



Perma Tech, Inc.

"Your Single Source for ALL Your Loading Dock Needs"

PermaLOCK Hydraulic Truck Restraint

Installation Instructions and Owner's Manual



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



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Manufacture Date: _____

Model: _____

Serial #: _____

SAFETY INFORMATION

WARNING

Failure to read and understand the entire contents of this manual may result in damage to the equipment, bodily injury and/or death. Never install, maintain or operate this equipment under the influence of drugs or alcohol.

INSTALLATION

- Personnel installing this equipment must be fully qualified and experienced in safe working procedures.
- All lifting and slinging devices must be in good working order and used in the correct manner.
- All electrical work must be done by a qualified electrician and must meet all applicable local codes.
- Concrete must be in good repair with no cracks in the mounting face within 4 ft. of the truck restraint and dock leveler.
- Never go beneath the dock leveler unless the dock is barricaded in front of the dock leveler on the loading dock floor and driveway.
- Do not install the restraint in concrete block, wood or similar dock faces.

MAINTENANCE

1. Lock out power supply.
2. Barricade in front of the dock leveler on the loading dock floor and the driveway.
3. When replacing parts use only genuine **Perma Tech** leveler parts.
4. Do not alter the equipment.

OPERATION

1. Keep clear of the equipment's operating path.
2. Do not operate with anyone standing in front of the lip end of the dock leveler.
3. Do not wear loose clothing or jewelry while operating this equipment.
4. Keep hands, limbs and loose hair clear of equipment during positioning or storing of the dock leveler and truck restraint.
5. Never attempt to "ride" on the equipment during positioning or storing of the truck restraint or dock leveler.
6. Never continue to use the truck restraint or dock leveler if you believe it is damaged because of bent structural members, broken welds, oil leaks, etc. Have the unit inspected by your nearest **Perma Tech** representative.

INSTALLATION INSTRUCTIONS

1. MATERIAL INSPECTION

- Open and inspect all material.
- Report immediately any damage or material shortage to **Perma Tech Inc.**
- Study all installation drawings and determine the proper location's for the signs, controls, truck restraint and exterior light system.

2. INSTALLATION OF THE TRUCK RESTRAINT

- Place the latch in the center of the door opening.
- Mark the eight (8) hole positions on the face of the foundation wall.
- Drill eight (8) 1/2" diameter holes approx. 7" deep.
- Bolt the latch to the foundation wall using 1/2" diameter x 6" long wedge anchor bolts.
- If possible, the top back plate can be welded to the curb angle on the bottom of the pit.

3. HYDRAULIC CONNECTION TO DOCK LEVELER AND TRUCK RESTRAINT

NOTE: SEE PAGE 13 FOR HOSE ROUTING AND CONNECTIONS

IMPORTANT: WHEN CONNECTING TO AN EXISTING DOCK LEVELER.

1. Drain oil.
2. Clean reservoir.
3. Flush hydraulic system.
4. Refill reservoir with new oil.
5. Failure to do so will cause damage to the unit and will void the warranty.
6. Hydraulic system must be completely clear of dirt particles and all hoses must be covered when passing through conduits.

Petro-Can hv122

Shell Tellus 27

Texaco HD22

or equivalent

4. EXTERIOR SIGN MOUNTING

- Locate the exterior sign and light system as shown on page 4.

5. INTERIOR SIGN MOUNTING

- Locate the interior control box and sign as shown on page 4.

6. ELECTRICAL PROXIMITY LIMIT SWITCH INSTALLATION (TO EXISTING UNIT)

- Mount the proximity limit switch plate behind the dock leveler lip.

NOTE: This plate can either be bolted or welded in place as shown of page 14.

INSTALLATION INSTRUCTIONS CONT'D

7. ADJUST THE PROXY LIMIT (EXISTING UNIT)

- Adjust the proxy limit within 3/16" of the lip.

NOTE: Lip must be tight against stop.

- Tek-screw or weld the electrical junction box to the under side of the top deck beam as shown on page 14.

8. INSTALLATION OF THE TRUCK RESTRAINT

COMPLETE ALL NECESSARY WIRING FROM THE CONTROL PANEL TO THE FOLLOWING:

- Exterior Light System.
- The Junction box is located on the truck restraint.
- The electrical limit switch behind the dock leveler lip as shown on page 14.
- The hydraulic power pack.

9. FINAL SET-UP ADJUSTMENT

Make sure the exterior lights have not changed back to green until the restraint is completely closed. To increase or decrease the time, adjust the electrical timer in the control panel.

NOTE: If the down speed on the restraint is too slow, adjust the down speed valve on the dock leveler power pack.

