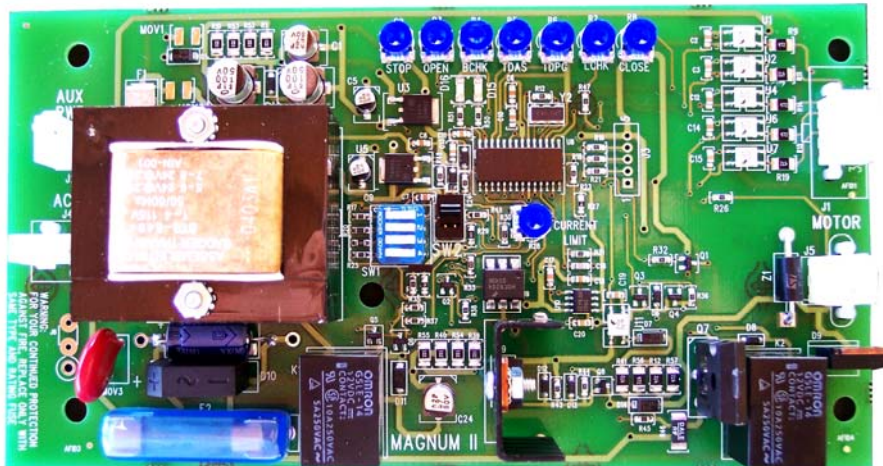


Magnum IV Control

Wiring & Adjustment Manual

for

Gyro Tech Swing Door Operators



CAUTION

Read these safety practices before installing, operating or servicing the automatic door. Failure to follow these practices may result in serious consequences.

Read, study and understand the operating instructions contained in or referenced in this manual before operating. If you do not understand the instruction, ask the installing qualified technician to teach you how to use the door.

This manual and the owners' manual must be given to and retained by the purchasing facility or end user.

If the door appears broken or does not seem to work correctly, it should be immediately removed from service and a qualified service technician contacted for corrective action.

Disconnect power at the fused disconnect during all electrical or mechanical service. When uncertain whether power supply is disconnected, always verify using a voltmeter.

All electrical troubleshooting or service must be performed by qualified electrical technicians and must comply with all applicable governing agency codes.

It is the responsibility of the installing door technician to install all warning and instructional labels in accordance with the applicable ANSI standard.

It is the responsibility of the purchasing facility or end user to keep warning and instructional labels and literature legible, intact and with the door.

Replacement labels and literature may be obtained from local NABCO ENTRANCES INC. authorized distributors. If the name of the local distributor is unknown, contact NABCO ENTRANCES INC. at (877-622-2694) for assistance.

Do not place finger or uninsulated tools inside the electrical control box. Touching wires or other parts inside the enclosure may cause electrical shock, serious injury or death.

All adjustments should be made with a small screwdriver. DO NOT use a pencil.

The ground wire from the Magnum 120 VAC harness and the ground wire from the 120 VAC "in" line must be attached to the ground screw which is located in the header.

Final installation must conform to current versions of ANSI 156.19 for Low Energy swingers or ANSI 156.10 for Full Automatic Installations.

Table of Contents

To The Installer	Page 4
Overview	Page 4
Specifications	Page 5
Visual Indicators	Page 5
Magnum IV Diagnostic LED Function Chart	Page 6
Wiring Connectors	Page 7-8
Door Positions	Page 8
Adjustments	Page 9
Potentiometers	Page 9-11
Dip Switches	Page 11
Troubleshooting	Page 12-13
Section A - Wiring and Adjustment for GT-300, GT-400 and GT-500 Operators	Page 14
Back Check and Latch Micro Switches	Page 14
Required Wiring Harnesses	Page 15
Wiring for Rocker switch	Page 16
Wiring for Break-out	Page 16
General Wiring - Single Diagram	Page 17
General Wiring – Simultaneous Pair	Page 18
Section B - Retrofit Kit Manual, Model 300/400/500 Swing Door System With Magnum IV Control	Page 19
Tools required	Page 19
Hard Ware Kit List	Page 20
Conversion of a GT300/400/500 to a Magnum IV	Page 21-23
General Wiring - Single Diagram	Page 24
General Wiring – Simultaneous Pair	Page 25
Section C - Wiring and Adjustment for GT-710 Operators	Page 26
General Wiring Diagram - Single Door	Page 27
Wiring Diagram for Wall Switch Activation	Page 28
Wiring Diagram for Simultaneous Pairs	Page 29
Transformer Installation and Wiring for 240 Volts	Page 30
Wiring Diagram for Radio Activation	Page 31
Wiring Diagram for 4 Wire Radio Receiver and Electric Strike	Page 32
Wiring Diagram for Electric Strike and Fire Alarm Systems	Page 33

To The Installer

The purpose of this manual is to familiarize the purchaser with the proper installation and operation of this system. It is essential that this equipment be properly installed and operational before the door is used by the public. It is the purchaser's responsibility to inspect the operation of the entrance system to be sure it complies with any applicable standards. In the United States, ANSI Standard 156.19 usually covers this type of door. Other local standards or codes may apply. Use them in addition to the ANSI Standard.

Instruct the building owners/operator on the essentials of the operation of the door and this device. The owner should follow these instructions to determine whether the door is operating properly and should immediately call for service if there is any malfunction.

