

# McGUIRE ETR-1

ELECTRIC VEHICLE  
RESTRAINT



## OWNER'S MANUAL & INSTALLATION GUIDE

**IMPORTANT:** Thoroughly read and understand entire contents of this manual prior to installation and/or operation of this equipment.

**CAUTION:** Be sure that installation and maintenance are performed by authorized personnel.

# TABLE OF CONTENTS

SECTION	PAGE
Introduction.....	1
Definition and Function.....	2
Overview of Potential Hazards.....	3
Safety Practices.....	4
Installation Instructions.....	5-6
Optional Mounting Plate.....	7
Installation Diagrams.....	8
Electrical Schematics.....	9-11
Field Wiring Diagram.....	12
Field Junction Box Assembly.....	13
Operation Instructions.....	14-15
Restraint Bypass/Manual Operation (Power Outage).....	15
Maintenance and Service/Trouble-Shooting Guide.....	16
Preventive Maintenance Checklist.....	17
General Arrangement Drawing.....	18
Wiring Specifications.....	19
Linear Actuator / PLC / Electrical Specifications.....	20
Control Panel Diagram.....	21
Control Panel Drawings and Dimensions.....	22
Exterior Lights.....	23
Exploded View Parts Diagram.....	24
Parts Lists.....	25
Signs.....	26
Warranty.....	Back Cover

## INTRODUCTION

**Do not install, operate or service this W. B. McGuire ETR Series Vehicle Restraint until you have read and understand the entire contents of this manual.**

Congratulations! You have purchased one of the industry's finest electrically operated and safety oriented vehicle restraint devices, the ETR Series from the W. B. McGuire Company. When properly installed, serviced and operated, this vehicle restraint can offer substantially improved dock safety conditions.

The ETR Series by the W. B. McGuire Company is part of a dock safety equipment concept, designed to provide a safer work place for personnel involved at shipping and receiving dock areas. All those who install, operate and service this equipment should observe all safety considerations and should read this manual and understand all installation, operation and maintenance instructions and functions before attempting to install, operate or service this vehicle restraint. Pay special attention to all warnings and/or caution statements.

**Important Note:** The W. B. McGuire Company recommends the use of minimum 4" thick bumpers with this vehicle restraint.

Contact your authorized W. B. McGuire Company distributor or a Technical Support Representative at 1-800-624-8473 for the answer to any questions.

## DEFINITION AND FUNCTION

The W. B. McGuire ETR Vehicle Restraint is a device designed to be fully electric in operation and self-aligning with an intact and proper Rear Impact Guard (RIG), assembly on the truck/trailer rear. Its function is to aid in the prevention of possible accidents at the dock. When properly installed, serviced and operated the restraint is designed to safely capture the RIG at the trailer rear. This vehicle restraint will then aid in the prevention of premature trailer separation from the dock by creating a barrier noticeable to the truck driver should the driver accidentally try to pull the truck/trailer away while it is being serviced. It will also assist in the prevention of excessive trailer movement away from the dock during the loading/unloading process. This trailer "creep" can create a situation whereby an unsafe void is created between the face of the dock and the rear end of the trailer. The prerequisite for proper restraint engagement is a trailer parked firmly against a 4" thick bumper with the brakes locked and an intact and proper RIG. The restraint is then operated by pushing the "raise" button to operate the restraint. Pushing the "store" button will restore the unit to a safe stored position. The dock attendant controls the activation/deactivation of the restraint solely from the inside of the building. The operation of the trailer restraint is predicated on the presence of an intact and proper RIG. The size and location of an intact and proper RIG is now a Federal Mandate in reference to size and location of the RIG. If the trailer is not properly equipped with an intact and proper RIG, the dock attendant MUST take alternative action. (See important note below.)

**IT IS THE RESPONSIBILITY OF THE DOCK ATTENDANT TO DETERMINE THE QUALITY OF RESTRAINT THAT HAS BEEN ACHIEVED, TAKING ALL OF THESE FACTORS INTO ACCOUNT.**

**Important Note: The dock attendant or driver should determine if a safe restraint condition cannot be achieved, and may choose to apply an alternative method with such vehicles (i.e., wheel chocks or blocks).**

The W. B. McGuire Company provides, in addition to the restraint, two exterior caution signs (one standard read and one reverse read), one inside caution/operation sign and control panel with communication light system designed to enhance communication between dock personnel and the truck driver.

**NOTE:** At times the trailer may move forward just enough to effectively trap the RIG against the safety barrier of the restraint. It will require the driver to back the trailer up slightly to enable the restraint to be restored.

# OVERVIEW OF POTENTIAL HAZARDS

The W. B. McGuire ETR vehicle restraint is designed to provide a safer work place at shipping and receiving dock areas. Read this manual completely before attempting to install, use or service this equipment. Give special attention to all warnings and safety instructions. If you do not understand an instruction or have questions, contact your local representative or the W. B. McGuire Technical Support Team immediately at 800-624-8473.

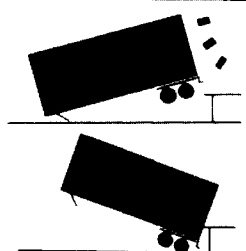


In this Section and those that follow, the words **Danger**, **Warning**, and **Caution** are used to emphasize important safety information. The word:

**DANGER** means that severe injury or death will result from failure to follow instructions.

**WARNING** means that severe injury or death can result from failure to follow instructions.

**CAUTION** means that property damage or injury can result from failure to follow instructions.

The word **NOTE** is used to indicate important steps to be followed or important considerations.

POTENTIAL HAZARD	EFFECT	PREVENTION
 <p><b>TIPPING TRAILERS</b></p>	<p><b>WARNING:</b> can cause serious injury or death.</p>	<p><b>Chock Wheels</b> and use stabilizing jacks when trailer is not hooked to tractor</p> <p><b>Check</b> bumper for strength.</p> <p><b>Do Not</b> move trailer while loading or unloading.</p> <p><b>Release</b> restraint before moving trailer</p>
 <p><b>MOVING EQUIPMENT</b></p>	<p><b>WARNING:</b> can cause serious injury or death.</p>	<p><b>Do Not</b> stand between truck and dock when truck is entering or leaving.</p> <p><b>Always</b> operate restraint from dock.</p> <p><b>Keep</b> hands and feet clear of pinch points.</p> <p><b>Do Not</b> take linear actuator apart.</p>
 <p><b>ELECTRICAL SHOCK</b></p>	<p><b>DANGER:</b> will cause serious injury or death.</p>	<p><b>Turn and Lock Out Power</b> before touching wires or working in box.</p> <p>If no power disconnect is provided, station a second person by the control panel to insure no unauthorized use.</p>
SAFETY INSTRUCTIONS		
<p><b>Before Operation or servicing</b></p> <ol style="list-style-type: none"> <li>1. Read manual carefully. Only trained personnel should use this equipment.</li> <li>2. Do not stand in between truck and dock when the truck is moving.</li> <li>3. Park trailer firmly against dock bumpers.</li> <li>4. Use wheel chocks or stabilizing jacks if trailer is not attached to tractor, the bumper is missing or damaged.</li> <li>5. Restraint should be clear of obstructions and operating properly.</li> <li>6. Keep hands and feet clear of pinch points.</li> </ol>		<p><b>Operation and After Operation</b></p> <ol style="list-style-type: none"> <li>1. Keep clear of restraint while it is moving.</li> <li>2. Be sure that trailer has been restrained before loading or unloading.</li> <li>3. Do not attempt to lift the restraint manually or with other equipment. Call service representative.</li> <li>4. Make sure the restraint is stored after the trailer leaves. Check to see that the unit has been reset and the alarm is on.</li> </ol> <p><b>Maintenance</b></p> <ol style="list-style-type: none"> <li>1. Barricade the dock area before working on unit.</li> <li>2. Turn off and lock out power before working on unit.</li> </ol>

# SAFETY PRACTICES

**WARNING:** Read and understand all safety practices and operating instructions before installing, operating or servicing the vehicle restraint. Failure to follow the safety practices may result in property damage, serious bodily injury or death.

**CAUTION:** The installer and/or operator MUST be very familiar with the operation, function and various parts of the the W. B. McGuire Company vehicle restraint PRIOR to installation and/or operation. It is IMPERATIVE that the installer and/or operator read, and fully understand, the entire contents of this manual. **Be certain to read and understand all warning and caution statements contained in this manual prior to any installation, operation or servicing of this unit.**

1. Do not operate this equipment while under the influence of drugs or alcohol.
2. Do not stand in the driveway between the vehicle restraint and a truck backing or pulling away.
3. Be sure the vehicle restraint is properly engaged and the trailer is held in place before attempting to load or unload a trailer.
4. Do not use the vehicle restraint if it looks broken or does not seem to work right. Tell your supervisor immediately.
5. Do not operate the vehicle restraint with materials or people in front of the restraint. Only operate restraint with no obstructions or a trailer to engage.
6. Be certain that equipment or people are free of the trailer before allowing the vehicle restraint to be stored and the trailer to depart.
7. Keep clear of the vehicle restraint when it is moving. Never place your hands, arms, feet or legs in a position where a moving vehicle restraint could cause injury. **If in doubt, do not do it!**
8. Do not attempt to manually lift the vehicle restraint with personnel or other equipment. If the vehicle restraint is not working properly using the operation instructions in this manual, do not use the restraint. Contact your authorized W. B. McGuire representative or the W. B. McGuire Company.
9. Check to make sure the vehicle restraint has returned to a safe stored position after you have used the store button and the truck has pulled away. Also check to see the unit has automatically restored and the alarm has come on in the event of operation with no rear impact guard present.
10. Never attempt to work on, service or repair the vehicle restraint without properly marking off the area at the dock and in front of the unit. If electrical make sure the power source has been turned off and locked out.
11. If electrical and a power disconnect, by others, is provided place it in the OFF position and tag the control panel OUT OF SERVICE prior to doing any work on the body of the restraint. If no power disconnect is provided or cannot be found then station a second person by the control panel to insure no unauthorized use.
12. Damage to the vehicle restraint, personal injury or death can result from abuse and/or negligent use of this equipment.
13. If you have any questions, or if a malfunction occurs which is not understood, ask your supervisor to contact your authorized W. B. McGuire representative or the W. B. McGuire Company for assistance PRIOR to attempting any corrective measures.

