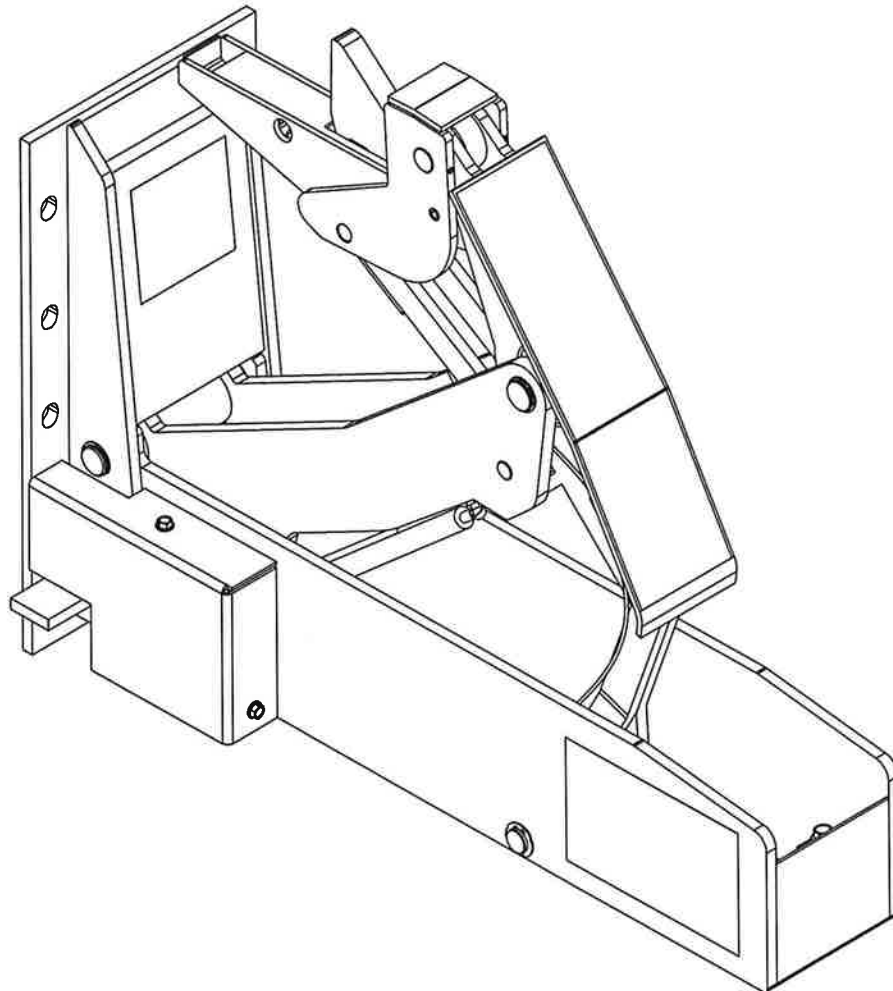




# Vehicle Restraints PitBull® SAFETY-LOC® SL10, SL20 and SL40



This manual applies to PitBull® SAFETY-LOC® vehicle restraints manufactured beginning December 2010 with the serial numbers 61000001 and higher.

#### **▲ WARNING**

*Do not install, operate or service this product unless you have read and understand the Safety Practices, Warnings, and Installation and Operating Instructions contained in this manual. Failure to do so could result in death or serious injury.*

## **User's Manual** Installation, Operations, Maintenance and Parts

824-229F

## TROUBLESHOOTING GUIDE

**⚠ WARNING**

*Before servicing the vehicle restraint, read and follow the Safety Practices on page 2 and the Operation section in this manual. Failure to do so could result in death or serious injury.*

Use the Troubleshooting Guide if the vehicle restraint fails to perform properly. Find the condition that most closely matches your situation, and make the recommended adjustments.

**SL20**

PROBLEM	POSSIBLE CAUSE	SOLUTION
1. No Lights.	a) No power to panel.	a) Check power supply at terminals L and N.
	b) Fuse failed.	b) Check fuses FU-1 and fuse on circuit board.

**SL40**

PROBLEM	POSSIBLE CAUSE	SOLUTION
1. No Lights.	a) No power to panel.	a) Check power supply at terminals L and N.
	b) Fuse failed.	b) Check fuses FU-1 and fuse on circuit board.
2. Restraint is stored, inside and outside lights are red.	a) LS1 switch out of adjustment.	a) Check LS1 switch adjustment. Check wiring.
3. Restraint is raised, RIG sensor bar is depressed, inside and outside lights are red.	a) LS4 switch not sensing.	a) Check LS4 switch adjustment. Check wiring.
4. Restraint is stored, selector switch in automatic position, the outside lights should be flashing red, the inside lights should be a solid red and the amber pilot light should be flashing with a 2 pulse pattern.	a) LS4 switch is stuck down.	a) Check sensor bar for debris. Check LS4 switch for adjustment.
5. Incorrect light sequencing.	a) Jumpers misconfigured on circuit board.	a) Verify jumpers are set correctly.
6. Restraint will not latch in the stored position.	a) Storage latch out of adjustment.	a) Adjust storage latch (see pg. 26).
	b) Storage latch pivot friction or missing/damaged return spring.	b) Lubricate the storage latch pivot, verify return spring is in place.
	c) Restraint improperly installed - no 1" gap between driveway and restraint frame.	c) Re-install restraint correctly so nom. 1" gap is present underneath restraint.

# ADJUSTMENTS

Use these instructions to adjust the vehicle restraint.

## ▲ WARNING

**Do not service this product unless you have read and followed the Safety Practices, Warnings, and Operating Instructions in this manual. Failure to follow these safety practices could result in death or serious injury.**

**Place barricades around the pit on dock floor and drive while installing, maintaining or repairing dock leveler or the vehicle restraint.**

**Keep hands and feet away from moving parts when making adjustments.**

## STORAGE LATCH ADJUSTMENT

The storage latch is located on the side of the restraint housing. When the restraint is lowered by the dock attendant, the main arm restraint pin is engaged by the storage latch. The location of the storage latch pin assembly determines the stored position of the restraint. The correct stored position is when the hook is 3/16" below the housing.

## TO ADJUST THE STORAGE LATCH:

Lower the restraint to its stored position. Observe the distance from the top of the restraint hook and the top surface of the restraint housing. If the top of the restraint hook is above the restraint housing, adjust the storage latch as follows:

1. Remove the two fasteners and remove the storage latch cover.
2. Depress the restraint hook to its maximum lowered position.
3. Loosen the two storage latch adjusting screws.
4. Rotate the storage latch pin assembly counter clockwise as required until the storage latch firmly engages the main arm restraint pin.
5. Tighten the storage latch adjusting screws.
6. Verify that the hook is at least 3/16" below the restraint housing. Repeat steps 3 through 5 as required.
7. Reinstall the storage latch cover.