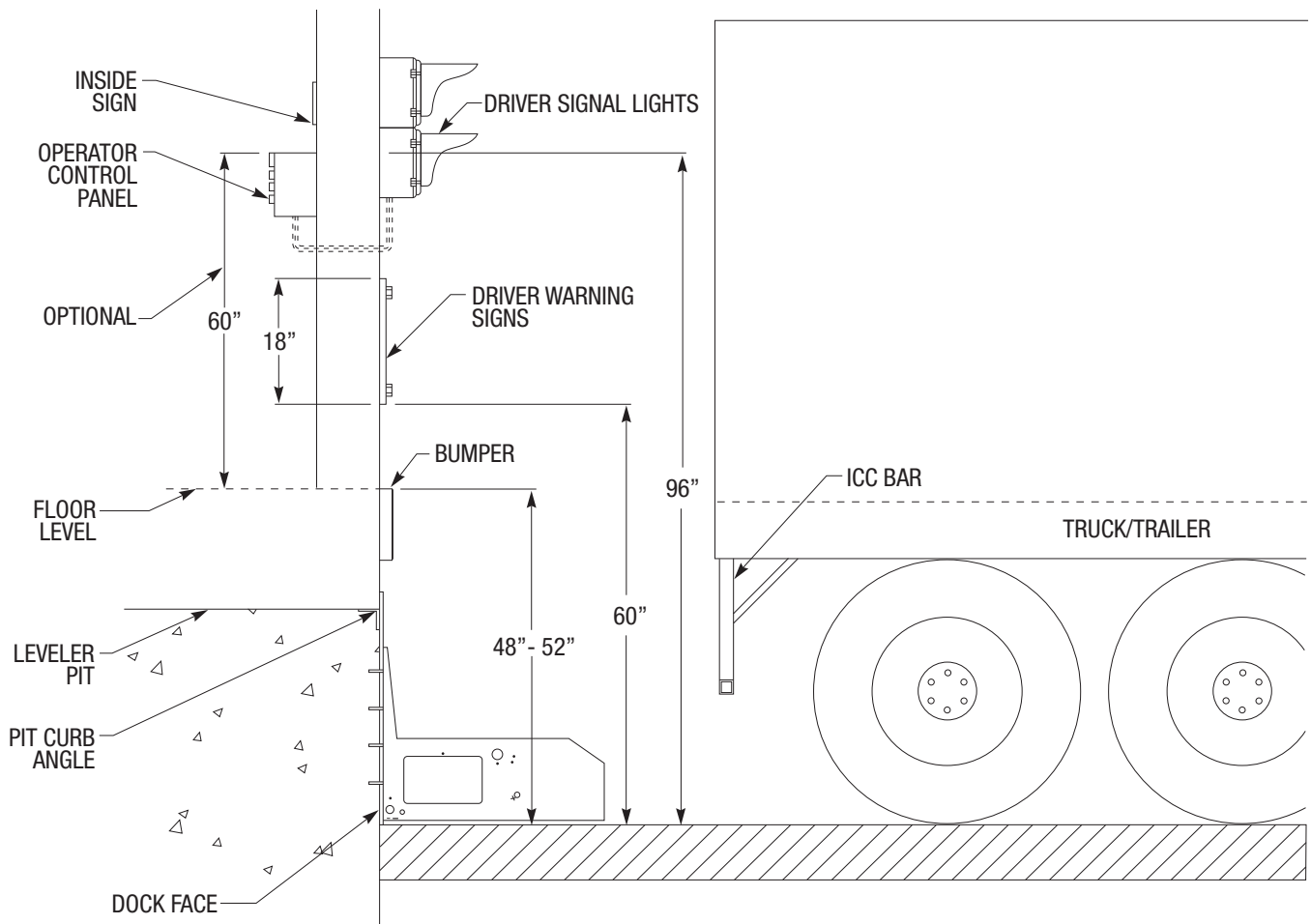
NOTE:

Hydraulic system must be completely clear of dirt particles and all hoses must be covered when passing through conduits.

When connecting to an existing dock leveler flush and clean the hydraulic system including the reservoir and add new oil.

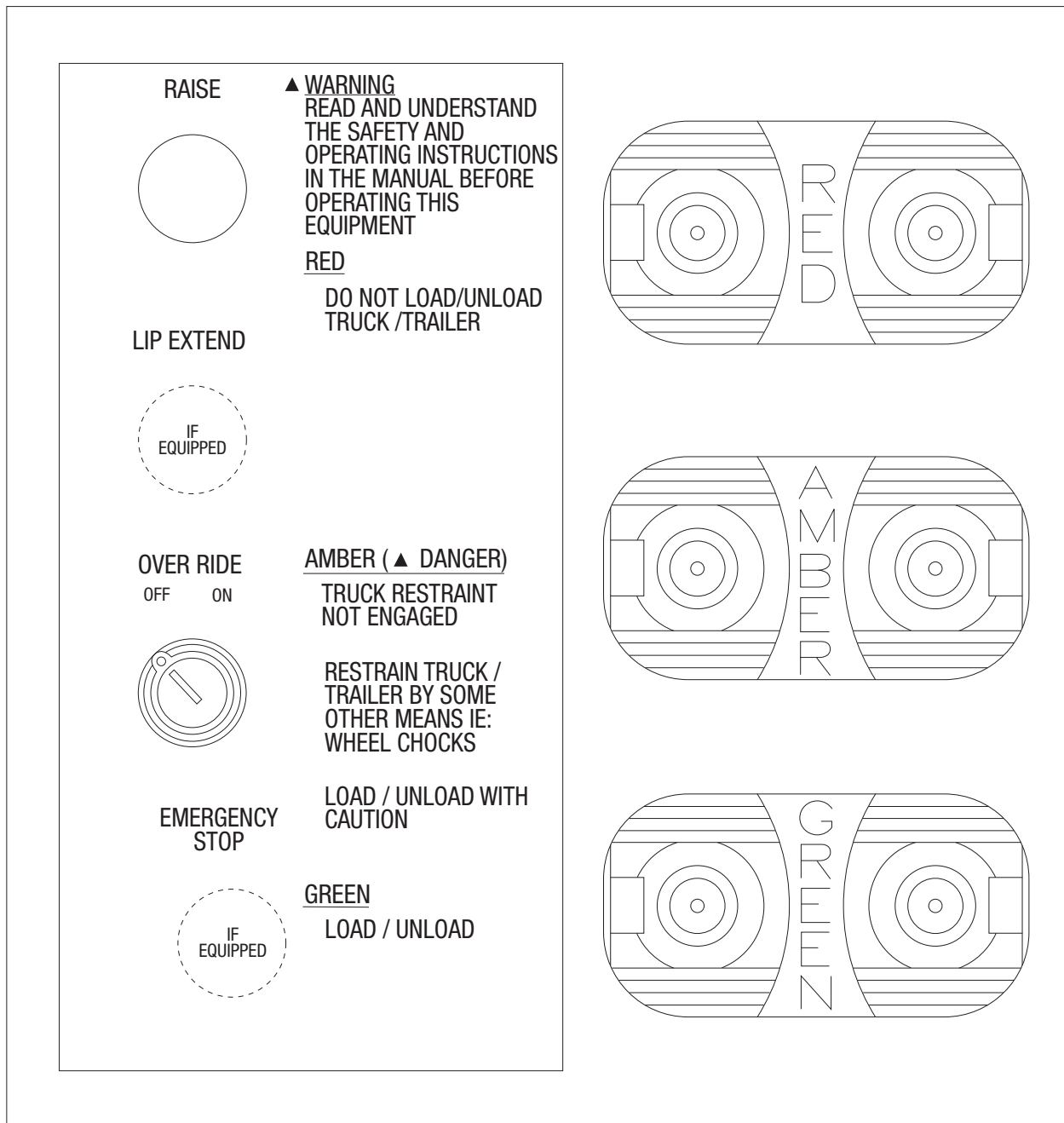
Failure to do so will void warranty.

