

INSTRUMENT PANEL - STANDARD

1992 Subaru SVX

1992 SAFETY EQUIPMENT
Subaru Instrument Panels

Justy, Legacy, Loyale, SVX

DESCRIPTION & OPERATION

Instrument cluster case can be removed and disassembled to service speedometer, gauges, warning (indicator) lights and printed circuit. See Figs. 1 and 2. Gauges use variable resistance sending units. See SENDING UNIT LOCATIONS table. Low fuel warning light sensor in fuel tank sending unit provides ground for low fuel warning light bulb (if equipped).

SENDING UNIT LOCATIONS TABLE

Application	Location
Oil Pressure Sending Unit	
Justy & Legacy	On Crankcase, Near Alternator
Loyale	Near Oil Filter
SVX	Near Camshaft Angle Sensor
Temperature Gauge Sending Unit	
Justy	Below Distributor Or Below Throttle Body
Legacy	At Center Of Engine, Near By-Pass Air Control Valve
Loyale	On Right Side Of Engine
SVX	Below Left Air Intake Plenum Tubes, Near Back Of Engine

NOTE: Exploded view of Legacy and SVX instrument clusters is not available from manufacturer.

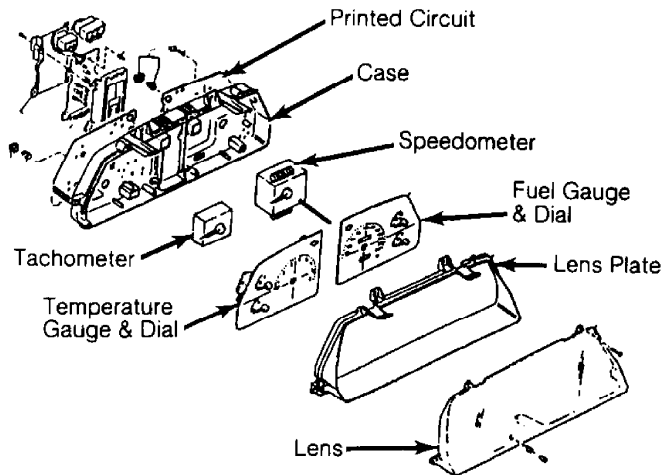
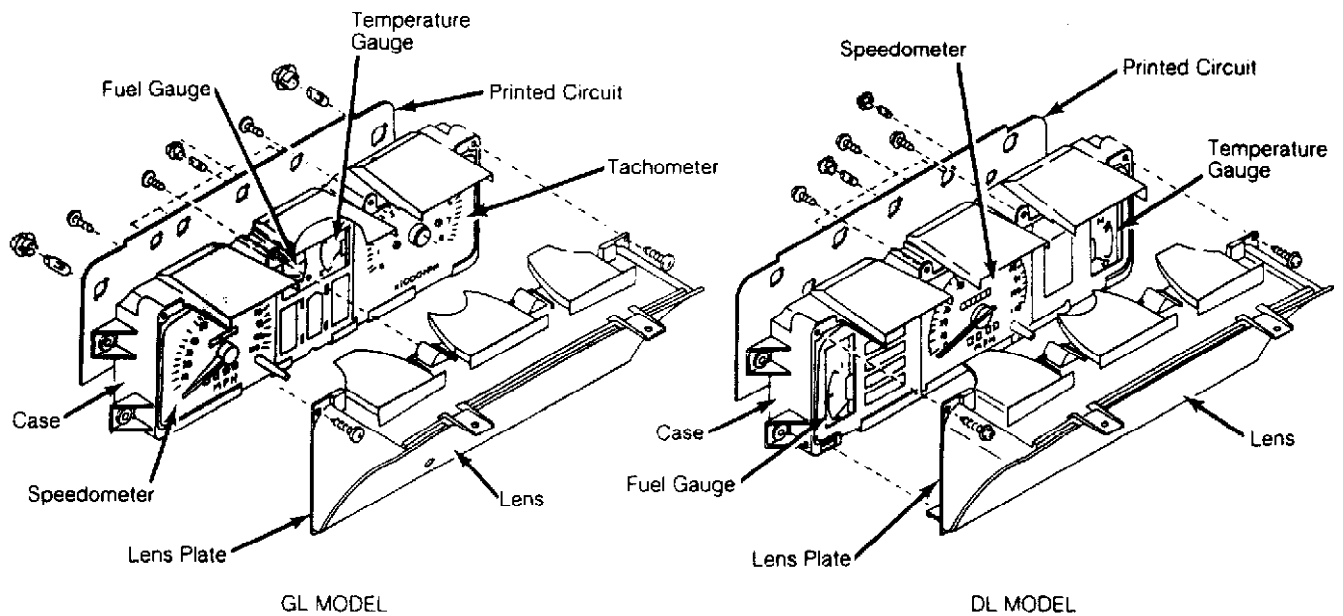


