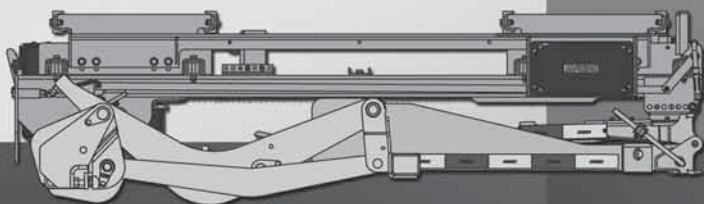


MAXON®

M-18-11
REV B
MAY 2023

RA Series

INSTALLATION MANUAL RA-35 & RA-45



To find **maintenance & parts** information for your **RA Liftgates**, go to www.maxonlift.com. Click the **PRODUCTS**, **SLIDELIFT** and **RA** buttons. Open the **Maintenance Manual** in the **PRODUCT DOCUMENTATION** window. For parts, click on the **PARTS PORTAL**, **SLIDE-LIFT** and **RA** buttons.

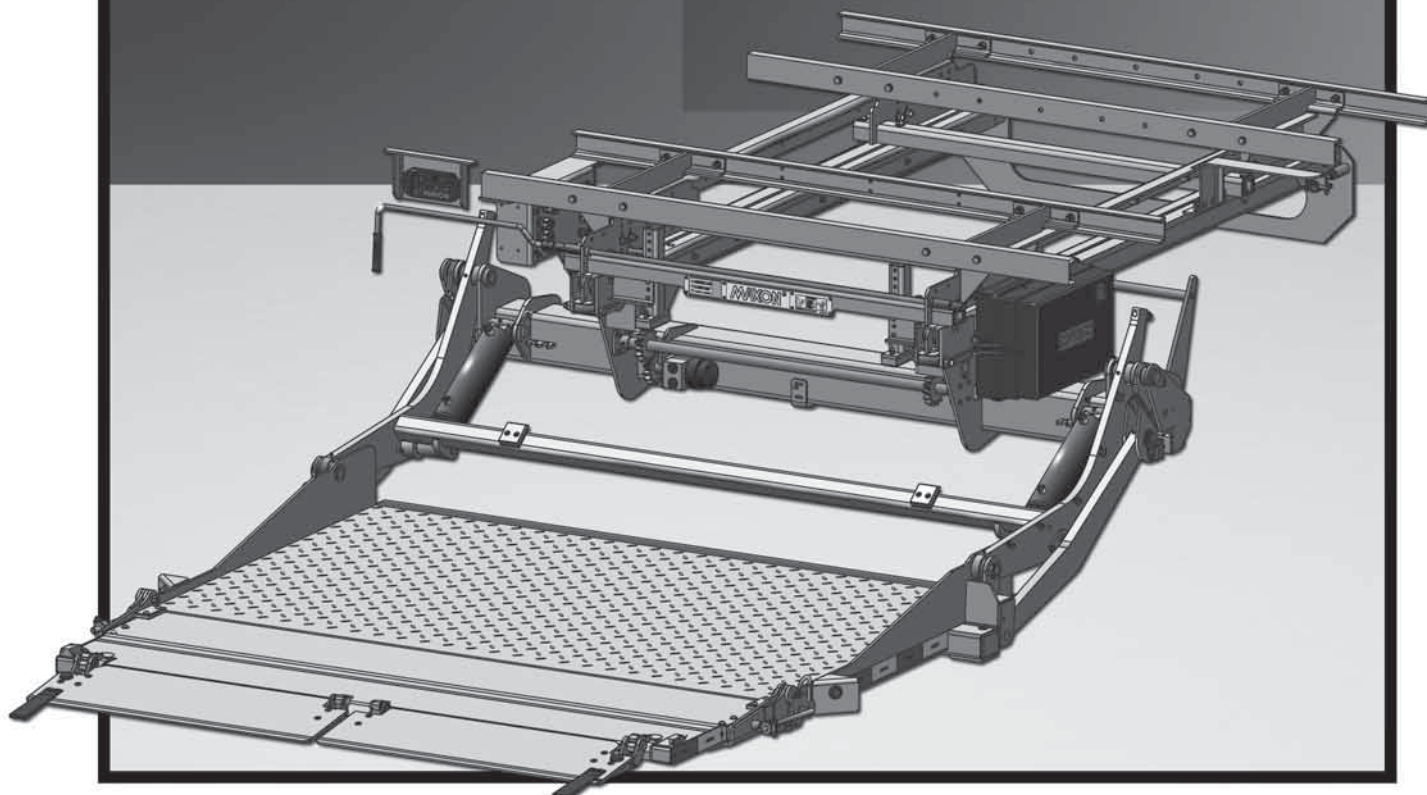


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SUMMARY OF CHANGES: M-18-11, REVISION B

PAGE	DESCRIPTION OF CHANGE
COVER	Updated REV. and date of release. Updated RA-44 model to RA-45.
	Illustrations changed to new design.
10-12	Updated parts box and electrical assembly kits.
16-17	Added Installation Parameters table and corresponding reference figures.
18	Added initial bed height procedure by removing installation frame and remounting in correct mounting hole position per TABLE 16-1 .
23-24	Updated preferred and alternate initial welding methods.
25	Updated angle support handle welding procedure to allow for cutting support angle (if required).
35-41	Updated Junction Box electrical connections.
42-46	Updated platform bed height and in/out adjustment procedures.
49-50	Updated preferred and alternate final welding methods.
52	Updated capacity decal to 4500 LB (P/N 220388-05).
56-57	Updated pump and motor solenoid operation for single and dual pumps.
58	Updated hydraulic schematic - gravity down.
59	Updated hydraulic schematic - power down.
60-61	Updated electrical schematic 12V, gravity down with MAX ECU.
62-63	Updated electrical schematic 12V, power down with MAX ECU.
64-65	Updated electrical schematic 24V, gravity down.
66-67	Updated electrical schematic 24V, power down.
68	Updated Optional Liftgate Components table.
69	Updated Pre-Delivery Inspection form to RA-45.

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Comply with the following **WARNINGS** and **SAFETY INSTRUCTIONS** while installing Liftgates. See Operation Manual for operating safety requirements.

WARNING

Installing and maintaining a liftgate can expose you to chemicals, including lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, install and maintain liftgate in a well-ventilated area and wear **proper Personal protective equipment (PPE)**. For more information go to www.P65Warnings.ca.gov.

WARNING

- Do not stand, or allow obstructions, under the platform when lowering the Liftgate. **Be sure your feet are clear of the Liftgate.**
- **Keep fingers, hands, arms, legs, and feet clear of moving Liftgate parts (and platform edges) when operating the Liftgate.**
- **Correctly stow platform when not in use. Extended platforms could create a hazard for people and vehicles passing by.**
- **Make sure vehicle battery power is disconnected** while installing Liftgate. Connect vehicle battery power to the Liftgate only when installation is complete or as required in the installation instructions.
- **Remove all rings, watches and jewelry before doing any electrical work.**
- If it is necessary to stand on the platform while operating the Liftgate, keep your feet and any objects clear of the inboard edge of the platform. Your feet or objects on the platform can become trapped between the platform and the Liftgate extension plate.
- Never perform unauthorized modifications on the Liftgate. Modifications may result in early failure of the Liftgate and may create hazards for Liftgate operators and maintainers.
- Recommended practices for welding on steel parts are contained in the current **AWS (American Welding Society) D1.1 Structural Welding Code - Steel**. Damage to Liftgate and/or vehicle, and personal injury can result from welds that are done incorrectly.
- Recommended practices for welding galvanized steel are contained in the current **AWS (American Welding Society) D19.0 Welding Zinc-Coated Steel**. Damage to Liftgate and/or vehicle, and personal injury can result from welds that are done incorrectly.

SAFETY INSTRUCTIONS

- Read and understand the instructions in this **Installation Manual** before installing Liftgate.
- Before operating the Liftgate, read and understand the operating instructions in **Operation Manual**.
- Comply with all **WARNING** and instruction decals attached to the Liftgate.
- Keep decals clean and legible. If decals are illegible or missing, replace them. Free replacement decals are available from **Maxon Customer Service**.
- Consider the safety and location of bystanders and location of nearby objects when operating the Liftgate. Stand to one side of the platform while operating the Liftgate.
- Do not allow untrained persons to operate the Liftgate.
- Wear appropriate safety equipment such as protective eyeglasses, faceshield and clothing while performing maintenance on the Liftgate and handling the battery. Debris from drilling and contact with battery acid may injure unprotected eyes and skin.
- Be careful working by an automotive type battery. Make sure the work area is well ventilated and there are no flames or sparks near the battery. Never lay objects on the battery that can short the terminals together. If battery acid gets in your eyes, immediately seek first aid. If acid gets on your skin, immediately wash it off with soap and water.
- If an emergency situation arises (vehicle or Liftgate) while operating the Liftgate, release the control switch to stop the Liftgate.
- A correctly installed Liftgate operates smoothly and reasonably quiet. The only noticeable noise during operation comes from the power unit while the platform is raised and lowered. Listen for scraping, grating and binding noises and correct the problem before continuing to operate Liftgate.

NOTICE

- Maxon Lift is responsible for the instructions to correctly install **MAXON** Liftgates on trucks or trailers only.
- Liftgate installers, not Maxon Lift, are responsible for reviewing and complying with all applicable Federal, State, and Local regulations pertaining to the trailer or truck.

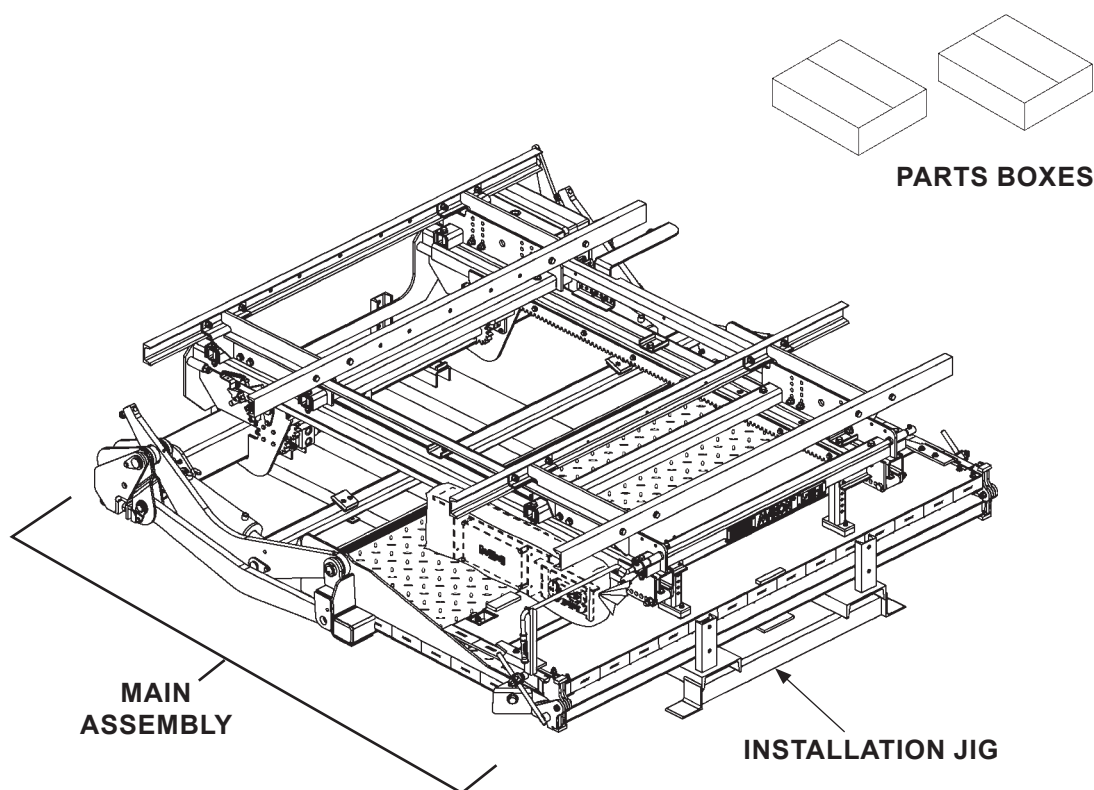
STANDARD LIFTGATE COMPONENTS

⚠ CAUTION

Unpacking the Liftgate on unlevel surface may allow heavy components to slide off when shipping bands are cut. Injury and equipment damage could result. Before the shipping bands are cut, put Liftgate on level surface that will support 1750 lbs. When unpacking the Liftgate, remove heavy components carefully to avoid injury and damage.

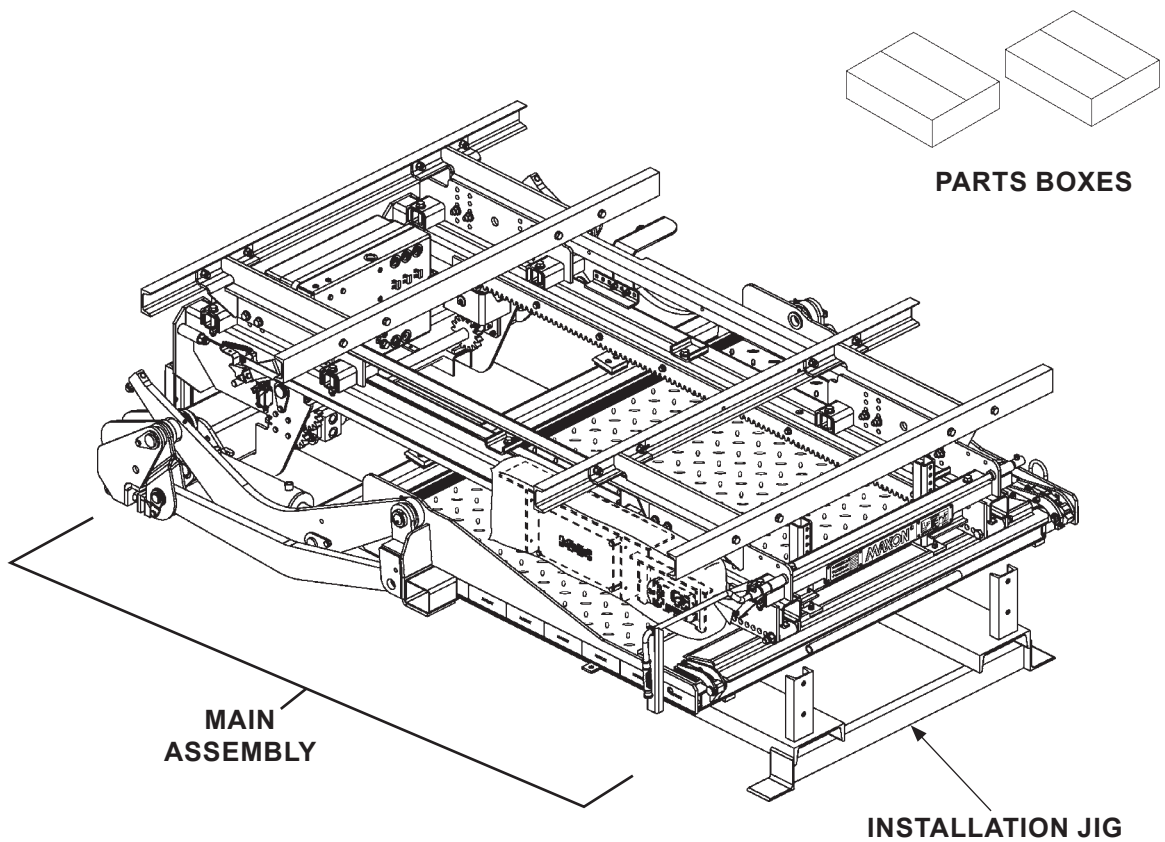
NOTE: Make sure you have all components and parts before you start installing Liftgate. Compare parts in the part box and each kit box with packing list enclosed in each box. If parts and components are missing or incorrect, call:

Maxon Customer Service
Call (800) 227-4116 or
Send e-mail to cservice@maxonlift.com



RA (SIDE MOUNT PUMP) LIFTGATE COMPONENTS FOR SHIPMENT
(OPTIONAL COMPONENTS NOT SHOWN)

FIG. 8-1



**RA (CENTER MOUNT PUMP) LIFTGATE COMPONENTS FOR SHIPMENT
(OPTIONAL COMPONENTS NOT SHOWN)**

FIG. 9-1

PARTS BOX, RA (TRAILER SIDE MOUNT)

	NOMENCLATURE OR DESCRIPTION	QTY.	PART NUMBER
REF	PARTS BOX, RA	1	289101-03
1	CONTROL SWITCH ASSEMBLY, WALL MOUNT	2	287903-01
2	DECAL SHEET, UP/DOWN	2	299038-01
3	SELF-TAPPING SCREW, 10-24 X 1/2" LG.	6	900766-02
4	FLAT WASHER, #10	6	903444-01
5	SCREW MOUNT CABLE TIE, 1-1/2" DIA.	5	905938-01
6	SELF-DRILLING SCREW, #6-20, PHILLIPS HEAD	5	900818-01
7	STOW FLASHING LIGHT KIT, 40'	1	289355-01
8	SAFETY STOW CHAIN, GPSLR	1	287132-01
9	FUSE HOLDER ASSEMBLY, 10 AMP, 3/8"	1	285013-04
10	CIRCUIT BREAKER KIT, 175 AMPS, 30VDC	1	289723-01
11	PLASTIC TIE, 7"	20	205780
12	RUBBER LOOM CLAMP, #12	10	214675
13	SELF-TAPPING SCREW, 1/4"-20 X 5/8" LG.	10	900705-02

TABLE 10-1

ELECTRICAL ASSEMBLY KIT (TRAILER SIDE MOUNT)

	NOMENCLATURE OR DESCRIPTION	QTY.	PART NUMBER
REF	ELECTRICAL ASSEMBLY, 12V, GRAVITY DOWN, 22' LG.	1	287890-03
1	CABLE ASSEMBLY, FLEXIBLE LOOP, 22' LG.	1	211141-03
2	CABLE ASSEMBLY, LOCK VALVE, 16/2, 65" LG.	1	282625-26
3	CABLE ASSEMBLY, LOCK VALVE, 16/2, 120" LG.	1	282625-27
4	CABLE ASSEMBLY, LOCK VALVE, 16/2, 56" LG.	1	282625-07
5	PLASTIC TIE, 8" LG.	20	905322-01
6	LIMIT SWITCH ASSEMBLY, GPSLR/RA	1	211165-01
7	J-BOX & MAIN SWITCH ASSEMBLY, 12V, GRAVITY DOWN, 6' LG.	1	288660-01
8	PLATFORM STOW LIGHTS HARNESS	1	289363-01
9	EMERGENCY WARNING LIGHT, AMBER	2	907111-01
10	HEAT SHRINK TUBING, 4" LG.	4	268041-02
11	NYLON SPLIT LOOM, 1/4" X 78" LG.	1	907011-10
12	NYLON SPLIT LOOM, 1/4" X 36" LG.	2	907011-11

**RA ELECTRICAL ASSEMBLY, 12V GRAVITY DOWN
TABLE 11-1**

	NOMENCLATURE OR DESCRIPTION	QTY.	PART NUMBER
REF	ELECTRICAL ASSEMBLY, 24V, GRAVITY DOWN, 22' LG.	1	287890-03-24
1	CABLE ASSEMBLY, FLEXIBLE LOOP, 22' LG.	1	211141-03
2	CABLE ASSEMBLY, LOCK VALVE, 16/2, 65" LG.	1	282625-26
3	CABLE ASSEMBLY, LOCK VALVE, 16/2, 120" LG.	1	282625-27
4	CABLE ASSEMBLY, LOCK VALVE, 16/2, 56" LG.	1	282625-07
5	PLASTIC TIE, 8" LG.	20	905322-01
6	LIMIT SWITCH ASSEMBLY, GPSLR/RA	1	211165-01
7	J-BOX & MAIN SWITCH ASSEMBLY, 24V, GRAVITY DOWN, 6' LG.	1	288660-01-24
8	PLATFORM STOW LIGHTS HARNESS	1	289363-01
9	EMERGENCY WARNING LIGHT, AMBER	2	907111-01
10	HEAT SHRINK TUBING, 4" LG.	4	268041-02
11	NYLON SPLIT LOOM, 1/4" X 78" LG.	1	907011-10
12	NYLON SPLIT LOOM, 1/4" X 36" LG.	2	907011-11

**RA ELECTRICAL ASSEMBLY, 24V GRAVITY DOWN
TABLE 11-2**

ELECTRICAL ASSEMBLY KIT - Continued (TRAILER SIDE MOUNT)

	NOMENCLATURE OR DESCRIPTION	QTY.	PART NUMBER
REF	ELECTRICAL ASSEMBLY, 12V, POWER DOWN, 22' LG.	1	287890-04
1	CABLE ASSEMBLY, FLEXIBLE LOOP, 22' LG.	1	211141-03
2	CABLE ASSEMBLY, LOCK VALVE, 16/2, 65" LG.	1	282625-26
3	CABLE ASSEMBLY, LOCK VALVE, 16/2, 120" LG.	1	282625-27
4	CABLE ASSEMBLY, LOCK VALVE, 16/2, 56" LG.	1	282625-07
5	PLASTIC TIE, 8" LG.	20	905322-01
6	LIMIT SWITCH ASSEMBLY, GPSLR/RA	1	211165-01
7	J-BOX & MAIN SWITCH ASSEMBLY, 12V, POWER DOWN, 6' LG.	1	288660-02
8	PLATFORM STOW LIGHTS HARNESS	1	289363-01
9	EMERGENCY WARNING LIGHT, AMBER	2	907111-01
10	HEAT SHRINK TUBING, 4" LG.	4	268041-02
11	NYLON SPLIT LOOM, 1/4" X 78" LG.	1	907011-10
12	NYLON SPLIT LOOM, 1/4" X 36" LG.	2	907011-11

**RA ELECTRICAL ASSEMBLY, 12V POWER DOWN
TABLE 12-1**

	NOMENCLATURE OR DESCRIPTION	QTY.	PART NUMBER
REF	ELECTRICAL ASSEMBLY, 24V, POWER DOWN, 22' LG.	1	287890-04-24
1	CABLE ASSEMBLY, FLEXIBLE LOOP, 22' LG.	1	211141-03
2	CABLE ASSEMBLY, LOCK VALVE, 16/2, 65" LG.	1	282625-26
3	CABLE ASSEMBLY, LOCK VALVE, 16/2, 120" LG.	1	282625-27
4	CABLE ASSEMBLY, LOCK VALVE, 16/2, 56" LG.	1	282625-07
5	PLASTIC TIE, 8" LG.	20	905322-01
6	LIMIT SWITCH ASSEMBLY, GPSLR/RA	1	211165-01
7	J-BOX & MAIN SWITCH ASSEMBLY, 24V, POWER DOWN, 6' LG.	1	288660-02-24
8	PLATFORM STOW LIGHTS HARNESS	1	289363-01
9	EMERGENCY WARNING LIGHT, AMBER	2	907111-01
10	HEAT SHRINK TUBING, 4" LG.	4	268041-02
11	NYLON SPLIT LOOM, 1/4" X 78" LG.	1	907011-10
12	NYLON SPLIT LOOM, 1/4" X 36" LG.	2	907011-11

**RA ELECTRICAL ASSEMBLY, 24V POWER DOWN
TABLE 12-2**

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VEHICLE REQUIREMENTS

CAUTION

To prevent damage to Liftgate and trailer, install stops on the slide rails to keep the sliding axles from hitting Liftgate. Refer to Liftgate clearance dimensions in this section of the manual.

NOTE: BODY maximum and minimum operating bed height:

Maximum height is **60"** (Unloaded). Minimum height is **43"** (Loaded).

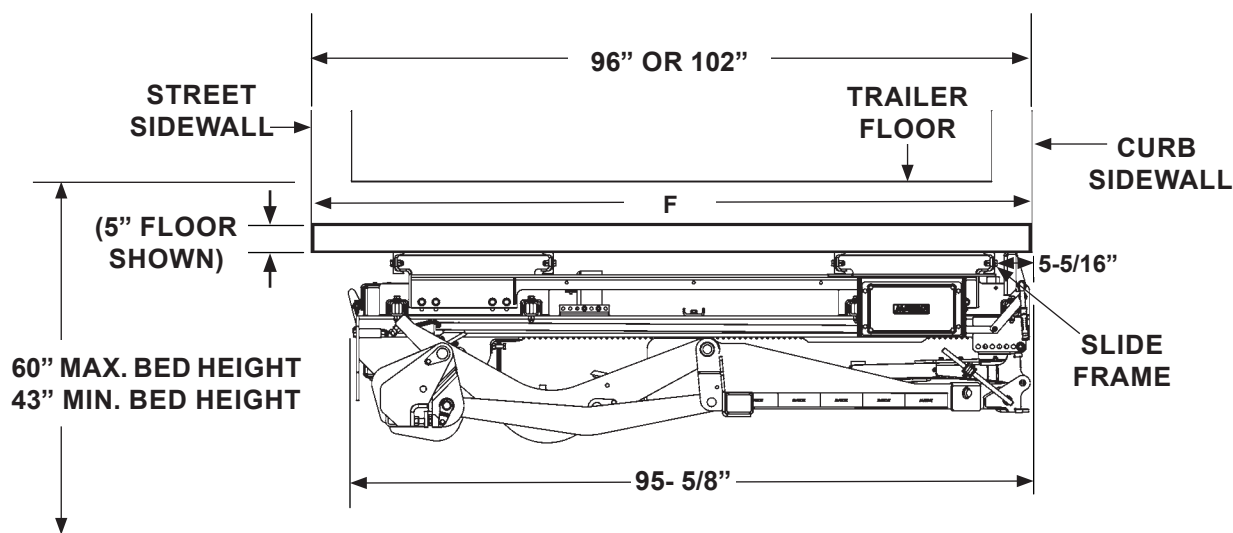
On vehicle bodies equipped with swing-open doors, the heel of platform may have to be notched to prevent interference from trailer.

NOTE: Make sure vehicle is parked on level ground while preparing vehicle and installing Liftgate.