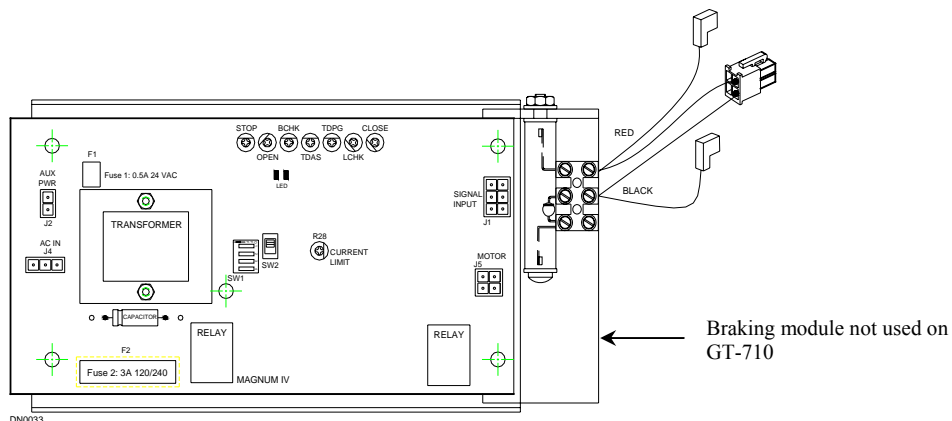
All installation changes and adjustments must be made by qualified, NABCO trained technicians.

Overview

Earlier versions of Gyro Tech GT300, GT400, GT500 and GT710 Swing Door Operators can be retrofitted with the newer Magnum IV Control Board. This combination offers several control features that accommodate most installations.

Some features of the Magnum IV Board include:

- A. Two safety inputs:
 1. A safety with a built in internal lockout
 2. A continuous safety input that is always active
- B. Sequential or Timer Mode operation
- C. Multifunction diagnostic LED's that indicate what the Magnum control is doing at all times
- D. Push-N-Go feature
- E. Adjustable potentiometer to govern whether the door stops, creeps open or closes when the continuous safety is activated
- F. 24 VAC 0.5 Amp output for auxiliary devices
- G. Close on Obstruction feature that is adjustable via a "Current Limit" potentiometer
- H. A two position slide switch that permits the installer to choose Low Energy or Full Automatic mode of operation
- I. The versatility to use the Magnum IV with either a hydraulic closer with built in braking (such as the GT-710) or a spring close mechanical closer with no built in braking. With the latter, the Magnum IV provides the braking for the closer via a braking module as is used with the GT300/400/500



**FIGURE 1 – OVERVIEW OF MAGNUM IV & BRAKING MODULE
(BRAKING MODULE NOT USED ON GT-710)**

Specifications:

Power Input	120 VAC ($\pm 10\%$) AC 50-60 Hz, 5 Amps
Available Output for Accessories	0.5 Amps 24 Volts AC
Available Wire Size for Incoming Power	14 AWG
Fuses	1 x 120 VAC 3AG fast acting & 1 x 24 VAC re-settable
Thermo-Couple	Automatic cutoff of motor if overheated
Opening Hold Time	Adjustable 0-60 seconds

Visual Indicators:

The Magnum IV control is equipped with two diagnostic LED's that enable the technician to directly observe what the Magnum control *is reacting to* at any instant in the door cycle. This feature compliments the use of the optional Gyro Tech Diagnostic Daughter Board (P/N 14-10597) tool (see below) that provides visual indication of the signals the Magnum control *is receiving*, at any instant in the door cycle. The Diagnostic Daughter Board can be ordered from Customer Service. It is a valuable tool that provides a quick visual indication of signals being received by the control and is also compatible with earlier models of Magnum controls.

**Magnum Diagnostic
Daughter Board
PN 14-10597**



These two indicators, the Magnum LEDs and the Diagnostic Daughter Board LEDs, are designed to work in tandem to enable the technician to easily adjust the Magnum IV control or troubleshoot a problem installation. NABCO ENTRANCES strongly recommends the use of the optional Diagnostic Daughter Board to assist the technician when installing or servicing the Magnum IV control.

The two LED's on the Magnum IV control are RED and GREEN.

The GREEN LED is a cycle status indicator. This LED indicates the status of the door at any instant in the door cycle.

The RED LED is the safety status indicator. This LED indicates the state of the two safety signals or the state of the Recycle on Obstruction (Current Limit) at any instant in the door cycle.

On the next page is a table that outlines the signals of the two LED's.

Magnum IV Diagnostic LED Function Chart

<u>LED Color</u>	<u>Door Status</u>	<u>LED Status</u>	<u>Explanation</u>	
Green	<i>Closed</i>	Off	Magnum is not activated, door is in Latch Check area	
	<i>Opening</i>	Fast Flash	Magnum is opening door, not yet in Back Check area	
	<i>Back Check & While in Hold Open</i>	On Steady	Magnum is opening door in back check	
	<i>Closing</i>	Slow Flash	Magnum is allowing door to close, not yet in Latch Check area	
Red	<i>Closed or Latch Check</i>	Off	The swing side door mounted ACUGARD is not activated and the header mounted Acusensor is not locking out an activation signal.	
		Fast Flashing	The header mounted Acusensor is activated (* see note 1 below)	
		Slow Flashing	The swing side door mounted ACUGARD is activated	
		On Steady	Close on Obstruction (Current Limit) activated (LED on for 5 seconds)	
	<i>Opening</i>	Off	The swing side door mounted ACUGARD is not activated	
		Fast Flashing	Not applicable	
		Slow Flashing	The swing side door mounted ACUGARD is activated	
		On Steady	Close on Obstruction (Current Limit) activated (LED on for 5 seconds)	
	<i>Opening in Back Check</i>	Off	The swing side door mounted ACUGARD is not activated	
		Fast Flashing	Not applicable	
		Slow Flashing	The swing side door mounted ACUGARD is activated	
		On Steady	Close on Obstruction (Current Limit) activated (LED on for 5 seconds)	
	<i>Full Open</i>	Off	The swing side door mounted ACUGARD is not activated and the header mounted Acusensor is not activated	
		Fast Flashing	The header mounted Acusensor is activated (* see note 1 below)	
		Slow Flashing	The swing side door mounted ACUGARD is activated	
		On Steady	Close on Obstruction (Current Limit) activated (LED on for 5 seconds)	
	<i>Closing While in Back Check</i>	Off	The swing side door mounted ACUGARD is not activated	
		Fast Flashing	Not applicable	
		Slow Flashing	The swing side door mounted ACUGARD is activated	
		On Steady	Close on Obstruction (Current Limit) activated (LED on for 5 seconds)	
	<i>Closing Out of Back Check</i>	Off	The swing side door mounted ACUGARD is not activated	
		Fast Flashing	Not applicable	
		Slow Flashing	The swing side door mounted ACUGARD is activated (* see note 2 below)	
		On Steady	Close on Obstruction (Current Limit) activated (LED on for 5 seconds)	
	<u>Note:</u>	<ol style="list-style-type: none"> 1. If swing side door mounted ACUGARD is also active LED will flash slow instead. 2. LED will only flash slow during closing if ACUGARD it is locking out an activation signal. If no activation signal is present, LED will not flash slow even if ACUGARD is activated. 		

