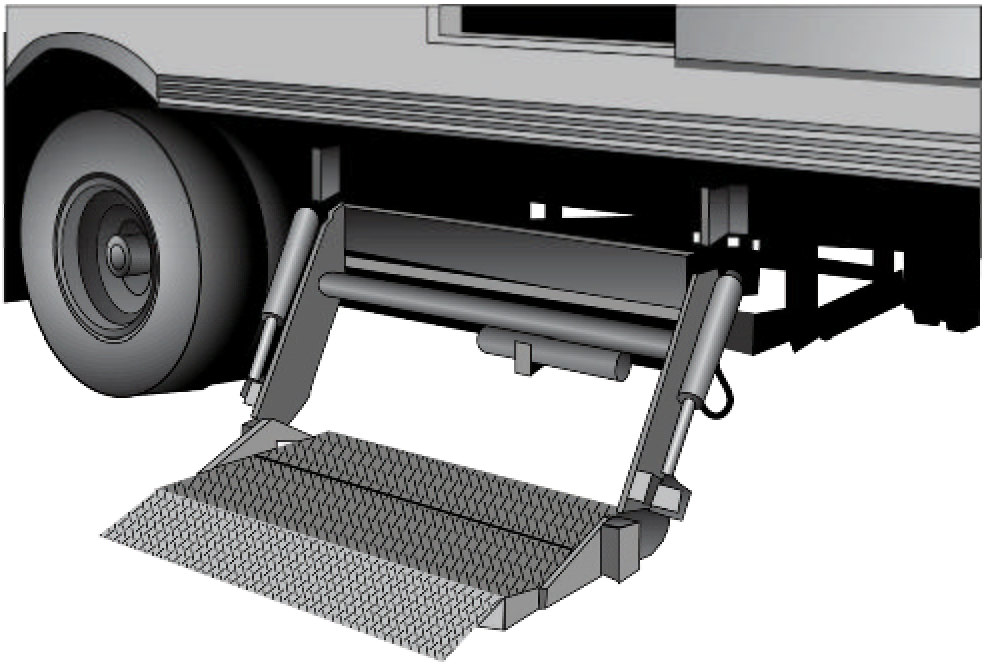
LEYMAN LIFT GATES®

Installation Manual

STG Hide-A-Way™
Side Gate



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LML00267-08/01/06

In this folder are the operating procedures on the equipment your company is using that was manufactured by Leyman Manufacturing Corporation.

Past experience has indicated it is most unwise to operate these units without proper instructions, which should be instituted by the purchaser.

While these products have certain safety features engineered in their design, they are all operated by human beings. Therein lies the problem of safety, and one should always have caution in mind when operating this or any other machine that has parts weighing several hundred pounds.

Again, let us remind you that we have moving parts on this product weighing several hundred pounds, and when not under proper control can physically damage the operator. Because of the weights involved, carelessness, and training neglect make these units dangerous.

Do not overload this product, maintain it properly, stand clear of moving parts, and operate it as instructed.

This machine has a long life and will take some abuse. Just do not over do it.

Dates: _____

Number: _____

PLEASE FILL IN FOR YOUR RECORDS

Customer: _____
Model: STG - _____
Capacity: _____
Type: Hide-A-Way
Power: _____
Platforms: _____
Options: _____
_____
_____
_____

Maximum Height:
Hydraulic Pressure: loaded 2000 PSI at pump
AMP Draw:
Power Up/Gravity Down

TABLE OF CONTENTS

BEFORE YOU START

This manual reflects all changes and updated material common to all STG produced to date. Some may vary as to special installations per customer requirements. Read this manual before installing the lift gate.

1. Check lift to see that safety chains are connected on each side of the platform.

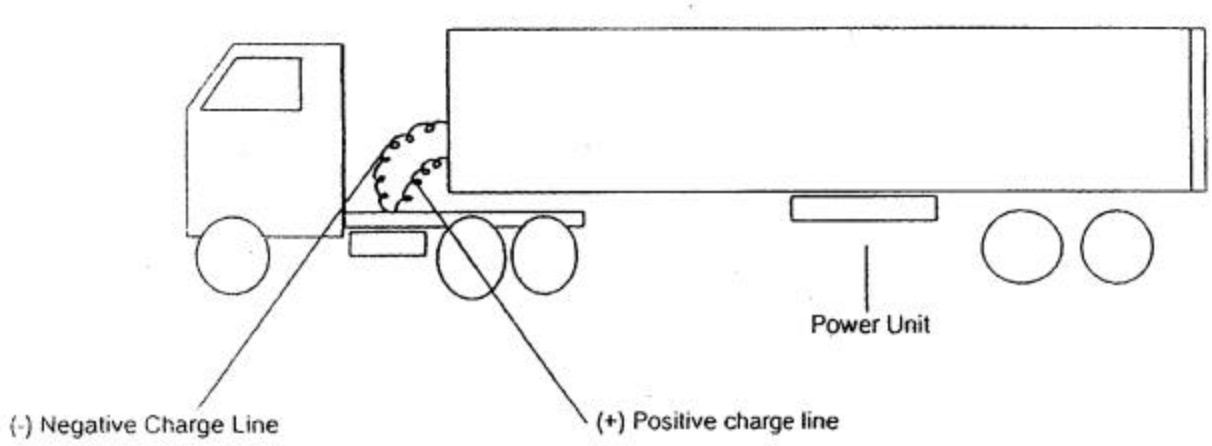
2. Remove all banding from lift.

3. Inspect area underneath truck where lift is to be installed. Be sure area is clear of obstructions. Also, make sure cross members of truck are exposed and made of steel. If the cross members are aluminum, refer to the section entitled aluminum cross members to prepare the truck properly.

4. Determine where lift will go according to the location of the side door and customer specifications.

Note: The use of a battery charger as the sole power source to operate a lift gate is unauthorized, and will prevent the lift gate from working properly. The lift gate must always be operated in conjunction with at least one 12 volt heavy duty lift gate battery. A minimum of 9.5 volts must be maintained in order for the valves to operate.

GROUNDING RECOMMENDATIONS FOR TRACTOR/TRAILER USING THE MAINTENANCE MINDER STARTER SOLENOID



The maintenance minder starter solenoid requires a minimum of 9.5 volts in order for the lift gate to operate. Utilization of a single positive cable does not provide sufficient ground. Therefore, recommended grounding for all tractor trailers with a lift gate is as follows:

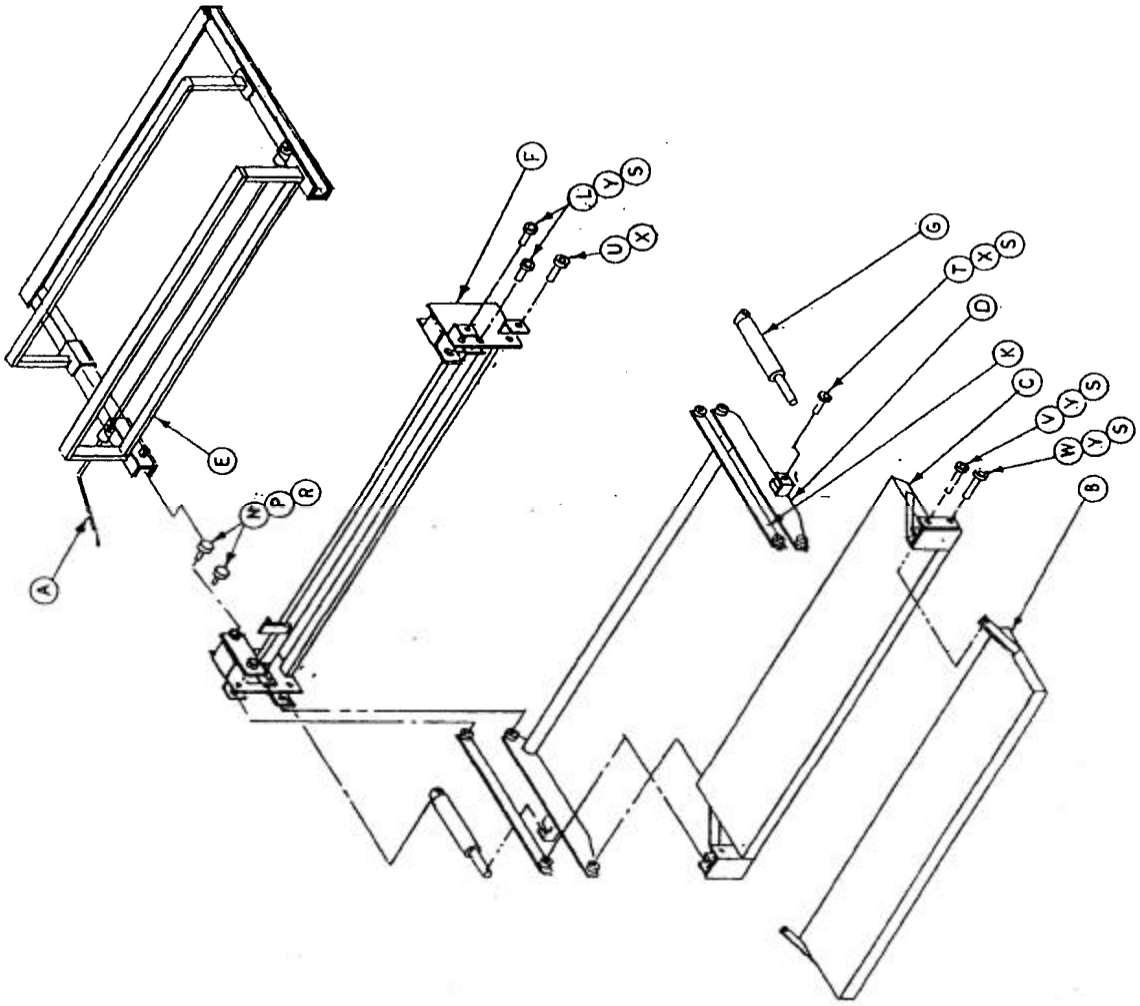
1. Two (2) cables, one (1) positive, one (1) negative – both running to the tractor batteries.

And/or

2. Separate ground wire installed on chassis to 5th wheel on tractor.

Note: The use of a battery charger as the sole power source to operate a lift gate is unauthorized, and will prevent the lift gate from working properly. The lift gate must always be operated in conjunction with at least one 12 volt heavy duty lift gate battery. A minimum of 9.5 volts must be maintained in order for the valves to operate.

STG ASSEMBLY



Index #	Req'd	Part #	Description
A	1	See card	Lock assembly
B	1	See card	Platform (secondary)
C	1	See card	Platform (primary)
D	1	See card	Compression arm assembly
F	1	See card	Compression slide assembly
E	1	See card	Frame
G	1	See card	Hydraulics
H	1	See card	Electrics
J	1	See card	Power in and out
K	2	750-3A	Tension arm
L	4	T5001-0A3	Pivot pin
N	4	P37544	Cam roller
P	4	P23523	Lock nut
R	4	P32015	Grease fitting
S	12	P32012	Grease fitting
T	2	V5001-0A1	Pivot pin
U	2		Pivot pin
V	2	T5001-0A1	Pivot pin
W	2	T5001-0A2	Pivot pin
X	4	P40040	Shaft collar
Y	8	P40041	Shaft collar
Z	2		Hold up
AA	1	P38513	Hook
AB	2	P38515	Over road chain
AC	2	5014-A	Safety snap hook

PRE-INSTALLATION OF LEYMAN STG

Before installing the lift gate, take the measurements indicated in Figure 1. If discrepancies exit with these measurements, and no solution can be found, contact Leyman Manufacturing Corporation before proceeding with installation.

