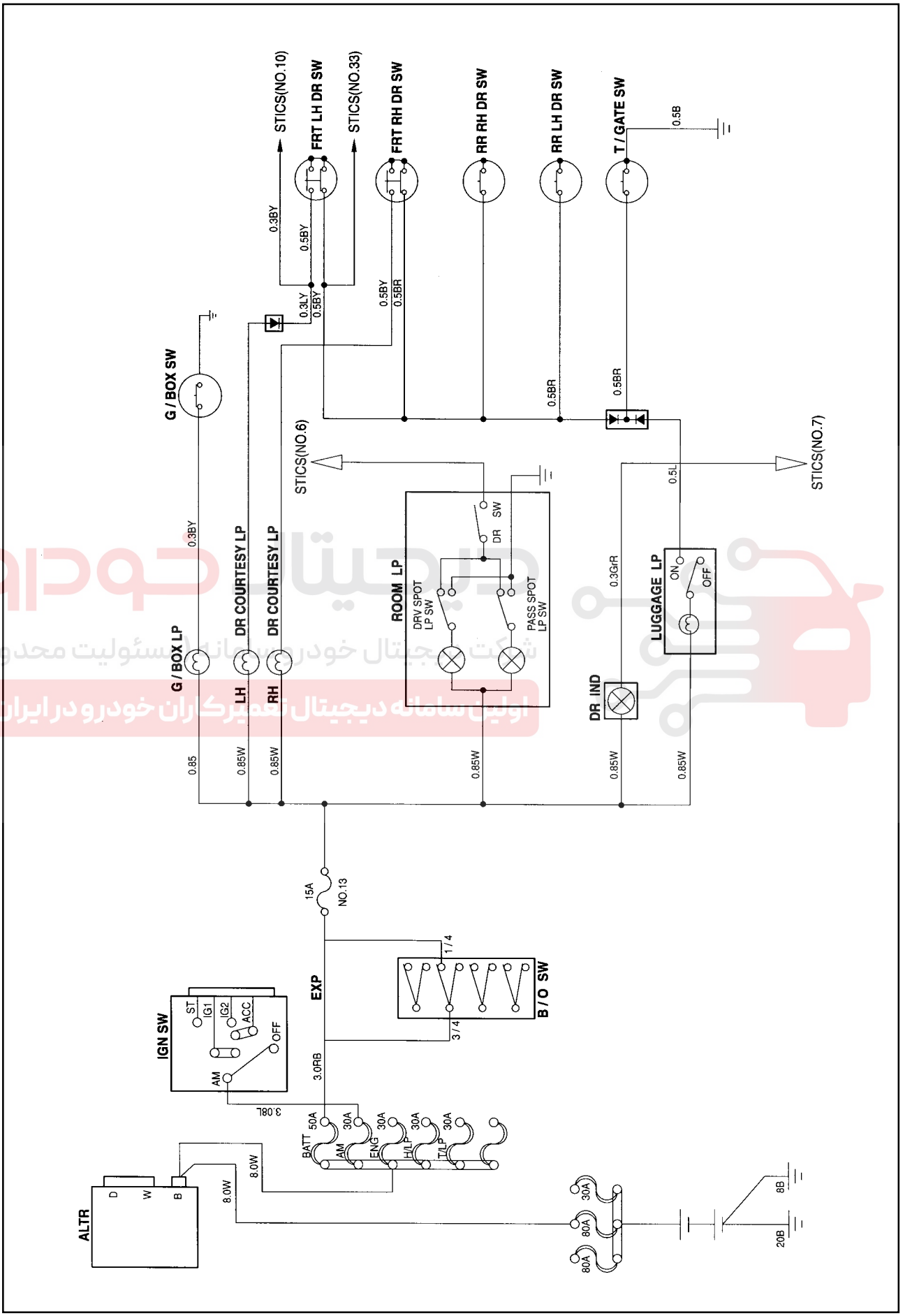
FRONT AND REAR FOG LAMP



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ROOM LAMP



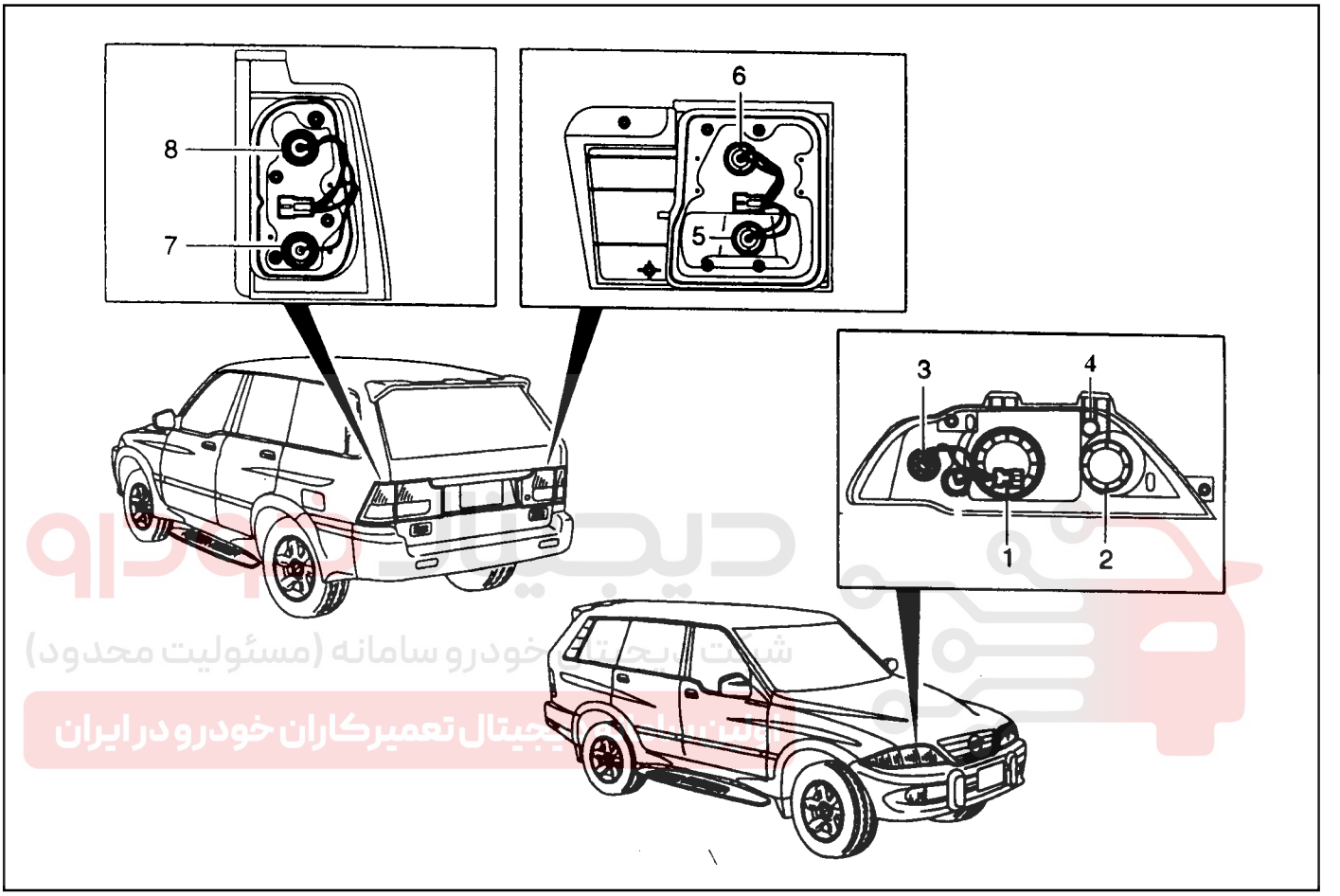
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MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

FRONT AND REAR LAMPS



1 Low-beam Head Lamp
2 High-beam Head Lamp
3 Turn Signal Lamp
4 Position Lamp
5 Back-up Lamp
6 Tail / Stop Lamp
7 Turn Signal Lamp
8 Tail / Stop Lamp

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Head Lamp Focusing

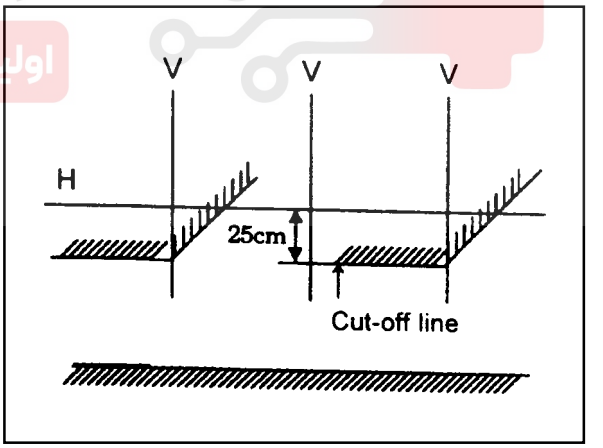
When using the beam setting device

1. The head lamp focus should be adjusted by using a proper beam setting device.
2. Adjust the head lamp focus by using Up/Down, Left/Right adjusting screws.

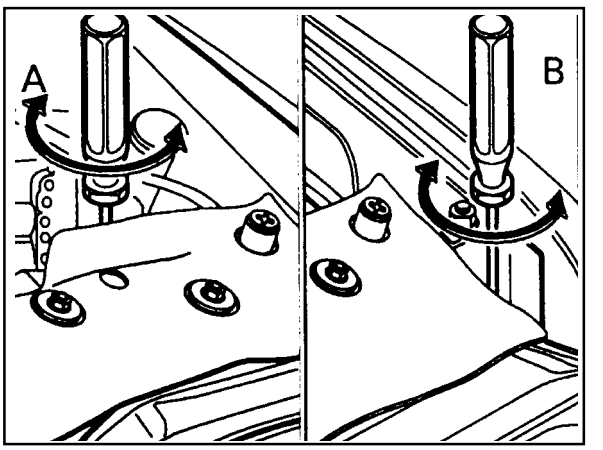
When using the screen

1. Put the vehicle on the leveling surface.
2. One person is needed to seat on the driver's seat without other loads(CVW) and check the tire pressure if it is in the specification.
3. The distance between the headlamp and the screen is 25m.
4. Draw the vertical line (crossing the center of each headlamp) on the screen.
5. Start the engine.
6. Check if the cut-off line of the headlamp on the screen is in the specification.
   1) Left/right direction
      - The degree of the cross point at the cut-off line of the headlamp and the vertical line should be 15.
   2) Up/down direction
      - The distance between the cut-off line of the headlamp and the horizontal line should be 25cm.

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7. Adjust the focus if the cut-off line of the headlamp is out of the specification by using up/down, left/right adjusting screws.
   A : Up/down direction adjusting screw
   B : Left/right direction adjusting secrw



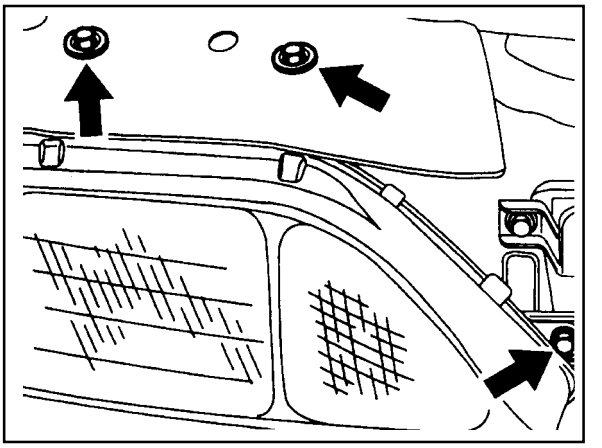
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Head Lamp

Removal & Installation Procedure

1. Unscrew upper 2(10mm) bolts and lower 1(10mm) bolt of head lamp.
2. Disconnect connector and remove the headlamp.
3. Installation should follow the removal procedure in the reverse order.

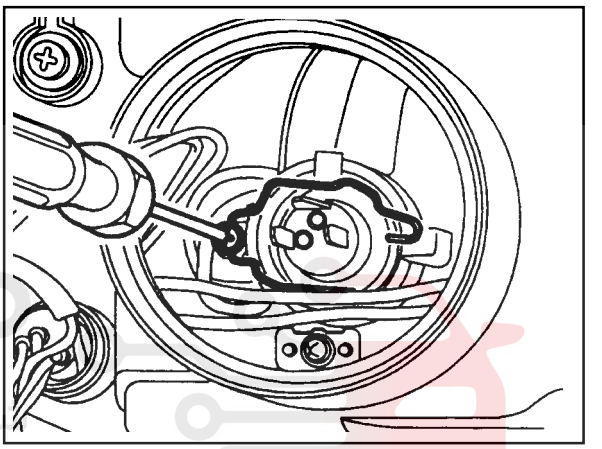


Bulb Replacement

1. Turn the dust cap of the head lamp to the left and remove it.
2. If it is high/low head lamp, loosen the screw and pull out the return spring and replace the bulb.

   Notice

   For correct installation, check the original position of the return spring and remove.



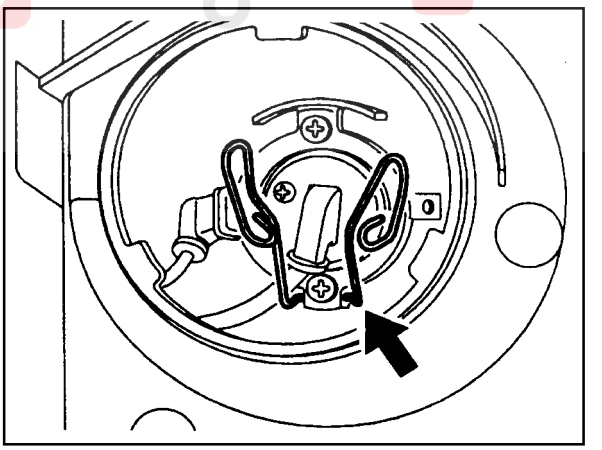
High/low-beam head lamp replacement

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3. If it is high-beam head lamp, pull out the return spring and replace the bulb.

   Notice

   Refern to lamp specifications.



High-beam head lamp replacement

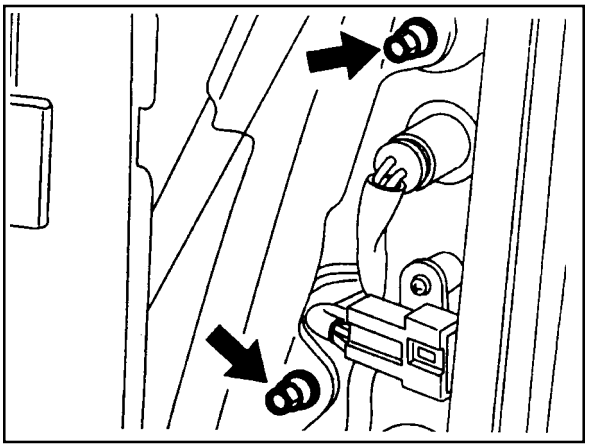
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Rear Combination Lamp

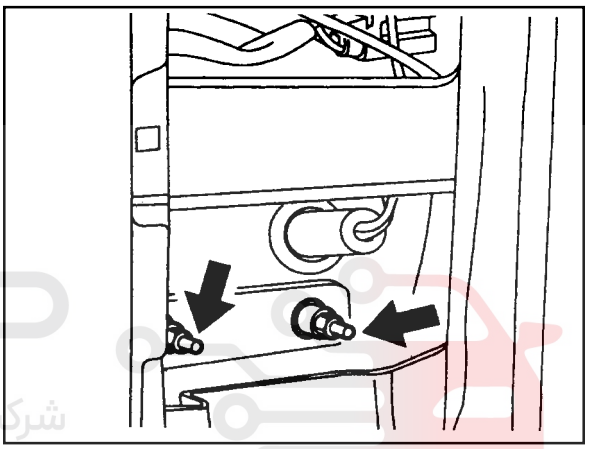
Removal & Installation Procedure

1. Open the tailgate and remove the inner cover of the rear combination lamp.
2. Unscrew 4(8mm) nuts of tail/stop lamp and turn signal lamp assembly.



Tail/stop and turn signal lamp

3. Unscrew 6(8mm) nuts of tail/stop lamp and back-up lamp assembly.

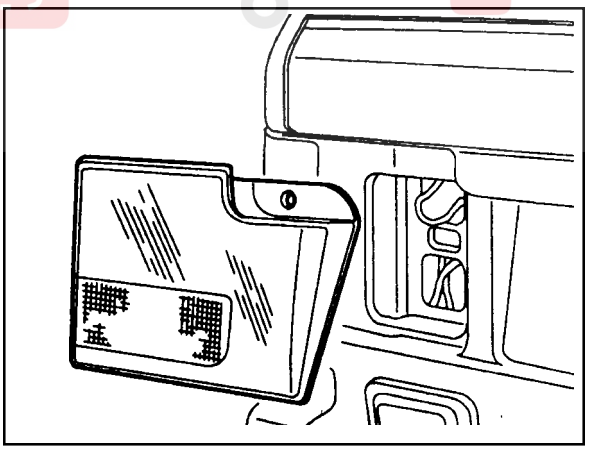


Tail/stop Lamp and backup lamp

4. Disconnect each connectors and remove the rear combination lamp. Replace with specified bulb, if necessary.

   Notice

   Refer to lamp specification.



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SECTION 9C

HORNS

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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Horn 9C-2

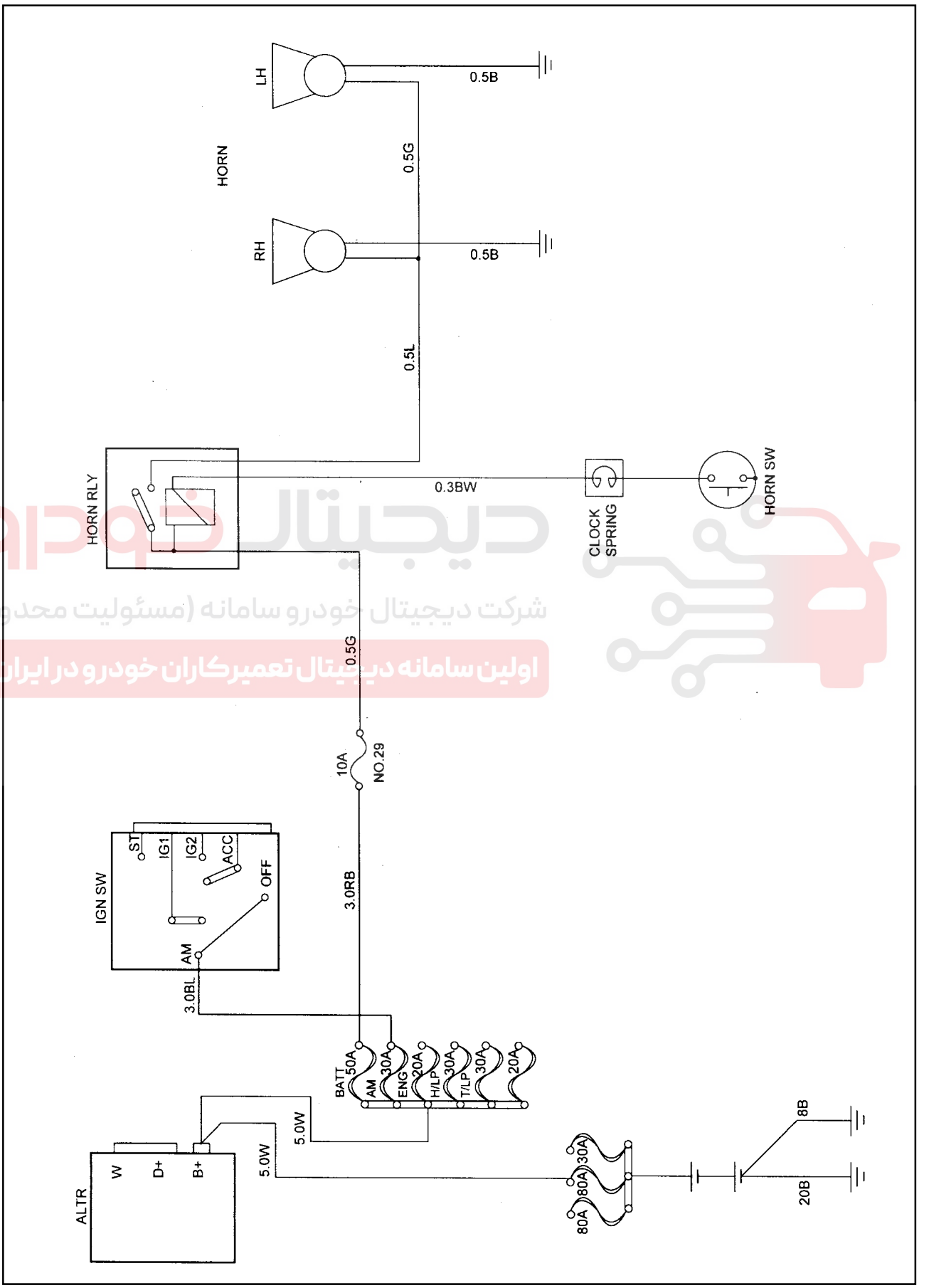
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SCHEMATIC AND ROUTING DIAGRAMS

HORN



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SECTION 9D

WIPERS/WASHER SYSTEM

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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Rear Wiper and Washer 9D-5

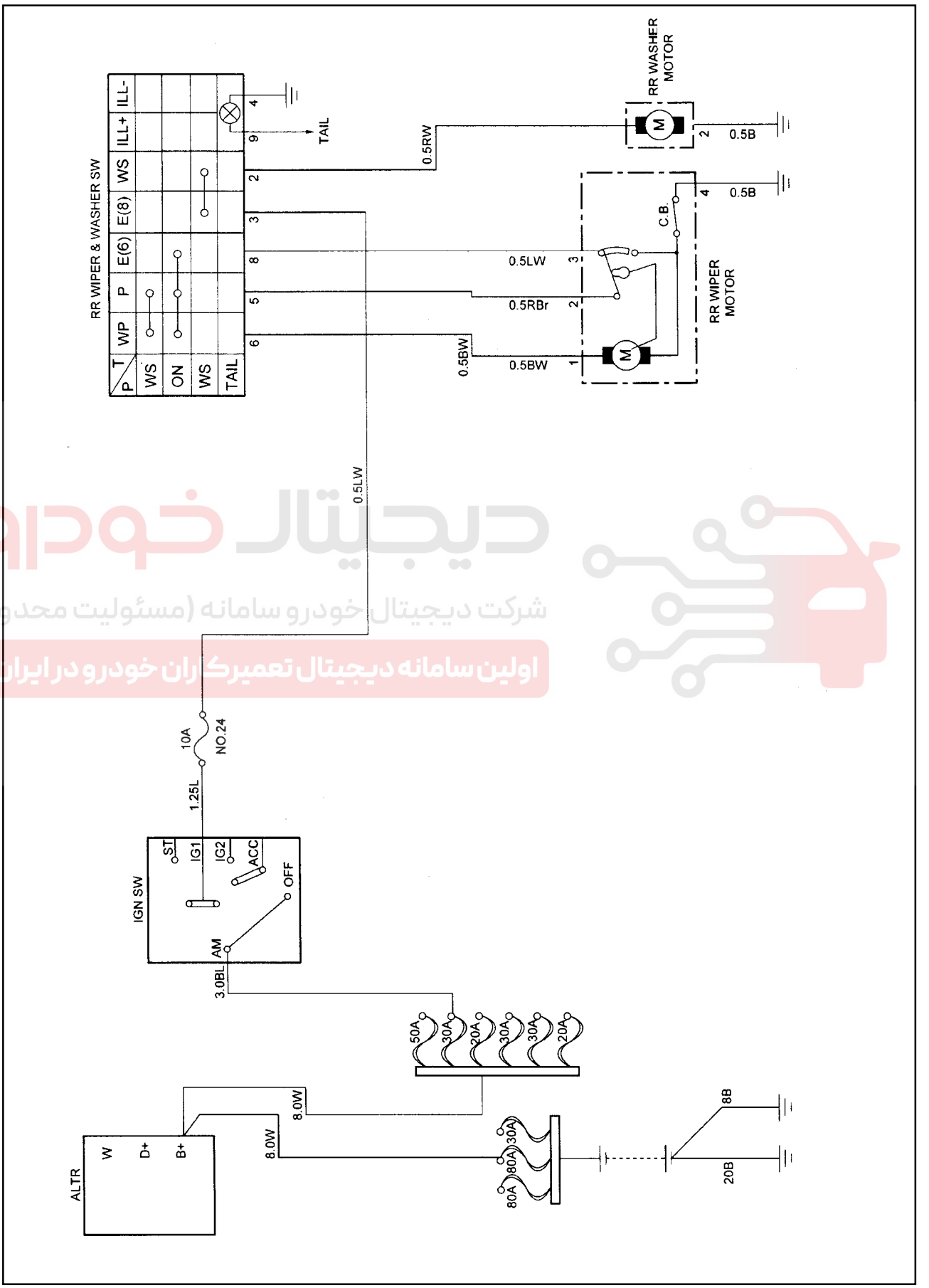
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SCHEMATIC AND ROUTING DIAGRAMS

REAR WIPER AND WASHER



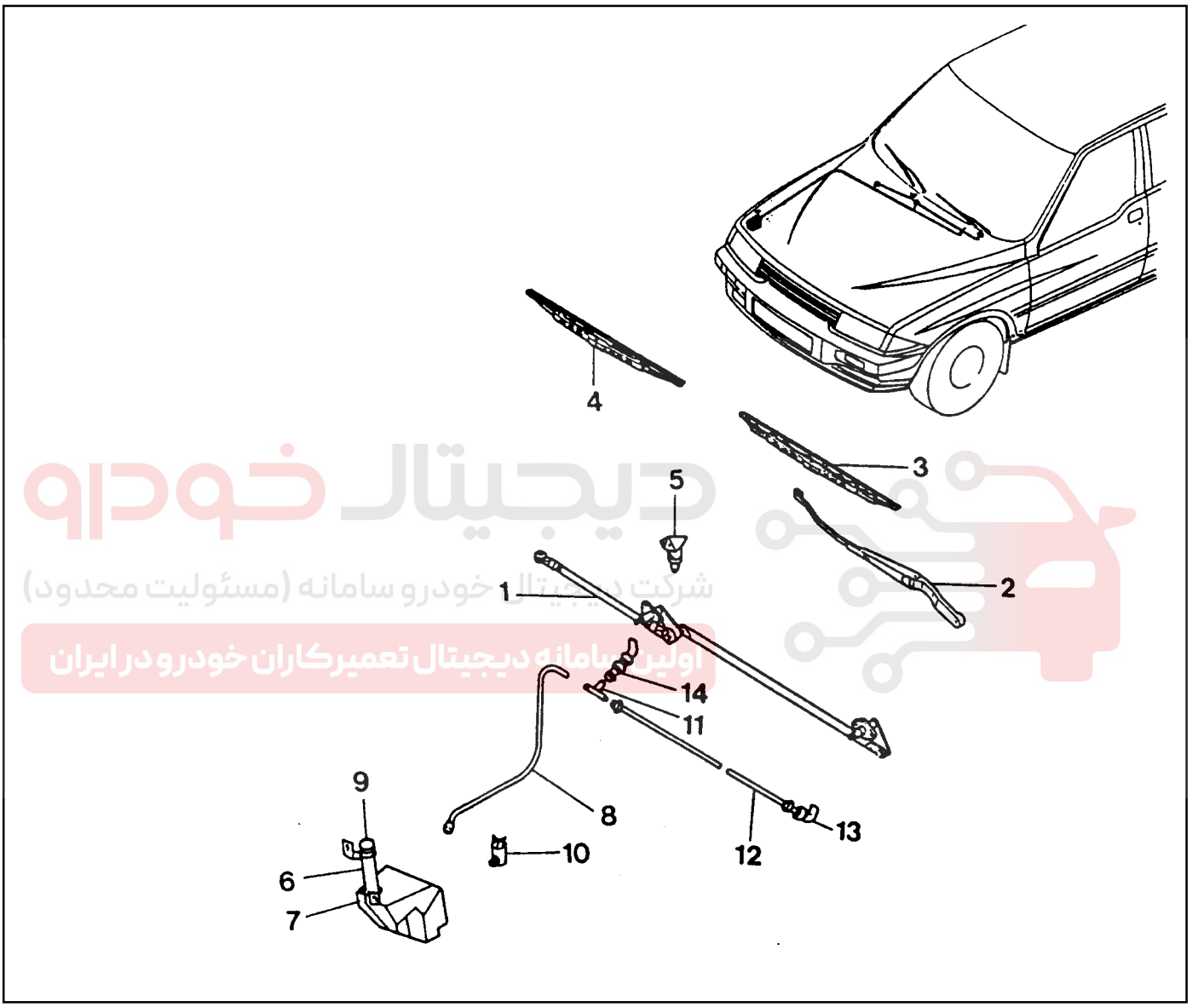
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MAINTENANCE AND REPAIR

ON VEHICLE SERVICE

FRONT WIPER AND WASHER



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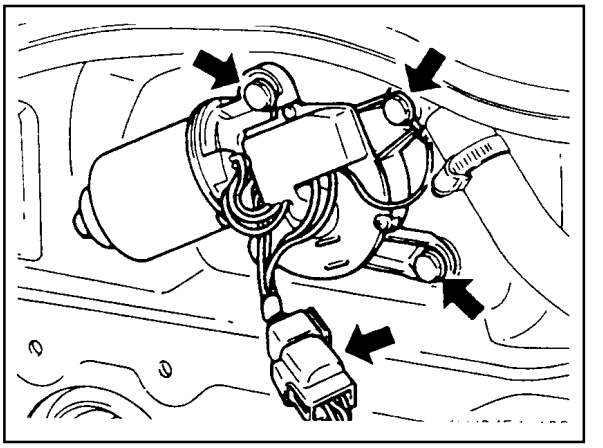
1 Windshield Linkage
2 Wiper Arm
3 Wiper Blade (Left)
4 Wiper Blade (Right)
5 Washer Nozzle
6 Reservoir Tank Guide
7 Reservoir Tank
8 Washer Hose
9 Cap
10 Washer Motor
11 Hose Connector (Y- type)
12 Washer Hose (Left)
13 Nozzle Pipe
14 Washer Hose

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Removal & Installation Procedure

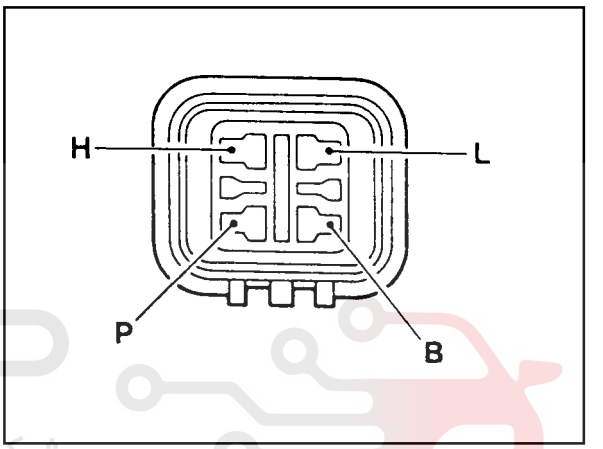
1. Remove the wiper arm and blade.
2. Remove the linkage connected to the wiper motor.
3. Disconnect the connector from the wiper motor.
4. Unscrew the locking bolts from wiper motor.
5. Installation is reverse order of removal



Connector Appearance and Connecting Circuit

Connector Terminal

H	HI(high speed)
P	Intermittent
B	Ground
L	Low(low speed)

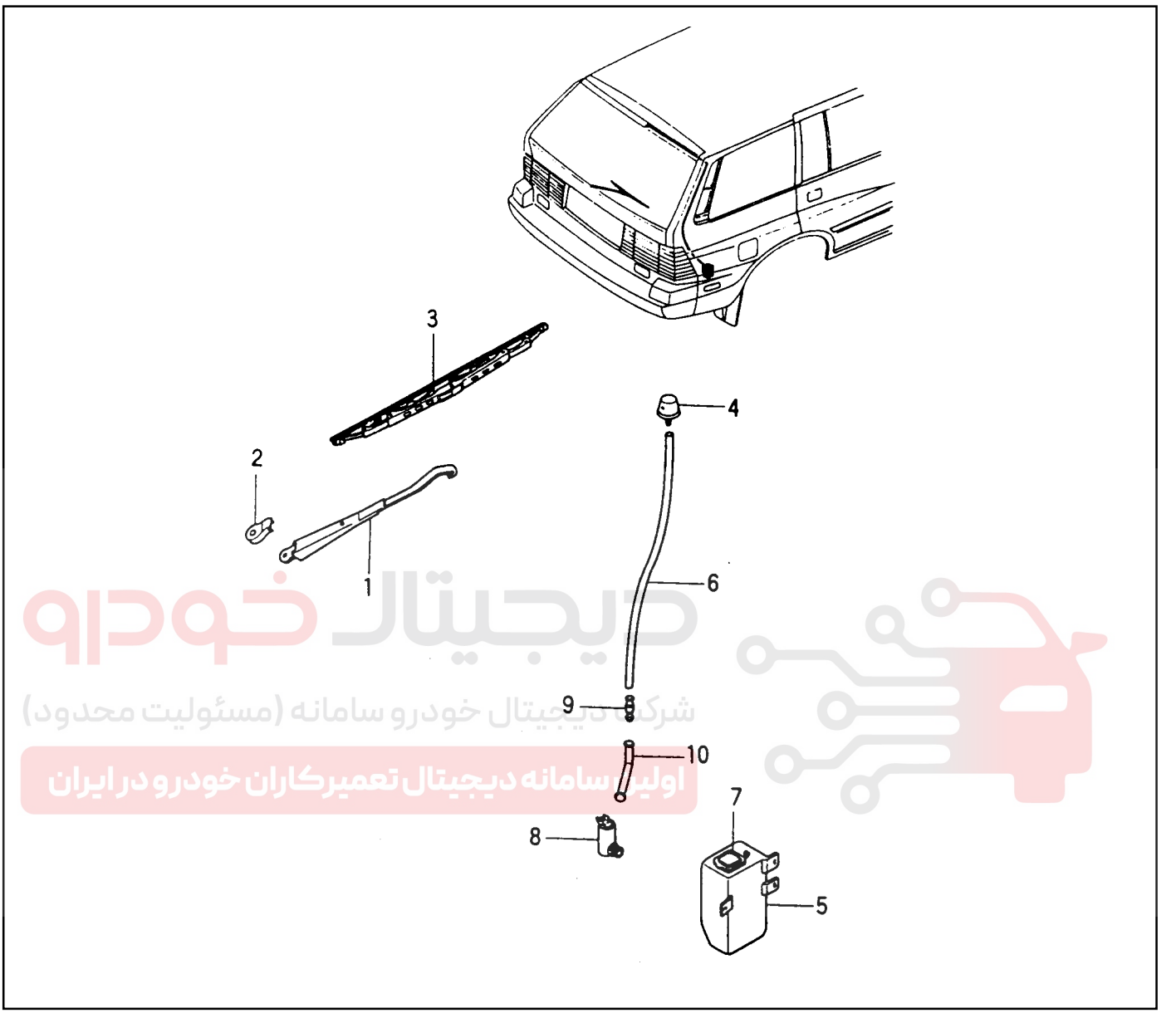


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REAR WIPER AND WASHER



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1 Wiper Arm
2 Wiper Cap
3 Wiper Blade
4 Washer Nozzle
5 Reservoir Tank
6 Wiper Hose
7 Cap
8 Washer Motor
9 Wiper Hose Socket
10 Outer Joint

Notice

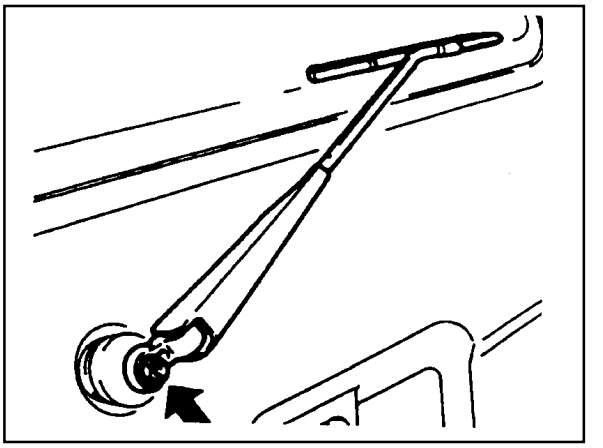
Removal and installation is as shown in upper drawings.

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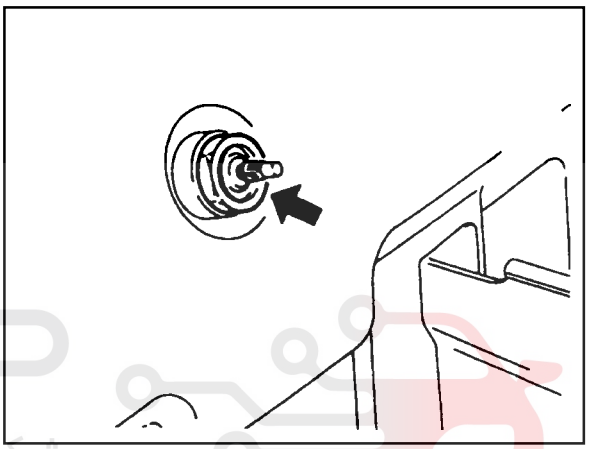
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Removal & Installation Procedure

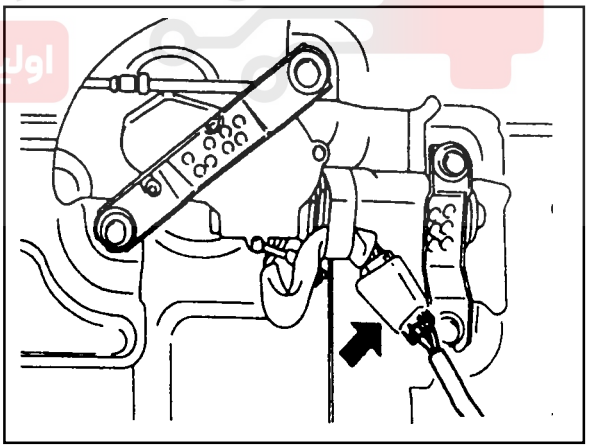
1. Remove the spare tire.
2. Unscrew the locking nut and remove the wiper.