Fig. 35

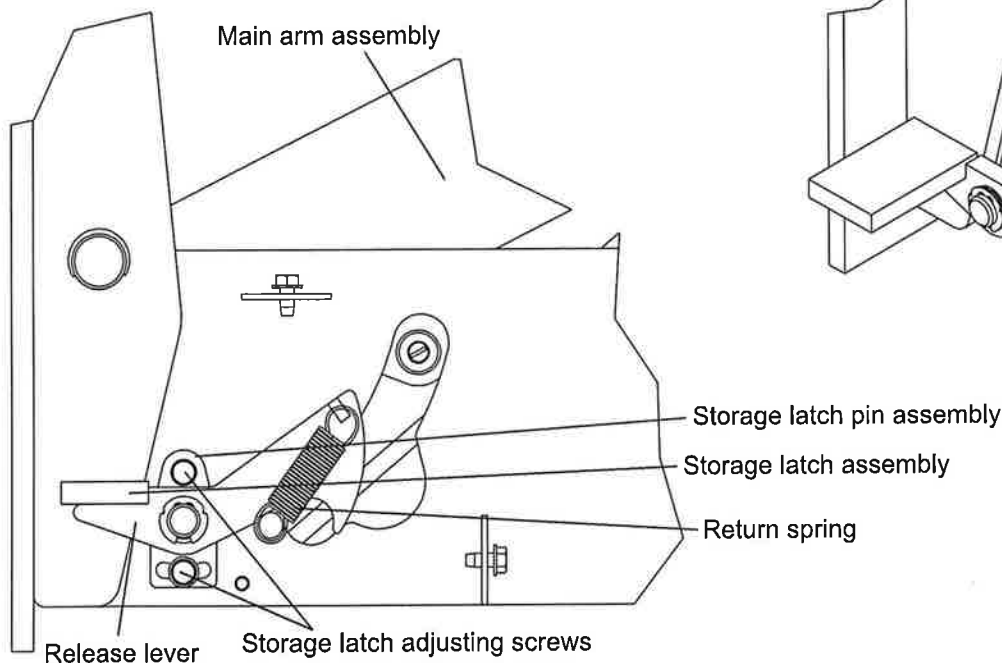
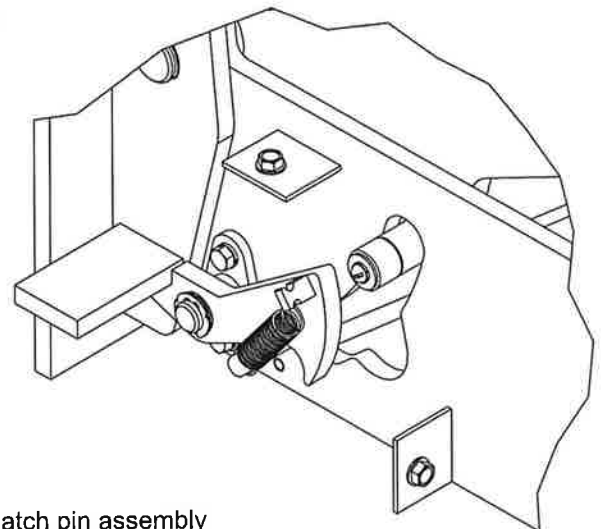


Fig. 36



## ADJUSTMENTS, continued

### RESTRAINT STORED SENSOR – LS1 (SL40)

Proximity sensor LS1 indicates the lowered position of the restraint. The correct stored position is when the hook is at least 3/16" below the top of the restraint housing. To adjust the sensor LS1:

1. Turn control panel Selector switch to the "Automatic" position.
2. Trip the release lever to raise the restraint. The outside lights should immediately change to RED.
3. Fully lower the restraint. The outside light must change to GREEN only when the restraint primary hook is below the restraint housing.
4. If the outside GREEN light does not indicate when the restraint is fully stored, trip the release lever to raise the restraint. Adjust the LS1 so it is 1/16" - 1/8" from the upper arm when the restraint is stored.

#### NOTE:

Visually verify that the upper arm does not contact the LS1 sensor while storing the restraint. If it appears that the main arm will strike the LS1 sensor at any time, raise the restraint and adjust the LS1 sensor to maintain the 1/16" gap shown in Fig. 38.

#### NOTICE

*Visually verify that the main arm will not contact the LS1 sensor while storing the restraint. If upper arm contacts the LS1 it may cause product damage.*

Fig. 38

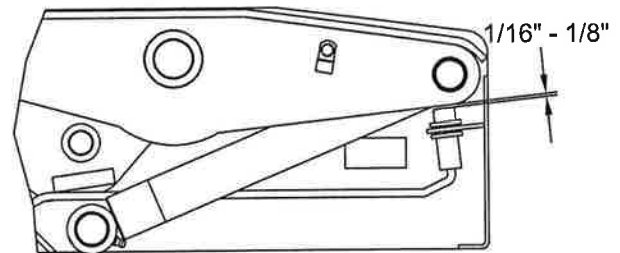
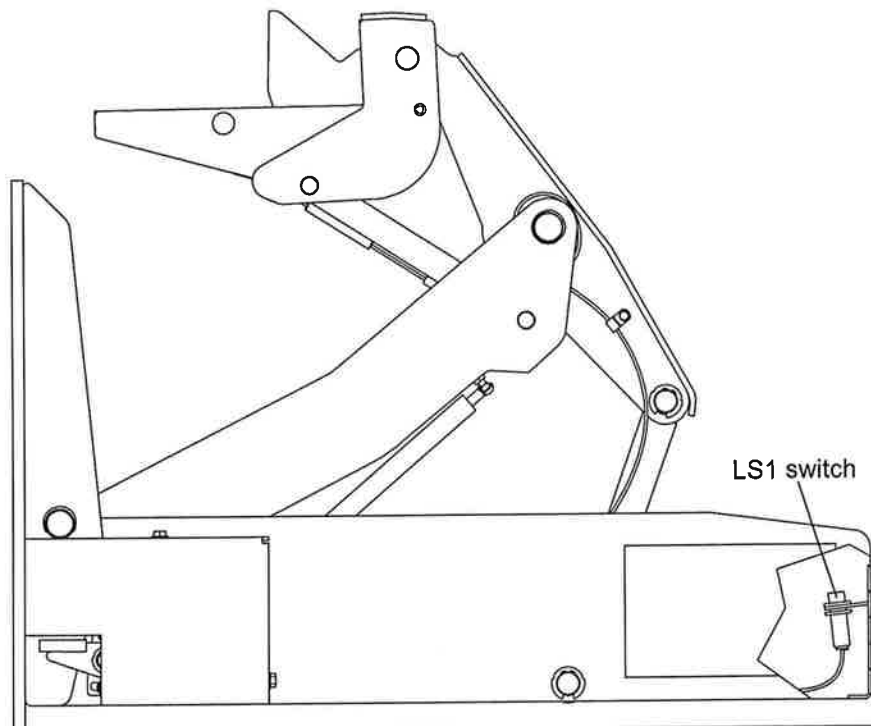


Fig. 37



## ADJUSTMENTS, continued

### RIG (REAR IMPACT GUARD) SENSOR BAR – LS4 (SL40)

Proximity sensor LS4 indicates when the sensor bar has contacted the RIG (rear impact guard). The proper setting of LS4 is 1/16" - 1/8" gap between the sensor target and proximity sensor while the sensor bar depressed, as shown in Fig. 39.

To check for proper operation of LS4, raise the restraint. The outside light immediately changes from flashing **green** to flashing **red**. The inside lights change from **red** to **red** with a **flashing amber** pilot light. Press down on the sensor bar. The outside light remains flashing **red** and the inside light changes to **green** and the **amber** pilot light turns off. Release the sensor bar to ensure the inside light switches back to **red** with the **amber light flashing**.