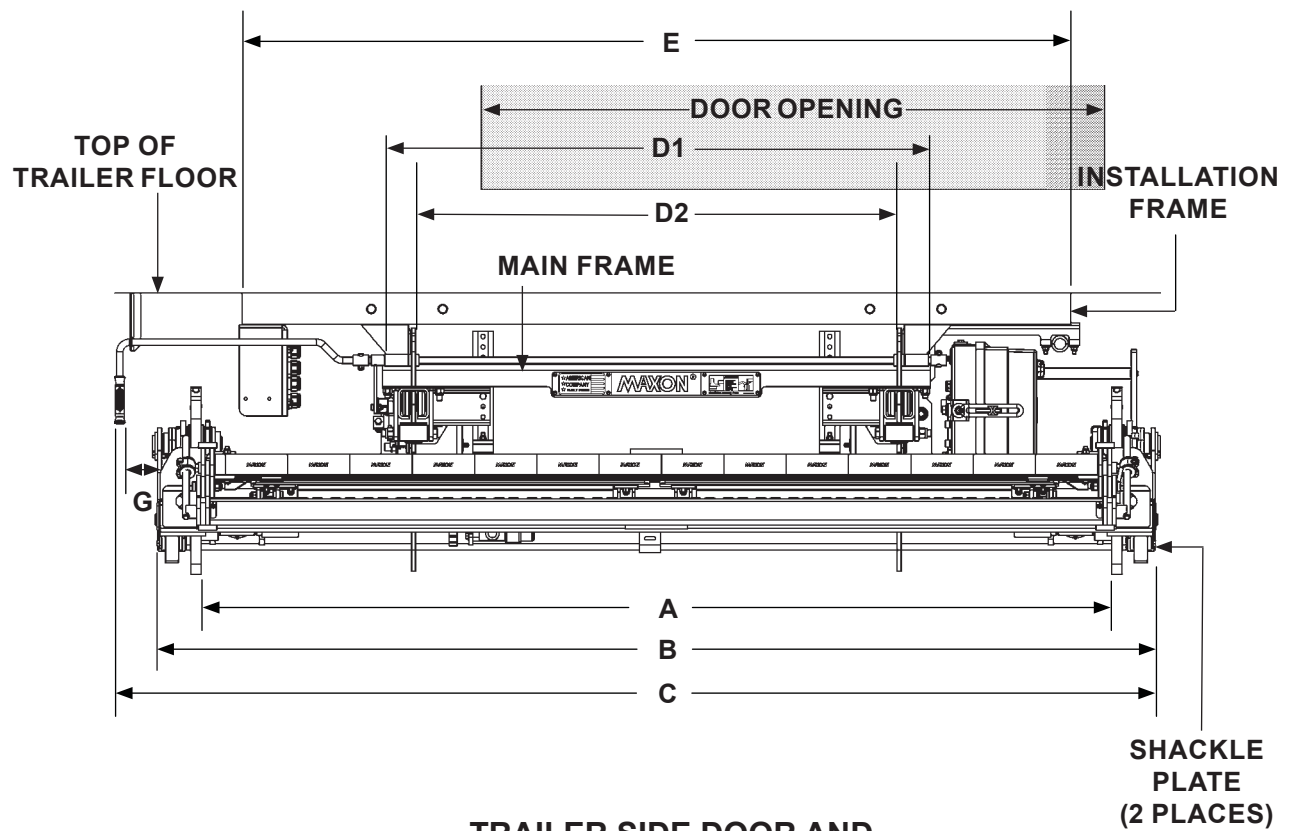
NOTE: Dimensions are provided as reference for fitting Liftgate to vehicle body.

NOTE: Offset Liftgate 5-5/16" from the trailer curb side wall to the outer edge of the slide frame (**FIG. 14-1**) so the platform will not hit the door when the door is open.

Check for correct clearances (**FIGS. 14-1 and FIG. 15-1**) on vehicle to prevent interference between vehicle and Liftgate. Refer to **Table 15-1**.



SIDE VIEW OF LIFTGATE AS SEEN FROM REAR OF TRAILER
FIG. 14-1



**TRAILER SIDE DOOR AND
LIFTGATE IN STOWED POSITION
(FRONT VIEW)
FIG. 15-1**

A	B		C	D1	D2	E	F	G
LIFTGATE WIDTH (SLIDER WIDTH)	PF WIDTH	F/O WIDTH	OVERALL WIDTH	SLIDER FRAME WIDTH	SLIDER FRAME WIDTH	INSTALLATION FRAME WIDTH (FRONT)	INSTALLATION FRAME LENGTH	HANDLE CLEARANCE
96"	86"	85"	100"	47-1/8"	53-5/16"	71-13/16"	86-1/8"	4"
70"	60"	59"	73"	33-3/8"	39-1/2"	58"		3"
62"	52"	51"	69"	33-3/8"	33-3/8"	58"		7"

**MOUNTING SPACE REQUIREMENTS
TABLE 15-1**

INSTALLATION PARAMETERS

Ensure correct installation parameters (**FIGS. 17-1, 17-2, 17-3 and 18-1**) on vehicle to prevent interference between vehicle and Liftgate. Refer to **Table 16-1**.

VEHICLE INFORMATION		INSTALLATION POSITION		GROUND CLEARANCE			ADJUST.	REF.
H	B/H	A	MOUNT HOLE	C1	C2	C3	G	H2
10-3/4"	60-49"	5-5/16"	1	25.7-14.7"	23.1-12.1"	27.4-16.4"	5/8"	28.3"
9-3/4"	60-48"		1	26.7-14.7"	24.1-12.1"	28.4-16.4"		27.3"
8-3/4"	60"		2	26.7"	24.5"	29.4"		27.3"
	59-47"		1	26.7-14.7"	24.1-12.1"	28.4-16.4"		26.3"
7-3/4"	59"		3	26.7"	24.5"	29.4"		27.3"
	60"		2					26.3"
	58-46"		1	26.7-14.7"	24.1-12.1"	28.4-16.4"		25.3"
6-3/4"	60"		4	26.7"	24.5"	29.4"		27.3"
	59"		3					26.3"
	58"		2					25.3"
	57-45"		1	26.7-14.7"	24.1-12.1"	28.4-16.4"		24.3"
5-3/4"	60"		5	26.7"	24.5"	29.4"		27.3"
	59"		4					26.3"
	58"		3					25.3"
	57"		2					24.3"
	56-44"		1	26.7-14.7"	24.1-12.1"	28.4-16.4"		23.3"
4-3/4"	59"		5	26.7"	24.5"	29.4"		26.3"
	58"		4					25.3"
	57"		3					24.3"
	56"		2					23.3"
	55-43"		1	26.7-14.7"	24.1-12.1"	28.4-16.4"		22.3"

**INSTALLATION PARAMETERS
TABLE 16-1**

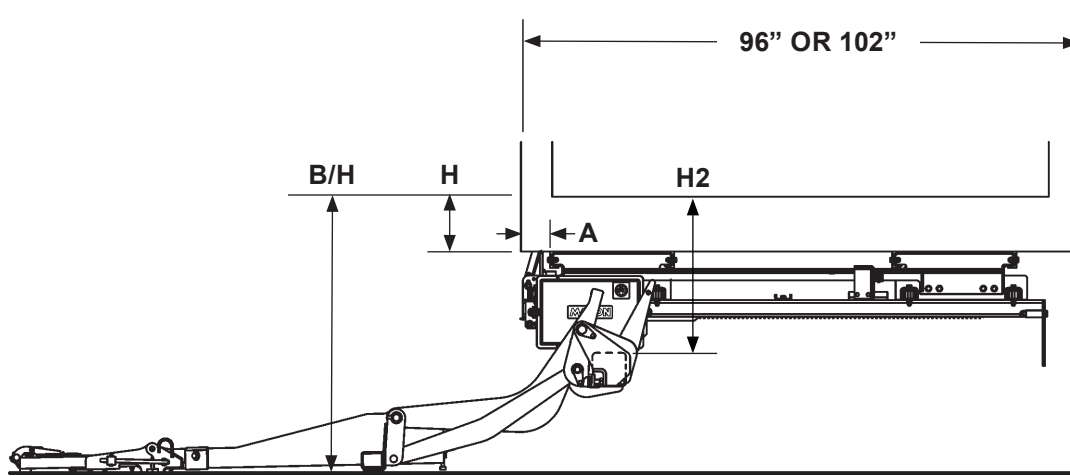


FIG. 17-1

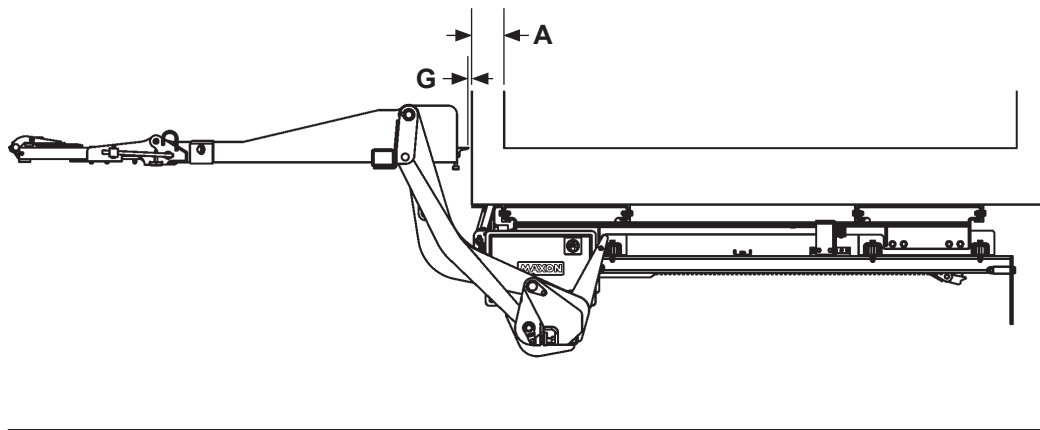


FIG. 17-2

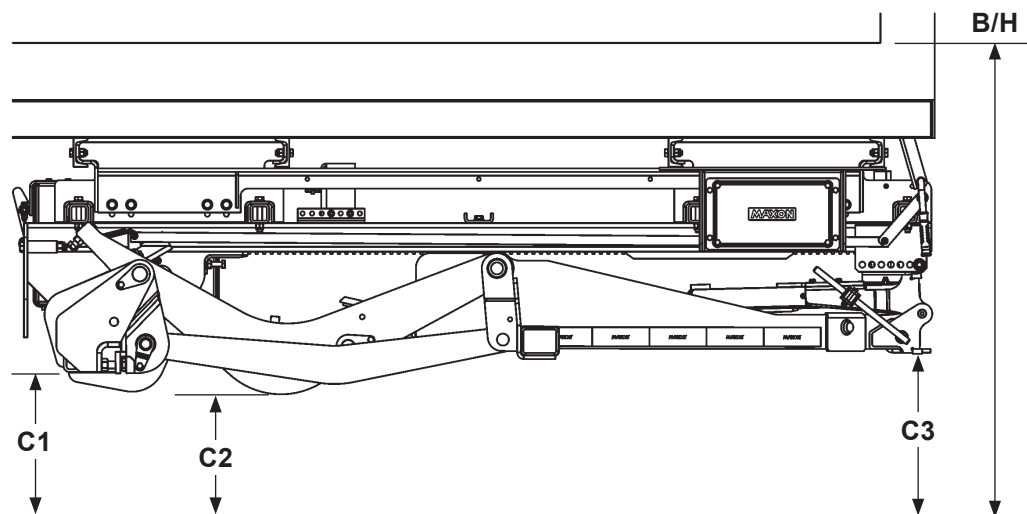
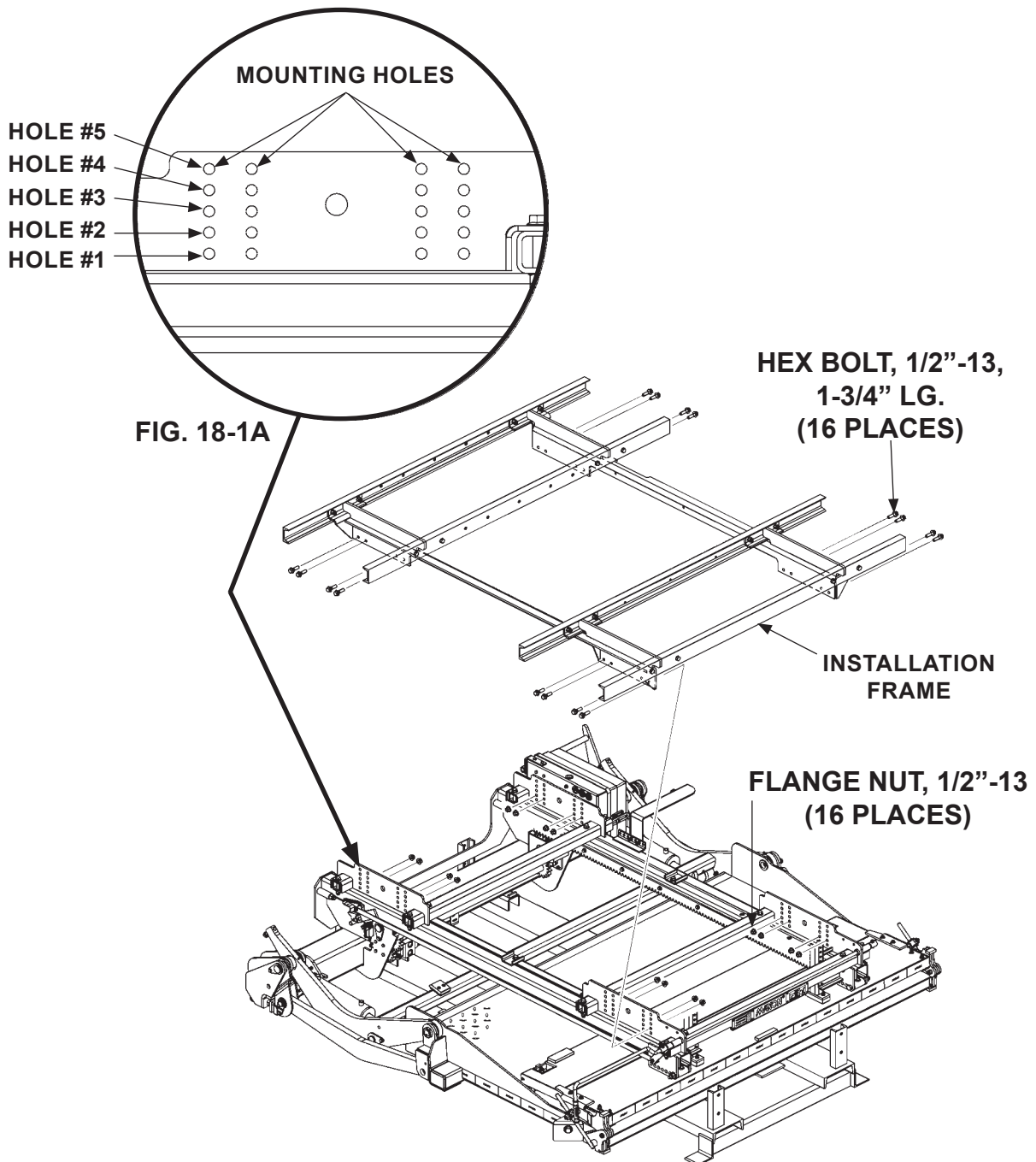


FIG. 17-3

STEP 1 - INITIAL BED HEIGHT ADJUSTMENT

NOTE: Installation frame (4 places) located on both sides of Liftgate.

1. Unbolt and remove installation frame from Liftgate (**FIG. 18-1**). Measure and record trailer floor height ("**BH**"), and floor thickness ("**H**"). Refer to **Table 16-1**.
2. Bolt installation frame to Liftgate (**FIGS. 18-1 and 18-1A**) using mounting holes shown in **Table 16-1**, according to dimensions recorded in **Instruction 1** for "**BH**" and "**H**". Torque mounting bolts to **100 lb-ft**.



ADJUSTING INSTALLATION FRAME BED HEIGHT
FIG. 18-1

STEP 2 - WELD LIFTGATE ON TRAILER

WARNING

Use weld blankets to protect lines and tubes from weld splatter.

WARNING

Welding on galvanized parts gives off especially hazardous fumes. To minimize hazard remove galvanizing from weld area, provide adequate ventilation, and wear suitable respirator.

CAUTION

To avoid personal injury, use at least 2 people to position Liftgate.

NOTE: For installation of this Liftgate, the maximum distance from bottom of trailer cross members to top of trailer floor is 10-1/2" max.

NOTE: Liftgate must be welded to fixed trailer crossmembers that are typically spaced 12" between centers.

NOTE: Ideal installation is for edge of platform to be aligned with door opening (FIGS. 20-2 & 20-2A).

NOTE: Switches, stow mechanism, latch release handle and platform latch may be located on either side of the Liftgate during installation, depending on location of trailer door hinges.

STEP 2 - WELD LIFTGATE ON TRAILER - Continued

1. With forklift, position the Liftgate perpendicular to the side of trailer (**FIGS. 20-1 & 20-1A**), with latch release handle opposite of door hinges (**FIGS. 20-2 & 20-2A**).

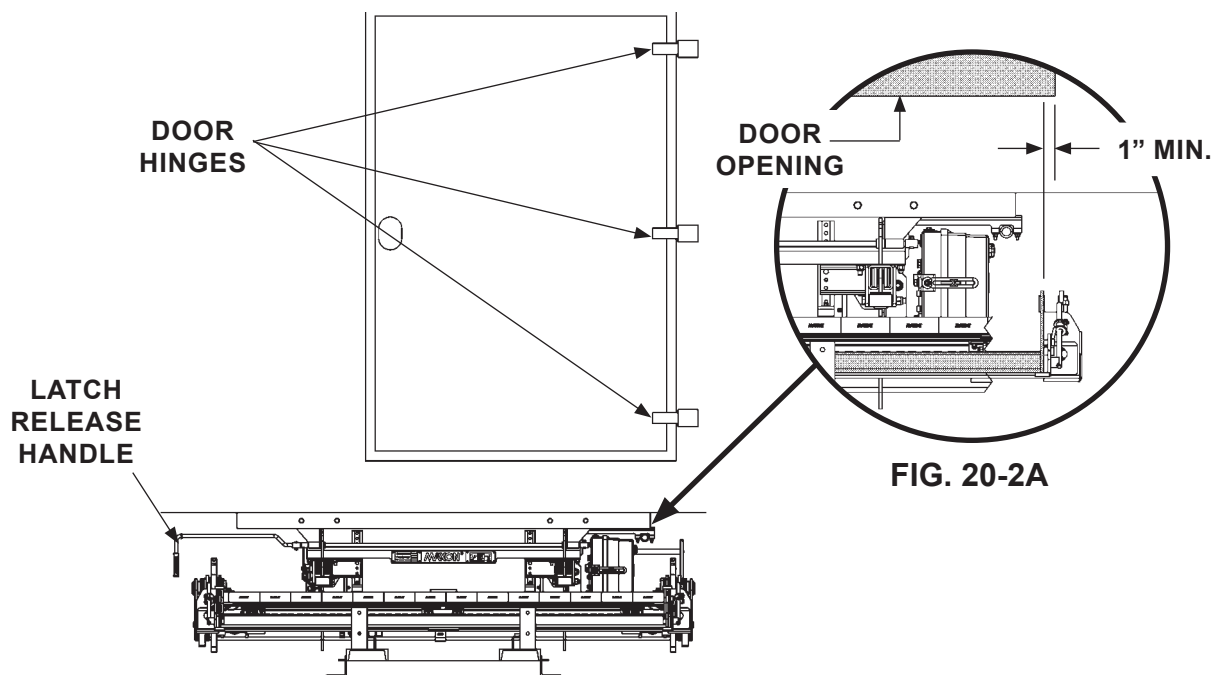
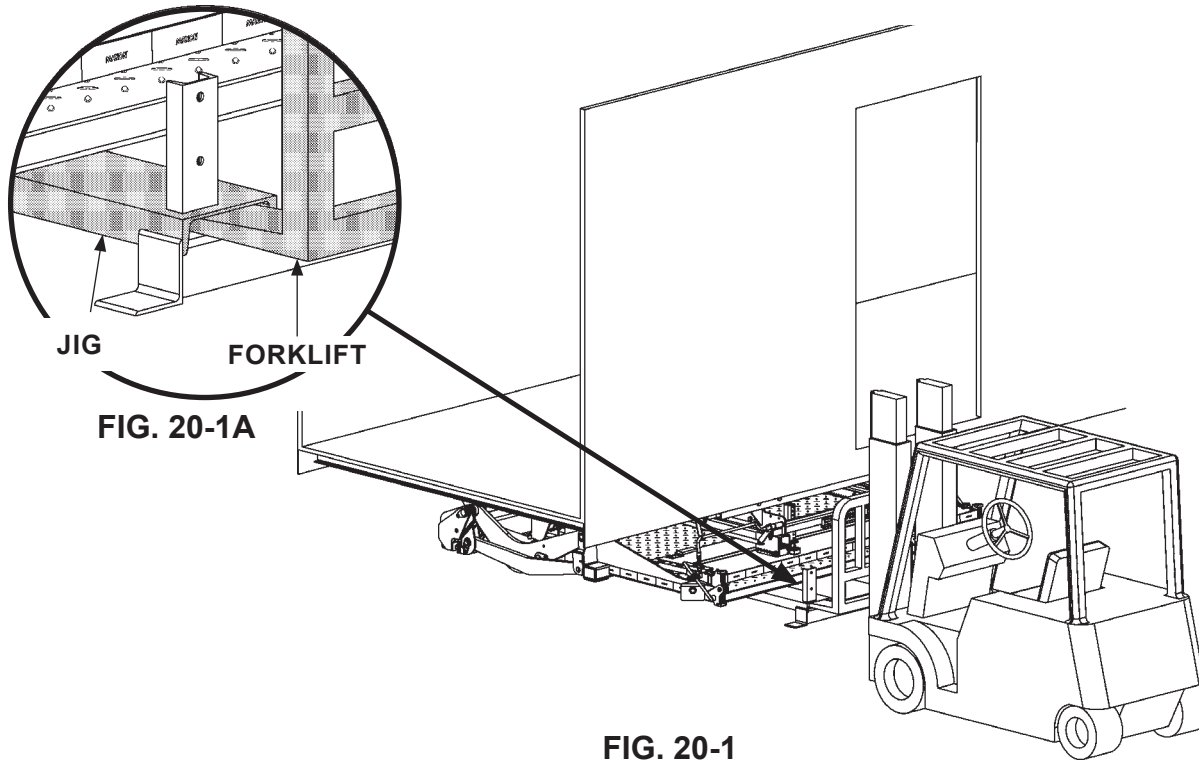
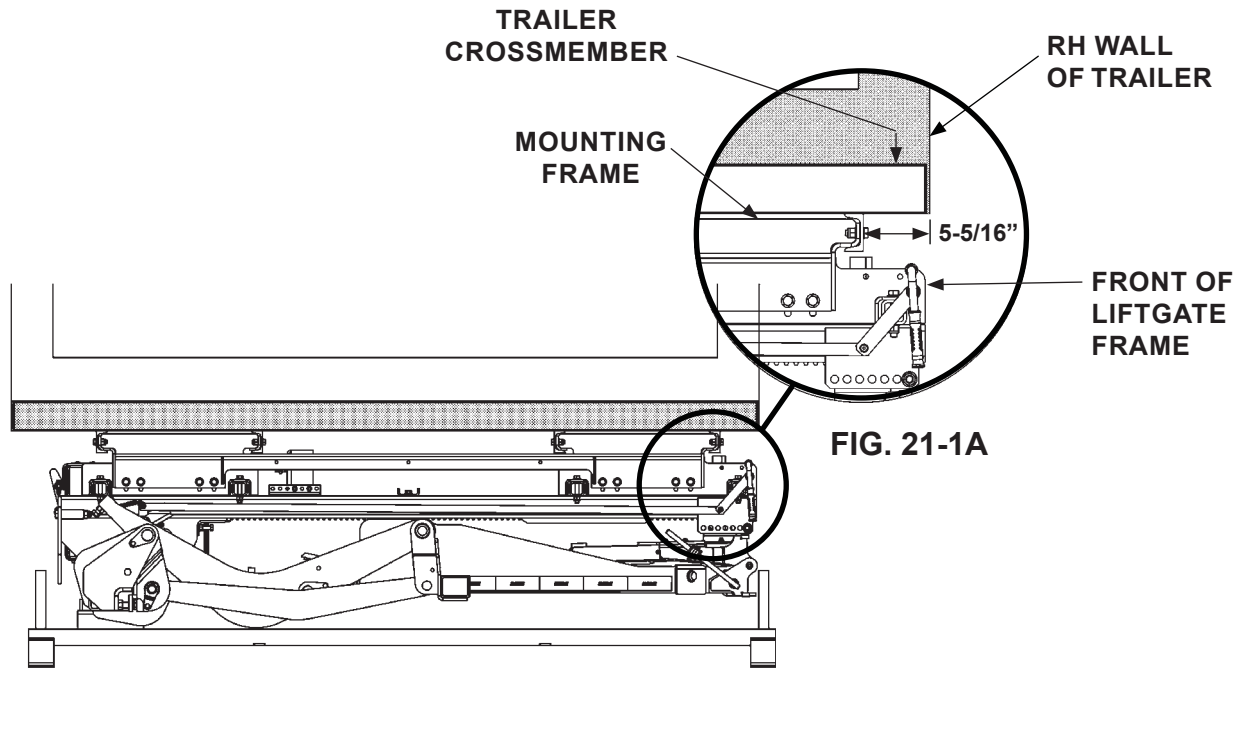


FIG. 20-2

2. Position Liftgate to trailer by butting the installation frame against the bottom of trailer cross members as shown in **FIGS. 21-1 and 21-1A**.