# ETR-1 INSTALLATION INSTRUCTIONS

**CAUTION:** Installation to be performed by authorized, experienced personnel **ONLY!**

**WARNING:** ALWAYS USE SAFE WORK HABITS! Read and understand entire contents of this manual, paying particular attention to all warning, caution and important statements before attempting to install, service or operate this restraint. Failure to observe these and other safe work habits may result in property damage, personal injury or death.

**NOTE:** The W. B. McGuire Company recommends the use of minimum 4" thick bumpers with this restraint.

## Equipment Check

1. Remove packaging from restraint. Check that all items listed in checklist below to ensure that all components are included.

- |  |  |
|--|--|
| <input type="checkbox"/> A. Restraint Unit                             | <input type="checkbox"/> G Outside Light Assembly                      |
| <input type="checkbox"/> B. Control Handle                             | <input type="checkbox"/> H. Inside Light/Control Box Assembly          |
| <input type="checkbox"/> C. Hardware Box & Junction Box                | <input type="checkbox"/> I. Owner's/installation Manual                |
| <input type="checkbox"/> D. Outside Sign - Mirrored                    | <input type="checkbox"/> J. New Construction Mounting Plate (optional) |
| <input type="checkbox"/> E. Outside Sign - Standard                    | <input type="checkbox"/> K. Edge of Dock Blockout                      |
| <input type="checkbox"/> F. Inside Caution/Operating Instructions Sign | (optional, used when installing with EOD leveler)                      |

2. Check the vehicle restraint for possible damage that may have occurred in transit. If any damage, contact your supervisor for proper handling, or the W. B. McGuire Company or your authorized W. B. McGuire distributor.

**DO NOT INSTALL A DAMAGED RESTRAINT!**

## Dock Face Mounting Area Check

1. Check the dock face for proper construction. Check for any possible obstructions. Make sure the dock face is plumb and at a 90° from driveway grade.
2. Any curve up from driveway to dock face (water runoff area) must be removed and turned into a 90° angle before mounting vehicle restraint to the dock face.

## Installing the vehicle restraint

**CAUTION:** Refer to the installation diagram(s) on the following pages for dimensional data and to ensure proper installation.

**WARNING:** Observe all safety warnings and safety practices before proceeding with installation procedures and before working on or around vehicle restraint.

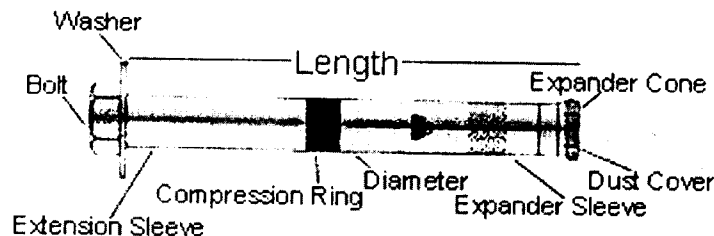
1. Mark centerline of door opening on face of dock, below dock leveler.
2. Position mount plate of restraint as shown on the installation diagram, page 8.

**NOTE:** If ETR-1 is being installed with an Edge of Dock leveler, skip step 3 and proceed to step 3A in the shaded box below.

3. Mount restraint to dock face and flush with grade with eight (8) 5/8" x 6" long Rawl Plug Co. Rawl-Bolt #6945 concrete bolts through the eight (8) 11/16" diameter holes provided in the backplate. On thin wall construction, use 4" Rawl Bolt #6942 or 5" Rawl Bolt #6944. An alternative to bolts can be the Rawl double Machine Bolt Anchor #9530, or equal. (All perimeter fasteners by others.)

*Note: If blockout from 2" to 3" projection, use 5/8" dia. x 8-1/2" long bolt #6947.*

## ETR-1 INSTALLATION INSTRUCTIONS (continued)



### Rawl Bolt Guide:

- #6945 (5/8" x 6") for use with thick wall concrete construction
- #6942 (5/8" x 4") or #6944 (5/8" x 5") for use on thin wall concrete construction
- #6947 (5/8" x 8") for use on optional 2"- 3" Blockout.

### STEP 3A, INSTALLATION WITH EOD LEVELER

Mount blockout (Part # 513-194, optional extra by the W. B. McGuire Company) to dock face, flush with grade, with eight (8) 5/8" x 6" long Rawl Plug Co. - Rawl-Bolt #6945 concrete bolts through the eight (8) 11/16" diameter holes provided in the blockout. On thin wall construction, use 4" Rawl Bolt #6942 or 5" Rawl Bolt #6944. An alternative to bolts can be the Rawl double Machine Bolt Anchor #9530. (All perimeter fasteners by others.)

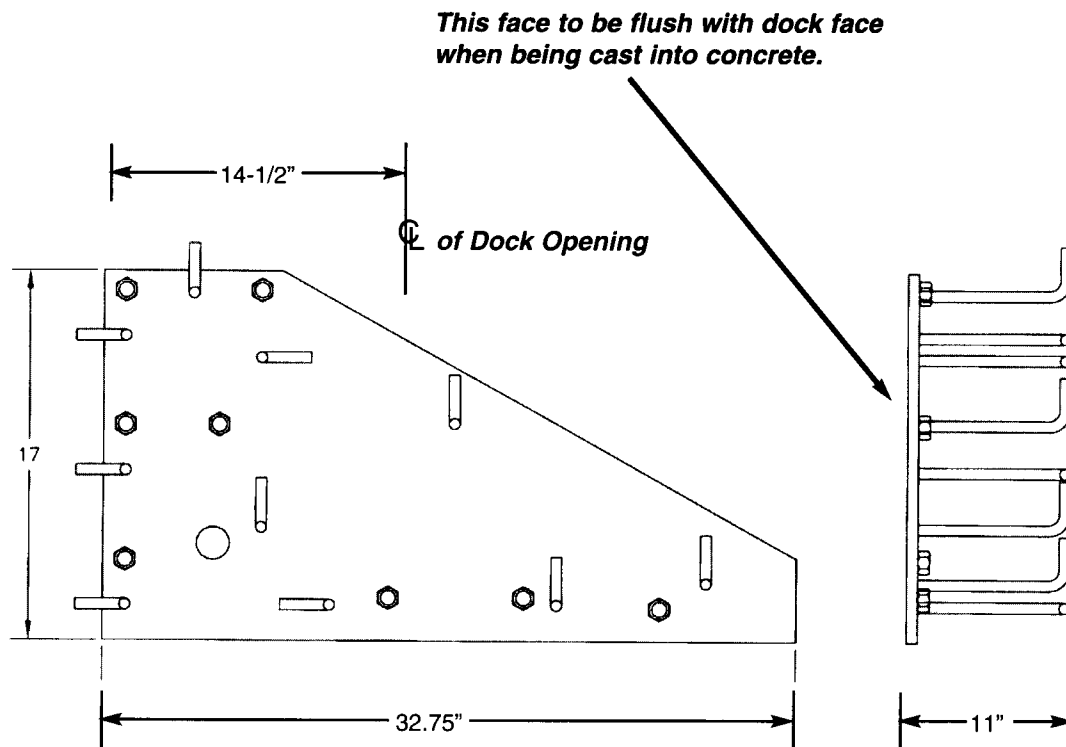
After mounting blockout to dock face, mount restraint to blockout with eight (8) 5/8" x 2 1/4" Grade 5 bolts with lock washers, flat washers and nuts (by others).

4. Mount the outside standard sign to the right side of door opening (facing building) at approximately 7' off grade to the top of the sign. Mount the mirrored sign 14" above the standard sign. Mount both signs far enough to the right of the door jamb to allow for the installation of dock seals or shelters if required. Mount inside "Caution" sign to the left side of door opening looking out, approximately 5-1/2' from floor.
5. Using suitable fasteners, mount the outside light assembly between the two "Caution" signs mounted on the outside dock wall in step 5 above.
6. Using suitable fasteners, mount the control panel to the inside wall approximately 6" below the "Caution" sign.
7. Mount junction box to dock face to right side of door opening (facing building) in line with outside lights and signs approximately 18" from grade. See page 8.
8. See section "Field Wiring Diagram" on page 12 for electrical hook-up. All field wiring must be done by a licensed electrician.
9. When running conduit into light box and junction box, use watertight connections. Recommend either 3/4" straight fitting (LT75m-Thomas & Betts or equal) or 90° 3/4" fitting (LT975m-Thomas & Betts or equal). See page 13.
10. Use flex conduit to route wires from upper arm to junction box leaving enough slack to allow for full range of motion of restraint. Recommend 3/4" Seal-tite non-metallic or equal.

## OPTIONAL NEW CONSTRUCTION MOUNTING PLATE

A new construction steel mounting plate is a 1/2" thick steel plate that has concrete anchors and mounting studs attached. This plate is cast into the dock face when the concrete is poured. This eliminates the need to drill the dock face and use concrete anchors to attach the ETR-1 vehicle restraint.

After the mounting plate has been installed and the concrete is dry, simply slide the ETR over the threaded studs of the mount, re-install the nuts and washers and tighten.