Fig. 1: Exploded View Of Instrument Cluster (Loyale)
Courtesy of Subaru of America, Inc.



Courtesy of Subaru of America, Inc

Fig. 2: Exploded View Of Instrument Cluster (Justy)
 Courtesy of Subaru of America, Inc.

COMPONENT TESTING

FUEL TANK SENDING UNIT

Remove fuel tank sending unit. With float arm in specified position, measure resistance across specified wire terminals of sending unit connector. See FUEL TANK SENDING UNIT TEST TERMINALS table. Replace sending unit if resistance is not as specified in FUEL TANK SENDING UNIT RESISTANCE SPECIFICATIONS table.

NOTE: More than one Black wire may terminate at fuel tank sending unit connector. If resistance is not within specification, connect ohmmeter test lead to other Black wire terminal.

FUEL TANK SENDING UNIT TEST TERMINALS TABLE

Application	Ohms
Justy	Green/White & Black
Legacy	
FWD	Green & Black
AWD	
Main Tank	Green & Black
Sub-Tank	Green & Blue
Loyale	Light Green/Black & Black/Yellow
SVX	Green/Yellow & Orange

FUEL TANK SENDING UNIT RESISTANCE SPECIFICATIONS TABLE

Application	Ohms
Justy & Loyale	

Empty	7
Half	33
Full	95
Legacy	
FWD	
Empty	92-95
Full	2-5
AWD	
Main Tank	
Empty	50-52
Full	0.5-2.5
Sub-Tank	
Empty	42-44
Full	0.5-2.5
SVX	
Empty	100
Half	55
Full	10

LOW FUEL WARNING LIGHT SENSOR

NOTE: Information for Loyale and SVX is not available from manufacturer.

Legacy

1) Remove fuel tank sending unit. At fuel tank sending unit connector, connect 12-volt battery positive lead to Green/Blue wire terminal and negative lead to Black wire terminal. Connect 12-volt, 3-watt light bulb in series with positive lead.

2) With sending unit float submerged in gasoline, light bulb should be off. With sending unit float not submerged, light bulb should be on. If light does not respond as specified, replace sending unit.

SPEEDOMETER

Calibration Test

Ensure tire pressure is correct. Using a calibrated, reliable speedometer tester, compare speedometer tester readings to vehicle speedometer readings. If vehicle speedometer readings are not within range of allowable variation, replace speedometer. See SPEEDOMETER ALLOWABLE VARIATION table.

SPEEDOMETER ALLOWABLE VARIATION TABLE

MPH	Allowable Range - MPH
Justy	
10	9.1-10.6
30	28.6-30.6
50	48.1-50.6
70	67.5-70.6
90	86.9-90.5
Legacy	
20	20-24
40	40-45
60	60-66
80	80-86.5
Loyale	
20	18-21
40	37.5-40.5
60	57-60

80	.....	76.5-80
SVX		
20	.....	20-23
40	.....	40-43.5
60	.....	59.5-63.5
80	.....	79.5-84

TACHOMETER

NOTE: Information for Justy is not available from manufacturer.

Calibration Test (Legacy, Loyale & SVX)

Connect a calibrated, reliable tach-dwell meter to ignition system. Compare tach-dwell meter readings with vehicle tachometer readings. If vehicle tachometer readings are not within range of allowable variation, replace vehicle tachometer. See TACHOMETER ALLOWABLE VARIATION table.