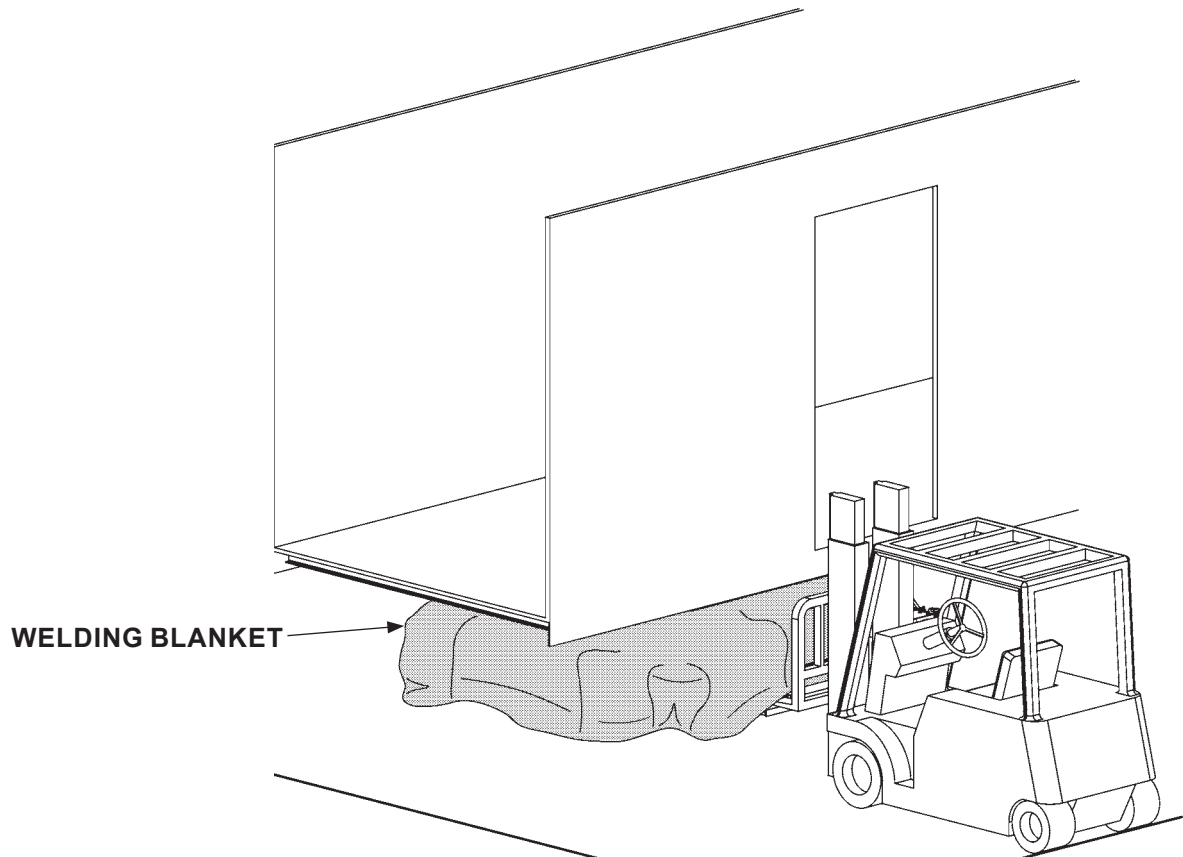
**SIDE VIEW OF LIFTGATE AS SEEN
FROM REAR OF TRAILER
FIG. 21-1**

STEP 2 - WELD LIFTGATE ON TRAILER - Continued

CAUTION

Prevent damage to switches and harness by using a protective cover such as a welding blanket to cover switches and harness.

3. Cover Liftgate with welding blanket (**FIG. 22-1**).

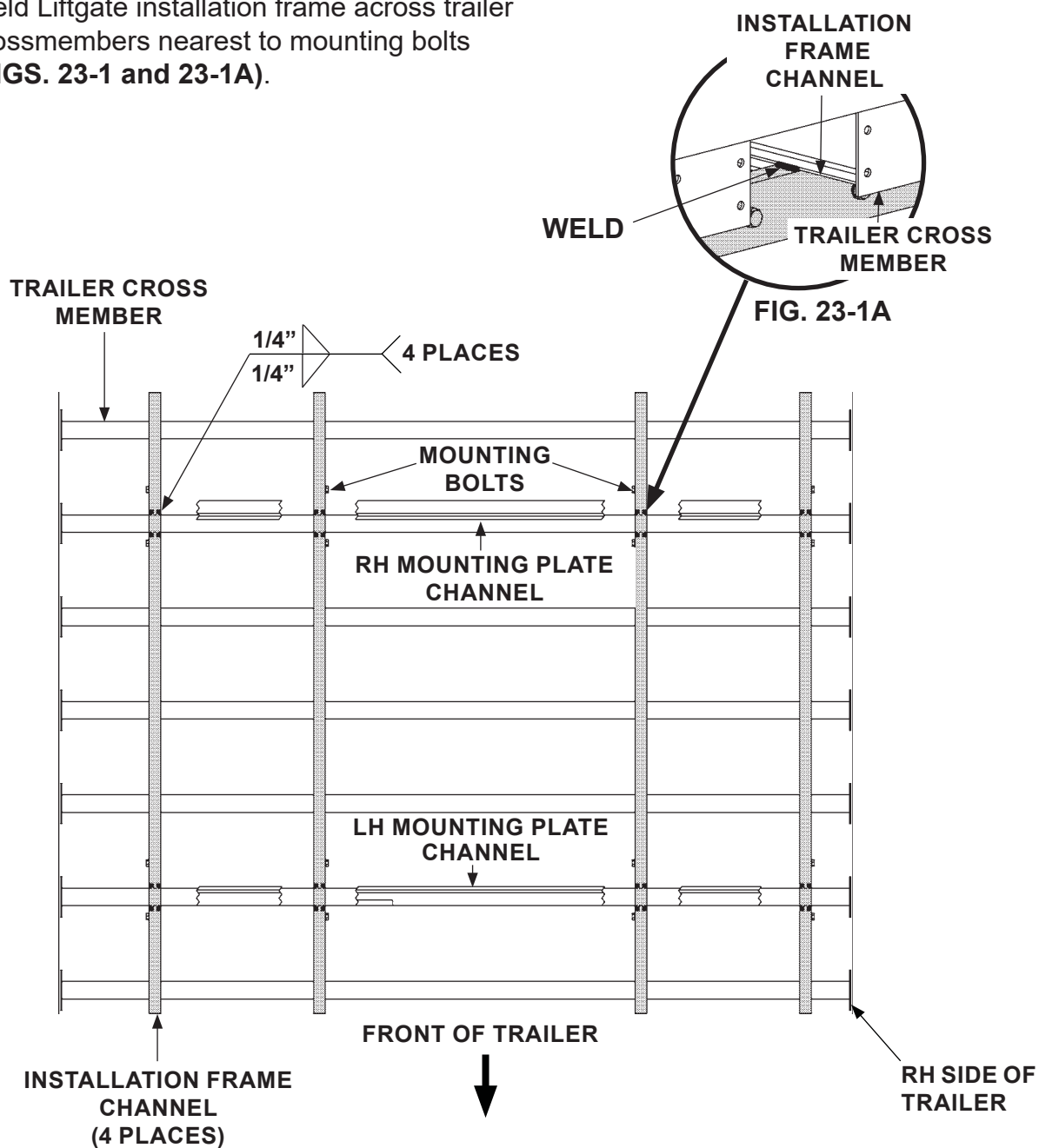


COVERING LIFTGATE WITH WEDLING BLANKET
FIG. 22-1

NOTE: For preferred welding method, refer to instruction **4**. For alternate welding method, refer to instruction **5**. If preferred welding method is not possible, do the alternate method.

PREFERRED WELDING METHOD

4. Weld Liftgate installation frame across trailer crossmembers nearest to mounting bolts (FIGS. 23-1 and 23-1A).

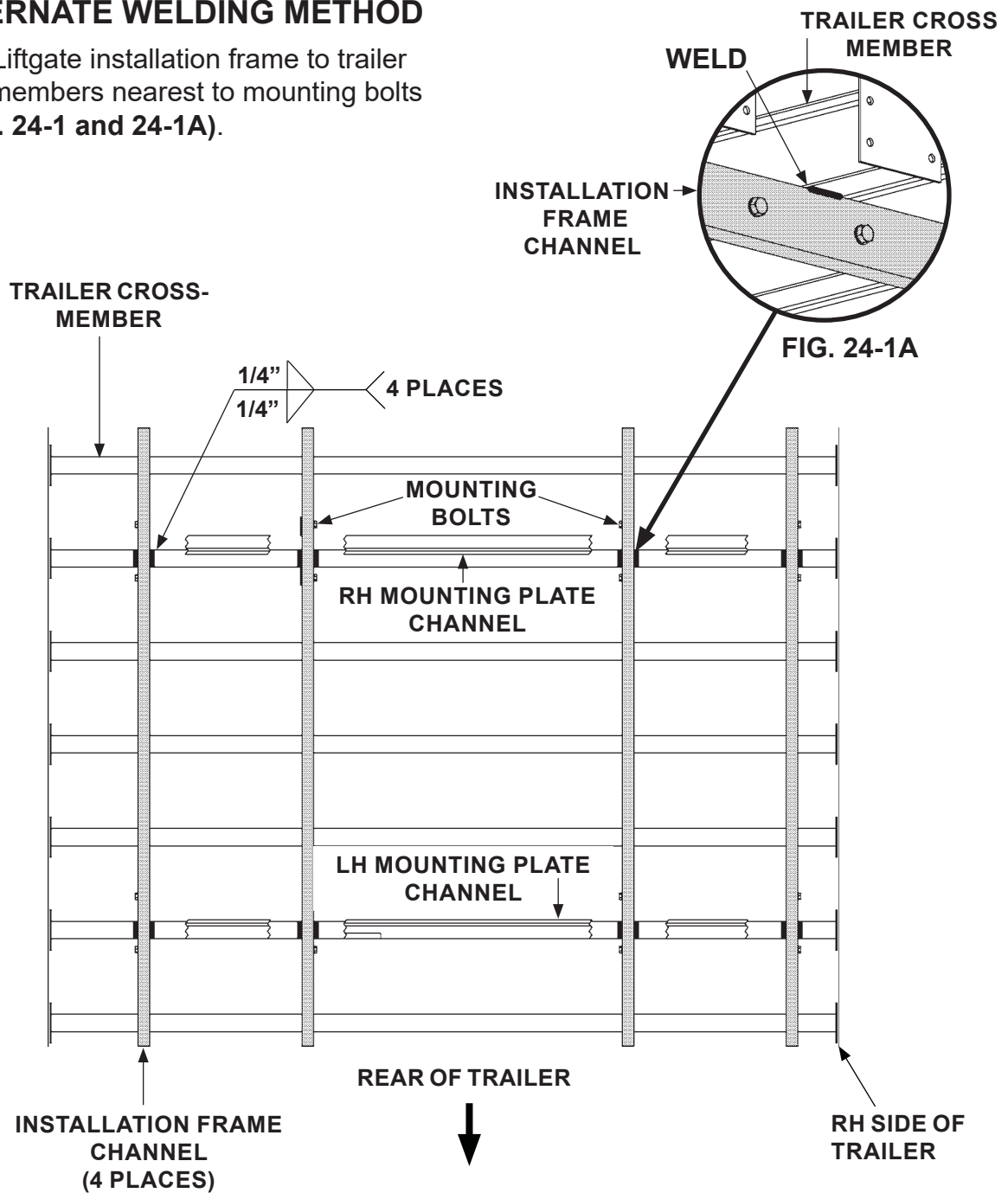


**BOTTOM VIEW OF TRAILER WITH LIFTGATE INSTALLATION
FRAME CHANNELS POSITIONED ON CROSSMEMBERS
(SLIDE ASSEMBLY AND PARTS OF LIFTGATE NOT SHOWN)
FIG. 23-1**

STEP 2 - WELD LIFTGATE ON TRAILER - Continued

ALTERNATE WELDING METHOD

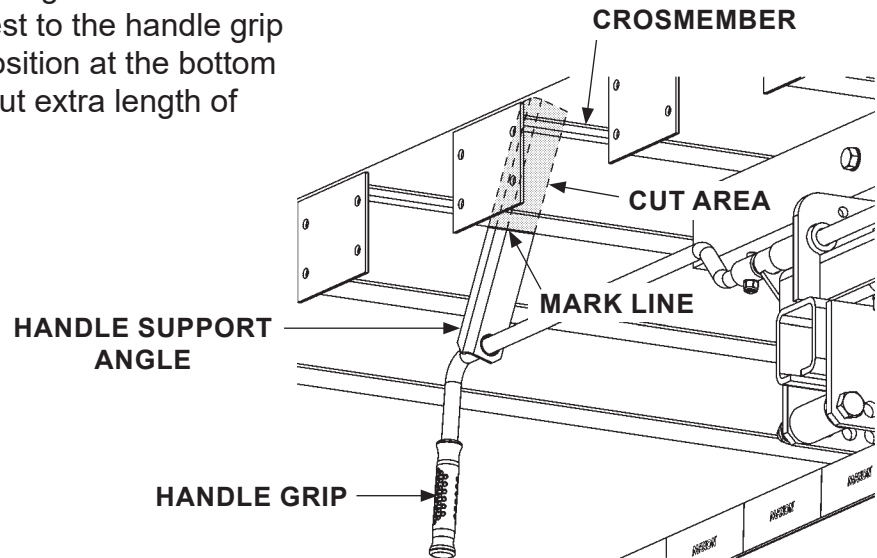
5. Weld Liftgate installation frame to trailer crossmembers nearest to mounting bolts (FIGS. 24-1 and 24-1A).



**BOTTOM VIEW OF TRAILER WITH LIFTGATE INSTALLATION
FRAME CHANNELS POSITIONED ON CROSSMEMBERS
(SLIDE ASSEMBLY AND PARTS OF LIFTGATE NOT SHOWN)
FIG. 24-1**

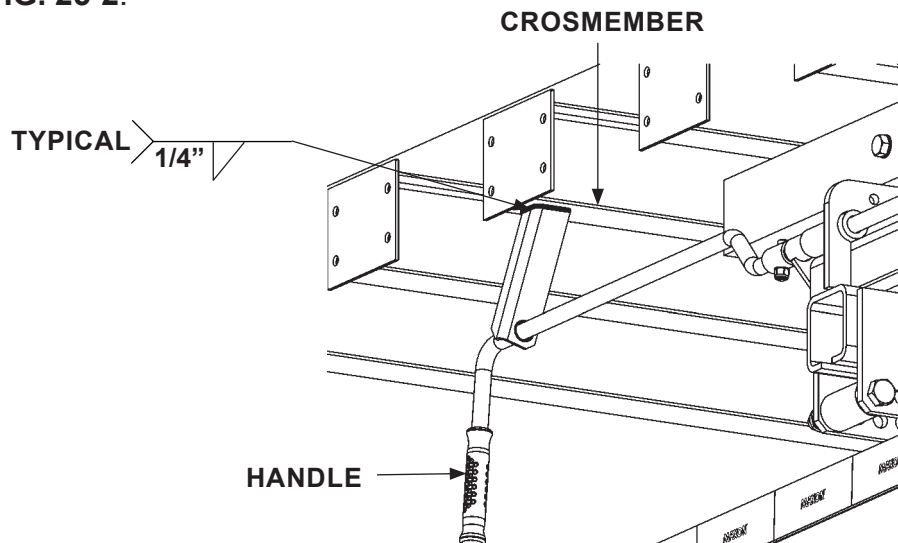
NOTE: If handle support angle fits without extra length, it can be welded to crossmember without cutting.

6. Rotate the handle support angle until it touches the crossmember closest to the handle grip (**FIG. 25-1**). Mark angle position at the bottom of the crossmember and cut extra length of angle (**FIG. 25-1**).



ATTACHING LATCH RELEASE HANDLE SUPPORT ANGLE
FIG. 25-1

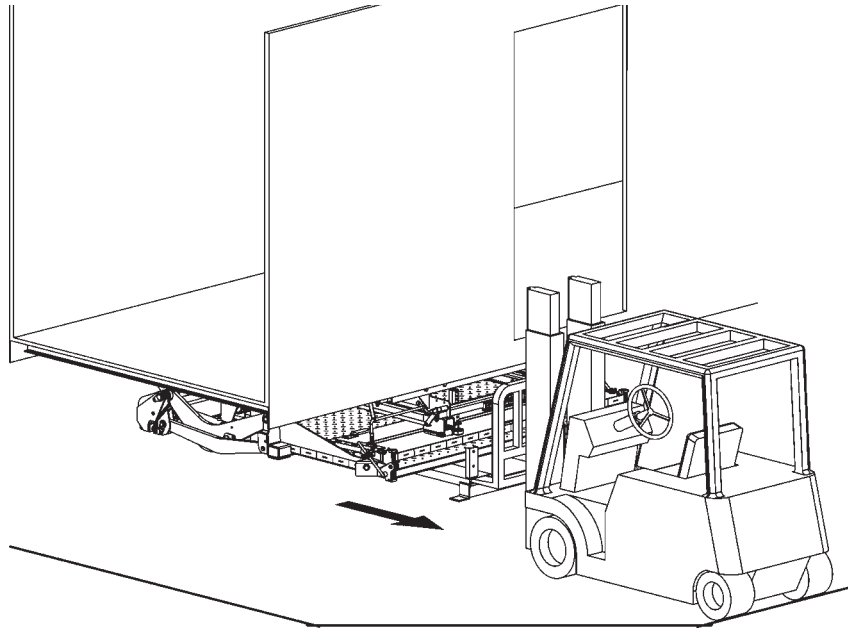
7. Weld handle support angle to crossmember as shown in **FIG. 25-2**.



WELDING SUPPORT ANGLE FOR
LATCH RELEASE HANDLE
FIG. 25-2

STEP 2 - WELD LIFTGATE ON TRAILER - Continued

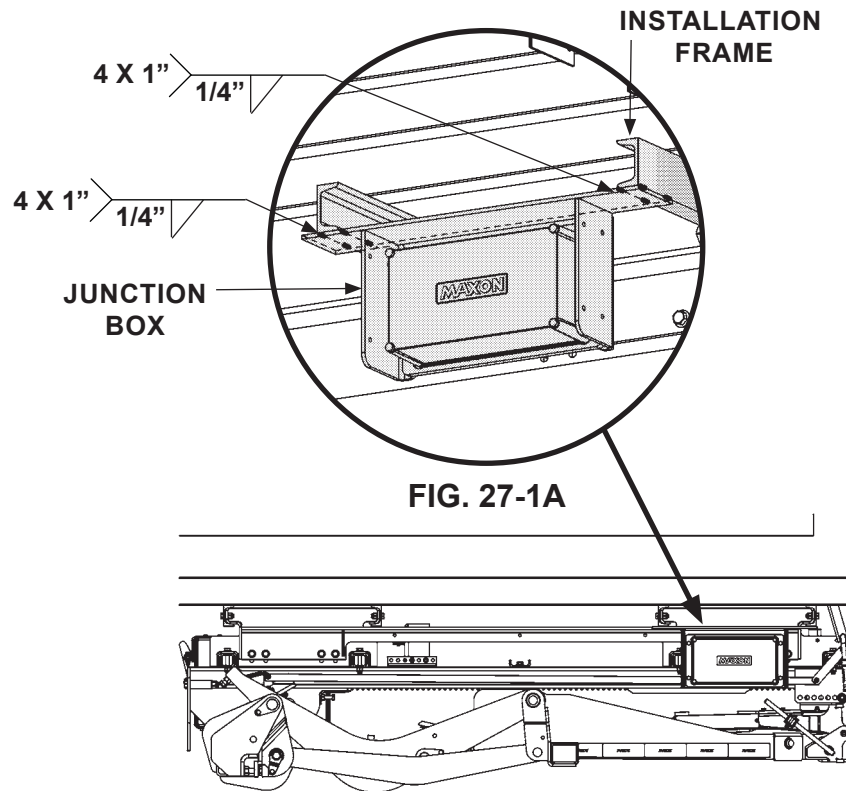
8. Remove jig from Liftgate (**FIG. 26-1**).



**REMOVING JIG
FIG. 26-1**

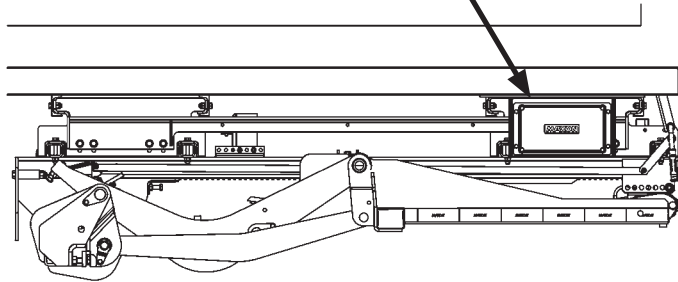
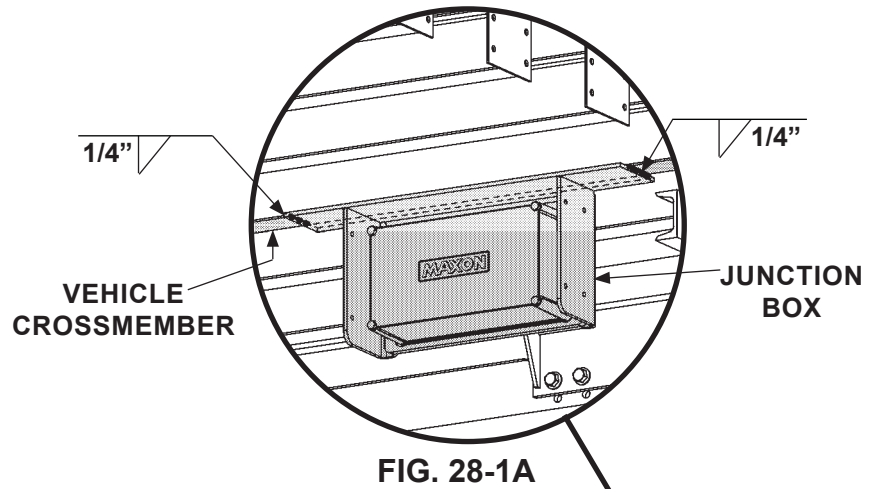
STEP 3 - WELD JUNCTION BOX TO INSTALLATION FRAME

1. For 96" wide platforms, weld junction box to installation frame (**FIGS. 27-1 and 27-1A**). For 60" or 72" wide platforms, weld junction box to vehicle crossmember (**FIGS. 28-1 and 28-1A**).



SIDE VIEW OF LIFTGATE WITH PLATFORM IN
STOWED POSITION (96" WIDE PLATFORM SHOWN)
FIG. 27-1

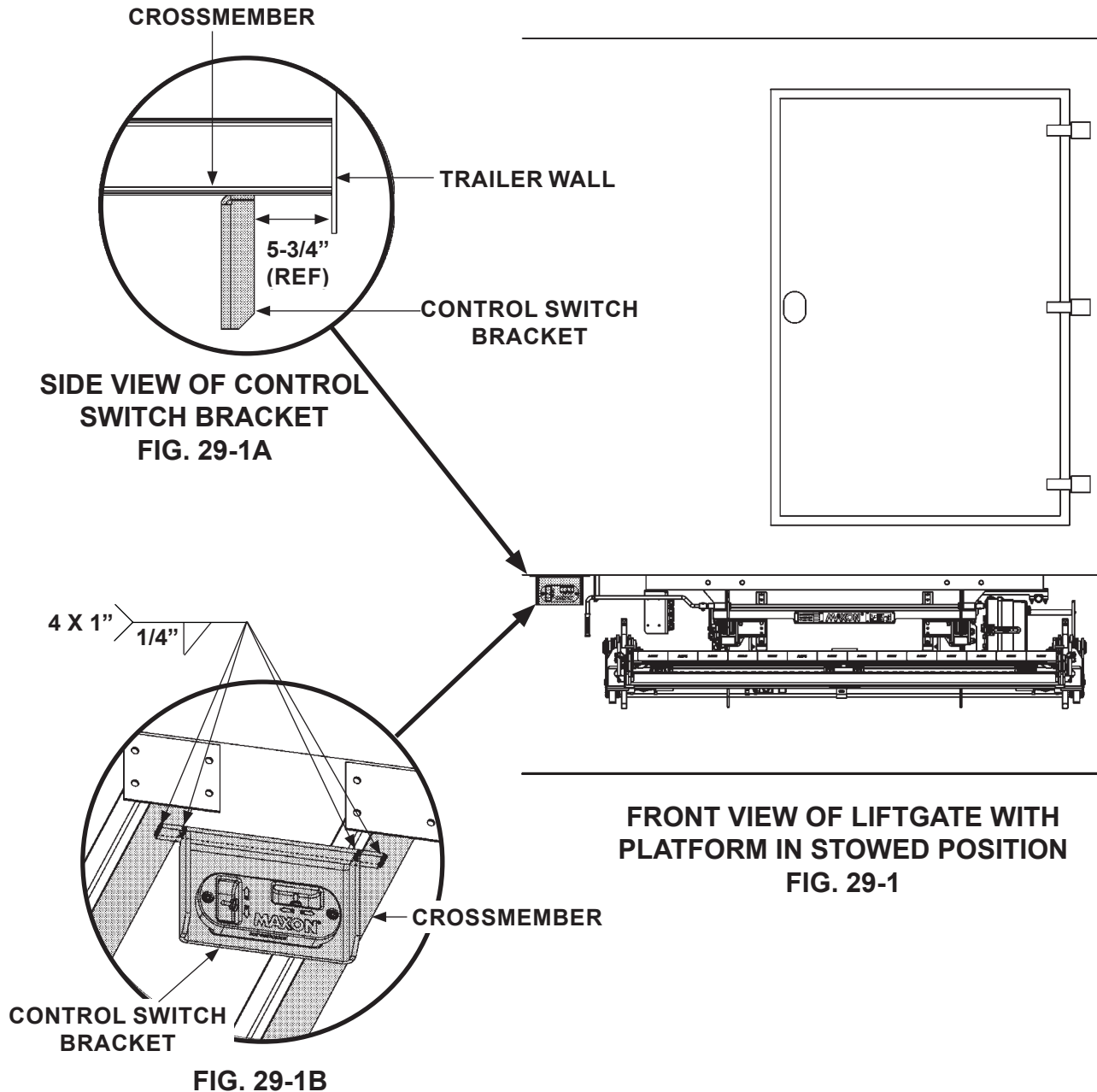
STEP 3 - WELD JUNCTION BOX TO INSTALLATION FRAME - Continued



**SIDE VIEW OF LIFTGATE WITH PLATFORM IN STOWED POSITION
(60" or 72" WIDE PLATFORM SHOWN)
FIG. 28-1**

STEP 4 - WELD CONTROL SWITCH BRACKET TO TRAILER CROSSMEMBERS

1. Weld control switch bracket (Kit item) to crossmembers (FIGS. 29-1, 29-1A, and 29-1B).

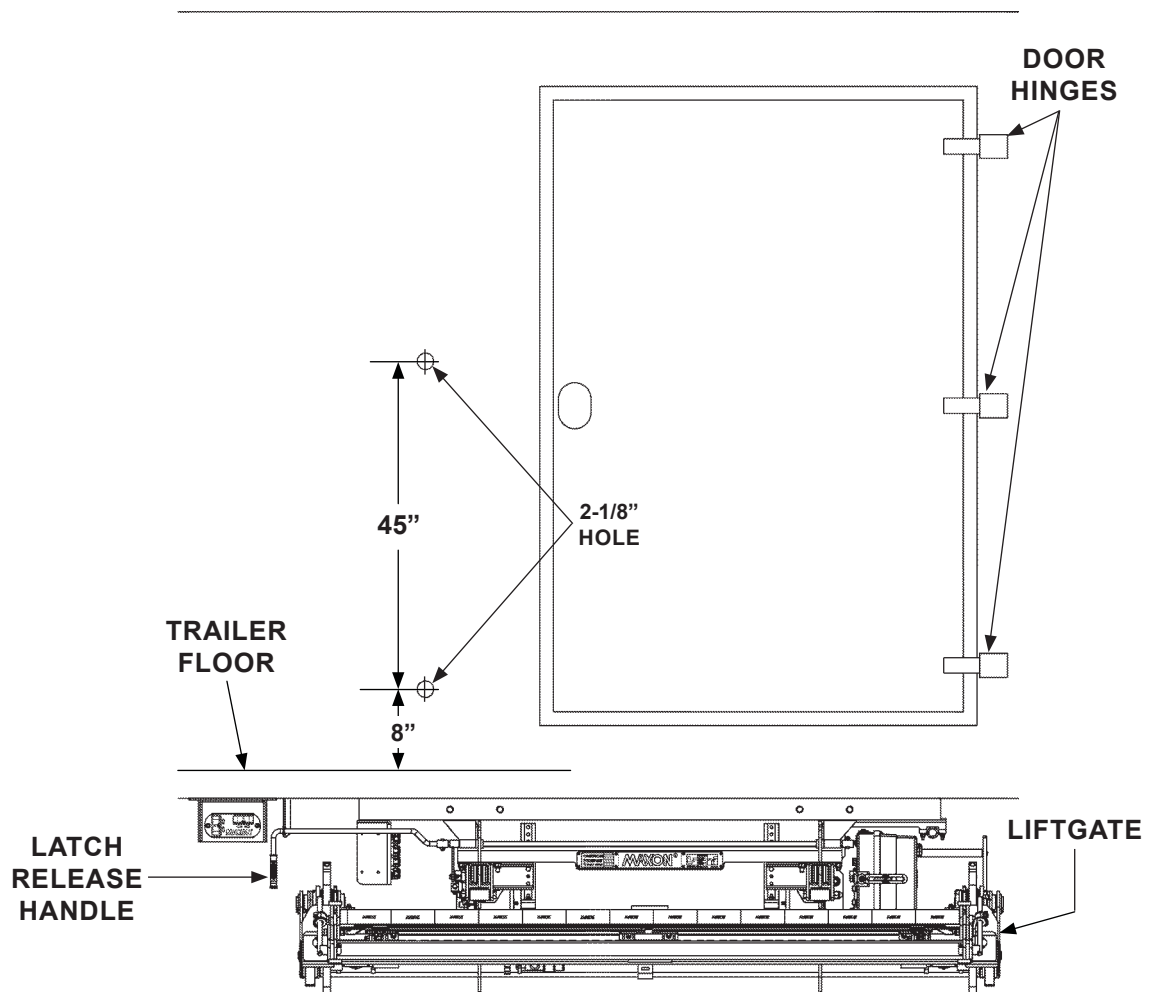


STEP 5 - ATTACH CONTROL SWITCHES TO TRAILER

NOTE: Wall switches, control switches, latch release handle, latch and proximity sensor may be located on either side of the Liftgate during installation, depending on location of trailer door hinges. Components can be located on LH side of Liftgate as shown in **FIG. 30-1**, or repositioned to the RH side of side door.