Wiring Connectors:

There are four connectors located on the control board labeled J2, J3, J4, and J5 (Figure 2). There is a re-settable fuse 1 (F1) and a replaceable fuse 2 (F2).

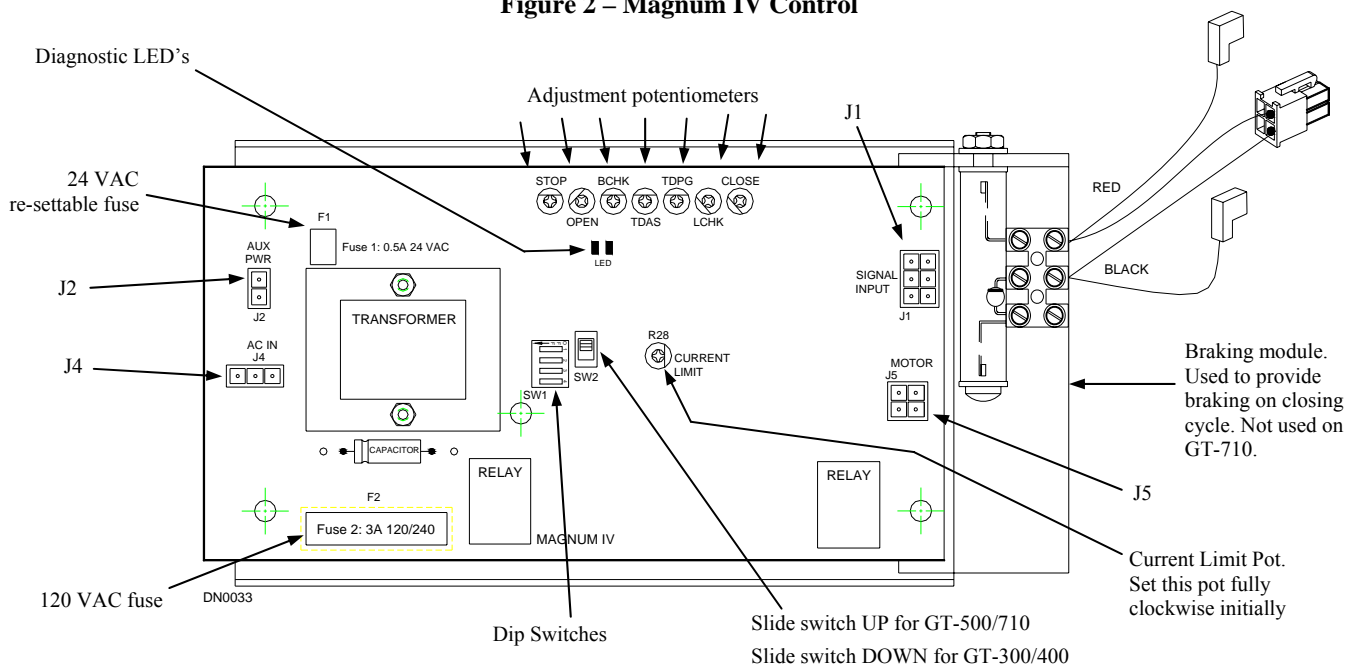
J1 is the signal input. It is a six-pin connector with a mating connector installed.

1. **Pin 1 - Safety with Lockout** The wire to this pin is white. This is a lock out circuit so that the signal only works when the door is in the closed or fully open position. The logic is turned off and on through back check and door closed switches. Completing the circuit from the common (pin 6) will prevent the door from opening or closing from a fully closed or fully open position. It is generally used for swing side presence detectors where the detector needs to be deactivated as the door sweeps across the detection zone.
2. **Pin 2 - Door Closed Switch** The wire to this pin is orange. This circuit should be connected to the door closed switch to determine when the door is closed and out of the detection area of the presence sensor.
3. **Pin 3 - Back check Switch** The wire to this pin is blue. This circuit should be connected to the back check switch to determine when the door is in back check .
4. **Pin 4 - Activation** The wire to this pin is black. This circuit receives the activate signal from the actuating device when someone approaches.
5. **Pin 5 - Continuous Safety** The wire to this pin is purple. This circuit is used with the ACUGARD 2 System, swing side floor mats, or other continuous safety systems. Completing the circuit from the common (pin 6) will stop the door during opening, prevent activation during closing, as well as prevent it from moving if it is fully open or closed. This safety circuit is always active unlike the safety circuit described for pin 1.
6. **Pin 6 - Common** The wire to this pin is red. This is the common, so connecting this red wire to any of the other five will cause that feature to be activated. For example, connecting the red and blue will result in back check.

J2 is the 24 VAC output to the actuating device. It is a two-pin connector.

1. This circuitry was designed to work with any sensor that operates on 24 VAC. Do not exceed 0.5 amp current draw. A greater that 0.5 amp current will cause the onboard re-settable fuse (F1) to trip until the situation is corrected. If a sensor requires a different operating voltage, a separate voltage module must be used to supply power to the sensor.

Figure 2 – Magnum IV Control



J4 is the 120 VAC input connector.