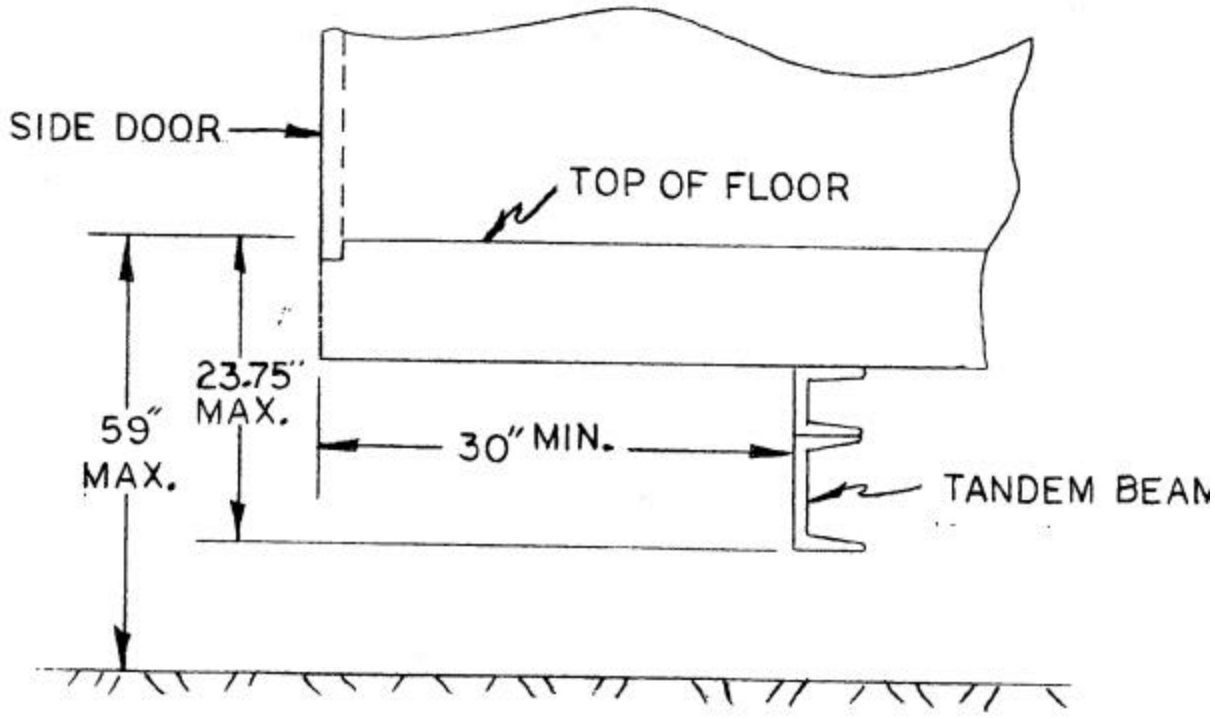
1. Measure from the top of the floor to the ground. 59” is the maximum distance allowable.

2. Measure from the top of the floor to the bottom of the tandem beam. If this distance is more than 23.75” the gate can not be installed.

3. Measure from the tandem beam to the truck rub-rail. The minimum distance is 30”.

4. Measure from the truck rub-rail to the truck drive shaft. The minimum distance is 43.5”.

Figure 1 – Truck Dimensions



ALUMINUM CROSS MEMBERS

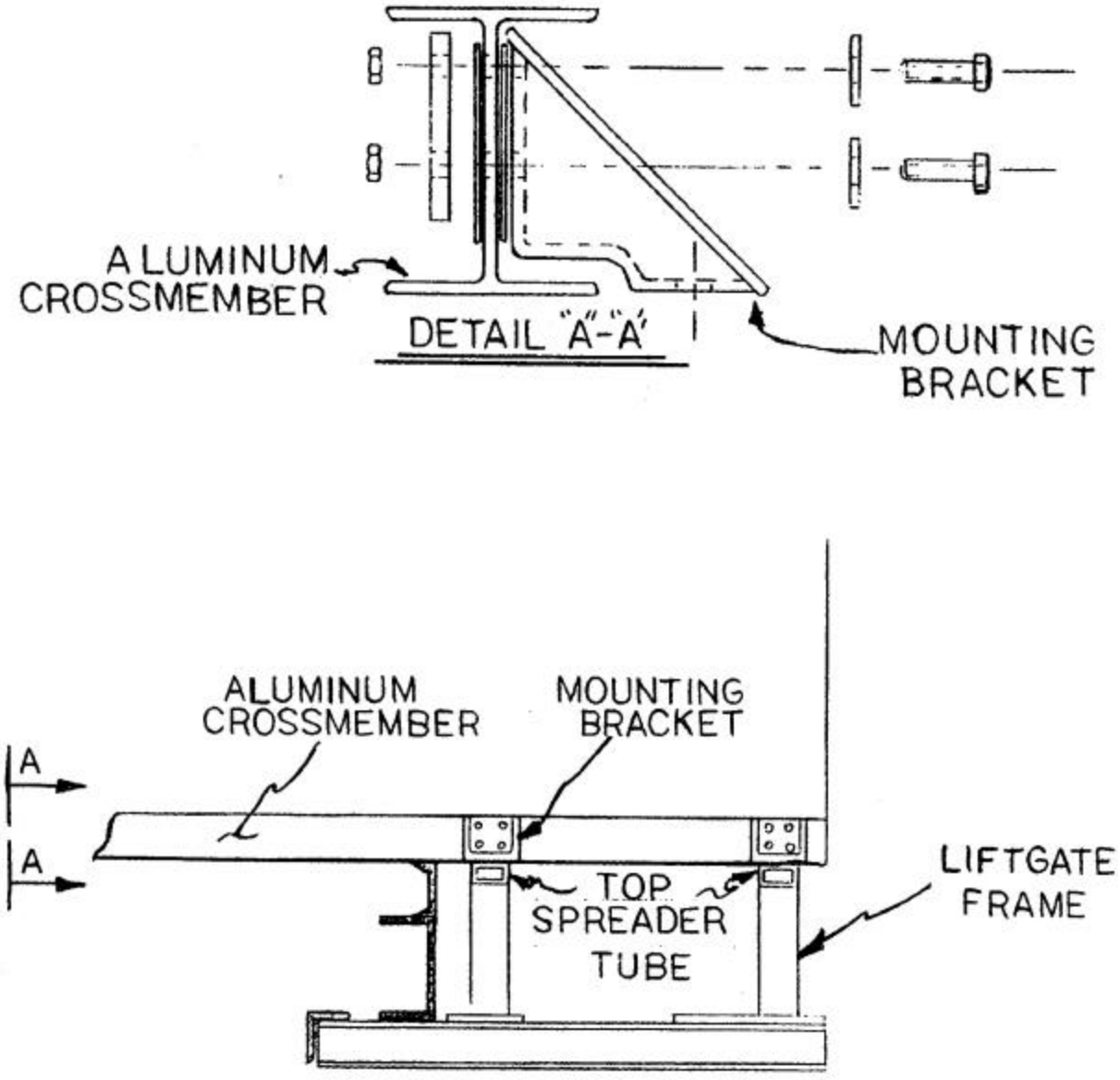
1. Position the lift gate under the truck to its final location.

2. Use one of the mounting brackets supplied with the gate to mark the location of each mounting bracket to be installed. Each bracket should be centered over the top spreader tube on the frame of the lift gate (see Figure 2).

3. A mounting bracket should be used at every cross member/frame intersection.

4. Remove the lift gate from under the truck and install the mounting brackets on the aluminum cross members.

Figure 2 – Aluminum cross member conversion illustration



INSTALLATION

1. If the lift gate is to be centered with the door of the truck, measure the door opening and mark a center line on the rub-rail of the truck.

2. Measure the width of the lift gate and mark a center line on the frame of the lift.

3. Using a fork lift, raise the lift gate to the truck underside (see Figure 3).

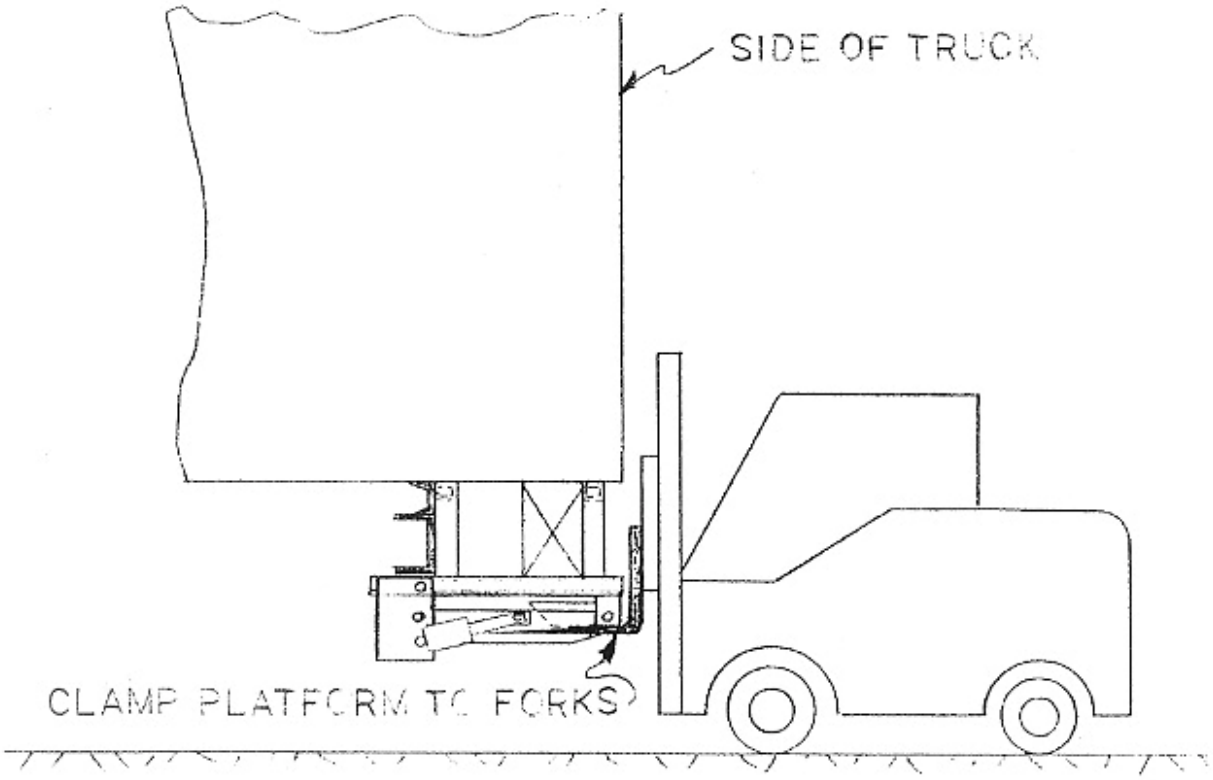
4. Align the two center marks and then weld the four corners of the lift to the truck cross members. However, in order to allow for clearances between door and platform, you may not want to center gate.

5. Once the lift has been secured, remove the clamps and fork lift.

6. Install up and down toggle switch in truck at a convenient location.
   Use CA-551-102 on page 13.

7. If lift is to be powered by an external source, make necessary electrical connections now. See section entitled SLAVE LINE INSTALLATION.