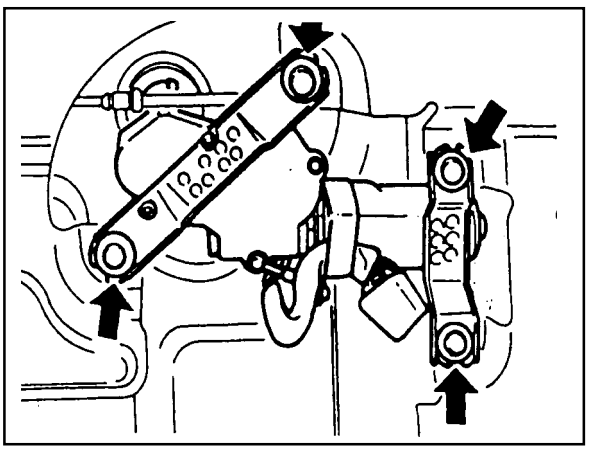
3. Unscrew the locking nut of wiper motor.



4. Remove the tailgate trim panel.
5. Dieconnect the connector from the wiper motor.



6. Unscrew four screws(arrows) and remove the wiper motor.



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Connector Appearance and Connecting Circuit

Connector Terminal

B+	Battery Power Source
E	Ground
WP	From Switch

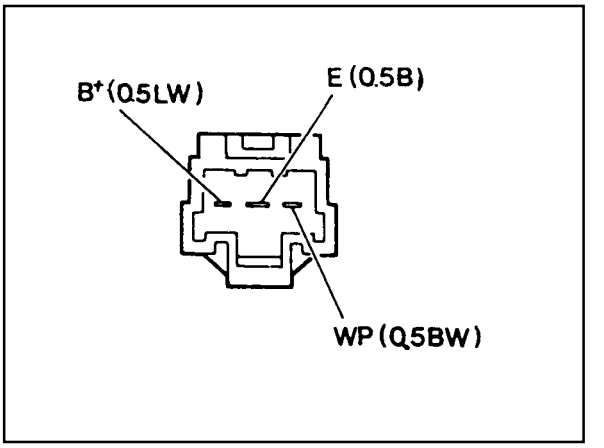
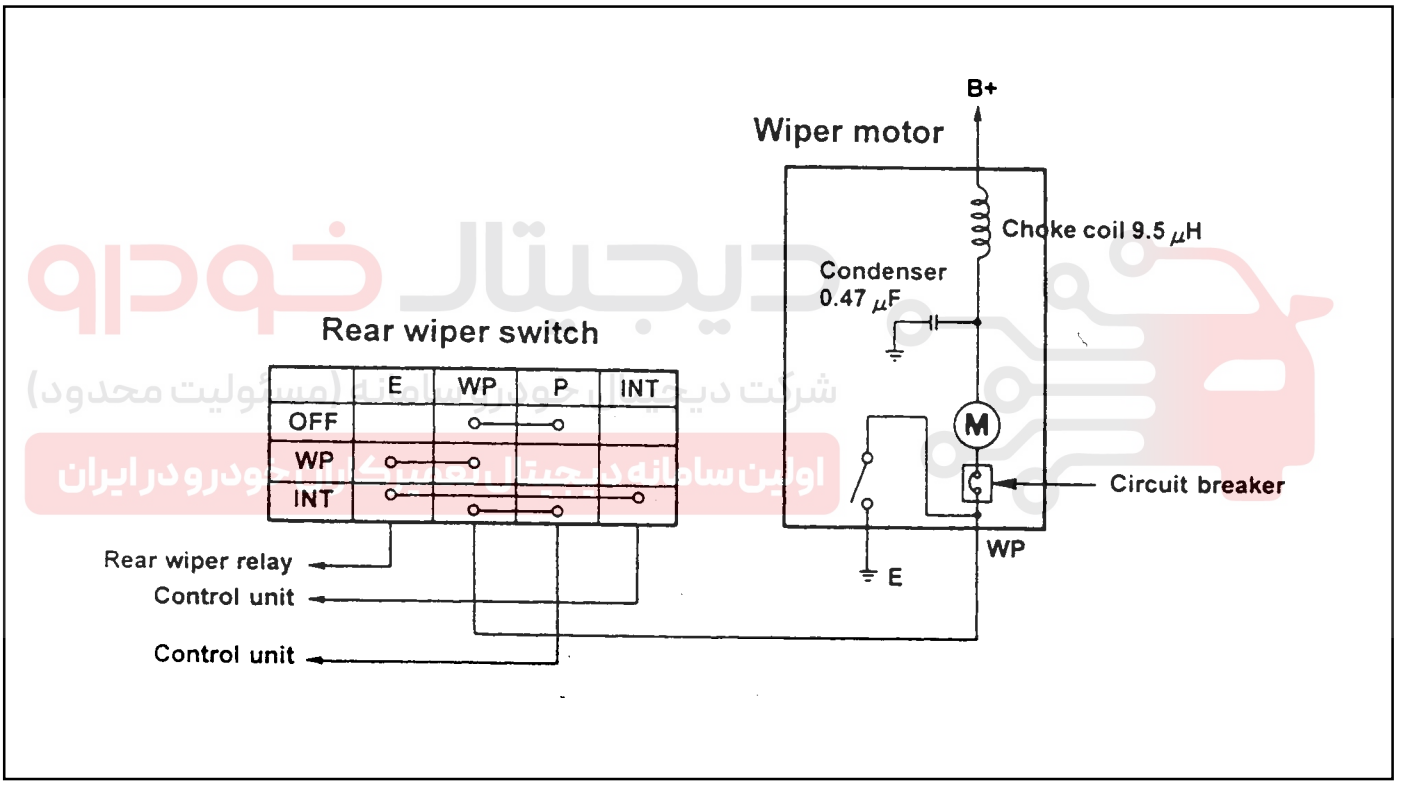


Diagram for Connecting Circuit



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SECTION 9E

INSTRUMENTATION/DRIVER INFORMATION

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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Combination Meter 9E-3
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Combination Meter 9E-4

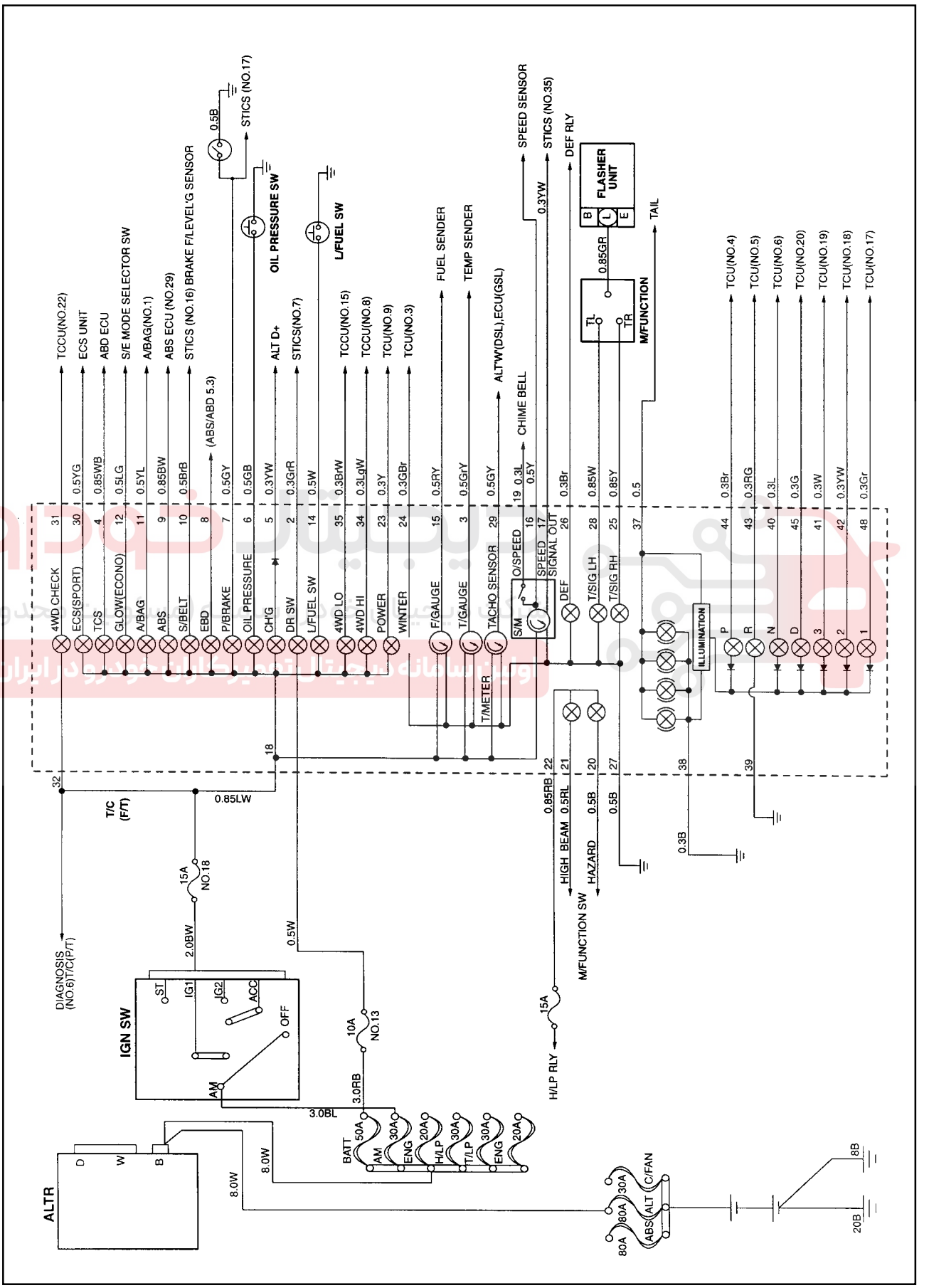
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SCHEMATIC AND ROUTING DIAGRAMS

CLUSTER

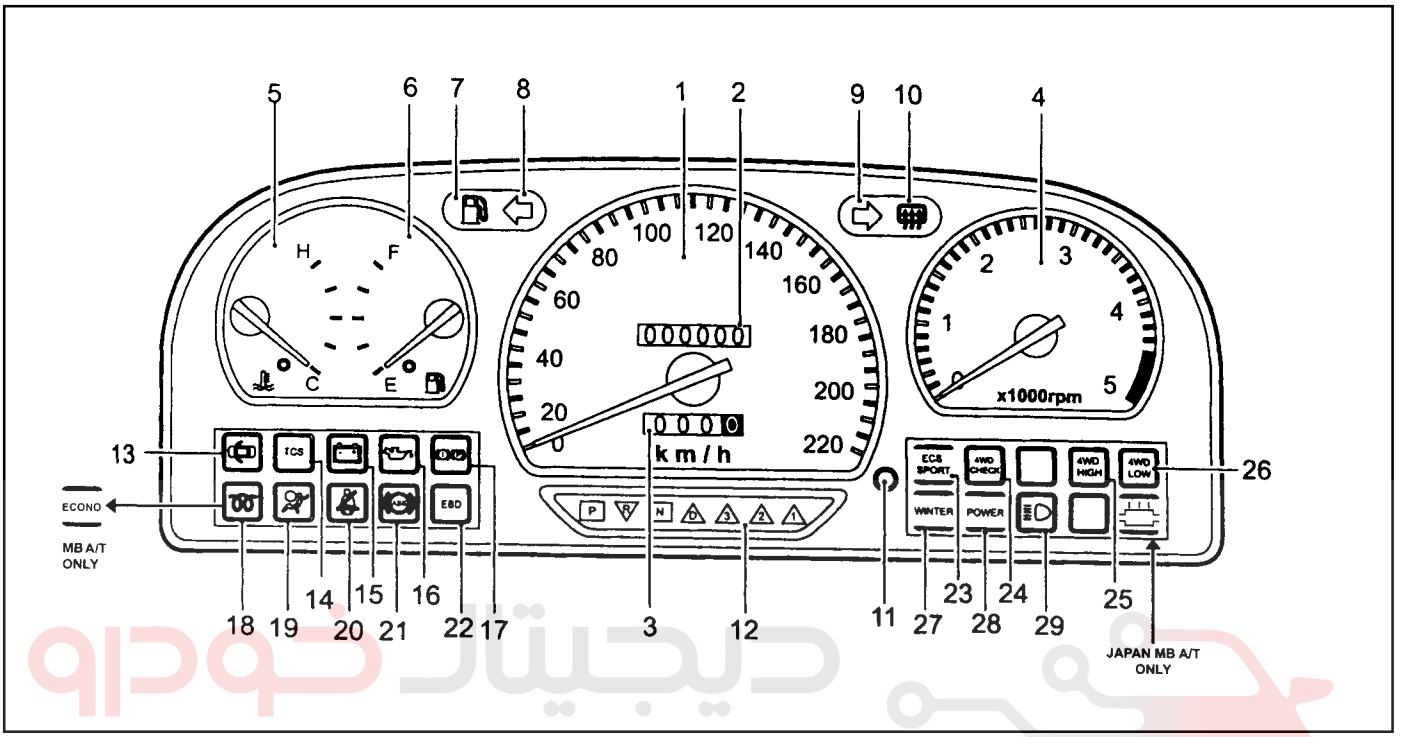


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COMPONENT LOCATOR

COMBINATION METER



1. Speedometer
2. Odometer
3. Trip odometer
4. Tachometer
5. Coolant temperature gauge
6. Fuel gauge
7. Low fuel level warning light
8. Turn signal indicator (left)
9. Turn signal indicator (right)
10. Outside rearview mirror & tailgate heating switch
11. Reset button
12. Auto shift indicator*
13. Door open warning light
14. TCS indicator (equipped with ABD)*
15. ABS warning light*
16. Alternator warning light
17. Brake system warning light
18. Glow indicator light (For Diesel engine)
19. Airbag warning light*
20. Seat belt reminder
22. EBD warning light*
23. ECS / SPORT warning light*
24. 4 - wheel warning light*
25. 4 - wheel high indicator
26. 4 - wheel low indicator
27. WINTER indicator
28. POWER indicator
29. High beam indicator

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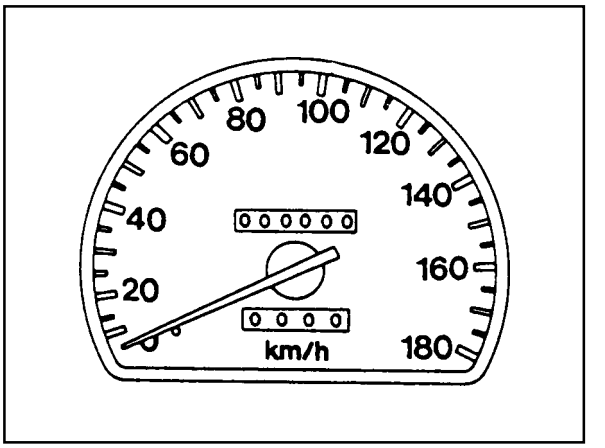
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MAINTENANCE AND REPAIR

ON VEHICLE SERVICE

COMBINATION METER



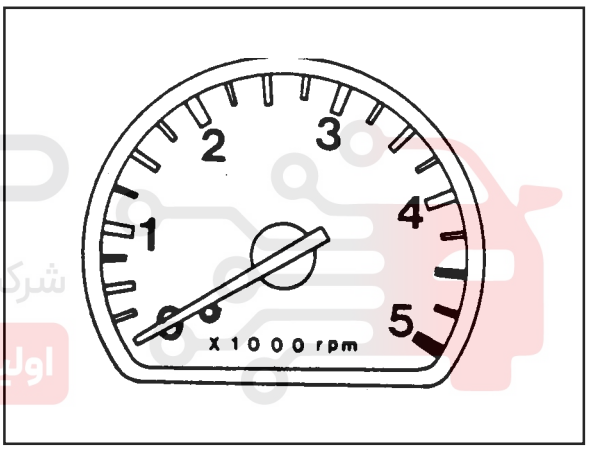
Diesel

1. Speedometer

(km/h)

Speed	40	60	80	100	120	140	160	180
Tolerance	+3 +0	+4 +0	+5 +0	+5 +0	+5.5 +0.5	+5.5 +0.5	+5.5 +0.5	-

2. Tachometer

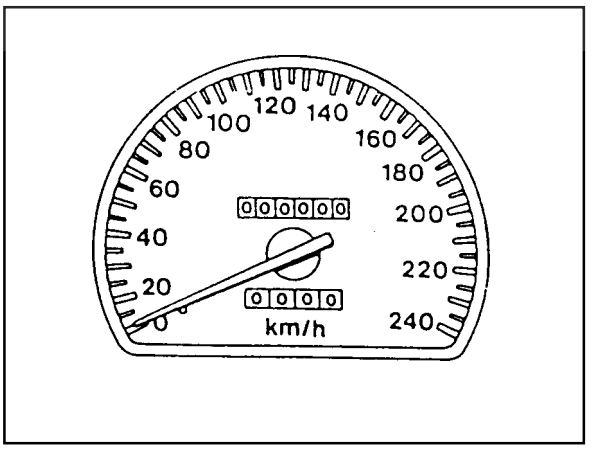


Revolution	1000	2000	3000	4000	5000
Tolerance	+137 -63	+199 -51	+261 -39	+298 -2	-

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Gasolin

1 Windshield Linkage



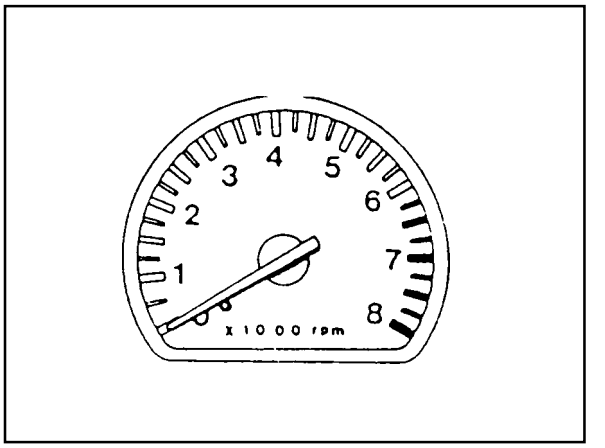
Speed	20	40	60	80	100	120	140	160
Tolerance	+4 +0	+3 +0	+4 +0	+5 +0	+5 +0	+5.5 +0	+5.5 +0.5	+5.5 +0.5
Speed	180	200	240	-				
Tolerance	+6 +1	+6 +1	-					

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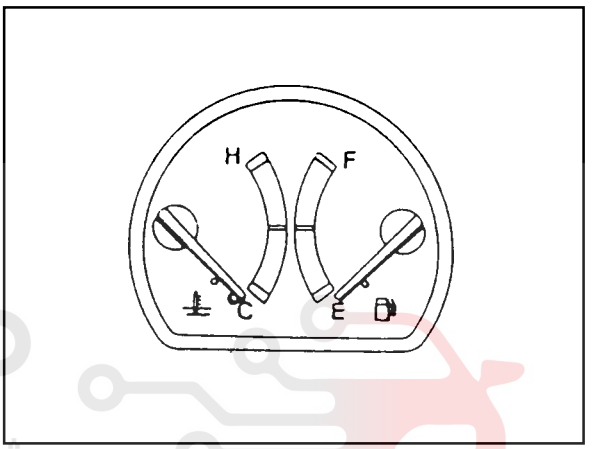
2. Tachometer

Speed	1000	2000	3000	4000	5000	6000	7000	8000
Tolerance	±100	±125	±150	±150	±150	±180	±210	-



3. Fuel Gauge

	E	1/2	F
Resistance	97	(32.5)	6
Tolerance	2.5'	±5°	±2.5



4. Temperature Gauge(Temperature Sensor)

Temperature	Resistance(W)
50 °C	156.9 W
86 °C	44.5 W
105.5 °C	27.3 W
120 °C	19.4 W

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SECTION 9F

AUDIO SYSTEM

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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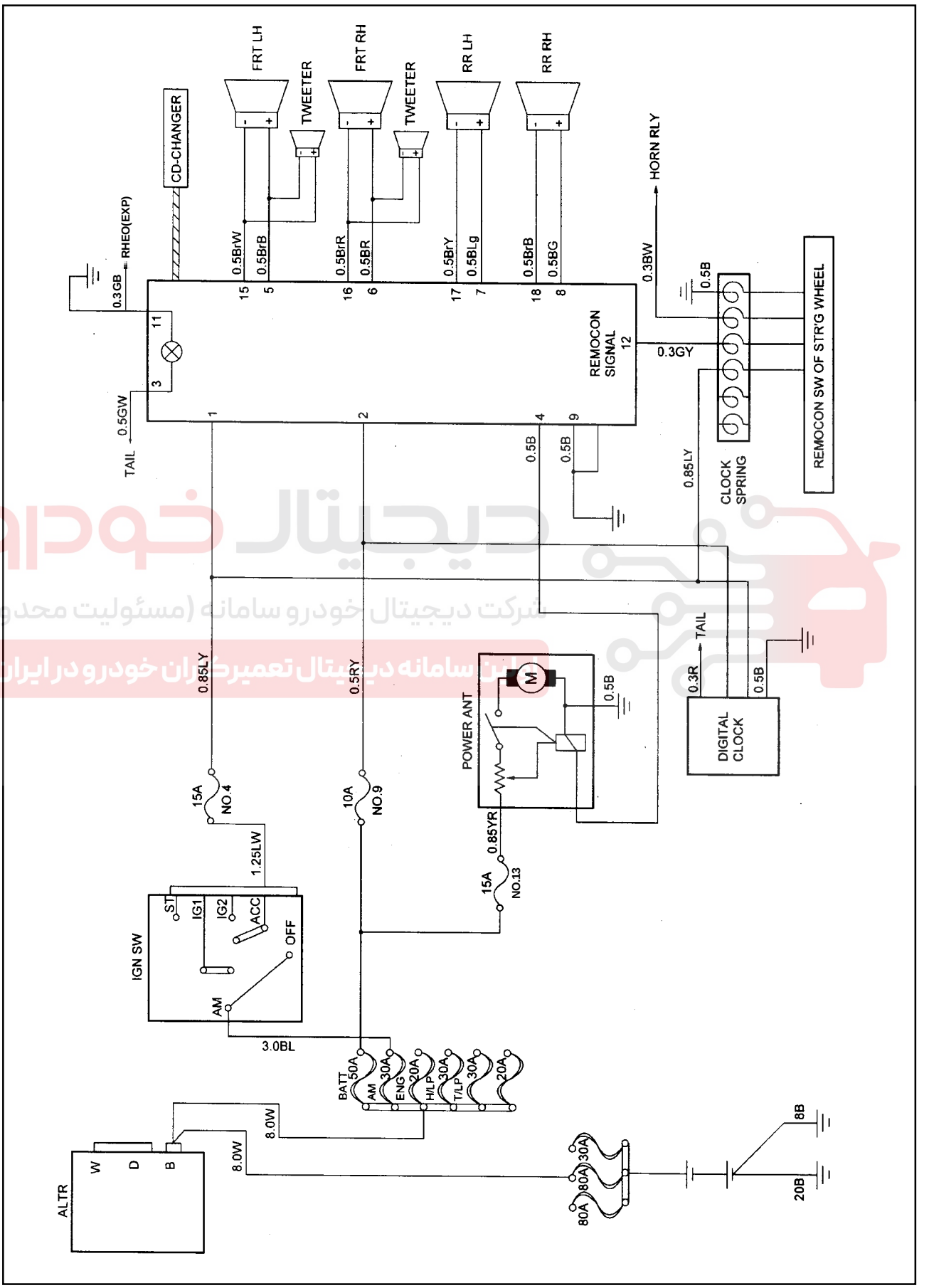
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SCHEMATIC AND ROUTING DIAGRAMS

AUDIO

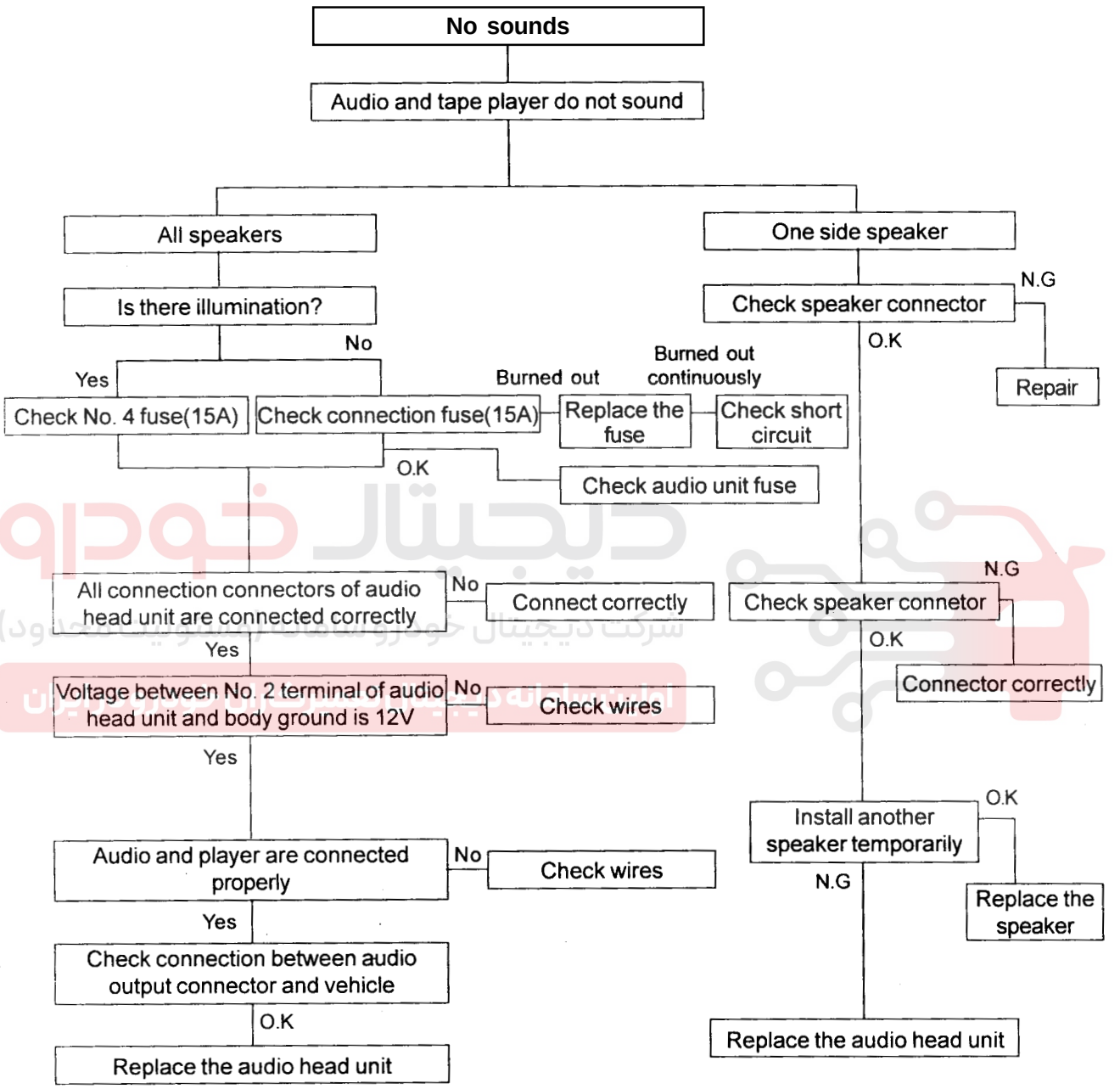


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DIAGNOSIS

GENERAL DIAGNOSIS



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SECTION 9H

SEATS

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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SPECIFICATIONS

GENERAL SPECIFICATIONS

Application		Deseription
Operating Voltage		DC11 - 15V
Operating Temperature Range		-30°C - 80°C
Seat Operating Speed(at 13.5V)	Slide	20 ± 7mm/sec
	Tilt	10.6 ± 5mm/sec
	Height	7 ± 2mm/sec
Seat Operating Distance	Tilt and Height(up)	Tilt:35 ± 2mm, Height:35 ± 2mm
	Slide	Forward:230mm
Operating Current(at 13.5V)	Slide	Less Then 7A
	Tilt and Height	Less Then 7A
Seat Heater Switch	Load Rating	DC12V 1A
	Operating Temperature Range	-30°C - 80°C
	Switch Operating Force	0.3 - 0.7Kgf

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DIAGNOSIS

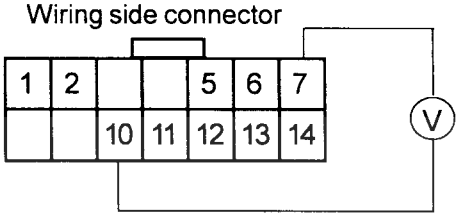
When the power seat does not work :

No. 12 (20A) fuse in the interior fuse box is normal?
- No → Replace with specified fuse.
- Yes ↓

Remove the driver's power seat completely.

Measured voltage between No. 7 terminal (-) and No. 10 terminal (+) of driver's power seat switch is 12V
- No → Check related wires for open circuit and repair.
- Yes ↓

Wiring side connector



Ground the negative battery side to the seat frame and connect the positive battery side to the each terminal (1,2,5,6,11,12,13 and 14) of the seat switch wiring connector and check that motor is operating.
- No → Replace defective motor
- Yes ↓

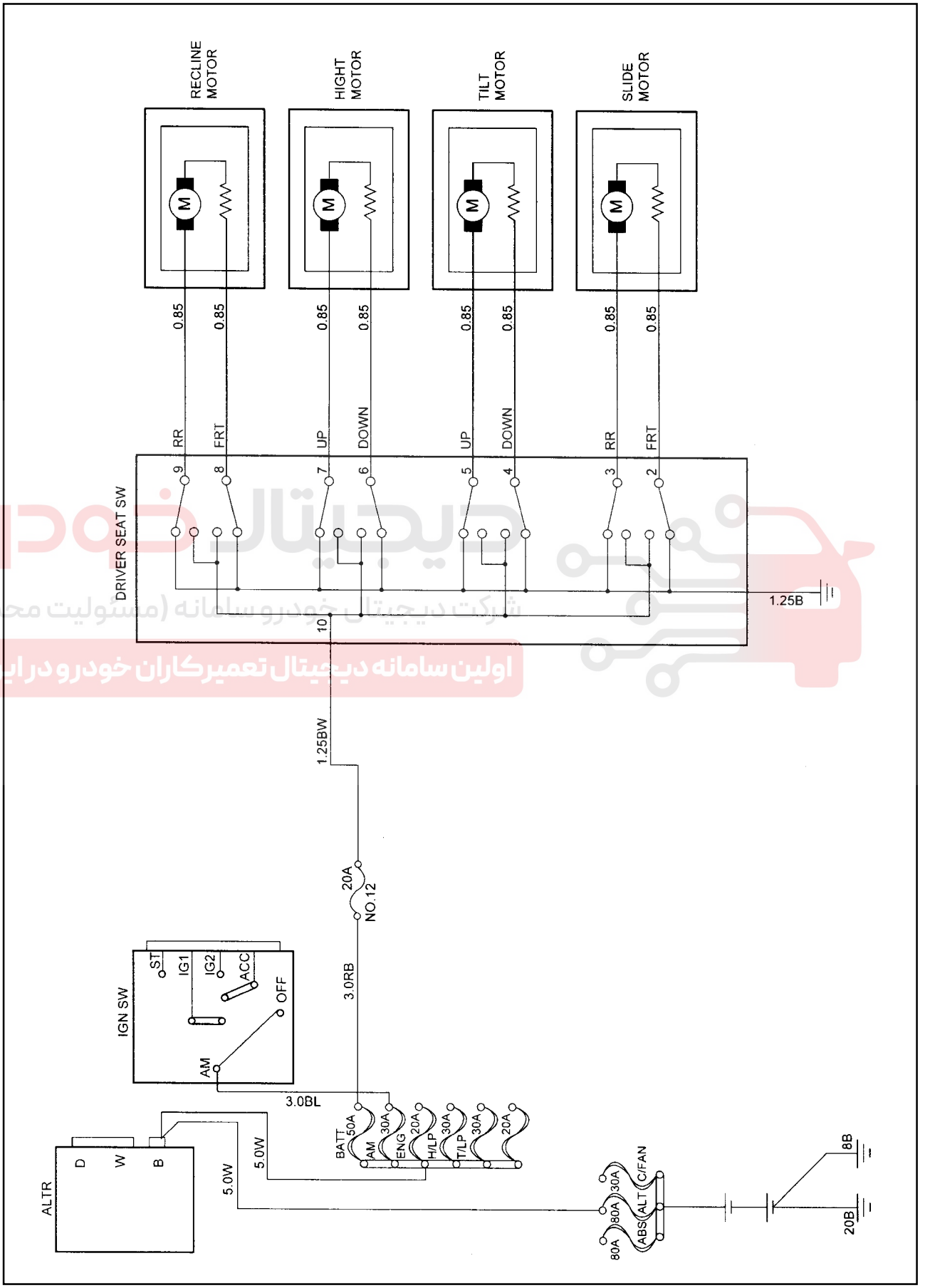
Check the driver's power seat switch and replace if necessary.