NOTE: Mount control switches on outside wall opposite hinges and on same side as latch release handle.

1. Measure, mark, and drill 2-1/8" hole, in 2 places, on the trailer side wall as shown in **FIG. 30-1**.



**MARKING AND DRILLING HOLES FOR
WALL-MOUNTED SWITCHES
(LH SWITCH MOUNTING SHOWN)**

FIG. 30-1

2. Fasten wall switches to trailer wall with self drilling screws as shown in **FIGS. 31-1 and 31-1A**.

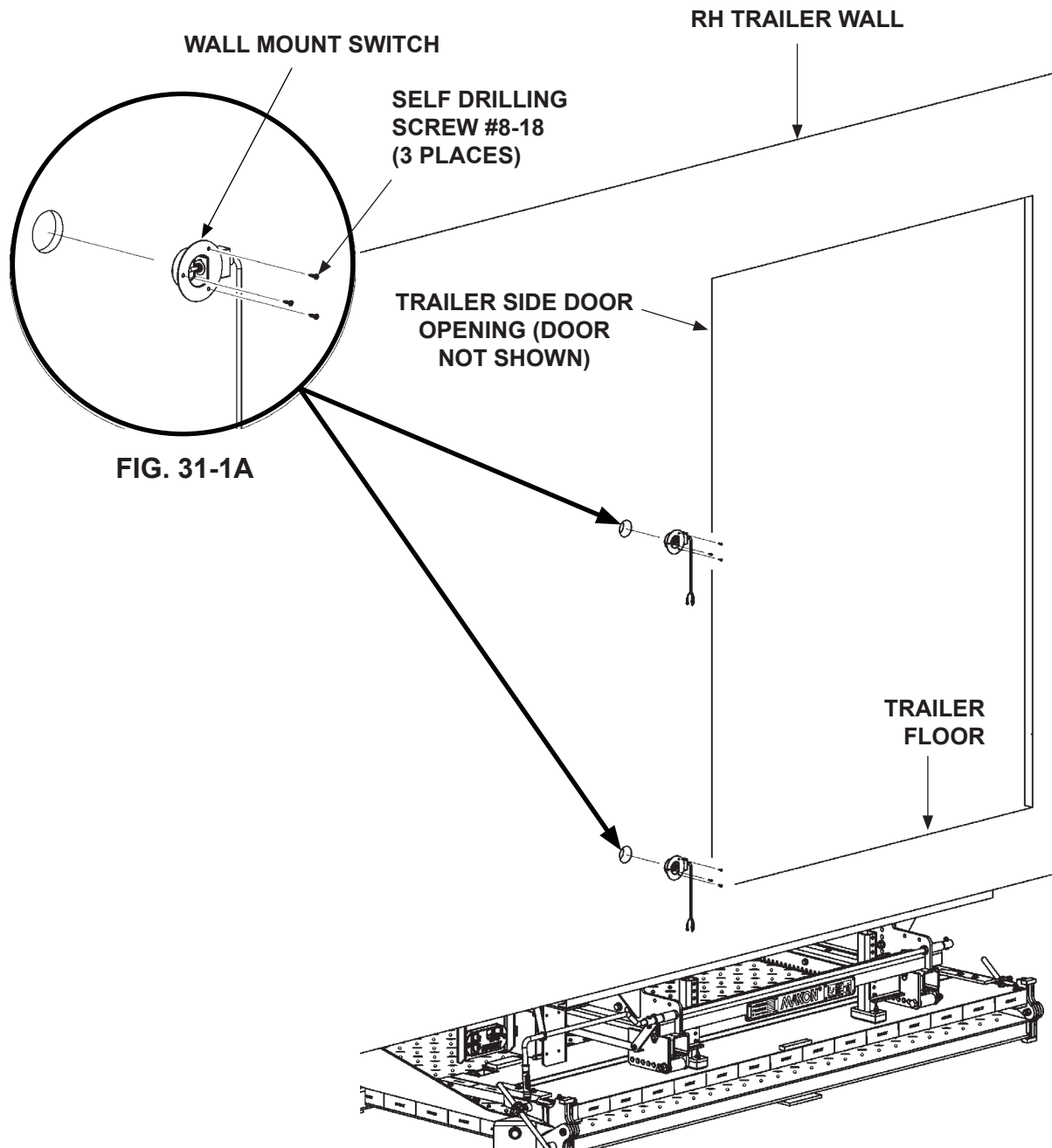
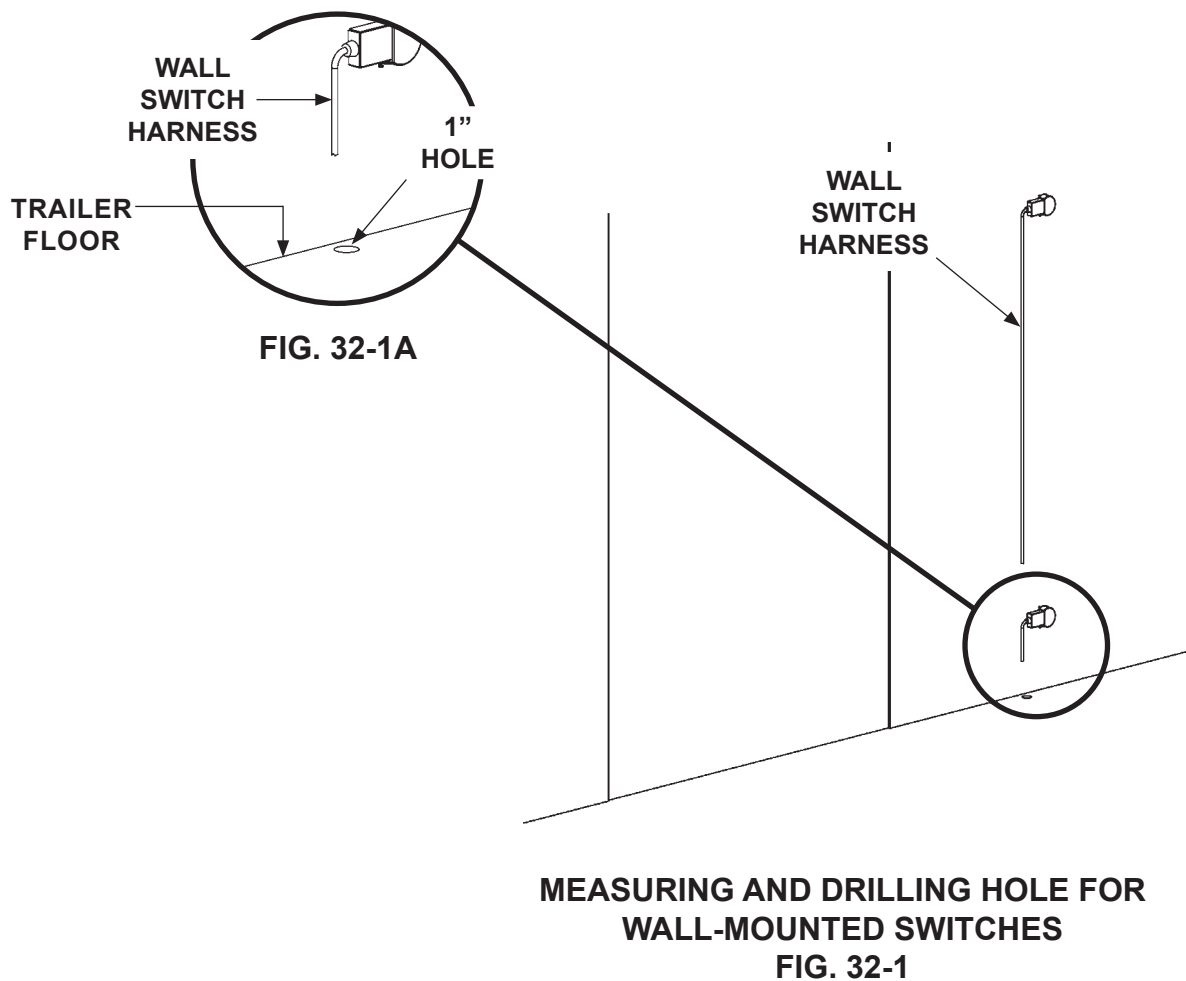


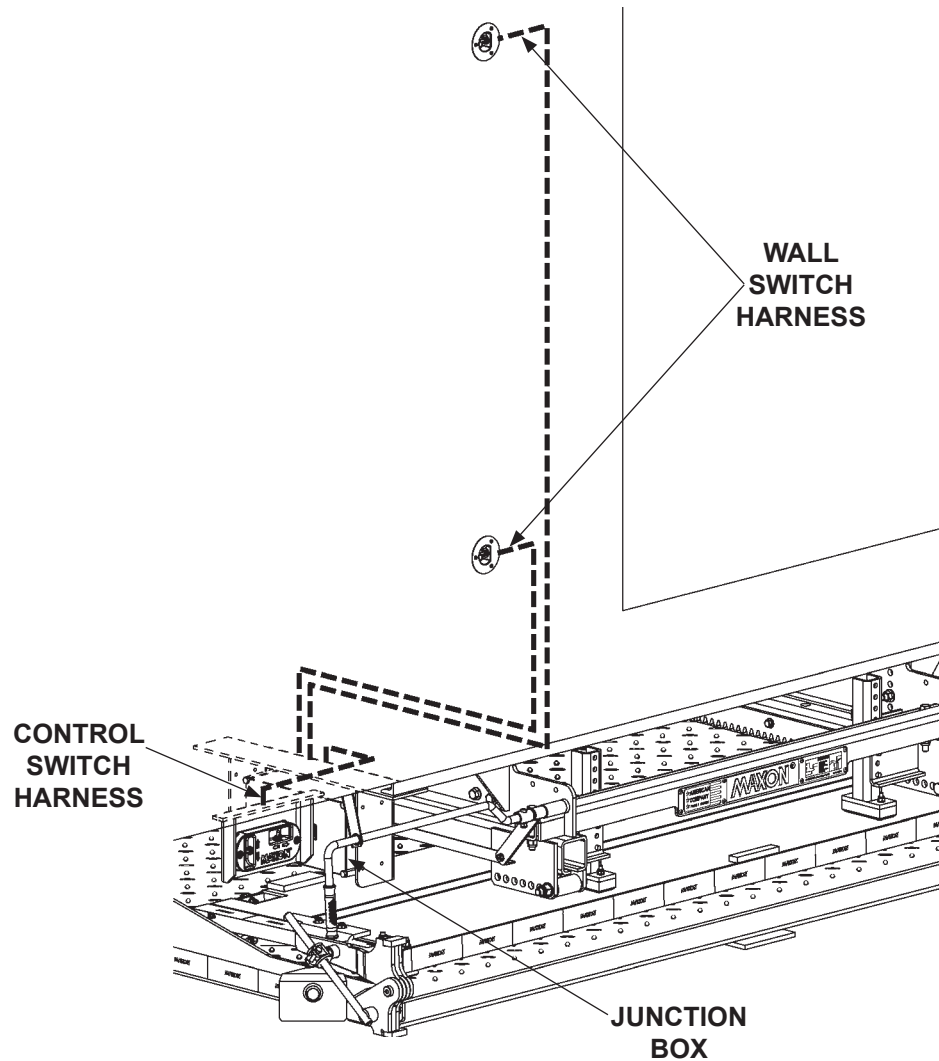
FIG. 31-1

STEP 5 - ATTACH CONTROL SWITCHES TO TRAILER - Continued

3. Mark and drill 1" hole through vehicle floor as shown in **FIGS. 32-1 and 32-1A**.



4. Route wall switch harnesses through hole as shown in **FIG. 33-1**.

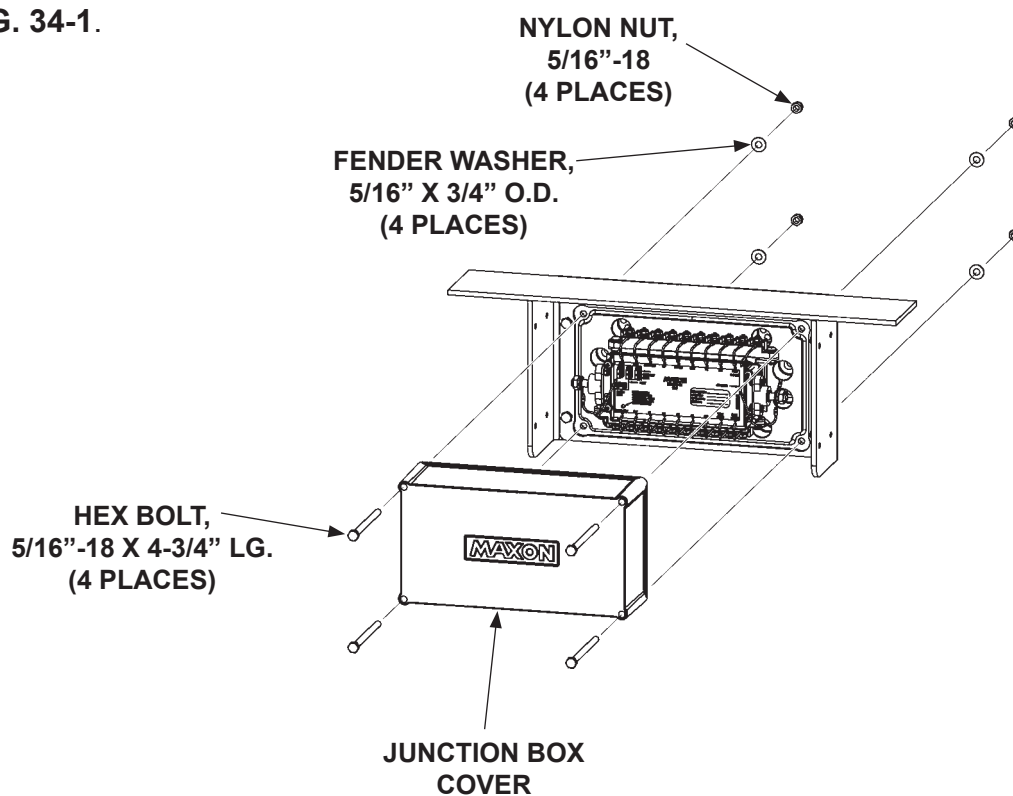


CONTROL SWITCH & WALL SWITCH HARNESSES ROUTING
FIG. 33-1

5. Route control switch harness and wall switch harnesses to liftgate-mounted junction box (**FIG. 33-1**).

STEP 5 - ATTACH CONTROL SWITCHES TO TRAILER - Continued

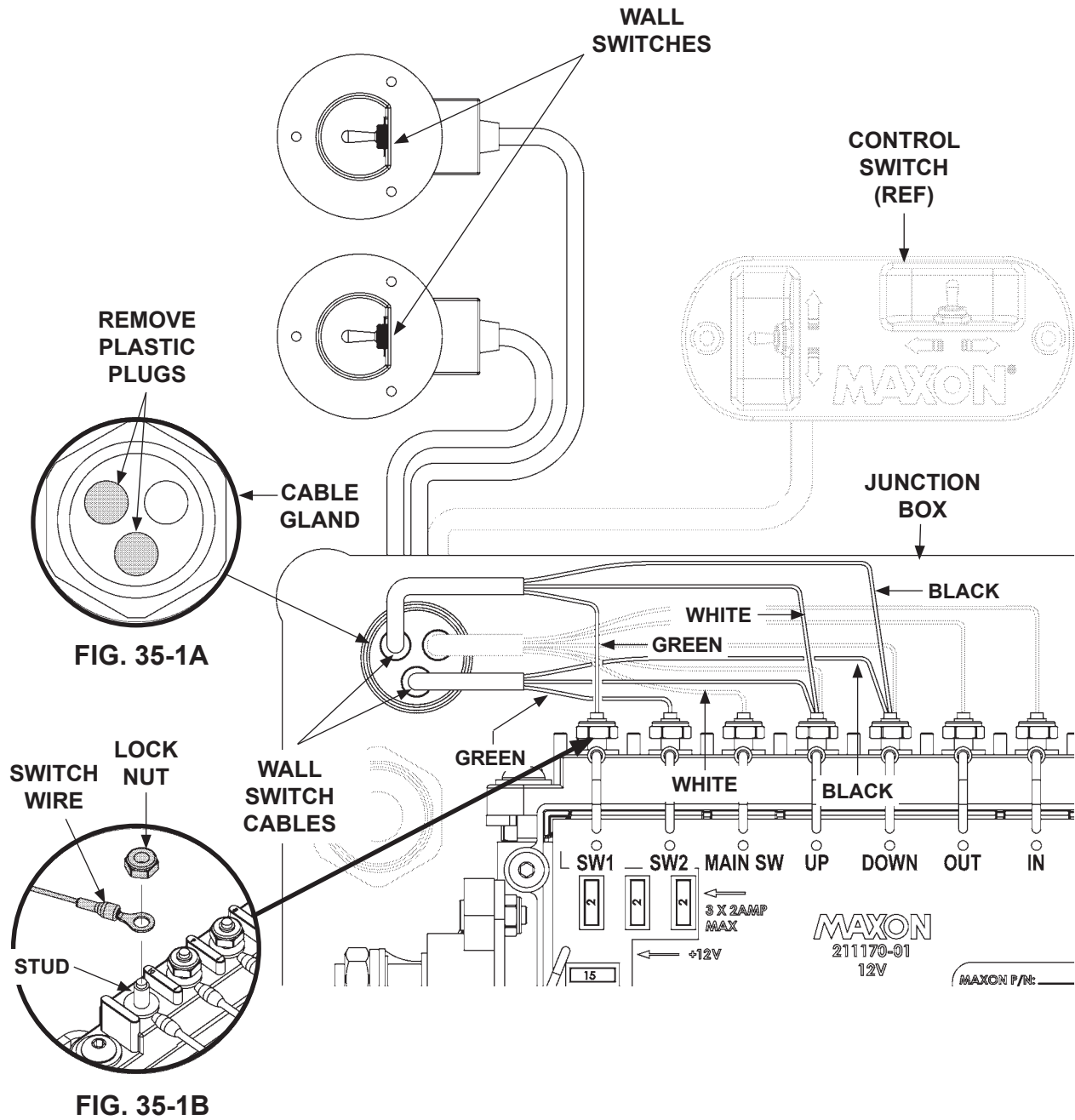
6. Remove junction box cover as shown in **FIG. 34-1**.



REMOVING JUNCTION BOX COVER
FIG. 34-1

NOTE: After assembly, MAXON recommends to seal all connections with NCP-2 corrosion preventive sealer from NOCO or equivalent.

7. Knock out two plastic plugs from the cable gland as shown in **FIG. 35-1A**. Next, connect wall switches (Kit items) to junction box as shown in **FIGS. 35-1 and 35-1B**.



WALL SWITCH HARNESS CONNECTIONS AT JUNCTION BOX
FIG. 35-1

STEP 6 - RUN POWER CABLE

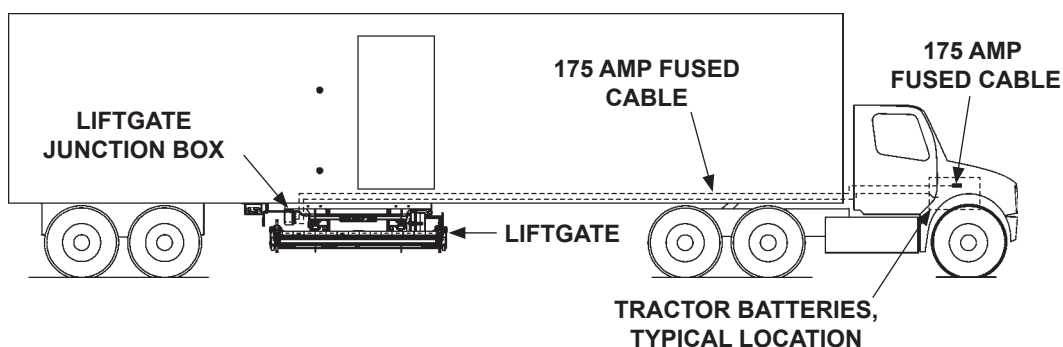
⚠ CAUTION

Never route an energized wire. Make sure the vehicle battery is disconnected. Always route electrical wires clear of moving parts, brake lines, sharp edges and exhaust systems. Avoid making sharp bends in wiring. Attach securely. If drilling is necessary, first check behind the drilling surface so you do not damage any fuel lines, vent lines, brake lines or wires.

NOTE: Make sure the Liftgate power unit, and all batteries on the vehicle for the power unit, are connected correctly to a common chassis ground.

RECOMMENDED CONFIGURATION

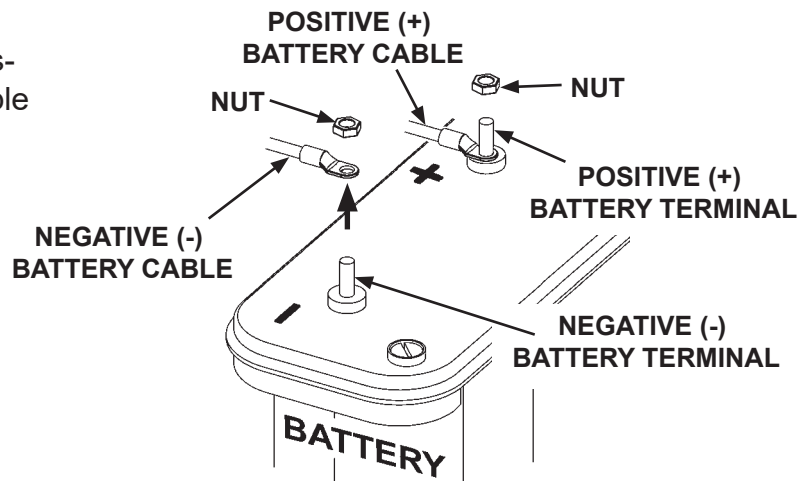
1. Liftgate powered from tractor batteries is typically installed on trailers as shown in **FIG. 36-1**.



RUNNING POWER AND GROUND CABLES TO JUNCTION BOX
FIG. 36-1

2. Position fuse-end of red (+) cable with fuse nearest the tractor batteries, as shown in **FIG. 36-1**. Run black (-) cable from tractor batteries, as shown in **FIG. 36-1**. Keep enough cable near batteries to reach the positive (+) and (-) terminals without straining cables (after connection). Connect cables from battery to junction box. Secure power cable to vehicle chassis.

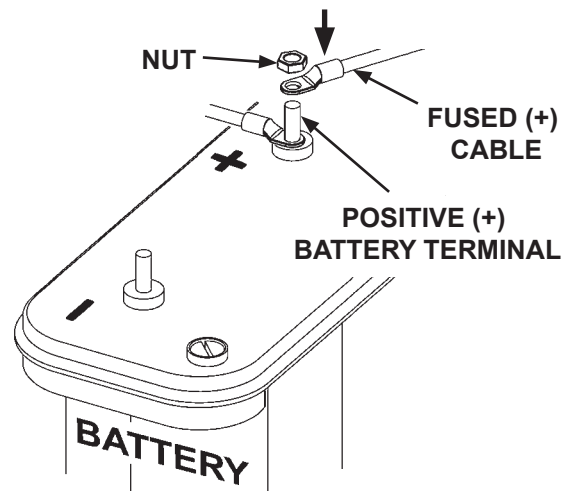
3. Remove nut from negative (-) battery terminal (**FIG. 37-1**). Disconnect negative (-) battery cable (**FIG. 37-1**).