#### NOTE:

Proper torque specification for tightening LS4 is 3.7ft. lb.

To adjust LS4, order the special tool from your local SERCO® distributor. P/N: **AP2632 - VEHICLE RESTRAINT LS4 15/16" WRENCH SET** or make your own tool using the following instructions:

1. Buy a 15/16" combination wrench (one end open-end, other end 12-point box)
2. Using an abrasive cutoff wheel or "chop saw", cut the wrench in half, in the middle of the handle.
3. Carefully remove a 0.708" - 0.750" section from the box "ring", directly opposite the handle. This is important, as the wrench must pass over the 18mm body of the proximity sensor.
4. Sand any sharp edges or burrs.

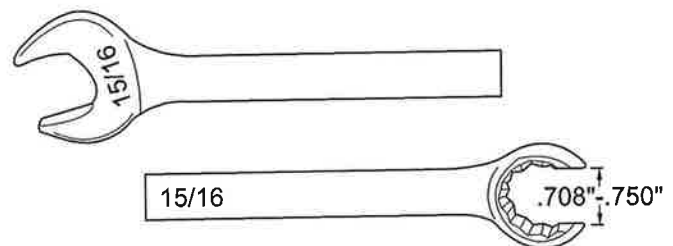
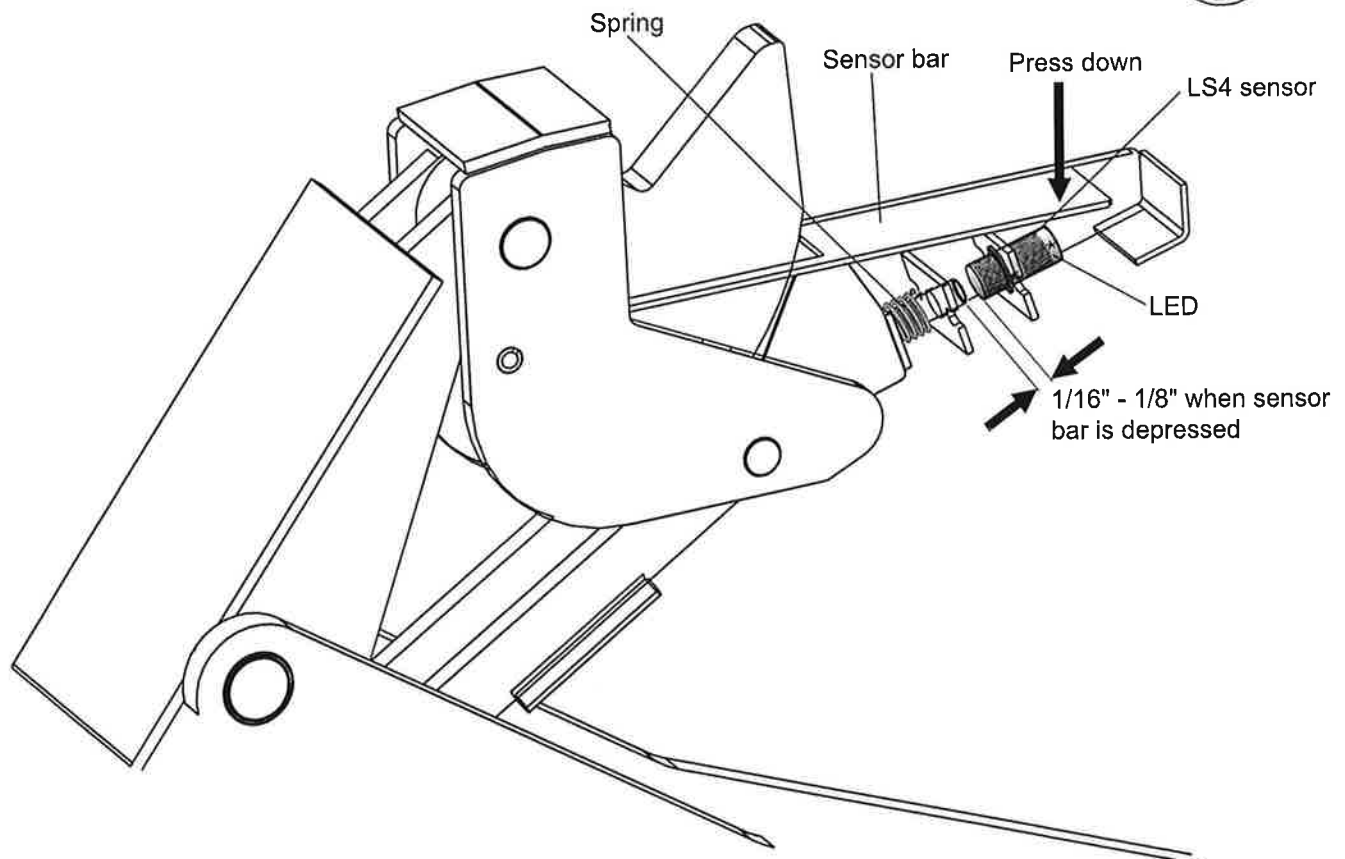


Fig. 39



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## GAS SPRING REPLACEMENT

### TO REPLACE GAS SPRINGS ON THE PITBULL® SAFETY-LOC® SERIES RESTRAINT – ALL MODELS

To replace gas springs on the PitBull® SAFETY-LOC® series restraint

Two gas springs are used on the PitBull® SAFETY-LOC® series restraints to bias the moving parts upward. Gas springs contain high pressure compressed nitrogen, and must be handled with care. The gas springs are charged with approx. 200 lbs. of force, and must BOTH be changed if either gas spring weakens or is damaged. To successfully replace gas springs, you must follow the instructions below.

1. Remove the side cover from the restraint with the restraint in the lowered position.
2. Release the storage latch to raise the restraint to its fully up position.
3. Cut a piece of 2x4 lumber to length and fit it tightly between the frame and the underside of the main arm. See Fig. 40. The length of this 2x4 must allow the gas springs to reach their free length.

#### **▲ WARNING**

***The moving parts of the restraint are very heavy, and are supported by the gas springs. Great care must be taken to support the weight of these parts while removing or replacing the gas springs.***

4. Remove the klipring from one end of the pin that joins the front strut assembly to the upper arm assembly. Carefully slide out the pin while replacing it with a 1/4" diameter shaft screwdriver. This will allow the gas springs to extend to their free length so that they can be removed.

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#### **NOTE:**

You may have to use the supporting wood to force the Main Arm Assembly upwards even further than before you removed the pin.

5. Replace the gas springs one at a time beginning with the most obviously damaged gas spring. This may help to counterbalance some of the weight while you are working on the unit. Place a small dab of grease in each ball socket before you push the socket onto the ball stud. Make sure the rod end of the gas spring points downward.