INSTALLATION LAYOUT DRAWING



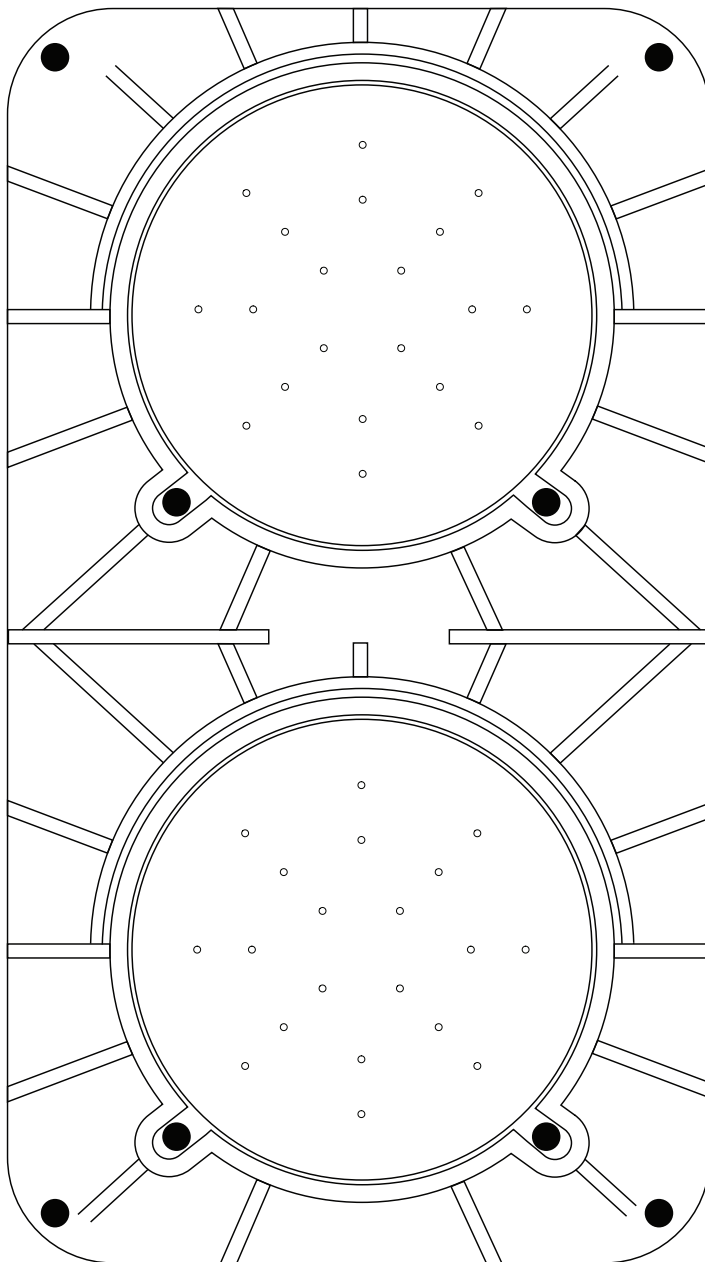
INSIDE LIGHT AND CONTROLS

LIGHT COMMUNICATION FOR DOCK ATTENDANT / FORK TRUCK OPERATOR



**NOTE: FOR COMBINATION DOCK LEVELER / TRUCK RESTRAINT
 (SEE OPERATING INSTRUCTIONS FOR DESCRIPTION AND SEQUENCE OF LIGHT SIGNALS)**

OUTSIDE LIGHT



**LIGHT COMMUNICATION FOR
TRUCK DRIVER**

RED

**WARNING TRUCK DRIVER HIS
TRUCK IS RESTRAINED, BEING
LOADED/UNLOADED AND MUST
NOT PULL AWAY**

GREEN

TRUCK MAY BACK IN OR DEPART

OPERATING INSTRUCTIONS

ENGAGE RESTRAINT

RESTRAINT IN STORED POSITION:

- Overhead door open, closing limit switch (if equipped).
- Outside green light on and flashing.
- Outside red light off.
- Inside green and amber light off.
- Inside red light on and flashing.
- Dock leveler and lip in stored position.
- Press and hold raise button.
 - Inflatable seal motor turns on (if equipped 120v / 5 amps).
 - Outside lights: - Green light turns off.
 - Red light turns on and flashes.
 - When restraint arm engages trailer bumper bar, the dock leveler deck rises and extends lip.
(Lip may be extended as soon as it clears the trailer floor by pressing and holding the lip extend if equipped)
 - Inside lights: - Green light turns on and flashes.
 - Red light turns off.
- Release raise button.
 - Dock leveler lowers to trailer floor by gravity.
- Restraint is now engaged.
- Dock leveler is ready for loading / unloading.

LOWER RESTRAINT

RESTRAINT IN ENGAGED POSITION:

- Overhead door open, closing limit switch (if equipped).
- Outside red light on and flashing.
- Outside green light off.
- Inside green light on and flashing.
- Inside red light off.
- Dock leveler in use and lip extended (not in stored position).
- Press and hold raise button.
 - Dock leveler raises, lip retracts to the pendant position for storing.
- Release raise button.
 - Dock leveler lowers by gravity to stored position.
 - Outside lights: - Green light turns off.
 - Red light turns on and flashes.
 - Restraint arm fully lowers.
 - Outside lights: - Red light turns off.
 - Green light turns on and flashes.
- Dock leveler and restraint are now in the stored position. Truck/trailer free to depart.

OPERATING INSTRUCTIONS (continued)

OVER NIGHT MODE

- Leaving restraint engaged.
- Storing dock leveler.
- Closing overhead door.