Figure 3 – Positioning lift gate under truck

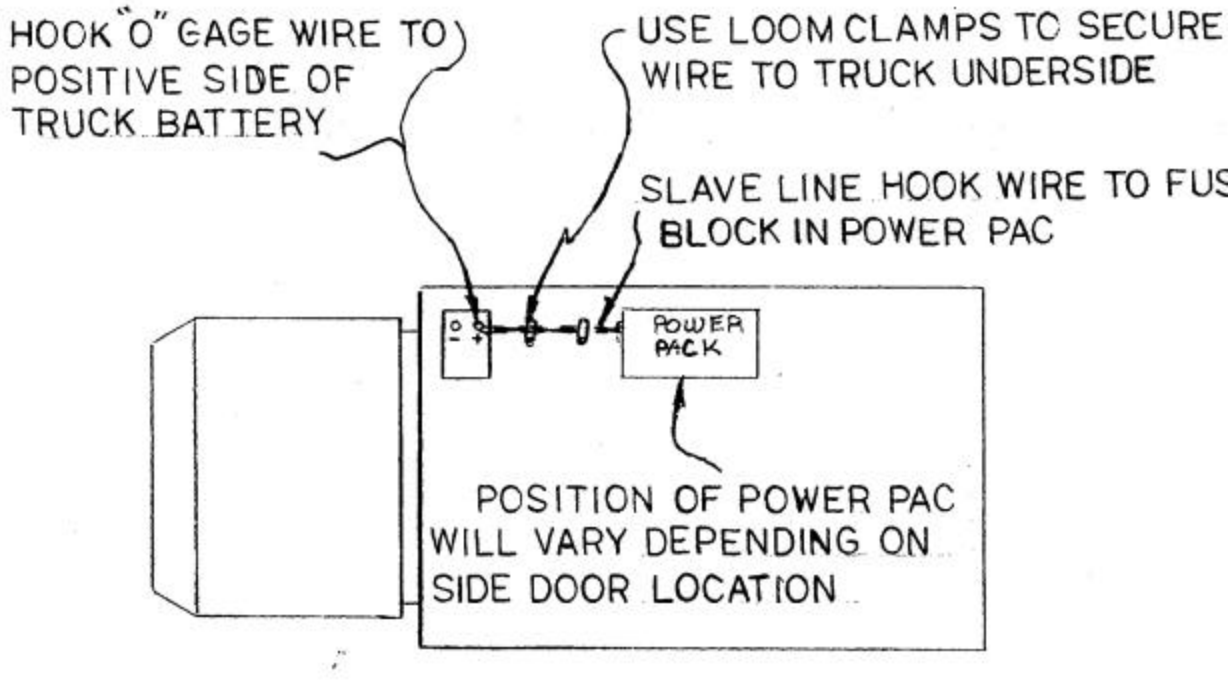


SLAVE LINE INSTALLATION

1. A slave line is used when the power unit on the gate is not equipped with a battery or when a back up power source is desired by the customer.

2. When a slave line from the truck battery is used, connect as indicated in Figure 5.

Figure 5 – Slave line location.



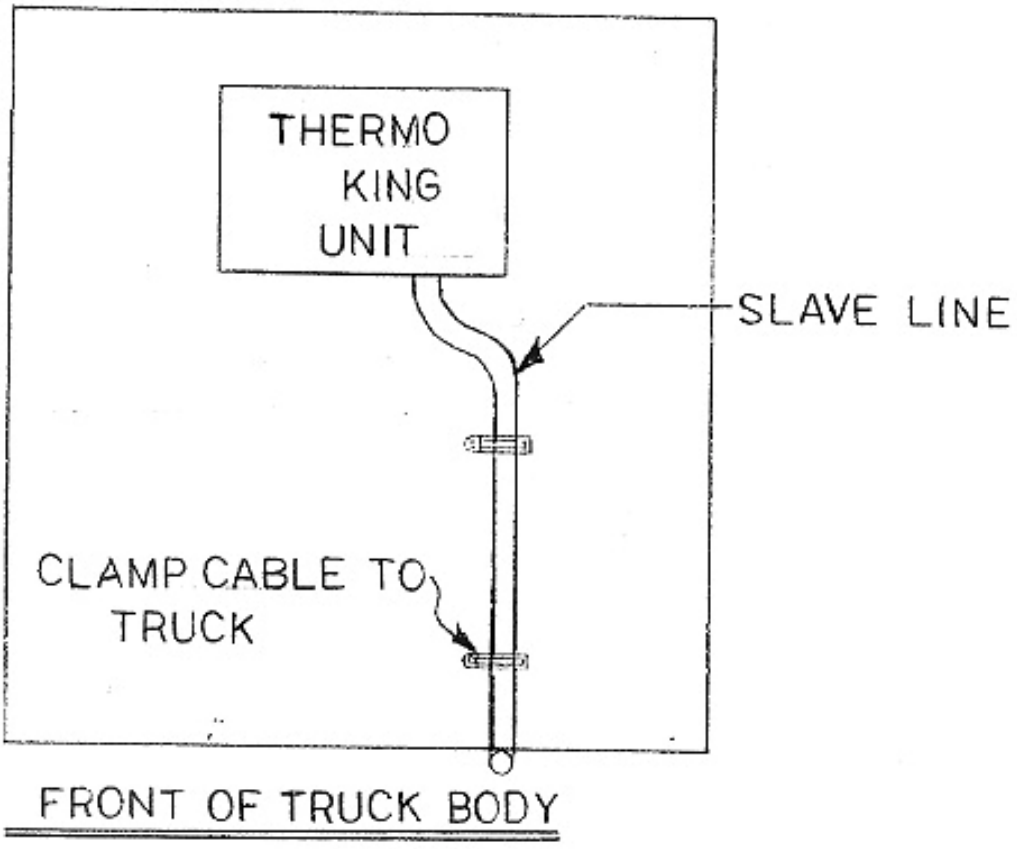
3. When charging from a Thermo King unit, the slave line can be ran directly from the lift gate power unit to the Thermo King. The charging line should be routed up the front of the truck and into the Thermo King unit (see Figure 6).

4. Secure the cable to the front and underside of the truck with the loom clamps and self tapping screws.

5. Use a No. 17 drill bit to make the screw holes.

6. Follow recommendations of refrigeration unit manufacturer when connecting charge line.

Figure 6 – Thermo King slave line installation.



RECOMMENDED HYDRAULIC OILS AND LUBRICATION

Level 1 – Hydraulic Oil (Normal Conditions)

Manufacturer	*Type*	*Temperature Range*
Mobil	DTE-11	-15^{o}F to + 150^{o}F
Shell	Tellus-T15	-15^{o}F to + 150^{o}F
Chevron	Rykon ISO - 15	-15^{o}F to + 150^{o}F

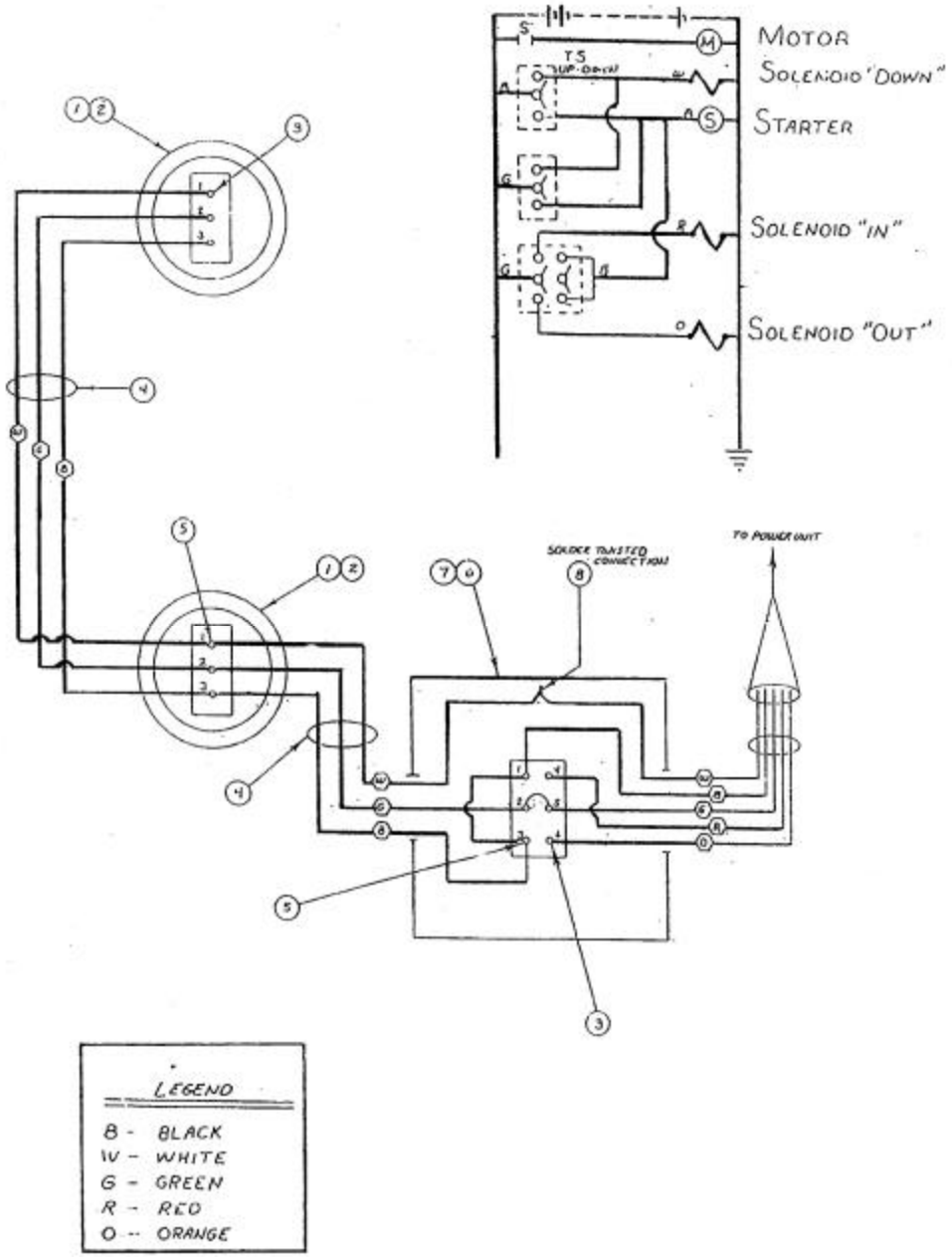
Level 2 – (Cold conditions)

Manufacturer	*Type*	*Temperature Range*
Mobil	Aero-HFA	-50^{o}F to + 80^{o}F
Shell	Aero Fluid 4	-50^{o}F to + 80^{o}F
Exxon	Univis-J-13	-50^{o}F to + 80^{o}F
Mil	H-5606	-50^{o}F to + 80^{o}F

Lubrication Specifications:

Parts to Grease:	***Use:***
Guides and Rollers Uses	Militec – 1 (800) 421-1048 #0 -40^{o}F to + 100^{o}F #1 -20^{o}F to + 200^{o}F
Hinge Barrels and Fittings Uses	B.P. Products, Inc – Wichita, KS Part #60035 – Multi-Purpose Grease #35
Hinge Barrels (center platforms) Uses	W.W. Grainger Part #6Y834 – Needle Nose Adaptor for Grease Gun
Battery and Electrical Components Uses	Bowman Battery Terminal Protector Part #21948