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## GAS SPRING REPLACEMENT, continued

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### NOTE:

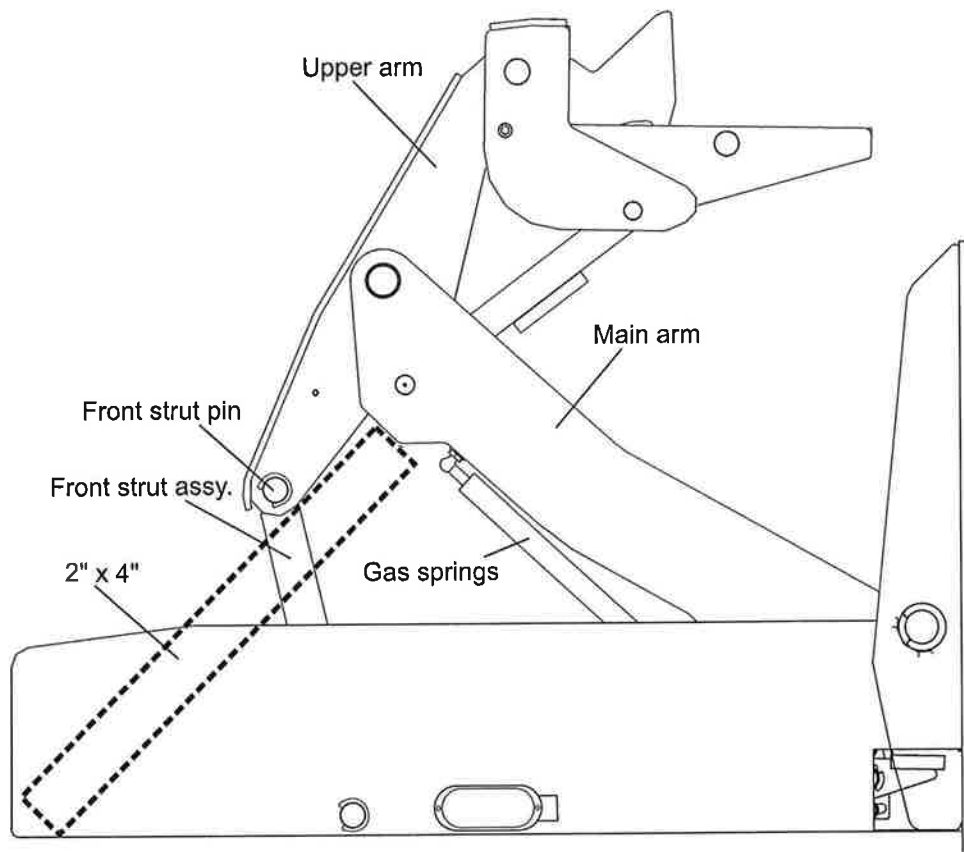
Make sure the ball sockets are properly aligned – hold the gas spring in your hand and using pliers tighten the barrel end socket snug. Next hold the barrel in your hand as you use pliers on the rod end ball socket. Rotate the rod clockwise as you index the rod to proper orientation.

### NOTICE

**Do NOT use pliers on the chrome rod surface!**

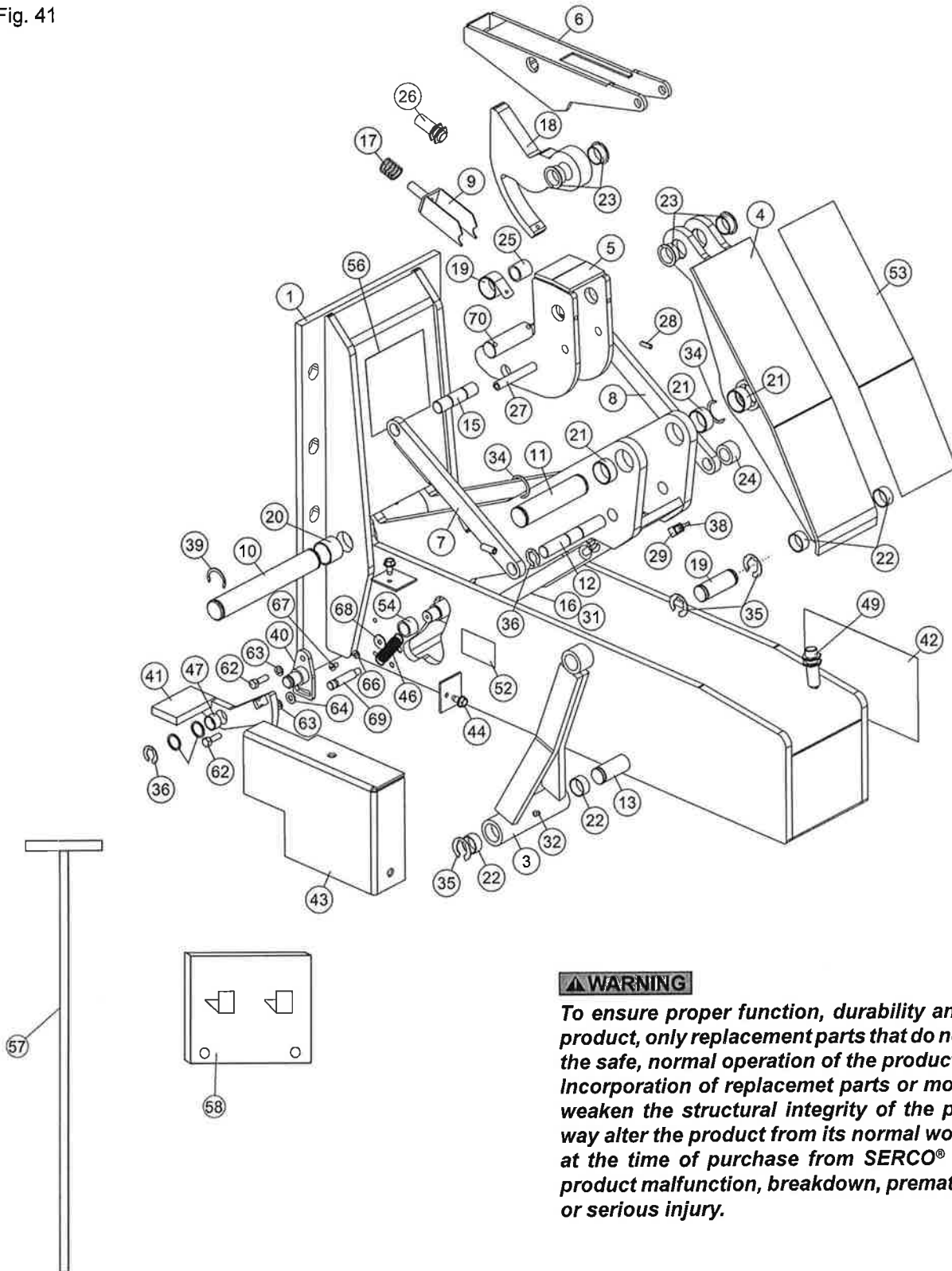
6. With both gas springs installed and the retainer clips in place, you can remove the 2x4 support, replace the Front Strut pin and kliprings.
7. Use the control bar to re-latch the restraint in the stored (down) position.
8. Test the unit and reinstall the side cover.