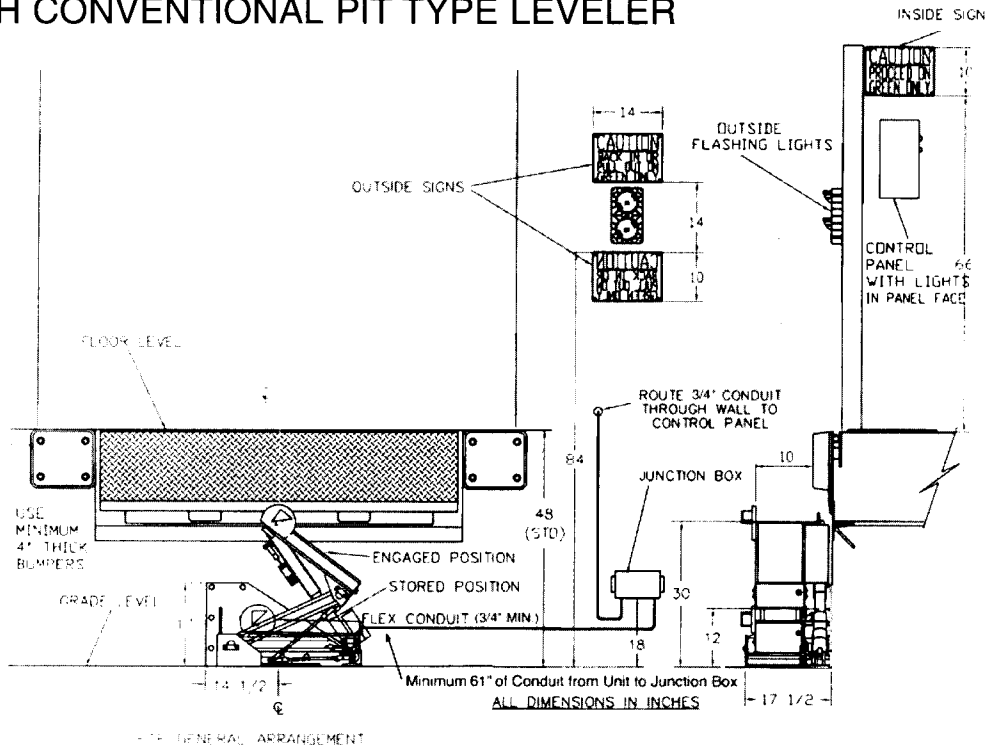


***New construction mounting plate, part number 602-052***



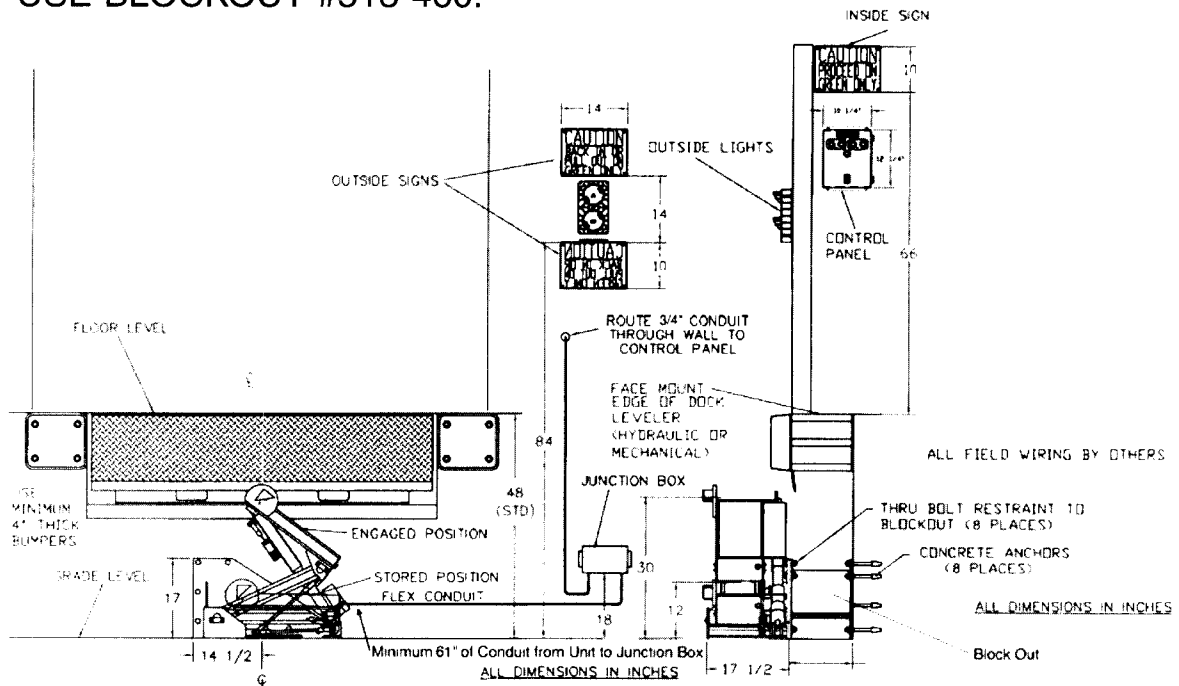
# ETR-1 INSTALLATION DIAGRAM

## WITH CONVENTIONAL PIT TYPE LEVELER

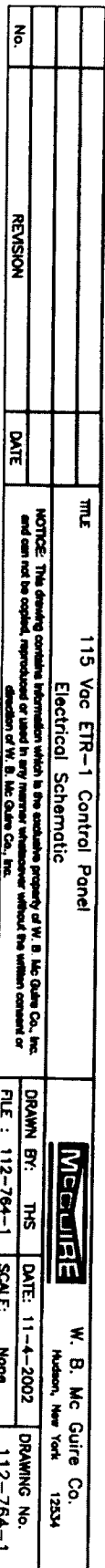


# ETR-1 INSTALLATION DIAGRAM

- 1) WITH MECHANICAL EDGE OF DOCK LEVELER, USE BLOCKOUT #513-459.
- 2) WITH HYDRAULIC EDGE OF DOCK LEVELER, USE BLOCKOUT #513-460.