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SCHEMATIC AND ROUTING DIAGRAMS

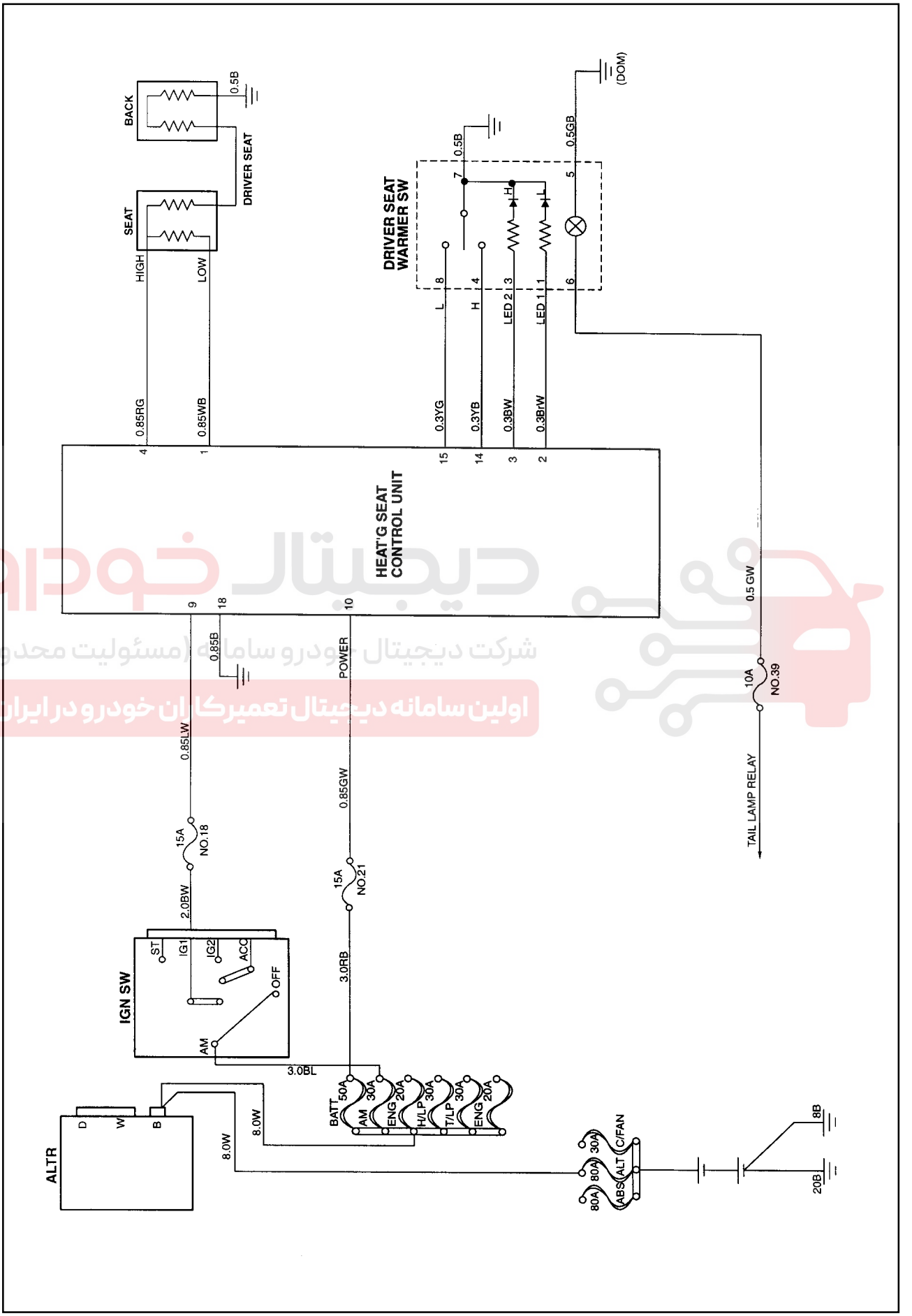
POWER SEAT



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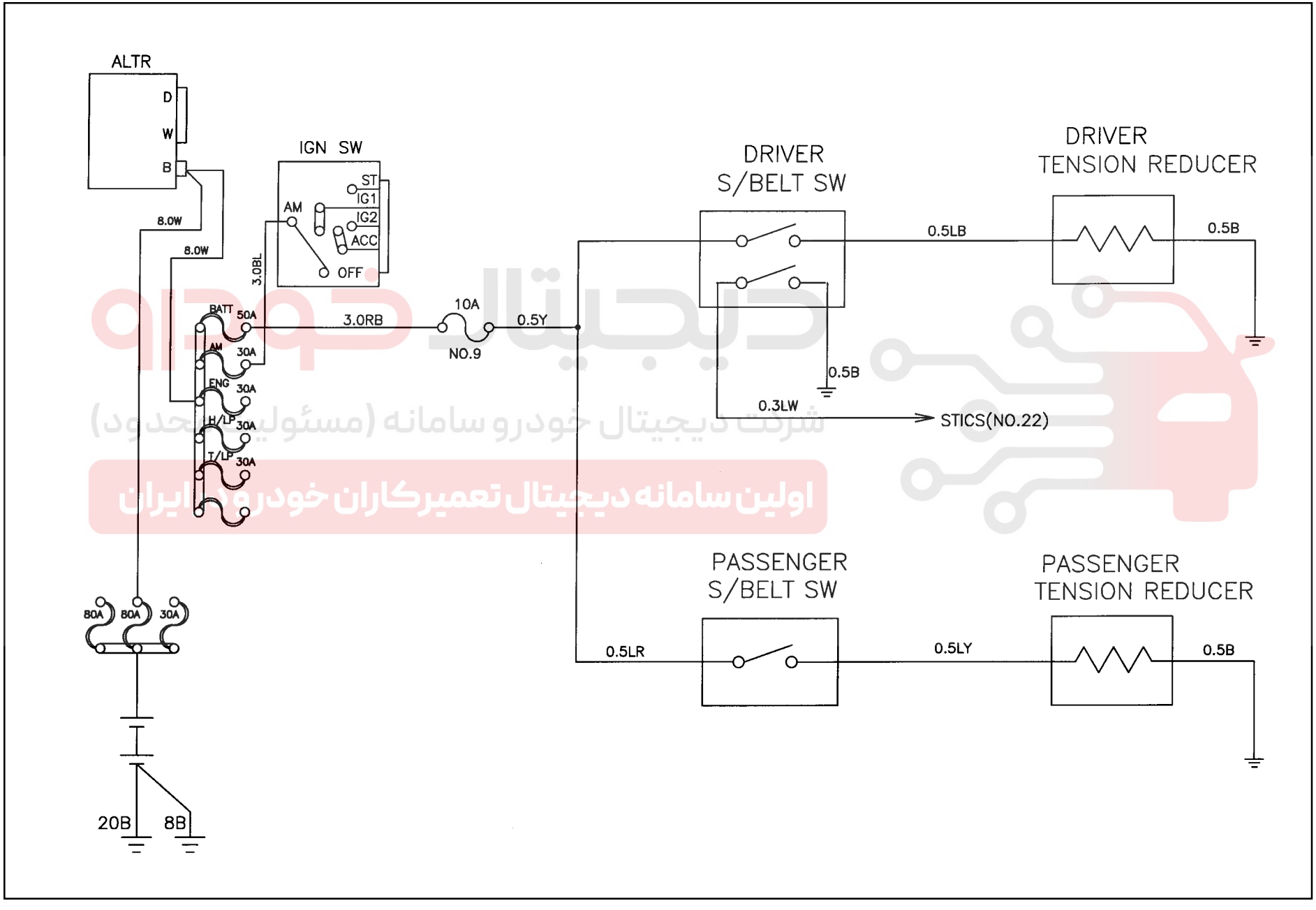
SEAT WARMER



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SEAT BELT & TENSION REDUCER

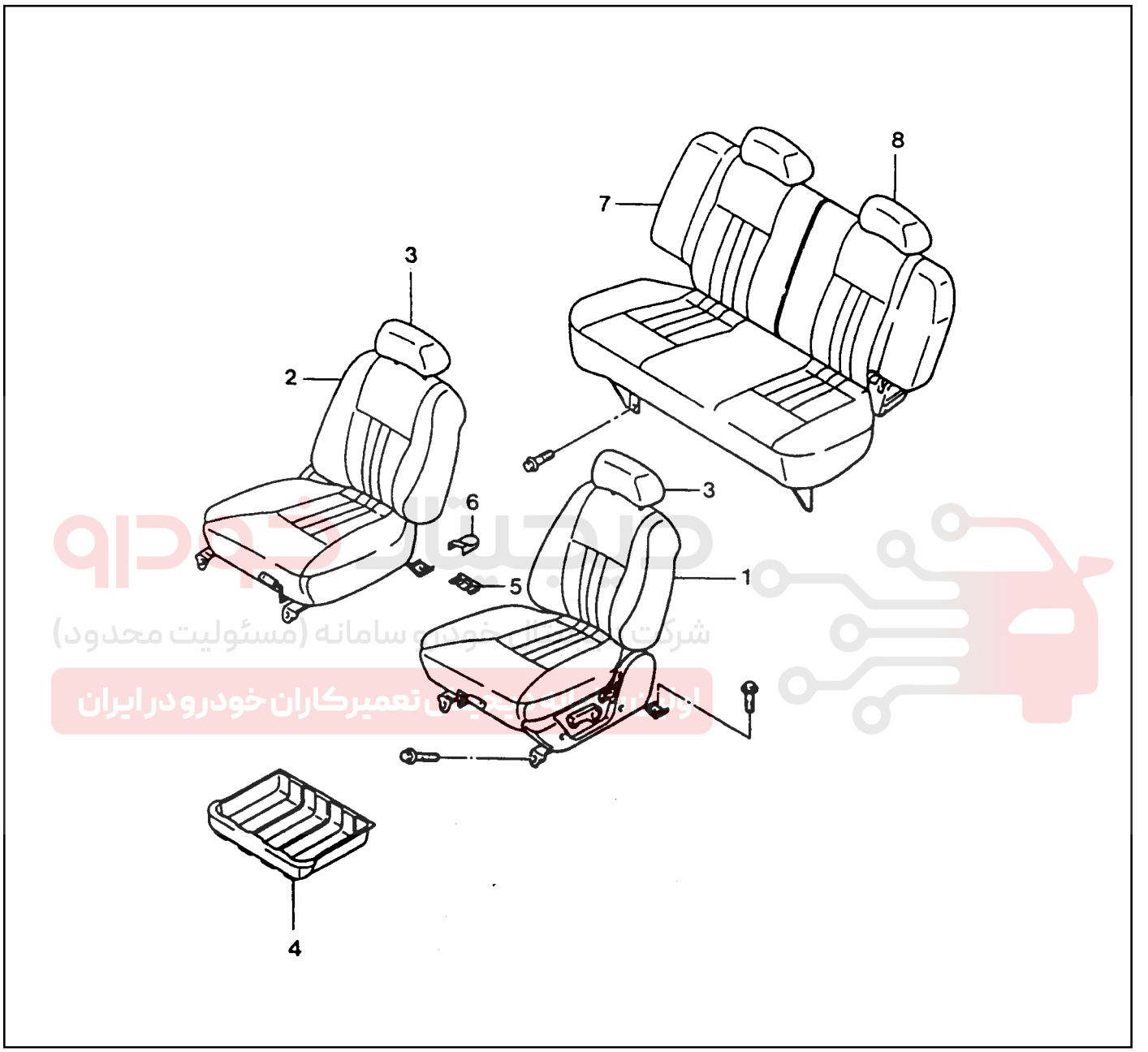


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COMPONENT LOCATOR

FRONT SEAT & REAR SEAT



1 Front Seat (Driver's)
2 Front Seat (Passenger's)
3 Headrest
4 Under Tray Assembly
5 Front Seat Mounting Rear Outer Cover
6 Front Seat Mounting Rear Inner Cover
7 Rear Seat Assembly
8 Headrest

Notice

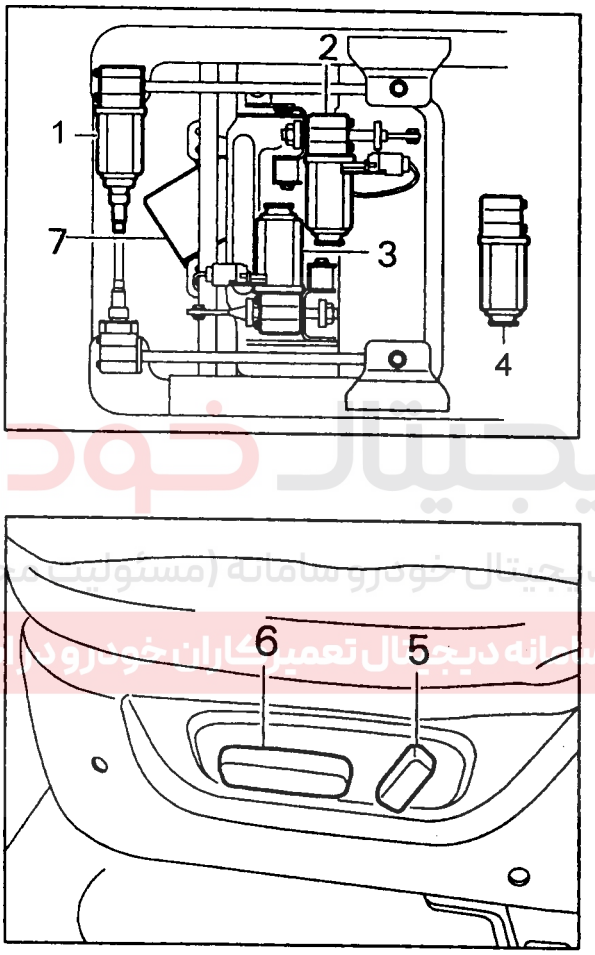
Removal and installation is as shown in upper drawings.

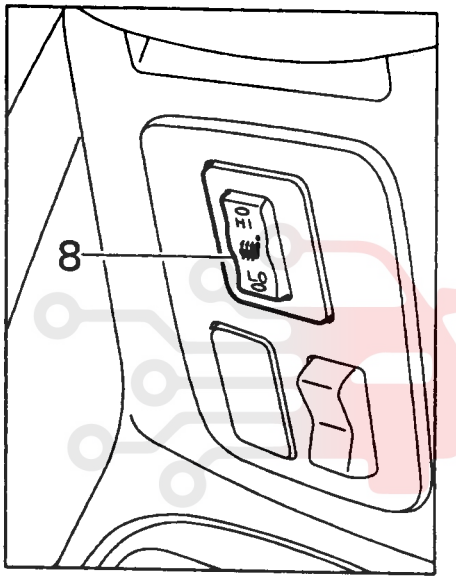
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MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE





1 Slide Adjusting Motor
2 Height Adjusting Motor
3 Tilt Adjusting Motor
4 Recline Adjusting Motor
5 Driver's Power Seat Recline Switch
6 Driver's Power Seat Switch(Slide, Height, Tilt)
7 Seat Heater Control Unit
8 Seat Heater Switch

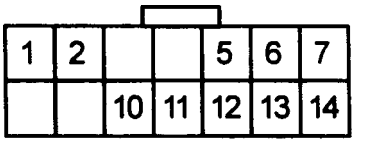
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Power Seat Connector and Connection Circuit

Driver's Power Seat Switch

No.	Size and Color	Connection Circuit
1	1.25LB	Tilt (UP)
2	1.25Br	Tilt (DOWN)
5	1.25Y	Slide (RR)
6	1.25BR	Slide (FRT)
7	1.25B	Ground
10	1.25BW	Battery (+)
11	1.25LB	Recline (RR)
12	1.25LY	Recline (FRT)
13	1.25G	Height (UP)
14	1.25BY	Height (DOWN)



Wiring side connector

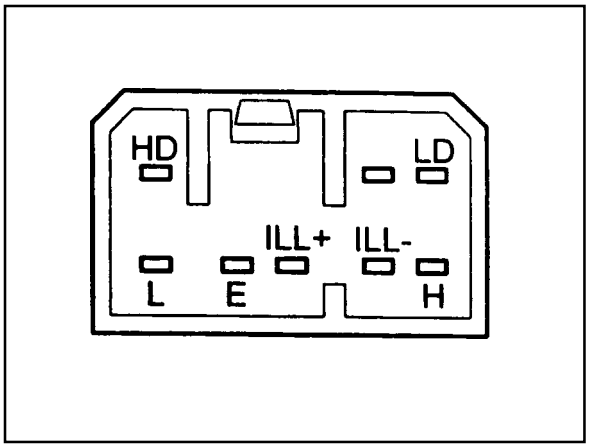
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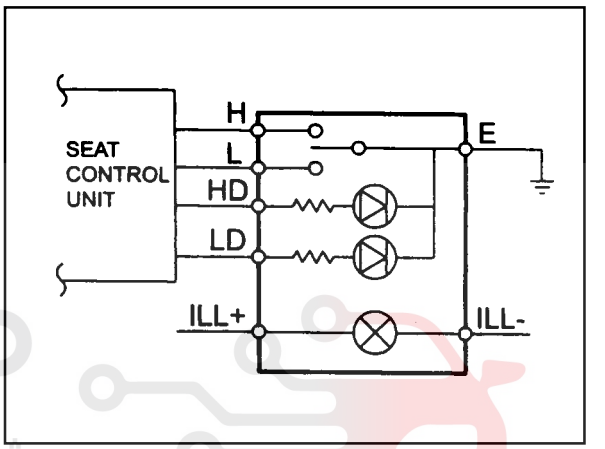
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Seat Heater Connector and Connection Circuit

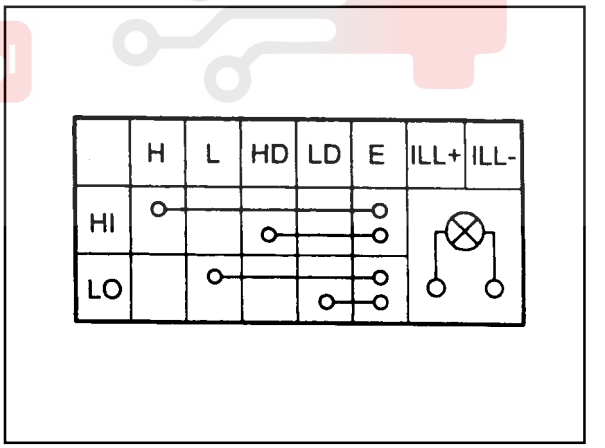
Seat heater switch connector



Circuit



Connection Circuit



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SECTION 9L

GLASS AND MIRRORS

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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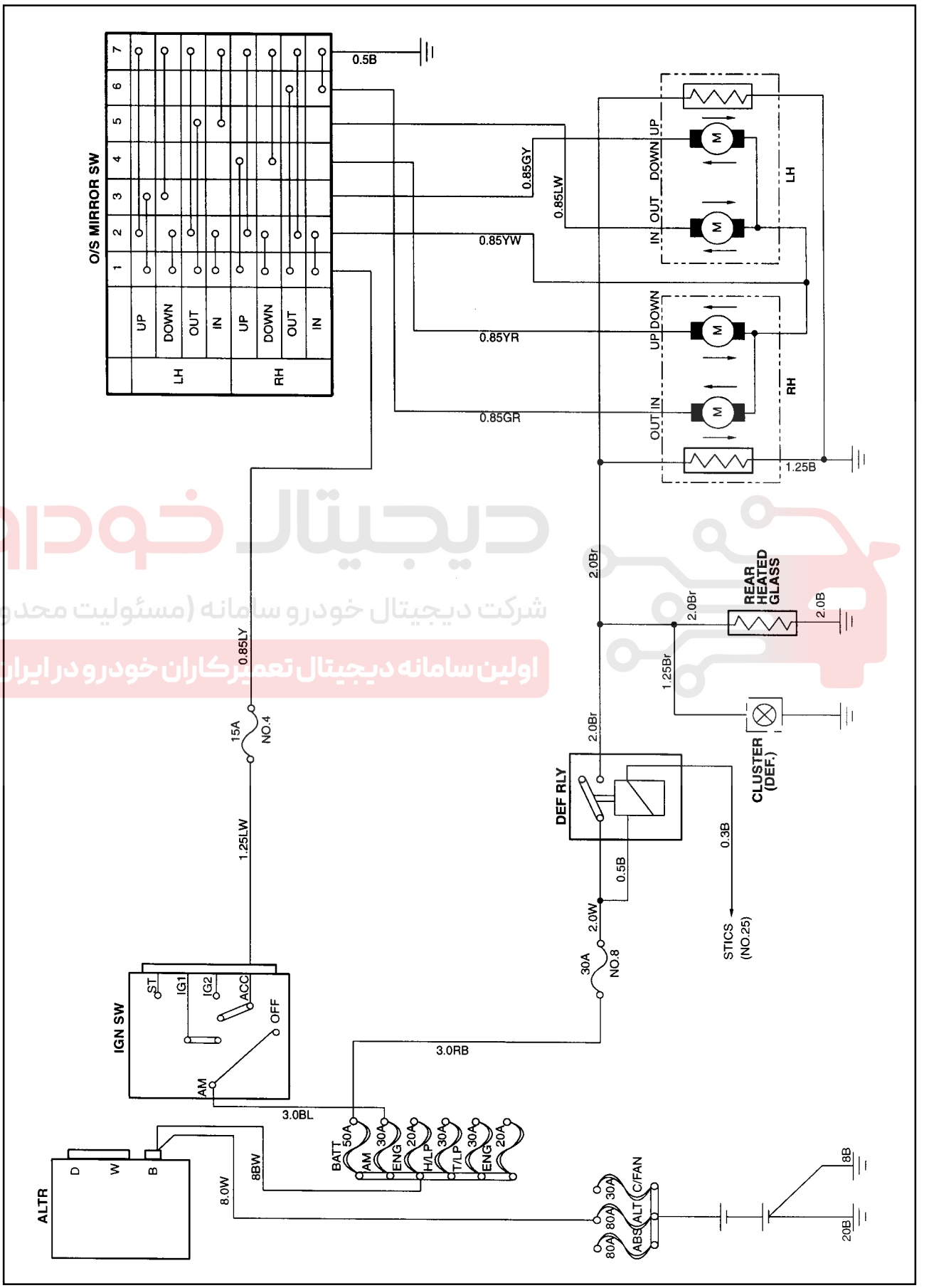
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SCHEMATIC AND ROUTING DIAGRAMS

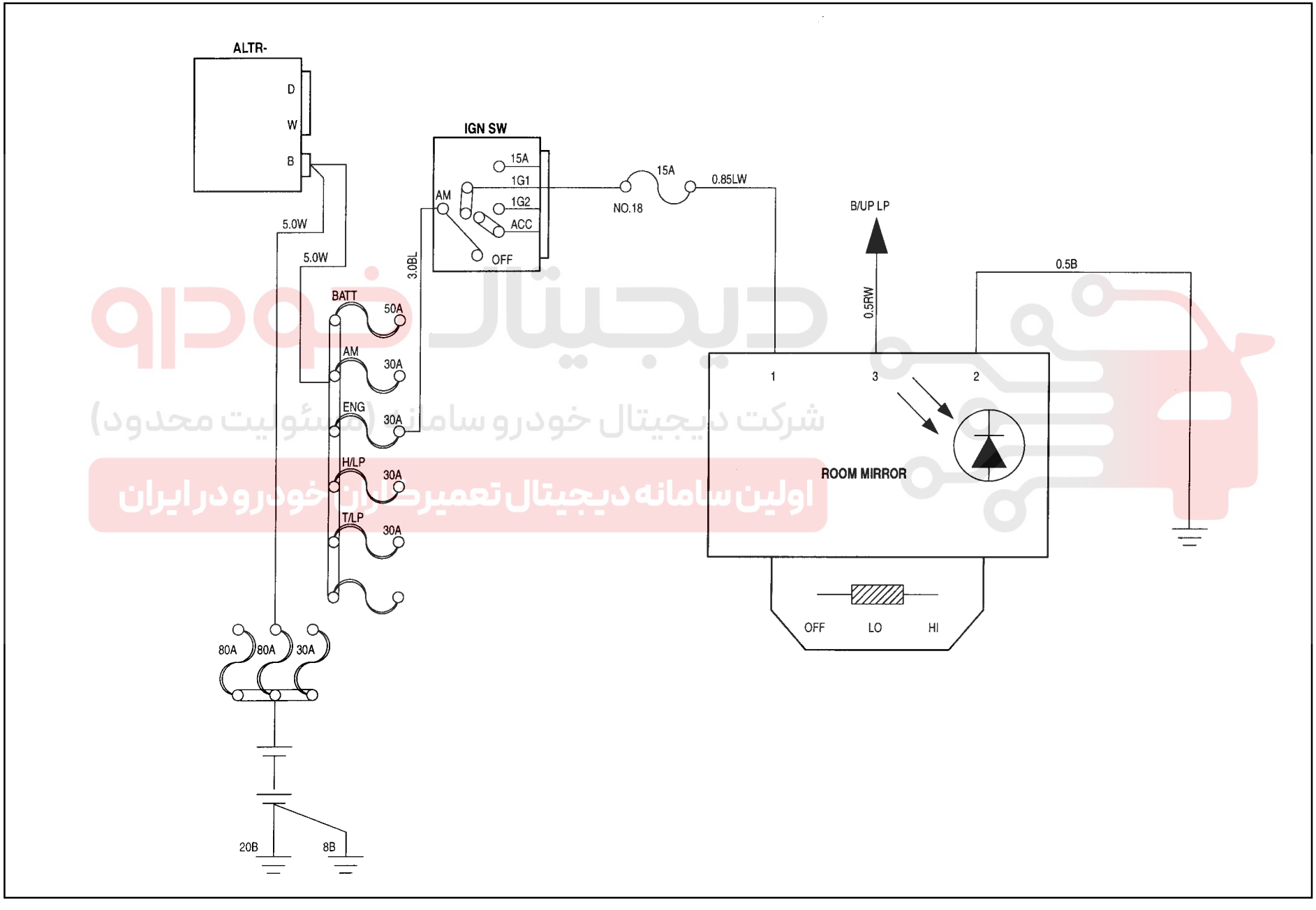
OUTSIDE MIRROR



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AUTO DIMMING ROOM MIRROR



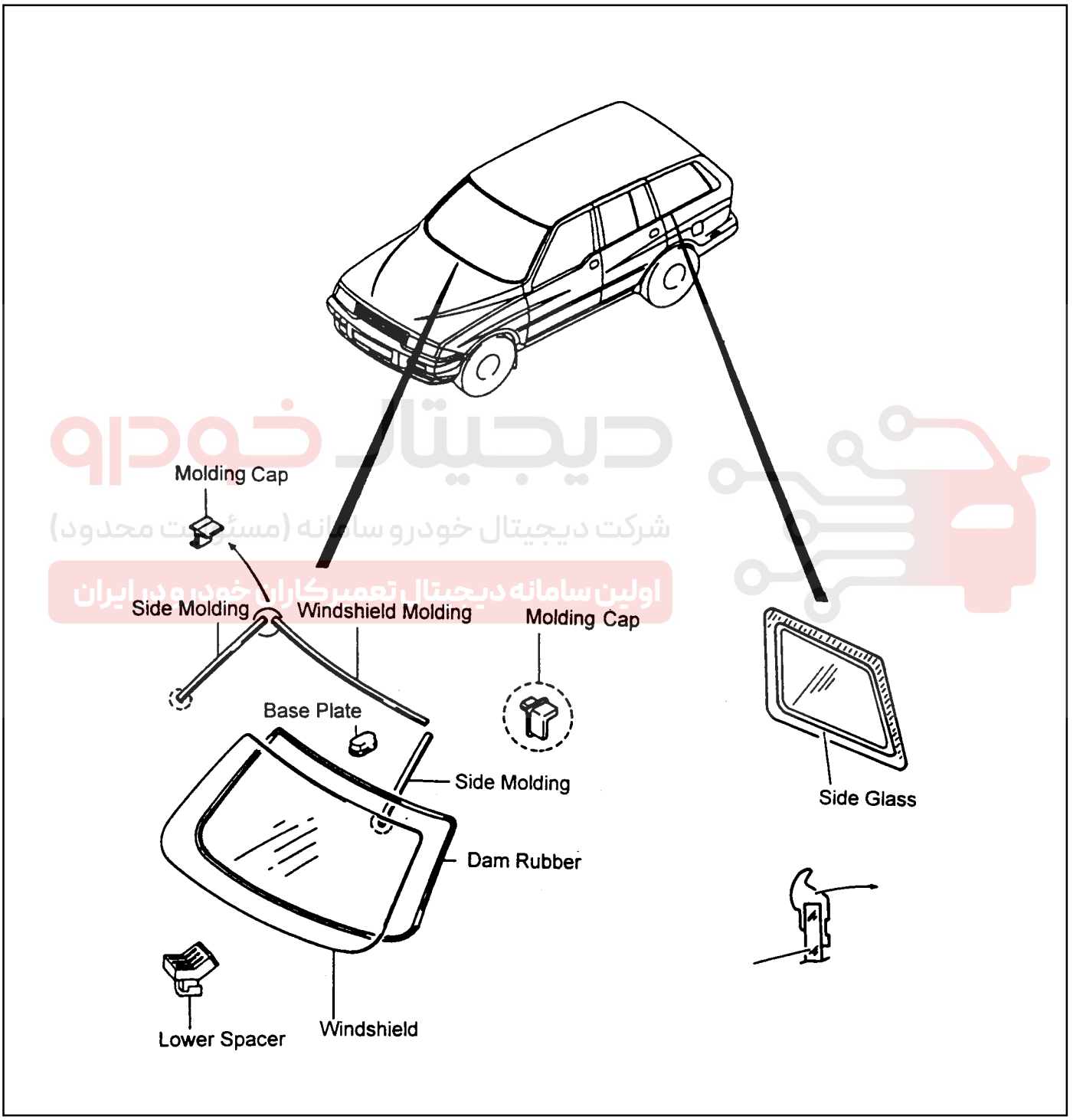
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MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

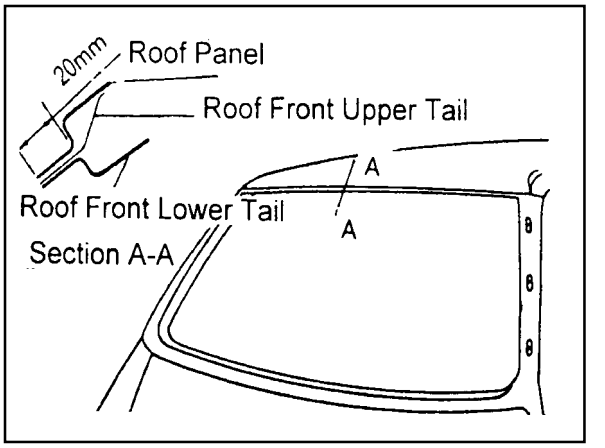
FRONT & SIDE GLASS



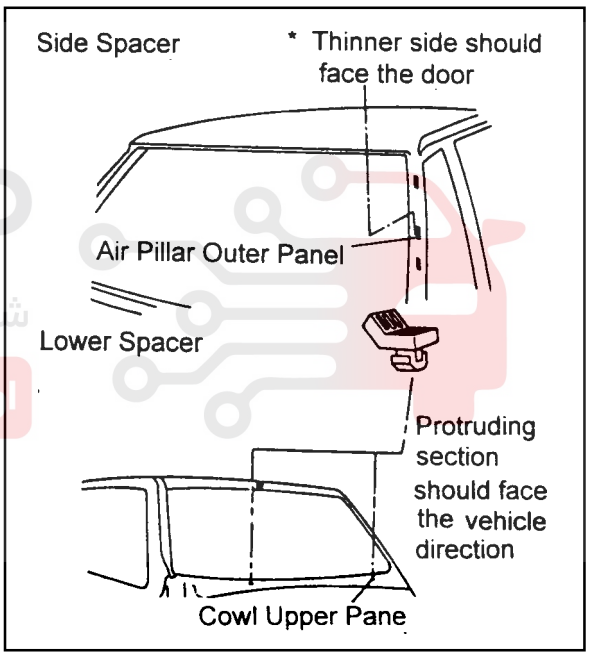
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Installation of Windshield

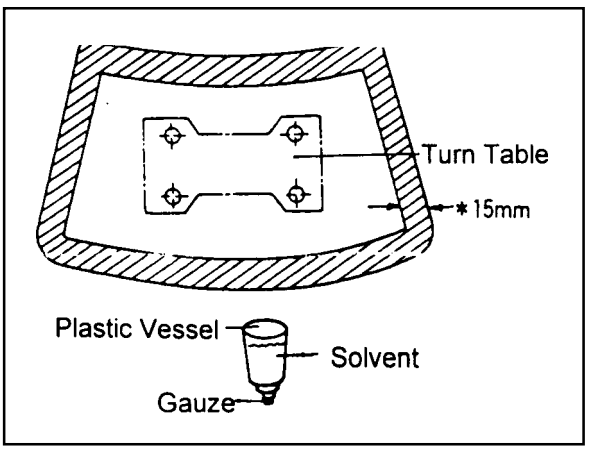


1. Cleaning of windshield mounting flange.
   - Do not reuse a gauze over 20 times.
   - Saturate the gauze in solvent (Isoprophyl alcohol).
   - Keep the cleaned surface to be cleaned.
   - Apply body primer to the cleaned and dry body flange.
   - If body flange is oiled or contaminated, primer can not be applied.
   - Duration : 3 minutes - 8 hours (reapply after 8 hours).
   - If primer is applied to the body, clean off immediately with solvent (ethyl alcohol and ethyl acetate, 50 : 50 in volume).
   - Do not apply primers which is over its duration.
   - Be careful not to contaminate other parts.



2. Installation of windshield spacer.
   - Insert the spacer completely.
   - After inserting, there should be no clearance on the body.
     - To the direction of the side spacer.
     - To the direction of the lower spacer.

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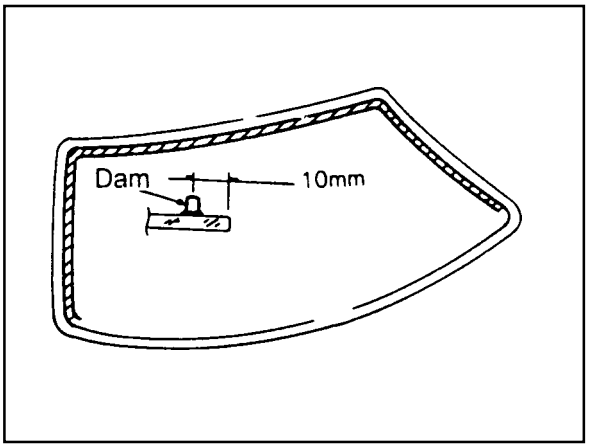
3. Cleaning of windshield glass.
   - Clean the windshield glass keeping 15mm from the edge of glass.
   - Do not reuse a gauze over 20 times.
   - Saturate the gauze in solvent (Isoprophyl alcohol).
   - Do not touch the cleaned glass surface.
   - Apply glass primer to the cleaned and dry glass.
   - If glass is oiled or contaminated, primer can not be applied.

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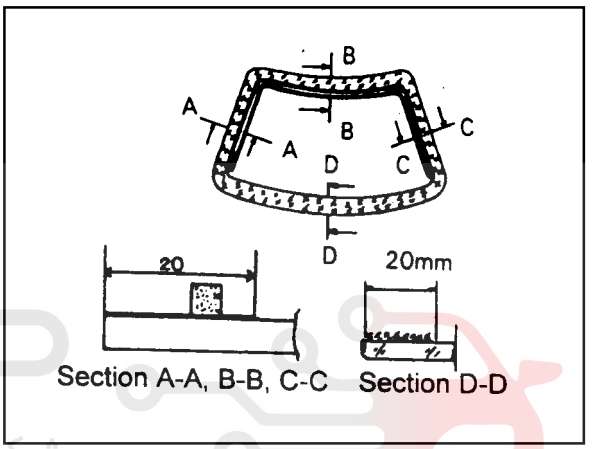
4. Installation of glass dam rubber.
   - Using a double - faced adhesive tape, install the dam rubber keeping 10mm from the edge of glass. If intervals are irregular, primers and sealants can be applied unevenly.
   - If need to remove the improper dam rubber, do not remain the double - faced adhesive tape on the glass.

     Improperly installed tape causes the inferior appearance and weakening of adhesive strength of sealant.

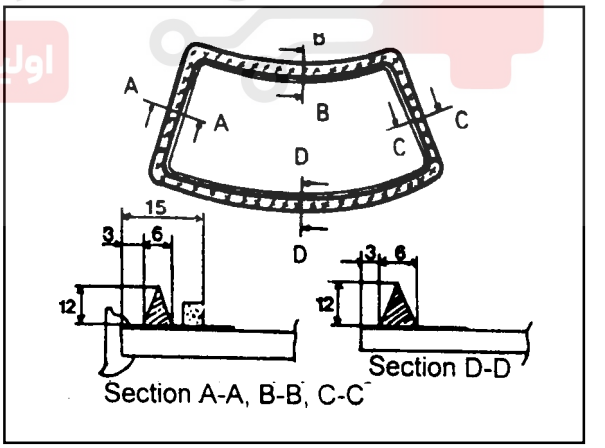


5. Apply glass primer to the outer area of the dam rubber.

   Notice
   - Do not apply body primer to the glass.
   - Do not touch the primer applied surface. If you touch, this may cause water leakage after installation of the windshield.
   - Keep water or dust away from the primer applied surface.



6. Apply sealant to windshield glass.
   - Uneven application of sealant may cause water leakage after installation of the glass.
   - Do not touch the glass moldings and dam rubber while applying sealant.
   - Turn over the glass and apply sealant.



7. Using suction holders, install the windshield within 5minutes after application of sealant.

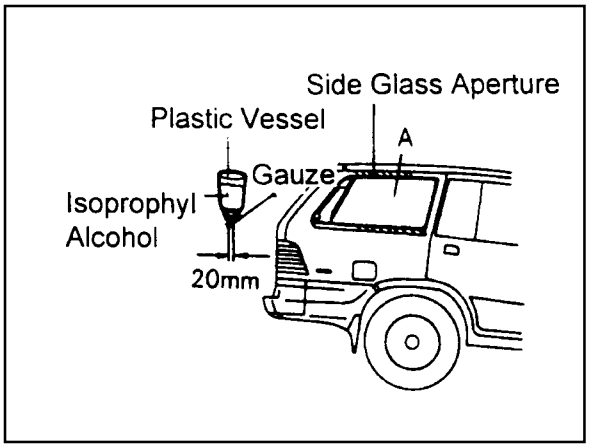
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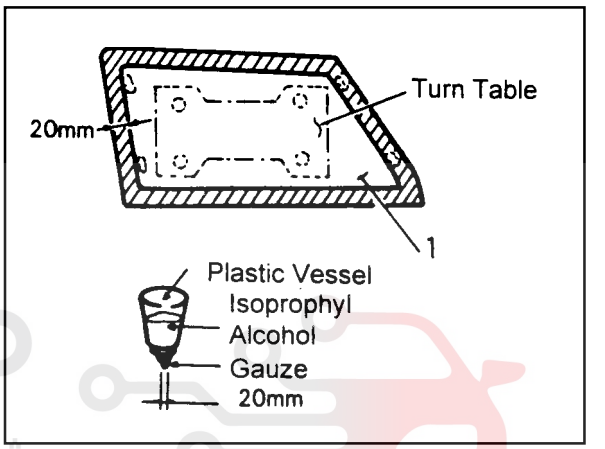
Installation of Side Glass

For installation, refer to 'Installation of Windshield'.

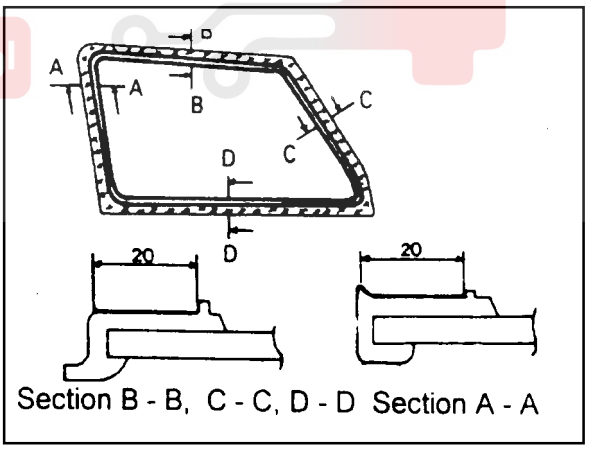
1. Clean as the same procedure of windshield mounting flange (Apply primer).



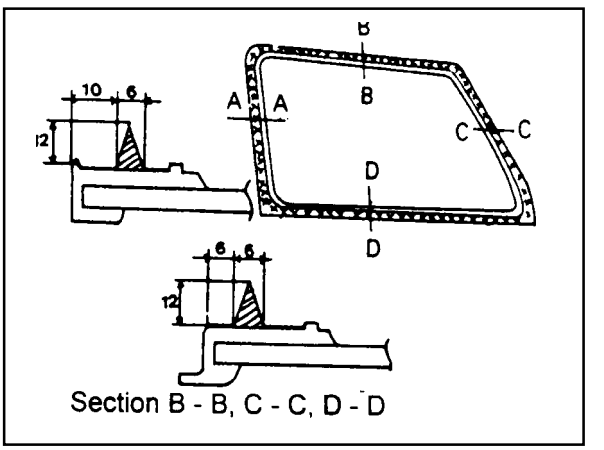
- Clean as the same procedure of windshield cleaning, however keep 20mm from the edge of glass.



2. Apply primer to the side glass.
   - Use sufficiently mixed primer in a mixer over 10 minutes.
   - Be careful not to contaminate other parts due to over application.
   - Duration : 1 minute - 24 hours (reapply after 24 hours).
   - Never use the primer containing deposits or floating materials.
   - Do not apply primers which is over its duration.
   - Do not reuse a gauze over 20 times.
   - Apply evenly to glass.



3. Apply seaant to the side glass.
   - Turn over the glass and apply sealant.
   - Uneven application of sealant may cause water leakage after installation of the glass.



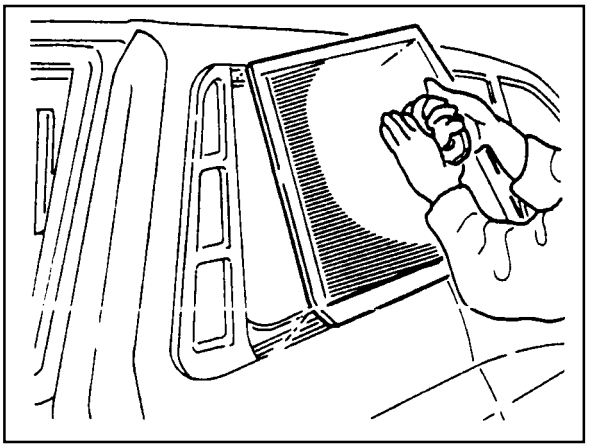
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4. Before installation, ensure that the stay bolt washer is inserted.