**DISCONNECTING (-) BATTERY CABLE
FIG. 37-1**

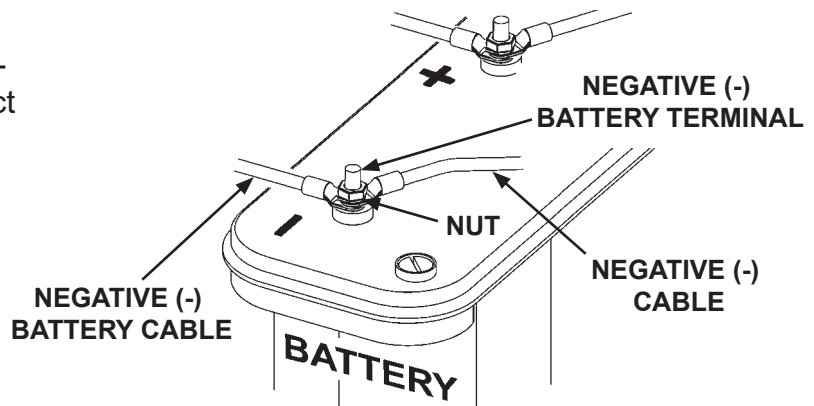
4. Remove nut from positive (+) battery terminal (**FIG. 37-1**).

5. Connect fused positive (+) cable to positive (+) battery terminal (**FIG. 37-2**). Then, reinstall nut on positive (+) battery terminal (**FIG. 37-2**).



**CONNECTING FUSED (+) CABLE
FIG. 37-2**

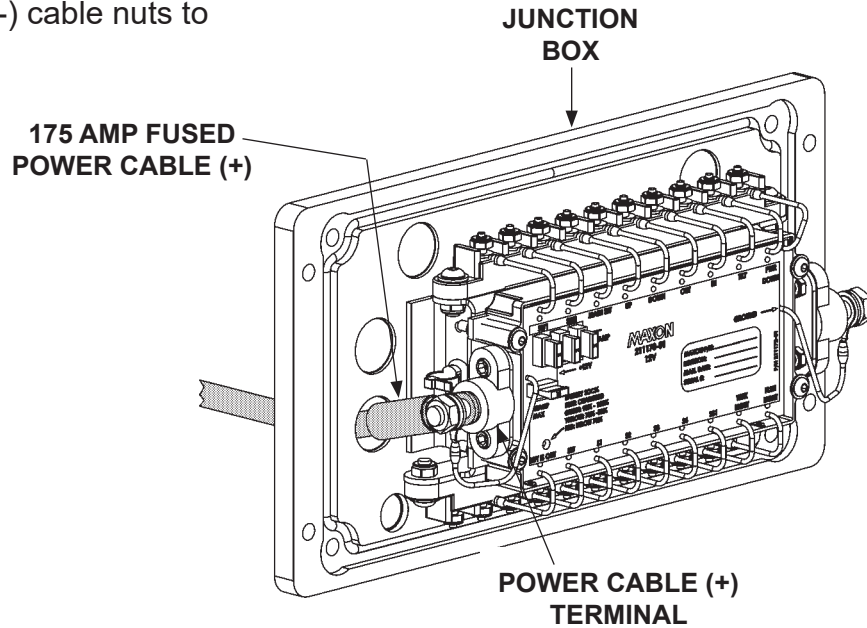
6. Reconnect negative (-) battery cable to negative (-) battery terminal (**FIG. 37-3**). Next, connect negative (-) cable to negative (-) battery terminal (**FIG. 37-3**). Then, reinstall nut on negative (-) battery terminal (**FIG. 37-3**).



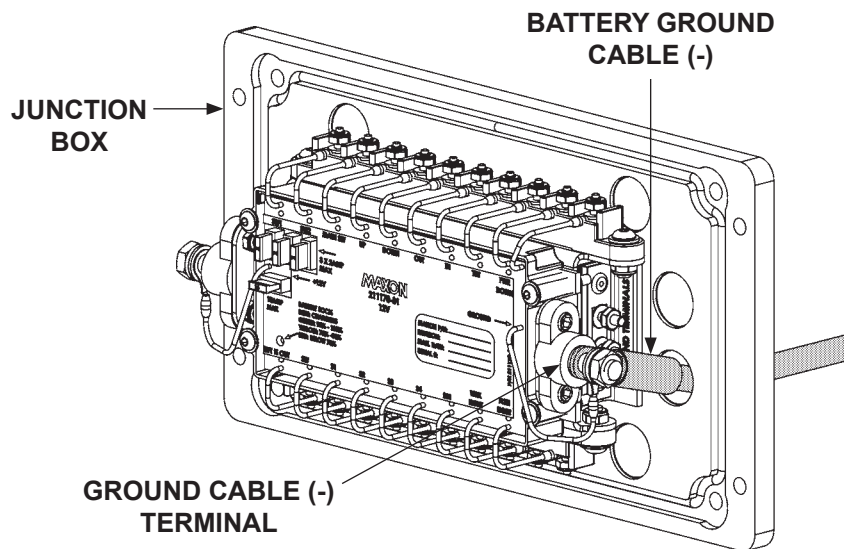
**RECONNECTED BATTERY CABLES
FIG. 37-3**

STEP 7 - CONNECT POWER & GROUND CABLES TO JUNCTION BOX

Connect power (+) and ground (-) cables from vehicle battery to junction box as shown in **FIGS. 38-1 and 38-2**. Torque power (+) and ground (-) cable nuts to **20 lb-ft.**



**CONNECTING FUSED BATTERY POWER CABLE (+)
AT JUNCTION BOX
FIG. 38-1**

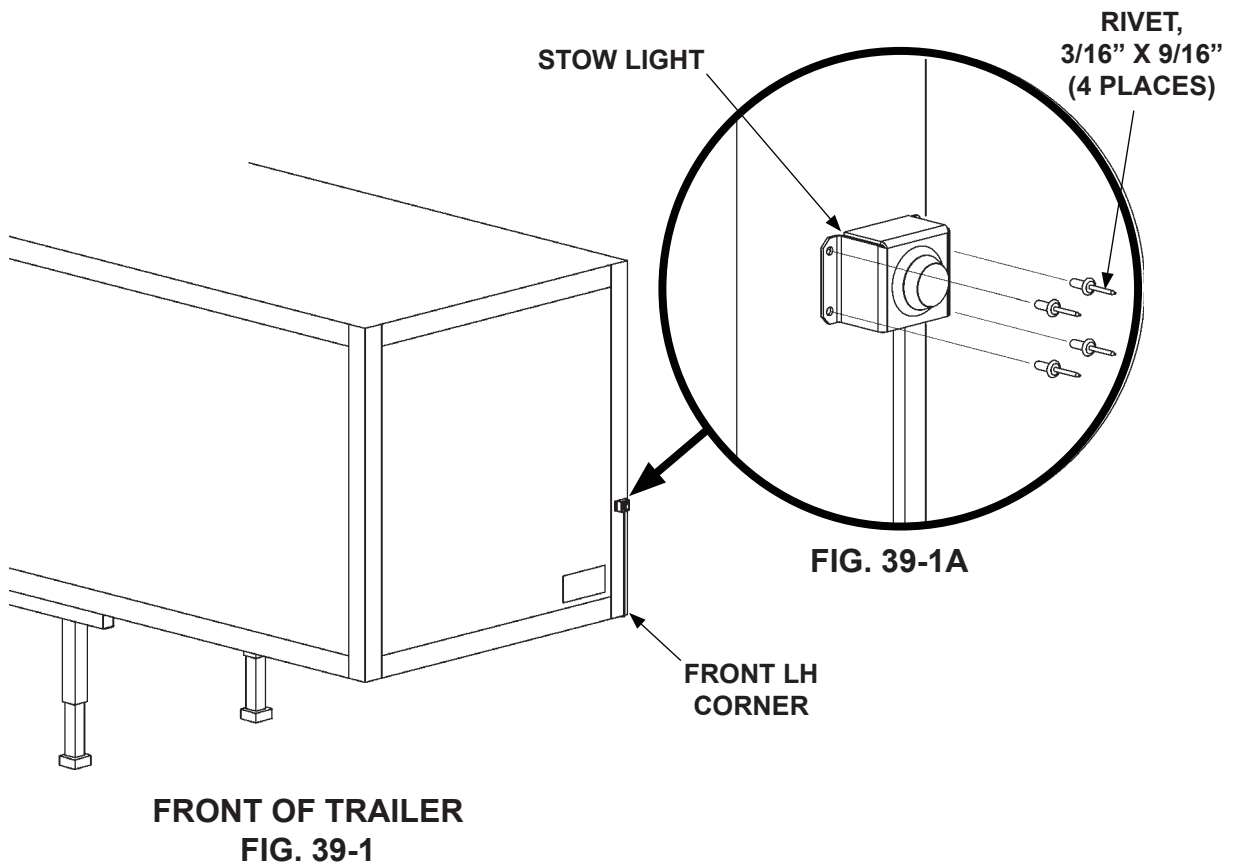


**CONNECTING BATTERY GROUND CABLE (-)
AT JUNCTION BOX
FIG. 38-2**

STEP 8 - ATTACH STOW LIGHT TO TRAILER

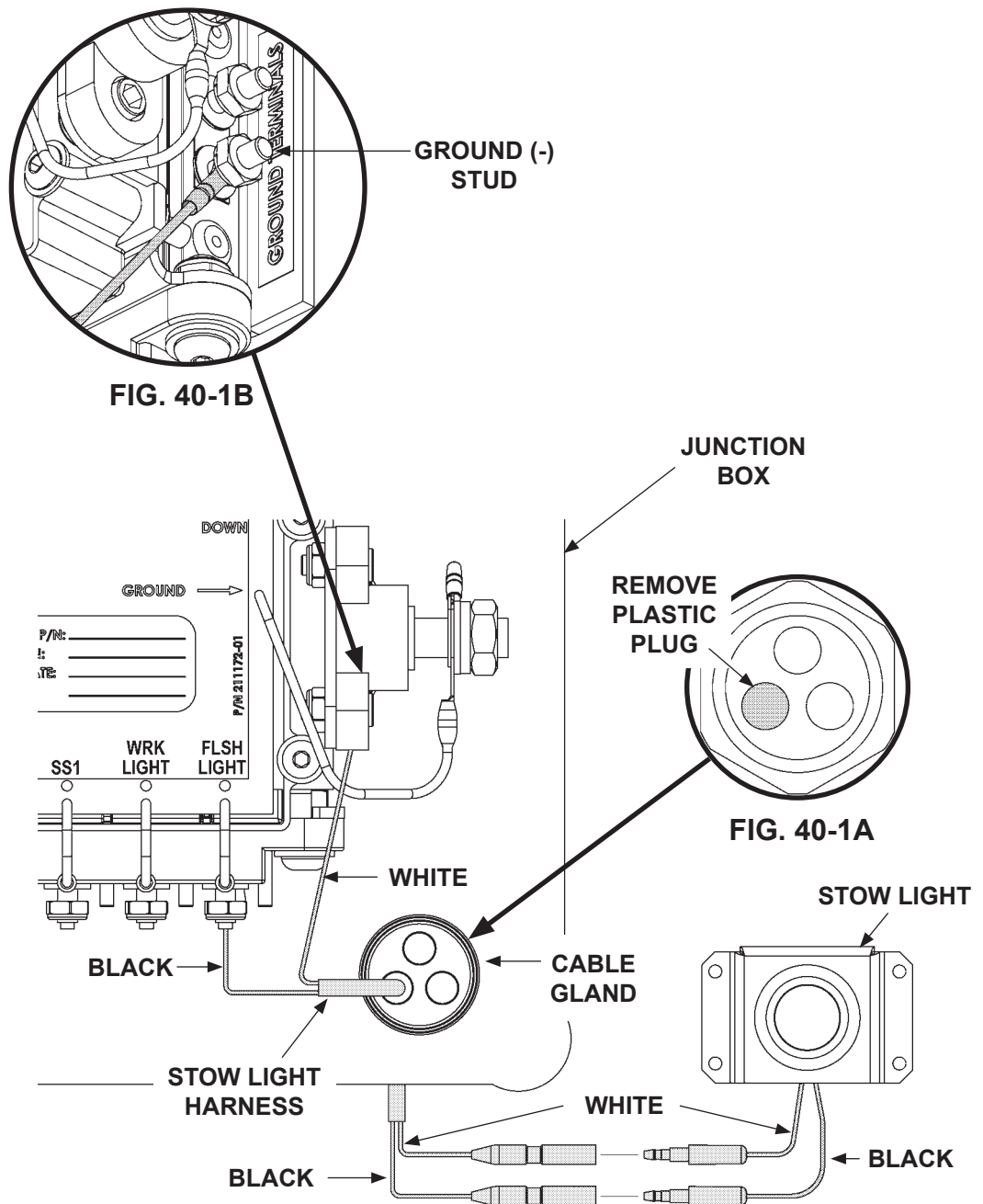
NOTE: Stow light will warn vehicle driver if the Liftgate is not stowed. Light must be positioned so the driver can see the light from the LH sideview mirror.

1. Position stow light on trailer as shown in **FIGS. 39-1 and 39-1A**. Fasten stow light on front LH corner of trailer with rivets (Kit items) (**FIG. 39-1A**).



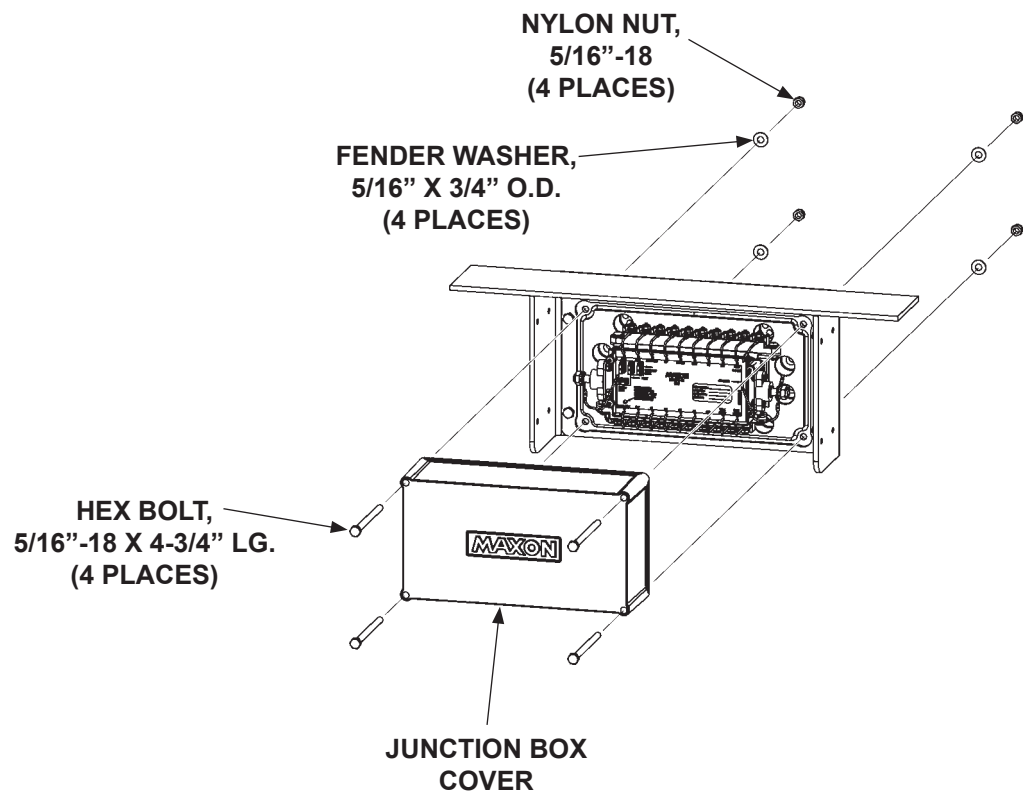
STEP 8 - ATTACH STOW LIGHT TO TRAILER - Continued

- Knock out plastic plug from the cable gland as shown in **FIG. 40-1A**. Connect stow light to stow light harness at Junction Box as shown in **FIGS. 40-1 and 40-1B**.



**STOW WARNING LIGHT CONNECTIONS AT JUNCTION BOX
FIG. 40-1**

3. Replace junction box cover as shown in **FIG. 41-1**. Torque bolts to **18 - 20 lb-ft**.



ATTACHING JUNCTION BOX COVER
FIG. 41-1

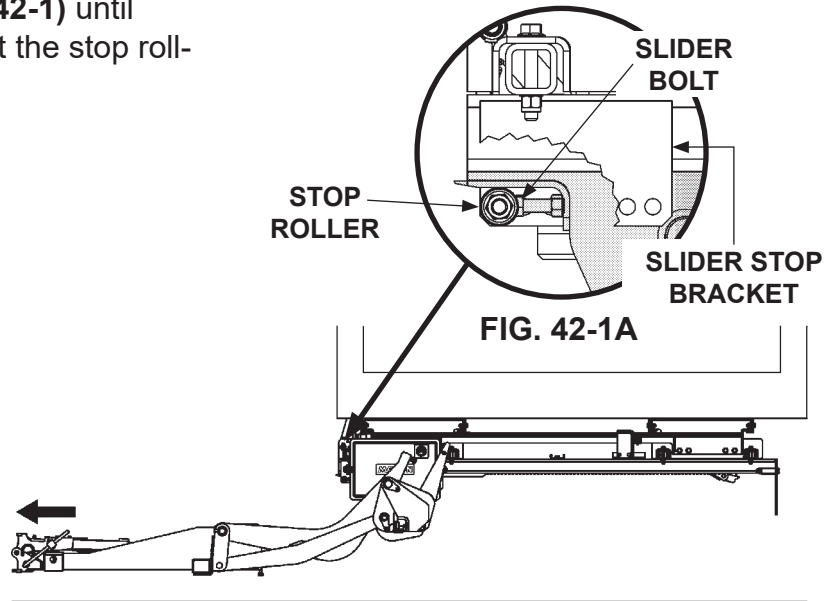
STEP 9 - PLATFORM ADJUSTMENT

CAUTION

Operate Liftgate with caution and no load until installation is complete.

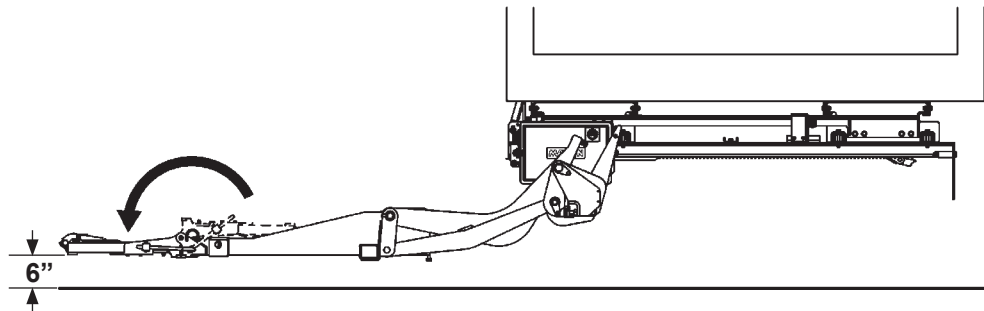
NOTE: Refer to **Operating Instructions** decal and applicable **WARNING & CAUTION** decals.

1. Move the platform out (**FIG. 42-1**) until slider mounting plate bolts hit the stop rollers (**FIG. 42-1A**).



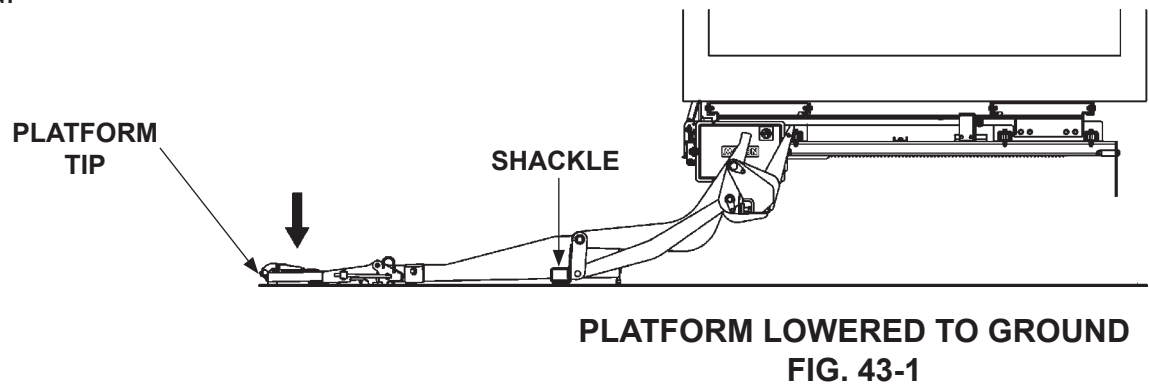
LIFTGATE TRAVELS TO OUTBOARD STOPS
FIG. 42-1

2. Lower platform to 6" above ground level and unfold flipover (**FIG. 42-2**).

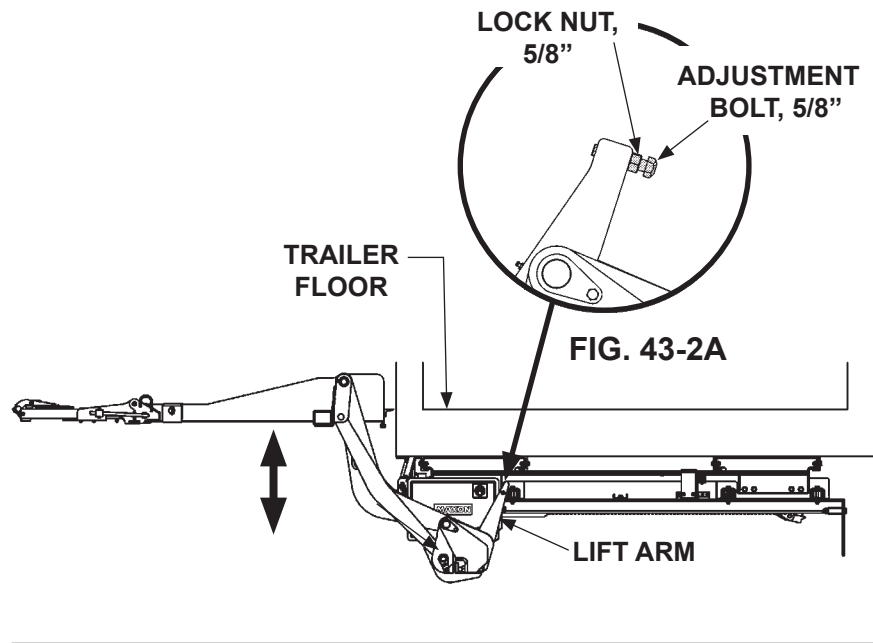


UNFOLD FLIPOVER
FIG. 42-2

3. Lower platform to ground level (**FIG. 43-1**).
Ensure platform tip and shackle touch ground.



4. Raise platform to trailer floor height and level it with trailer floor (**FIG. 43-2**) using adjustment bolts on lift arms (both sides) to raise or lower platform (**FIG. 43-2A**). Torque bolts to **100 lb-ft**.

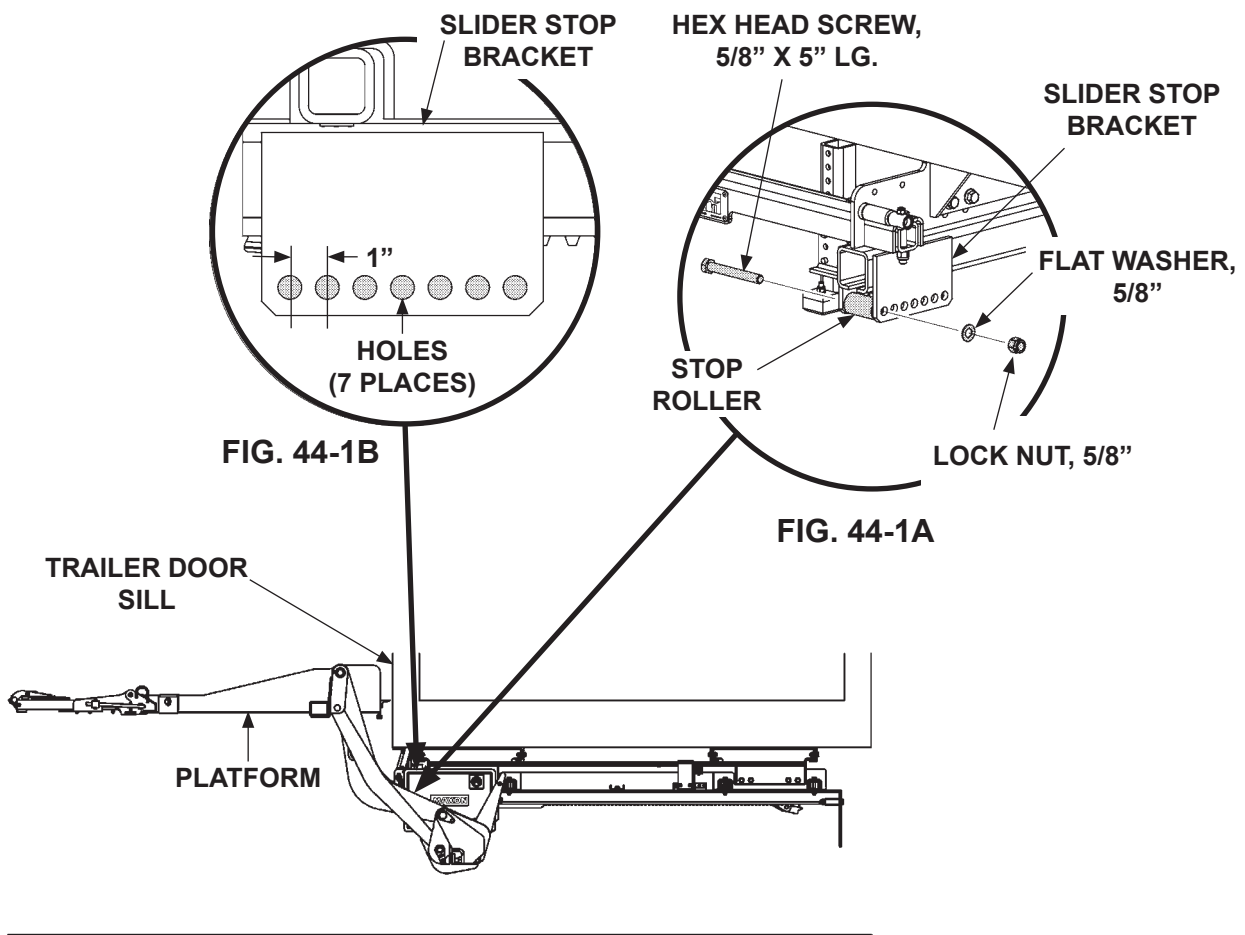


STEP 9 - PLATFORM ADJUSTMENT- Continued

CAUTION

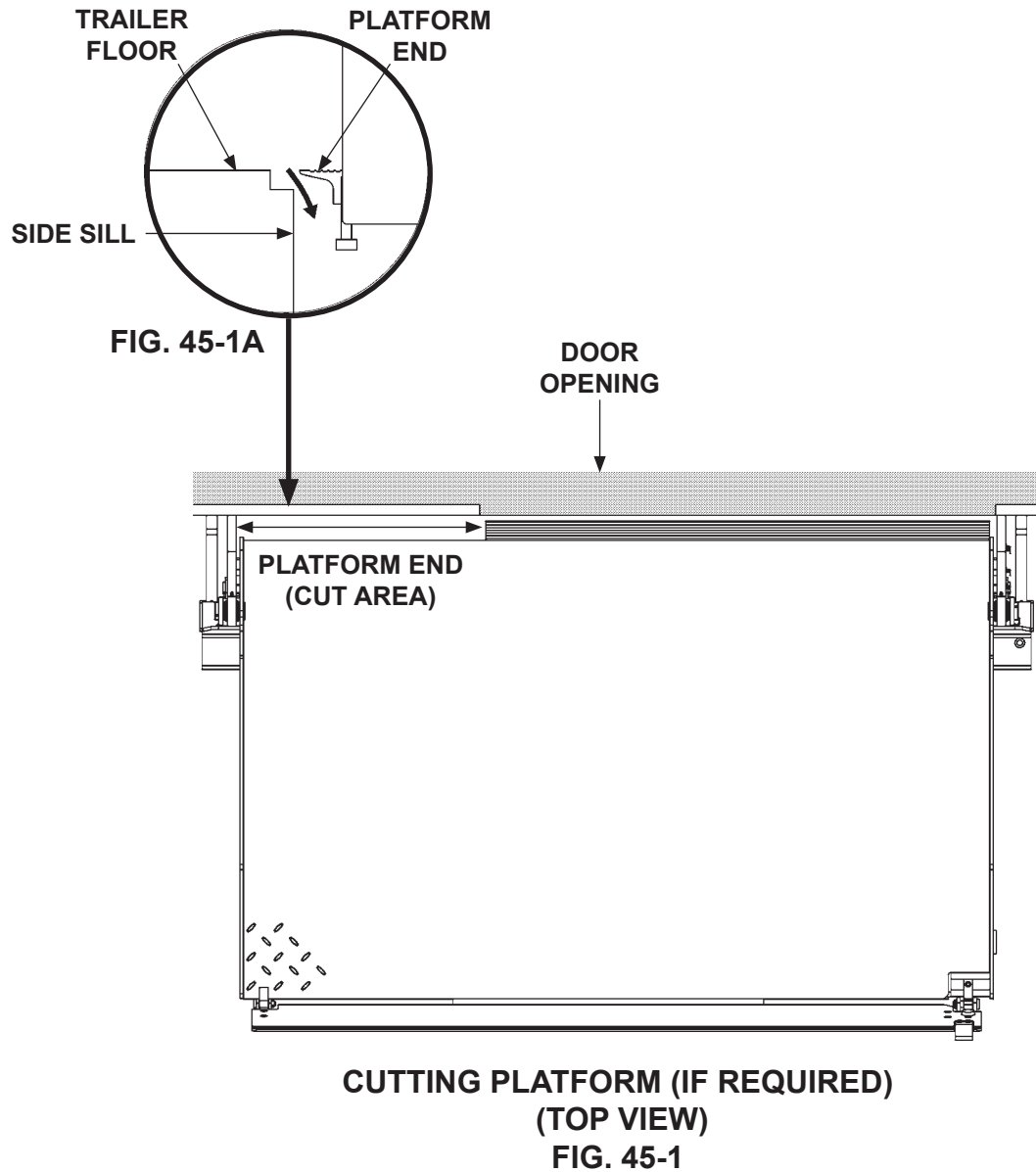
Do not overtighten hex bolts on stop roller to prevent stop roller from binding. Allow 1/16" gap on each side of stop roller.