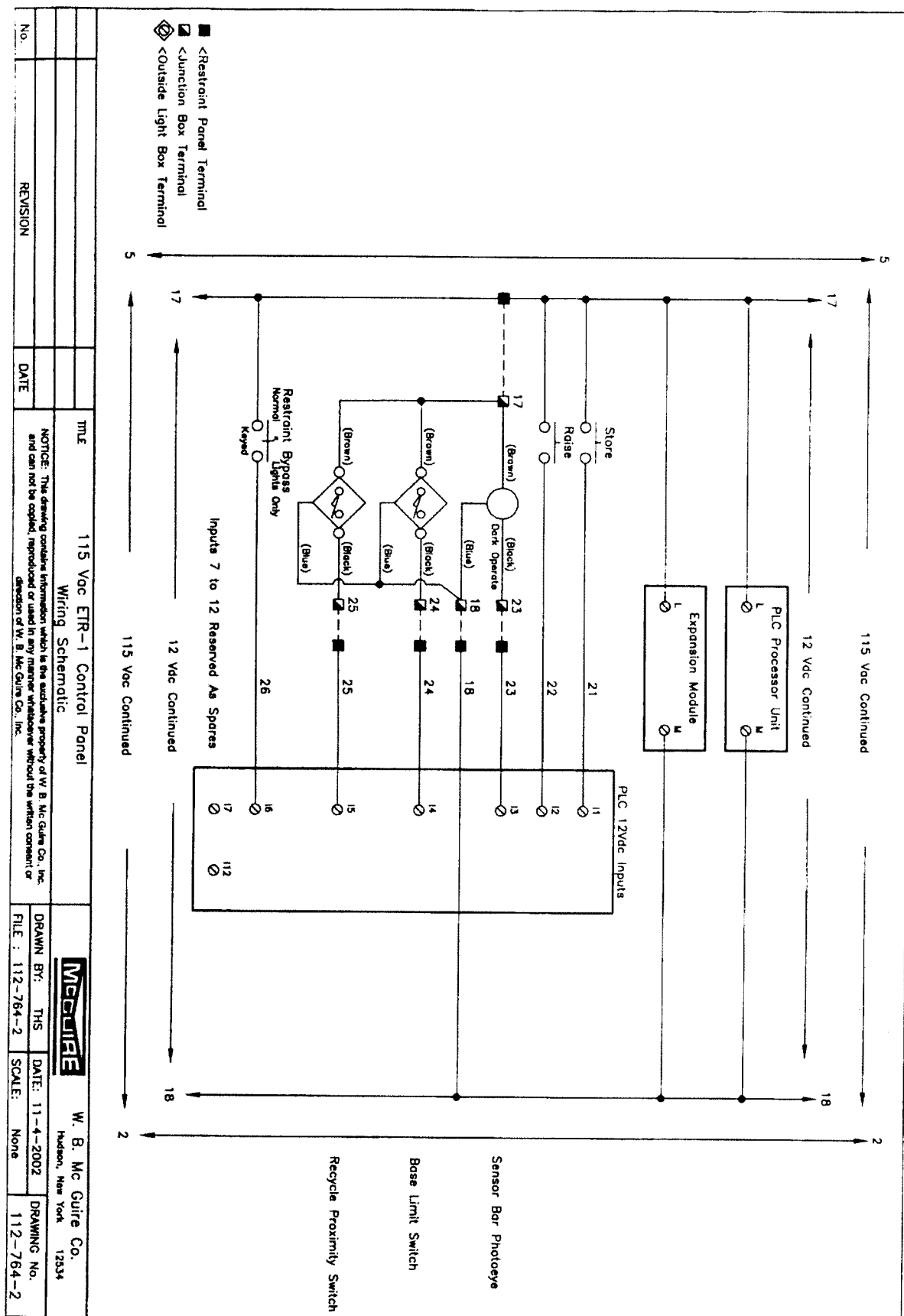


## 9

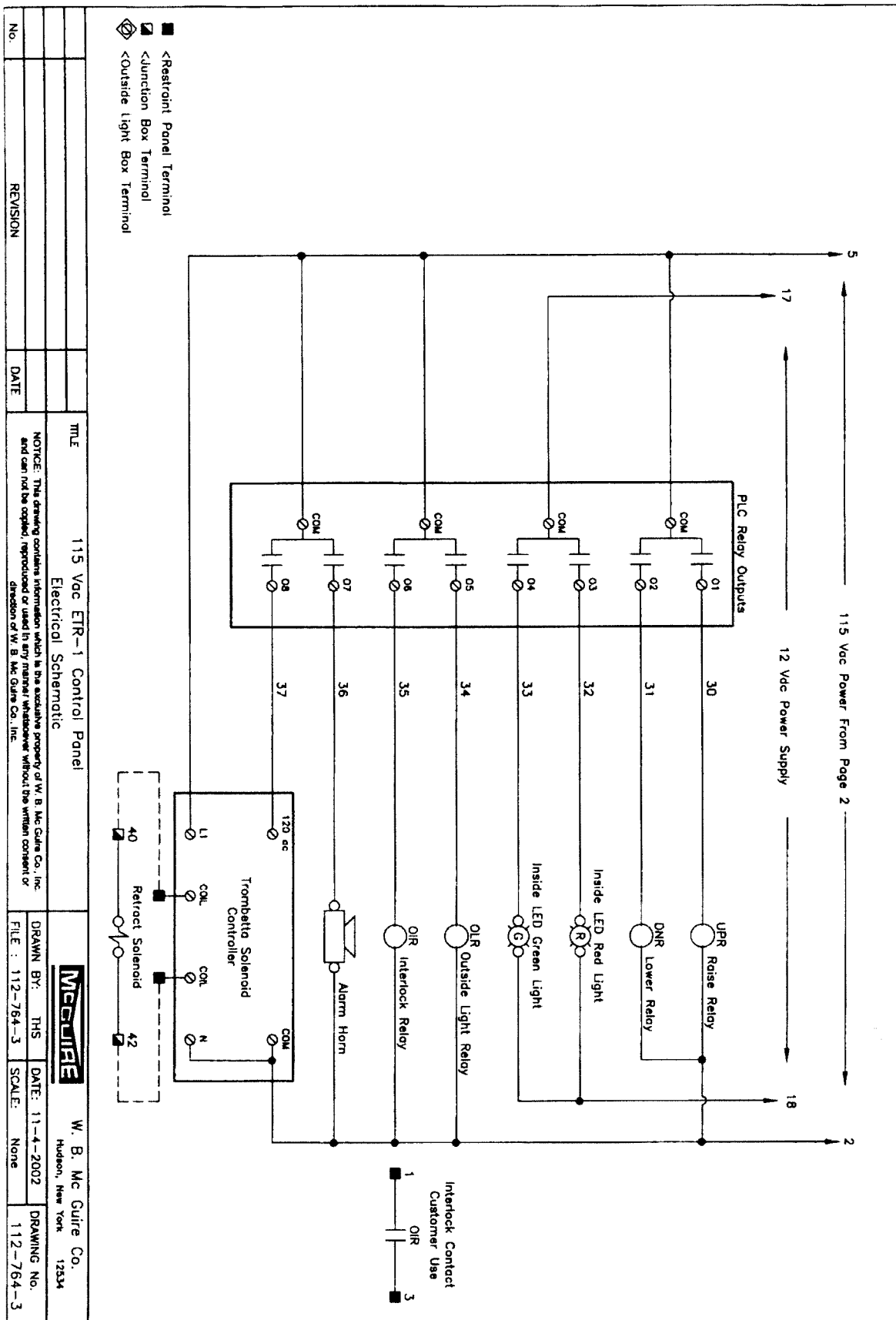


<b>McGUIRE</b>		W. B. Mc Guire Co.	
Hudson, New York		12534	
DRAWN BY: THS	DATE: 11-4-2002	DRAWING No. 112-784-1	
SCALE: None			

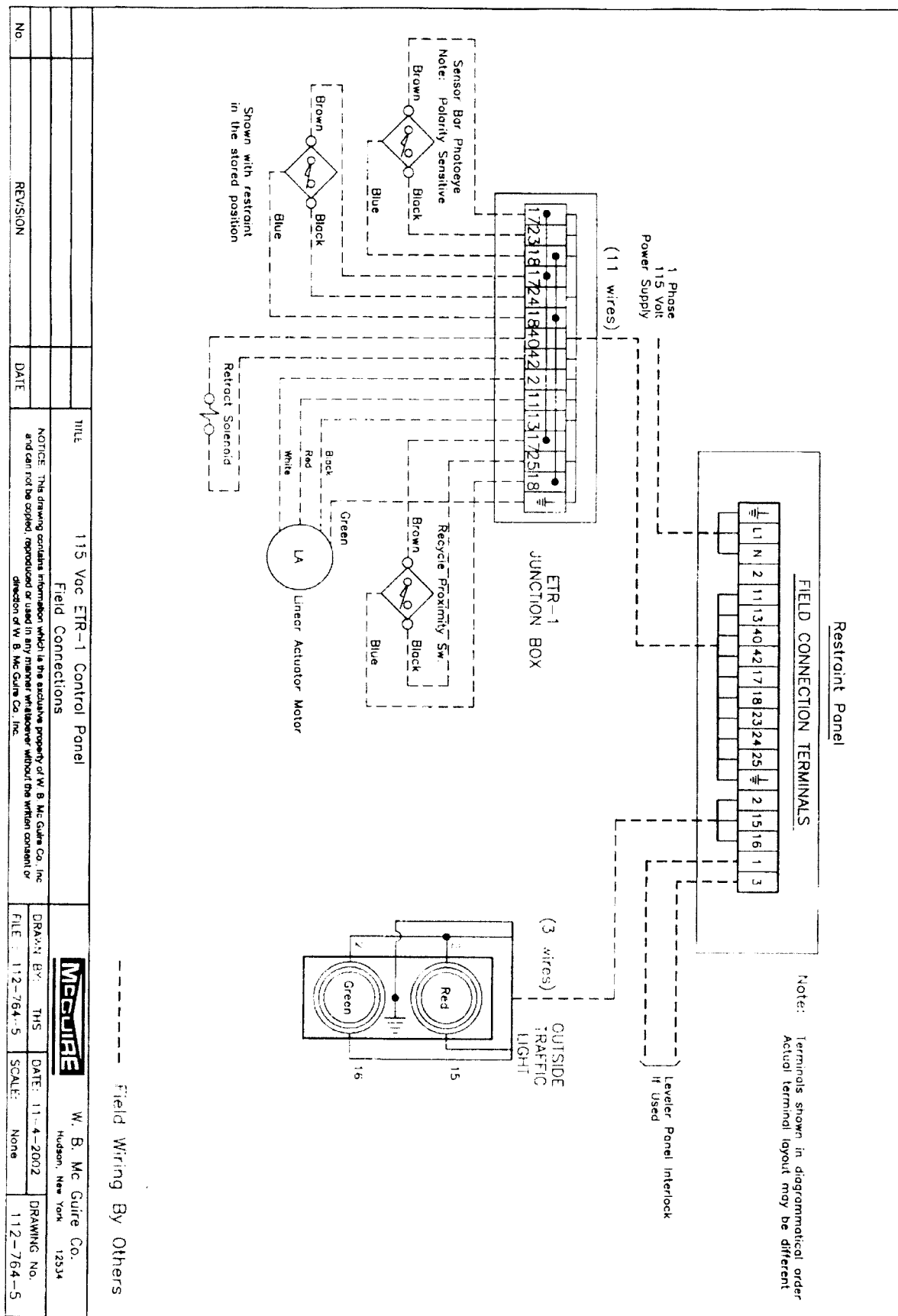
# ETR-1 ELECTRICAL SCHEMATICS



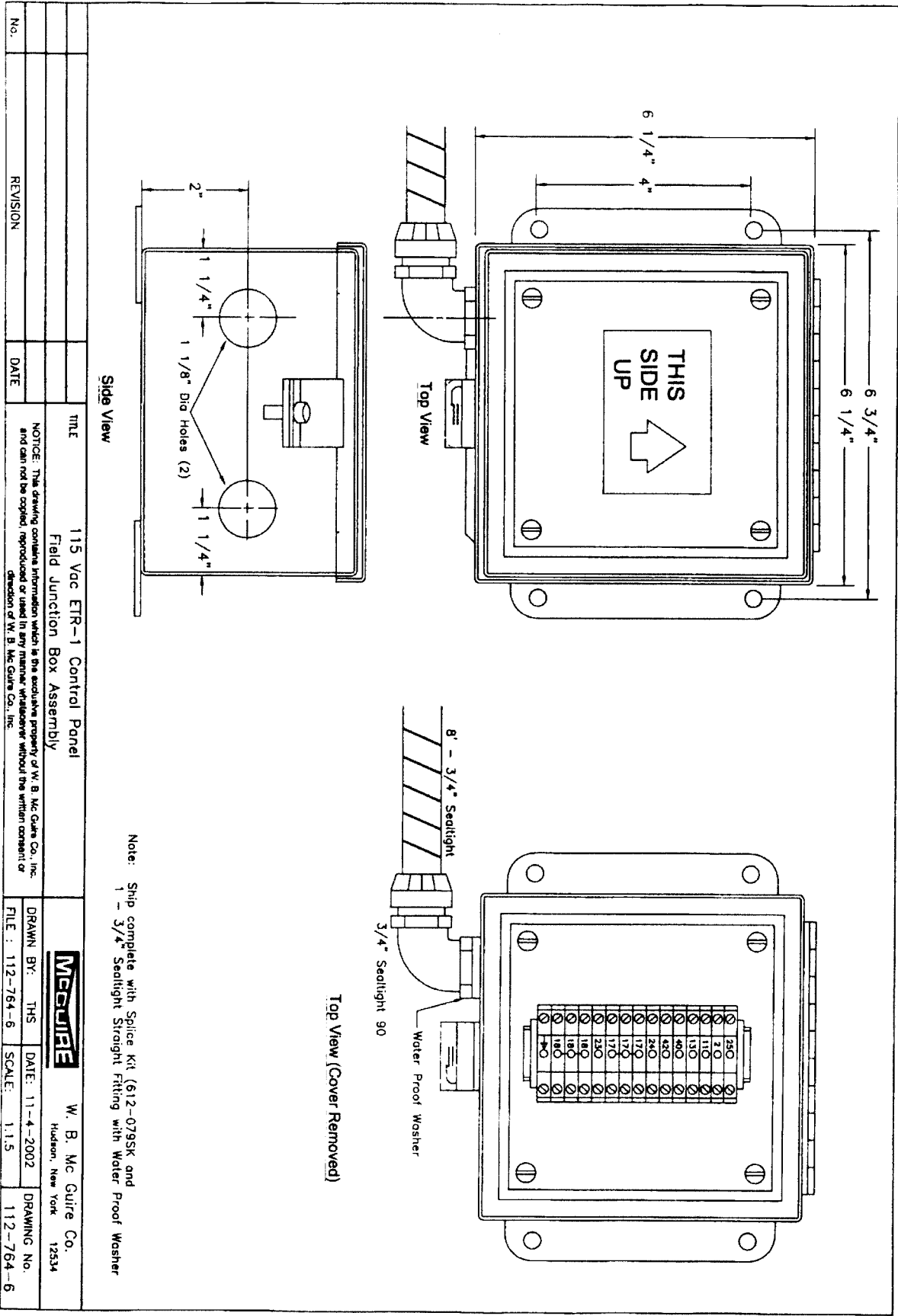
# ETR-1 ELECTRICAL SCHEMATICS



# ETR-1 FIELD WIRING DIAGRAM



# ETR-1 FIELD JUNCTION BOX ASSEMBLY



# ETR-1 OPERATION INSTRUCTIONS

**WARNING:** Before operating the vehicle restraint, read and understand all Safety Practices found in this manual. Use by untrained personnel can result in property damage, serious bodily injury or death. Read and understand complete Operation Instructions before attempting to operate this vehicle restraint. Follow all OSHA regulations regarding the use of this equipment. **Do not use the vehicle restraint if it is broken or does not function properly.** Contact your authorized W. B. McGuire Service Representative or the W. B. McGuire Company.