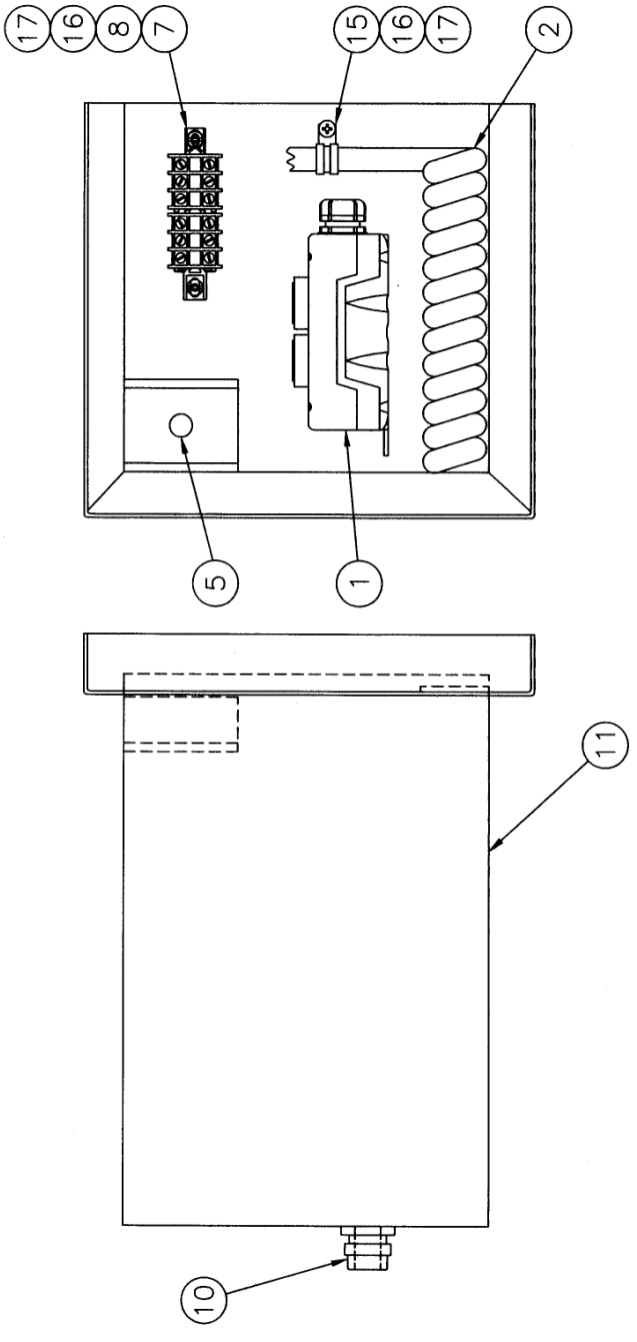
TOGGLE SWITCH ELECTRICS – CA-551-102

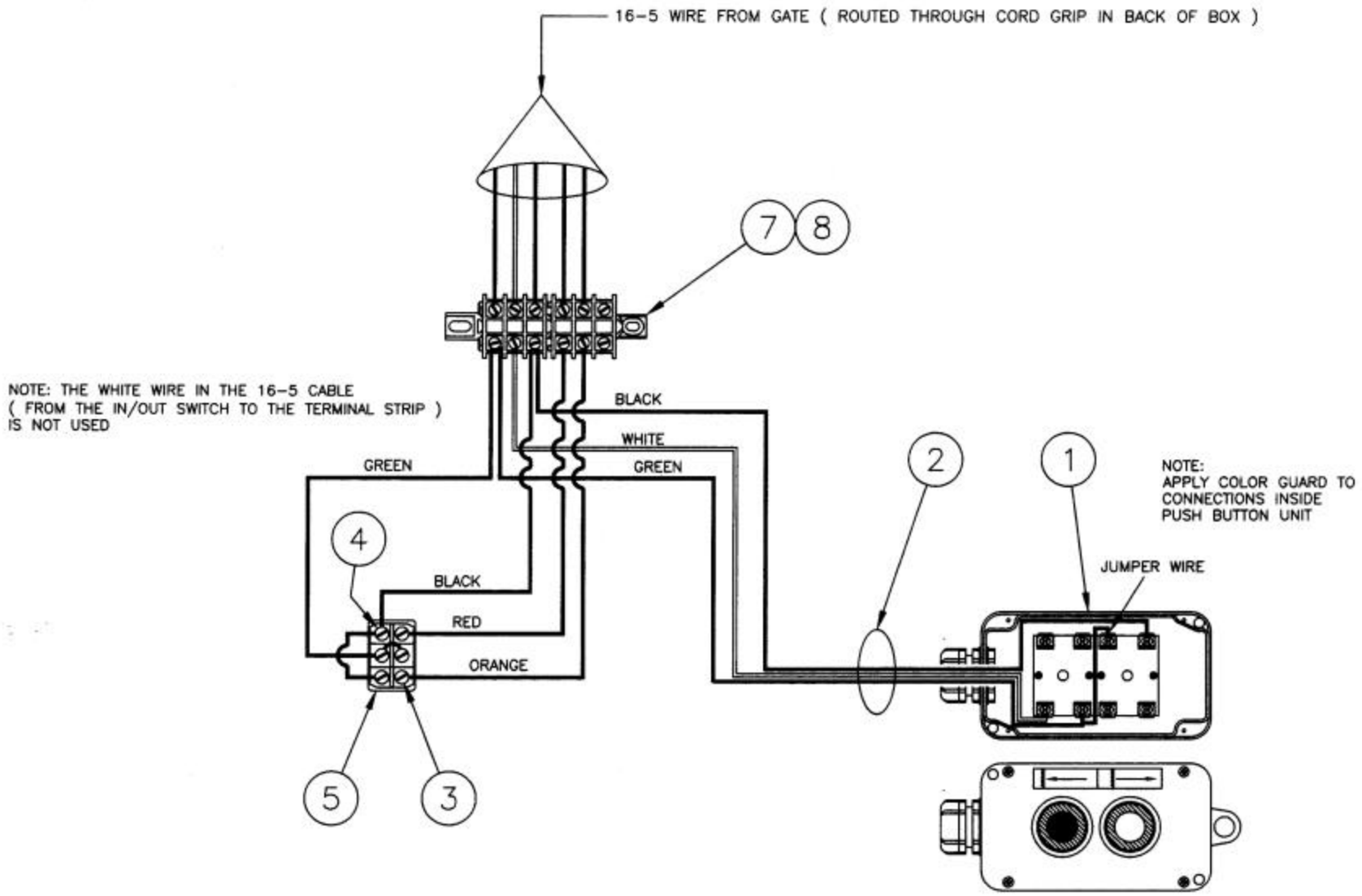


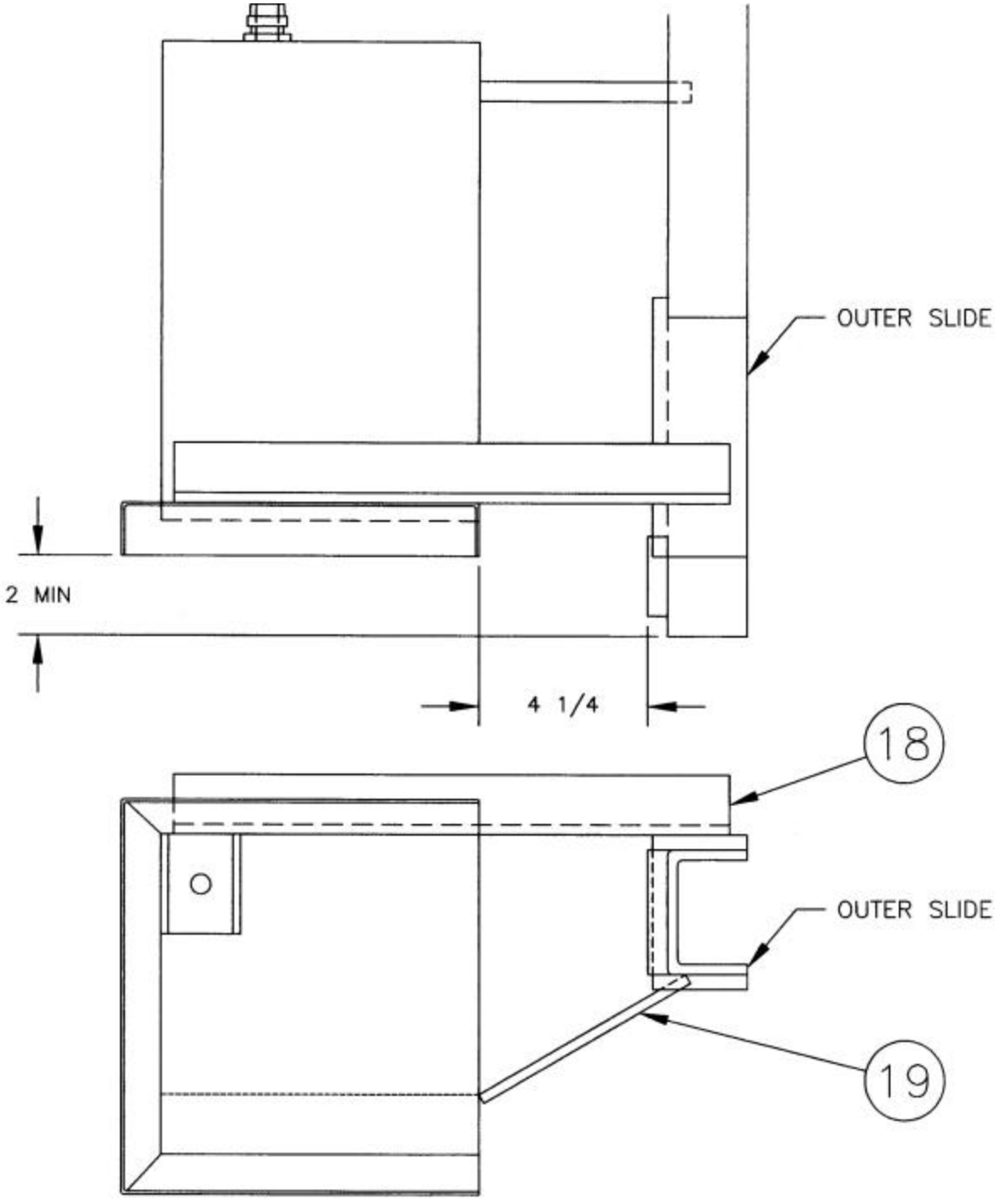
Index #	Req'd	Part #	Description
1	2	P46292	Dish pan
2	2	P46441	Toggle switch
3	5	P46319	Fork terminal
4	1	P46186	Rubber jacketed wire
5	7	P46444	Large fork terminal
6	1	BA-551-101	Switch box
7	1	P46442	Toggle switch
8	1	P46300	Shrink tube
9	10	P17518	Self tapping screw
10	4	P46250	Loom clamp