TACHOMETER ALLOWABLE VARIATION TABLE

Engine RPM	Allowable Range - RPM
Legacy	
1000	925-1075
2000	1890-2145
3000	2890-3180
4000	3890-4220
5000	4900-5255
6000	5900-6290
Loyale	
1000	940-1090
2000	1955-2145
3000	2970-3200
4000	3980-4250
5000	4990-5305
6000	6000-6360
SVX	
1000	925-1075
2000	1890-2145
3000	2890-3180
4000	3890-4220
5000	4900-5255
6000	5905-6290

TEMPERATURE GAUGE

Ensure temperature gauge circuit is okay. Disconnect temperature gauge sending unit connector. Connect resistance of specified value between ground and temperature gauge sending unit connector. See TEMPERATURE GAUGE TEST table. Turn ignition on. Replace gauge if value indicated on gauge is not as specified.

TEMPERATURE GAUGE TEST TABLE

Application	Resistor Value Ohms	Gauge Reading °F (°C)
Justy	154.0	122 (50)
Justy	52.0	187 (86)
Justy	23.6	239 (115)
Justy	12.4	266 (130)

Legacy	187.6	122 (50)
Legacy	19.0	248 (120)
Loyale	72.0	158 (70)
Loyale	16.1	248 (120)
SVX	180.5	122 (50)
SVX	17.9	248 (120)
SVX	15.9	257 (125)

TEMPERATURE GAUGE SENDING UNIT

With temperature gauge sending unit submerged in water of specified temperature, measure resistance between sending unit connector terminal and sending unit body. See TEMPERATURE GAUGE SENDING UNIT RESISTANCE table. Replace sending unit if resistance is not as specified.

TEMPERATURE GAUGE SENDING UNIT RESISTANCE TABLE

Application	Test Water Temp. °F (°C)	Ohms
Justy	167-186 (75-85.5)	52.0
Justy	211-228 (99.5-109)	23.6
Legacy	115-129 (46-54)	187.6
Legacy	241-255 (116-124)	19.0
Loyale	144-169 (62-76)	72.0
Loyale	243-253 (117-123)	16.1
SVX	122 (50)	180.5
SVX	248 (120)	17.9
SVX	257 (125)	15.9

VOLTMETER

Calibration Test (Loyale)

Connect a test voltmeter to vehicle voltmeter circuit. Compare vehicle voltmeter readings to readings of test voltmeter. If vehicle voltmeter readings are not within allowable range of variation, replace vehicle voltmeter. See VOLTMETER ALLOWABLE VARIATION (LOYALE) table.

VOLTMETER ALLOWABLE VARIATION TABLE (LOYALE)

Test Gauge (Volts)	Allowable Range - Volts
8	7.2-8.2
12	11.4-12.6
16	15.0-17.0

SYSTEM TESTING

FUEL GAUGE & SENDING UNIT

NOTE: Information for SVX is not available from manufacturer.

Justy

1) Turn ignition switch to ACC position. Note if fuel gauge indicates below empty. If fuel gauge does not indicate below EMPTY, replace fuel gauge.

2) If fuel gauge indicates below EMPTY, turn ignition on.

Check fuse. If fuse is okay, go to next step. If fuse is blown, or if no voltage is present on supply side of fuse, replace fuse and/or repair wiring as necessary.

3) Measure voltage between ground and Green/White wire at combination meter left connector. If battery voltage is present, go to next step. If battery voltage is not present, check for open in wiring between fuse block and combination meter. Repair wiring as necessary.

4) Disconnect fuel tank sending unit connector. Connect 17-ohm resistor between ground and Green/White wire of fuel tank sending unit connector. If gauge reads FULL, replace fuel tank sending unit. If gauge does not read FULL, replace fuel gauge.

Legacy

1) If fuel gauge does not move, check voltage supply for fuel gauge. If voltage supply is okay, proceed to step 2). If voltage supply is defective, check for defective fuse or wiring between battery and fuse.

2) Check fuel tank sending unit. See FUEL TANK SENDING UNIT under COMPONENT TESTING. Replace sending unit if defective. If sending unit is okay, proceed to step 3).

3) Check ground circuit and wiring harness. Repair ground circuit or wiring harness if defective. If ground circuit and wiring are okay, replace fuel gauge and temperature gauge.

Loyale

1) Turn ignition on. If temperature gauge operates, go to next step. If temperature gauge does not operate, check fuse. If fuse is okay, measure voltage at instrument cluster power supply terminals on back of instrument cluster. If 12 volts are not present, repair wiring between fuse and instrument cluster. If 12 volts are present, replace fuel gauge.