Fig. 40



# PARTS LIST — VEHICLE RESTRAINT

Fig. 41



**▲ WARNING**

*To ensure proper function, durability and safety of the product, only replacement parts that do not interfere with the safe, normal operation of the product must be used. Incorporation of replacement parts or modifications that weaken the structural integrity of the product, or in a way alter the product from its normal working condition at the time of purchase from SERCO® could result in product malfunction, breakdown, premature wear, death or serious injury.*



## PARTS LIST — VEHICLE RESTRAINT, continued

Item	Quantity	Part Description	Part Number
1a	1	Frame Assembly, Wall Mount	6009187
1b	1	Frame Assembly, Ground Mount	6009189
2	1	Main Arm Assembly	6009181
3	1	Front Strut Assembly	9-0007
4	1	Upper Arm Assembly	6001535
5	1	Primary Hook Assembly	9-0011
6	1	Sensor Bar Assembly	9-0028
7	1	Main Hook Strut Assembly	9-0030
8	1	Main Hook Strut	485-0240
9	1	Sensor Target Assembly	9-0012
10	1	VR15-17 Pin-Frame, 1-1/4" OD	485-0040
11	1	Pin, Upper Arm -Main Arm, SL10-10, 1-1/4" OD	6001534
12	1	VR-Pin-Main Arm, 3/4" OD	485-0035
13	1	VR-Pin-Frame, 1" OD	485-0038
14	1	VR-Pin-Front Strut, 1" OD	485-0037
15	1	SL Primary Hook Pin, 3/4" DIA	485-0119
16	2	Gas Spring, GSNI - 9117, SL10-40	338-018
17	1	Spring (LS4) - Compression	333-047
18	1	Secondary Hook Assy, SL10-40	9-0015
19	1	Spring (Constant Force)	338-009
20	2	Bushing - 1-1/4"	821-032
21	2	Bushing - 1-1/4"	821-035
22	2	Bushing - 1"	821-034
23	2	Bushing - 1" (Flange)	821-033
24	2	Spacer - Main Arm	485-0026
25	1	Nylon Roller	485-0235
26	1	LS4 Proximity Switch (c/w hardware)	625-043
27	1	Tension Pin - 1/2" Dia. x 3-1/4" lg.	231-205
28	1	Tension Pin - 1/4" Dia. x 3/4" lg.	231-128
29	1	Cable Clip	441-125
30	2	Washer - 5/16 ID x 3/4" OD	234-081
31	4	Ball Stud	821-037
32	2	Grease Fitting (c/w ball check)	417-113
33	4	Retaining Clip. (for gas spring)	236-124
34	4	Cresring - 1-1/4"	236-123

## PARTS LIST — VEHICLE RESTRAINT, continued

Item	Quantity	Part Description	Part Number
35	4	Klipring - 1"	236-114
36	3	Klipring - 3/4"	236-110
37	1	HHMB 1/2-13 x 1-1/2" lg.	212-204
38	1	HHMB 1/4-20 x 1" lg.	212-005
39	1	LN 10-32 UNC x Nylock	214-123
40	1	SL10-40, Latch Shaft Assy	9-0032
41	1	Storage Latch Assembly, SL10-40	6009184
42	2	Pit Bull Logo	921-247
43	1	Cover, SL10-40	6009185
44	2	HH-STS 5/16-18 x 1/2" lg	216-460
45	1	Conduit Body: LB-19C	6000621
46	1	Extension Spring, SL10-40, Latch	338-019
47	1	Bushing, 12DU08, SL10-40	821-043
48	0.5	Terminal Strip - 3 Pole	6000644
49	1	Proximity Switch, LS-1	625-036
50	1	HHMB 10-32 x 3/4" lg.	821-027
51	6	Washer -3/4" ID x 1" OD	234-150
52	1	Serial Tag	6009761
53	1	Hazard Stripe	6008556
54	1	Nylon roller 1" OD x 0.781" ID x 11/16" W	485-0250
55	1	SL-Pin - Primary Hook, 1" dia.	485-0108
56	1	Product Identifier Label - Serco	921-185
57	1	Control Bar Assy.	8-9906
58	1	Control Bar Wall Mount Assy.	8-9909
59a	7	Anchor Bolt 3/4 UNC x 5-1/2 (not shown) (Wall mount only)	6001187
59b	2	Anchor Bolt, 3/4 UNC x 7 (not shown) (Ground mount only)	6001334
60	4	Epoxy Anchor Rod – 3/4, RAWL (not shown)	235406
61	4	Epoxy capsule – 3/4, RAWL #65 (not shown)	235407
62	2	HHMB 5/16 x 1 grade 5 zinc pld	212054
63	2	LW 5/16 zinc pld	234291
64	1	PW 5/16 bolt size 3/8 hole	234091
65	2	Spacer washer, 3/4" ID x 1" OD x 0.062	234150
66	1	LW 1/4 zinc pld	234281
67	1	1/4 - 20 x 3/8 slotted round head cap screw	6001295
68	1	Retaining washer, SL10-40, roller	6000290
69	1	Pin, Latch Stop, SL10-40	6009358