FROM STORED POSITION

- Press and hold raise button.
 - Truck restraint engages.
 - As soon as the dock leveler begins to rise, immediately turn the over ride switch to on (while pressing and holding the raise button) then release raise button (before dock leveler lip extends).
 - The dock leveler will lower too the stored position with the restraint engaged.
 - The outside and inside lights will remain red.
- The dock leveler will lower too the stored position with the restraint engaged.
- The outside and inside lights will remain red.

FROM ENGAGED/WORKING POSITION

- Turn over ride switch to on.
- Press and hold raise button.
 - Dock leveler raises and lip retracts.
- Release raise button.
- Dock leveler lowers by gravity to stored position.
- The outside and inside light will remain red.

POWER FAILURE

MANUAL RELEASE:

- Remove side plate on truck restraint.
- Press knob on valve mounted on hydraulic cylinder until restraint begins to lower. (See page 12).
- When the restraint is completely lowered the truck / trailer is free to depart.
- Release valve.
- Re-fasten cover.

FAULT CONDITIONS

RESTRAINT DOES NOT ENGAGED ICC BAR

RESTRAINT IN STORED POSITION:

- Overhead door open, closing limit switch (if equipped).
 - Outside green light on and flashing.
 - Outside red light off.
 - Inside green and amber light off.
 - Inside red light on and flashing.
 - Dock leveler and lip in stored position.
 - Press and hold raise button.
 - Inflatable seal motor turns on (if equipped).
 - Outside lights: - Green light turns off.
 - Red light turns on and flashes.
 - Restraint arm does not engage the ICC bar.
 - Release raise button.
 - Inside lights: - Flashing red light remains on.
 - Buzzer or beeper turns off.
- Restraint arm fully lowers.
- Outside lights: - Red light turns off.
 - Green light turns on and flashes.
- Dock leveler and restraint are now in the stored position.

OVER RIDE

RESTRAINT IN STORED POSITION:

- Overhead door open, closing limit switch (if equipped).
- Outside green light on and flashing.
- Outside red light off.
- Inside green and amber light off.
- Inside red light on and flashing.
- Dock leveler and lip in stored position.

NOTE: THE RESTRAINT MUST BE IN THE FULLY LOWERED / STORED POSITION.

- Turn over ride selector switch to on.
 - Outside lights: - Outside green light turns off.
 - Outside red light turns on and flashing.
- Restraint is now in over ride mode.
- **WARNING:** Restraint truck / trailer by some other means.
 - e.g.: wheel chocks at this time
- Press and hold raise button.
- Inflatable seal motor turns on (if equipped).
- Dock leveler deck raises and extends lip.

LIP MAY BE EXTENDED AS SOON AS IT CLEARS THE TRAILER FLOOR BY PRESSING AND HOLDING THE LIP EXTEND BUTTON (IF EQUIPPED).

FAULT CONDITIONS (continued)

- Lip extends:
 - Inside lights:
 - Amber light turns on and flashes.
 - Red light turns off.
 - Green light remains off.
 - Buzzer or beeper does not sound.
- Release raise button.
 - Dock leveler lowers by gravity to trailer floor.
- Dock leveler is ready for loading / unloading.
- **WARNING:** Never turn the over ride switch off while loading / unloading truck / trailer.

RETURN TO STORED POSITION

RESTRAINT ARM LOWERED:

- Overhead door open, closing limit switch (if equipped).
- Outside red light on and flashing.
- Outside green light off.
- Inside green and red light off.
- Inside amber light on and flashing.
- Dock leveler in use and lip extended (not in stored position).

NOTE: THE RESTRAINT MUST BE STORED BEFORE TURNING THE OVER RIDE OFF.

- Press and hold raise button.
 - Inside light:
 - Amber light turns off.
 - Red light turns on and flashes.
 - Dock leveler lowers by gravity to stored position.
- Remove truck / trailer restraining device.
 - e.g.: wheel chocks at this time.
- Turn over ride selector switch off.
 - Outside light:
 - Red light turns off.
 - Green light turns on and flashes.
- Truck / trailer free to depart.
- Dock leveler and restraint are now in the stored position.

RESTRAINT ARM DRIFT

RESTRAINT IN ENGAGED POSITION:

- Overhead door open, closing limit switch (if equipped).
- Outside red light on and flashing.
- Outside green light off.
- Inside green light on and flashing.
- Inside red and amber light off.
- Dock leveler in use and lip extended (not in stored position).

FAULT CONDITIONS (continued)

- Restraint arm drifts toward stored position.
- Drift limit reached:
 - Outside light: - Red light remains on and flashing.
 - Green light remains off.
 - Inside light: - Green light turns off.
 - Buzzer or beeper sounds.
- Restraint arm engages ICC bar and deck begins to rise.
- Release raise button.
- Restraint is returned to engaged mode.