J5 is the motor feed. It is a four-pin connector that connects to the motor braking module (not used with GT-710) mounted at the end of the Magnum control board. This module uses a resistor & diode to slow the door down if J5 is accidentally unplugged while the door is in the open position.

1. Pin 1 is motor negative. The wire to this pin is red.
2. Pin 2 is motor positive. The wire to this pin is black.
3. Matching the color wires into the motor makes the unit work for right-hand doors. Mismatching the wires makes the unit work for left-hand doors.
4. There are no wires to the Pin 3 and 4

NOTE: If the operator is the wrong hand, it **CANNOT** be corrected by reversing the wiring leads into the motor.

Fuse 1 (F1) is a 0.5 amp, fuse that protects auxiliary equipment that may be connected to J2. It also protects the auxiliary power circuit of the magnum board.

Fuse2 (F2) is a 3 amp, 250 volt fuse that protects the circuit board from voltage spikes and incorrect voltage being applied to the board.

Door Positions:

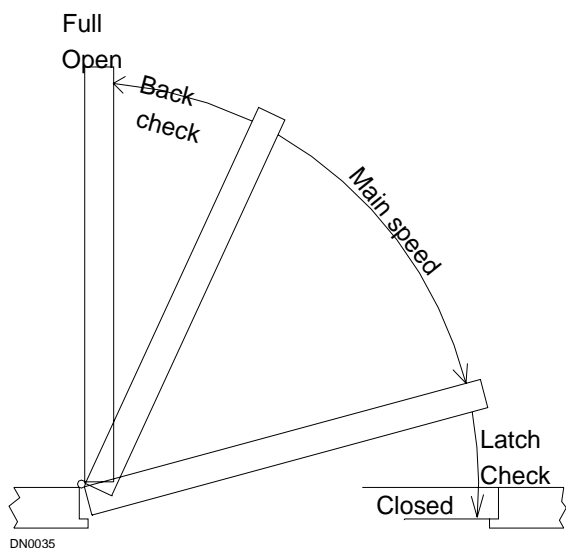


FIGURE 3 - DOOR POSITIONS

Back Check – This takes place from about the last 10° of sweep to the full open position.

Closing Speed – How fast the door moves from fully open to the final 10° before fully closed.

Current Limit (or Door Block) – This sensitivity adjustments stops the activation if the door encounters an object in the path of the moving door while opening.

Latch Check–This takes place from about the last 10° of sweep to the full closed position.

Opening Speed – How fast the door opens from fully closed to approximately 80° open.

Push-N-Go – Activation of the control by manually pushing the door.

Time Delay Activation Signal – When the door is activated via a push plate, a mat, a sensor, etc., this option determines how long the door will stay open. It is adjustable up to 60 seconds.

Stop Adjustment – When an object is detected in the path of a moving door by a door mounted sensor while opening and the door is not in back check, this feature determines whether the door stops, slowly opens, or slowly closes.

Adjustments: There are three types of adjustments on the Magnum Control Board. These are; a slide switch, eight potentiometers and one selector (dip) switch. See Figure 2 for the location of these adjustments.

Slide Switch - The slide switch can be used to select the appropriate mode of the Magnum IV control.

The modes available are: UPPER POSITION - Upper position is for GT500 (Low Energy Operator)
LOWER POSITION - Lower position is for GT300/400 (Standard Full Automatic Operator).

By adjusting the slide switch, the Magnum board can control a Standard Swing full automatic operator or Low Energy operator. Leaving the slide switch in the upper position reduces power to the motor thereby allowing for the system to be adjusted to ANSI 156.19 Low Energy Standards. If it is desirable to increase opening power on a GT-500 or GT-710, move the slide switch to the lower position. For the latter, final installation must conform to ANSI 156.19.

The amount of energy stored in the door and imparted to an object on impact is determined by both the weight and speed of the door. NABCO ENTRANCES INC. recommends setting opening and closing speeds as slow as owners will accept, AND below the maximums stated by ANSI.

The settings on the controller will vary slightly as the voltage supplied to the unit varies due to fluctuations in building and electrical supply loads. To allow for variations, the manufacturer recommends adding 1 second to ANSI's minimum opening or closing times. Use a stopwatch for assistance.

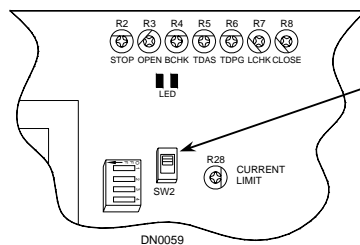


FIGURE 4 –SLIDE SWITCH

Potentiometers – There are eight potentiometers located on the control board. Use a small #0 Cross point or Phillips screw-driver to adjust each potentiometer. Don't touch other parts of the board with the screwdriver. This could damage the electrical circuitry. Adjust potentiometers clockwise to increase the parameters (speeds, stops, delays, etc.), counterclockwise to decrease the parameters. Wait at least 5 seconds before testing the change. Recommended start settings correspond with positions on a clock with 12 o'clock at the top. The settings are a starting point. They are standard field approximations that might need to be adjusted for a specific situation.

Selector (Dip) Switches – There is one bank of four switches located on the control board. The screwdriver can be used to toggle the switches on and off. Do not use a pencil. Note that the edge of the switch bank closest to the transformer is the "Off" position.

Customized Settings Magnum Board

Potentiometers: **CAUTION! Changes should only be made by trained, qualified technicians.**

Each control board has 8 potentiometers:

- Stop Adjustment (STOPS)
- Opening Speed Adjustment (OPEN)
- Back Check Adjustment (BCHK)
- Time Delay Activating Signal (TDAS)
- Time Delay Push-N-Go (TDPG)
- Latch Check Adjustment (LCHK)
- Closing Speed Adjustment (CLOSE)
- Current Limit Adjustment (CURRENT LIMIT)

Stop Adjustment (STOP):

When an object is sensed in the path of a moving door by a swing side safety mat or ACUGARD sensor connected to the control board through terminal # 3 (Violet wire) and the door is not in back check, this feature determines whether the door stops, slowly opens, or slowly closes. The recommended start setting is 12 o'clock.