Tightening Torque	7.7 Nm

5. Using suction holders, install the side glass within 5minutes after application of sealant.

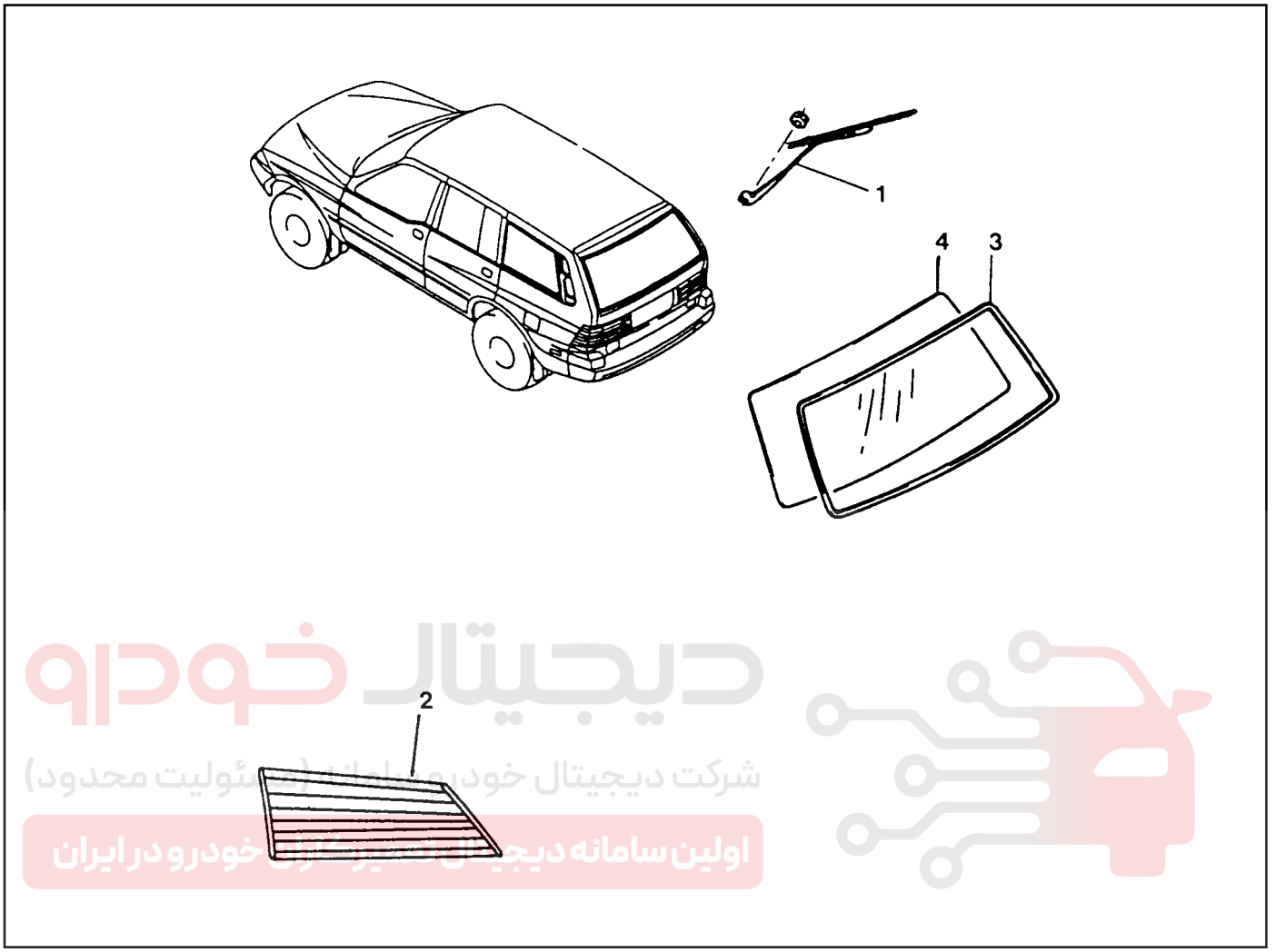


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TAILGATE GLASS



1 Wiper Arm and Blade Assembly
2 Heating Lines
3 Tailgate Trim
4 Tailgate Glass

Notice

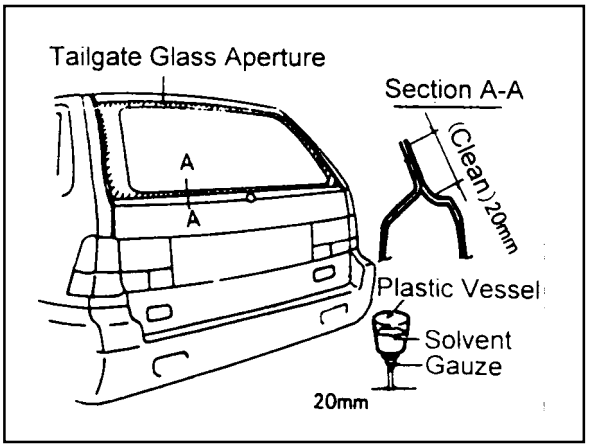
Removal and installation is as shown in upper drawings.

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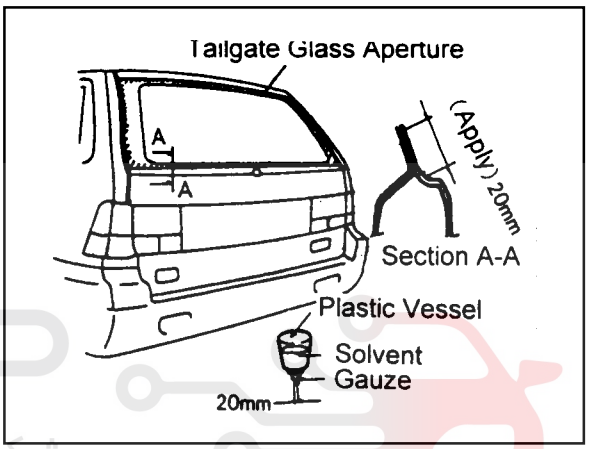
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Installation of Tailgate Glass

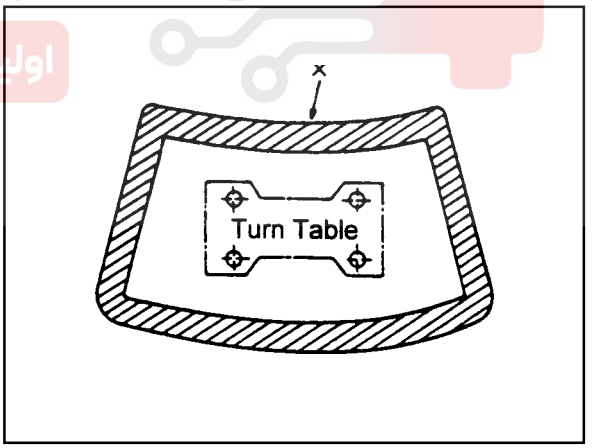
1. Clean the tailgate flange.
   - Do not reuse a gauze over 20 times.
   - Saturate the gauze in solvent (Isoprophyl alcohol).
   - Keep the cleaned surface to be cleaned.
   - Apply body primer to the cleaned and dry flange.
     - If flange is oiled or contaminated, primer can not be applied.



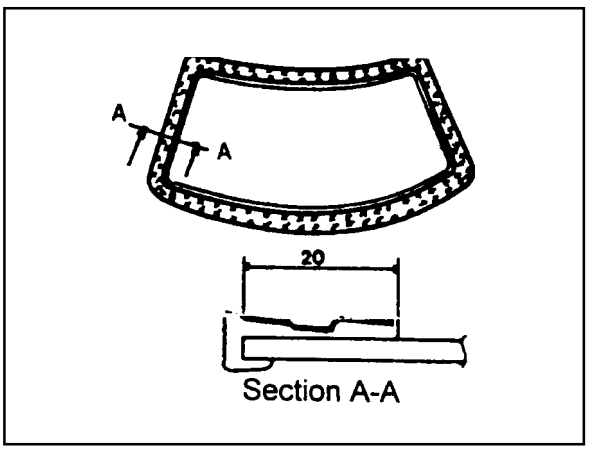
2. Apply primer after cleaning of tailgate flange.
   - Keep primers in a refrigerator(-2℃ - +5℃).
   - Use sufficiently mixed primer in a mixer over 10 minutes.
   - Apply primer within 2 hours after opening.
   - Do not apply primers which is over its druation.
   - Apply evenly to the flange.
   - Duration : 3 minutes - 8 hours (reapply after 8 hours).
   - If primer is applied to the body, clean off immediately with solvent.
   - Be careful not to contaminate other parts.



3. Clean the tailgate galss.
   - Clean the glass keeping 15mm from the edge of glass.
   - Do not reuse a gauze over 20 times.
   - Saturate the gauze in solvent(Isoprophyl alcohol).
   - Do not touch the cleaned galss surface.
   - Apply glass primer to the cleaned and dry glass surface. If glass is oiled or contaminated, primer can not be applied.



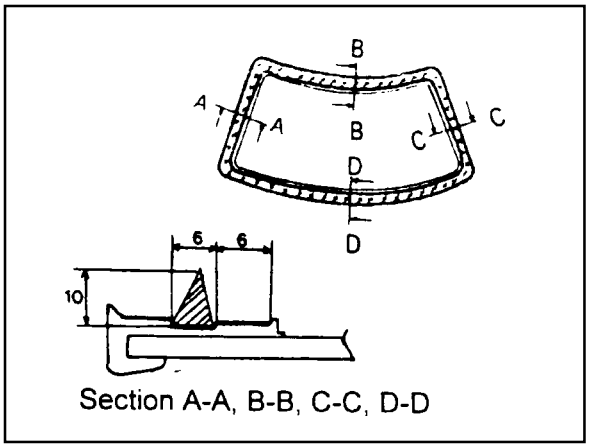
4. Apply primer to the tailgate glass.
   - Use sufficiently mixed primer in a mixer over 10 minutes.
   - Be careful not to contaminate other parts due to over application.
   - Duration : 1 minute - 24 hours(reapply after 24 hours).
   - Never use the primer containing deposits or floating materials.
   - Do not use primers which is over its duration.
   - Do not reuse a gauze over 20 times.
   - Apply evenly to glass.



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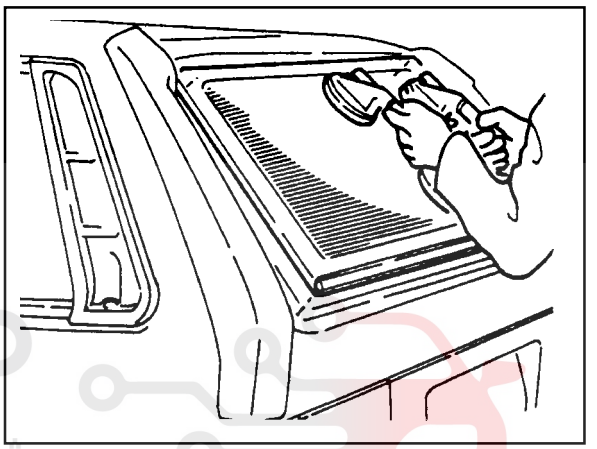
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5. Apply sealant to the glass.
   - Turn over the glass and apply sealant.
   - Uneven application of sealant may cause water leakage after installation of glass.
   - Do not touch the glass moldings and dam rubber while applying sealant.



Section A-A, B-B, C-C, D-D

6. Using suction holders, install the tailgate glass within 5minutes after application of sealant.
   - Fix the glass with adhesive tape.
   - Apply sealant additionally between the quarter outer panel and tailgate glass moldings.



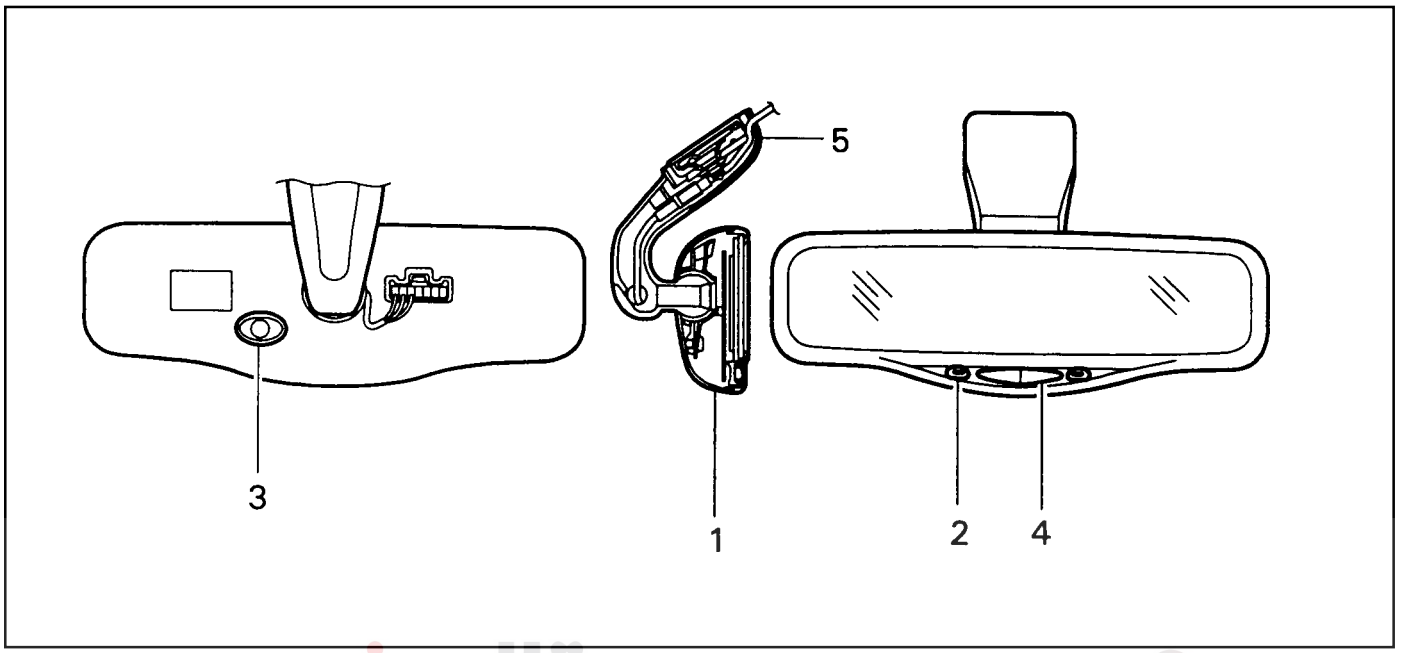
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AUTO DIMMING ROOM MIRROR

Layout



1 Auto Dimming Room Mirror Assembly
2 Sensor (Front)
3 Sensor (Rear)
4 Switch
5 Cover
6 Lamp

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Function

When ignition switch is turned ON, green lamp on auto dimming mirror will turn in and glare reflection ratio will be automatically adjusted. By positioning AUTO switch to ON, 2Sensors will automatically adjust refection ratio after sensing rear and surrounding brightness to reduce driver's eye fatigue during driving though tunnel or in night.

When OFF switch is pressed, the lamp goes out and it will be operated as a normal rear view mirror and shift lever is positioned in reverse, the auto dimming function will be automatically OFF.

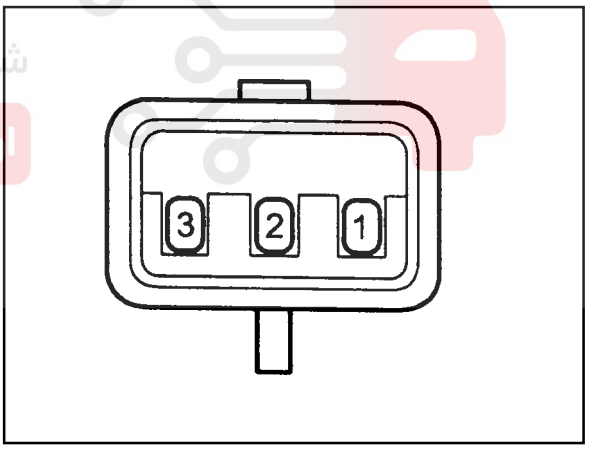
Specifications

Voltage Rating	DV 12V
Operating Current	1 A
Over Current	3 A

Check & Service

If reflection ratio is not adjusted automatically during night driving when AUTO switch is pressed, check each connectors for proper connection and power flow to the auto dimming room mirror using multi tester.

1. Yellow (Connected to back-up lamp)
2. Blue (Ground)
3. White (Power)

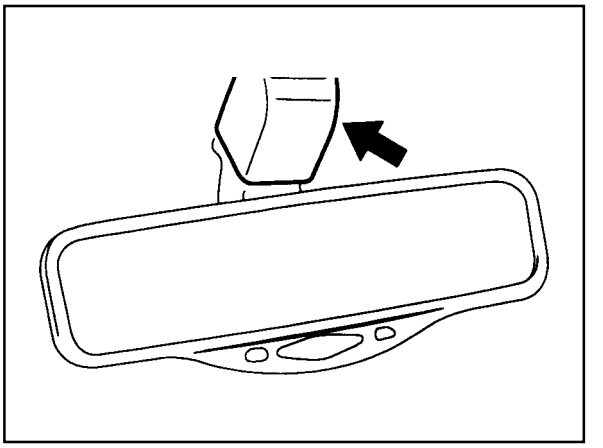


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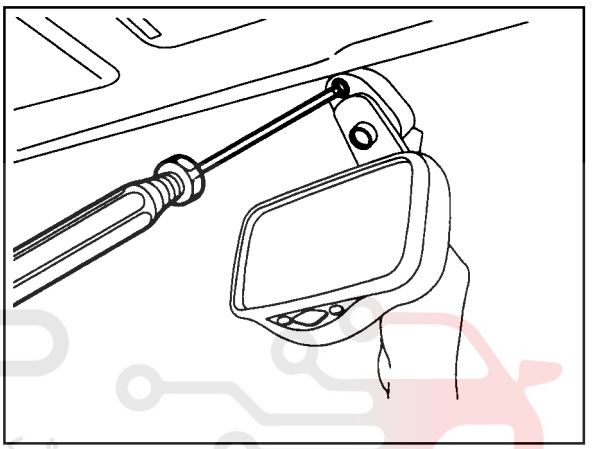
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Removal & Installation Procedure

1. Removal the room mirror cover (arrow).



2. Disconnect 3-pin connector.
3. Removal the mirror assembly.
4. Installation should follow the removal procedure in the reverse order.



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SECTION 9N

FRAME AND UNDERBODY

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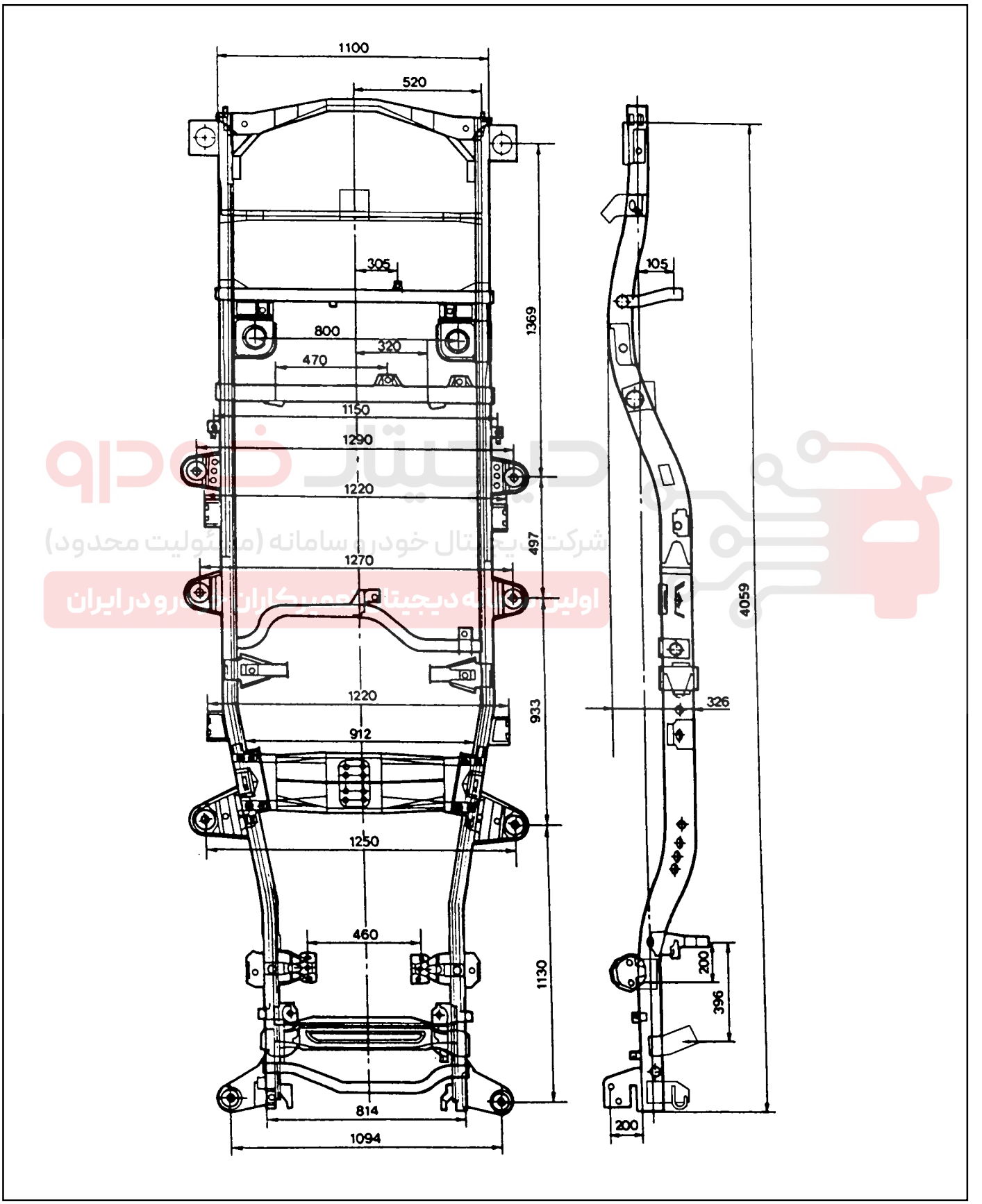
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DIMENSION

FRAME

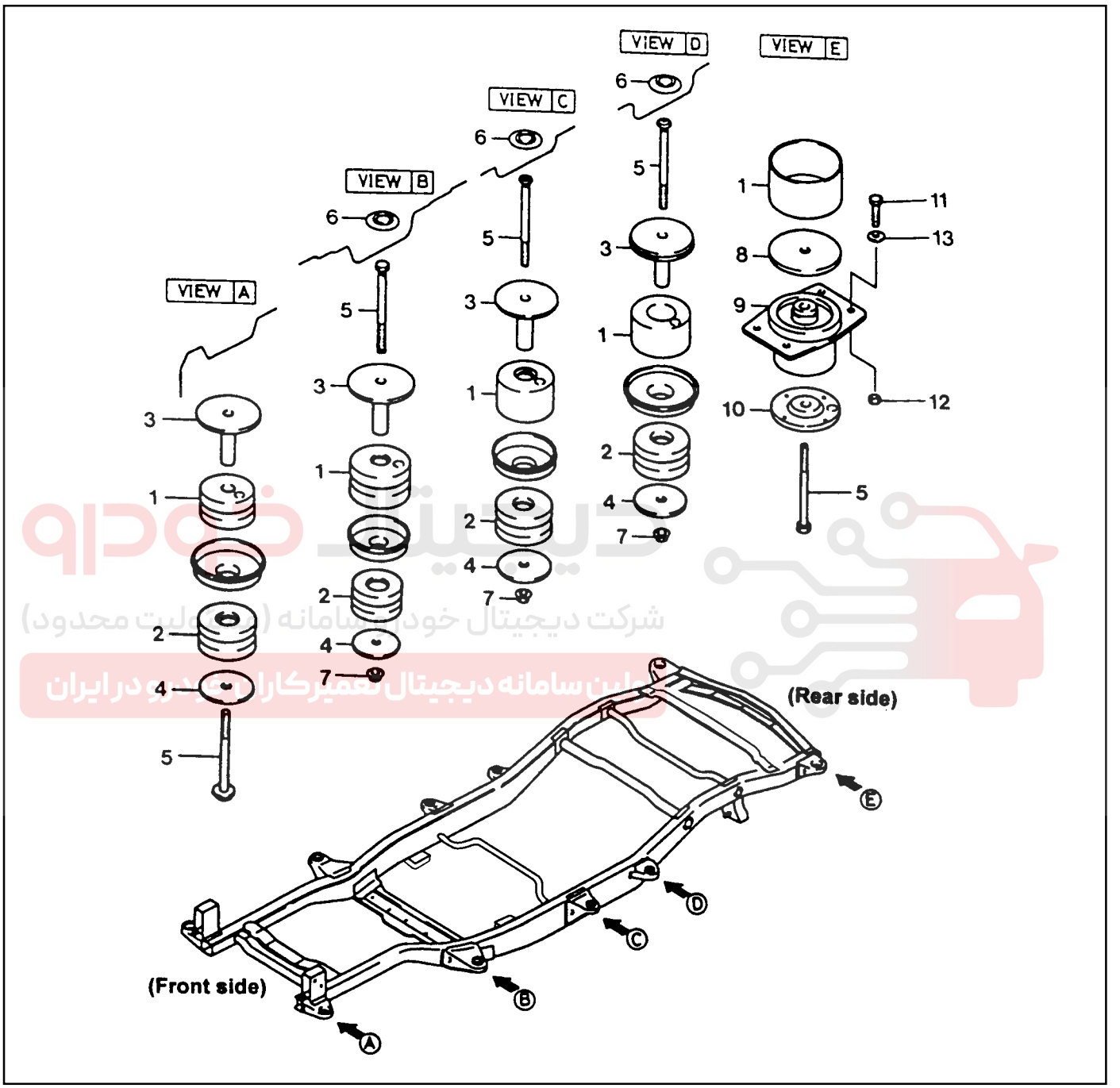


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COMPONENT LOCATOR

BODY MOUNTINGS

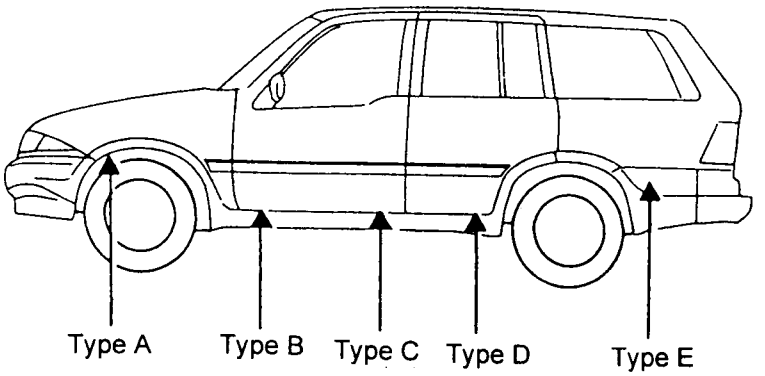


1 Upper Insulator
2 Lower Insulator
3 Washer Tube
4 Plain Washer
5 Bolt
6 Grommet
7 Nut
8 Plate
9 Upper Insulator
10 Lower Insulator
11 Bolt
12 Nut
13 Washer

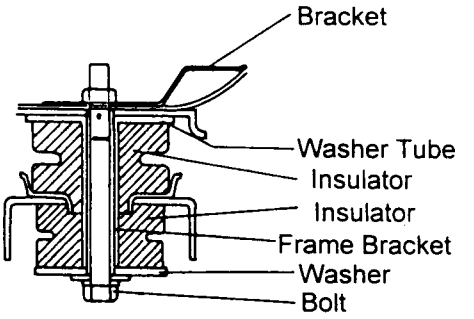
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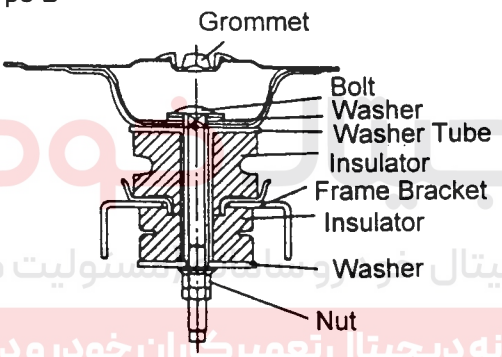
BODY MOUNTING-SECTIONAL VIEW



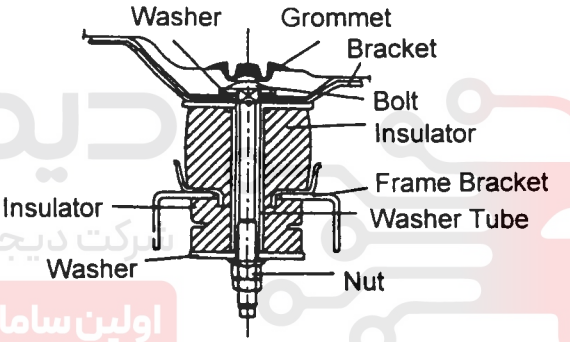
Type A



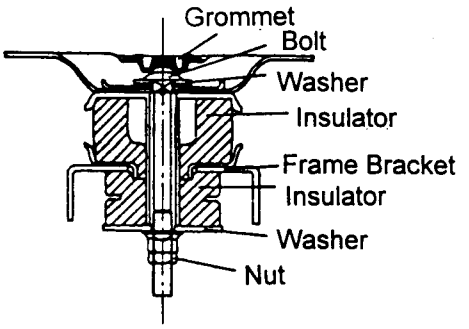
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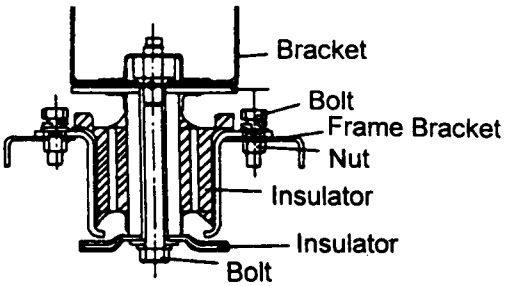
Type C



Type D



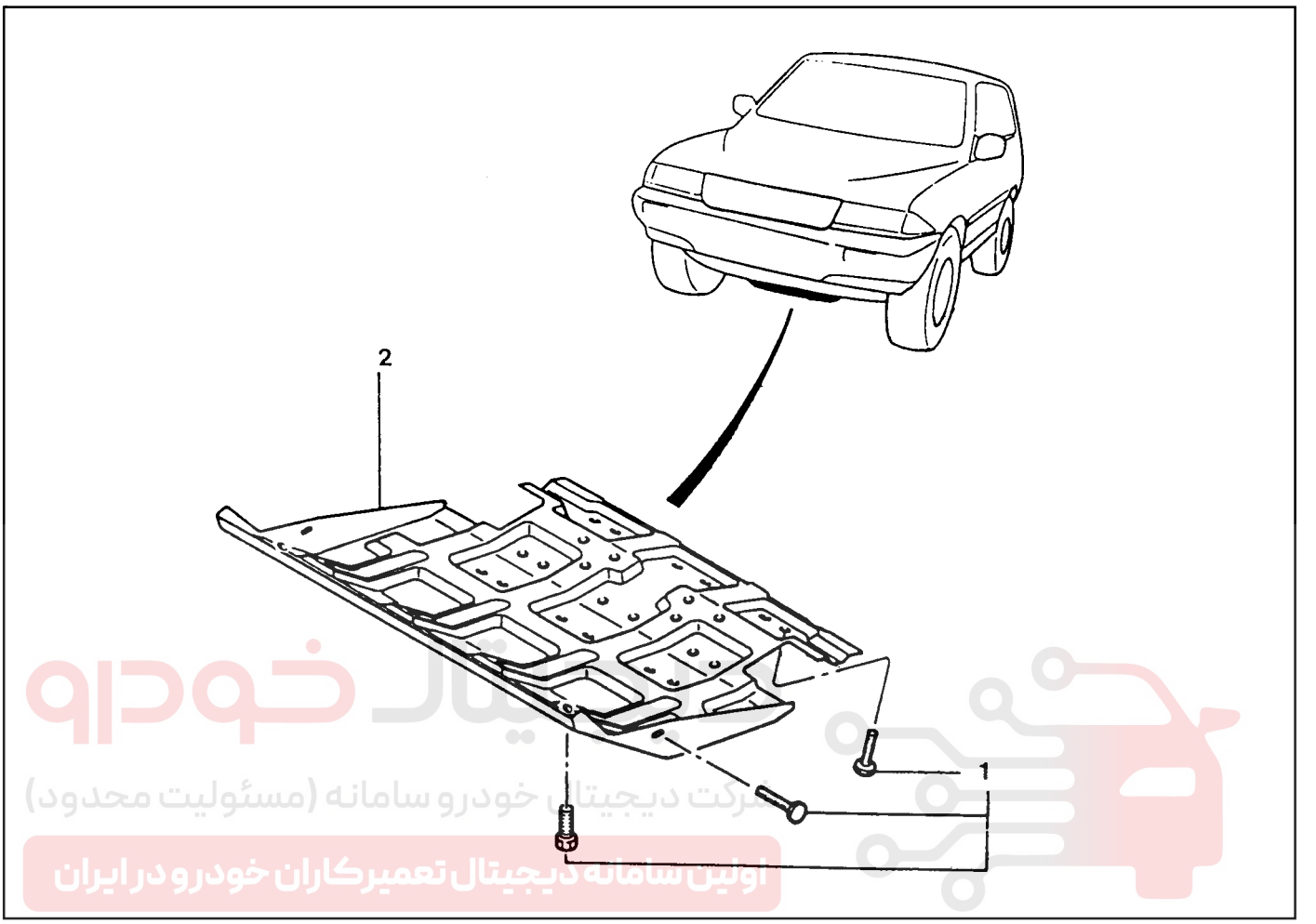
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SKID PLATE



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1 Mounting Bolt ..... 28-47 Nm 2 Skid Plate

Removal & Installation Procedure

1. Remove 6 mounting bolts and carefully remove the skid plate.

Installation Notice

Tightening Torque	28 - 47 Nm

2. Installation should follow the removal procedure in the reverse order.

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SECTION 9O

BUMPERS AND FASCIAS

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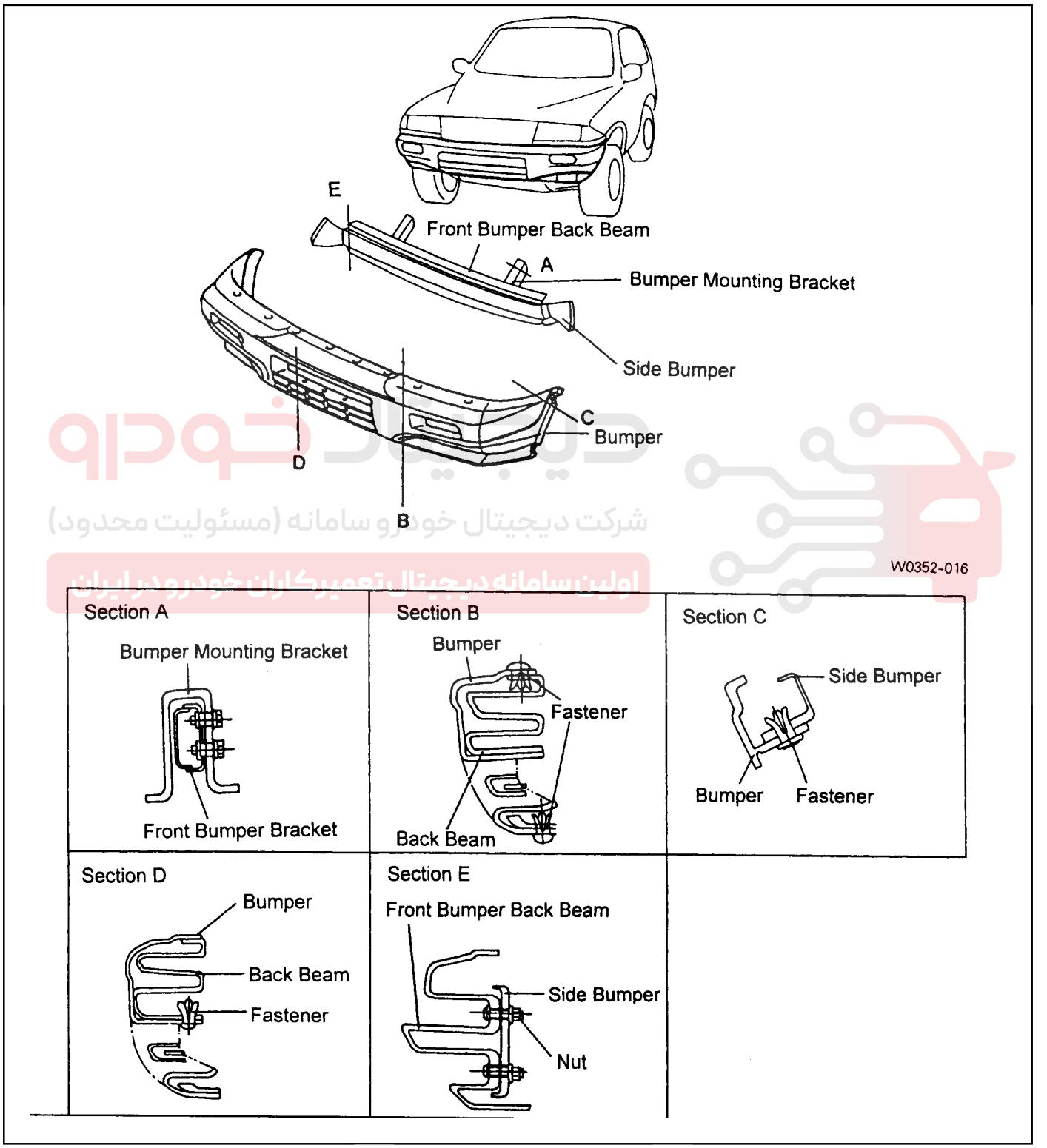
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MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

FRONT BUMPER



Notice

Removal and installation is as shown in upper drawings.

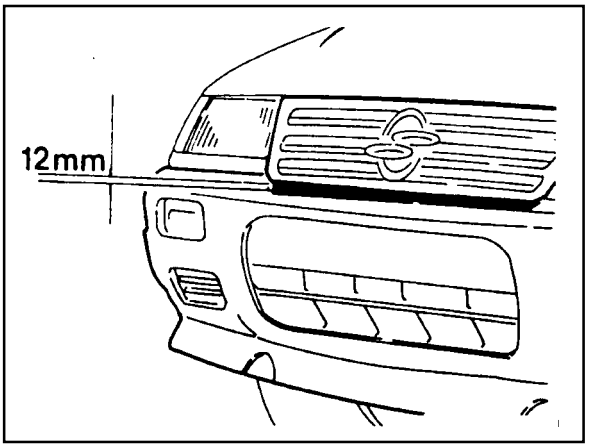
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Mounting Inspection

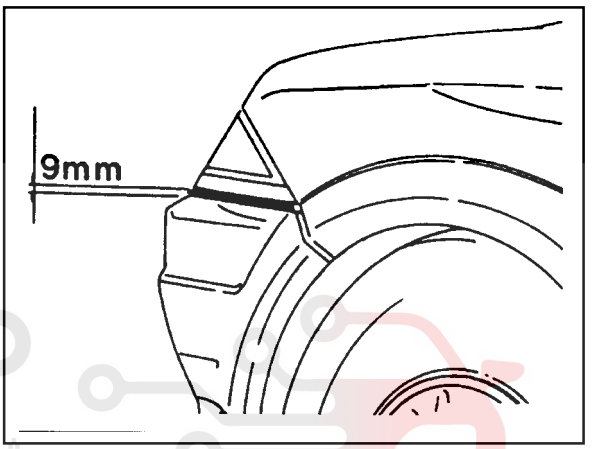
1. Clearance between the upper bumper and radiator grille.