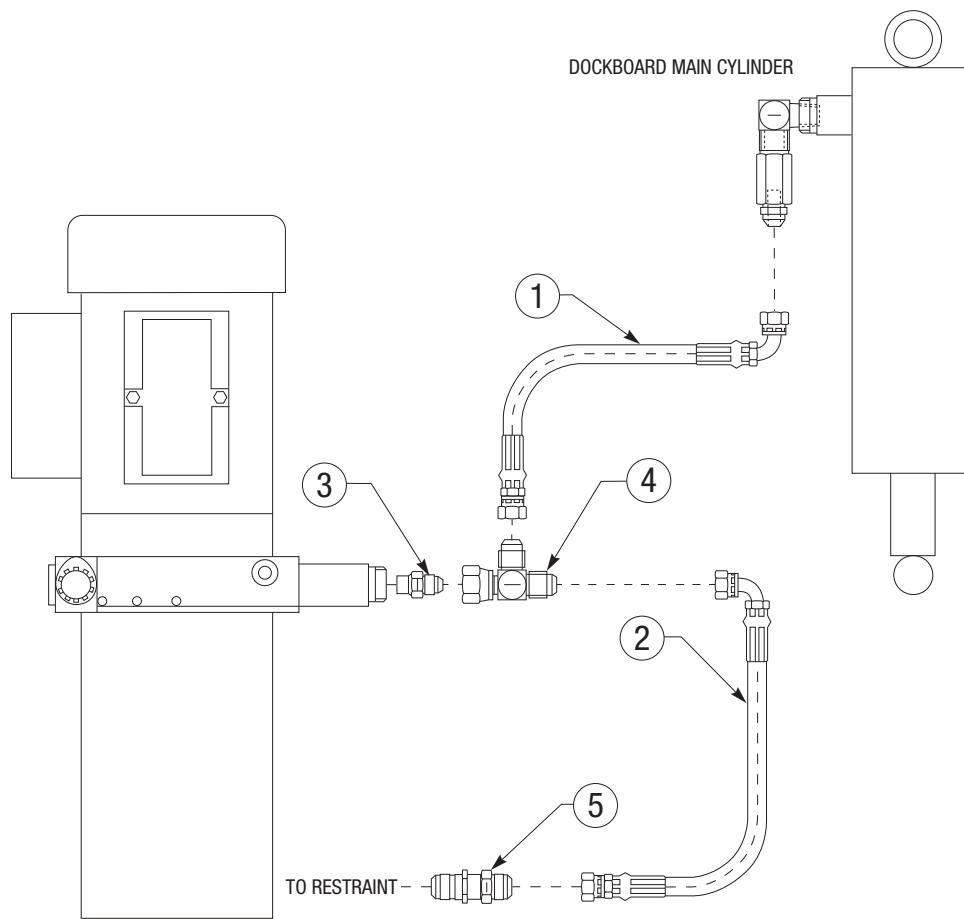
EMERGENCY STOP (IF EQUIPPED)

- Press to stop all deck, lip or restraint motion.
- Pull to release; resuming operation.

DANGER

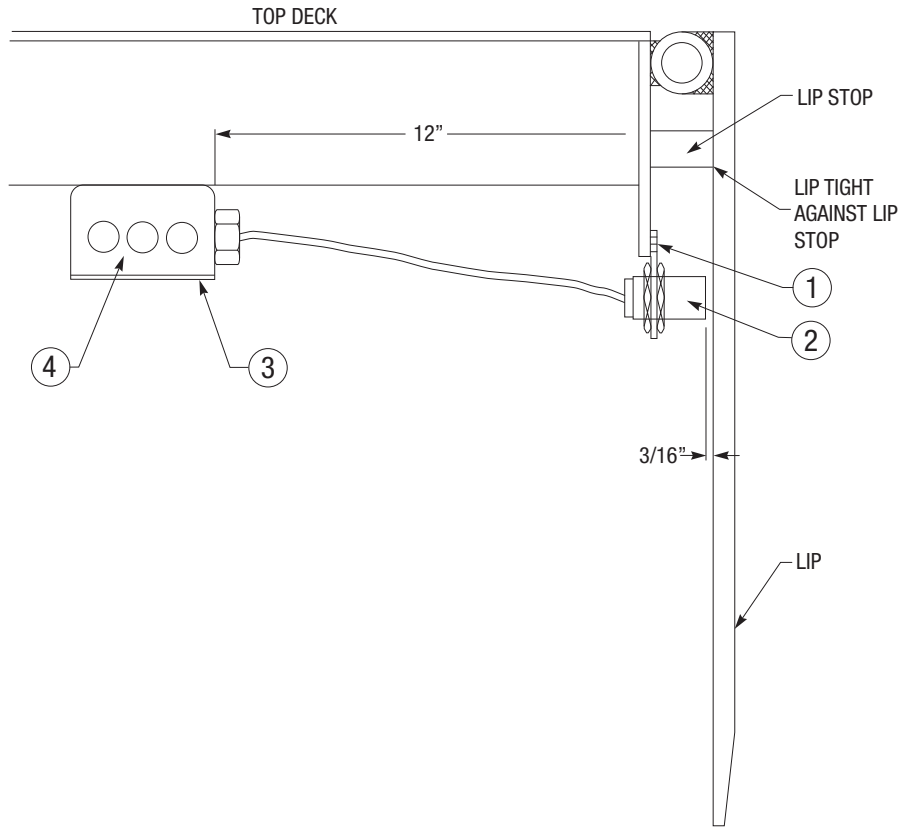
- When releasing the emergency stop and no other operator button is pressed, the dock leveler deck, lip and / or restraint will always lower.
- Never use the emergency stop to hold the deck, lip and / or restraint in raised positions while attempting maintenance or repairs.

REPLACEMENT PARTS CONNECTION TO TYPICAL HYDRAULIC DOCK LEVELER REMOTE AND SELF CONTAINED POWER PACK



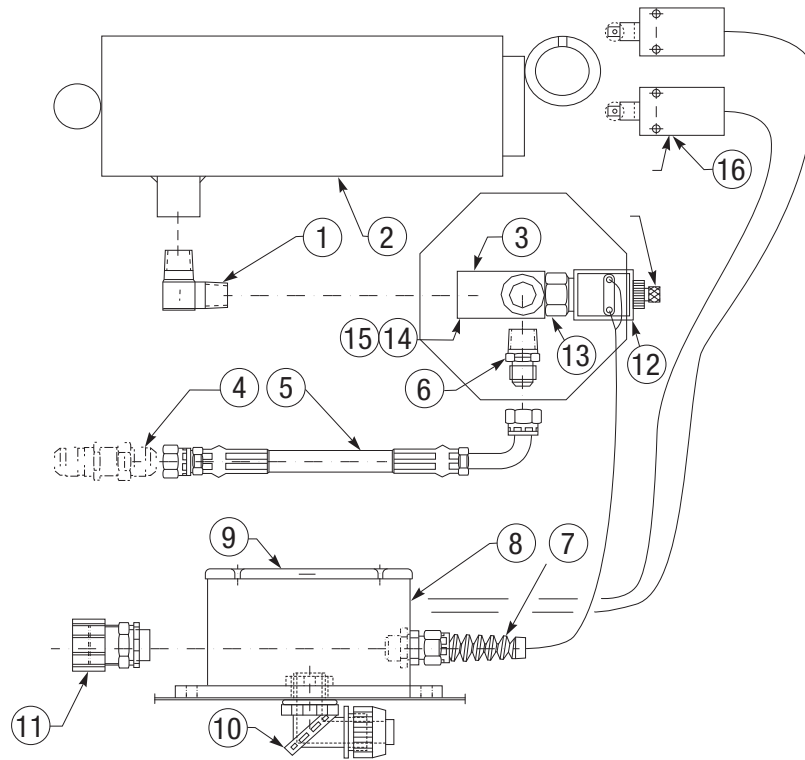
Item #	Part #	Description
1	5P-TR-017	Hose c/w Fittings
2	5P-TR-018	Hose c/w Fittings
3	5P-TR-019	O-Ring Fitting
4	5P-TR-020	Swivel Tee
5	5P-TR-021	Bulk Head Fitting