WALK AROUND ELECTRICS - CA-551-103

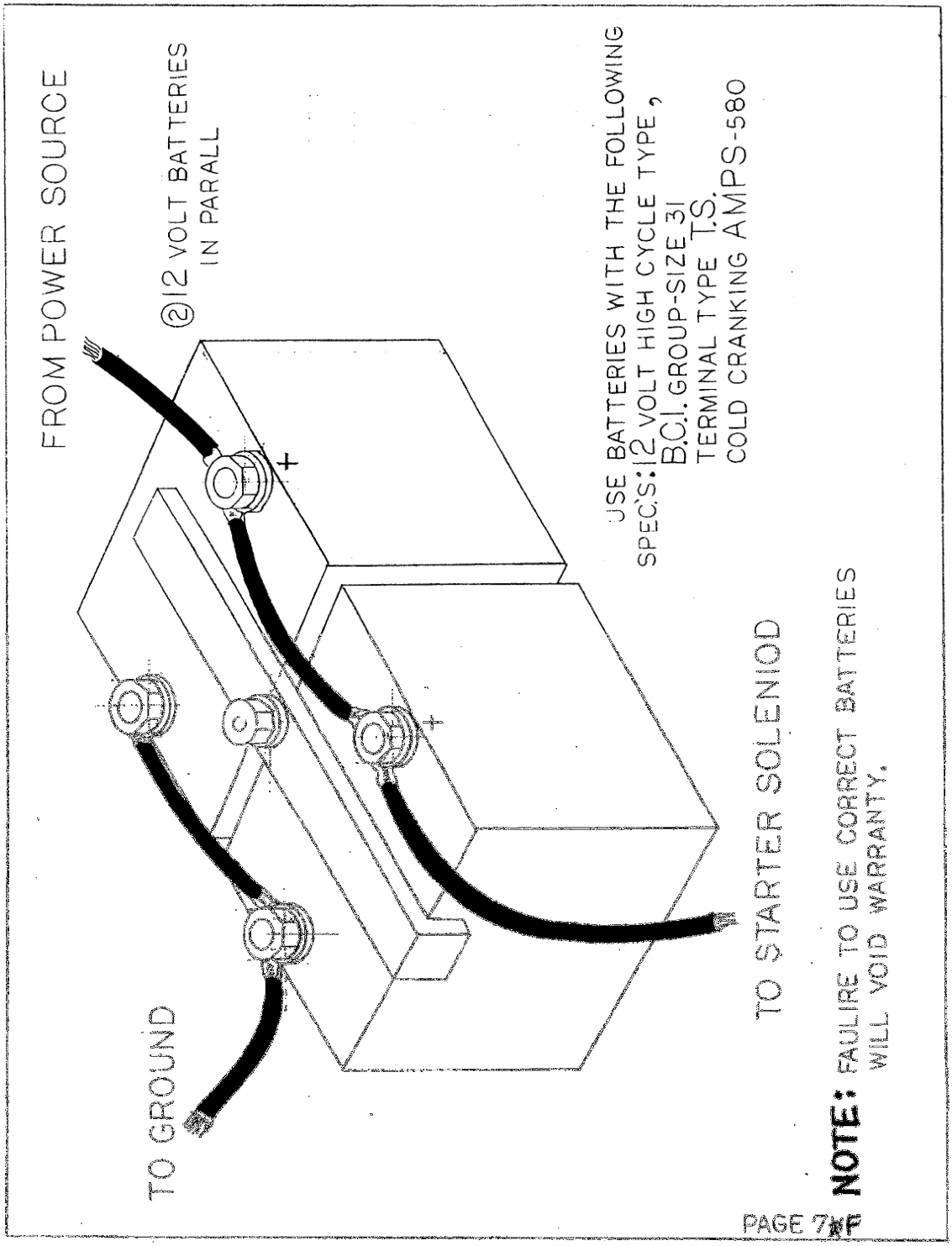
Index #	Req'd	Part #	Description	Matl.	Matl. Size
1	1	P46636	2 button control assembly		
2	1	AP-551-212	Coil cord (1/2)		
3	7	P46476	Locking form terminal	Small	
4	4	P46444	Locking fork terminal	Large	
5	1	AA-551-326	Toggle switch assembly		
6	1	P46443	Cable (16-5)		20"
7	2	P46382	Terminal block	KT3	
8	1	P46395	Terminal block end		
9	1	P56554	Steel plug	In open hole in back of back	
10	1	P46445	Cord grip		
11	1	P46138	Push button box		
12					
13					
14	5	P17518	Self tapping screw		
15	6	P46250	Loom clamp		
16	3	P19501	Round head screw		#10-24 x ½
17	3	P23504	Lock nut		#10-24
18	1	S560-014.000	Support angle	St angle	1-1/2 x 1-1/2 x ¼ x 14
19	1	S050-006.000	Brace	HR flat	¼ x ½ x 6



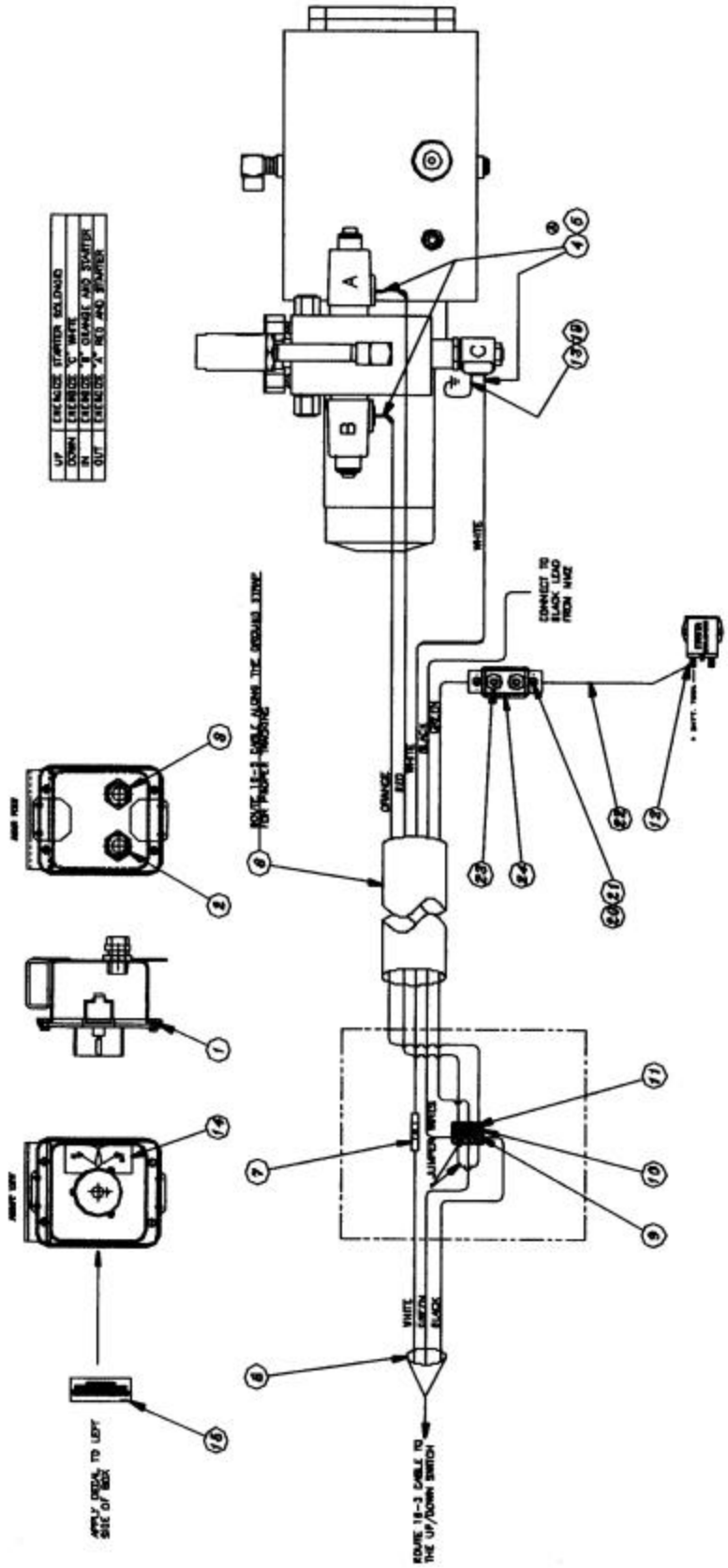

16-5 WIRE FROM GATE (ROUTED THROUGH CORD GRIP IN BACK OF BOX)
7
8
NOTE: THE WHITE WIRE IN THE 16-5 CABLE
(FROM THE IN/OUT SWITCH TO THE TERMINAL STRIP)
IS NOT USED
BLACK
WHITE
GREEN
GREEN
2
1
NOTE:
APPLY COLOR GUARD TO
CONNECTIONS INSIDE
PUSH BUTTON UNIT
4
JUMPER WIRE
BLACK
RED
ORANGE
5
3


OUTER SLIDE
2 MIN
4 1/4
18
OUTER SLIDE
19

BATTERY HOOK-UP DATA



BASIC ELECTRICS – CT-551-318



Drawing #	Length "A'	Gate Width
CT-551-215-001	18 ft. (216")	42-48
CT-551-215-002	30 ft. (360")	50-72

Index #	Req'd	Part #	Description	Mtl Size
1	1	BA-551-317	Switch box weldment	
2	1	P46445	Cord grip	For 16-5 cable
3	1	P46138	Cord grip	For 16-5 cable
4	6	P46300	Heat shrink tubing	3 pcs each 2" lg
5	3	P46491	Female connector	3/16
6	1	P46443	Cable 16-5	See chart for length
7	1	P46156	Butt connector	
8	1	P46186	Cable 16-3	60" lg
9	2	P46444	Large fork terminal	
10	1	AA-551-327	Toggle switch assembly	
11	4	P46476	Small fork terminal	
12	1	P46235	Large ring terminal	
13	1	P46471	Blue 15 GA. Wire	1 pc – 8 in.
14	1	P55222	In/out decal	
15	1	P55317	Do not open decal	
16	6	P46250	Loom clamp	
17	6	P17518	Self tapping screw	
18	1	P55345	Electrics/hyd diagram	
19	1	P46318	Female connector	¼
20	2	P19501	Screw 10-24 x ½	
21	2	P23504	Nut	
22	1	P46301	Green 10 GA. wire	1 pc – 12 in.
23	2	P46507	Ring terminal sm.	
24	1	P46236	20 amp. Circuit breaker	

Warning!! Reversing the leads on the "C" down valve will cause permanent damage to the coil. Large spade is ground.

OPTIONAL EMERGENCY HAND PUMP OPERATION

An emergency hand pump was supplied with this lift gate to enable manual operation of the gate in the event of power failure. The intended use of this hand pump is to restore the gate to the transit position. Do not try to operate the power unit when using the hand pump.

Note: On gates that are equipped with power in and out, the chain will have to be disconnected to move the gate back. This can be accomplished by unbolting the chain anchor.

To operate the hand pump reference page 8A and 8B.

1. Located valve (Item 7) in the pressure side of the hydraulic circuit.

To Raise Platform:

2. Open valve (Item 7). Handle is parallel to valve body.

3. Remove pump handle from holder and insert in hand pump socket.

4. Operate hand pump by moving handle back and forth.

5. Continue pumping until platform is high enough to attach stowing chains.

6. Manually push the platform all the way under the trailer. Attach safety chains to the snap hooks on each side of platform.