Clearance	12 ± 1.0 mm



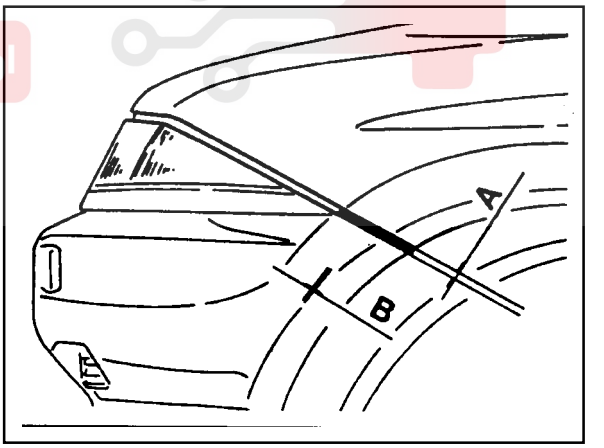
2. Clearance between the upper bumper and headlamp moding.

Clearance	9 mm



2. Clearance between the bumper and wheel arch.

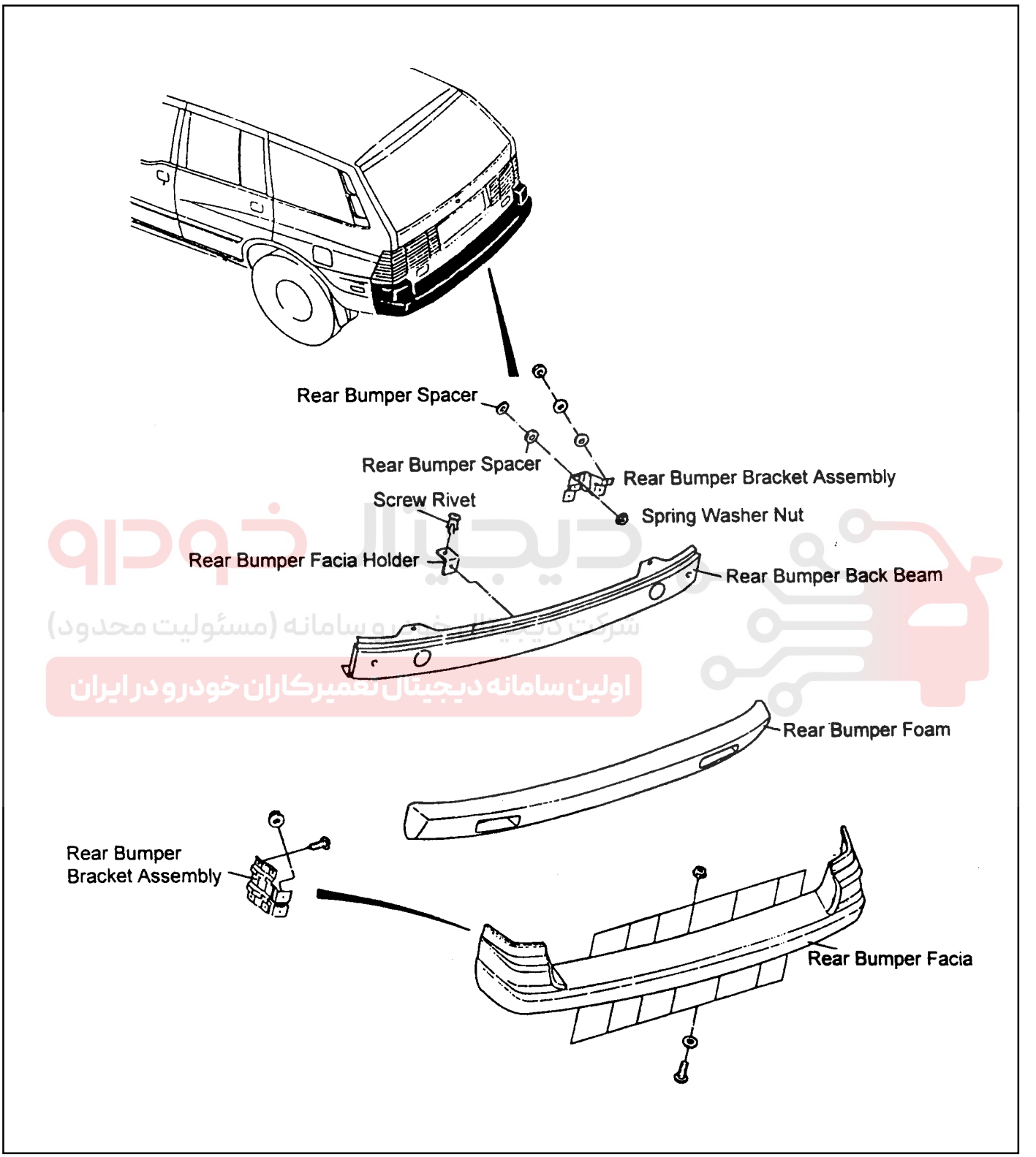
Clearance	10 mm



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REAR BUMPER



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Notice

Removal and installation is as shown in upper drawings.

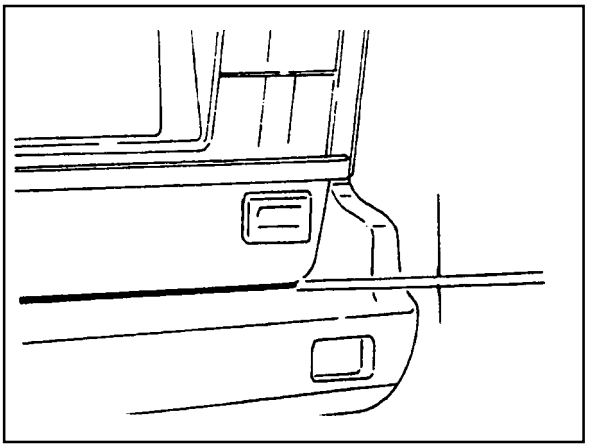
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Mounting Inspection

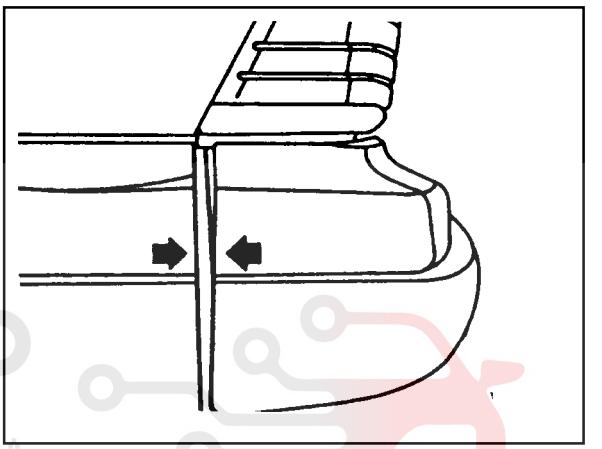
1. Clearance between the upper bumper facia and tailgate.

Clearance	12 ± 1.0 mm



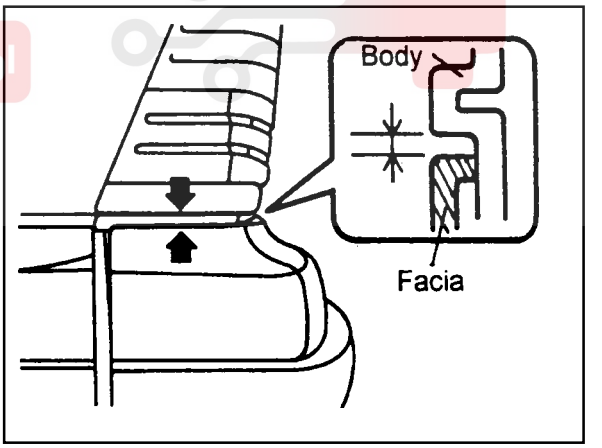
2. Clearance between the rear bumper facia and rear bumper molding.

Clearance	11.0 mm



3. Clearance between the quarter outer panel and rear bumper facia.

Clearance	10.0 mm



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SECTION 9P

DOORS

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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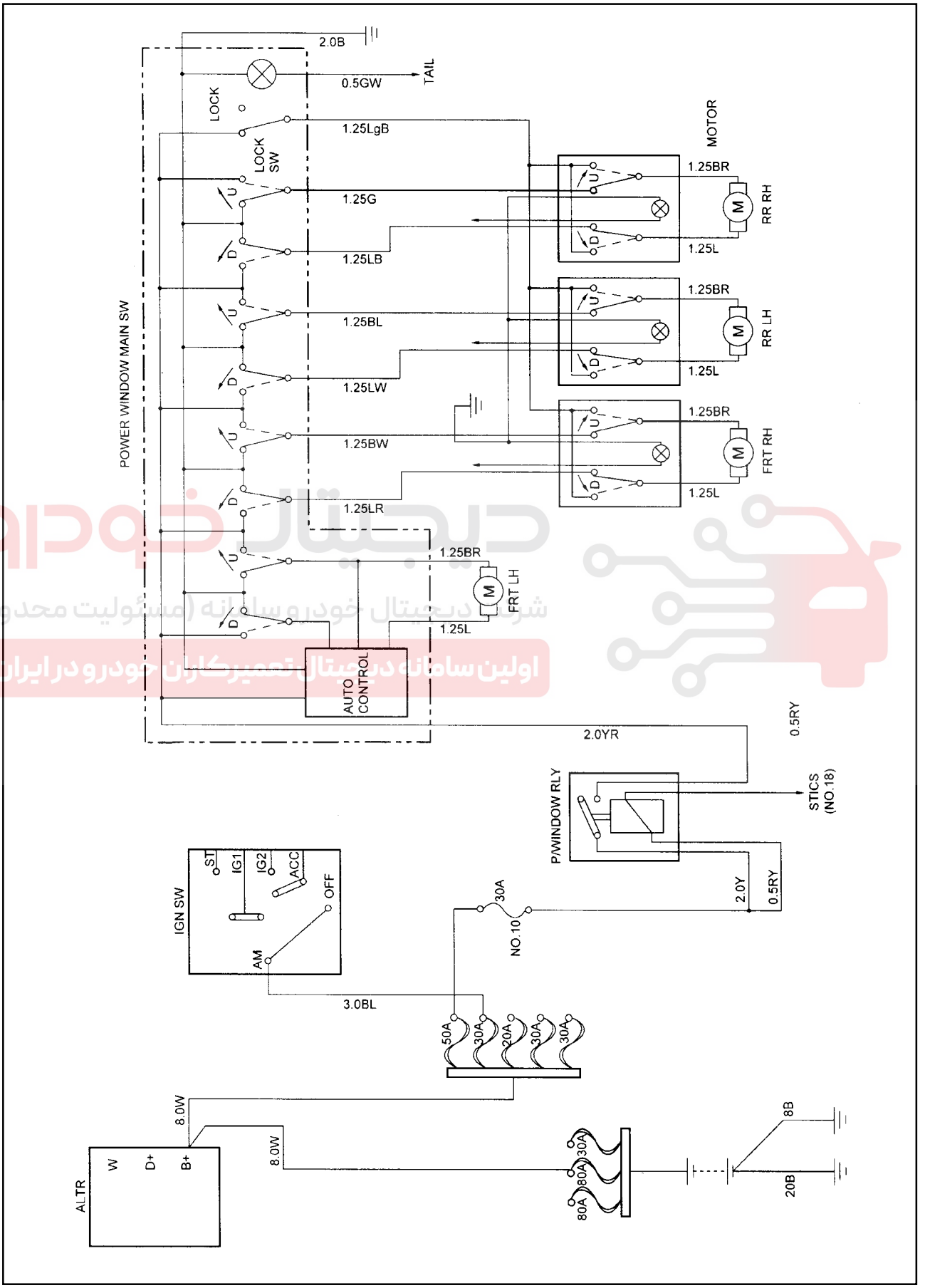
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شرکت دیجیتال خودرو سامانه (مسئولیت محدود)
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SCHEMATIC AND ROUTING DIAGRAMS

POWER WINDOW



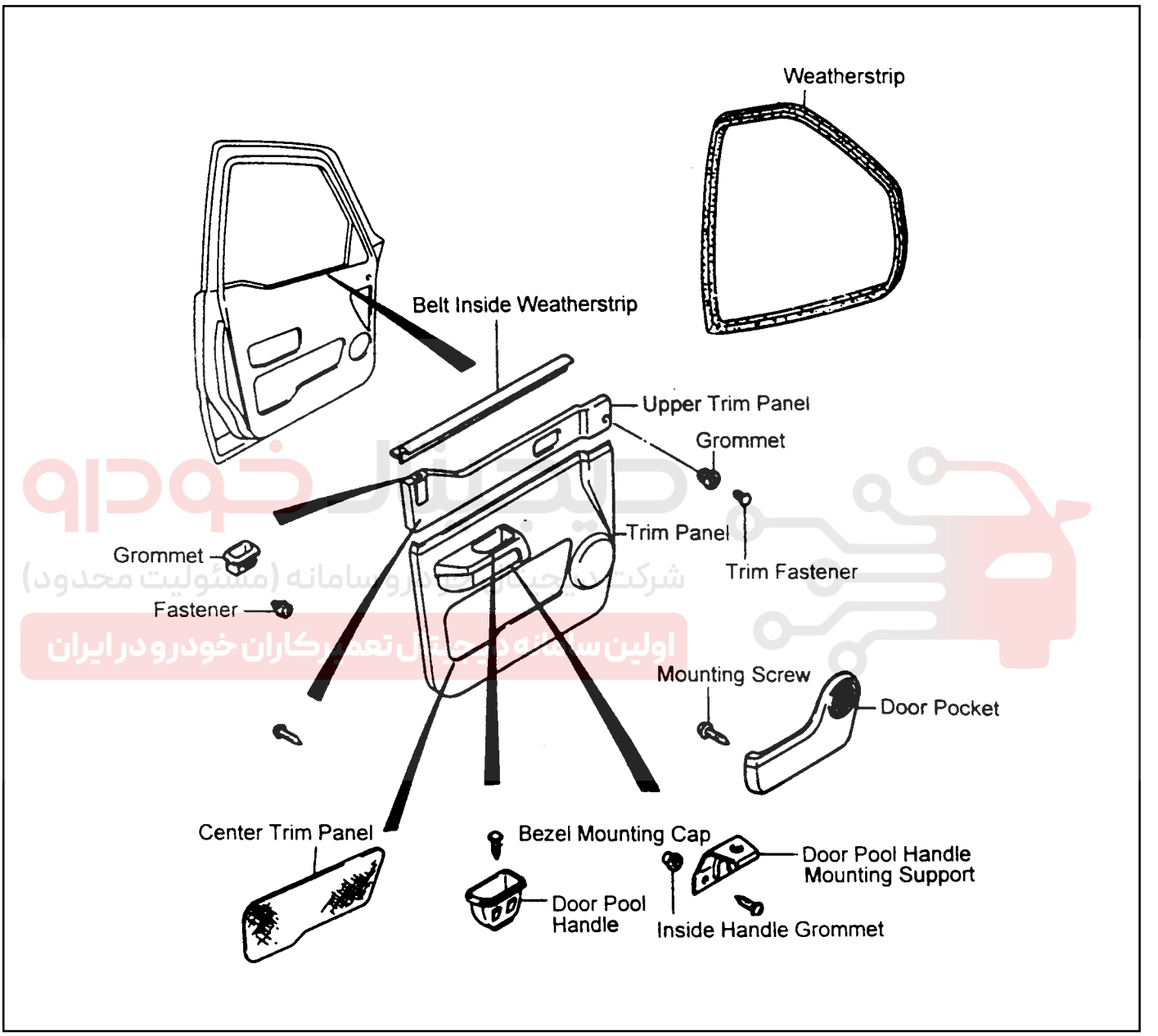
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MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

FRONT DOOR



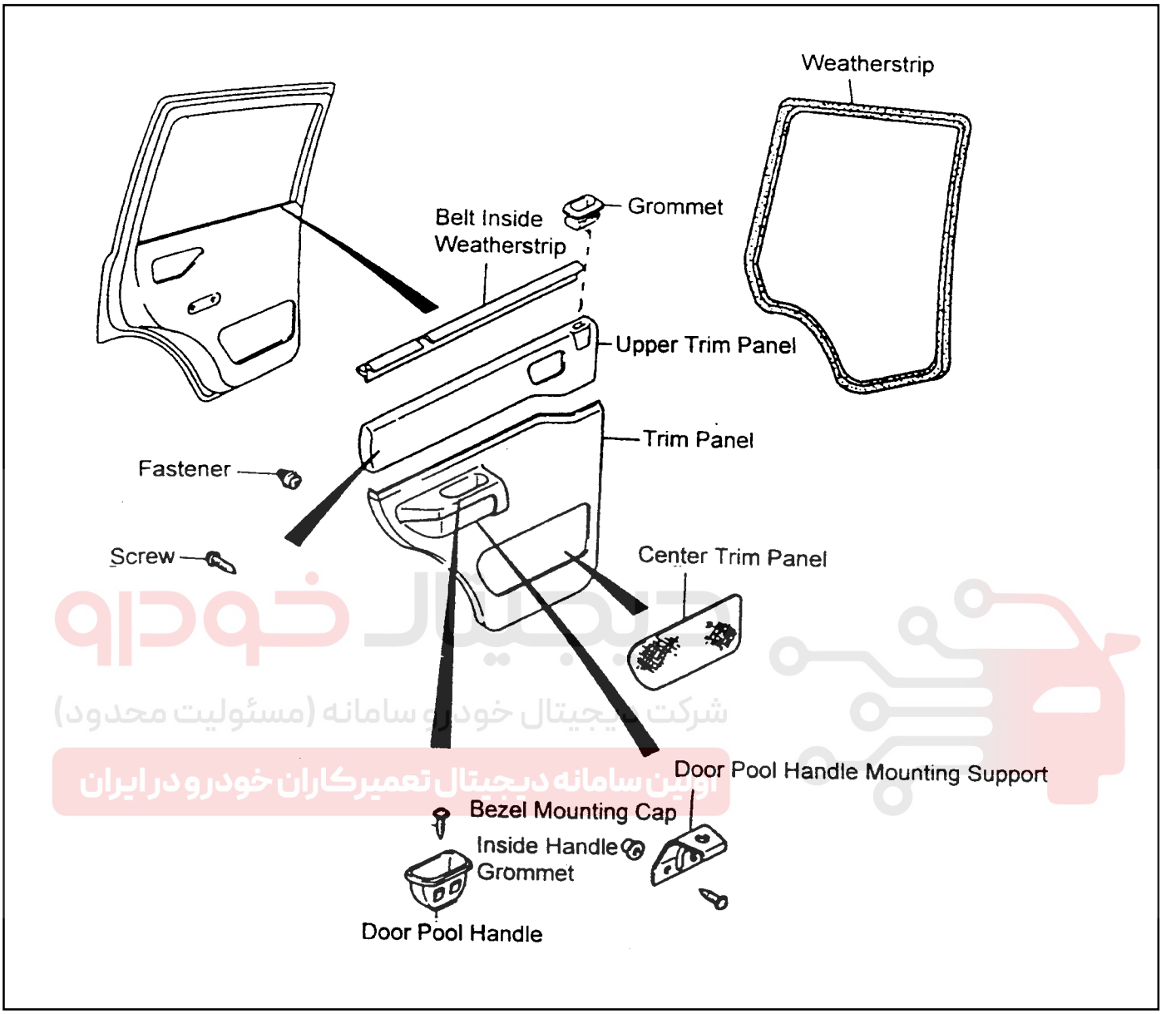
Removal & Installation Procedure

1. Remove the pin from the center hinge of the door.
2. Remove the upper/lower hinge bolts from the body and remove the door assembly.
3. Installation should follow the removal procedure in the reverse order.

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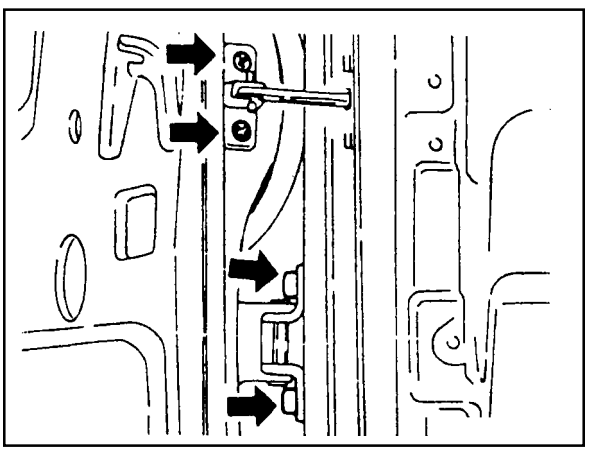
REAR DOOR



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Removal & Installation Procedure

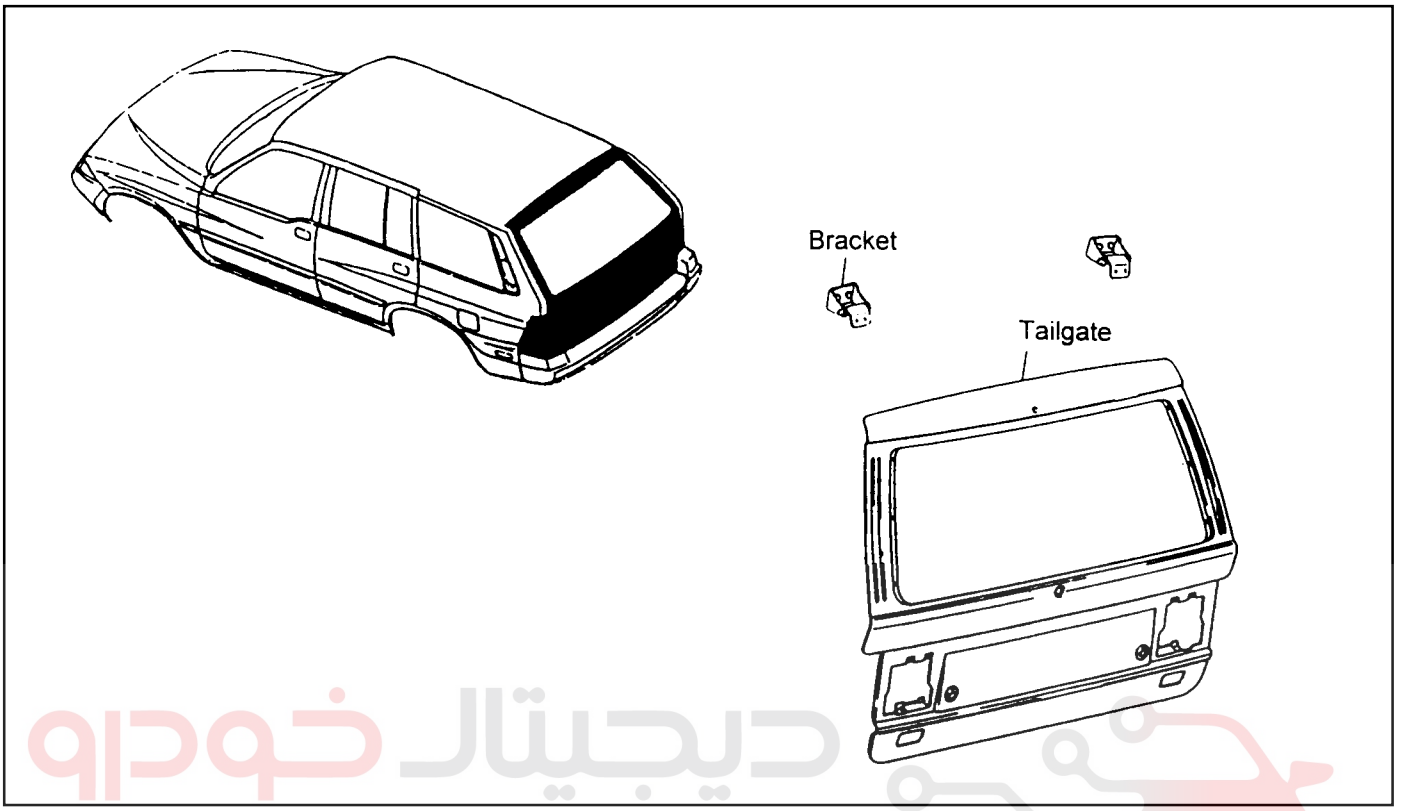
1. Remove the pin from the center hinge of the door.
2. Remove the upper/lower hinge bolts from the body and remove the door assembly.
3. Installation should follow the removal procedure in the reverse order.



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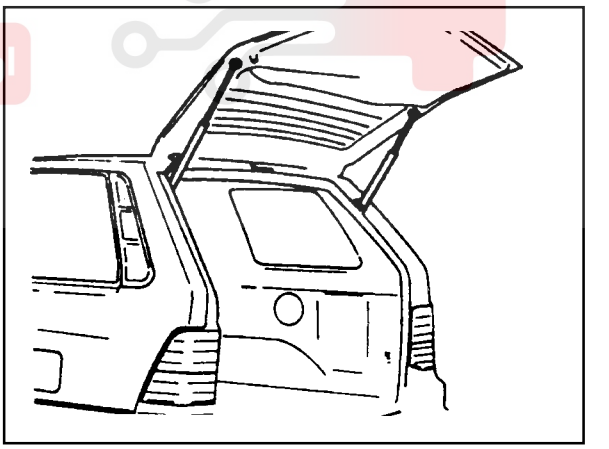
TAIL GATE



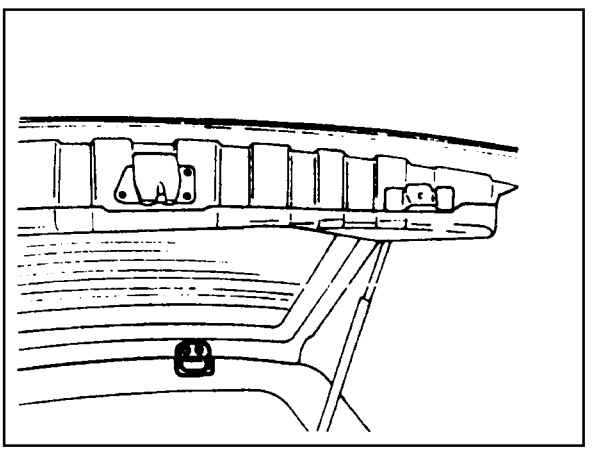
دیجیتال خودرو
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)
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Removal & Installation Procedure

1. Remove the shock absorber mounting bolts.
2. Disconnect the tailgate wiring harness.



3. Remove the tailgate by removing the tailgate bracket bolts.
4. Installation should follow the removal procedure in the reverse order.



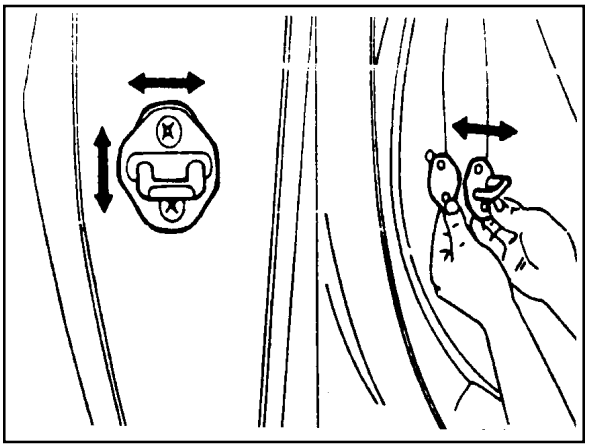
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Adjustment Procedure

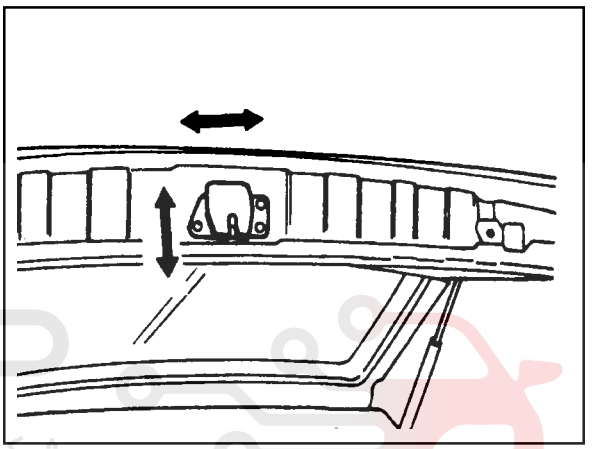
<Door Striker>

1. Adjust the striker in forward / rearward and left / right directions. Adjust striker height by increasing / decreasing the shims.

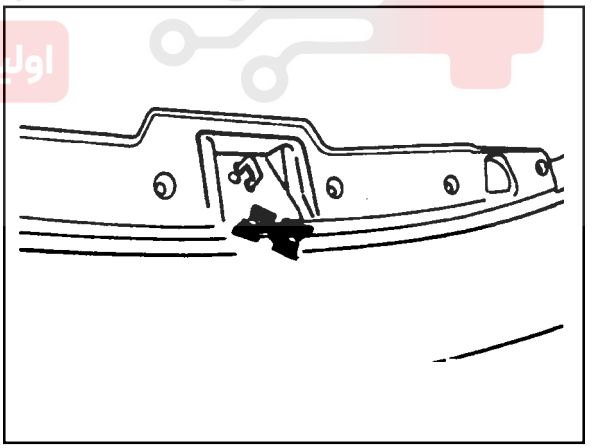


<Tailgate Striker>

2. Adjust the position of the striker as described above.



3. Adjust the position of the safety hook as described above.



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SECTION 9Q

ROOF

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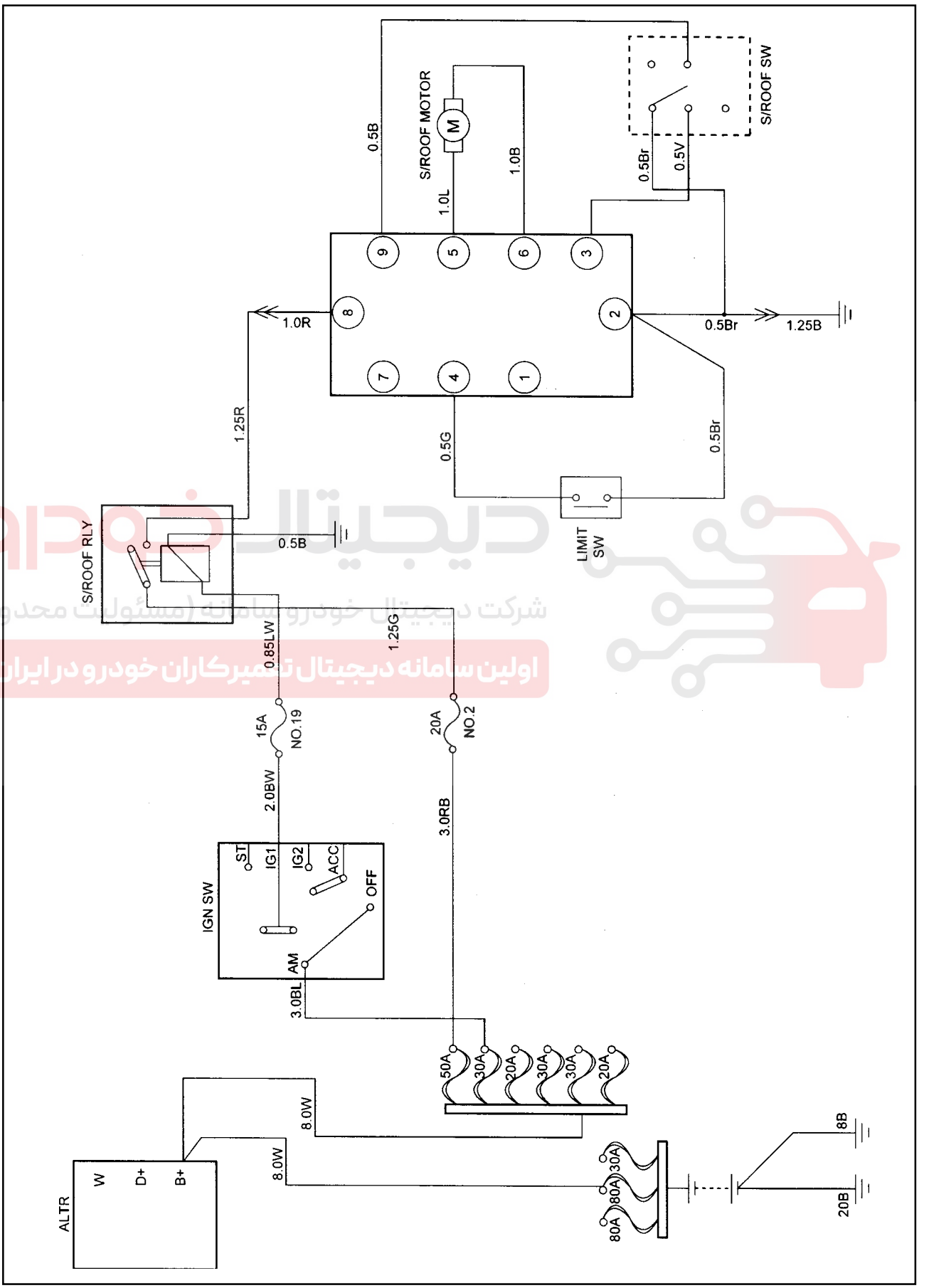
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SCHEMATIC AND ROUTING DIAGRAMS

SUN ROOF



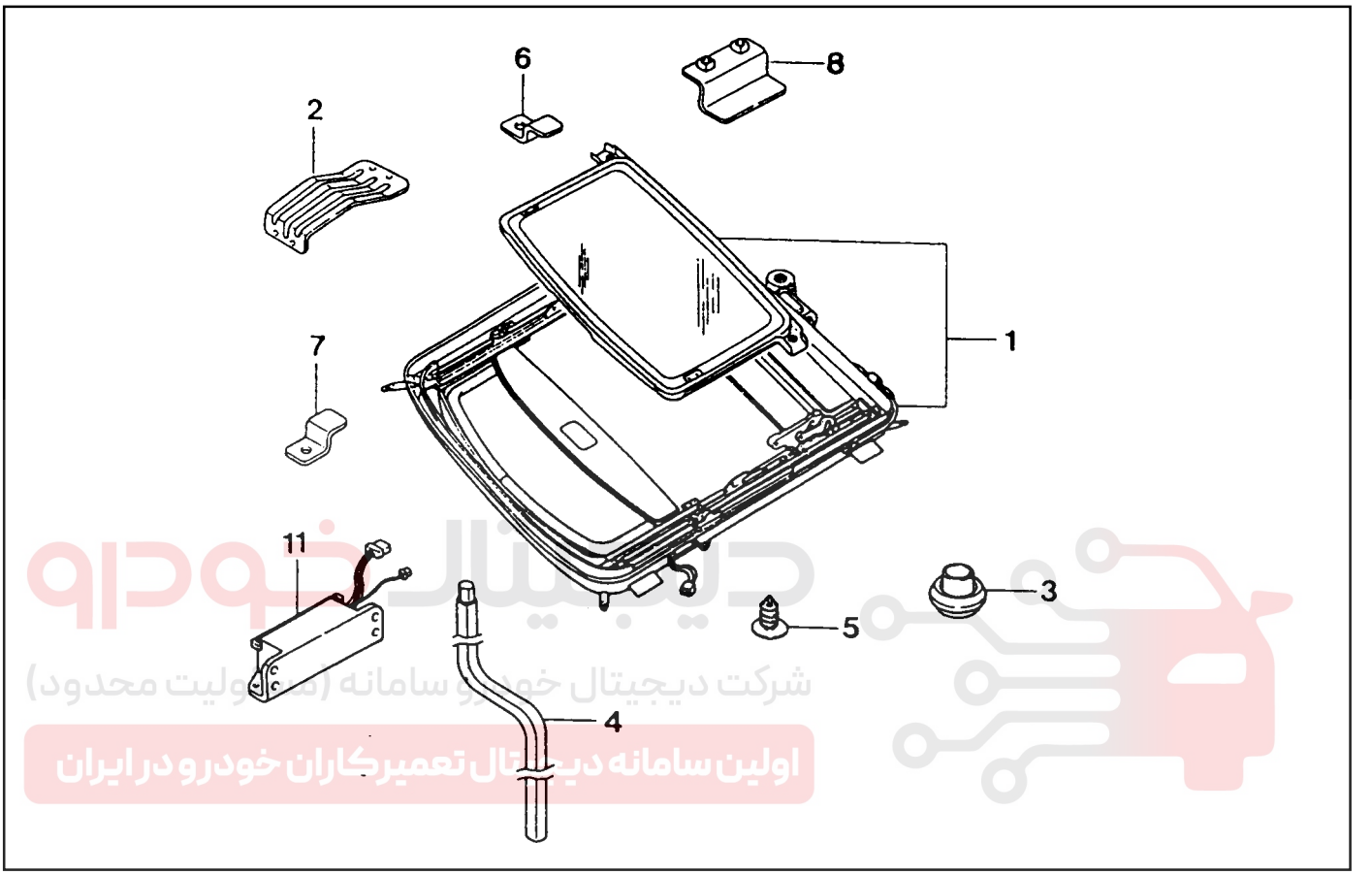
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MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

SUN ROOF



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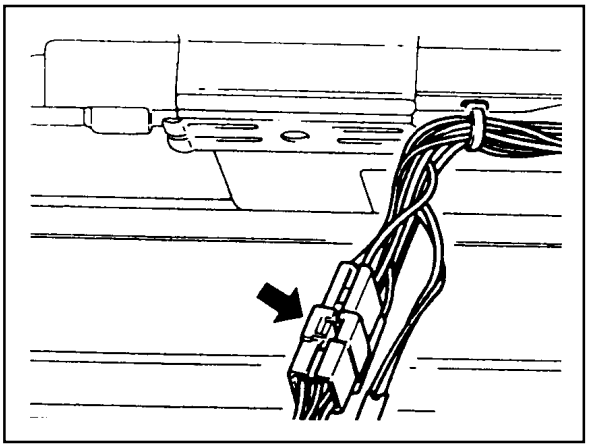
1 Inner Sliding Sun Roof Assembly
2 Sun Roof Body Mounting Bracket
3 Drain Hose Rear Grommet
4 Sun Roof Motor Spanner
5 Mounting Clip
6 Mounting Bracket
7 Mounting Bracket Assembly
8 Sun Roof Mounting Bracket
11 Sun Roof Module Assembly

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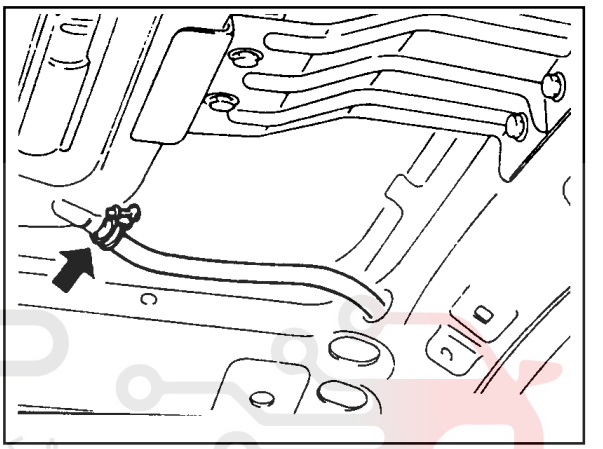
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Removal & Installation Procedure

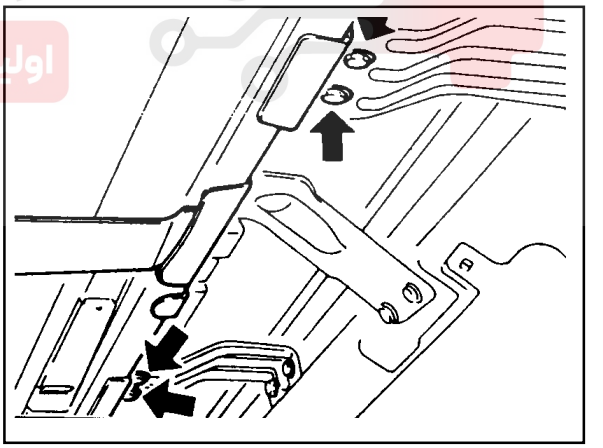
1. Disconnect the connector and remove the sun roof module assembly.