**WARNING:** Trucks must be secured at the dock. ALWAYS be certain that the vehicle restraint has attained a safe and proper connection with the rear impact guard (RIG) of the trailer. **Where a safe restraint condition cannot be achieved, alternative methods must be used with such vehicles (i.e., wheel chocks or blocks).**

1. Truck should be backed against bumpers and brakes set.
2. Before engaging restraint, a visual check should be made to ensure that a RIG is present. If the RIG is damaged or not present, use an alternate method to secure truck at dock such as wheel chocks, then refer to **Restraint Bypass Operating Instructions** following this section. The restraint bypass selector should be in the **NORMAL** position.
3. After confirming that a RIG exists on the truck, push the "RAISE" button, the restraint arm will raise until it contacts the RIG. The photoeye will detect positive RIG contact. The inside light will turn steady GREEN, while the outside light remains flashing RED.
4. After positive contact is made, the linear actuator motor reverses for two (2) seconds, retracting to its home position to allow restraint to float with up and down motion of the trailer. The leveler interlock relay contact will close in the restraint panel allowing the operation of the dock leveler (if equipped).
5. If positive RIG contact HAS NOT BEEN ACHIEVED, the audible alarm will sound steadily for six (6) seconds. At the end of the six (6) seconds, the alarm will silence and the linear actuator will recycle, returning the restraint to the stored position. The outside light will flash RED and inside light will flash alternately, alerting the dock attendant that positive contact has not been made. The operator must proceed to the **Restraint bypass operating instructions**. The attendant must secure the trailer by other means, i.e. (wheel chocks, or block) before entering the trailer.

**To reset unit,** only after trailer has been loaded/unloaded. Attendant can remove wheel chocks or blocks to allow truck to leave. Turn key switch to lights only mode, then back to normal mode. The Lights will go to normal operation: Inside light will be steady Red, the outside light will be green.

6. When positive RIG contact has been achieved, the dock attendant should make a visual check. The normal loading/unloading operation may begin. The restraint will float with the vertical movement of the trailer, ensuring that positive contact is maintained during operations. After normal loading/unloading operations are finished, return the dock leveler to its stored position.
7. Push the "STORE" button to return the restraint to the stored position. The inside light will turn RED and the outside light will flash GREEN.

8. **Restraint will not store due to foreign object.** After loading the truck and restraint is being stored, a foreign object could block restraint from completely storing. In this event, the following will happen:
- Inside light will be solid GREEN, RED flashing, outside light will be flashing RED.
  - Actuator will time-out on its retract motion, rest for 5 seconds, then unit raises as alarm sounds.
  - The unit at this point will not operate due to a built in safety feature. Do not load/unload trailer at this time.
- The attendant must do the following:**
- Turn off the power to the ETR-1
  - Lock out the equipment
  - Chock the truck wheels
  - Clean out the foreign object
  - Remove wheel chock
  - Turn Power to the ETR-1 on
  - Press the store button
  - Restraint is ready for normal operation
9. The truck may now depart safely. The unit is ready to accept another truck at the dock. Repeat the entire operation sequence for each trailer received at the dock.

## RESTRAINT BYPASS OPERATION

**WARNING: Using the Restraint Bypass Operation means that positive contact with the RIG has not been made. Make sure the truck is secured by wheel chocks or other means.**

1. When contact with RIG has not been made, and restraint has self restored, manually secure the truck by wheel chocks or other methods. Turn the restraint bypass selector to the LIGHTS ONLY mode. The inside lights will alternate GREEN and RED indicating the truck has not been secured by the restraint and the outside light will flash RED. If restraint is interlocked with leveler, the lights only mode will allow the user to operate the dock leveler.
2. After step #1 is completed, loading/unloading operations may begin.
3. After loading/unloading is completed, the operator must return the dock leveler to its stored position. Wheel chocks (or other means of securing the trailer) must be removed and stored.
4. Turn the INTERLOCK SELECTOR to the NORMAL position. The inside RED light will be on, and the outside light will be flashing GREEN. The restraint will be in its stored position.

## MANUAL RESTRAINT OPERATION (POWER OUTAGE)

1. If the restraint is in the up position, and positive contact with the RIG is made, and loss of electrical power occurs, use the control handle from dock level, and insert between dock and trailer after you have stored any dock leveler. Position the control handle on the upper arm, one inch in front of the reflector.
2. Push down on the upper arm until the restraint rests in its stored position. The truck is safe to pull away from the dock.

**WARNING: DUE TO LOSS OF ELECTRICAL POWER, PLC CONTROL AND COMMUNICATION LIGHT SYSTEM WILL NOT OPERATE. VISUAL CHECK AND MANUAL RESTRAINT (WHEEL CHOCKS) WILL BE REQUIRED.**

**WARNING: IF ANY OF THE OPERATIONAL FEATURES OF THIS VEHICLE RESTRAINT DO NOT FUNCTION AS PREVIOUSLY STATED, DO NOT USE THE VEHICLE RESTRAINT! CONTACT YOUR AUTHORIZED W. B. McGUIRE SERVICE REPRESENTATIVE OR W. B. McGUIRE TECHNICAL SUPPORT AT 1-800-624-8473.**

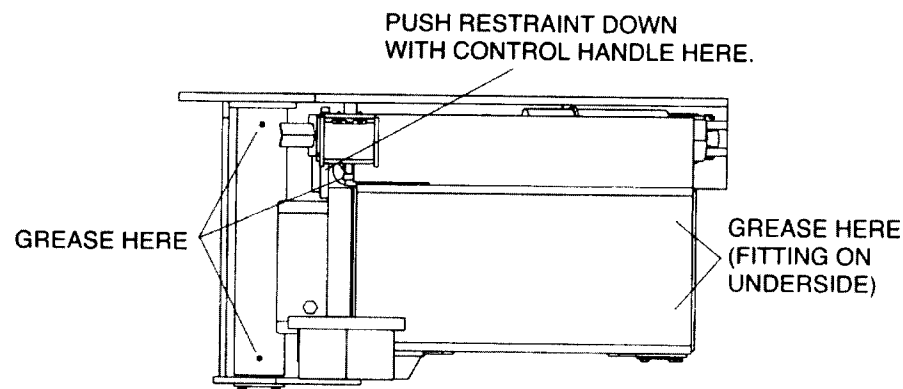


# MAINTENANCE AND SERVICE

*On site maintenance personnel can follow the enclosed service and trouble-shooting instructions or you can arrange for professional service through your authorized W. B. McGuire distributor.*

1. Turn power off and lock out before performing maintenance on restraint.
2. An operational check should be made daily to ensure the unit is functioning properly, that it travels its full upward stroke and that there are no worn or damaged parts which could result in the failure of equipment and/or personal injury. Clean & remove debris daily.
3. Check to ensure that the warning label is in place and legible. Also insure that the yellow and black striped tape is in place. Also ensure all caution signs are in place.
4. Lubricate the unit monthly with a liberal amount of a light weight, low temp grease. There are four (4) grease fittings; two (2) at each end of the lower restraint arm. Any excess grease should be wiped away to prevent the attraction of foreign matter that may impede the operation of the restraint. Refer to illustration below for grease fitting locations.
5. Check all mount bolts for tightness monthly.
6. Keep ETR-1 clean of debris & foreign objects at all times to ensure its proper operation.

## LUBRICATION POINTS



## TROUBLE-SHOOTING GUIDE

Restraint arm does not rise.	A. Inoperative gas spring. B. Binding.  C. No electrical power.	A. Replace gas spring. B. Determine cause and correct as necessary. C. Determine cause and correct as necessary.
Restraint arm does not stay down when returned to stored position.	A. Latch not engaging.	A. Check to see if latch is rotating freely. B. Check for broken return spring.
Restraint arm rises slowly or does not rise to its full upward travel.	A. Binding. B. Weak gas spring.	A. Determine cause and correct as necessary. B. Replace as required.
Light system does not operate.	A. No power. B. Inoperative photo eye or limit switch. C. Burned out LED	A/B. Determine cause and correct as necessary.  C. Replace LED