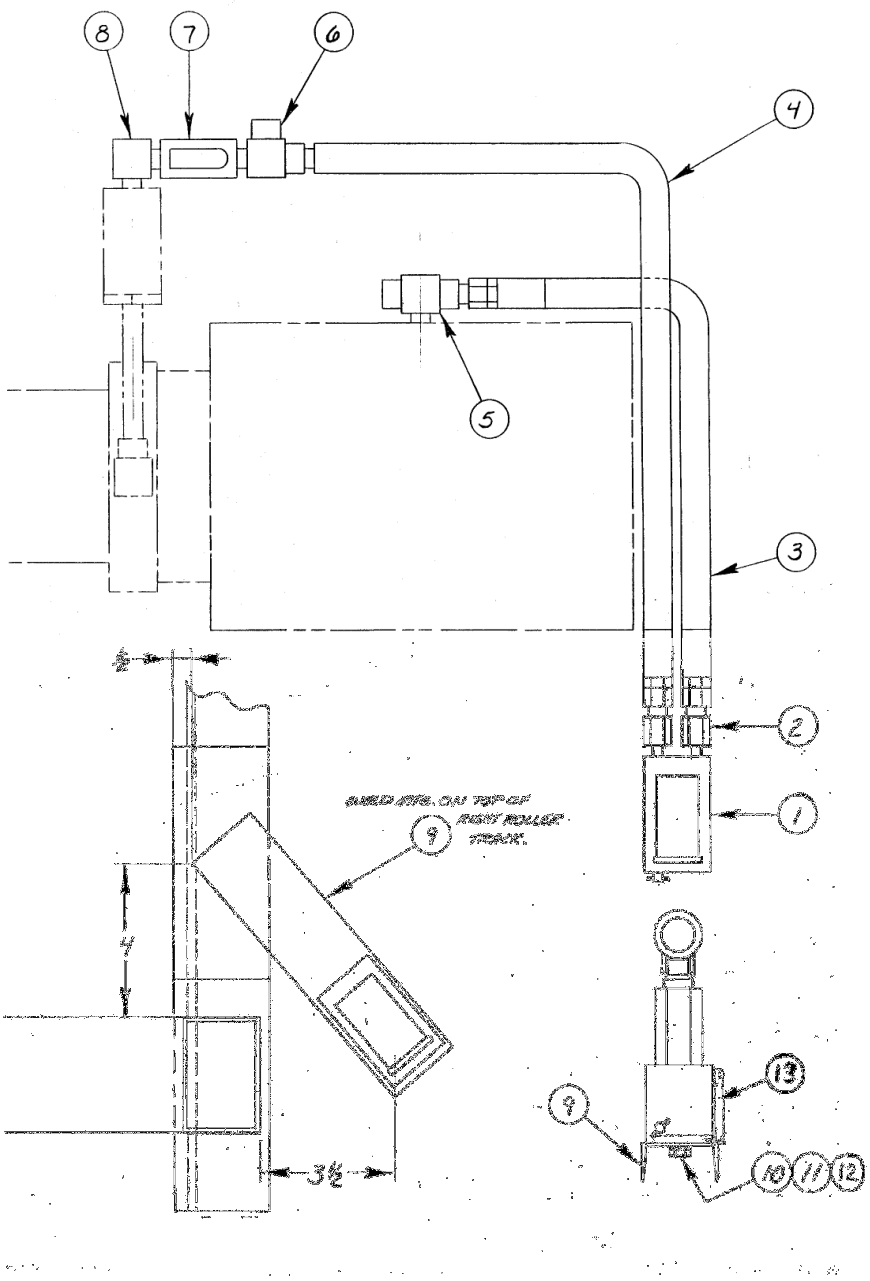
To Lower Platform:

7. Platform can be lowered simply by opening valve at the base of pump.

8. Close valve (Item 7) after using hand pump circuit.

STG HAND PUMP ASSEMBLY
CA-501-160

Index #	Req'd	Part #	Description
1	1	P33902	Hand pump
2	2	P33101	Adapter
3	1	AT-501-100-034	Hydraulic line assembly
4	1	AT-501-100-040	Hydraulic line assembly
5	1	P33606	Tee
6	1	P33216	Street tee
7	1	P33208	Ball valve
8	1	P33217	Male elbow
9	1	AP-501-146	Hand pump mounting
10	2	P15540	Bolt
11	2	P23502	Lock nut
12	2	P26007	Flat washer
13	1	AP-501-267	Mounting bracket



SETTING THE STOPS

1. Push toggle switch up until lift stops going up. DO NOT HOLD SWITCH ON ONCE LIFT STOPS.

2. Removed stowing chains from pivot plates on each side of the platform. Hand the chains on the hooks provided.

3. If the lift gate is not equipped with power in and out, lift the lock handle and pull the gate forward until it stops in the loading position.

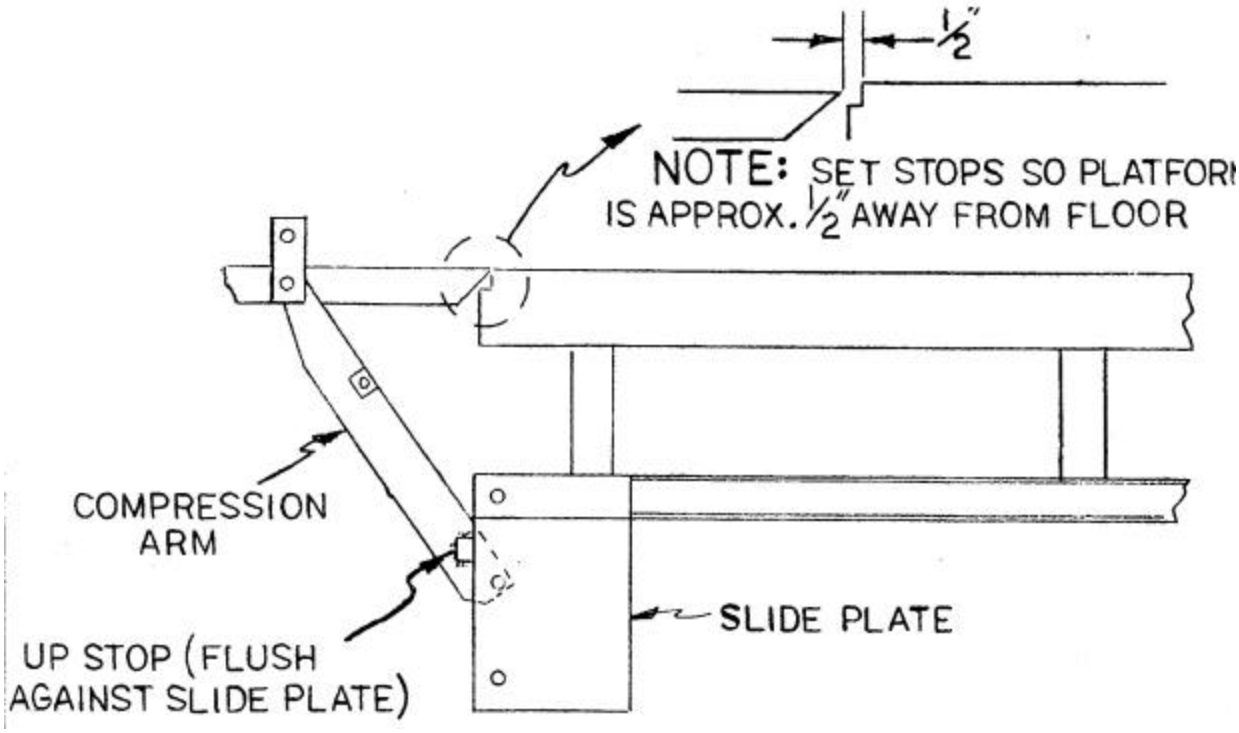
4. If the lift has power in and out, lift the lock handle and use the in and out toggle switch to run the gate out until it stops. DO NOT STAND IN FRONT OF LIFT WHEN OPERATING THE IN AND OUT.

5. Use up and down toggle switch to lower gate down to ground level. Unfold platform sections.

6. Once this is done, push up toggle switch and run the lift up to floor level.

7. To stop the platform at the same height as the truck floor, tack weld up stops to the compression arms as shown in Figure 7. Use (2) ½" thick by 1" square, pieces of plain carbon steel to make the stops.

Figure 7 – Up stop location.



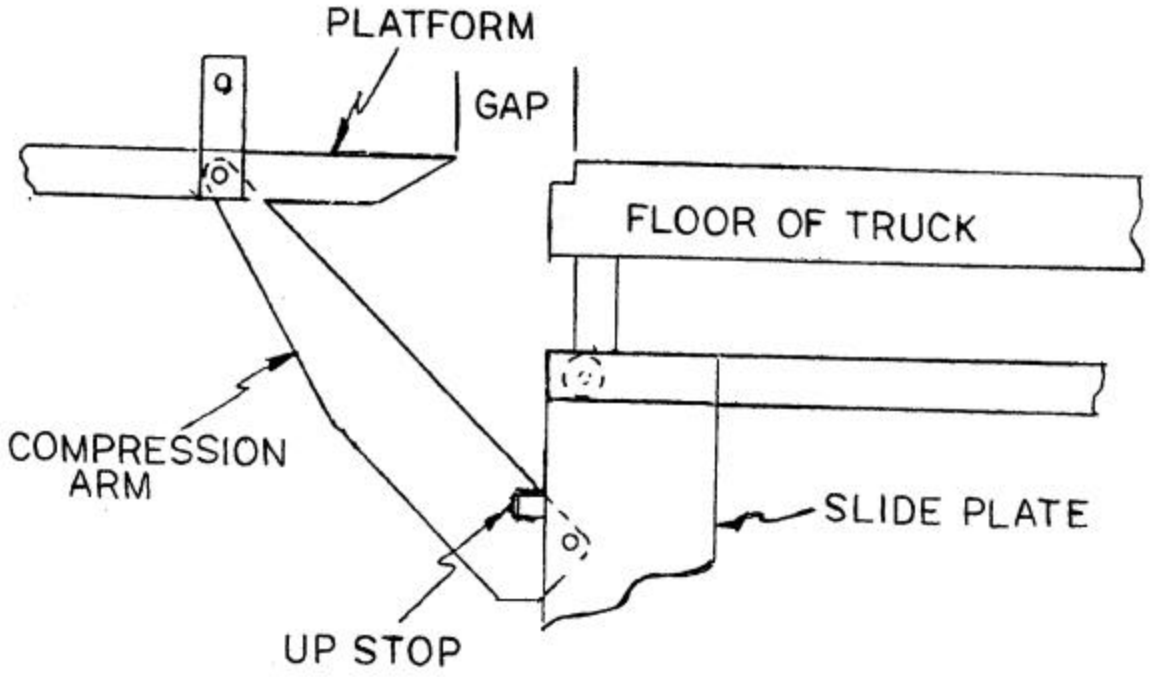
8. Locate up stops such that the gate platform is approximately 1/2” away from the truck floor. This will prevent repeated contact between the gate platform and truck rub-rail.

9. After up stops have been tack welded in place, push the toggle switch to the down position and make sure stops clears inner slide plate.

10. Weld stops solid to the compression arms.

11. Raise the gate until it stops. If there is a gap (as shown in Figure 8) between the end of the platform and the truck floor, move the gate in until they meet.