2. Disconnect the front and rear drain hose.



3. Unscrew the sun roof mounting bracket bolts(arrows) and remove the inner sliding and sun roof assembly



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SECTION 9R

BODY FRONT END

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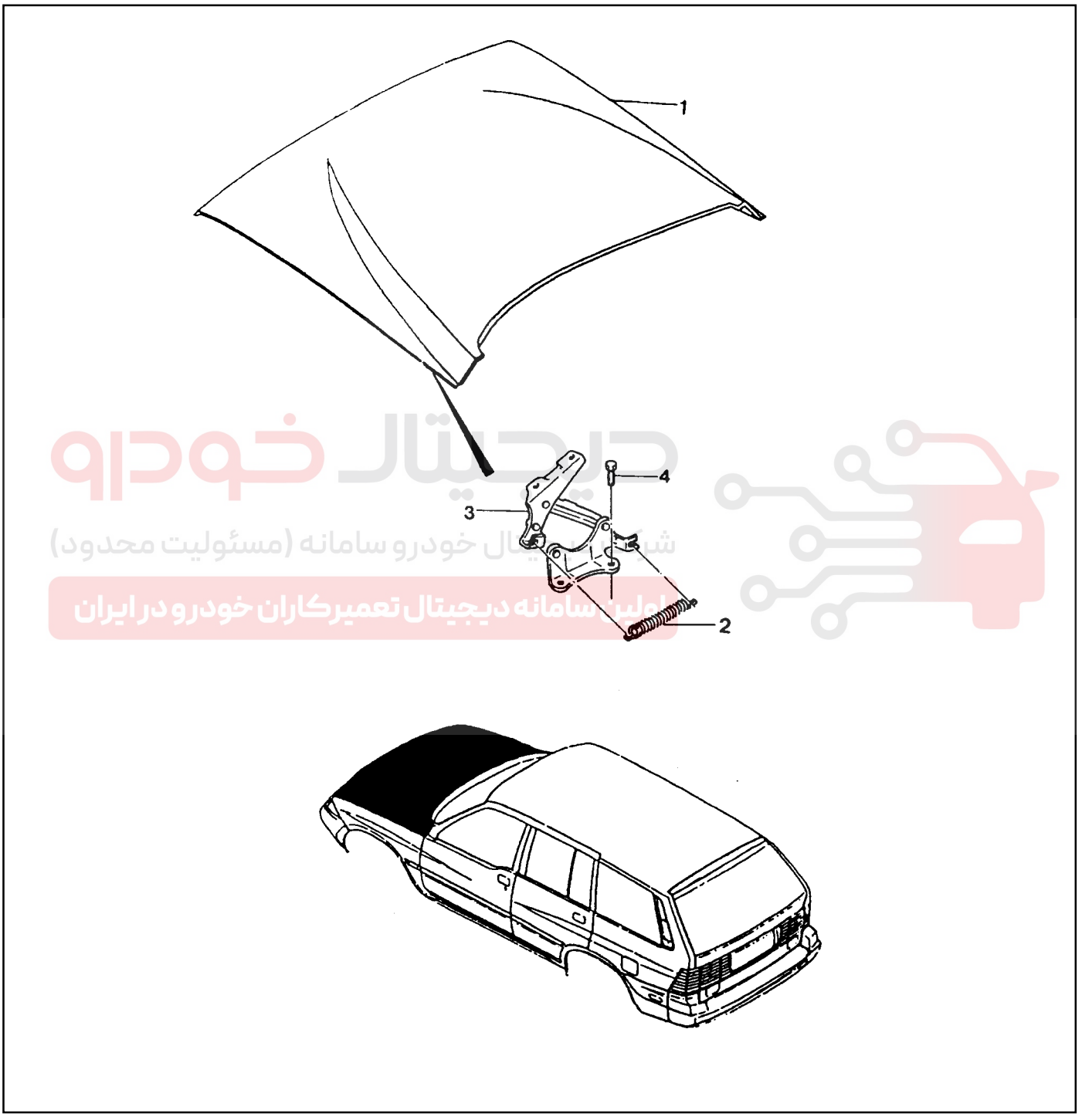
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MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

HOOD

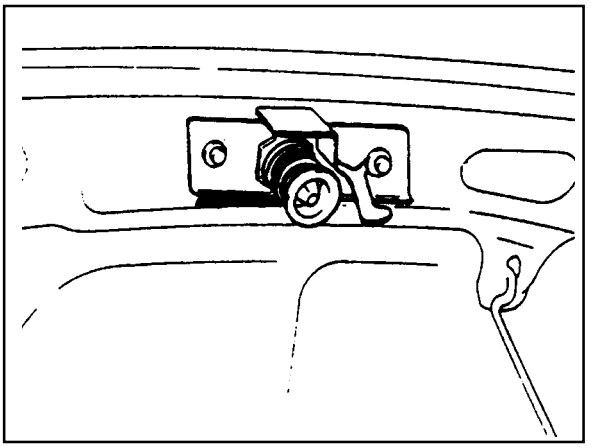


1 Hood
2 Sping
3 Hood Hinge Assembly
4 Bolt

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Removal & Installation Procedure



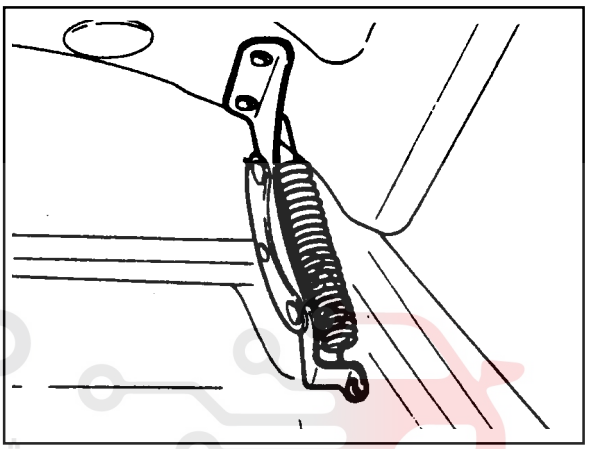
1. Remove the hood striker assembly.

   Notice

   When installing, tighten the bolt after setting the hole between wratch and hood striker assembly.

   Installation Notice

Tightening Toque	8 - 11 Nm



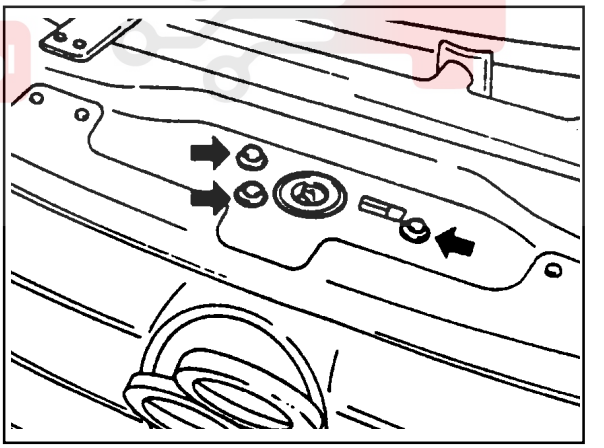
2. Remove the hood Mounting bolt and hood lifter assembly.

   Installation Notice

Tightening Toque	14 - 26 Nm

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3. Remove the hood lock, hood relese from the clip.
4. Remove the cable holder screw.
5. Pull the cable nut toward driver side.
6. Installation should follow the removal procedure in the reverse order.



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Adjustment Procedure

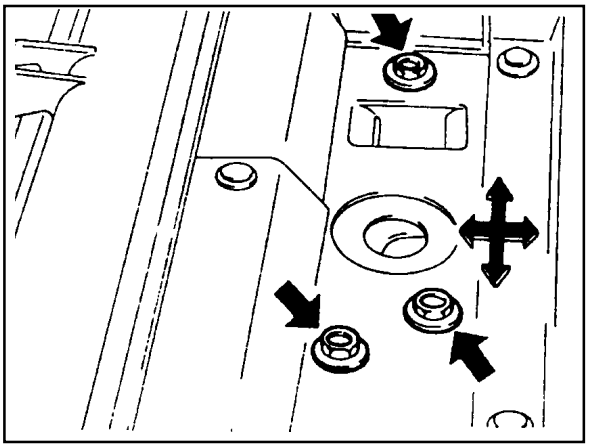
1. Alignment between hood striker and latch hole.
   - Loosen the mounting bolt of hood latch slightly and adjust hood in forward/rearward and left/right directions. Then align the center between hood striker and latch hole.

   Notice

   Tighten the bolt fully after alignment.

   Installation Notice

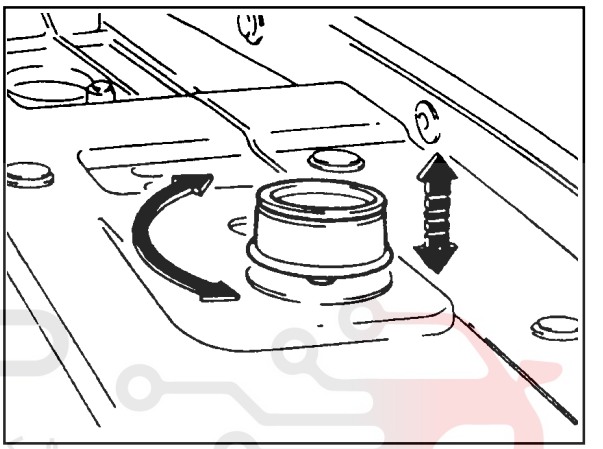
Tightening Toque	13 - 26 Nm



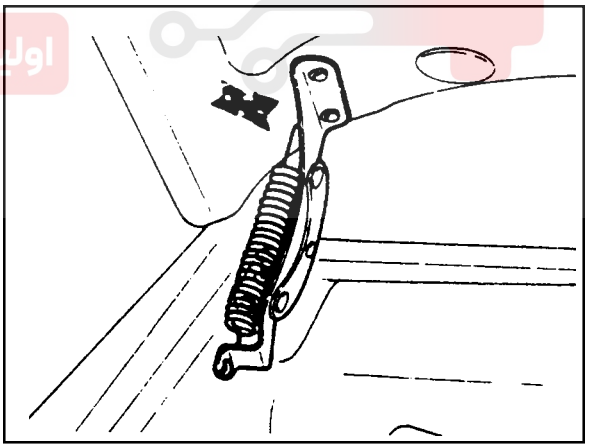
2. Adjusting the height of hood overslam bumper.

   Unlock the hood and check the clearance between hood and fender by adjusting the hood overslam bumper in left/ right directions.

Normal	20 - 22 Nm



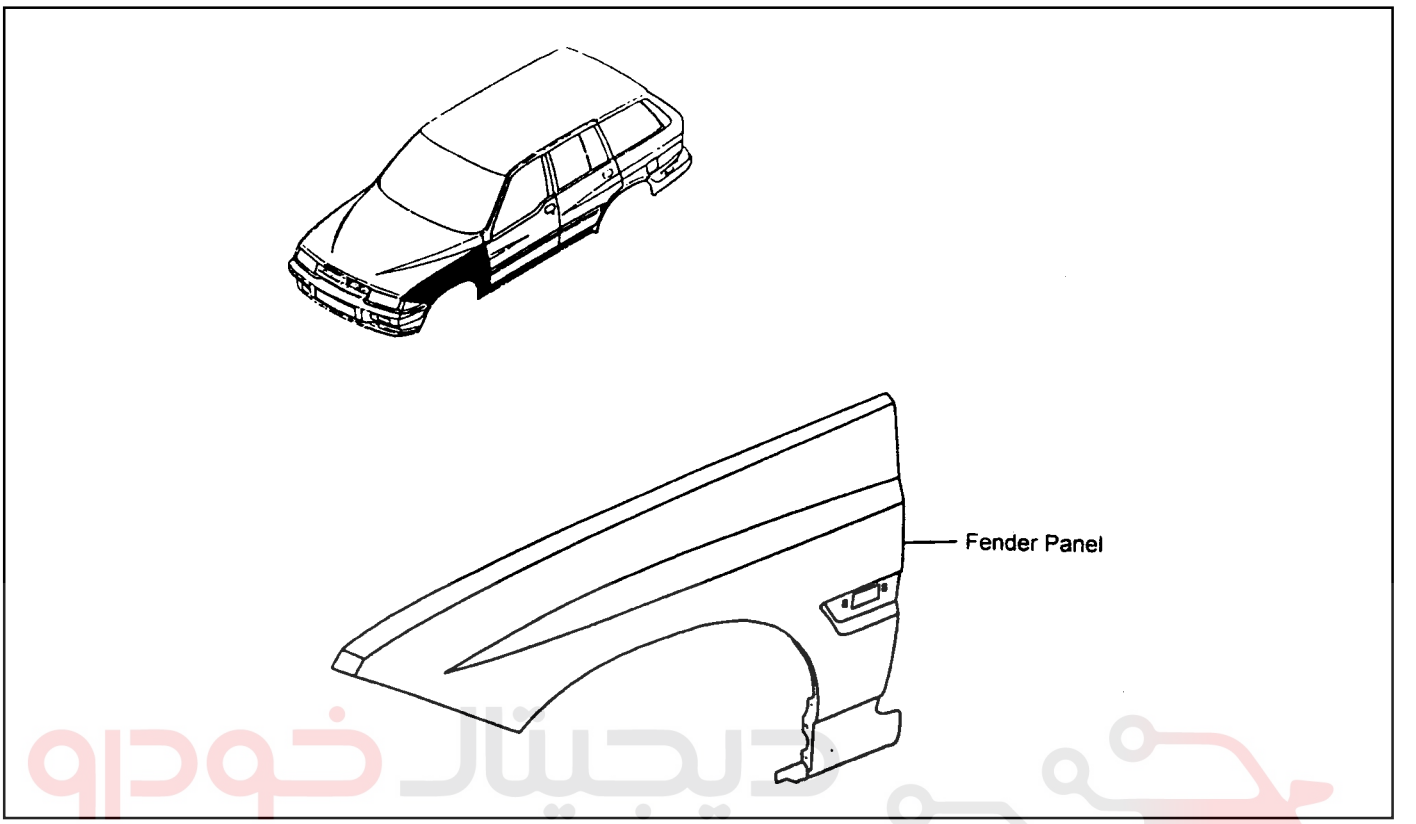
3. Hood Hinge.
   - Loosen the hood lock bolts.
   - Adjust the lock in forward/rearward and left/right directions, align with the hood striker and adjust the hood height.



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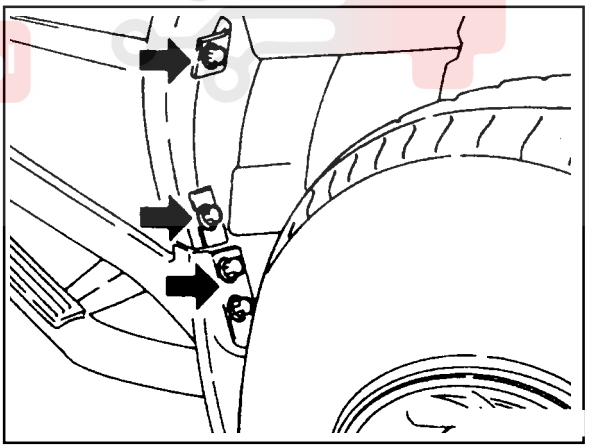
FENDER



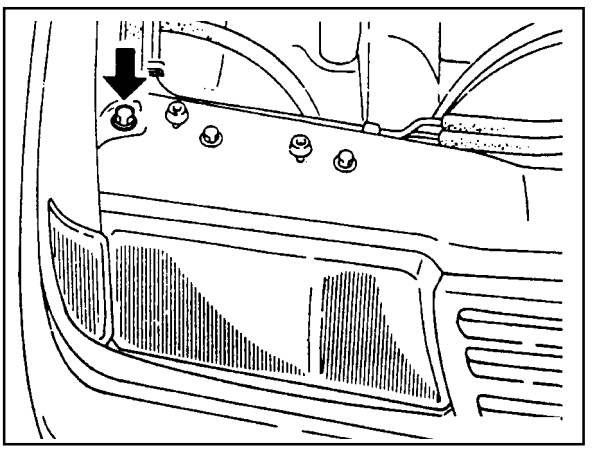
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Removal Procedure

1. Remove the screws.
2. Remove the mudguard and wheel guard.



3. Disconnect the front lamps connectors.
4. Remove the front lamps.



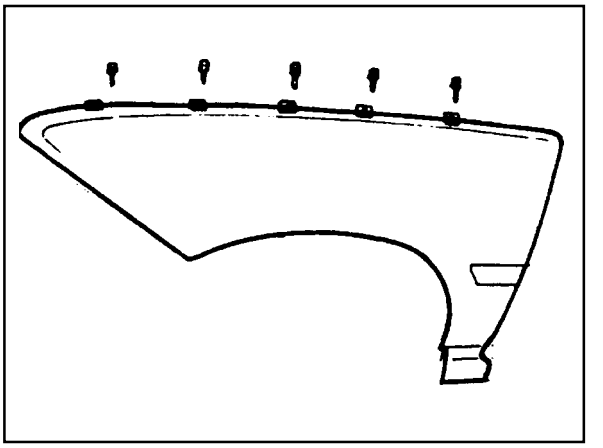
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5. Remove the fender mounting bolts.

Notice

Be careful not to damage the paintwork.



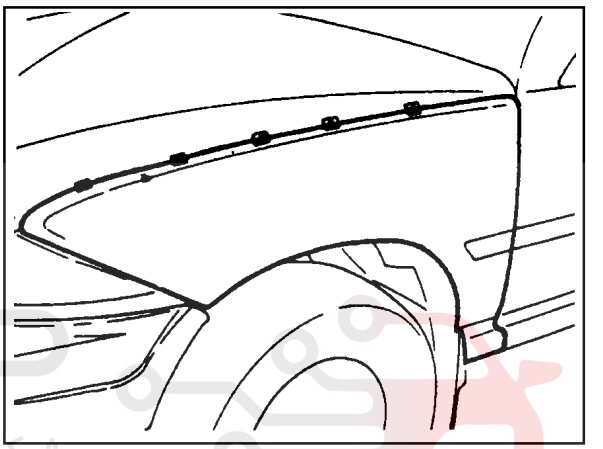
Installation Procedure

1. Installation should follow the removal procedure in the reverse order.

Notice

Apply a tape sealer to the fender and body panel to prevent rust in fender mounting bolts area.

Tightening Torque	7 - 9 Nm



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SECTION 9T

REMOTE KEYLESS ENTRY AND ANTI-THEFT SYSTEM

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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SPECIFICATIONS

REKES SPECIFICATIONS

Receiver

Application	Description
Rated Voltage	DC 12V
Rated Range of Operating Voltage	DC 8V - 16V
Rated Range of Operating Temperature	-30℃ - +80℃
Insulating Resistance	Above 5M ᴡ
Arm Current	Maximum 3mA

Transmitter

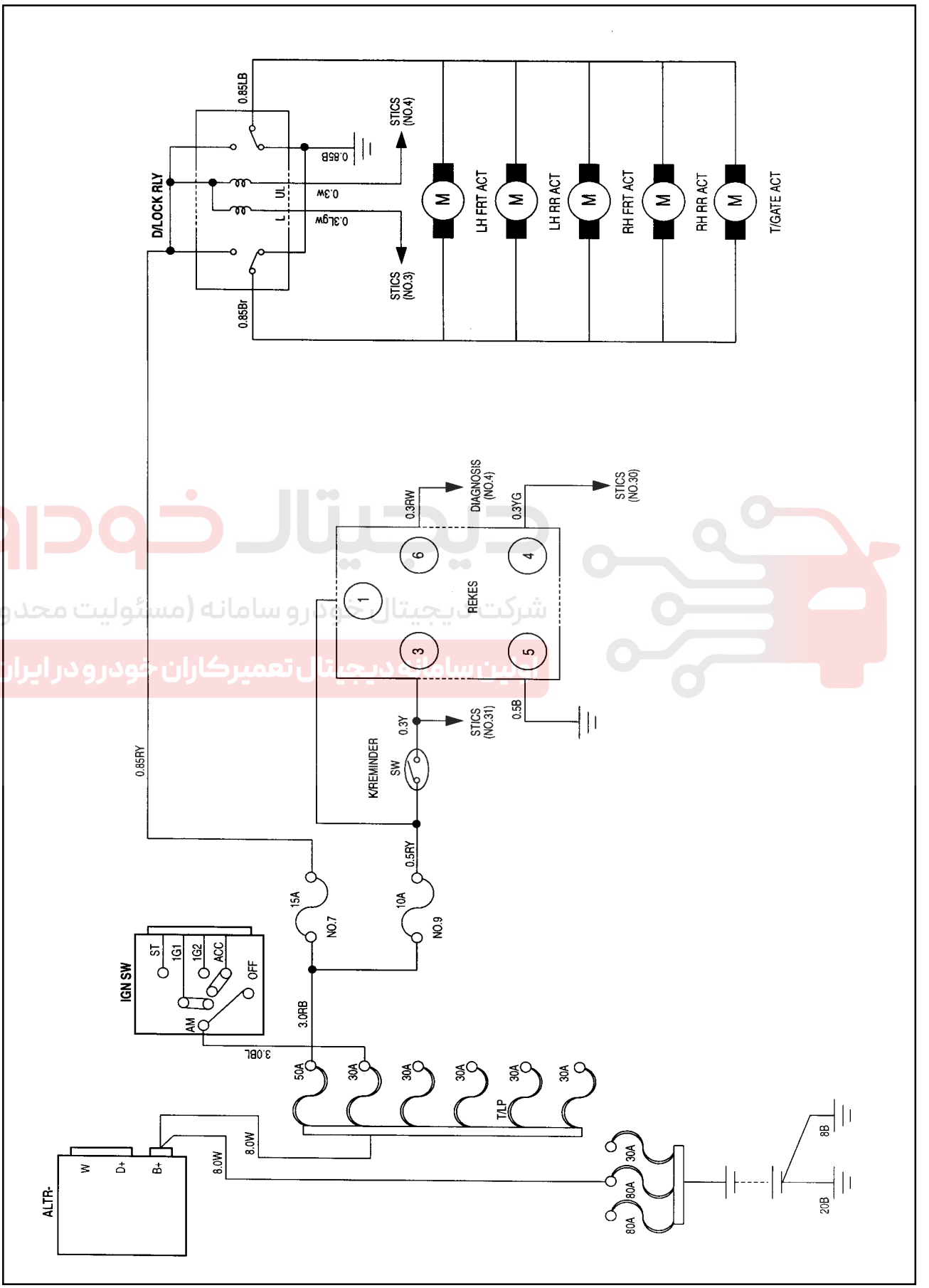
Application	Description
Rated Voltage	DC 3V
Rated Range of Operating Temperature	-10℃ - 60℃
Model	Changeable Coin Type LITHIUM Battery (CR2032)
Durability	Above 2 years (10 times/day)

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SCHEMATIC AND ROUTING DIAGRAMS

REKES



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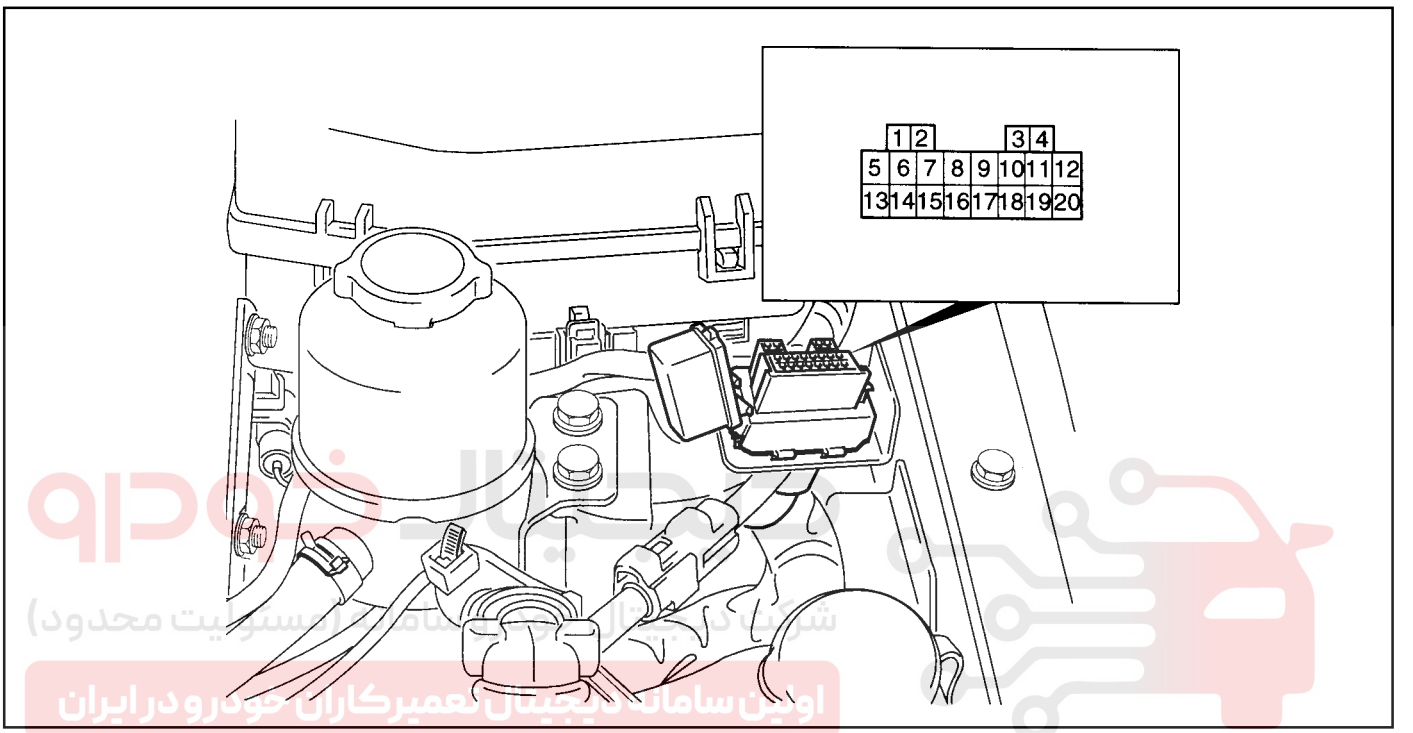
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DIAGNOSIS

DIAGNOSIS TEST

Introduction

Using the service connector, possible defects in power section, input·output section of internal STICS unit can be detected and each normal status and defect mode can be checked.



Diagnosis Method

1. Use buzzer for diagnosis check status output.
2. Following function outputs should not act when diagnosis switch is ON (STICS in the diagnosis socket box:connection of No. 7 and ground No.1).
   - Tail lamp ON warning (buzzer output stop, door lock/ unlock output stop)
   - Seat belt warning (chime bell output stop)
   - Key reminder warning (chime bell output stop, door lock/ unlock output stop)
   - Central door lock (door lock/unlock output stop)
3. Functions in No. 2 should be restored when diagnosis switch is OFF.
4. Checked output should be made once while the diagnosis switch is ON.
5. When inputs are made by operating each different switches more than 2 continuously, make output according to input order (buzzer ON) and turn off the buzzer for 1 second and than make other remaining outputs for input switch.

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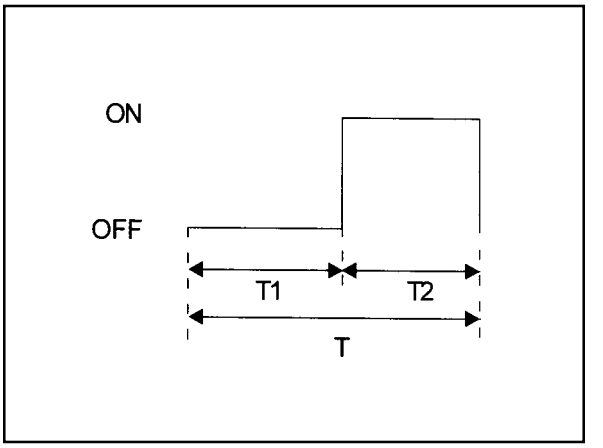
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6. Buzzer output is as follows.

T1 : 0.3±0.1 sec.

T2 : 0.3±0.1 sec.

T : 0.6±0.2 sec.



Notice

- In case of checking related devices, diagnosis switch should always be ON.
- When operating the diagnosing related devices, there will be buzzer sound if it is normal and no buzzer sound if it is defective.

Self - Diagnosis List

NO.	Required Condition	Related device check (operation)	Normal output	Remark
1	Diagnosis switch ON	Confirm the diagnosis function start	Buzzer once	Diagnosis Switch ON
2	Battery voltage supply	Check the battery	Buzzer twice	
3	Operation of battery and related devices	Tailgate, rear door lock switch	Buzzer once	
4		Driver's door lock switch	Buzzer once	
5		Passenger's door lock switch	Buzzer once	
6		Driver's door switch	Buzzer once	
7		Passenger and rear door switch	Buzzer once	
8		REKES input	Buzzer once	
9	IGN key insertion	Key reminder switch	Buzzer once	
10	Operation of IGN and related devices	IGN and power window relay	GN2 buzzer twice, IGN1 buzzer once, power window buzzer 3 times	
11		Parking brake switch	Buzzer once	
12		Seat belt switch	Buzzer once	
13		Washer switch	Wiper motor parking 3 times, washer switch once, wiper relay twice	
14		Wiper auto switch	Wiper motor parking 3 times, wiper auto switch once, wiper relay twice	
15		ALT 'L'	Buzzer once	
16	Operation of IGN and starting and related devices	Volume variable switch	Buzzer once	
17		Defogger switch	Buzzer once	
18		Speed sensor signal	Buzzer once	

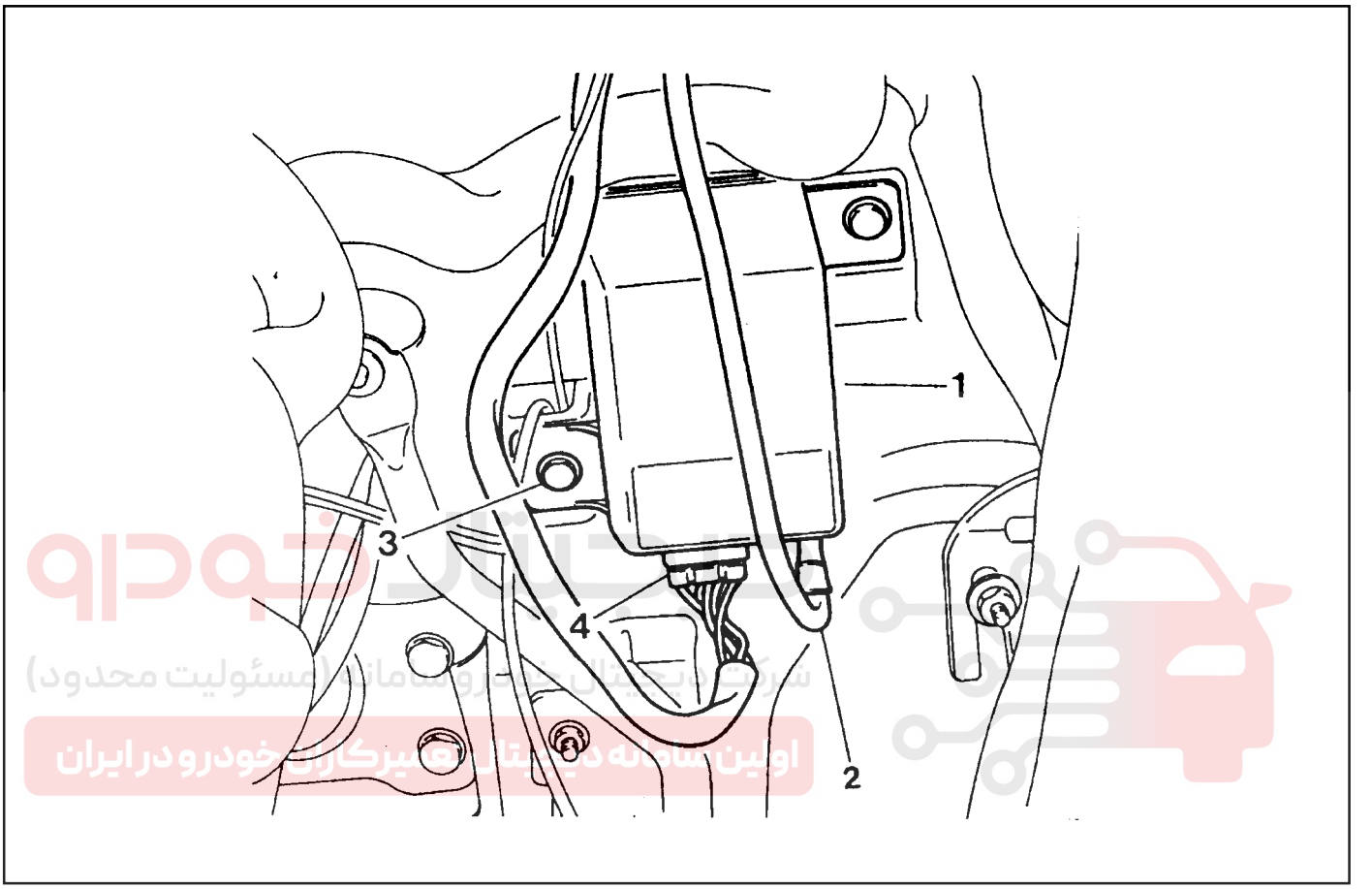
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MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

REKES



1 REKES Receiver
2 Antenna
3 Bolt
4 Wiring Connector (6P)

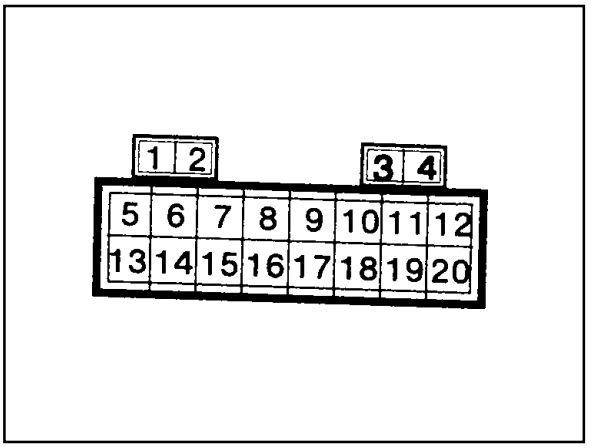
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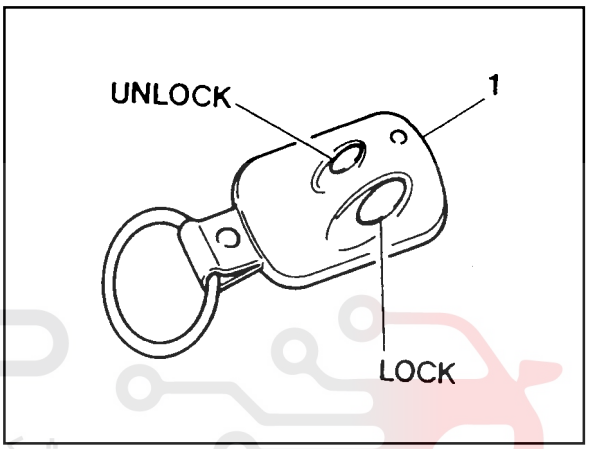
Input Memory

- When the REKES transmitter is lost

1. Connect the battery terminal No.3 and REKES terminal No.4 which are on the diagnosis socket in engine room with service lead wire.