# PREVENTIVE MAINTENANCE CHECKLIST

## Mechanical / Electrical Vehicle Restraint

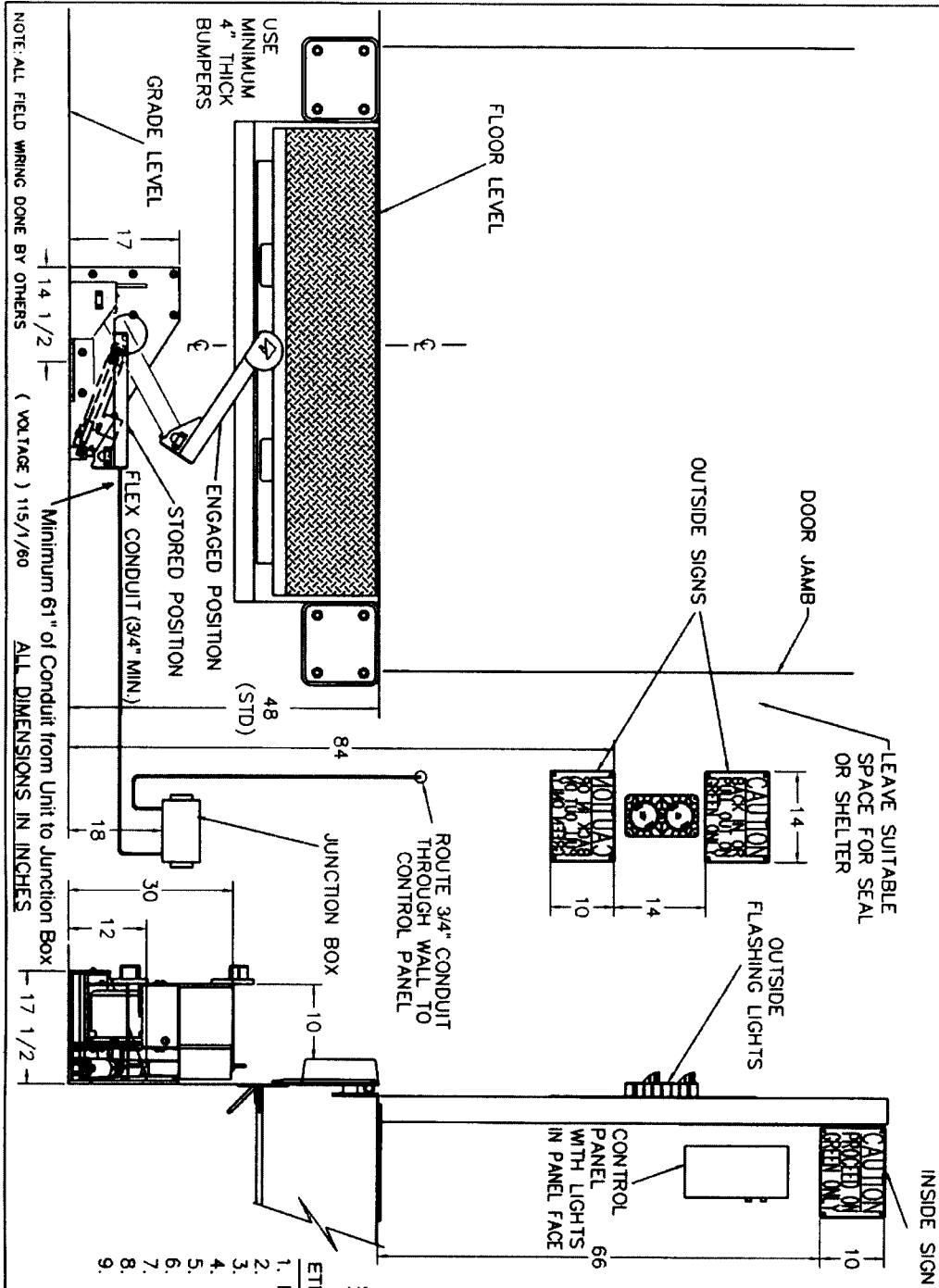
**NOTE:** Quarterly PM recommended

Customer:	Dock #	Dock #	Dock #	Dock #
Restraint Model:	Serial #:	Serial #:	Serial #:	Serial #:
1	Keep restraint clean and free of debris at all times			
2	Inspect restraint arms and lubricate all pinned joints			
3	Inspect engagement plate			
4	Inspect gas strut, lubricate sockets			
5	Inspect and lubricate latches			
6	Inspect all welds			
7	Tighten anchor bolts			
8	Inspect condition of safety labels and caution signs			
9	Inspect communication light system			
10	Inspect control panel			
11	Inspect actuator, lubricate inside tube			
12	Inspect all electrical connections			
13	Inspect store switch			
14	Inspect restore proximity switch			
15	Inspect and regularly clean photo eye and reflector			
16	Inspect audible alarm			
17	Cycle unit for proper operation			

Dock #	Comment or Description of Needed Repair(s)	Approval	Completed

Customer Signature	Date	Technician Signature	Date
Phone Number	PMP-5A	Assistants signature	Date

# ETR-1 GENERAL ARRANGEMENT



## BASICS OF OPERATION:

RESTRAINT IS IN STORED POSITION w/POWER ON

1. TRUCK BACKS IN TO DOCK
2. DOCK ATTENDANT PUSHES THE RAISE BUTTON, RAISING THE RESTRAINT TO MEET THE RIG BAR SECURING THE TRUCK.
3. OUTSIDE LIGHT TURNS RED INSIDE LIGHT TURNS GREEN
4. LOADING/UNLOADING MAY NOW BEGIN
5. WHEN FINISHED DOCK ATTENDANT PUSHES THE STORE BUTTON, DISENGAGING THE ARM FROM RIG BAR.
6. INSIDE LIGHT TURNS RED OUTSIDE LIGHT TURNS GREEN
7. TRUCK MAY NOW DEPART

RESTRAINT MAY BE USED WITH HYDRAULIC, MECHANICAL, OR EOD LEVELERS. W/(BLOCKOUT OPTIONAL), FOR EOD

SERVICEABLE TO TRUCKS WITH RIG BAR 12 TO 30 INCHES OFF GRADE.

## ETR-1 STANDARD FEATURES

1. RESTRAINT UNIT
2. OUTSIDE SIGN-STANDARD
3. OUTSIDE SIGN-MIRRORED
4. PLC CONTROL PANEL
5. INSIDE CAUTION SIGN
6. OUTSIDE FLASHING LIGHTS
7. OWNERS MANUAL
8. JUNCTION BOX
9. 110VOLT, 1 PHASE, 60 HZ POWER

McGURE		ETR-1	
Model	ETR-1	Model	ETR-1
Part No.	ETR-1	Part No.	ETR-1
Rev.	1.0	Rev.	1.0
McGURE		ETR-1	
ARRANGEMENT		ARRANGEMENT	

# WIRING

To connect motor for proper voltage and rotation, refer to connections diagram on nameplate or inside terminal/conduit box. If power factor correction capacitors are used for individual motor power factor correction, do not exceed maximum recommended value.

All aspects of the installation must conform to the requirements of the NEC, including Article 430 (Motor Circuits and Controllers), and all local codes. Wherever possible, each motor should be powered from a separate circuit of adequate capacity to keep voltage drop to a minimum during starting and running. Increase wire size where motor is located a distance away.

**TABLE A – Minimum Wire Sizes for Three-Phase Motors**

Motor HP	25 to 50 Feet			100 Feet			150 to 200 Feet		
	200V	230V	460V	200V	230V	460V	200V	230V	460V
3/4	14	14(16)*	14(18)*	12	14	14(18)*	8	10	14(16)*
1	14	14(16)*	14(18)*	10	12	14(18)*	8	10	14
1-1/2	12	14	14(18)*	10	10	14(16)*	6	8	14
2	12	12	14(18)*	8	10	14(16)*	6	6	12
3	10	12	14(18)*	8	8	14	4	6	12

(\*) Type S, SO, SJ, SJO, etc. flexible cable wire sizes. See NEC Article 400 for ampacity.

Note: Above wire sizes based on approximate 5% voltage drop during starting; copper conductors; and 75° C THHN type wire.

**TABLE A – Minimum Wire Sizes for Single-Phase Motors**

Motor HP	25 Feet		50 Feet		100 Feet		150 Feet		200 Feet	
	115V	230V	115V	230V	115V	230V	115V	230V	115V	230V
3/4	12	14(18)*	8	14	6	12	4	10	3	8
1	10	14(16)*	8	14	4	10	4	8	2	8
1-1/2	10	14(16)*	6	12	4	10	2	8	1	6
2	8	14	6	12	3	8	2	6	1/0	6
3	8	10	4	10	2	8	1/0	6	2/0	4

(\*) Type S, SO, SJ, SJO, etc. flexible cable wire sizes. See NEC Article 400 for ampacity.

Note: Above wire sizes based on approximate 5% voltage drop during starting; copper conductors; and 75° C THHN type wire.

## LINEAR ACTUATOR SPECIFICATIONS

- 115 VAC Volt DC motor
- Weather-protected
- Overload clutch
- 1,000 pound load capacity
- Steel spur gears in drive system
- Maintenance free operation
- Stainless steel extension tube
- Thermal overload protected
- Temperature range of -30 degrees F to 150 degrees F
- Zinc housing

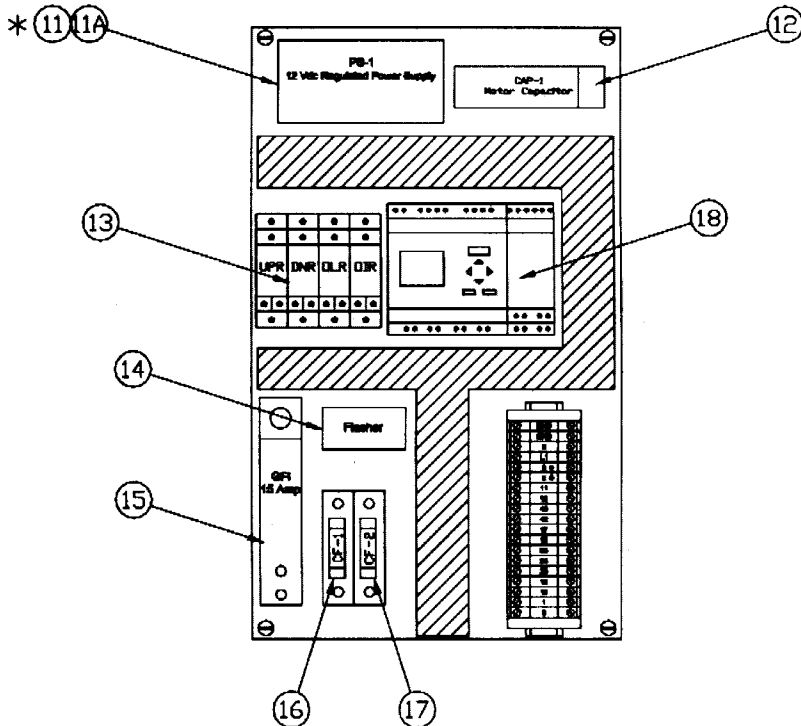
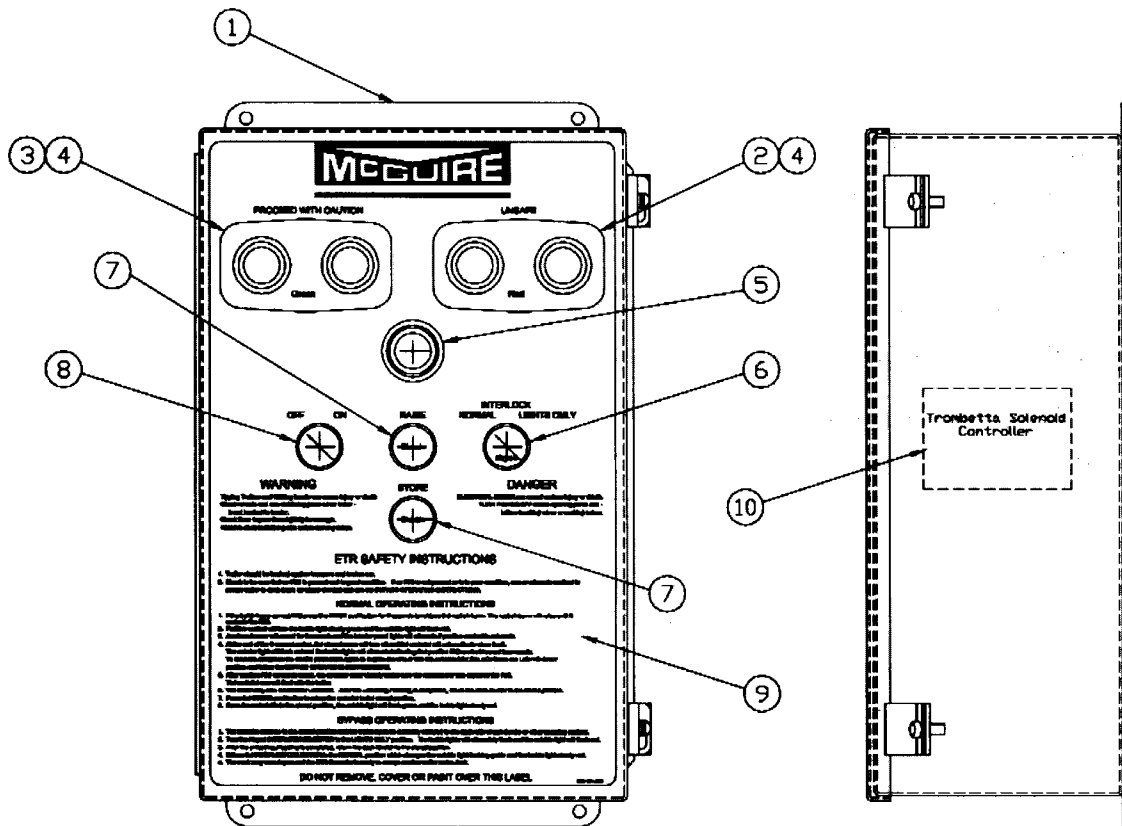
## PLC SPECIFICATIONS