# SL20 ELECTRICAL SCHEMATIC

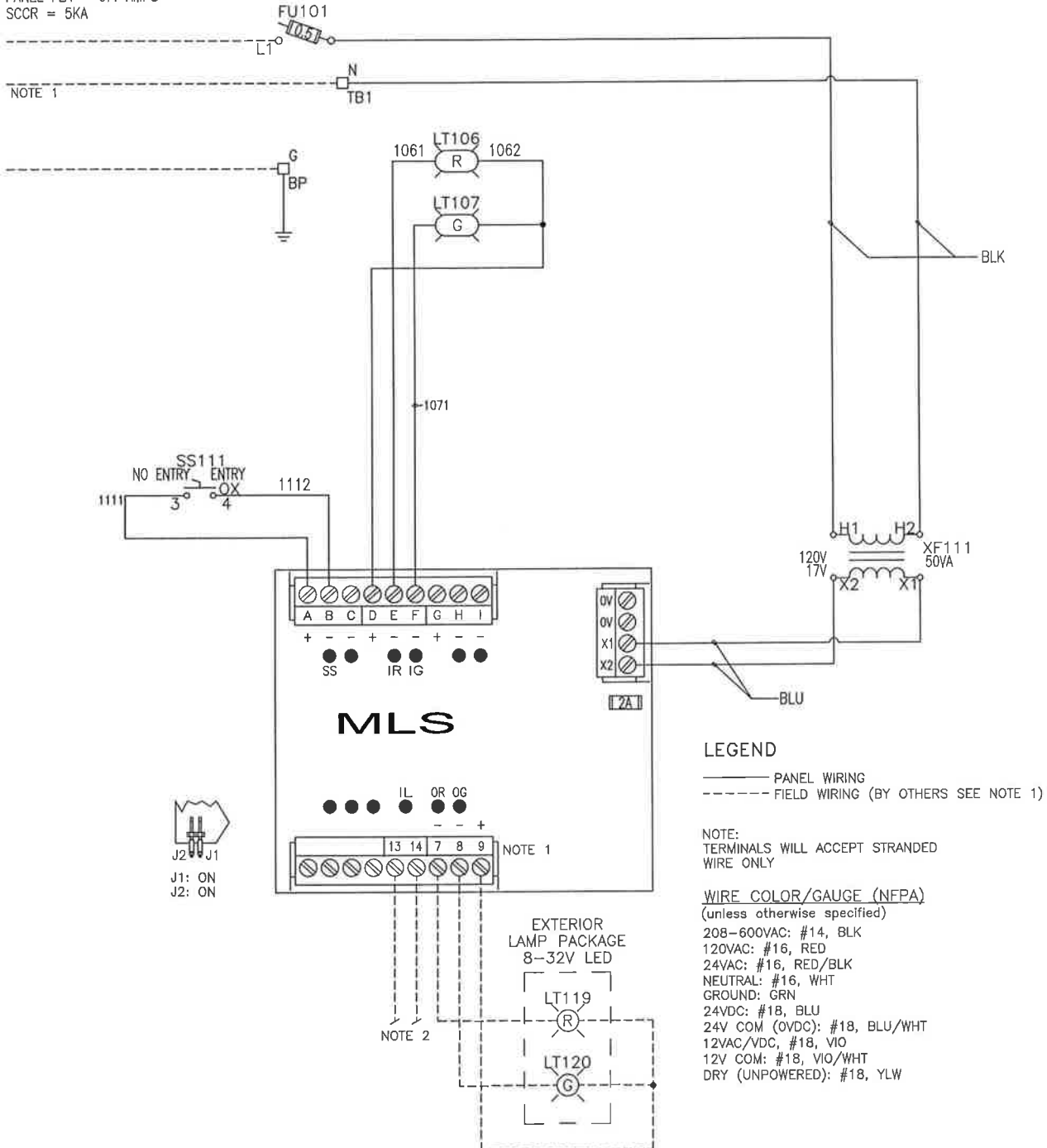
Fig. 42

120V/1PH/60HZ

INCOMING SERVICE TO BE TERMINATED AT DISCONNECT  
 CB/FU TO BE SUPPLIED BY OTHERS  
 SUPPLY BCPD = CB/FU 15AMP MAX  
 PANEL FLA = 0.4 AMPS  
 SCCR = 5KA

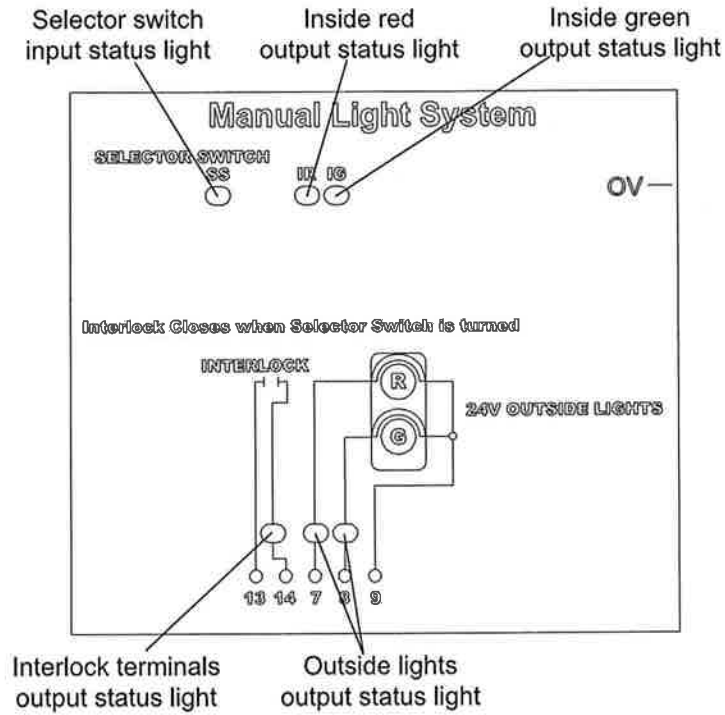
**NOTE:**

For 24V incoming power consult factory.



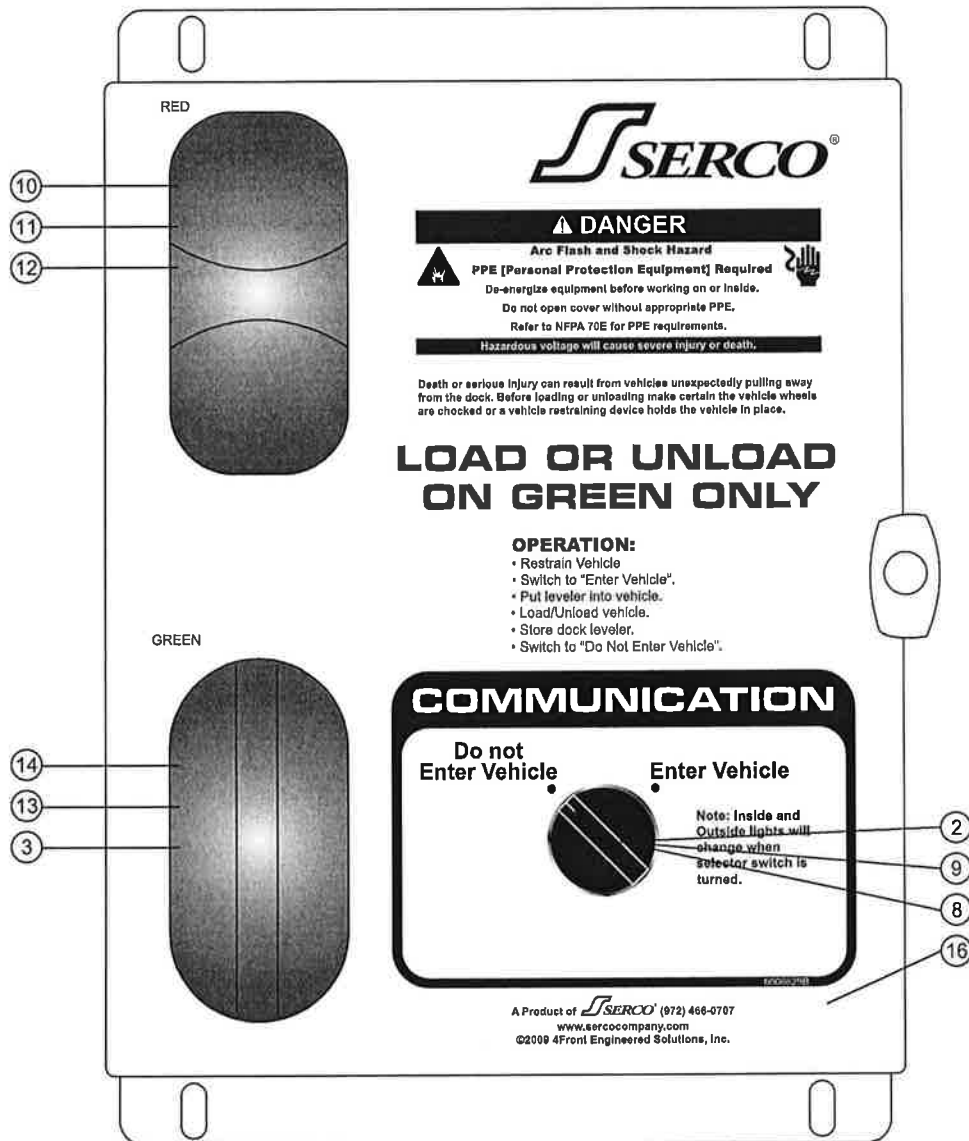
# CONTROL PANEL CIRCUIT BOARD COVER — SL20