2) If temperature gauge operates as in step 1), disconnect fuel tank sending unit connector. Connect a 7-ohm resistor between ground and Black/Yellow wire terminal of fuel tank sending unit connector. If fuel gauge reads FULL, replace fuel tank sending unit.

3) If fuel tank does not read FULL, measure voltage at Black/Yellow wire terminal of fuel tank sending unit connector. If 12 volts are present, replace fuel gauge. If 12 volts are not present, measure voltage at Black/Yellow wire of 12-pin connector on back of instrument cluster.

4) If 12 volts are present, repair wiring between instrument cluster and fuel tank sending unit. If 12 volts are not present, replace fuel gauge.

LOW FUEL WARNING LIGHT

NOTE: Information for Legacy and SVX is not available from manufacturer.

Loyale

1) If low fuel warning light fails to operate or operates inconsistently, check fuse. If fuse is okay, turn ignition on.

2) Check fuel gauge and temperature gauge operation. If fuel gauge and temperature gauge do not operate, repair Black/White wire between fuse and instrument cluster.

3) If fuel gauge and temperature gauge operate, disconnect fuel tank sending unit connector. Ground White/Yellow wire terminal of fuel tank sending unit connector. If low fuel warning light comes on, go to next step. If light does not come on, check warning light bulb. If bulb is okay, repair White/Yellow wire circuit between instrument cluster and fuel tank sending unit.

4) If low fuel warning light comes on as in previous step, check for poor connection at fuel tank sending unit or poor fuel tank

sending unit ground. If connection and ground are okay, replace fuel tank sending unit.

OIL PRESSURE GAUGE

Loyale

1) Turn ignition off. If gauge needle is not resting at lower stop, replace oil pressure gauge. Turn ignition on and start engine. If gauge is inaccurate, go to step 4). If gauge needle does not rise beyond lower stop, turn off engine. Leave ignition on.

2) Check fuse. If fuse is okay. Measure voltage at Yellow/Black wire terminal of 12-pin connector on back of instrument cluster. If 12 volts are present, repair wiring between oil pressure gauge and oil pressure sending unit.

3) If 12 volts are not present, measure voltage at Black/White wire of 12-pin connector on back of instrument cluster. If 12 volts are present, replace oil pressure gauge. If 12 volts are not present, repair power supply to instrument cluster.

4) If gauge is inaccurate as in step 1), turn off engine. Leave ignition on. Disconnect oil pressure sending unit connector. Connect a 140-ohm resistor between oil pressure sending unit connector and ground.

5) If oil pressure gauge reads 57 psi (4 kg/cm²), replace oil pressure sending unit. If oil pressure gauge does not read 57 psi (4 kg/cm²), replace oil pressure gauge.

SPEEDOMETER

NOTE: Information for Legacy and SVX is not available from manufacturer.

Justy

1) If speedometer and odometer do not operate, check for improperly connected speedometer cable, broken speedometer cable or damaged driven gear.

2) If speedometer needle bounces, check for broken hair spring or oil in speedometer head. If speedometer does not return to zero or will not exceed a certain point, check for oil or foreign material in speedometer head or for deformed hair spring.

3) If speedometer needle deflects, check for improper speedometer cable arrangement or damaged worm rotor or bearing. If speedometer operates, but odometer does not operate, replace defective gears in speedometer.

Loyale

1) If speedometer needle deflects beyond maximum point, will not return to zero or will not exceed a certain point, check for oil or foreign material in speedometer head or for deformed hair spring. Replace components or speedometer if defective.

2) If speedometer or odometer will not operate, check for improperly connected speedometer cable, broken speedometer cable or damaged driven gear. Replace defective components.

3) If speedometer deflects erratically, check for improper cable routing or defective cable. If speedometer operates but odometer or trip meter does not operate, check for defective gear in speedometer. Replace defective components.

TACHOMETER

NOTE: Information for Justy, Legacy and SVX is not available from manufacturer.

Loyale

1) If tachometer needle deflects beyond maximum point, will not return to zero, or will not exceed a certain point, replace tachometer. For all other conditions, check fuse. If fuse is okay, check instrument cluster power and ground circuits (if temperature gauge operates, instrument cluster power and ground circuits are okay).

2) If power and ground circuits are okay, check continuity between ignition coil negative (-) terminal and instrument cluster. If continuity exists, replace tachometer.