Clockwise rotation of the potentiometer increases the stop power. If the stop power is increased and an object is detected in the path of the opening door, the door will continue to open, but at a slower speed. If the stop power is decreased and an object is detected in the path of the opening door, the door will stop, reverse direction, and close slowly. Rotation of the potentiometer towards the midpoint of the setting reduces the speed at which the door moves.

NOTE: This adjustment is pertinent to signals from the Violet wire - continuous safety input (Terminal Block #3) and is not related to current limit. Also, heavier doors will require more STOP power.

Opening Speed Adjustment (OPEN):

This sets the door opening speed. The recommended starting position is 12 o'clock. Clockwise rotation increases opening speed.

GT-300/400 Application : 1.5 ~ 16 sec / 80 deg.

GT-500/710 Application : 3.0 ~ 16 sec / 80 deg.

Back Check Adjustment (BCHK)

This sets back check speed. Back check takes place from about the last 10° of sweep to the full-open position. The recommended starting position is 11 o'clock. Clockwise rotation increases back check speed. If back check is set too high the door will slam open. The current limit will trip. If back check is set too low the door will reach back check and stop.

GT-300/400 Application : 0.4 ~ 10 sec / 10 deg.

GT-500/710 Application : 1.8 ~ 25 sec / 10 deg.

Time Delay Activating Signal (TDAS):

When the door is activated, this option determines how long the door will stay open after the activation (or input signal) is released. This potentiometer is used when the door is in Timer Mode according to dipswitch # 4 (see next page). It is adjustable up to 60 seconds. The recommended starting position is 12 o'clock. Clockwise rotation increases time delay.

GT300/400/500/710 Application : 1 ~ 60 sec.

Time Delay Push-N-Go (TDPG):

When the Push-N-Go feature is used, this sets the time delay, which determines how long the door stays open. It is adjustable up to 60 seconds. The recommended starting position is 12 o'clock. Clockwise rotation increases time delay. Set dipswitch # 4 to "ON" (see next page)

GT300/400/500/710 Application : 1 ~ 60 sec.

Note: Push-N-Go time delay, when active, should be set for a shorter length of time than the Time Delay Activating Signal.

If TDPG is not used, the time delay adjustment must be set at the same setting as time delay activating signal (TDAS). Do not set TDPG at minimum (full counter clockwise).

Note: There is a difference as to how Push-N-Go functions on the GT-500 versus the GT300/400 & GT710. Because the GT-500 uses a clutch gear, Push-N-Go activation of GT-500 can only take place from a fully closed position and only once the door is manually pushed out of latch position. If Push-N-Go is desirable at any point in the door travel, order the GT-500 with a "clutchless" operator.

Latch Check Adjustment (LCHK):

This sets latch check speed. Latch check takes place from about the last 10° of sweep to the full-close position. The recommended starting position is 11 o'clock. Clockwise rotation increases latch check speed. If latch check is set too high the door will slam closed.

GT-300/400/500/710 Application : 1.5 ~ 5.0 sec / 10 deg.

Closing Speed Adjustment (CLOSE):

This sets the door closing speed. The recommended starting position is 12 o'clock. Clockwise rotation increases closing speed.

GT-300/400/500/710 Application : 3.0 ~ 12 sec / 80 deg.

Current Limit Adjustment (Current Limit):

Adjustment of this potentiometer from the fully clockwise position should be only be done after all other adjustments are made and door operation is satisfactory.

In the case of GT-500 or GT-710, to satisfy ANSI Low Energy standard, it will be required to set this pot carefully. Although recommended setting is around 1:00 o'clock, it will be necessary to adjust setting depending upon door weight and speed.

Current Limit stops activation and cuts power to the motor if the motor current exceeds the setting. It is used to set how much force the opening door will push on an encountered object before it recycles. When the recycle is triggered, the door will stop and coast to a close. Reactivation will not be possible for 5 seconds. This adjustment is affected by opening speed. Set opening speed first. The recommended starting position for current limit might not be appropriate in windy conditions. For example, strong wind gusts against an exterior door may inadvertently cause it to recycle. Clockwise rotation makes the door less sensitive to objects in its path.

Dip Switches:

Switch 1 – Not Used.

Switch 2 – Not Used.

Switch 3

- 1. On - Push-N-Go Inactive
- 2. OFF - Push-N-Go Active

When the switch is ON, Push-N-Go is not active.
 When the switch is OFF, Push-N-Go is activated.
 If Push-N-Go is active, switch # 4 below should be set to ON otherwise the door will go open when pushed and stay open, a second activation will be needed for the door to close.

Switch 4

- 1. On- Timer Mode
- 2. OFF - Sequential Mode

When the switch is ON, the door will open, time out and close.
 When the switch is OFF, the door is in the sequential mode. One activation opens the door, a second activation is needed for the door to close.

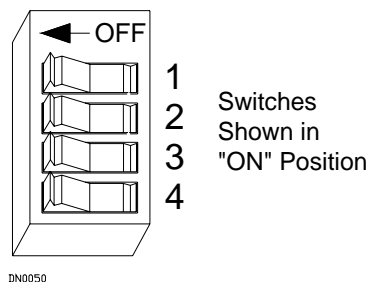


FIGURE 5 - DIPSWITCHES

Troubleshooting:

Symptom	Action/Cause	Solution
Operator does not function	<ol style="list-style-type: none"> 1. Check Fuse 2 (F2). 2. Check for 120 VAC at connector J5 3. Check power to activation device at connector J1. 4. Check Fuse 1 (F1) 	<ol style="list-style-type: none"> 1. Replace fuse 2. Check incoming power. If power is good, check connection to motor. Replace motor if necessary 3. If power exceeds 0.5 amps at 24 VAC, replace with lower draw sensor. If blown, replace fuse. 4. If F1 is OK, check power to activating devices at J2. Voltage is too low, reduce accessory load
Adjustment of Hydraulic Closer has no effect. (GT-710 only)	Check 4 pin motor connector on the board	For GT-710's only: Pin #2 and #4 must be jumped by a wire
Door slams closed	<ol style="list-style-type: none"> 1. GT-710: Main speed on hydraulic closer not adjusted properly 2. GT300/400/500: Closing speed not adjusted or motor circuit open 	<ol style="list-style-type: none"> 1. Turn main speed in direction of turtle 2. Adjust closing speed on Magnum control 2. check for open connection on motor circuit
Door slams open	<ol style="list-style-type: none"> 1. All units: Back check speed not adjusted 2. GT-710: magnet not in proper location 3. GT-300/400/500: Operator not preloaded correctly 	<ol style="list-style-type: none"> 1. Adjust back check speed on hydraulic closer or Magnum control 2. Adjust back check potentiometer or relocate magnet 3. Pre-load operator by correctly installing arm on operator spindle as per hardware installation manual
Fuse 2 (F2) blows when door open is triggered	Check door activation device power consumption	If power draw exceeds 0.5 amps at 24 VAC, replace with lower draw sensor
Motor spins when activated but door does not open	<ol style="list-style-type: none"> 1. GT-500: Check polarity of motor input wires at connector on motor 2. All units: motor/operator coupling or spyder coupling loose between motor and operator 	<ol style="list-style-type: none"> 1. Reverse motor leads on motor 2. Remove and separate motor and operator. Inspect couplings for looseness
Back check adjustment on Magnum board has no effect	<ol style="list-style-type: none"> 1. GT-710: The fully open door position is greater than 90° and the back check adjustment on the hydraulic closer is overriding the controls of the Magnum board 2. All units: Door is not going into back check even though it is reaching 90 degrees 	<ol style="list-style-type: none"> 1. Adjust the back check screw on the bottom of the header out one turn 2. Reposition magnet on GT-710 or correctly pre-load arm on GT-300/400/500 as per hardware installation manual
No back check	<ol style="list-style-type: none"> 1. GT-710: Magnets on main sprocket not in correct position. 2. GT-300/400/500: back check switch not closing at correct position 	<ol style="list-style-type: none"> 1. Follow instructions in GT-710 hardware installation manual to properly align magnets. 2. Follow instructions in GT-GT300/400/500 hardware installation manual to properly pre-load operator
Door does not stay tightly closed	<ol style="list-style-type: none"> 1. All units: Preload on swing arm is not correct 2. GT-710: Spring adjustment not correct on LCN closer. 3. GT-710: Building stack pressure is excessive 	<ol style="list-style-type: none"> 1. Position arm as shown in hardware installation manual 2. Adjust spring tension on LCN closer as per GT-710 hardware installation manual. 3. Upgrade operator unit to GT 500

Troubleshooting **continued**

Presence Sensor does not function	1. All units: No power to sensor or defective sensor. 2. All units: Sensor not connected to White wire	1. Check harness wiring as per applicable section 2. Connect the output of the sensor to the Red # 5 and White # 4 connections on the terminal block.
Swing Side Door sensor does not function	1. All units: No power to sensor or defective sensor. 2. All units: Sensor not connected to Violet wire	1. Check harness wiring as per applicable section. 2. Connect the output of the sensor to the Red # 5 and Violet # 3 connections on the terminal block
Swing Side Presence Sensor is activated by opening or closing door	All units: Connection of sensor to wiring harness was to "Safety" not "Safety w/ Lockout"	Rewire Safety Sensor to "Safety w/Lockout" connector. (pins Red # 5 and White # 4 connections on the terminal block.)
Swing Side ACUGARD 2, swing side floor mat, safety holding beams or other accessories do not function while door is moving	All units: Connection of accessories was made to "Safety w/Lockout" not "Continuous Safety"	Rewire accessory to "Continuous Safety" connection (Red # 5 and Violet # 3 connections on the terminal block.)
Sensor shows activation signal sent, but door does not open	All units: Sensor not connected properly to activation connector	Check harness wiring as per applicable section
One sensor does not activate both doors on a simultaneous pair	All units: Sensor is not connected to both control boards	Install simultaneous pair harness (P/N 229953)

Section A

Wiring and Adjustment for GT-300, GT-400 and GT-500 Operators

This section details the installation and adjustments of the Magnum IV control in a GT-300, GT-400 and GT-500 swing door unit.

Step 1: Install all components as per the applicable hardware installation manual.

Step 2: Connect all wiring and harnesses as per the following wiring information as it pertains to wiring and adjustments for GT-300, GT-400 and GT-500 Operators.

Back Check and Latch Micro Switches:

The operators used with the GT-300, GT-400 and GT-500's provide the necessary latch check and back check limit switches the Magnum IV control requires for correct operation. These switches are mounted on the top of the operator assembly as illustrated in the diagram below. Note position of cams on right hand versus left hand operator.