Fig. 43



# PARTS LIST — SL20 CONTROL PANEL

Fig. 44



## PARTS LIST — SL20 CONTROL PANEL, continued

Item	Quantity	Part Description	Part Number
1	1	Control Panel, Complete	6006577
2	1	Normally open contact	632-228
3	2	Green LRU LED	6006377
4	1	Control transformer 120/17 50VA — not shown	—
5	1	Fuse 2A — type ADL2A (on board) — not shown	—
6	1	Fuse 0.5A — type MDL0.5A (supply) — not shown	—
7	1	XALS control board — not shown	629-747
8	1	SSW base	632-225
9	1	Selector switch 2 pos.	632-217
10	1	Light base (red)	823-107
11	1	Lens only, red, rectangular	823-100
12	2	Red LRU LED	6006375
13	1	Light base (oval)	823-111
14	1	Lens only, green, oval	AP0027
15	1	Board cover plate — not shown	6006576
16	1	Main label	6006629

# SL40 ELECTRICAL SCHEMATIC

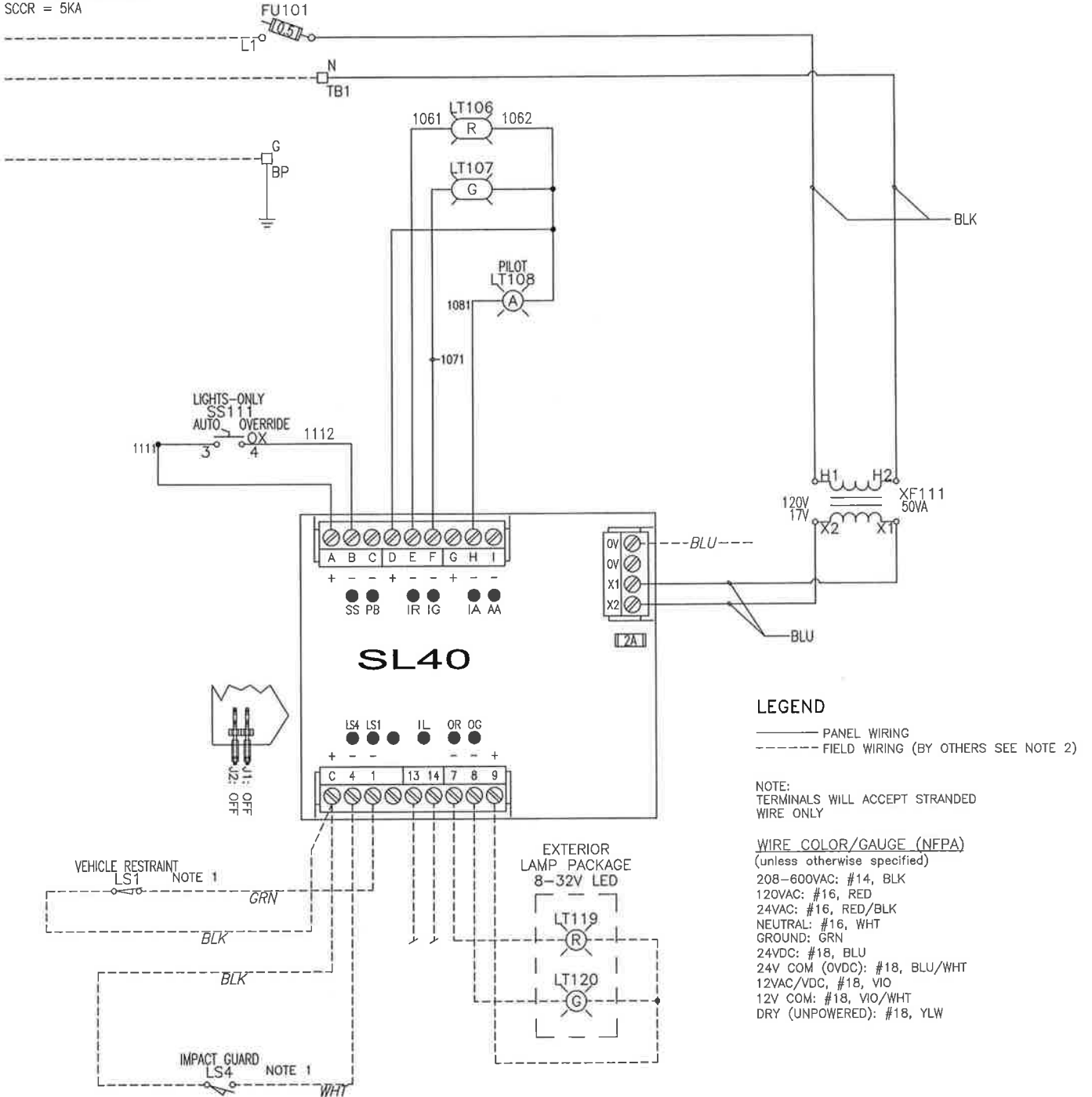
Fig. 45

120V/1PH/60HZ

INCOMING SERVICE TO BE TERMINATED AT DISCONNECT  
 CB/FU TO BE SUPPLIED BY OTHERS  
 SUPPLY BCPD = CB/FU 15AMP MAX  
 PANEL FLA = 0.4 AMPS  
 SCCR = 5KA

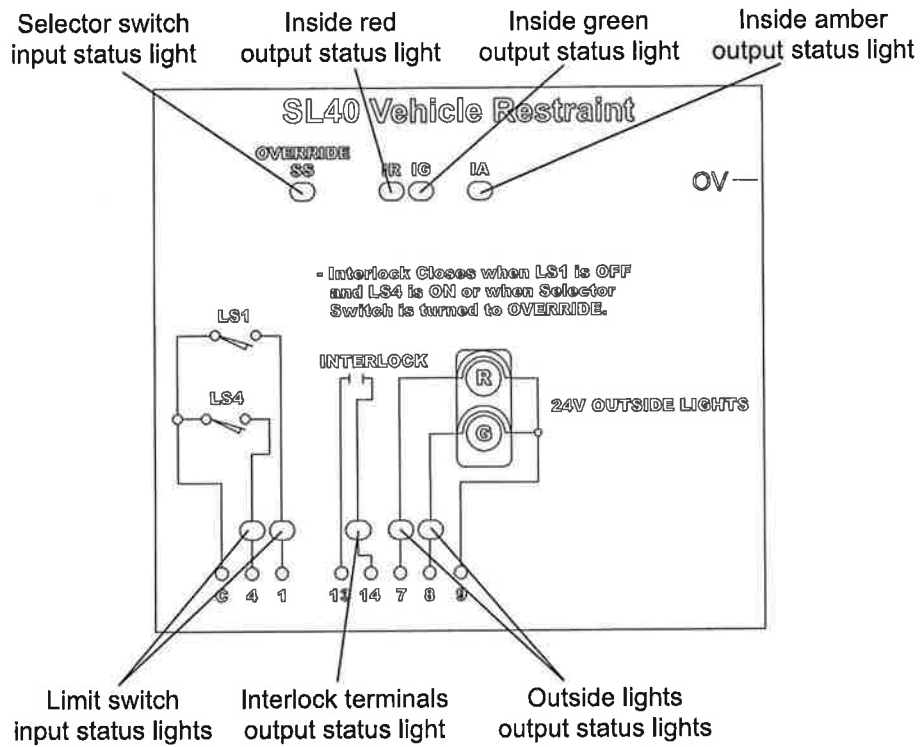
**NOTE:**

For 24V incoming power consult approval drawings and PV Installation Manual.