TEMPERATURE GAUGE & SENDING UNIT

NOTE: Information for Legacy and SVX is not available from manufacturer.

Justy

1) Turn ignition switch to ACC position. If temperature gauge does not indicate below COLD, replace temperature gauge. If temperature gauge indicates below COLD, turn on ignition. Check fuse. Replace if blown.

2) If fuse is okay, check for battery voltage between ground and Yellow/Green wire terminal of instrument cluster right connector. If battery voltage is not present, check wiring harness between fuse and instrument cluster.

3) If battery voltage is present, disconnect temperature gauge sending unit connector. Connect an 18.5-ohm resistor between temperature gauge sending unit connector and ground. If temperature gauge indicates 240°F (115°C), replace sending unit. If temperature gauge does not indicate 240°F (115°C), replace temperature gauge.

Loyale

1) Turn ignition off. If gauge does not indicate below COLD, replace temperature gauge. If gauge indicates below COLD, turn ignition on. If fuel gauge operates correctly, go to step 3).

2) If fuel gauge does not operate correctly, check fuse. If fuse is okay, check for 12 volts on temperature gauge terminal on back of instrument cluster. If 12 volts are not present, repair wiring to instrument cluster. If 12 volts are present, replace temperature gauge.

3) If fuel gauge operates correctly as in step 1), disconnect temperature gauge sending unit connector. Connect a 42-ohm resistor between temperature gauge sending unit connector (Yellow/Green wire) and ground. If temperature gauge indicates 187°F (86°C), replace sending unit.

4) If temperature gauge does not indicate 187°F (86°C), measure voltage at sending unit connector (Yellow/Green wire). If 7 volts are present, replace temperature gauge.

5) If 7 volts are not present, measure voltage at Yellow/Green wire terminal of 12-pin connector on back of instrument cluster. If 7 volts are not present, replace temperature gauge. If 7 volts are present, repair wiring between instrument cluster and sending unit.

VOLTMETER

Loyale

1) Turn ignition off. If voltmeter needle is not resting at lower stop, replace voltmeter. Turn ignition on. If voltmeter needle moves but is inaccurate, go to step 3). If voltmeter needle stays at lower needle stop, check fuse.

2) If fuse is okay, measure voltage at Black/White wire of 12-pin connector on back of instrument cluster. If 12 volts are not present, repair power supply to instrument cluster. If 12 volts are

present, replace voltmeter.

3) If voltmeter needle moves but is inaccurate as in step 1), ensure battery is fully charged. Turn headlights and all accessories on. Note voltmeter reading. Voltmeter should read 11.5 to 12.5 volts. If voltmeter reading is incorrect, replace voltmeter.

INSTRUMENT CLUSTER REMOVAL & INSTALLATION

Removal & Installation (Justy)

Disconnect negative battery cable. Remove 4 clips, one screw, choke knob and nut. Remove cluster cover. Remove 4 cluster retaining screws. Pull cluster forward. Disconnect cluster electrical connectors and speedometer cable from rear of cluster. Remove instrument cluster. To install, reverse removal procedure.

WARNING: On Legacy, air bag system wiring harness, identified by Yellow connectors, is routed near instrument cluster. DO NOT use electrical test equipment on air bag system connectors or harness.

Removal & Installation (Legacy)

1) Disconnect negative battery cable. Remove steering column bracket bolts and lower column. Remove ventilation grille from instrument cluster visor. Remove switches with small screwdriver. Remove cup holder. Remove instrument cluster visor.

2) Remove instrument cluster retaining screws. Pull cluster forward. Disconnect wiring and speedometer cable from rear of cluster. Remove cluster. To install, reverse removal procedure.