5. Remove and unbolt stop roller from initial hole in slider stop bracket (FIGS. 44-1 and 44-1A). Bolt stop roller into the stop bracket hole which moves the platform to within 1" of trailer door sill (FIGS. 44-1 and 44-1B). Tighten hex bolt to allow 1/16" gap on each side of roller.



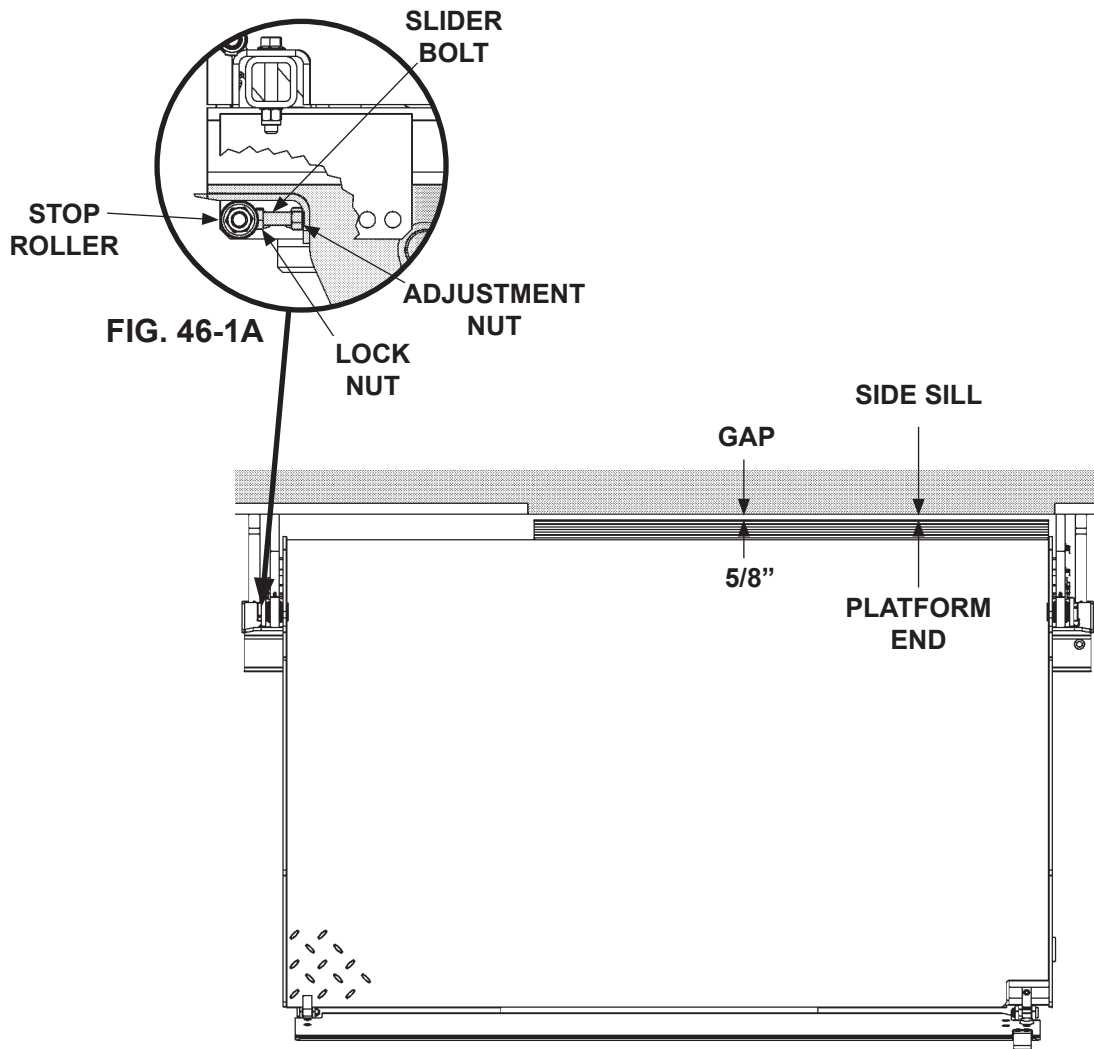
PLATFORM INITIAL IN/OUT ADJUSTMENT
FIG. 44-1

6. If platform hits the trailer side sill, measure and mark crossmembers all the way across, and cut the platform end to fit the door opening as shown in (FIGS. 45-1 and 45-1A).



STEP 9 - PLATFORM ADJUSTMENT- Continued

7. Ensure platform is flush with vehicle floor.
If platform gap is 1" or less (**FIG. 46-1**), use adjustment bolts, located at stop rollers, to adjust platform end to approximately 5/8" gap from side sill (**FIGS. 46-1 and 46-1A**). Torque each bolt to **100 lb-ft**.



PLATFORM FINAL IN/OUT ADJUSTMENT
(TOP VIEW)
FIG. 46-1

CAUTION

Operate Liftgate with caution and no load until installation is complete.

NOTE: Refer to **Operating Instructions** decal and applicable **WARNING & CAUTION** decals.

8. Operate the Liftgate to ensure correct operation without binding or hitting trailer side sill.

STEP 10 - FINAL WELDING

⚠ WARNING

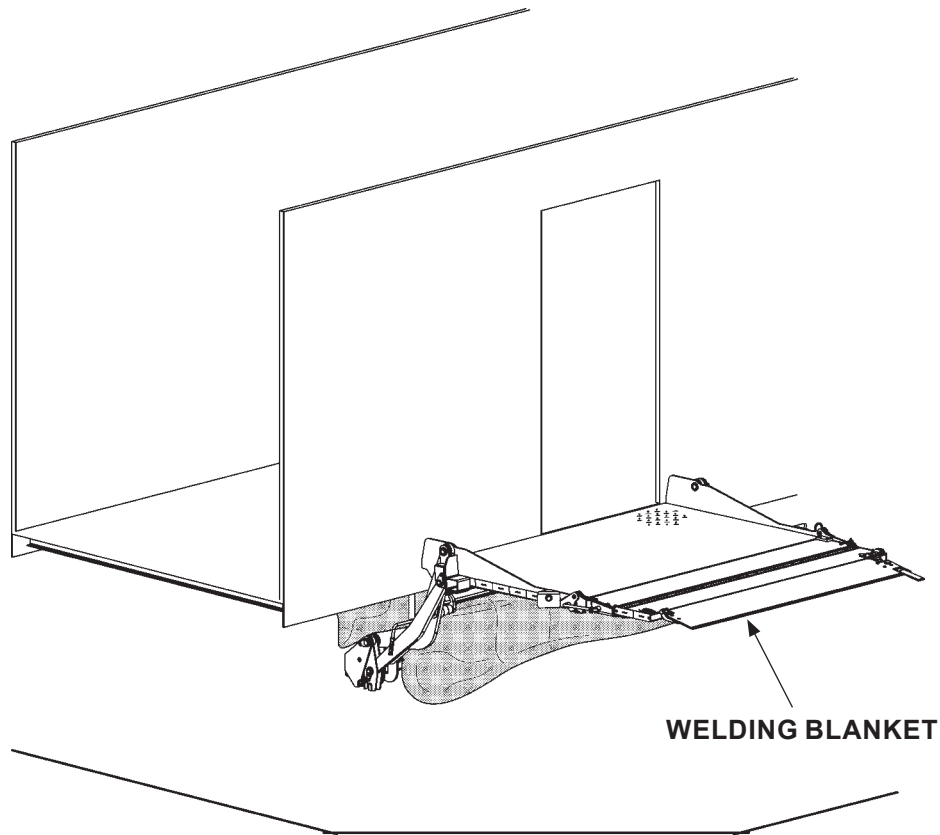
Use weld blankets to protect lines and tubes from weld splatter.

⚠ WARNING

Welding on galvanized parts gives off especially hazardous fumes. To minimize hazard remove galvanizing from weld area, provide adequate ventilation, and wear suitable respirator.

NOTE: Liftgate must be welded to fixed trailer crossmembers that are typically spaced 12" between centers.

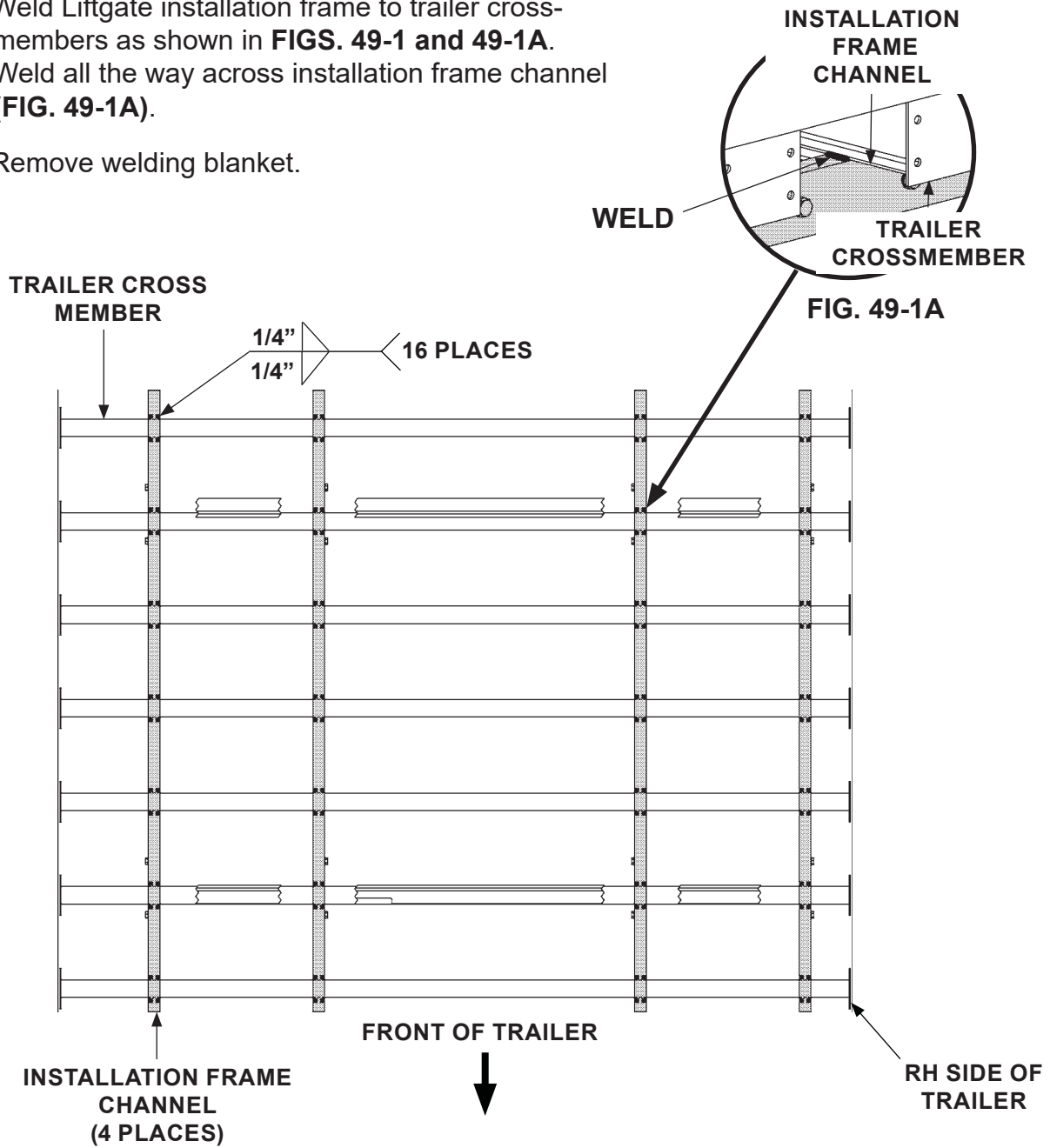
Cover Liftgate with welding blanket (**FIG. 48-1**).



COVERING LIFTGATE WITH WELDING BLANKET
FIG. 48-1

PREFERRED WELDING METHOD

1. Weld Liftgate installation frame to trailer crossmembers as shown in **FIGS. 49-1 and 49-1A**. Weld all the way across installation frame channel (**FIG. 49-1A**).
2. Remove welding blanket.



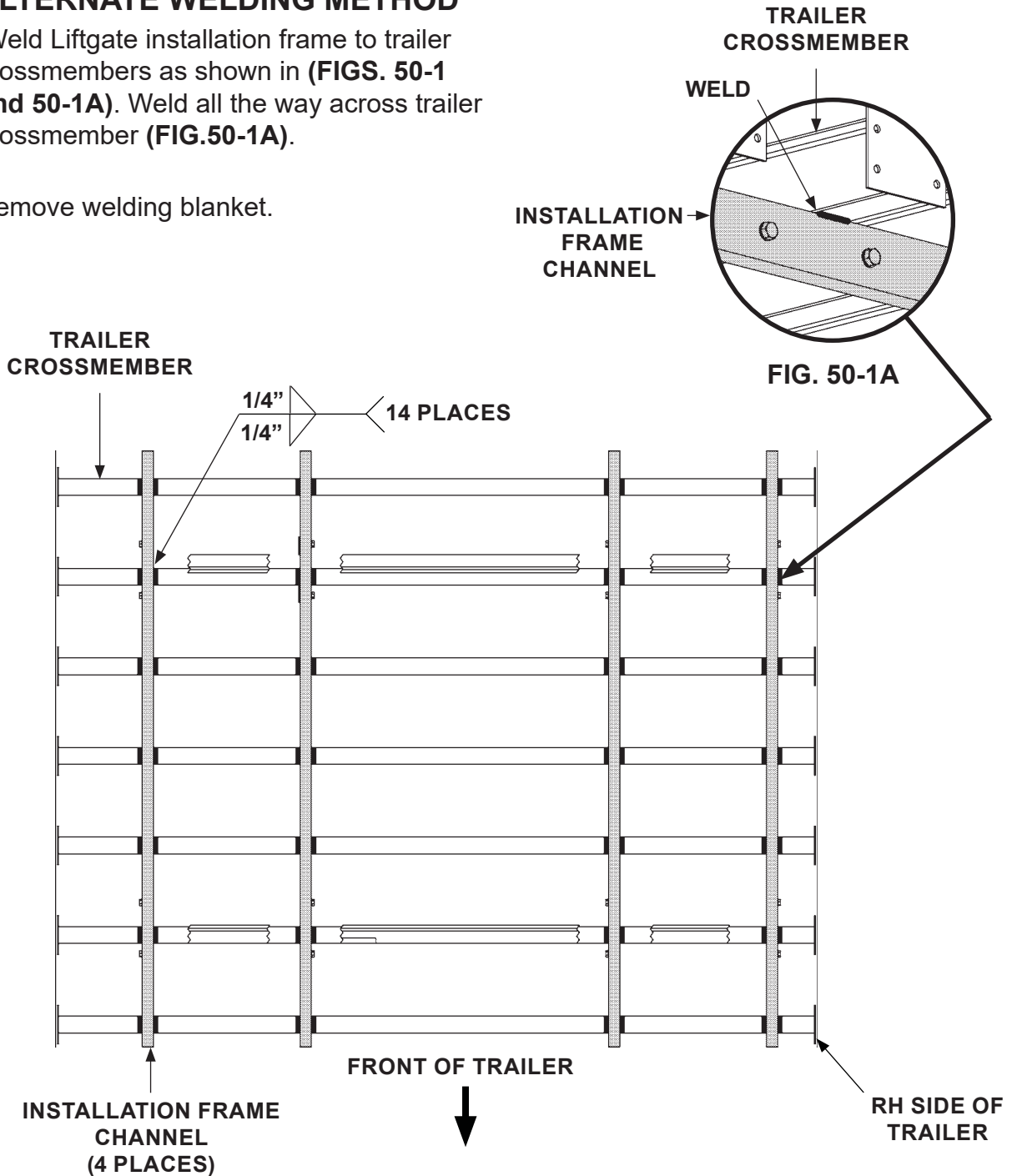
**BOTTOM VIEW OF TRAILER WITH LIFTGATE INSTALLATION
FRAME CHANNELS POSITIONED ON CROSSMEMBERS
(SLIDE ASSEMBLY AND PARTS OF LIFTGATE NOT SHOWN)**

FIG. 49-1

STEP 10 - FINAL WELDING - Continued

ALTERNATE WELDING METHOD

1. Weld Liftgate installation frame to trailer crossmembers as shown in (FIGS. 50-1 and 50-1A). Weld all the way across trailer crossmember (FIG. 50-1A).
2. Remove welding blanket.

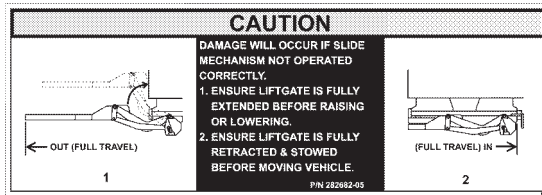


**BOTTOM VIEW OF TRAILER WITH LIFTGATE INSTALLATION
FRAME CHANNELS POSITIONED ON CROSSMEMBERS
(SLIDE ASSEMBLY AND PARTS OF LIFTGATE NOT SHOWN)**

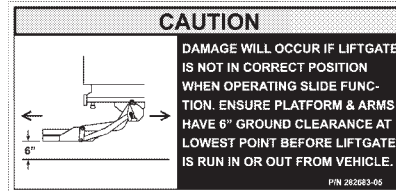
FIG. 50-1

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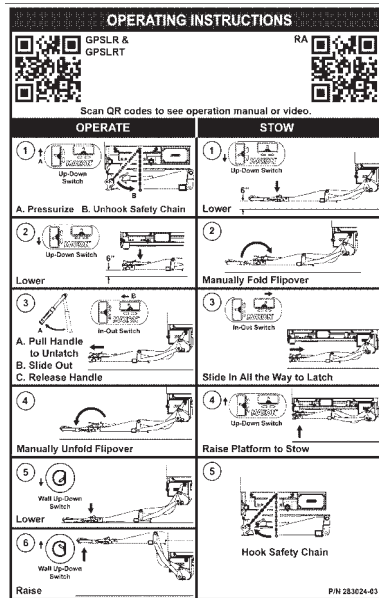
ATTACH DECALS



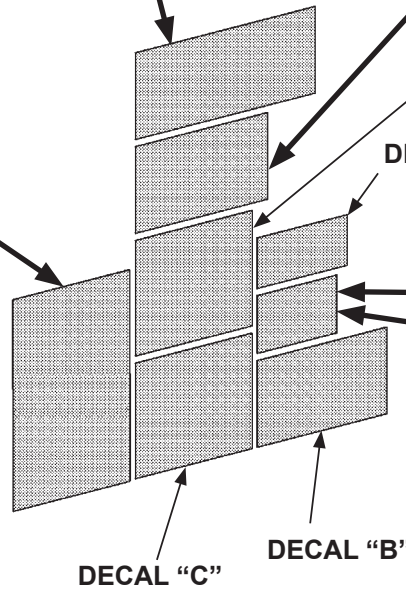
**CAUTION DECAL
P/N 282682-05**



**CAUTION DECAL
P/N 282683-05**

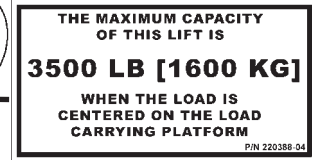


**OPERATION DECAL
P/N 283024-03**

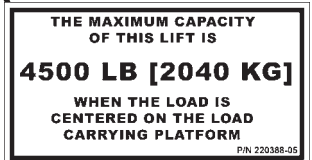


DECAL "A"

DECAL "F"



**CAPACITY DECAL
(RA-35 ONLY)
P/N 220388-04**



**CAPACITY DECAL
(RA-45 ONLY)
P/N 220388-05**

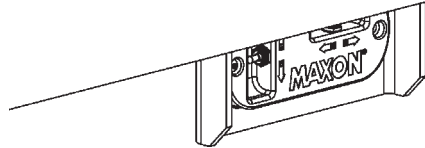
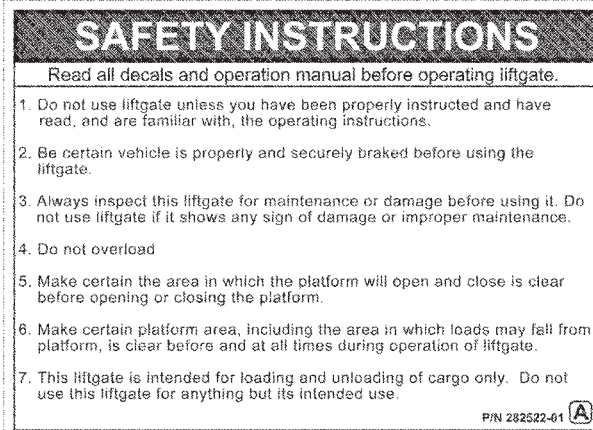
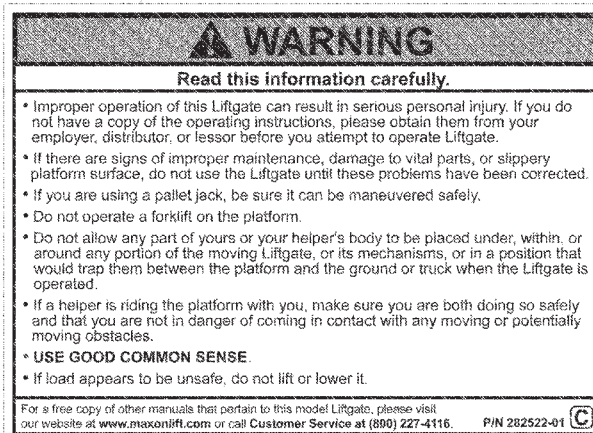