- Compact dimensions:
- 4.96" x 3.54" x 2.17"
- 19 integrated functions
- Ambient temperature range +32°F to +131°F degrees
- Storage temperature range -40°F to +158°F degrees

## ELECTRICAL SPECIFICATIONS

- 120 Volt AC, 20 Amp., 60 Hz, Single Phase Power required for proper amperage-draw operation.
- Incoming power supply by others to be 120 Volt AC, 60 Hz Single Phase.
- 20 Amp. minimum Rated Fused Disconnect with 10 Amp. Non-Time Delay Fuse, all by others, is to be part of incoming power supply by others and located right before the control panel.
- Power Supply Disconnect or Protection Device by others is to be supplied at time of installation and hook-up. It is suggested that type THHN Copper Wire minimum be used.
- 2 Amp and 10 Amp protection supplied inside control panel at appropriate areas.
- Internal Ground Fault Interrupt (GFI) supplied within Control Panel.

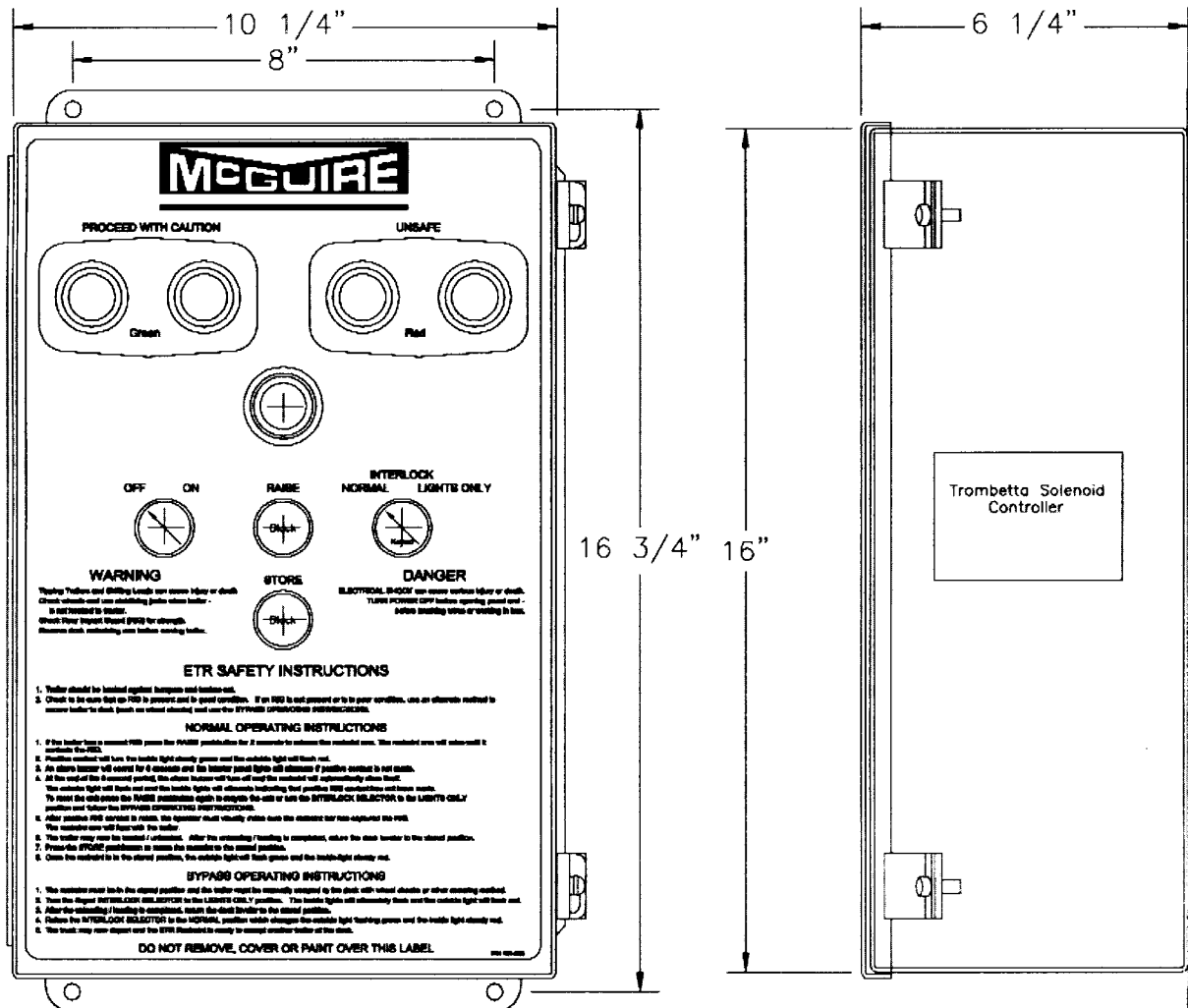
# CONTROL PANEL



ITEM	DESCRIPTION	PART NUMBER
1	COMPLETE CONTROL PANEL	112-764
2	RED LIGHT PANEL, COMPLETE	112-744
3	GREEN LIGHT PANEL, COMPLETE	112-745
4	REPLACEMENT BULB, PANEL	112-775
5	FLOYD BELL 120 VAC HORN	112-797
6	2 POSITION KEYED SELECTOR SWITCH KIT	112-845
7	PUSH BUTTON OPERATE SWITCH KIT	112-841
8	2 POSITION SELECTOR SWITCH KIT	112-842
9	LABEL, ETR1 PANEL	131-203
10	TROMBETTA CONTROL MODULE	112-684
11	1.5 AMP 12VDC PS. SN0023-XX-XXX-XXX-XX & BEFORE	112-761
11A	1.5 AMP 12VDC PS. SN0033-XX-XXX-XXX-XX & AFTER	112-802
12	CAPACITOR 330 VAC HALLORY	112-559
13	IDEC 1 POLE 120 VAC RELAY	112-247
14	SSAC INDUCTIVE INLINE FLASHER	112-805
15	1 POLE 15 AMP GFI BREAKER	112-803
16	10 AMP SLO BLO FUSE FLH-10	112-804
17	2 AMP SLO BLO FUSE FLH-2	112-572
18	IDEC PLC, PRE-PROGRAMMED	112-807
19	ETR1 MANUAL (NOT SHOWN)	602-051

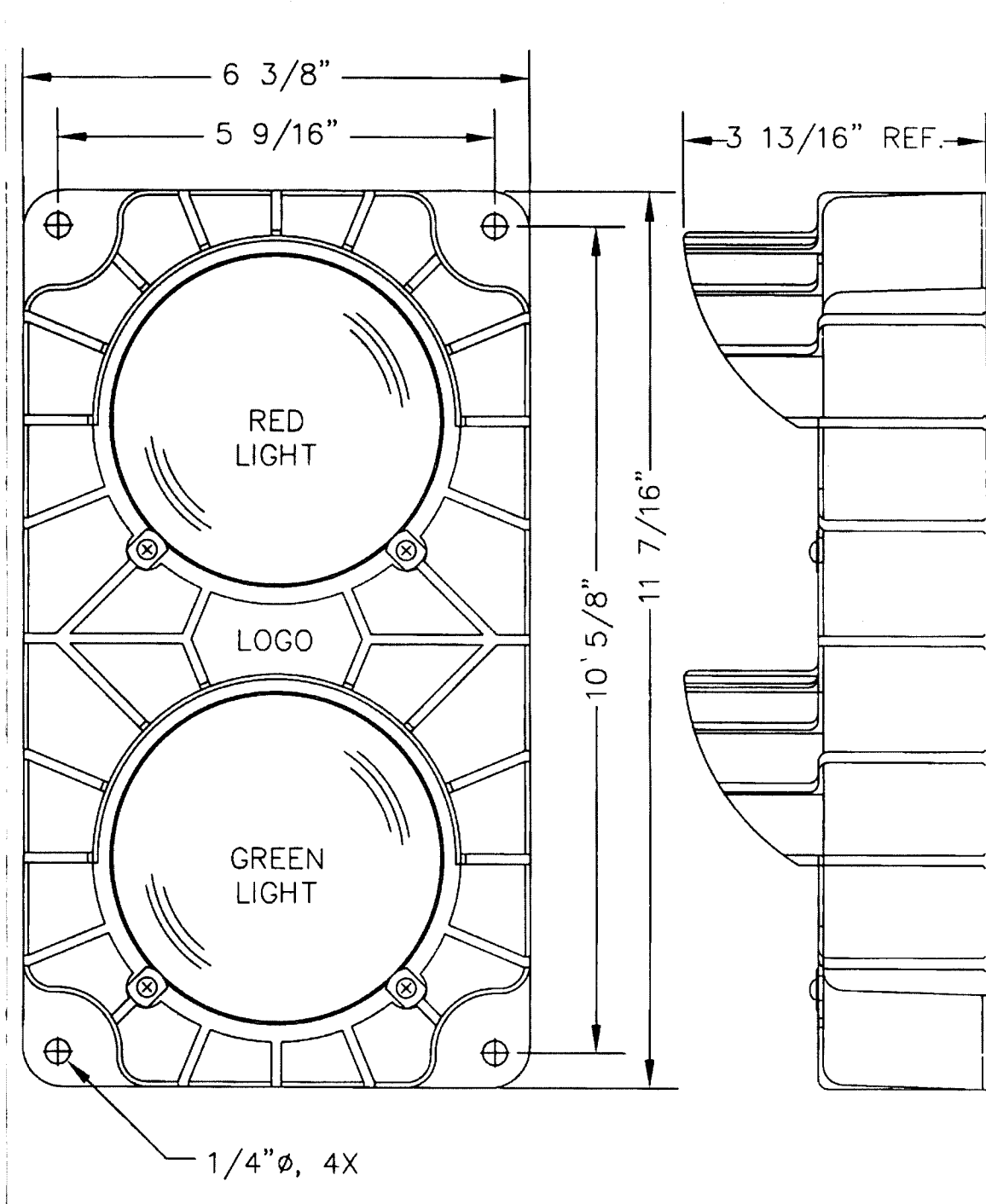
\* SERIAL NUMBER LOCATED INSIDE PANEL DOOR