REPLACEMENT PARTS PROXIMITY SWITCH



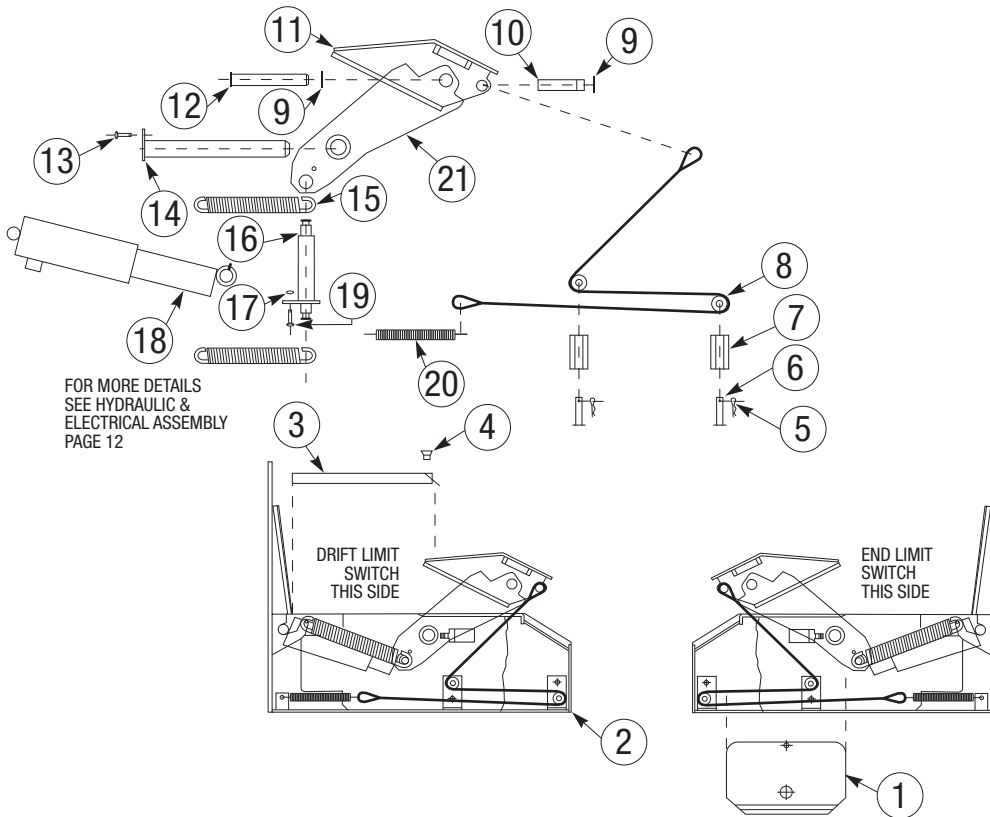
Item #	Part #	Description
1	5P-TR-022	Proximity Switch Bracket
2	5P-TR-023	Proximity Switch
3	5P-TR-024	Junction Box Cover
4	5P-TR-025	Junction Box

REPLACEMENT PARTS HYDRAULIC / ELECTRICAL ASSEMBLY



Item #	Part #	Description
1	5P-TR-001	Elbow
2	5P-TR-002	Hydraulic Cylinder
3	5P-TR-003	Solenoid Valve c/w Coil
4	5P-TR-004	Bulkhead Fitting
5	5P-TR-005	Hose c/w Fittings
6	5P-TR-006	Adapter
7	5P-TR-007	Wire Connector
8	5P-TR-008	PVC Box
9	5P-TR-009	PVC Cover
10	5P-TR-010	90-Connector
11	5P-TR-011	Straight Electrical Connector
12	5P-TR-012	Solenoid Valve Coil
13	5P-TR-013	Cartridge
14	5P-TR-014	Filter
15	5P-TR-015	Valve Body
16	5P-TR-016	Limit Switch