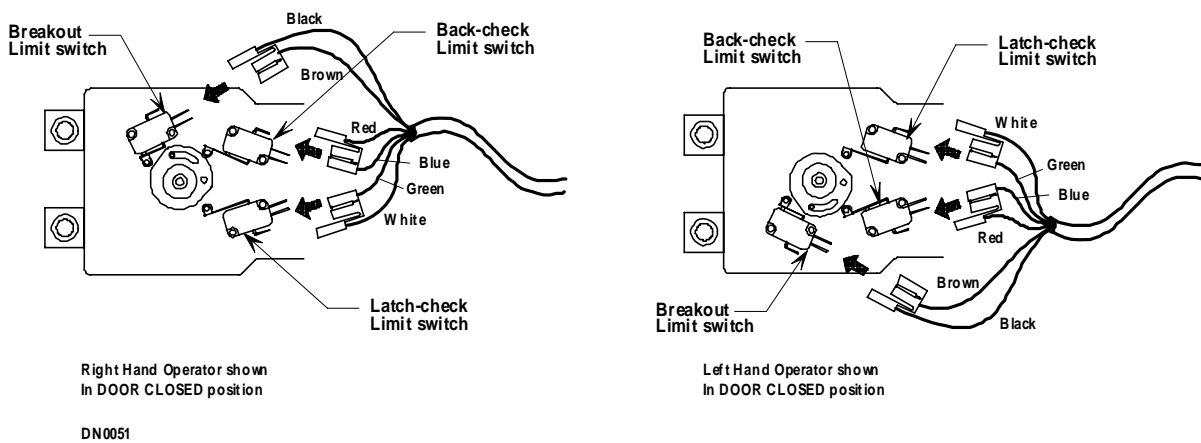
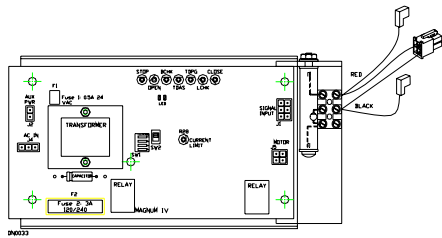


FIGURE 6 - LIMIT SWITCH CONFIGURATION

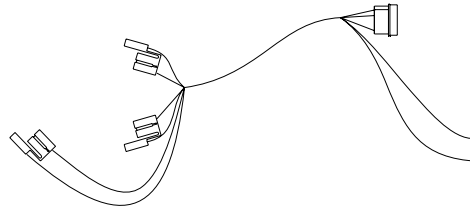
Required Wiring Harnesses:

The following harnesses are necessary to complete the installation (see below):

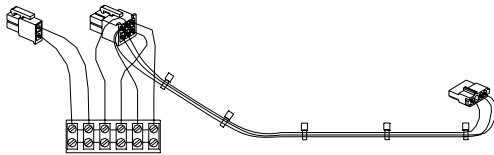
- a. Power Harness, Magnum Board
Part # 21-9933 (for single door)
14-5883 for Simultaneous Pair door)
- b. Main Harness Assy, Magnum Board
Part # 22-10065 (for single door)
22-10270 (for Simultaneous Pair door)
- c. Magnum Board Harness for 300/400/500
Part # 21-9934



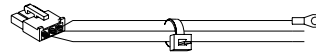
Magnum IV & Chassis Assembly
P/N 12-10292



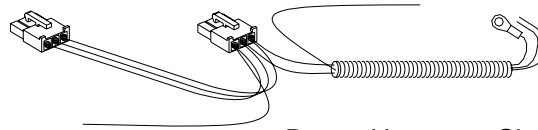
300/400/500 Harness, Magnum
P/N 21-9934



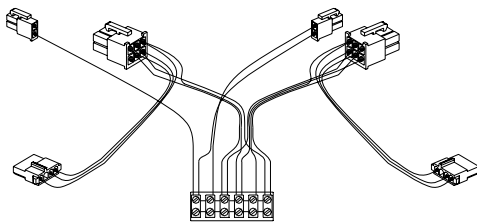
Main Harness - Single
P/N 22-10065



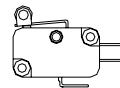
Power Harness - Single
P/N 21-9933



Power Harness - Sim. Pair
P/N 14-5883



Main Harness - Sim. Pair
P/N 22-10270



Micro Switch - Short Arm
P/N 14-3867

DN0046

FIGURE 7 - WIRING HARNESSES FOR MAGNUM IV

Wiring for Rocker switch:

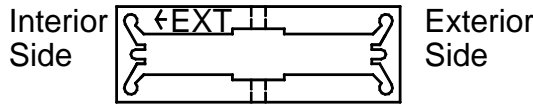
Rocker Switch (part # 10-3528) is available. Connect the red wire to activation input, the white wire to 24VAC common and the black wire to activation signal of sensing device.

Wiring for Break – out:

When the unit has a Break-out feature, the panic breakout circuit must be connected to shut down the system when the door is broken out in the opposite direct. Please refer to the following procedure.

- a. A Panic Latch kit must be installed
When installing the panic latch, flip the direction of the panic latch so that the “ ← EXT” arrow points to Interior side of the building. This makes the switch close instead of opening when the door is broken out. The contacts of the switch would be changed to Normally Open from Normally Closed. See Figure 8 below.

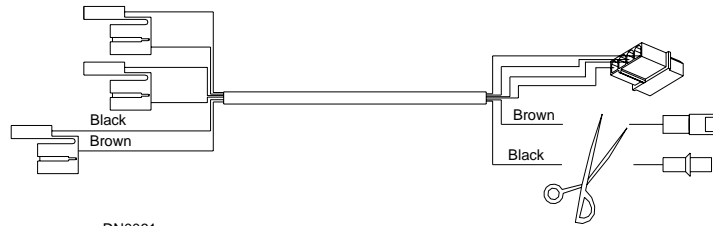
**FIGURE 8
PANIC LATCH**



DN0060

- b. Cut the connectors from the Brown and Black wires on the Magnum micro switch harness as shown below. Connect the Brown and Black wires to "Continuous Safety" input of Terminal Block between Terminal Block #3 violet and #5 red) as shown in Figure # 9.