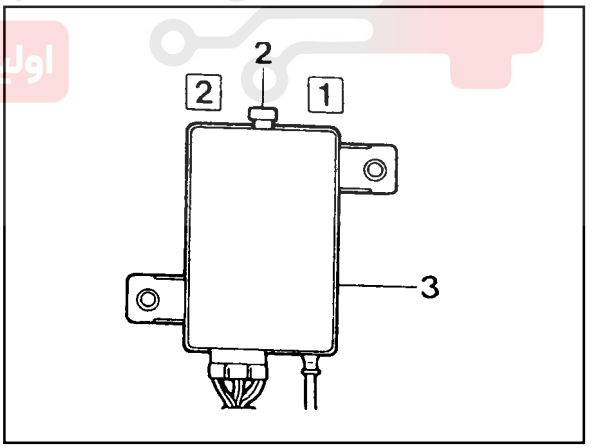
2. Push the lock or unlock button on the REKES transmitter.
3. Input Memory and close all doors.
4. Check the operation of door locking system by pushing the lock or unlock button on the REKES transmitter.



1 REKES Transmitter

- When the transmitter is faulty

1. Replace the REKES transmitter with a new one and connect the wiring connector.
2. Set the input switch of the REKES receiver onto the No.1 or No.2 position and push the lock or unlock button on the REKES transmitter.
3. Set the input switch of the REKES receiver onto the central position and close all doors.
4. Check the operation of door locking system by pushing the lock or unlock button on the REKES transmitter.



2 Input Switch of the REKES Receive
3 REKES Switch

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Characteristic Signal

1. Lock or unlock all doors according to the REKES signal when the key is removed from the key hole.
2. Characteristic Signal : Right Picture
3. Time Interval

   T1 : 0.05 ± 0.02sec.(lock signal)

   T2 : 0.1 ± 0.02sec.(unlock signal)

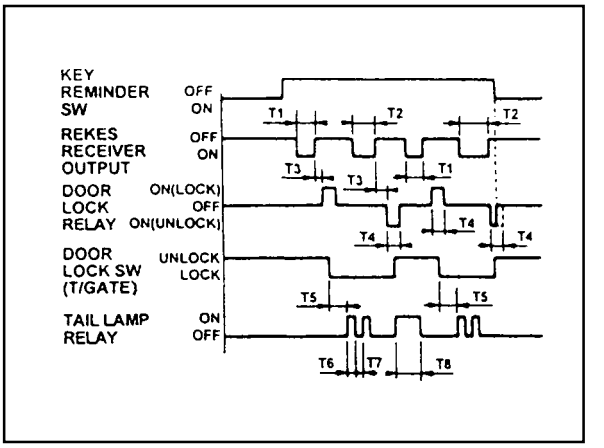
   T3 : within 0.25sec.

   T4 : 0.5 ± 0.1sec.

   T5 : within 0.35sec.

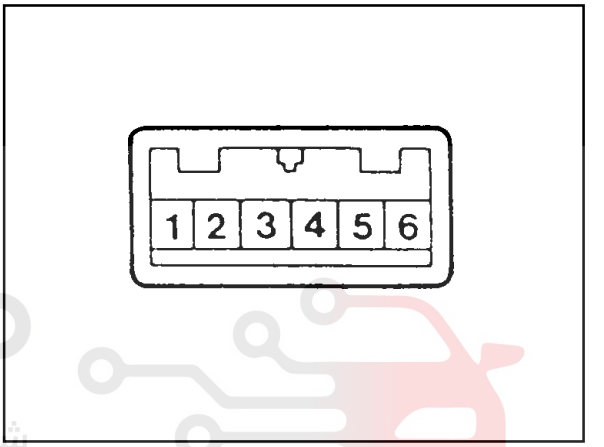
   T6,T7 : 0.5 ± 0.1sec.

   T8 : 1 ± 0.25sec.



Connector Appearance and Connecting Circuit

Pin No.	Connecting Circuit
1	B+
2	Memory Terminal
3	Key Reminder Switch
4	STICS
5	Ground
6	Memory Terminal



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SECTION 9U

CONTROL UNITS AND SYSTEM

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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STICS 9U-10

SPECIFICATIONS

STICS SPECIFICATIONS

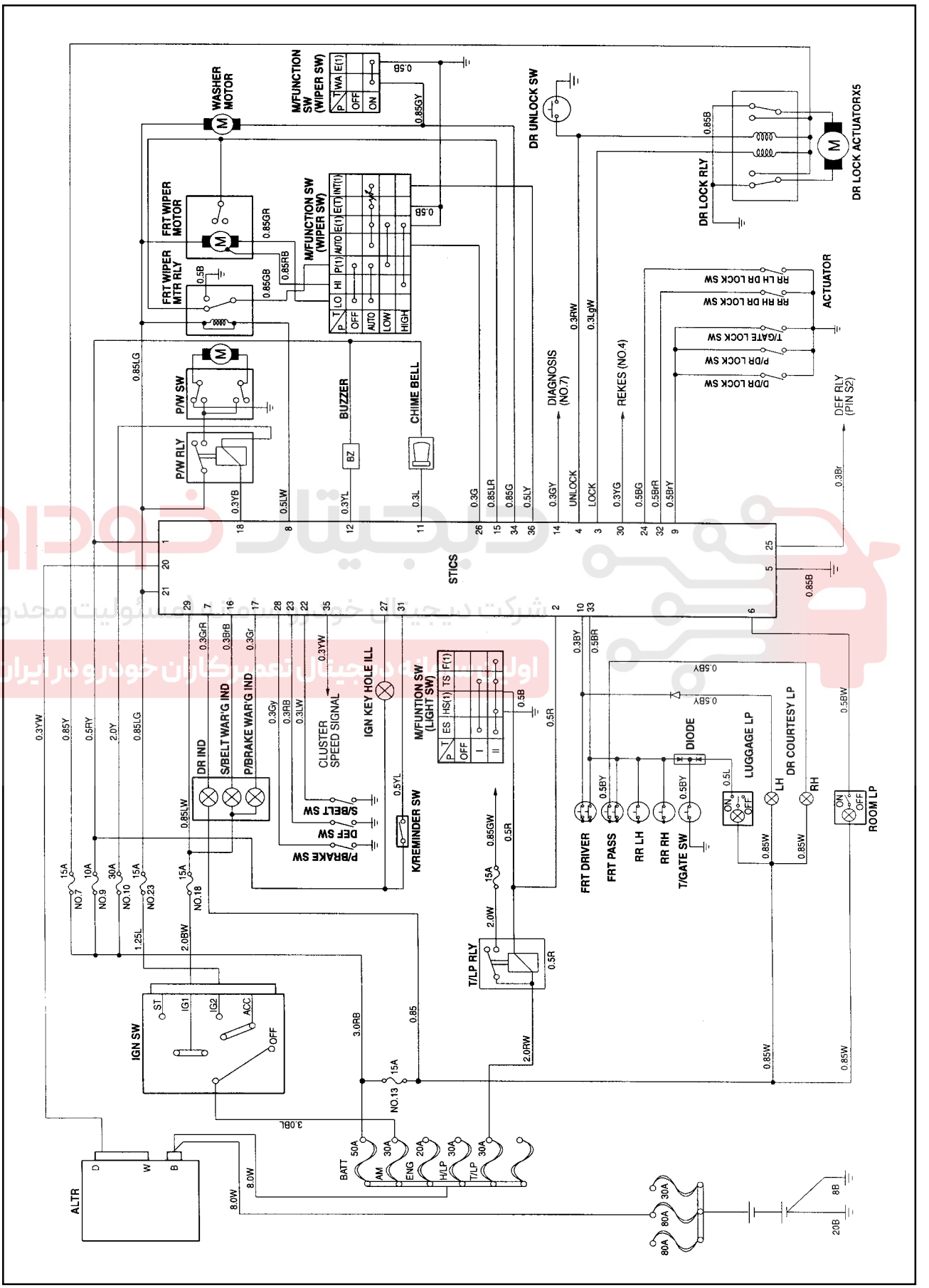
Application		Description
Voltage Rating		DC 12V
Voltage Rating		Dc 9V - 16V
Current Consumption		Less than 1mA(key is removed and all doors locked)
Operating Temperature		-30℃ - +80℃
Voltage Drop (at DC 12V)	Max. 1.2V	Between terminal No.5 and 3,4,8,12,18,25
	Max. 1.8V	Between terminal No. 5 and 2,6,7,16,17
	Max. 2.0V	Between terminal No.5 and 11, 27

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SCHEMATIC AND ROUTING DIAGRAMS

STICS



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FUNCTION DESCRIPTION

STICS

Operating Functions

NO.	Application	Deseription
1	Wiper INT sensing vehicle speed	● By operating INT time control volume, variable time will be changed within 1.5 - 20 seconds.
2	Washer relating wiper	● Wiper begins to operate within 0.6 - 1 sec when the washer switch is ON and it operates 3 times after the washer switch is OFF while the IGN2 switch in ON.
3	Dimming room lamp	● When room lamp is coupled with door, it turns on if door is opened. After closing the door it maintains 2 seconds of lighting and dims off whithin 3 seconds.
4	Time delayed power window control	● Power window can be operated within 30 seconds after turning the IGN1 switch from ON to OFF. If driver's/passenger's door is opened within the 30 seconds, time will be prolonged for more 30 seconds from that moment.
5	Rear defogger timer	● The rear defogger will be operated for 12 min. by turning ON the defogger switch while engine is running. ● Defogger will be stopped by pushing the switch again. ● The defogger will be operated 6 min, if push ON the switch within 10 min. after 12 min. of operation.
6	Seat belt warning	● The warning lamp will be turned on for about 6 sec. with an intermittent chime bell when the IGN. switch is ON unless fastening the seat belt.
7	Parking brake warning	● The indicator lamp will flash if drive while the parking brake is applied.
8	Tail lamp lighting warning	● When the driver's door is opened while the tail lamp is still ON, the buzzer operates intermittently. In this condition, the door will be automatically unlocked when it locked.
9	Door ajar warning	● The indicator lamp will be blinking when the door is not closed completely and driving.
10	IGN key reminder	● The chime will be operated intermittently if the driver's door is opened while the IGN key is still remaining in the ignition switch. In this condition, the door will be automatically unlocked when it locked.
11	Central door lock	● All doors will be locked/unlocked by locking/unlocking the driver's or passenger's door.

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NO.	Application	Deseription
12	Coupled with REKES	● Being coupled with REKES (remote keyless entry system), all doors will be locked/unlocked according to signals of transmitter when the ignition key is not inserted.
13	Ignition key hole illumination	● Coupled with door switch, ignition key hole illumination lamp will turn on when the driver's door is opened and will dim off after 10 sec. after closing the door.
14	Auto door lock	● All doors will be locked automatically if the vehicle speed reaches 50km/h though the doors are in unlock.
15	Auto door unlock	● All doors will be automatically unlocked if the vehicle crashes while driving (over 15km/h).
16	Input checking function	● Self diagnostic function for each sensor switches and loads for the system.

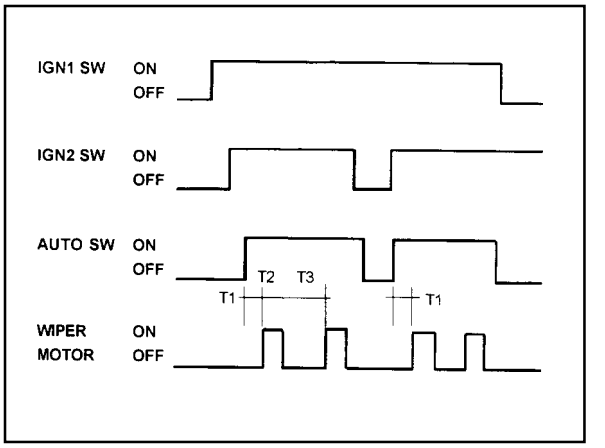
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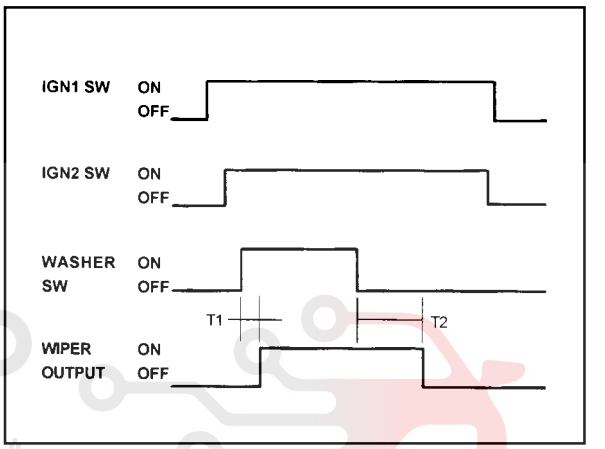
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Operating Characteristics

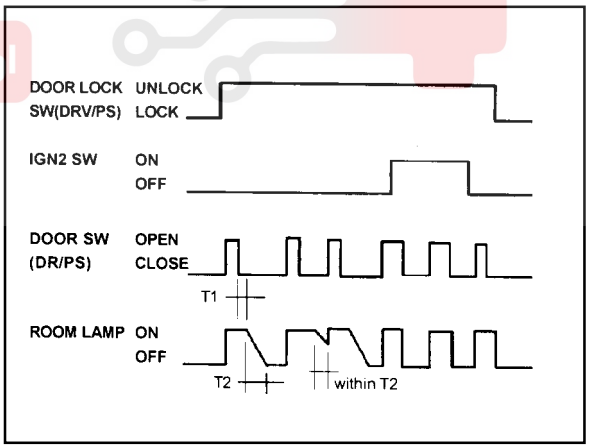
1. Wiper INT sensing vehicle speed
   T1 : within 0.5 sec.
   T2 : Wiper motor 1 revolution time
   T3 : 1.5±0.2 sec. - 20±2 sec.



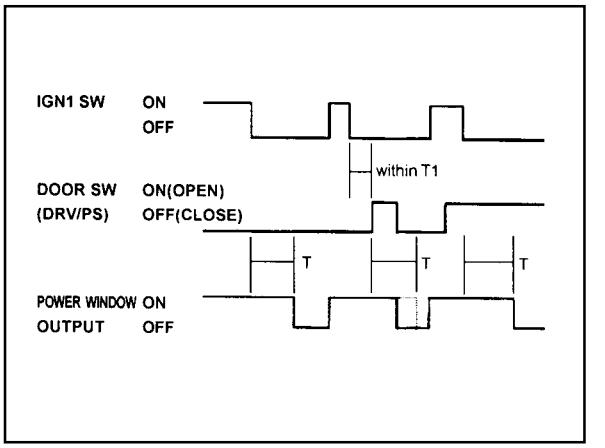
2. Washer relating wiper
   T1 : 0.6 - 1.0 sec.
   T2 : motor 3 revolution (including motor revolution time)



3. Dimming room lamp
   T1 : 2±0.3 sec.
   T2 : 3±0.5 sec



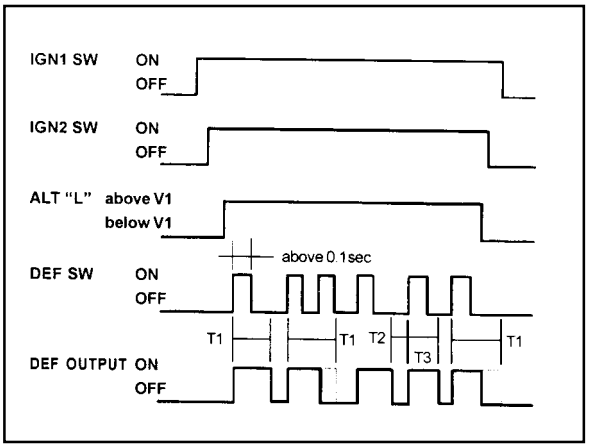
4. Time delayed power window control
   T : 30±2 sec



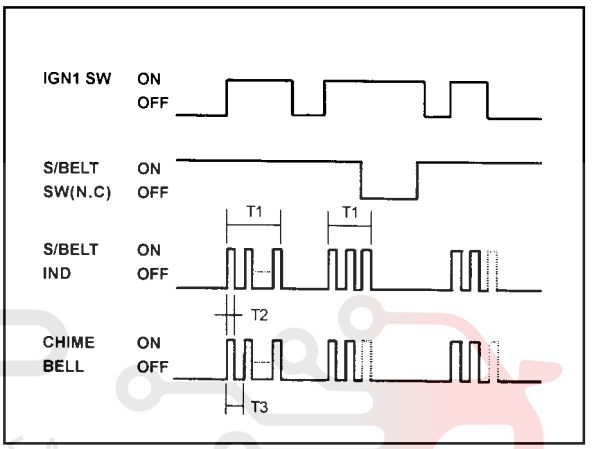
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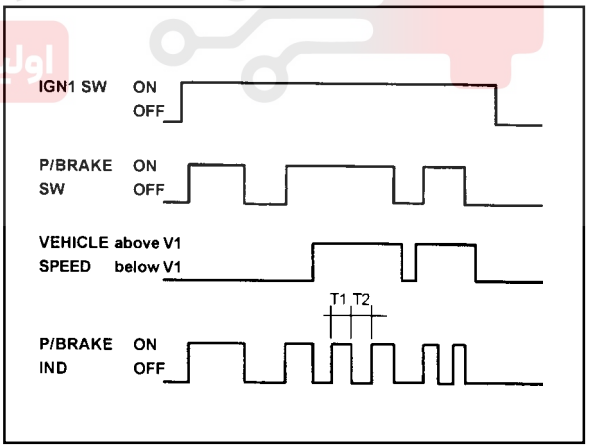
5. Rear defogger timer
   T1 : 12±2 min.
   T2 : within 10±1 min.
   T3 : 6±1 min.



6. Seat belt warning timer
   T1 : 6±1 sec.
   T2 : 0.3±0.1 sec.
   T3 : 0.6±0.1 sec.

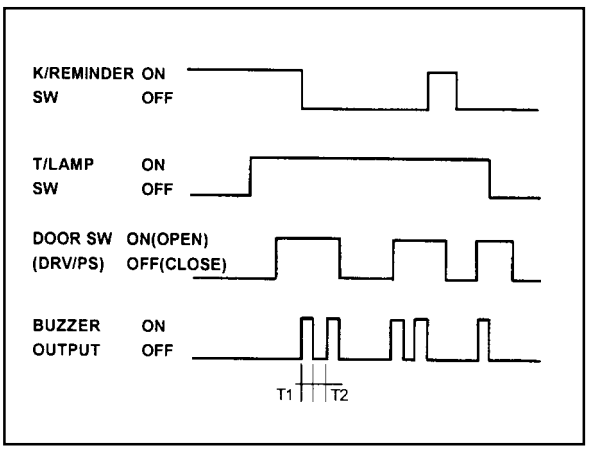


7. Parking brake warning
   T1 : 0.3±0.1 sec.
   T2 : 0.3±0.1 sec.
   V1 : 3km/h - 5km/h



8. Tail lamp lighting warning

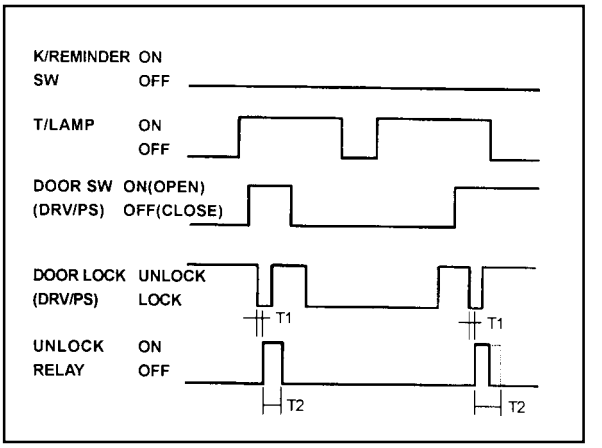
- When the driver's door is opened after removing the IGN key while the tail lamp switch is still ON, the buzzer should be operated.
  T1 : 0.3±0.1 sec.
  T2 : 0.3±0.1 sec.



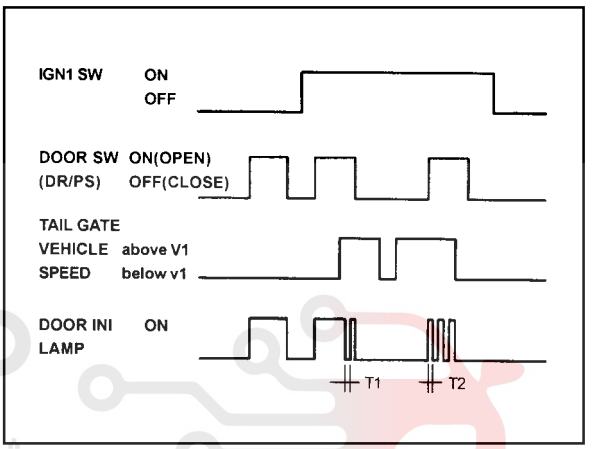
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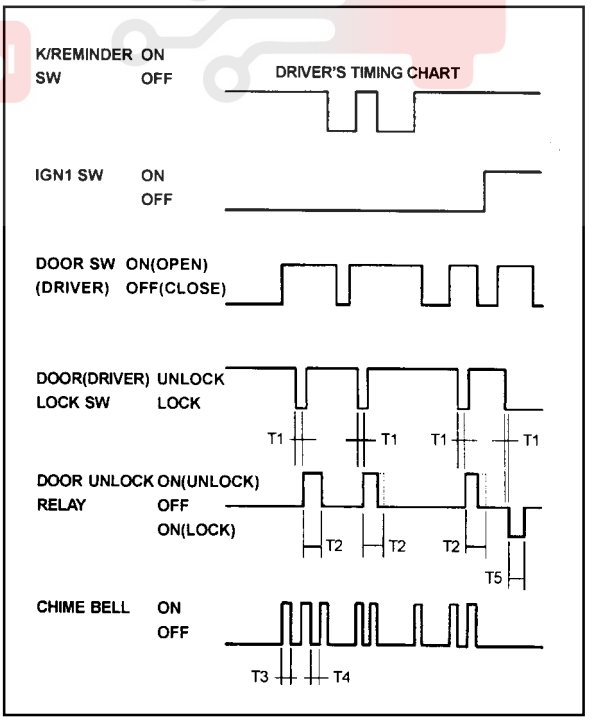
- After 1), the driver's or passenger's door should be unlocked when it locked.
  T1 : within 0.2±5 sec.
  T2 : 5±0.5 sec.



9. Door ajar warning
   T1 : 0.3±0.1 sec.
   T2 : 0.3±0.1 sec.
   V1 : 3 - 5km/h



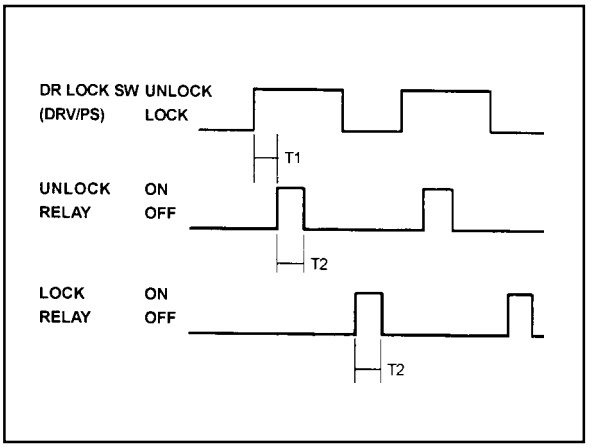
10. IGN key reminder warning
    T1 : within 0.2 sec.
    T2 : 5±0.5 sec.
    T3 : 0.3±0.1 sec.
    T4 : 0.3±0.1 sec.
    T5 : 0.5±0.1 sec.



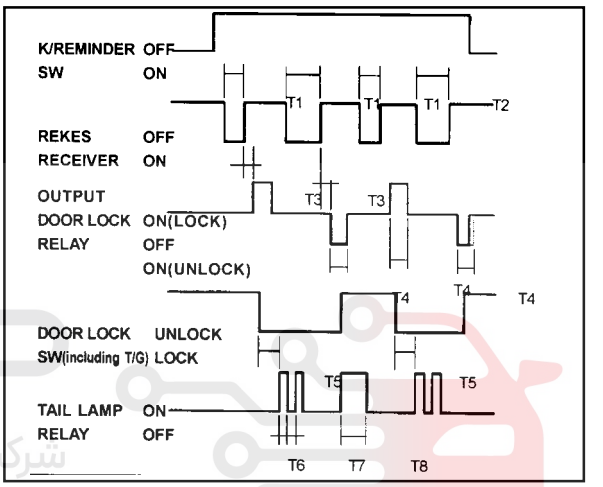
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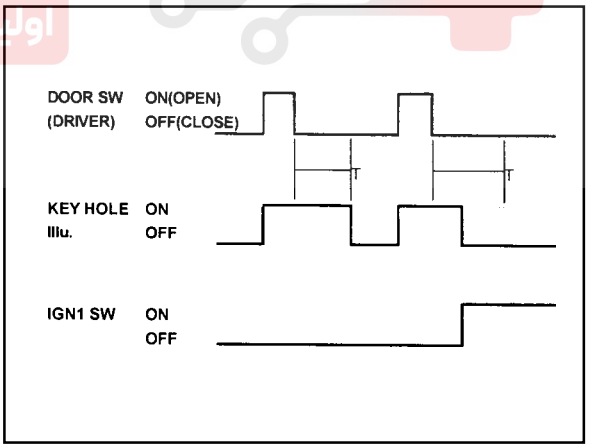
11. Central door lock
    T1 : within 0.2 sec.
    T2 : 0.5±0.1



12. Coupled with REKES mode
    T1 : 0.05±0.02 sec. (lock signal)
    T2 : 0.1±0.02 sec. (unlock signal)
    T3 : within 0.2±5 sec.
    T4 : 0.5±0.1 sec.
    T5 : within 0.3 sec.
    T6, T7 : 0.5±0.1 sec.
    T8 : 1±0.25 sec.



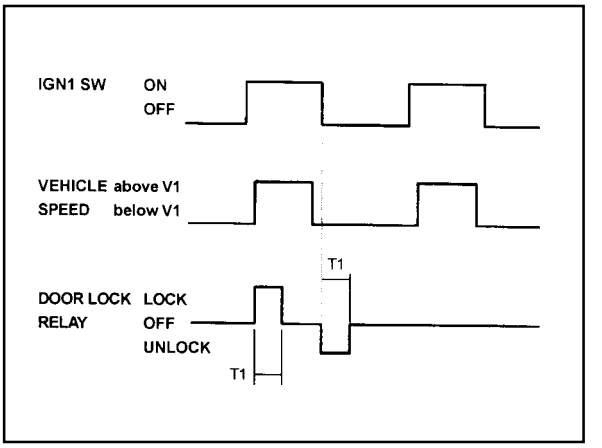
13. Ignition key hole illumination



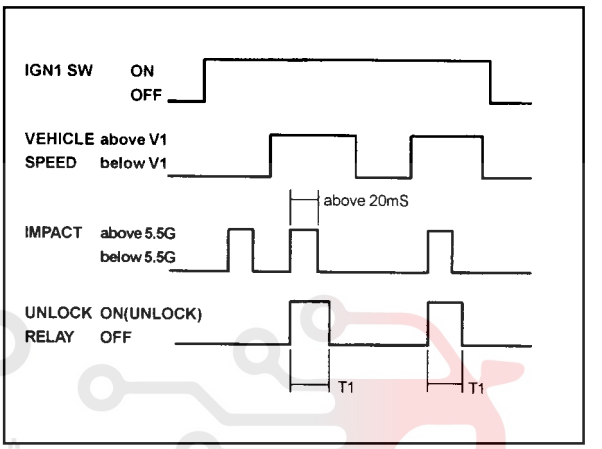
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14. Auto door lock
    V1 : 50±5km/h
    T1 : 0.5±0.1 sec.



15. Auto door unlock
    T1 : 0.5±0.1 sec.
    V1 : 15km/h



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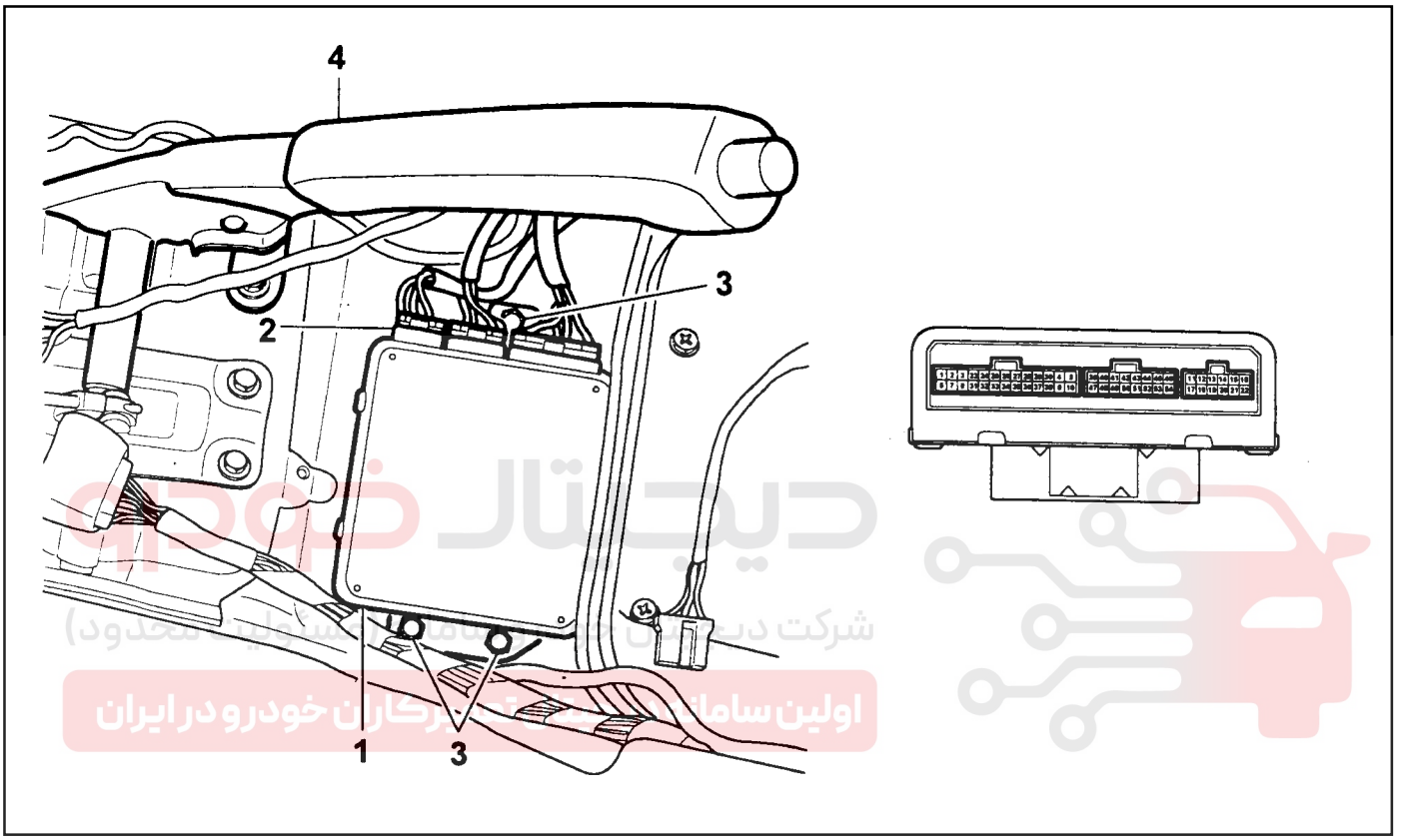
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MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

STICS

STICS, electonic control warning device, controls 16 functions and contains the self diagnostic function detecting any malfunctions in the sensors and load.



1 STICS Unit
2 STICS Connector
3 STICS Unit Fastening Bolt
4 Parking Brake Lever

Removal & Installation Procedure

1. Disconnector the battery negative cable.
2. Unscrew 4screw from center console box.
3. Remove the center console box and disconnect 3 STICS connectors.
4. Unscrew 3 fastening bolts and remove the STICS unit.
5. Installation should follow the removal procedure in the reverse order.

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SECTION 9W

IMMOBILIZER SYSTEM

Caution: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

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FUNCTION DESCRIPTION

Immobilizer is a device disabling vehicle ignition unless a speific key is used and designed to help prevent vehicle theft.

Immobilizer is comprised of two devices, a key with encoded transponder and engine control unit(ECU) with the same encoding of the transponder. When a key is inserted into the key hole to start vehicle and turned to 'ON', the ECU reads and decodes the transponder code and, if the same, starts the engine, it is called immobilizer. It means immobilizer system disables starting by stopping fuel supply if the code in the transponder does not match the code stored in ECU each other.

Notice

- If vehicle is equipped with immobilizer system and the engine cranks normally but not start, check immobilizer system first rather than ignition and other electrical systems because it can be disabled fuel supply of injectors by ECU due to defective immobilizer system.
- Programming of the immobilizer system will be performed by authorized personnel only. If following defective codes for immobilizer system appear during diagnosis of vehicle with SCANNER, ask immobilizer programming to authorized personnel and actual programming should be performed by authorized personnel only.
  - ▶ Display of defectives relevant to immobilizer system : SCANNER
    1. No communication with transponder
    2. No immobilizer programming
- The transponder in the key can be damaged by shocks of dropping or hitting other objectives, so handle it with care.
- Each supplied key has programming of code on its own. Accordingly if ECU needs to be replaced, replace the transponder in the key.
- The vehicle equipped with immobilizer system will never be started with remote ignition device, so do not attempt to install it.
- The immobilizer system will never be removed from the vehicle. So never attempt to remove it to install a remote ignition device or others.
- If engine does not start during service, use every key to start the engine and then check immobilizer system finally.

Cases that requires immobilizer programming

1. Replacement ECU
   In this case, replace the every transponder of the key at once.
2. Replacement of the transponder
3. Additional key for lost 1 or 2 keys
   1) Clear all codes for current keys from the ECU
   2) When using current key : clear code of the transponder and re-program it
   3) Additional (purchased) key : perform programming
4. When lost all keys
   1) Clear all memorized key codes from the ECU
   2) Replace the key and key set
   3) Immobilizer programming

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SYSTEM DESCRIPTION

Gasoline Version

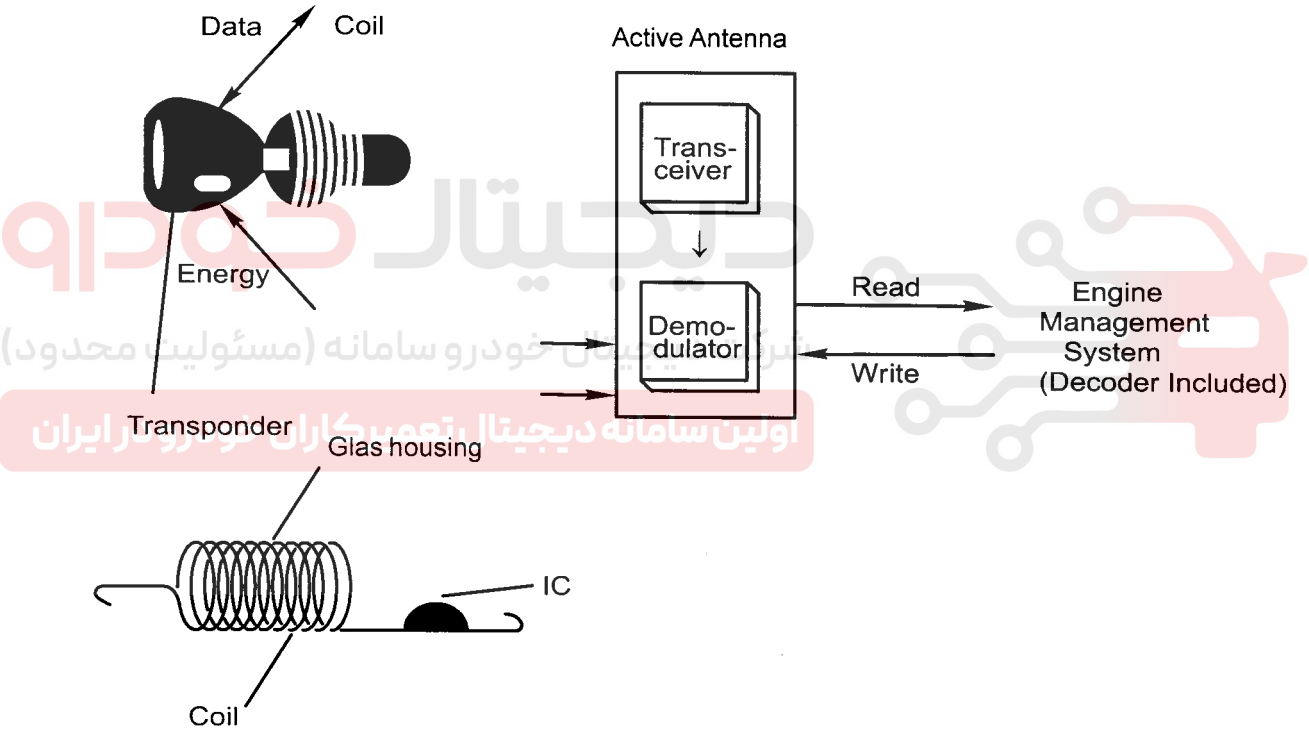
The Immobilizer System consists of an electronic device with integrated coil, called 'Active Antenna', the crypto transponder, which is integrated in the ignition key, and the engine management system (EMS).

The Active Antenna is mounted at the ignition lock and handles the following tasks :

- To supply the transponder with power
- To receive the data from the EMS and transmit it to the transponder
- To receive and demodulate the data from the transponder and transmit it to the EMS

The whole Immobilizer software, the authentication and the management of valid keys is completely managed by the EMS.