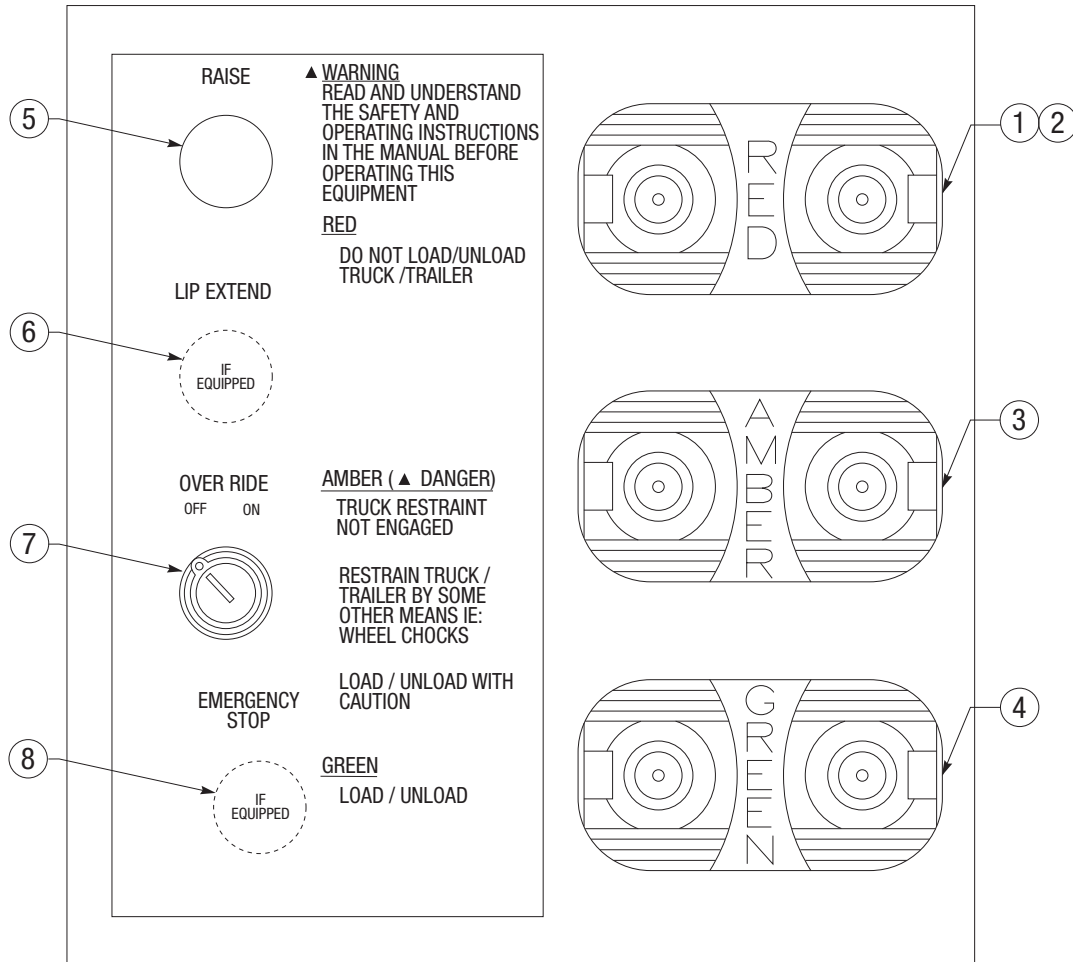
REPLACEMENT PARTS TRUCK RESTRAINT ASSEMBLY



Item #	Part #	Description
1	5P-TR-026	Side Cover
2	5P-TR-027	Housing Assembly
3	5P-TR-028	Cover
4	5P-TR-029	Cap Screw
5	5P-TR-030	Hitch Pin Clip
6	5P-TR-031	Roller Pin
7	5P-TR-032	Roller
8	5P-TR-033	Nylon Strap
9	5P-TR-034	Retaining Ring
10	5P-TR-035	Activating Arm Pin
11	5P-TR-036	Upper Arm Assembly

Item #	Part #	Description
12	5P-TR-037	Arm Assembly Pin
13	5P-TR-038	Bolt
14	5P-TR-039	Main Shaft
15	5P-TR-040	Extension Spring
16	5P-TR-041	Cylinder Pin
17	5P-TR-042	Nut
18	5P-TR-043	Hydraulic Cylinder
19	5P-TR-044	Bolt
20	5P-TR-045	Tension Spring
21	5P-TR-046	Lower Arm Assembly

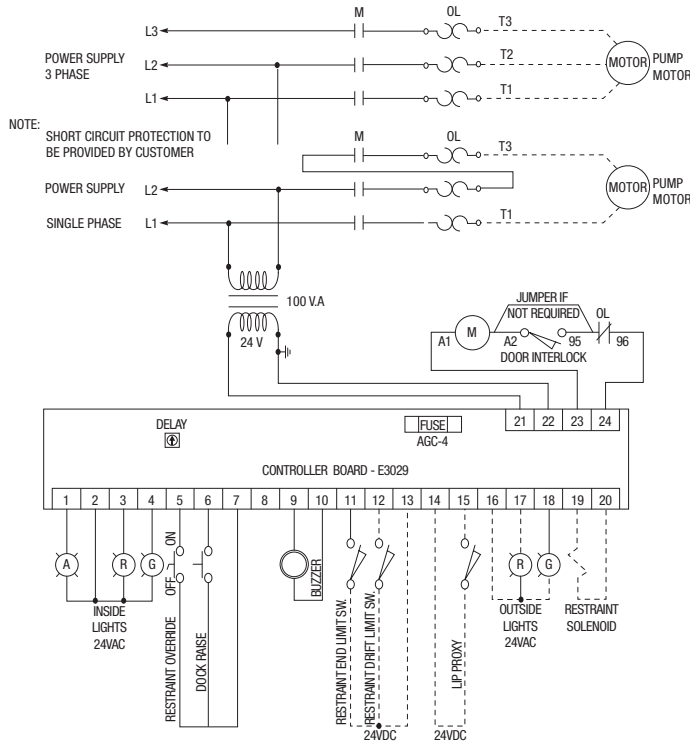
REPLACEMENT PARTS CONTROL BOX COVER



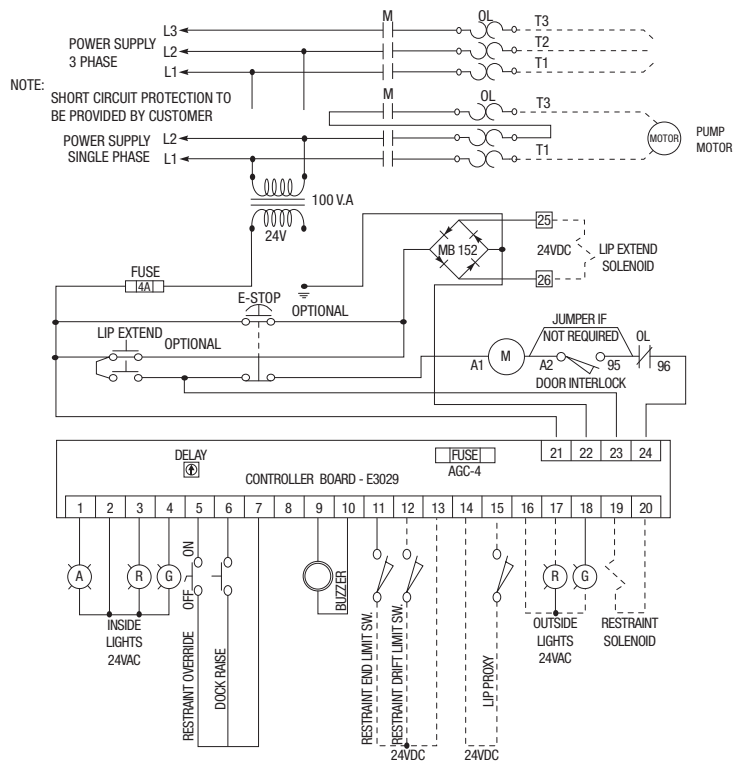
Item #	Part #	Description
1	5P-TR-047	Bulb
2	5P-TR-048	Lens (Red)
3	5P-TR-049	Lens (Amber)
4	5P-TR-050	Lens (Green)
5	5P-TR-051	Push Button with Contact Block
6	5P-TR-052	Push Button with Contact Block
7	5P-TR-053	Key Switch with Contact Block
8	5P-TR-054	E-Stop with Contact Block