# CONTROL PANEL DRAWINGS AND DIMENSIONS



Notes: Exterior Lights to be Tri Light LED Type  
Enclosure is Nema 12 Rated

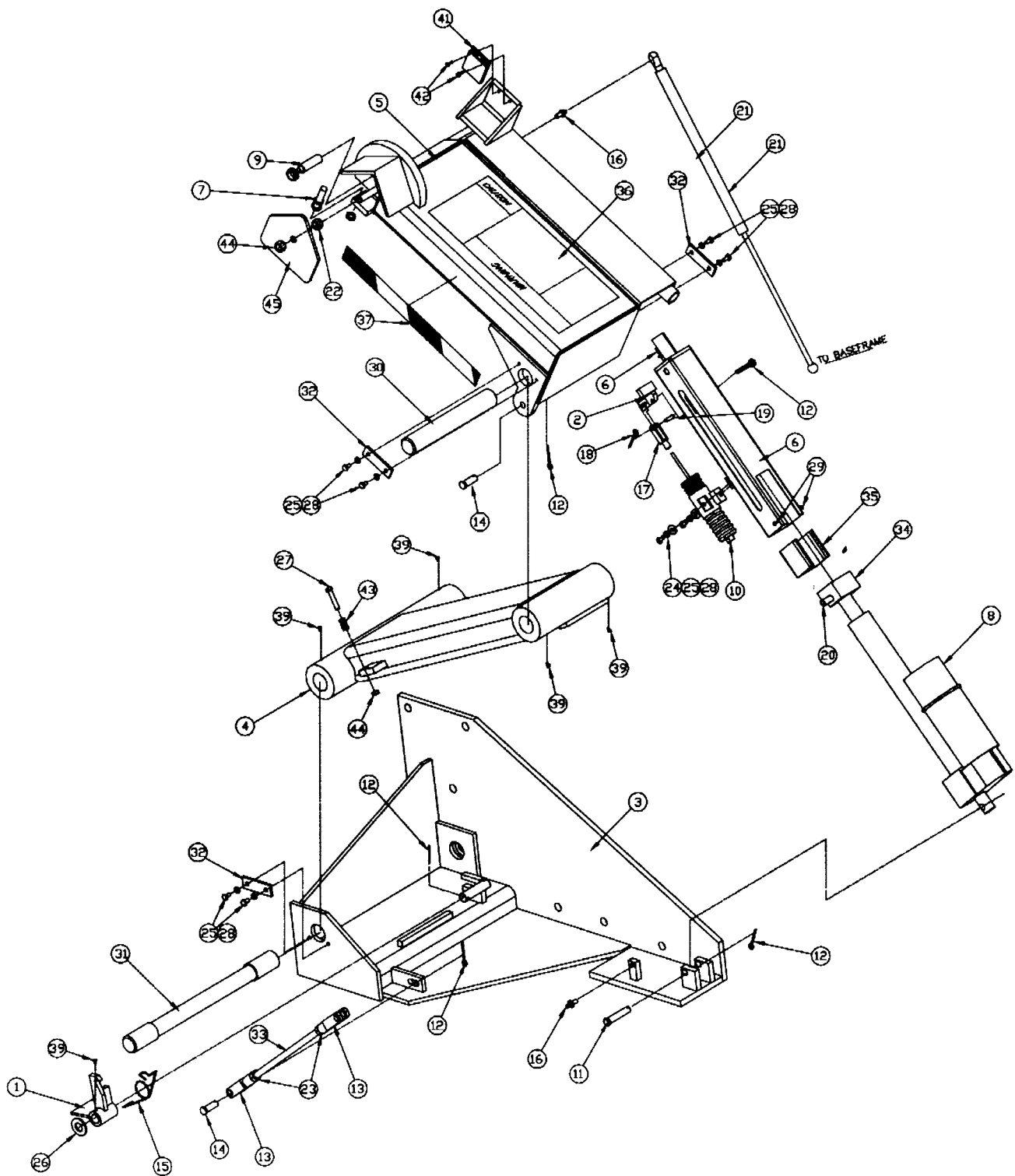
EXTERIOR LIGHTS



MATERIAL SPECIFICATION		TRI-LITE, LED, 115 VAC		OUTSIDE LIGHT BOX	
TOLERANCES UNLESS OTHERWISE SPECIFIED		DRAWN			
DECIMAL DIMENSION FRACTIONAL DIMENSION + 1/16		HN			
.X DR .XX ± 0.030 HOLE DIAMETER +0.015/ -0.005		DATE			
.XXX ± 0.010 ANGULAR DIMENSION ± 1 DEG.		11/05/02			
<i>McGUIRE</i> <i>W.B. McGUIRE Co.</i>		SCALE		DRAWING NO./ PART NO.	
		NTS			
		CHECKED		112-767	



# ETR-1 EXPLODED VIEW PARTS DIAGRAM



# ETR-1 COMPLETE PARTS LIST

<u>Key</u>	<u>Part Number</u>	<u>Qty</u>	<u>Description</u>
1	612-104	1	2nd Latch Assy
2	612-107	1	Little Latch Assy
3	612-100	1	Painted Frame Assy
4	612-102	1	Painted Lower arm
5	612-103	1	Painted Upper Arm Assy
6	612-105	1	Guide Tube Assy
7	112-700	2	Proximity Switch
8	112-762	6	Actuator 115 VAC 1000LB
9	112-765	1	Rig Sensor
10	112-769	1	Trombetta Solenoid
11	113-068	1	Clevis Pin
12	113-073	5	Cotter Pin
13	113-181	2	Yoke
14	113-183	2	Clevis Pin
15	113-365	1	Torsion Spring
16	113-293	2	Ball Stud Suspa 10mm
17	113-298	1	Yoke
18	113-348	1	Clevis Pin
19	113-349	1	Cotter Pin
20	113-362	1	Roll Pin 1/2" x 3 1/4"
21	113-363	1	Gas Spring 250 lb
22	121-013	1	Hex Nut 1/2 -13
23	121-042	2	Jam Nut 1/2 - 20
24	121-055	2	SAE Washer 1/4"
25	122-056	8	Loc Washer 1/4"
26	122-066	1	Washer 3/4"
27	122-034	1	Hex Bolt 1/2 - 13 x 2 1/2"
28	122-154	8	Hex Bolt 1/4 - 20 x 1 1/2"
29	122-210	2	Tek Screw
30	622-073	1	Pin
31	622-074	1	Pin
32	622-075	3	Plate
33	622-115	1	Threaded Rod
34	622-154	1	Steel Block
35	622-171	1	Guide Sleeve
36	131-160	1	Decal
37	131-154	1	3" Warning Tape
38	602-051	1	* Owner's Manual
39	113-112	5	Grease Fittings
40	612-068	1	* Control Handle
41	112-749	1	Square Reflector
42	122-066	2	RD HD SCR 8mm -32 x 1/2"
43	113-366	1	Spring
44	622-203	1	Sensor Cover Plate

\* Indicates item not shown.

# ETR-1 SAFETY SIGNS

ITEM	DESCRIPTION	PART NUMBER
1	EXTERIOR CAUTION SIGN (MIRROR IMAGE)	131-163
2	EXTERIOR CAUTION SIGN	131-162
3	INTERIOR CAUTION SIGN	131-164



# **W.B. McGUIRE COMPANY**

## **ETR Electric Vehicle Restraint Warranty**

The W. B. McGuire Company warrants that its electric vehicle restraint device (model ETR) will be free from defects in materials and workmanship under normal use and service for a period of two (2) years from the date of installation.

The W. B. McGuire Company's sole obligation under this warranty is limited to repairing or replacing any part which shall be determined by the W. B. McGuire Company to be defective, and is conditioned upon the buyer giving written notice of any such defect within the warranty period. If the W. B. McGuire Company concludes that repair or replacement is necessary, work will commence within a reasonable time period after the decision to repair or replace has been made.

This warranty will not apply to any product that has been altered, modified, damaged or which has deteriorated due to abuse, neglect, misuse or by accident. Warranty will be VOID if any repairs are made or attempted to be made by any person not designated by the W. B. McGuire Company. Proper application, installation, maintenance and operation are required to keep warranty in force.

Programmable logic controllers are factory preset. No adjustments are required during installation or maintenance. Any reprogramming by an unauthorized W. B. McGuire representative that results in improper operation of the unit will VOID this warranty. The W. B. McGuire Company assumes no liability in the event of the PLC being reprogrammed.

This warranty is the W. B. McGuire Company's exclusive expressed warranty. Warranty is limited to value of components only. The W. B. McGuire Company assumes no liability for loss of the use of any equipment and expressly disclaims any liability for incidental or consequential damages. Warranties implied by law are limited in duration to the two year period described above.



**One Hudson Avenue  
Hudson, New York 12534  
1-800-929-2553 • Fax 1-800-929-1274**

**[www.wbmcguire.com](http://www.wbmcguire.com)**



The specifications described herein were in effect at the time of printing. However, W.B. McGuire Company reserves the right to change specifications and designs or to discontinue models at any time without incurring obligation.

**Represented By:**