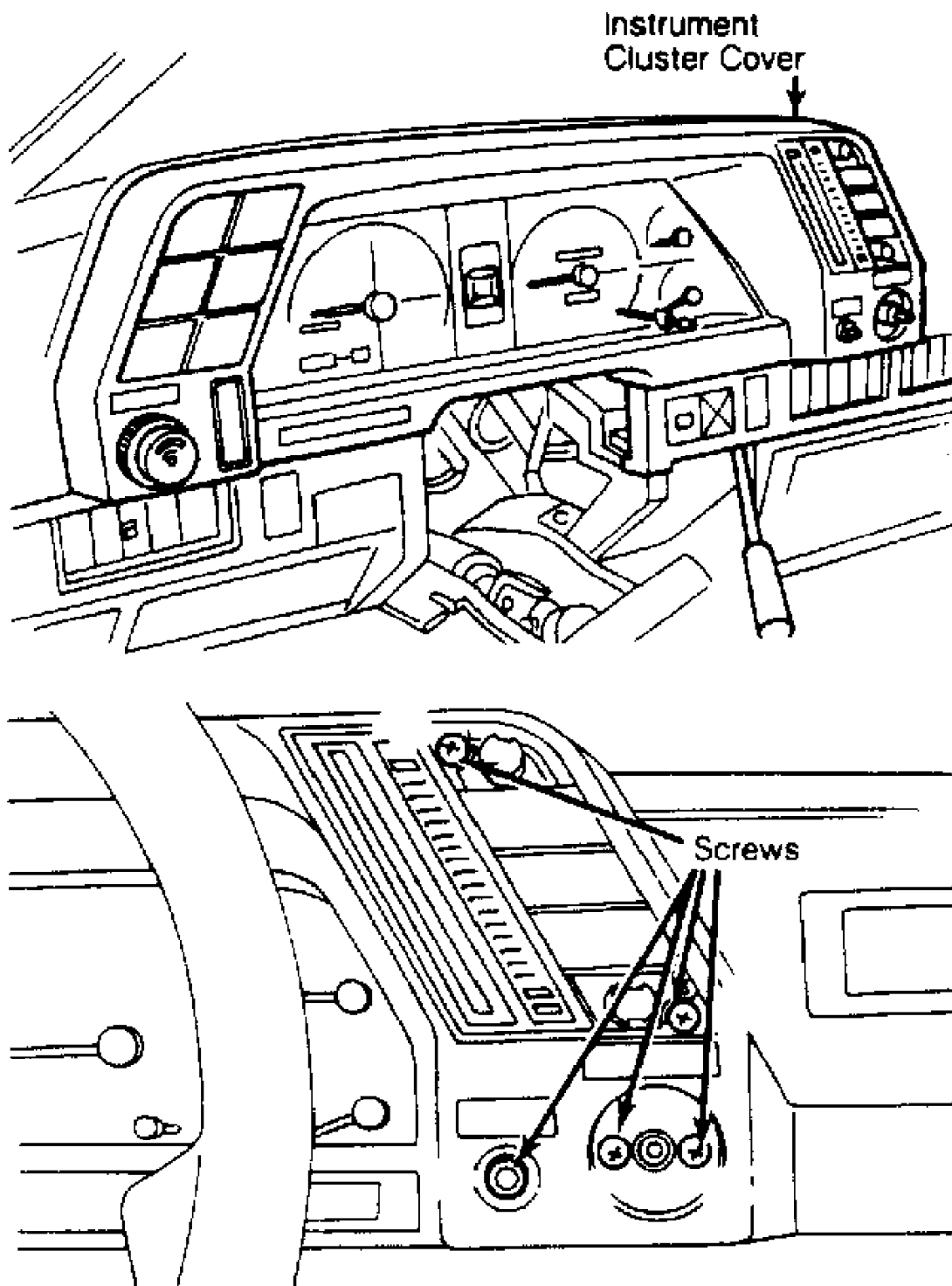
Removal & Installation (Loyale)

1) Disconnect negative battery cable. Remove steering column bracket bolts and lower column. Remove screws retaining instrument cluster cover. See Fig. 3. Disconnect electrical connectors as necessary. Remove cluster cover.

2) Remove cluster retaining screws. Pull out cluster. Disconnect cluster electrical connectors and speedometer cable from back of cluster. Remove cluster. To install, reverse removal procedure.

Removal & Installation (SVX)

Disconnect negative battery cable. Tilt steering wheel downward. Telescope steering wheel away from dash. Remove lower cover. Push switch box assembly out of dash. Remove cluster visor screws and cluster visor. Disconnect clock connector. Remove cluster screws and cluster. To install, reverse removal procedure.



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Fig. 3: Locating Cluster Cover Screws (Loyale)
Courtesy of Subaru of America, Inc.

WIRING DIAGRAMS

See appropriate chassis wiring diagram in WIRING DIAGRAMS.