FIG. 52-1



DECAL SHEET
P/N 282522-01
FIG. 53-1

DECAL POSITIONS

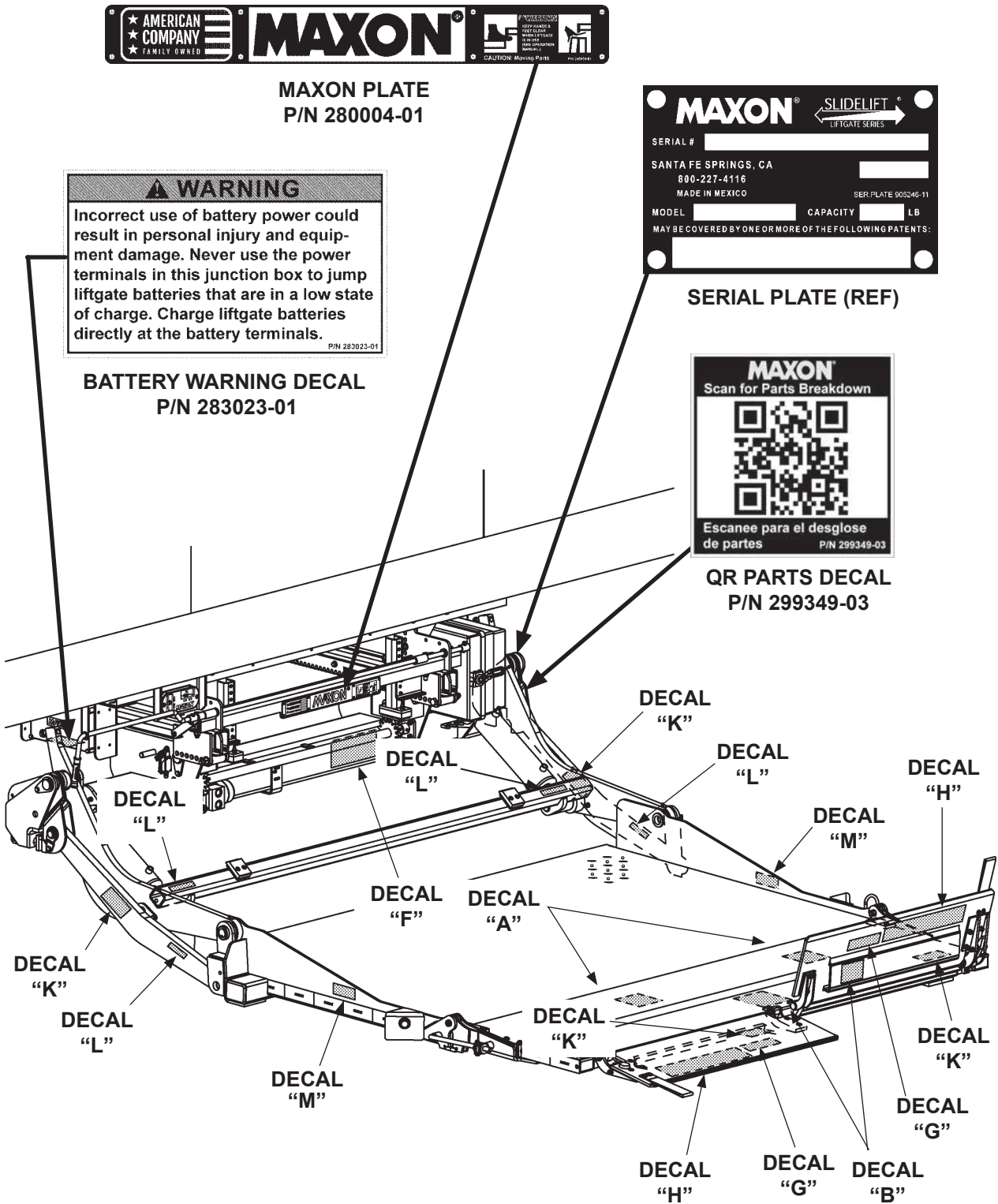
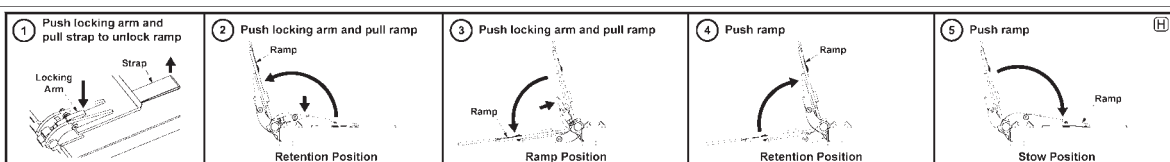
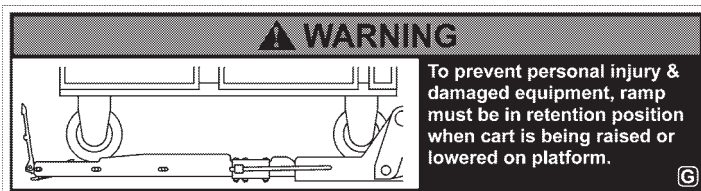
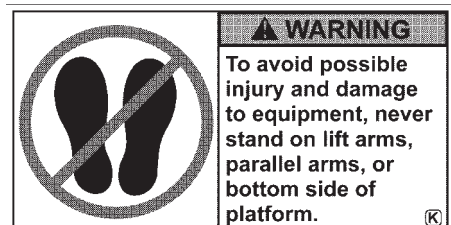


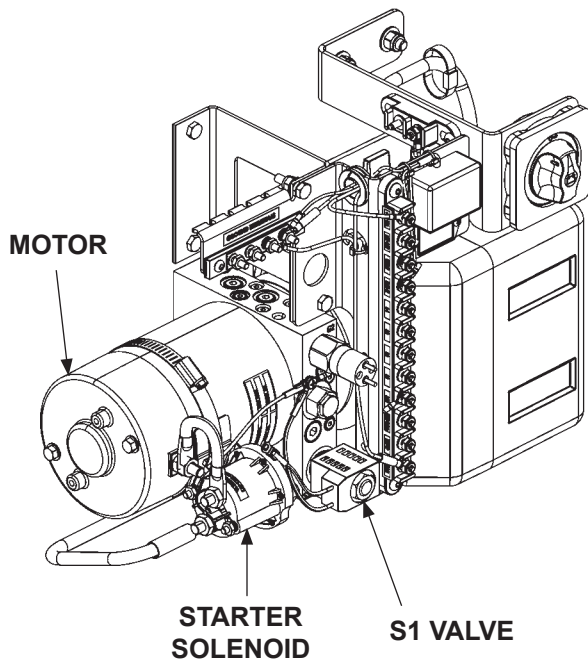
FIG. 54-1



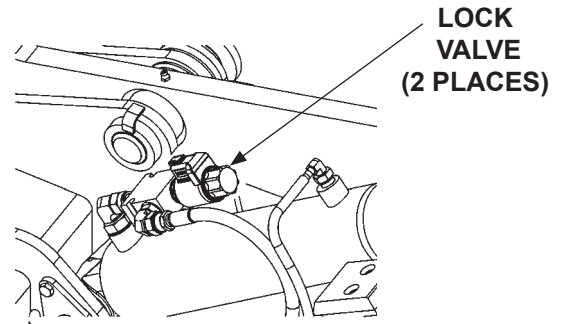
DECAL SHEET
P/N 267432-03
FIG. 55-1

SYSTEM DIAGRAMS

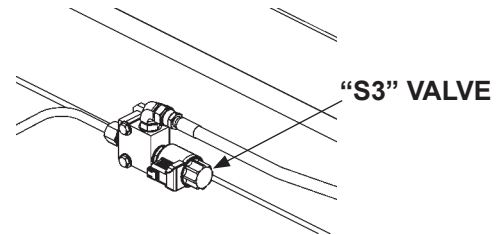
PUMP & MOTOR SOLENOID OPERATION - SINGLE PUMP



POWER UNIT
FIG. 56-1



LOCK VALVE (S2)
(RH CYLINDER SHOWN)
FIG. 56-2

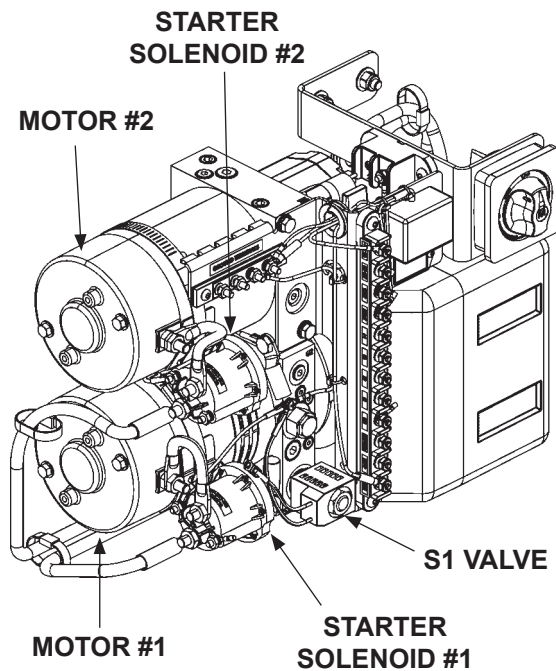


S3 VALVE
(BI-DIRECTIONAL)
FIG. 56-3

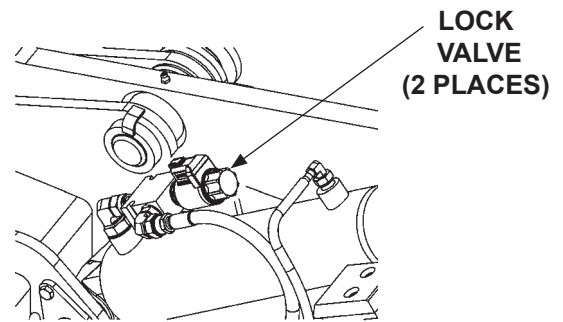
POWER UNIT MOTOR & SOLENOID OPERATION				
LIFTGATE FUNCTION	SOLENOID OPERATION (✓ MEANS ENERGIZED)			
	MOTOR	VALVE S1	VALVE S3	LOCK VALVES (S2 VALVES)
RAISE	✓	-	-	✓
LOWER (GD)	-	✓	-	✓
LOWER (PD)	✓	✓	-	✓
SLIDE OUT	✓	-	✓	-
SLIDE IN	✓	✓	✓	-
REFER TO VALVES SHOWN ON HYDRAULIC SCHEMATIC				

TABLE 56-1

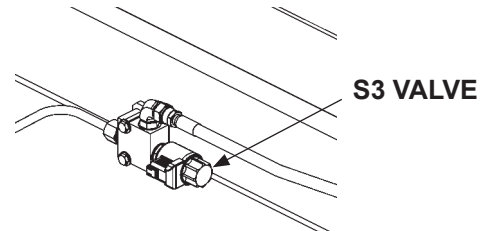
PUMP & MOTOR SOLENOID OPERATION - DUAL PUMPS



POWER UNIT
FIG. 57-1



LOCK VALVE ("S2")
(RH CYLINDER SHOWN)
FIG. 57-2



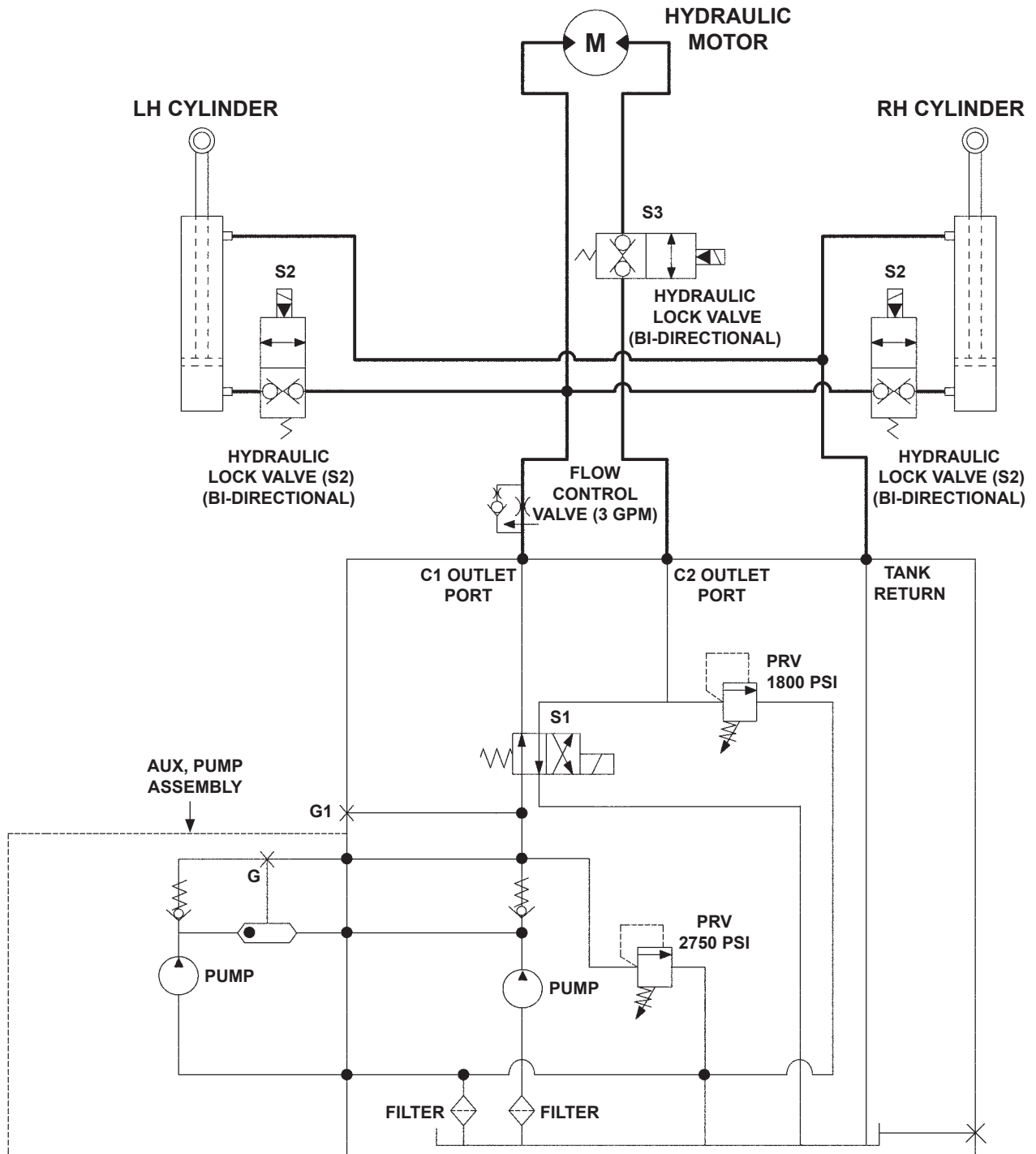
S3 VALVE
(BI-DIRECTIONAL)
FIG. 57-3

POWER UNIT MOTOR & SOLENOID OPERATION				
LIFTGATE FUNCTION	SOLENOID OPERATION (✓ MEANS ENERGIZED)			
	MOTOR (#1 OR #2)	VALVE S1	VALVE S3	LOCK VALVES ("S2" VALVES)
RAISE	✓	-	-	✓
LOWER (GD)	-	✓	-	✓
LOWER (PD)	✓	✓	-	✓
SLIDE OUT	✓	-	✓	-
SLIDE IN	✓	✓	✓	-
REFER TO VALVES SHOWN ON HYDRAULIC SCHEMATIC				

TABLE 57-1

SYSTEM DIAGRAMS - Continued

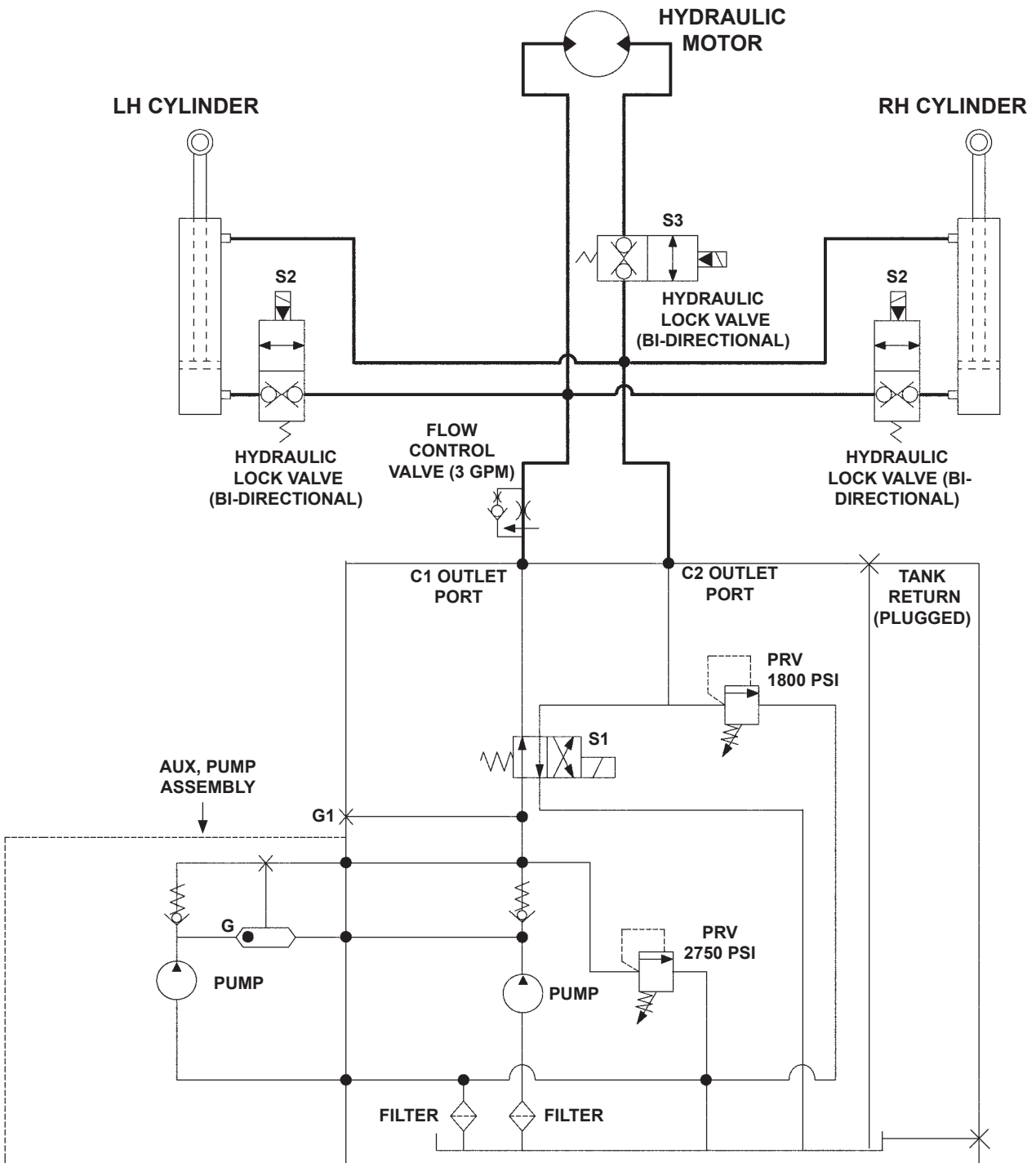
HYDRAULIC SCHEMATIC - GRAVITY DOWN



NOTE: PRV (PRESSURE RELIEF VALVE)

FIG. 58-1

HYDRAULIC SCHEMATIC - POWER DOWN



NOTE: PRV (PRESSURE RELIEF VALVE)