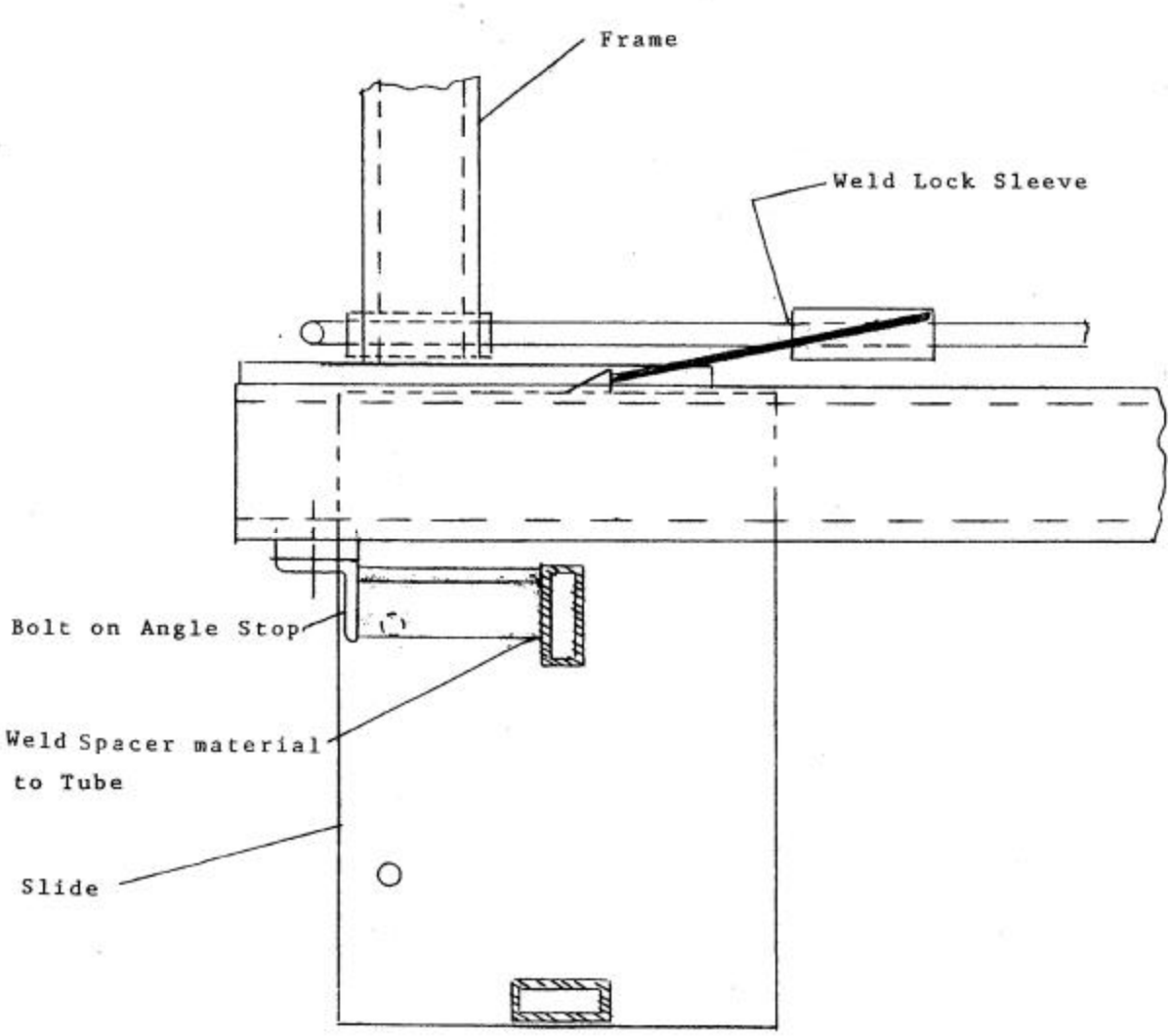
Figure 8 – Platform position in relation to truck floor.



12. If there is a gap between platform and floor of truck, locate the bolt on angle stops on frame.

13. Spacer material must be added to the slide tube to prevent the gate from going all the way out. Use Figure 9 as a guide to position the spacer material on tube.

Figure 9 – Stop block and lock assembly illustration.



14. Lock tabhould rest on the block according to Figure 9.

15. Tack weld the sleeve to the bar. Lift the lock handle and make sure there is not any interference.

16. Weld the sleeve solid.

17. Weld lift gate frame solid to every truck cross member possible.

18. Next check to see that all parts have full welds. Check all bolts to make sure they are tight.

19. When these procedures have been completed, the lift gate is ready for use.

20. ADD MUD FLAP AS REQUIRED.

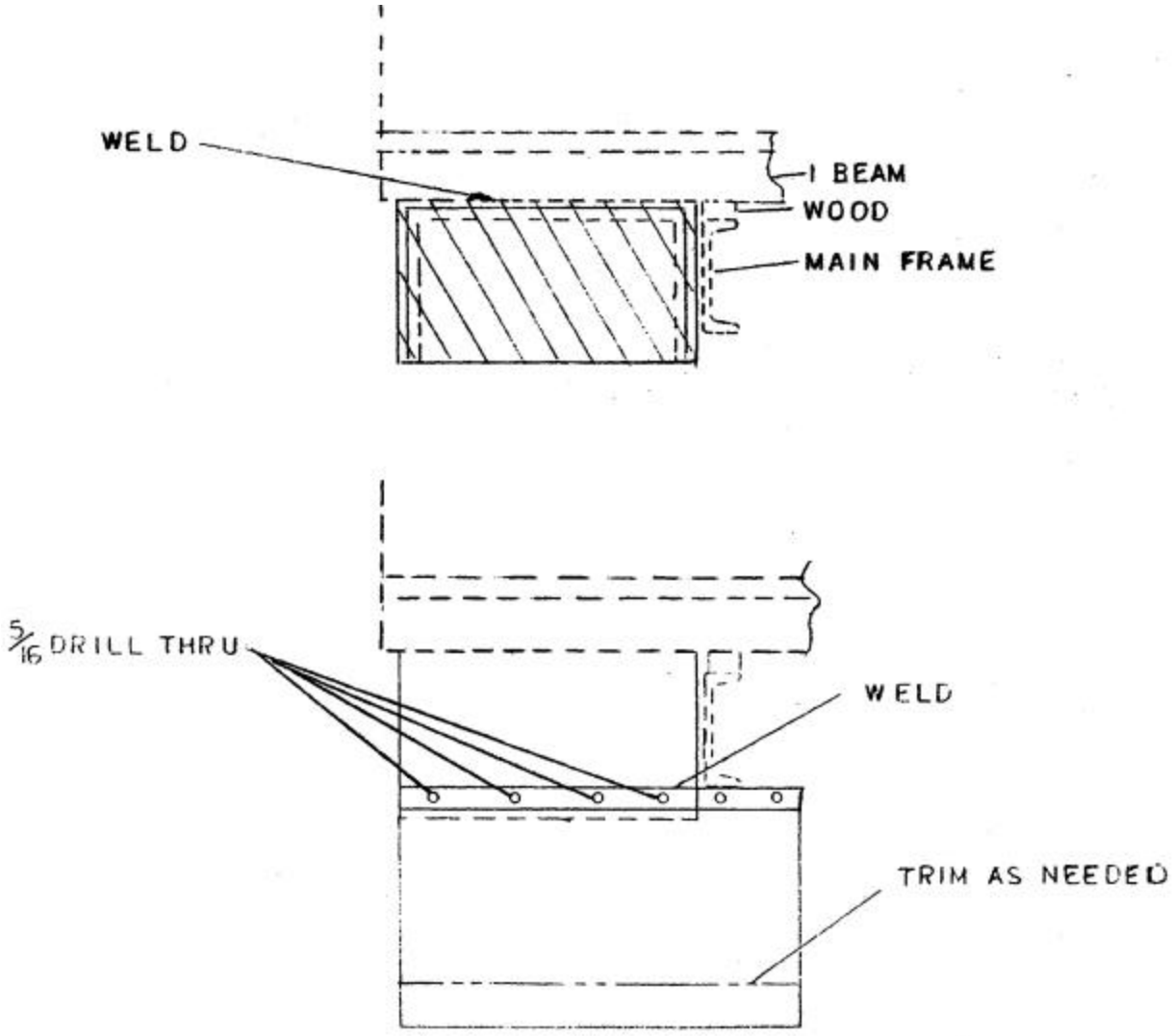
INSTALLATION OF MUD FLAP

1. First locate “I” beam between gate and front of truck on which to hand mud flap.

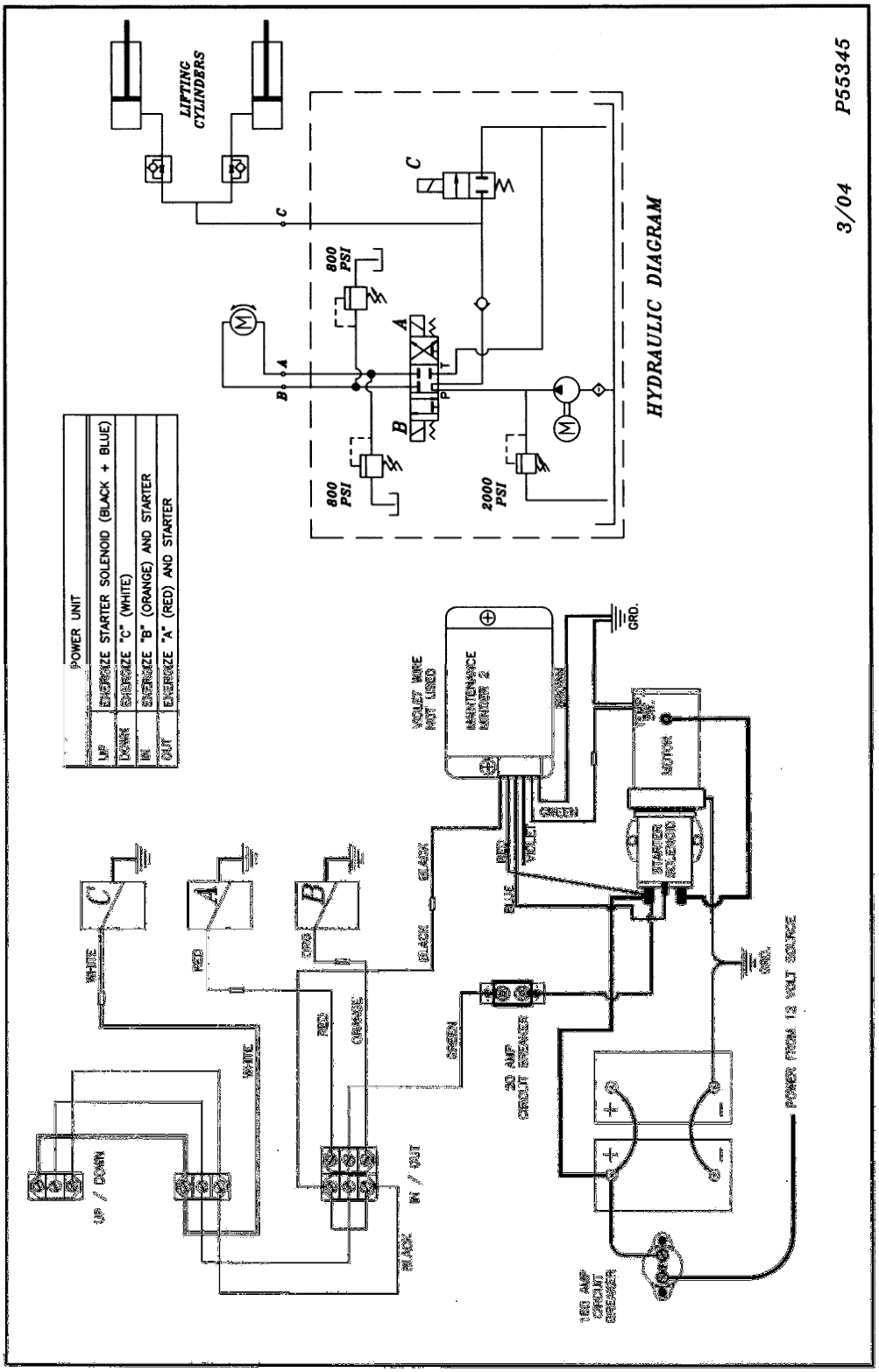
2. Install cover sheet assembly by welding to “I” beam. (as shown).