ELECTRICAL SCHEMATIC

STANDARD



OPTIONAL EMERGENCY STOP, LIP EXTEND, AND DOOR INTERLOCK



TROUBLE SHOOTING

PROBLEM	CORRECTIVE ACTION
1. Restraint will not rise.	Check the following: <ul style="list-style-type: none"> - Power supply - Circuit breaker - Hydraulic leaks - Fluid level in reservoir - Power supply to solenoid valve - Loose or damaged wiring - Strap (yellow nylon)
2. Restraint will not lower.	Check the following: <ul style="list-style-type: none"> - Power supply - Circuit breaker - Power supply to solenoid valve - Obstructions in the restraining arm operating path - Loose or damaged wiring

MAINTENANCE

DAILY

- Check inside and outside lights for burnt out bulbs
- Replace burnt out bulbs immediately
- Remove debris on or around truck restraint
- Remove snow and ice on truck restraint

WEEKLY

- Check full operation of the truck restraint and dock leveler to ensure there is no hesitation in the hydraulic system
- Any loss of fluid will affect the safe operation of the equipment

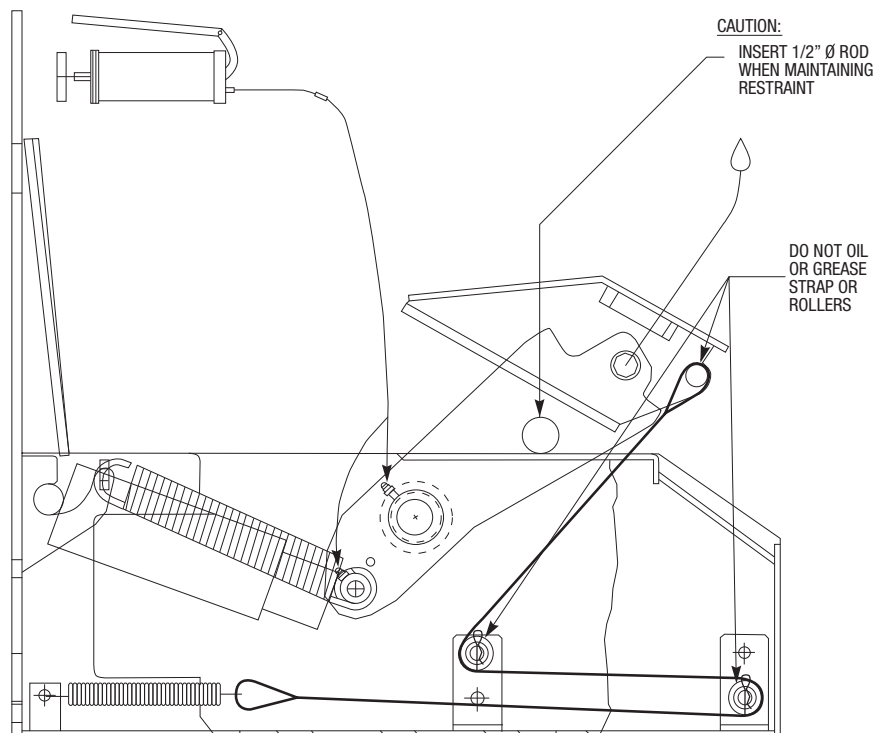
QUARTERLY

- Inspect the hydraulic cylinder, valve and hose for any fluid loss
- Inspect structural member for failures (bending or broken welds)

LUBRICATION:

QUARTERLY

- Petro Canada Multipurpose EP2 grease or equivalent
- Oil SAE 10W30 motor oil



WARRANTY

IMPORTANT

PLEASE READ CAREFULLY TO INSURE THAT YOU DO NOT VOID YOUR WARRANTY.

Perma Tech Inc. – STANDARD WARRANTY

Perma Tech Inc. warrants that each product **Perma Tech** manufactures shall be free from defects in material and workmanship. Seller's sole obligation under this warranty shall be limited to making good, FOB seller's factory, any part of its product which under normal and proper use and maintenance proves defective in material and workmanship within (12) months on MECHANICAL COMPONENTS; ninety (90) days on ELECTRICAL COMPONENTS; and thirty (30) days on LABOUR after delivery to buyer. Warranty is effective provided NOTICE of any such defects and SATISFACTORY PROOF thereof is promptly given by the buyer to the seller, and thereafter, the part is returned to seller; transportation charges must be prepaid and seller's examination must prove the part to have been defective.

Perma Tech's obligation under this warranty is limited to the replacement of defective components at the factory, or, at the discretion of **Perma Tech**, at a location designated by the company. **Perma Tech** will NOT be liable for any loss, injury or damage to persons or property, nor for damages of any kind resulting from failure or defective operation of any material or equipment.

NO OTHER WARRANTY EXISTS EXCEPT AS STATED HEREIN

IMPROVEMENTS

Perma Tech Inc. is constantly striving to improve its equipment. Change in design and improvement will be made whenever the manufacturer believes the performance or operation of the equipment will be improved, with no obligation to incorporate any such improvement in any equipment which has been shipped or is in service.

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