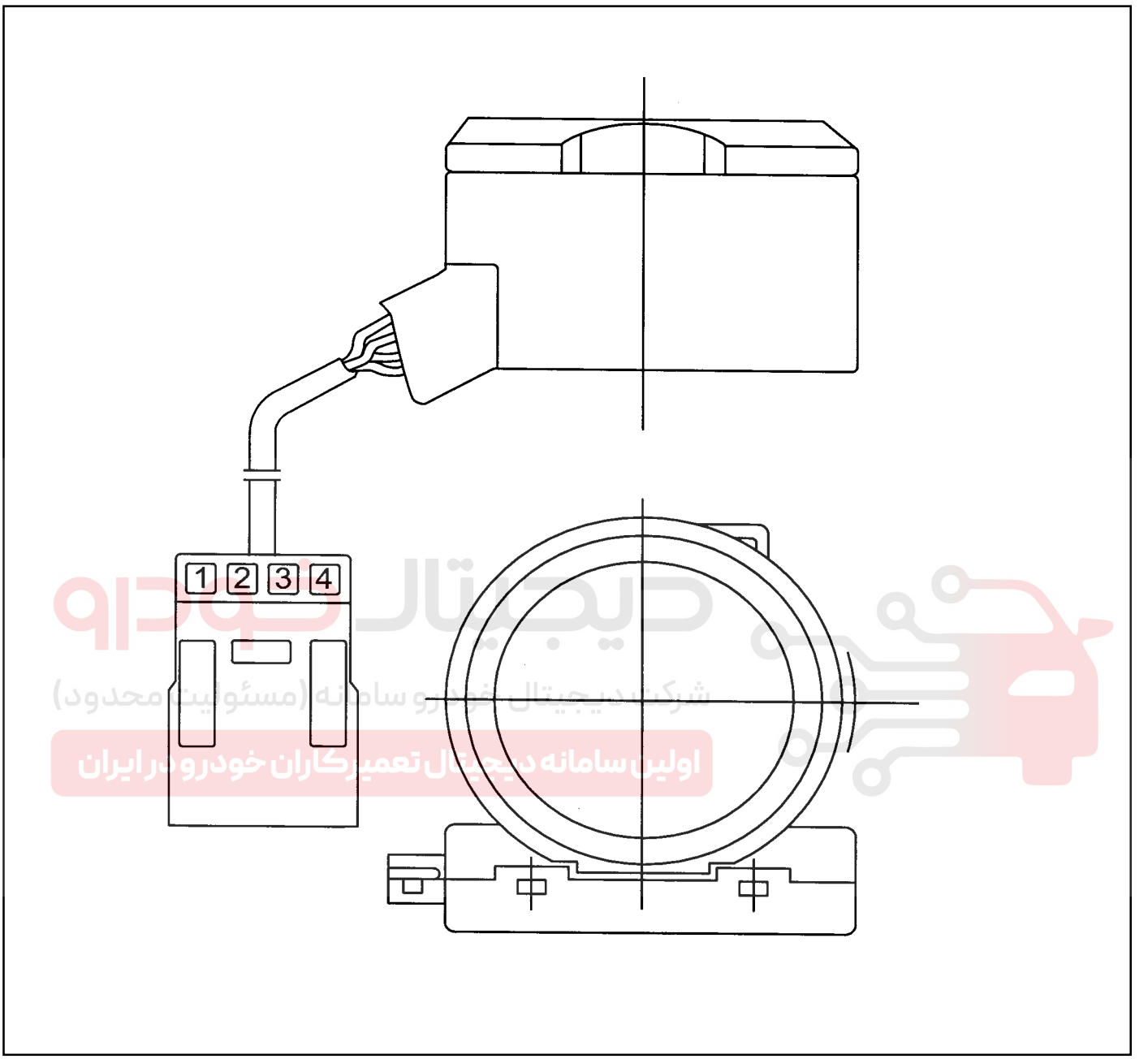
Immobilizer system for gasoline vehicle



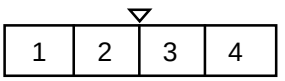
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Active Antenna



- Connector

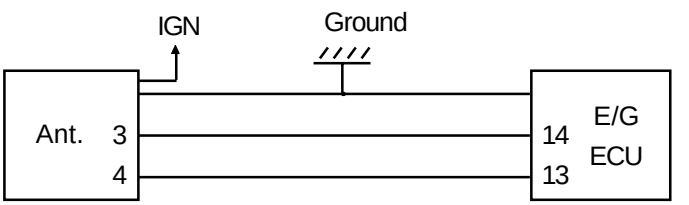


1 : IGN (red)
2 : Ground (brown)
3 : Data in (yellow)
4 : Data Out (green)

Notice

Pin arrangement and spec. of connector is same for gasoline and diesel vehicles.

- Wire circuit diagram



13 : Crypto read
14 : Crypto write

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Diesel Version

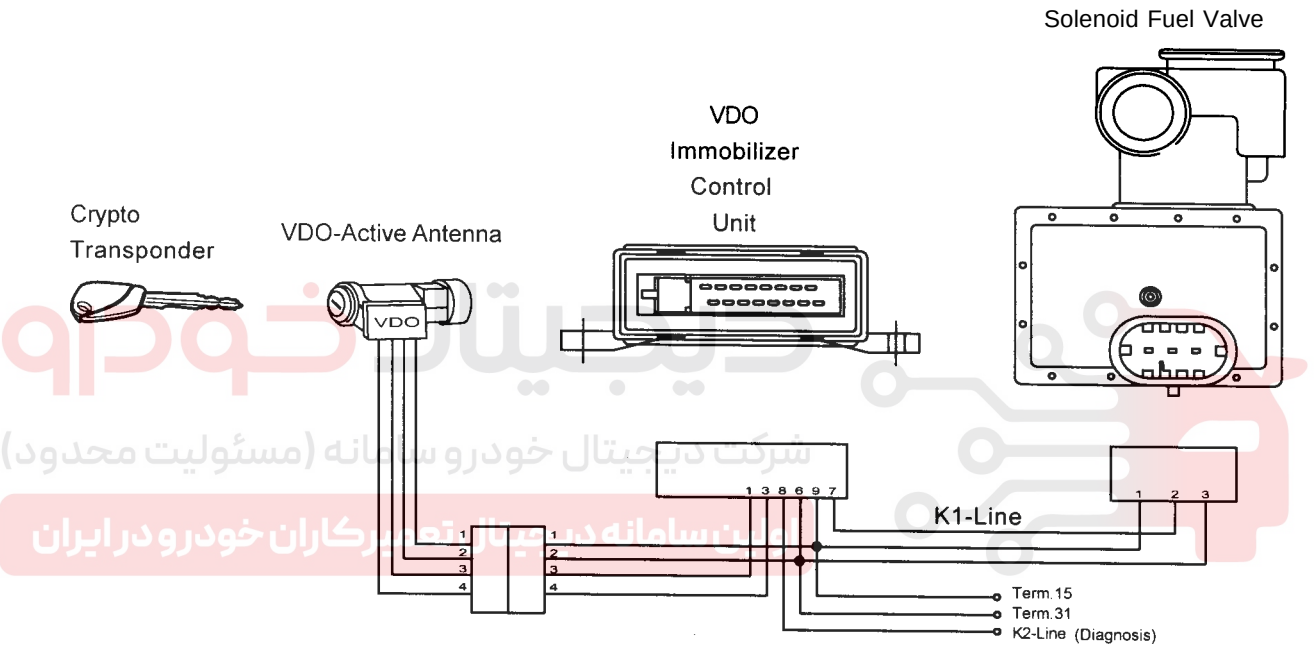
The Immobilizer System consists of an electronic device with integrated coil, called 'Active Antenna', the crypto transponder, which is integrated in the ignition key, and the Immobilizer-Control-Unit (ICU).

The Active Antenna is mounted at the ignition lock and handles the following tasks :

- to supply the transponder with power
- to receive the data from the ICU and transmit it to the transponder
- to receive and demodulate the data from the transponder and transmit it to the ICU

The whole Immobilizer software, the authentication and the management of valid keys and controlling the fuel valve is managed completely by the ICU.

Immobilizer System for Diesel Vehicles



- Connector

- Immobilizer unit

16	15	14	13	12	11	10	9
8	7	6	5	4	3	2	1

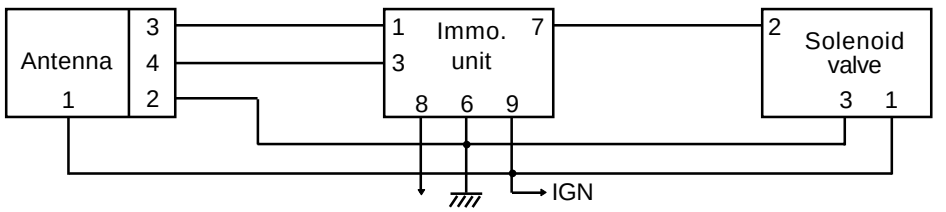
1 : Data out 3 : Data in 6 : Ground
7 : Data line 8 : K-Line 9 : IGN

- Solenoid valve

1	2	3

1 : IGN (Brown)
2 : Code (Green)
3 : Ground (Black)

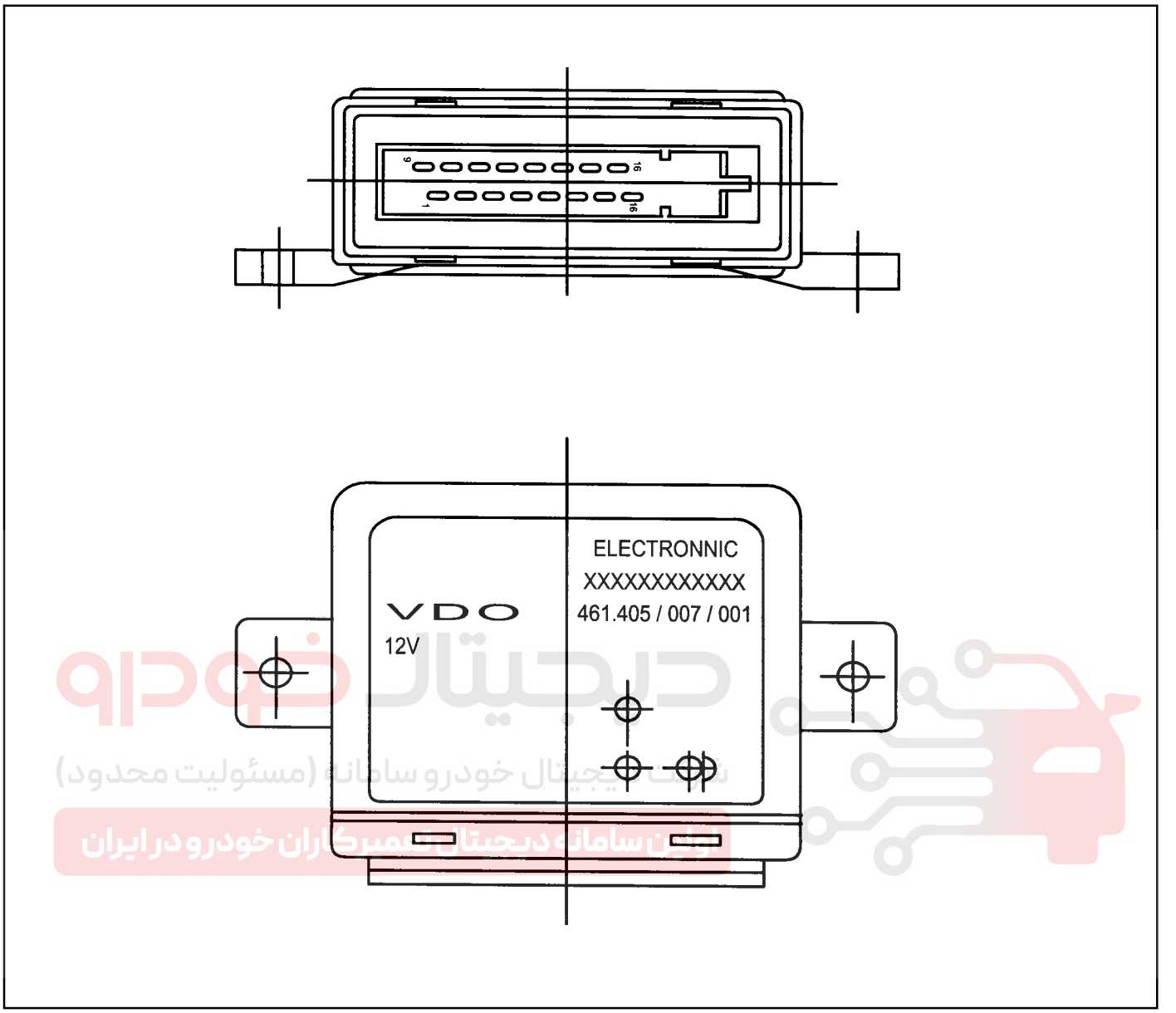
- Wire circuit diagram



K-line (Diagnosis)

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System Integration

The med 98.2 immobilizer is an anti-theft protection device allowing the start of the engine only if a specific authorization is obtained during the start up phase. The med 98.2 will allow (prohibit) the start of the engine by driving ON (OFF) an internal solenoid valve.

The med 98.2 is a single unit integrating the following subsystem :

- a valve that allows (valve open) or blocks (valve closed) the fuel flow through the engine fuel system
- a microprocessor control system to control and activate the valve during the start up of the engine, in order to allow the start up only when a specific permission is given

the med 98.2 task is, therefore, to prevent the non authorized start up of the engine.

The functional unit includes also a basic set of electronic components whose function is to reduce its dependence on the microprocessor control system: a part from a short temporarily period, during the start up phase, the electronics allows the control system to excite and open the valve, but it doesn't allow to close it.

The valve can be shut off only after the KL 15 has been deactivated.

The structure allows to obtain the highest degree of safe-operation (functionality fail-start): a failure in the microprocessor unit cannot cause the shut-off of the valve. The main consequence of this type of failure is to prevent the next engine start up.

As a result of the above considerations, the med 98.2 immobilizer can realize its anti-theft functionality only in conjunction with a control device: the ICU.

The ICU, when requested, sends a coded message to med 98.2 according to a settled communication protocol. The med 98.2 will allow the start of the engine based upon this message.

In addition to the basic anti-theft functionality, the 98.2 immobilizer provides a number of diagnostic services when it is connected to an external test instrument (SCAN-100). Those connections are depicted in the following integration diagram (Fig. 1), where the dashed line indicates a temporary link for diagnostic purposes, and the shaded area the med 98.2 system's physical boundaries:

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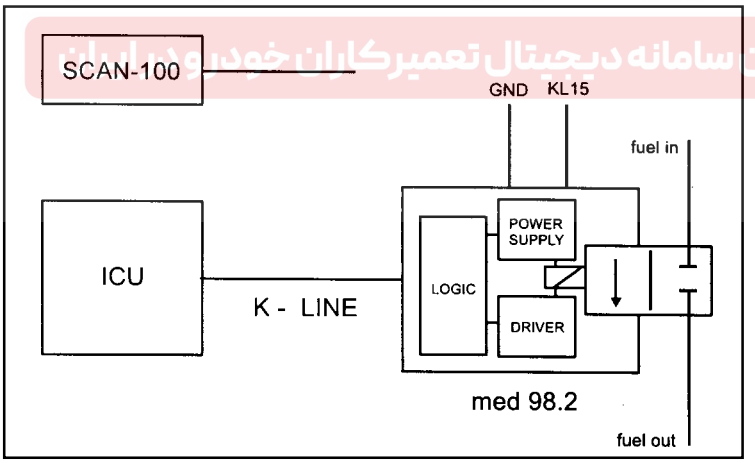


Fig. 1 - System Integration

Explanation of symbols:

med 98.2	Immobilizer
ICU	Immobilizer Control Unit
TESTER	Device that can be connected for diagnostic purposes
K-LINE	Serial line for communication with ICU
KL15	Ignition key (Power supply for med 98.2)
GND	Ground

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DIAGNOSIS

GASOLINE ENGINE

Cause and Remedy for Defective When Diagnosed by Scanner

Defects	Possible cause	Remedy
No communication with transponder	1. Defective wiring harness - Power supply/Open/short of ground - Open/short of signal terminal or mis-conneting(between ECU terminal No. 13 and 14)	1. Connect/replace the wire correctly.
	2. Damaged transponder	2.1 Replace the transponder 2.2 Immobilizer programming
	3. Defective antenna	3. Replace the antenna
	4. Defective ECU	4.1 Replace the ECU 4.2 Replace all transponder of the keys 4.3 Immobilizer programming
No immobilizer programming (Components and wiring harnesses are normal but codes in ECU and transponders are not registered normally)	1. Replace the transponders and ECU with new ; Immobilizer programming is not performed	1. Perform immobilizer programming
	2. Replace transponders only(new) ; Immobilizer programming is not performed	2. Perform immobilizer programming
	3. Replace ECU only(new)	3.1 Replace the transponders with new 3.2 Perform immobilizer programming
	4. Replace the transponder only ; Programmed for other ECU	4.1 Replace the transponders with new 4.2 Perform immobilizer programming
	5. Re-programming is not performed after clearing transponder code stored in ECU that normally used system	5. Immobilizer programming

Notice

1. Application of ex-programmed transponder into other ECUs.
   ; In this case, it can not be removed for the settled “lock bit” in transponder even though you perform immobilizer problem normally. Moreover it is impossible to start engine, so replace the transponder with new and perform immobilizer programming.

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Check and Remedy when Engine Does not Start

Starter operates normally?

Yes

- Check fuses (No. 8 and 27)
- Check ECU and antenna power

ECU terminal
- No. 12 (Power)
- No. 11 (Ignition)
- No.5/10 (Ground)

- Check signal wires between ECU and antenna
  - Immobilizer No.3 wire (0.5BY) = ECU No. 14 pin (0.75BW)
    : Writing immobilizer code number
  - Immobilizer No.4 wire (0.5Y) = ECU No.13 pin (0.75Y)
    : Reading immobilizer cod number

- ECU No.2 pin : check normal signal of the starter [1)]
  - Engine cranking voltage : 8-15V

- Check engine speed sensor wires and replace

- Replace immobilizer antenna

- Replace transponder and ECU

If transponder and ECU are replaced, perform programming.

No

- Check battery voltage
- Check battery wiring

- Check starter wires
- Check TCU wires (only for 5-speed automatic transmission)
- Check starter and TCU

Notice[1)]

MSE ECU equipped vehicle is designed to make fuel injection when the engine speed for initial cranking is over 450rpm if there are no start switch inputs in ECU No. 2 pin.

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DIESEL ENGINE

Cause and Remedy for Defective When Diagnosed by Scanner

Defects	Possible cause	Remedy
No communication with transponder	1. Defective wiring harness - Power supply/Open/short of ground - Open/short of signal terminal or mis-conneting(between ICU terminal No. 13 and 14)	1. Connect/replace the wire correctly.
	2. Damaged transponder	2.1 Replace the transponder 2.2 Immobilizer programming
	3. Defective antenna	3. Replace the antenna
	4. Defective ICU	4.1 Replace the ICU 4.2 Replace all transponder of the keys 4.3 Immobilizer programming
No immobilizer programming (Components and wiring harnesses are normal but codes in ICU and transponders are not registered normally)	1. Replace the transponders and ICU with new ; Immobilizer programming is not performed	1. Perform immobilizer programming
	2. Replace transponders only(new) ; Immobilizer programming is not performed	2. Perform immobilizer programming
	3. Replace ICU only(new)	3.1 Replace the transponders with new 3.2 Perform immobilizer programming
	4. Replace the transponder only ; Programmed for other ICU	4.1 Replace the transponders with new 4.2 Perform immobilizer programming
	5. Re-programming is not performed after clearing transponder code stored in ICU that normally used system	5. Immobilizer programming
No communication with valve	1. Defective wiring harness - Power supply/Open/short of ground - Open/short of signal terminal or mis-conneting(between ICU terminal No. 13 and 14)	1. Connect/replace the wire correctly
	2. Defective ICU	2. Replace the transponder
	3. Defective valve	3.1 Replace the valve 3.2 Turn Ign sw on 3.3 Turn Ign sw OFF & ON

Notice

1. Application of ex-programmed transponder into other ICUs.
   ; In this case, it can not be removed for the settled “lock bit” in transponder even though you perform immobilizer problem normally. Moreover it is impossible to start engine, so replace the transponder with new and perform immobilizer programming.

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Check and Remedy when Engine Does not Start

Starter operates normally?

Yes

- Check fuses (No. 19)
- Check ECU and antenna power and solenoid valve

ECU terminal
- No. 9 (Ignition)
- No. 6 (Ground)

- Check signal wires between ICU and antenna
  - Immobilizer No.3 wire (0.5Y) = ICU No. 1 pin (0.75BW)
    : Writing immobilizer code number
  - Immobilizer No.4 wire (0.5G) = ECU No.3 pin (0.75Y)
    : Reading immobilizer cod number

- ECU No.2 pin : check normal signal of the starter [1)]
  - Engine cranking voltage : 8-15V

- Check engine speed sensor wires and replace

- Replace immobilizer antenna

- Replace transponder and ICU

If transponder and ICU are replaced, perform programming.

No

- Check battery voltage
- Check battery wiring

- Check starter wires
- Check TCU wires (only for 5-speed automatic transmission)
- Check starter and TCU

Notice[2)]

New valve is possible coded either with a new ICU or an already used ICU. But old coded valve is only possible coded with a new ICU.

- Replace the valve [2)]

1. Turn Ign sw ON
2. Turn Ign sw OFF & ON

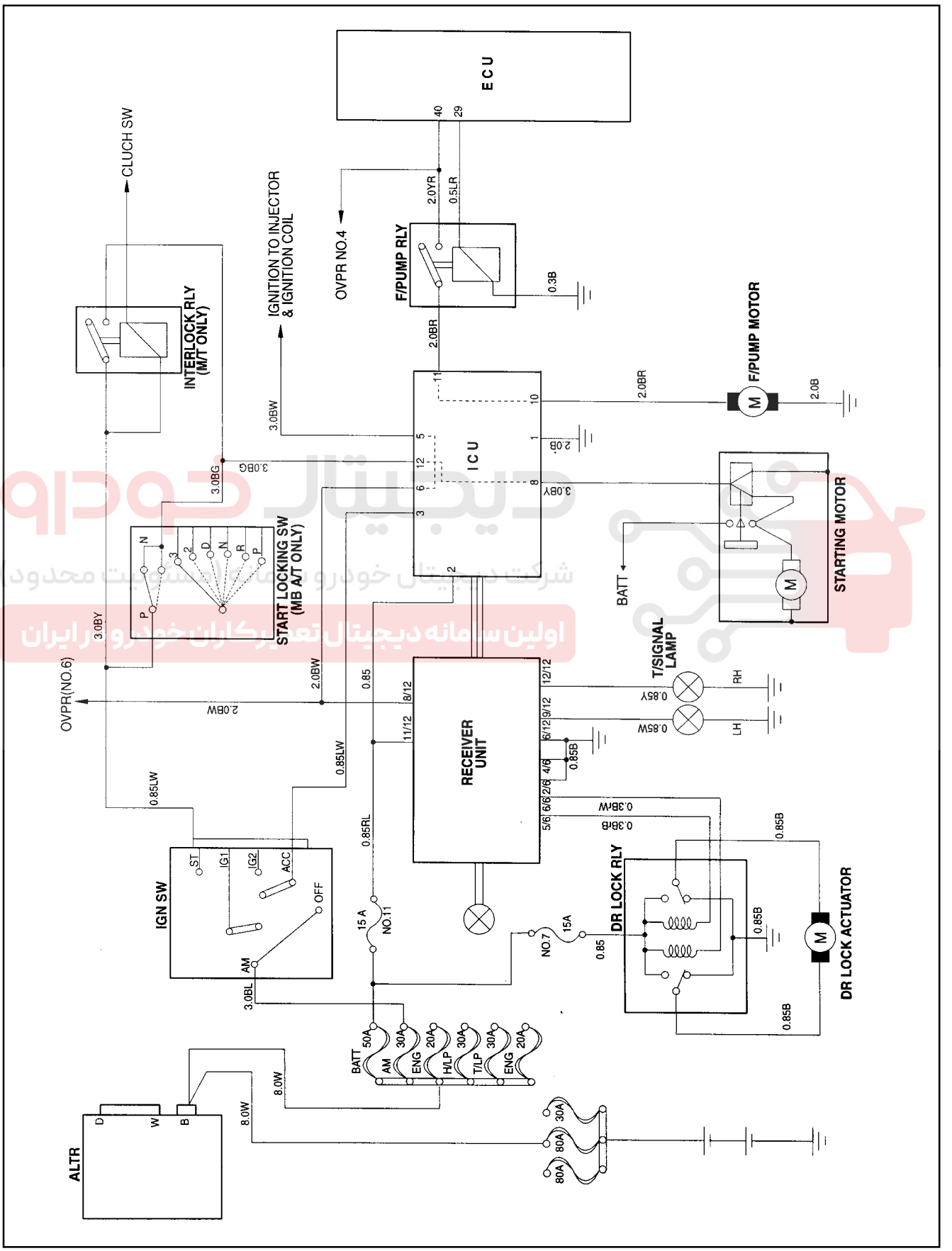
(To learn the valve correctly it is necessary to switch on Ignition twice for at least 5 seconds.)

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SCHEMATIC AND ROUTING DIAGRAMS

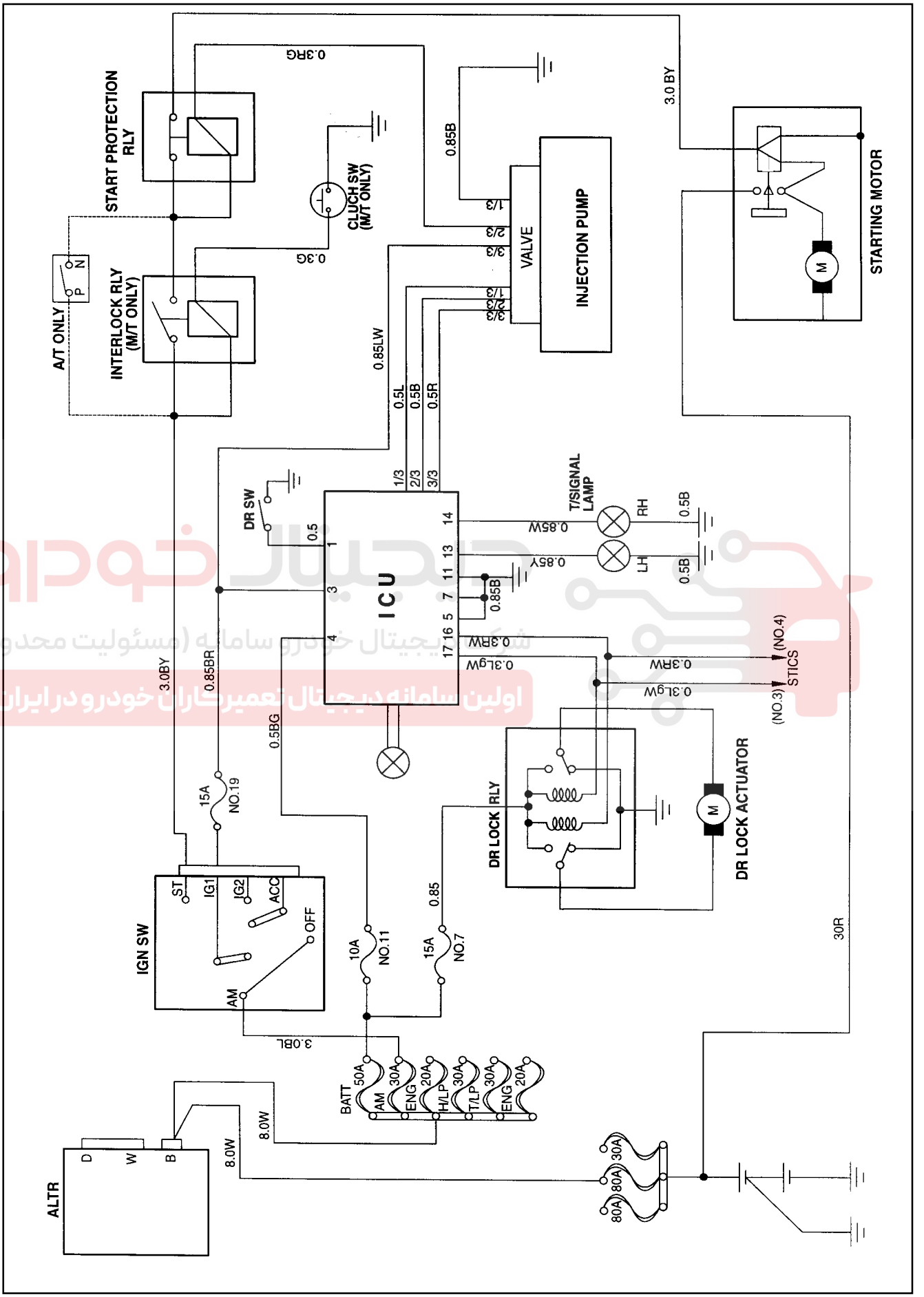
GASOLINE ENGINE (HFM) IMMOBILIZER



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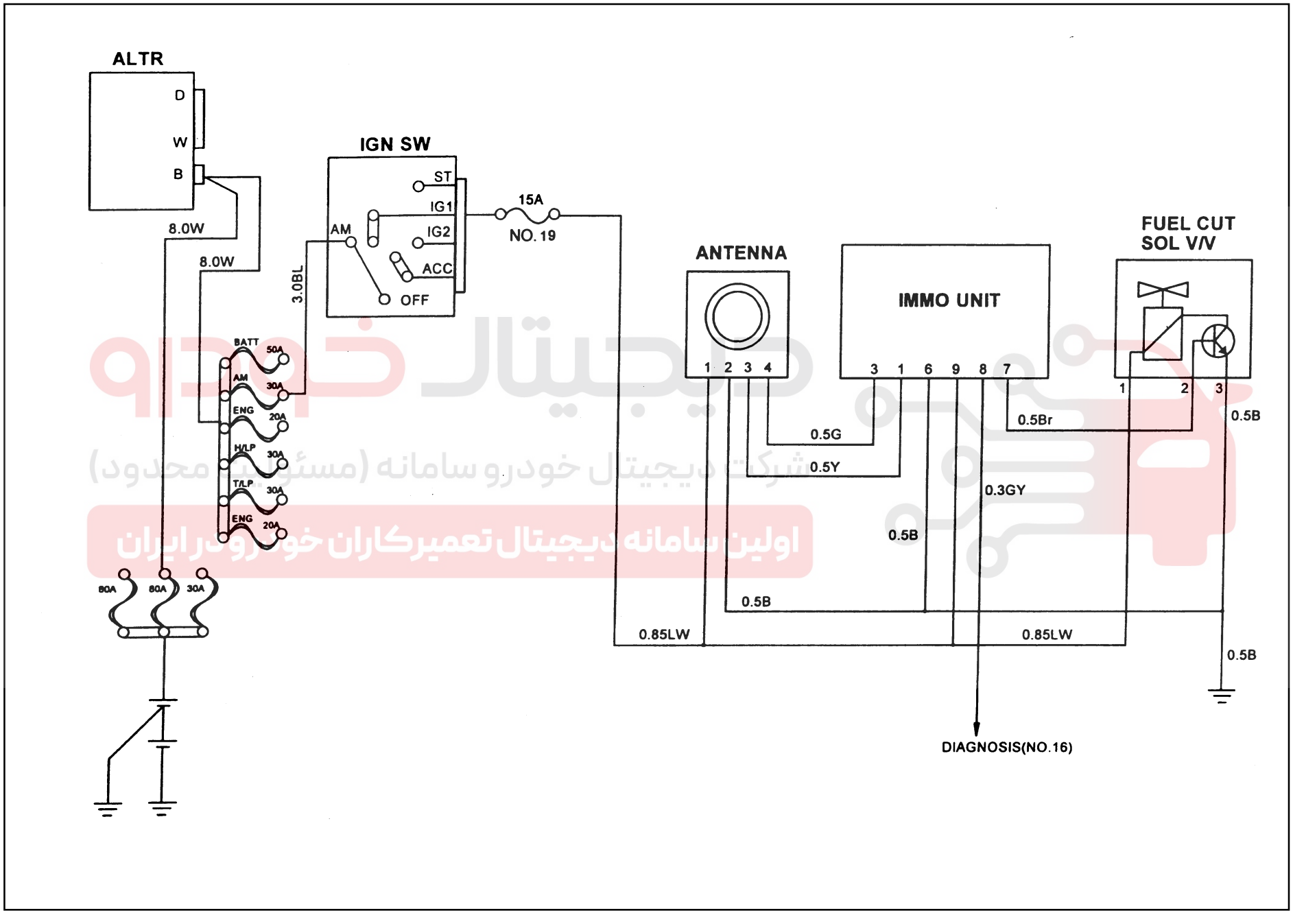
DIESEL ENGINE IMMOBILIZER



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DIESEL ENGINE IMMOBILIZER - CRYPTO TYPE



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MAINTENANCE AND REPAIR

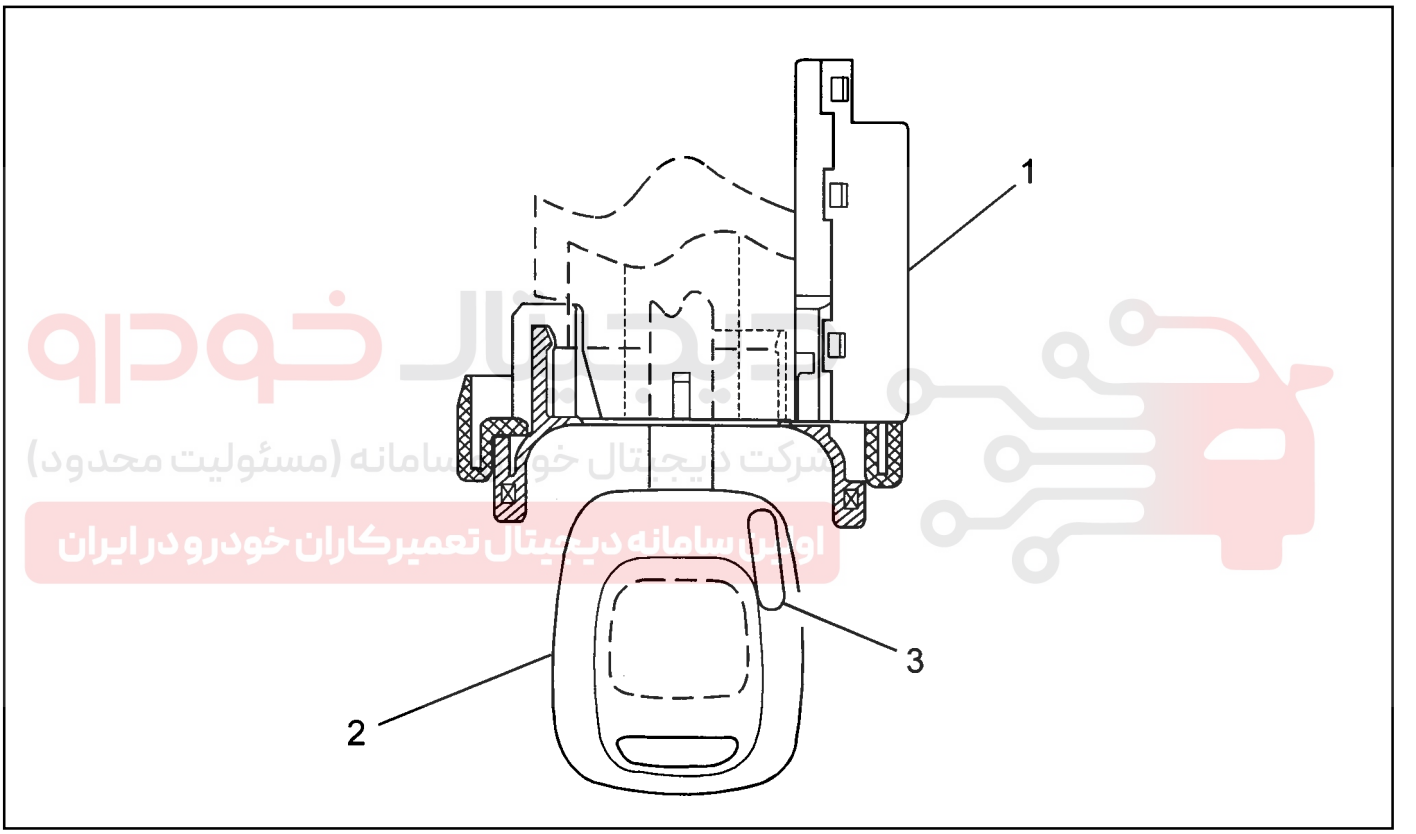
ON-VEHICLE SERVICE

Notice

For circuit diagram of gasoline vehicle, refer to the ECU diagram.

IMMOBILIZER ANTENNA

Immobilizer antenna is installed in key set outer surface (it is installed in the location of key hall illumination).(see the figure)



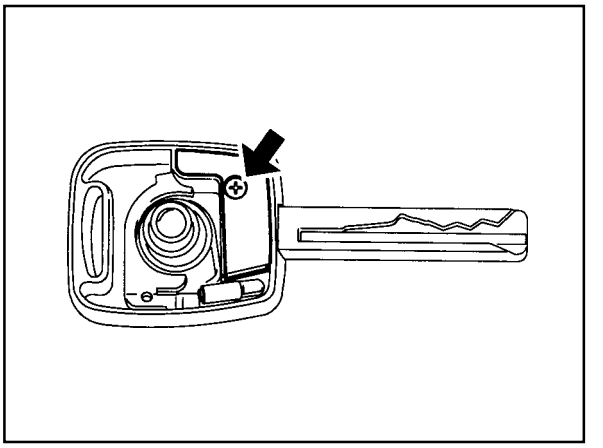
1 Immobilizer Antenna
2 Key
3 Transponder

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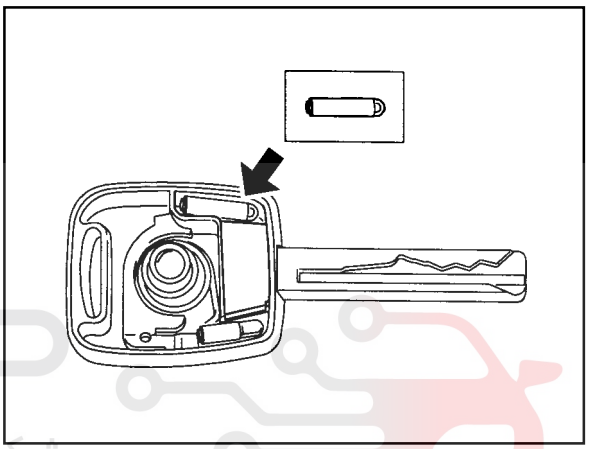
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Replacement Procedure

1. Open the cover on key handle.
2. Remove the small screw in symmetrical position of key illumination.
3. Remove the cover.



4. Remove the transponder. Carefully remove the old shock absorbing sealant with a razor blade if applied.
5. Replace the transponder with new one, and apply the small amount of shock absorbing sealant.
6. Installation should follow the removal procedure in the reverse order.



1 Transponder

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