# CONTROL PANEL CIRCUIT BOARD COVER — SL40

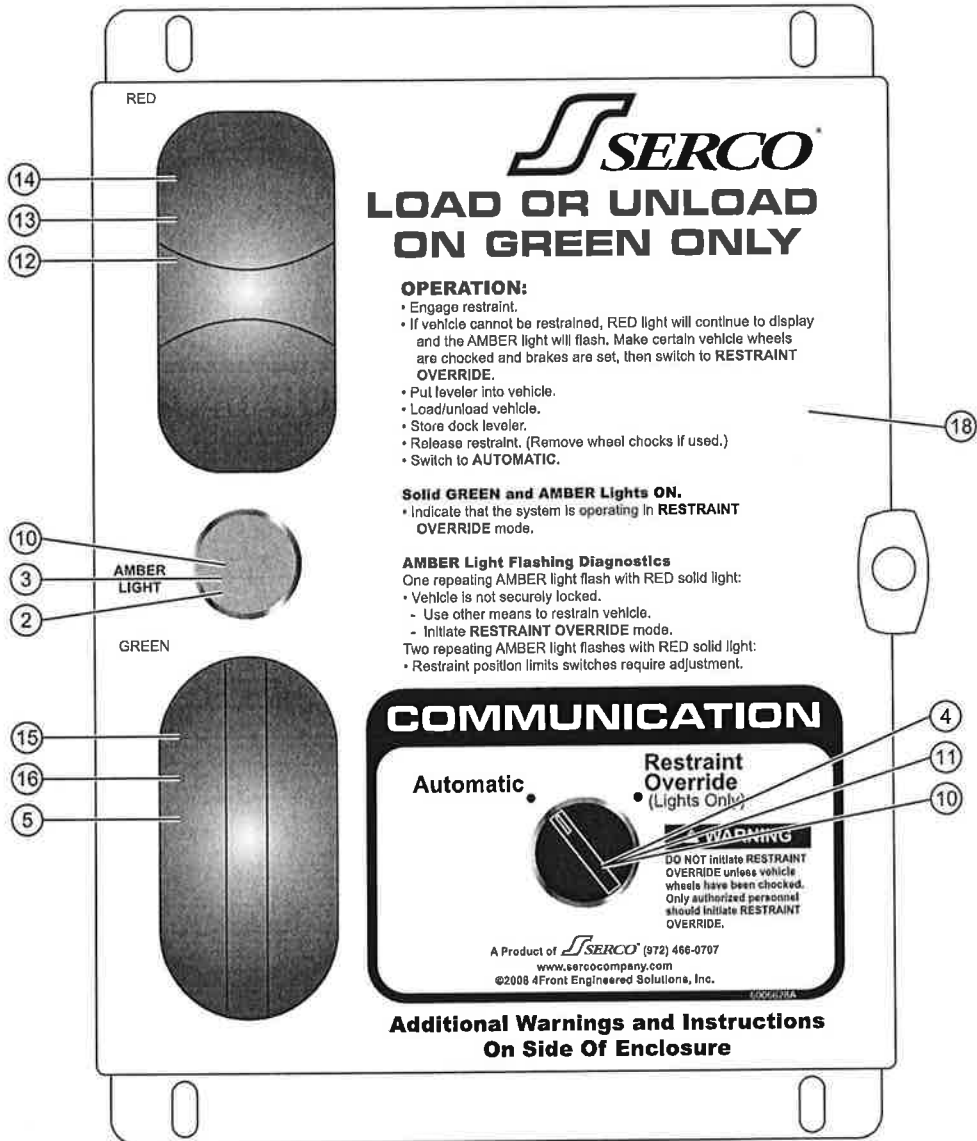
Fig. 46





# PARTS LIST — SL40 CONTROL PANEL

Fig. 47

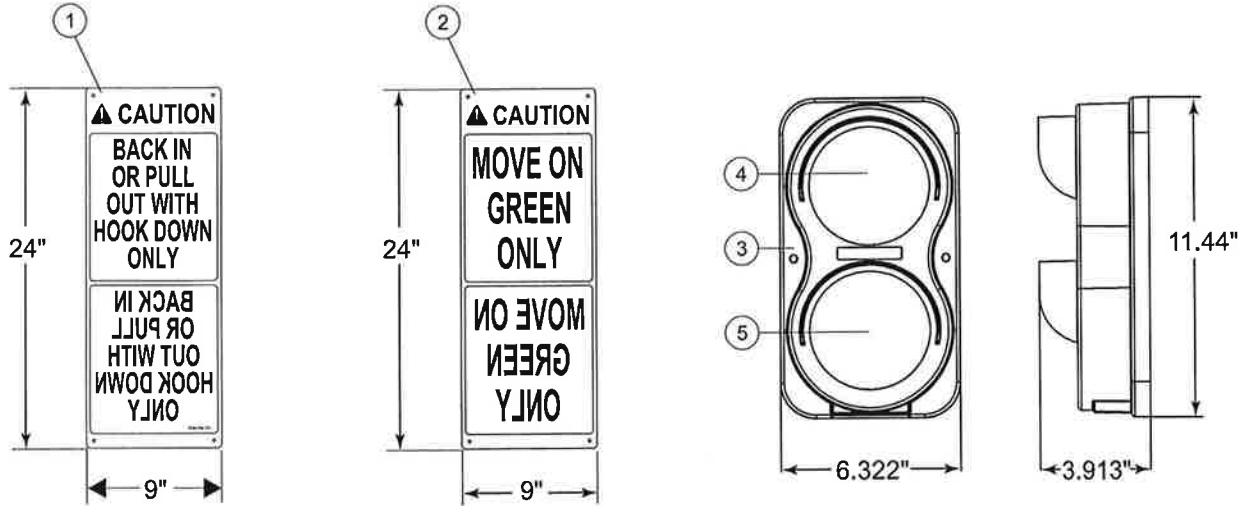


## PARTS LIST — SL40 CONTROL PANEL, continued

Item	Quantity	Part Description	Part Number
1	1	Control Panel, Complete	629733
2	1	Amber light body — not shown	633-002
3	1	Amber light head — not shown	633-003
4	1	Normally open contact	632-228
5	2	Green LRU LED	6006377
6	1	Control transformer 120/17 50VA — not shown	—
7	1	Fuse 2A — type MDL2A (on board) — not shown	—
8	1	Fuse 0.5A — type MDL0.5A — (supply) — not shown	—
9	1	XALS control board — not shown	629-747
10	2	SSW base	632-225
11	1	Selector switch — 2 pos.	632-217
12	1	Light base (red)	823-107
13	1	Lens only, red, rectangular	823-100
14	2	Red LRU LED	6006375
15	1	Light base (oval)	823-111
16	1	Lens only, green, oval	AP0027
17	1	board cover — not shown	6006575
18	1	Main label	6006628

# PARTS LIST — EXTERIOR SIGN AND LIGHTS

Fig. 48



Item	Quantity	Part Description	Part Number
1	1	Outside Sign – Normal and Reverse Lettering (SL10 only)	708-744
2	1	Outside Sign – Normal and Reverse Lettering (SL20 and SL40 only)	709-832
3	1	Light Assembly - Complete (LEDs) (SL20 and SL40 only)	6007798
4*	1	Red LED Light Assy. (SL20 and SL40 only)	6007800
5*	1	Green LED Light Assy. (SL20 and SL40 only)	6007801

\* Part of Item 3 (Light Assembly – Complete).