FIG. 59-1

SYSTEM DIAGRAMS - Continued

ELECTRICAL SCHEMATIC, 12V, GRAVITY DOWN, WITH MAX ECU

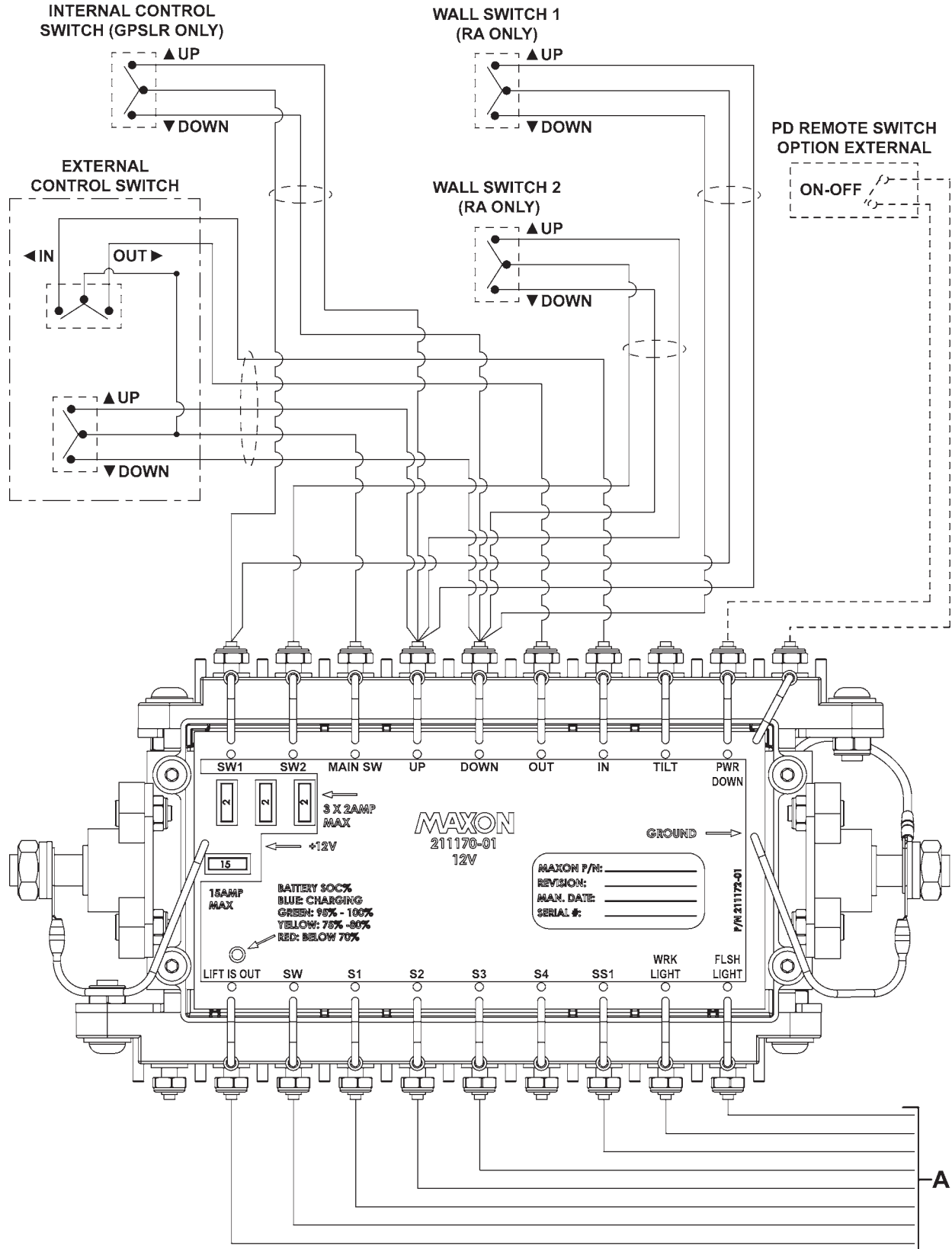


FIG. 60-1

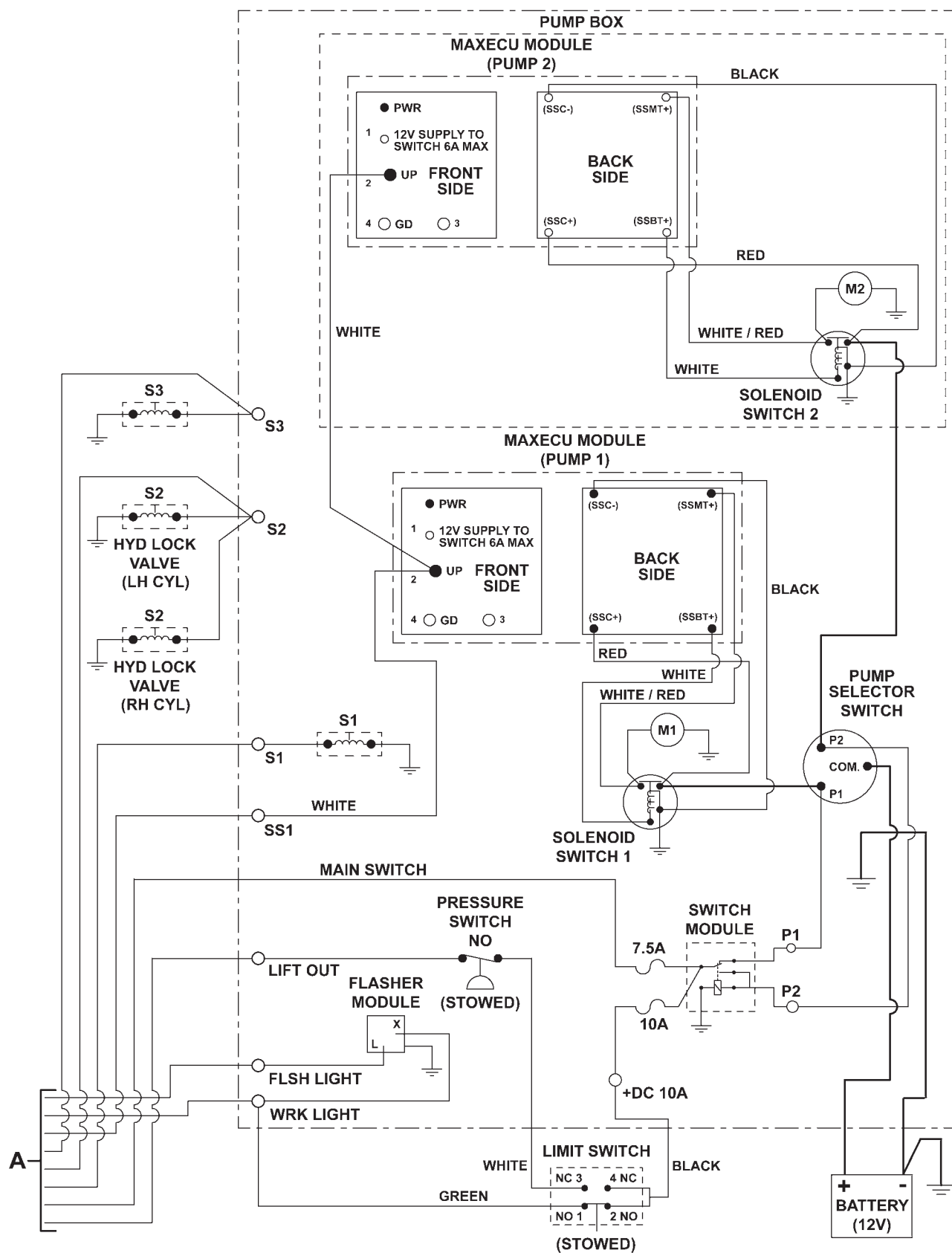


FIG. 61-1

SYSTEM DIAGRAMS - Continued

ELECTRICAL SCHEMATIC, 12V, POWER DOWN, WITH MAX ECU

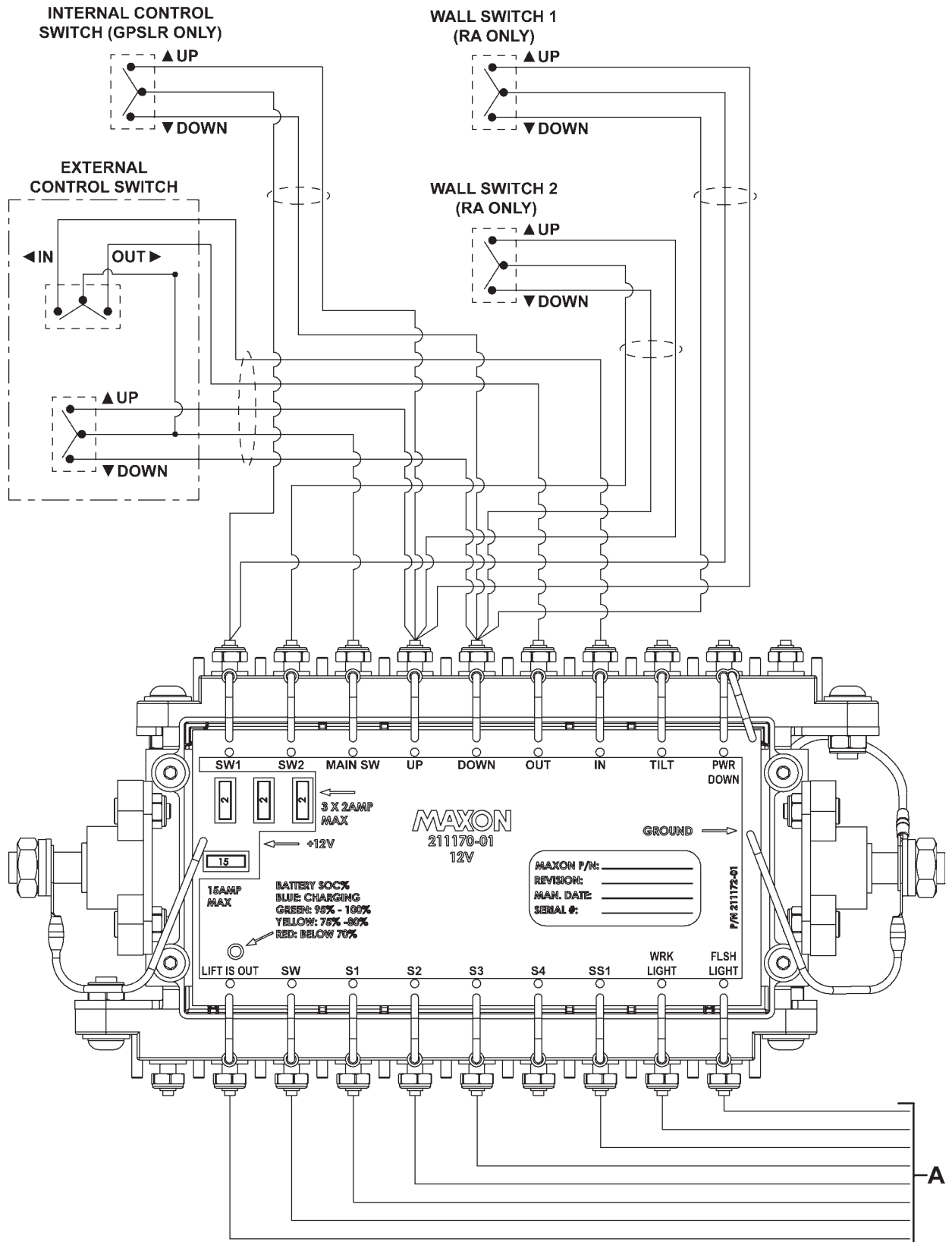


FIG. 62-1

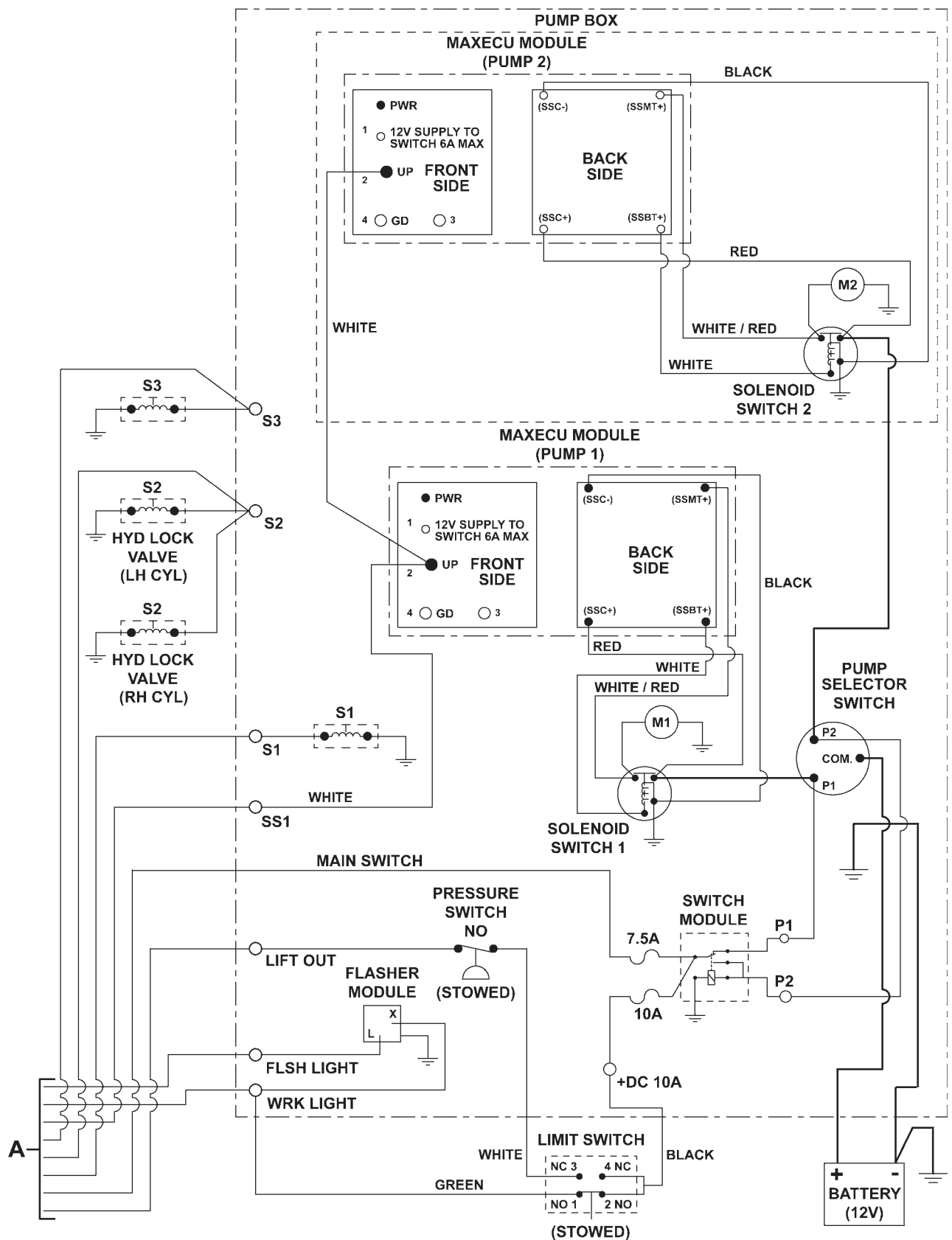


FIG. 63-1

SYSTEM DIAGRAMS - Continued

ELECTRICAL SCHEMATIC 12V/24V, GRAVITY DOWN

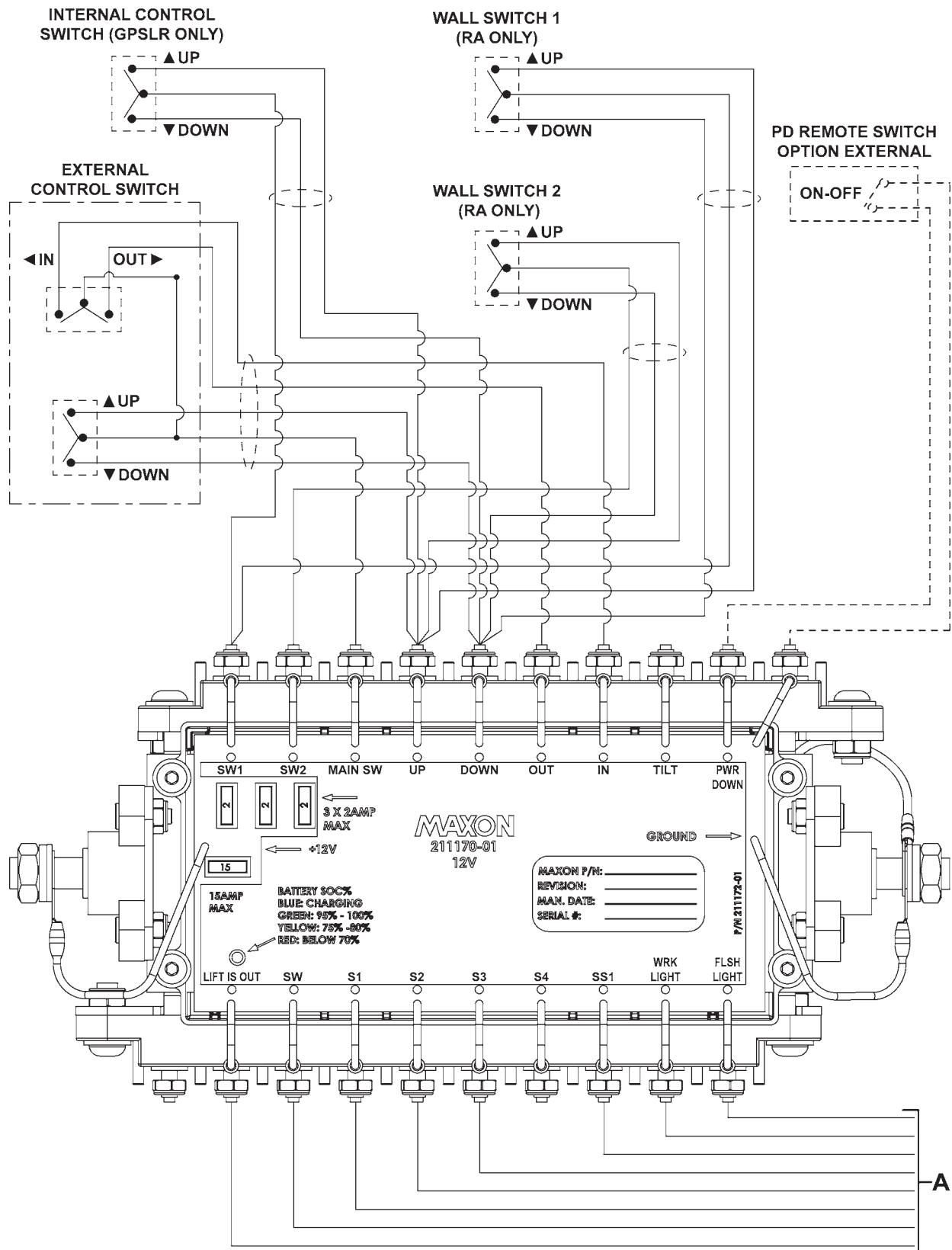


FIG. 64-1

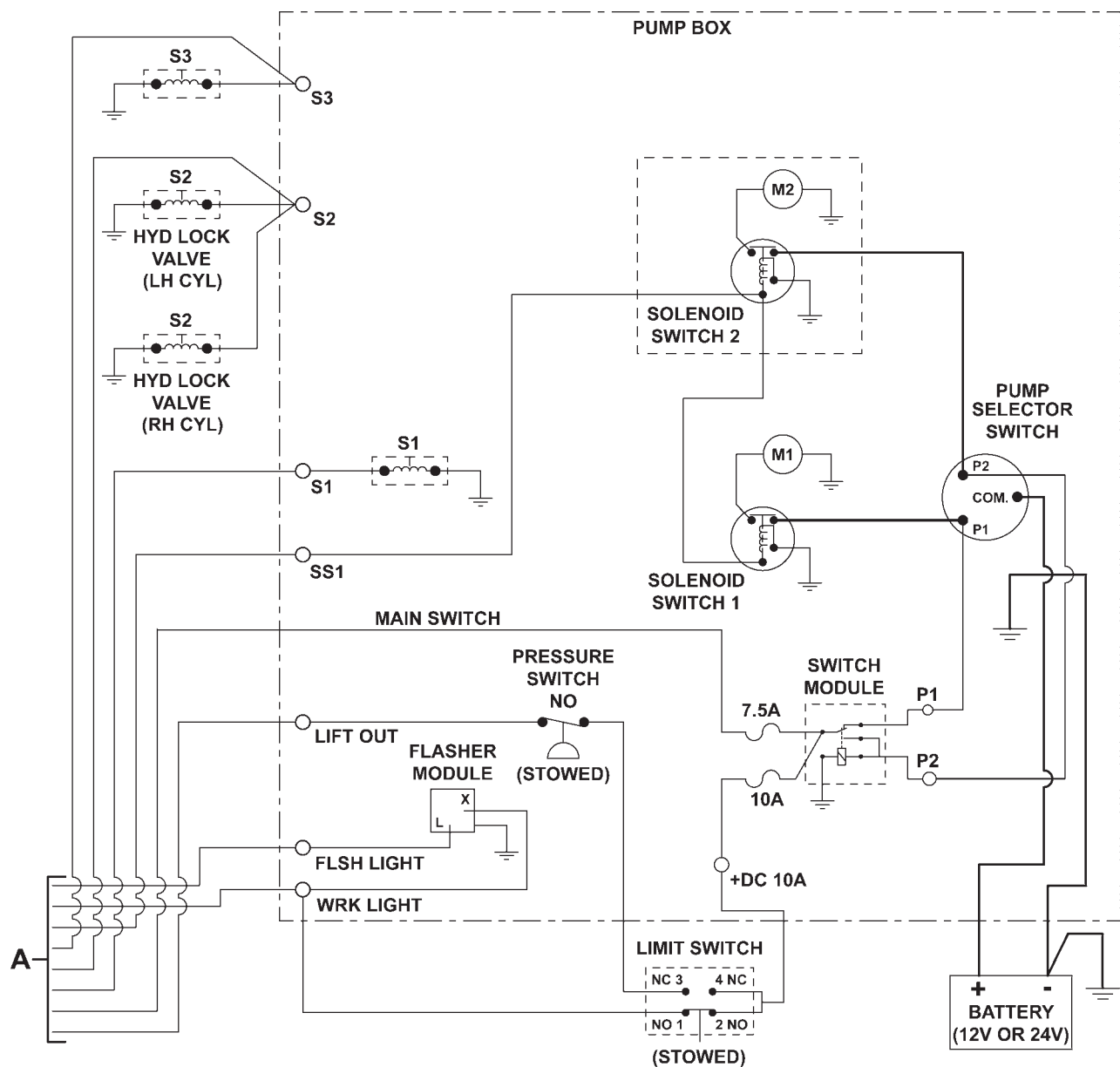


FIG. 65-1

SYSTEM DIAGRAMS - Continued

ELECTRICAL SCHEMATIC, 12V/24V, POWER DOWN

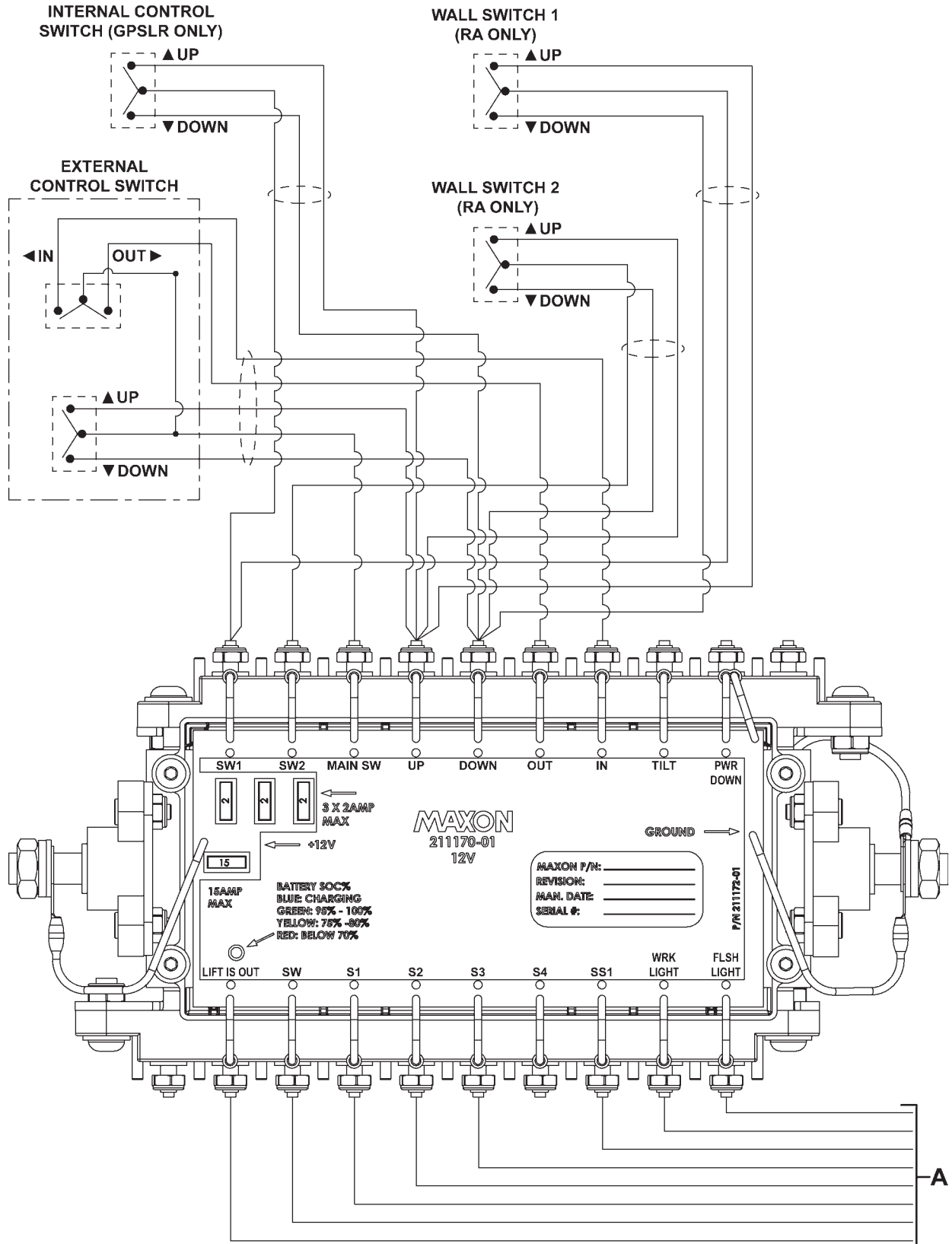


FIG. 66-1

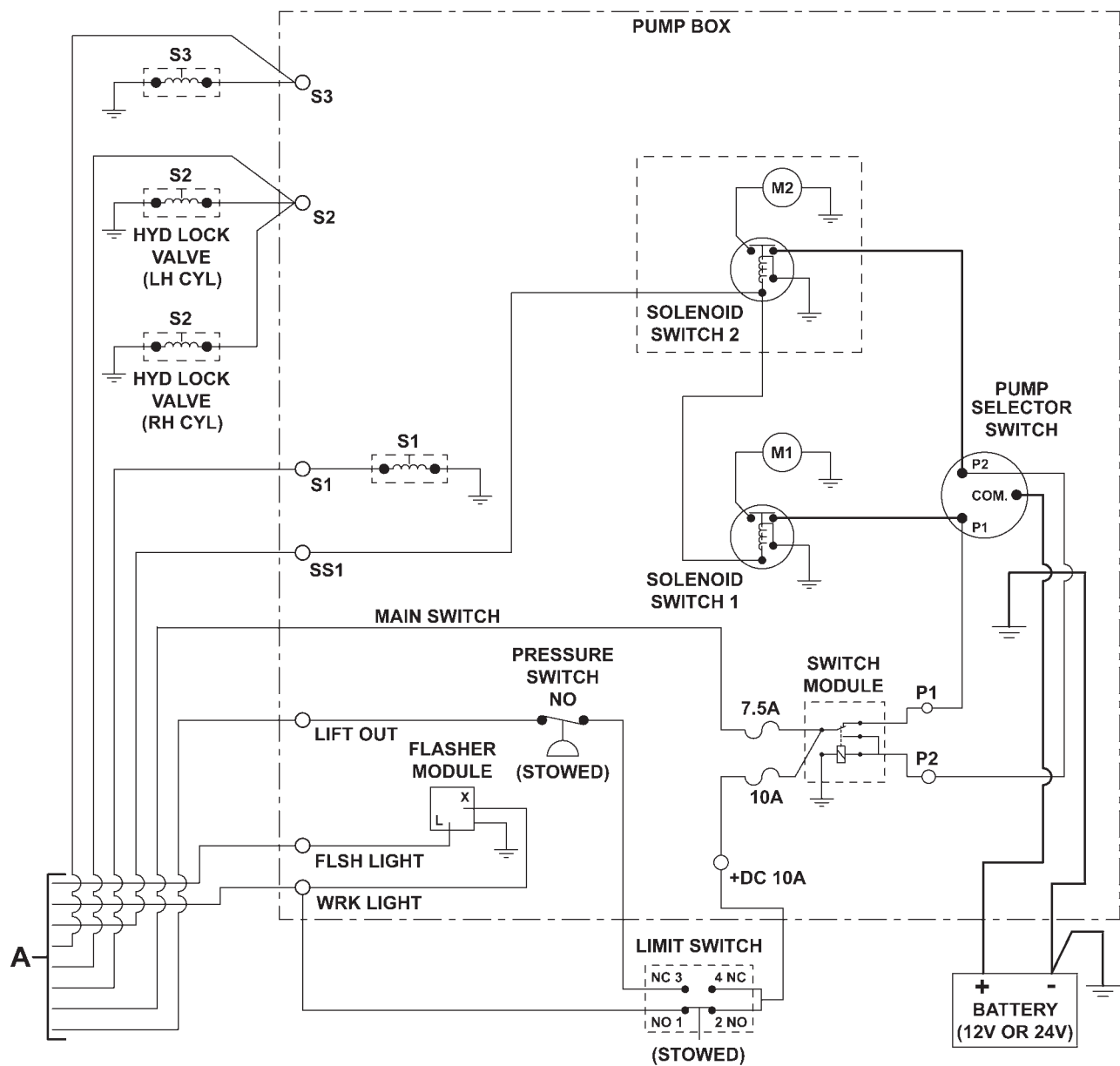


FIG. 67-1

OPTIONS

OPTIONAL LIFTGATE COMPONENTS

KITS	PART NO.
POWER CABLE	
POWER CABLE, 20 FT.	289231-02
POWER CABLE, 30 FT.	289231-03
POWER CABLE, 40 FT.	289231-04
POWER CABLE, 50 FT.	289231-05
POWER CABLE, 60 FT.	289231-06
POWER CABLE, 12 FT.	289231-07
ELECTRICAL	
CIRCUIT BREAKER (150 AMP)	296504-150
HAND HELD CONTROL	211185-01
WORK LIGHT	289175-01
SAFETY LIGHT, 12VDC FOR 86" WIDE PLATFORM	289520-01
SAFETY LIGHT, 12VDC FOR 60" WIDE PLATFORM	289520-02
SAFETY LIGHT, 12VDC FOR 52" WIDE PLATFORM	289520-03
BATTERY BOX ASSEMBLY	
2 BATTERIES, FOR DIRECT CHARGING & CHARGER	289690-01
2 BATTERIES, FOR DIRECT CHARGING	289690-02
2 BATTERIES, WITH CHARGER BRACKET	289690-03
4 BATTERIES, FOR DIRECT CHARGING & CHARGER	289690-11
4 BATTERIES, FOR DIRECT CHARGING	289690-12
4 BATTERIES, WITH CHARGER BRACKET	289690-13
BATTERY CHARGER	
PHILLIPS, STA-CHARGE ASSEMBLY WITH FLAT MOUNTING PLATE	298544-03
PURKEY'S SELECT/DIRECT CHARGING PLATE	289986-01
MECHANICAL	
HANDLE, STOW UNLOCK, 17" LG.	289160-01
HANDLE, STOW UNLOCK, 24" LG.	289160-02
RAILING INSTALLATION, GPLSR / RA	299021-01
MUD GUARD ASSEMBLY	225216
STABILIZER LEG POWER UNIT	288833-01
MISCELLANEOUS	
TRAFFIC CONE	268893-01



PRE-DELIVERY INSPECTION FORM

Model: _____

Date: _____

Serial Number: _____

Technician: _____

Pre-Installation Inspection:

- ☐ Correct model
- ☐ Correct capacity
- ☐ Correct platform size
- ☐ Correct options
- ☐ Manuals & decals

Structural Inspection:

- ☐ Inspect alignment of final assembly.
- ☐ Inspect pump box secure mounting.
- ☐ Inspect all installation welds.
- ☐ Check roll pins, bolts and fasteners.
- ☐ Inspect tightness of hardware used to secure liftgate to vehicle.
- ☐ Ensure platform ramp touches ground when shackles are 1" above ground, and platform & flipover are level & touching the ground.

Hydraulic Inspection:

- ☐ Proper fluid level (See **CHECKING HYDRAULIC FLUID** step in this manual).
- ☐ Check hydraulic fittings in pump box for leaks.
- ☐ Check hydraulic line connections for leaks.

Electrical Inspection:

- ☐ Check power/charge plug and terminal.
- ☐ Check for tight wire connections.
- ☐ Circuit breaker (150A) installed in battery box (if equipped) or by truck/tractor battery.
- ☐ Ensure batteries are fully charged, all cable connections are tight & tie-downs are tight.
- ☐ Inspect all solenoid connections.
- ☐ Check all wiring harness connections.
- ☐ Check electrical cable connections are tight & secure.

Operation Inspection:

NOTE: The following times are for 60" bed height, steel platform with aluminum flipover, ISO 32 hydraulic fluid, & temperature at 70°F. Times are for reference only and may vary for larger platforms, smaller platforms, or temperature changes.

- ☐ Check operation of all main and optional control switches.

RA-35

- ☐ Unloaded platform lowers in **10 sec.**
- ☐ Unloaded platform raises in **14 sec.**
- ☐ Unloaded platform stows IN in **9-10 sec.**
- ☐ Unloaded platform to OUT position in **6-7 sec.**

RA-45

- ☐ Unloaded platform lowers in **7 to 11 sec.**
- ☐ Unloaded platform raises in **9 to 13 sec.**
- ☐ Unloaded platform stows IN in **12 sec.**
- ☐ Unloaded platform to OUT position in **8 sec.**
- ☐ **All RA:** Unloaded platform raises and lowers evenly. At the extension plate, platform must not be more than 1/8" uneven, from side to side.
- ☐ **All RA:** Platform stores securely under vehicle body.
- ☐ Check if cycle counter works.
- ☐ Decals in correct location and legible.

Verify all lights are operational

- ☐ Platform lights turn **ON** when platform is unfolded, and turn **OFF** when platform is stowed.
- ☐ Taillights, stop lights, turn lights, and backup lights turn **ON** and **OFF** correctly.