3. Locate pre-drill strip (as shown) and weld to cover assembly and drill holes through. (as shown)

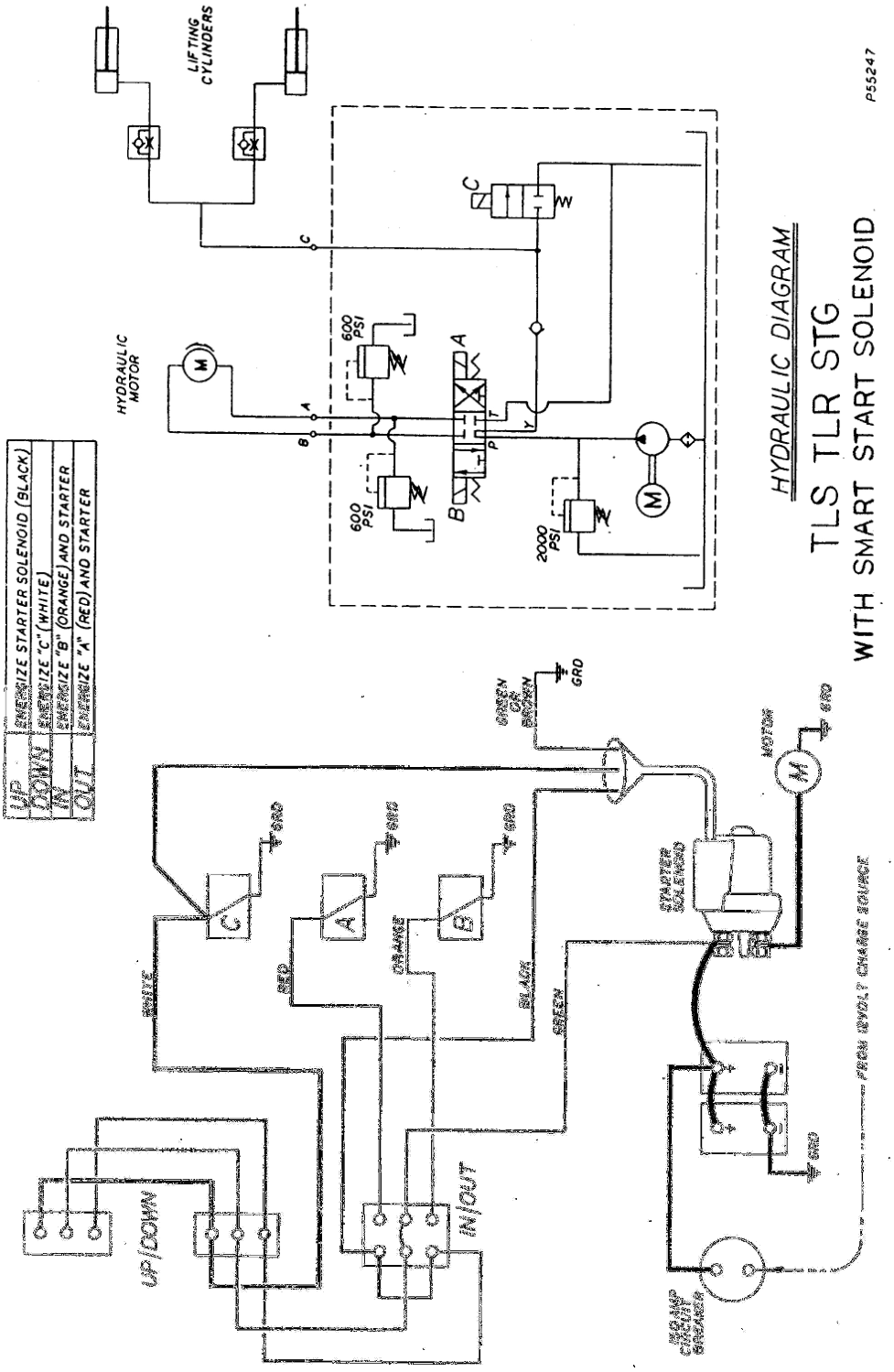
4. Assemble mud flap.



STG with MM2


HYDRAULIC DIAGRAM
3/04
P55345
LIFTING CYLINDERS
800 PSI
2000 PSI
POWER UNIT
UP
ENERGIZE STARTER SOLENOID (BLACK + BLUE)
DOWN
ENERGIZE "C" (WHITE)
IN
ENERGIZE "B" (ORANGE) AND STARTER
OUT
ENERGIZE "A" (RED) AND STARTER
VIOLET WIRE NOT USED
MAINTENANCE MONITOR 2
GRD.
MOTOR
STARTER SOLENOID
BLACK
BLUE
RED
YELLOW
GREEN
WHITE
ORANGE
30 AMP CIRCUIT BREAKER
POWER FROM 12 VOLT SOURCE
UP / DOWN
IN / OUT
150 AMP CIRCUIT BREAKER

HYDRAULIC DIAGRAM
STG with SMART START SOLENOID



OPERATING INSTRUCTIONS

Caution: Before operating the lift, read and understand the instructions, Urgent Warning Decal, and Owner's Manual.

Do not stand in front of lift gate while unfolding or using platform.

With lift gate in the over-the-road position/stored position, do the following steps to operate the lift gate:

1. To relieve tension on safety chains, push the up switch (gate will go up).

2. Remove safety chains from hooks on each side of lift.

3. Use down switch to lower lift until arms are parallel to ground.

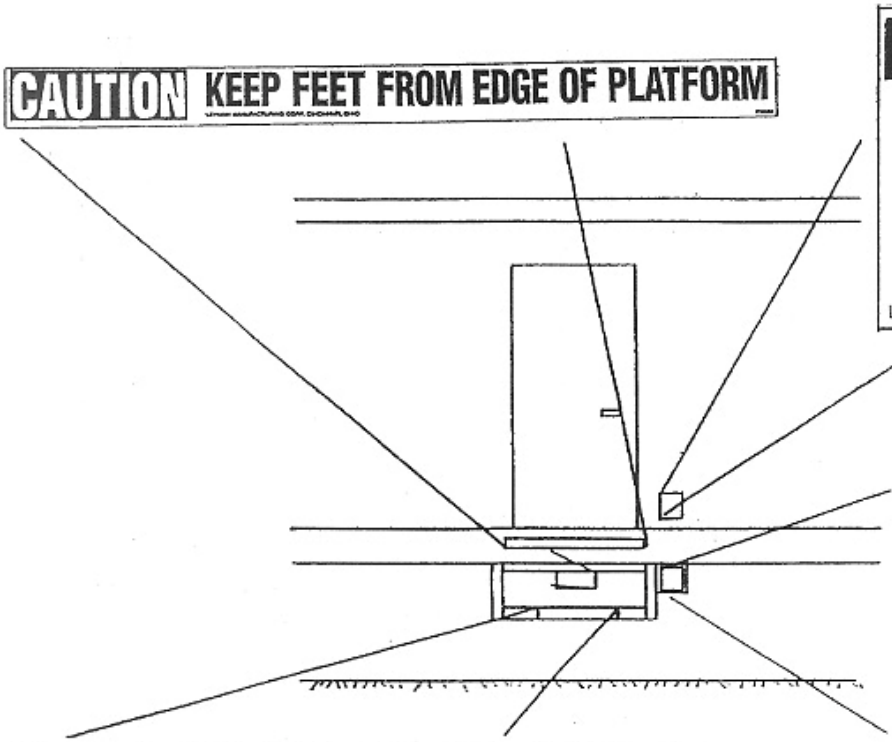
4. Stand to side of lift gate. Push the power in/out switch down, gate will run out, run gate out until it stops and locks in its fully extended position.

5. Unfold ramp.
   To Lower platform, use the down switch only.
   To Raise platform, use the up switch only.
   To store gate in the over-the-road position:

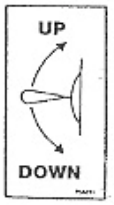
1. Raise platform off ground until arms are parallel to the ground. (use up switch).
2. Fold ramp over.
3. Raise locking bar handle and push the in/out switch up. Run gate all the way under trailer until lift stops.
4. Run gate up (use up switch).
5. Hook both safety chains in hooks on each side of lift gate.
6. Lower gate until chains are tight (use down switch).

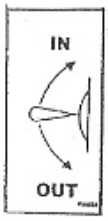
Operating Instructions Decal – P55223

INSTALLATION OF SAFETY SIGNS STG



LOCATED ON SIDE OF TRUCK ADJACENT TO DOOR.





CUSTOMER: _____

SERIAL NO. _____

COLOR: _____

REMARKS: _____

SIGNED: _____

DATE: _____

* ALL DECALS WILL BE REPLACED FREE AT ANYTIME.

LEYMAN LIFT GATES
10900 Kenwood Road · Cincinnati, OH 45242
Ph: 513.891.6210 · Toll-Free: 866.539.6261 · Fax: 513.891.4901

SAFETY AND PREVENTATIVE MAINTENANCE INSPECTION
HIDE-A-WAYÔ TRUCK SIDE GATE MODEL STG
Maintenance by Cycles

CUSTOMER:		
LOCATION:		
VEHICLE#:	LIFT GATE MODEL#:	LIFT GATE SERIAL#:

√ = OK A = ADJUSTED N = NOT APPLICABLE X = WRITE UP REPAIR

2,000	4,000	8,000	MOTOR - PUMP COMPONENTS
			Check that battery hold downs are anchored securely
			Check battery(ies) for proper charge level. PROPER CHARGE LEVEL:
			Check all wiring connections for corrosion and tightness (batteries, switches, etc.)
			Check solenoids for loose fittings and operation
			Check reservoir for correct amount of fluid (platform should be down when checking)
			Inspect and check all circuit breakers. Replace if necessary
			Check the charge line/power line for proper operation and connections at both ends
			Remove and clean all pump solenoid cartridges
			Replace hydraulic fluid in reservoir (see owners manual for recommended fluids)
			Check and adjust the relief valve settings. (see owners manual for recommended setting)
			Check brushes and armature in motor. Replace if necessary
			Check amperage draw of motor (see owners manual for recommended amp draw)
2,000	**4,000**	**8,000**	**LUBRICATION**
			Lightly lubricate platform and ramp hinges
			Lightly lubricate in & out chain with ***dry lubricant***. Not with corrosive lubricants, such as WD40, etc.
			Lubricate bushing on tension and compression arms
			Clean and lubricate chain sprockets
			Lubricate bearings in rollers
2,000	**4,000**	**8,000**	**LIFT GATE STRUCTURE INSPECTION**
			Operate lift gate in-out. Observe for correct operation
			Raise and lower lift gate. Observe for correct operation
			Check Hoses and Fitting for chaffing, rubbing, and leaks
			If equipped with Emergency Hand Pump check for proper operation (see owners manual)
			Check bolts on angle stops in track. Tighten if necessary
			Check and adjust in-out chain (should only have ½" play)
			Check roller track for damage. Repair as necessary
			Check up and down cylinders for leaks. Repack or replace cylinders
			Inspect for broken and/or missing roll pins
			Inspect for worn bushings in compression and tension arms. Replace as necessary
			Steam clean gate. Repair any structural welds as needed
			Repaint where needed and replace any worn or missing safety decals

SERVICED BY: _____ DATE: _____