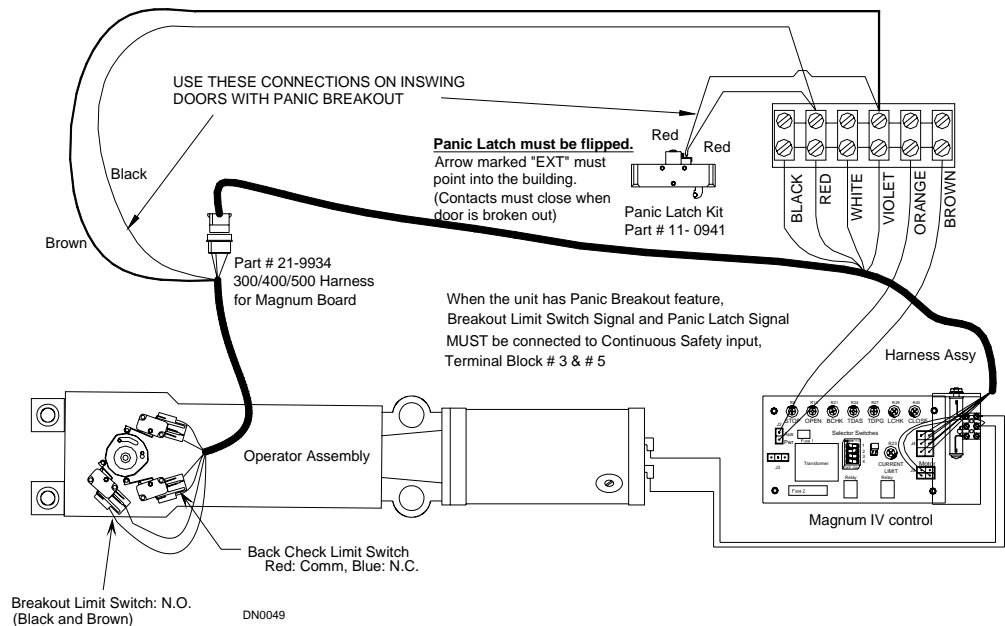
**FIGURE 9
MICRO SWITCH HARNESS**



DN0061

- c. Also cut the connectors off the Panic Latch harness and connect these wires to "Continuous Safety" input of Terminal Block. (Between Terminal Block #3 violet and #5 red). Refer to the Figure # 10 below for complete wiring information.

**FIGURE 10
BREAKOUT CIRCUIT WIRING
DIAGRAM**



DN0049

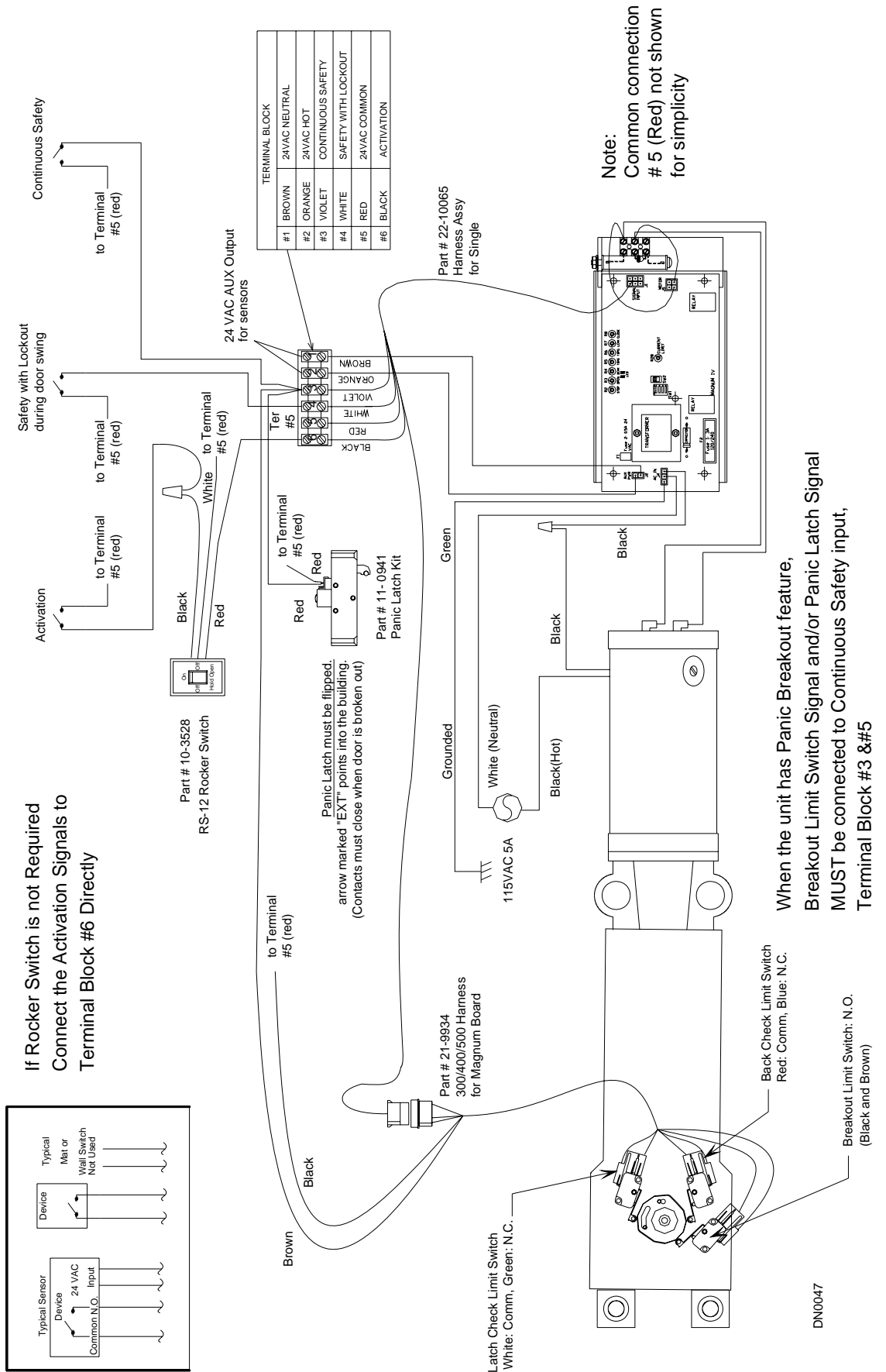


Figure 11 - General Wiring - Single Diagram

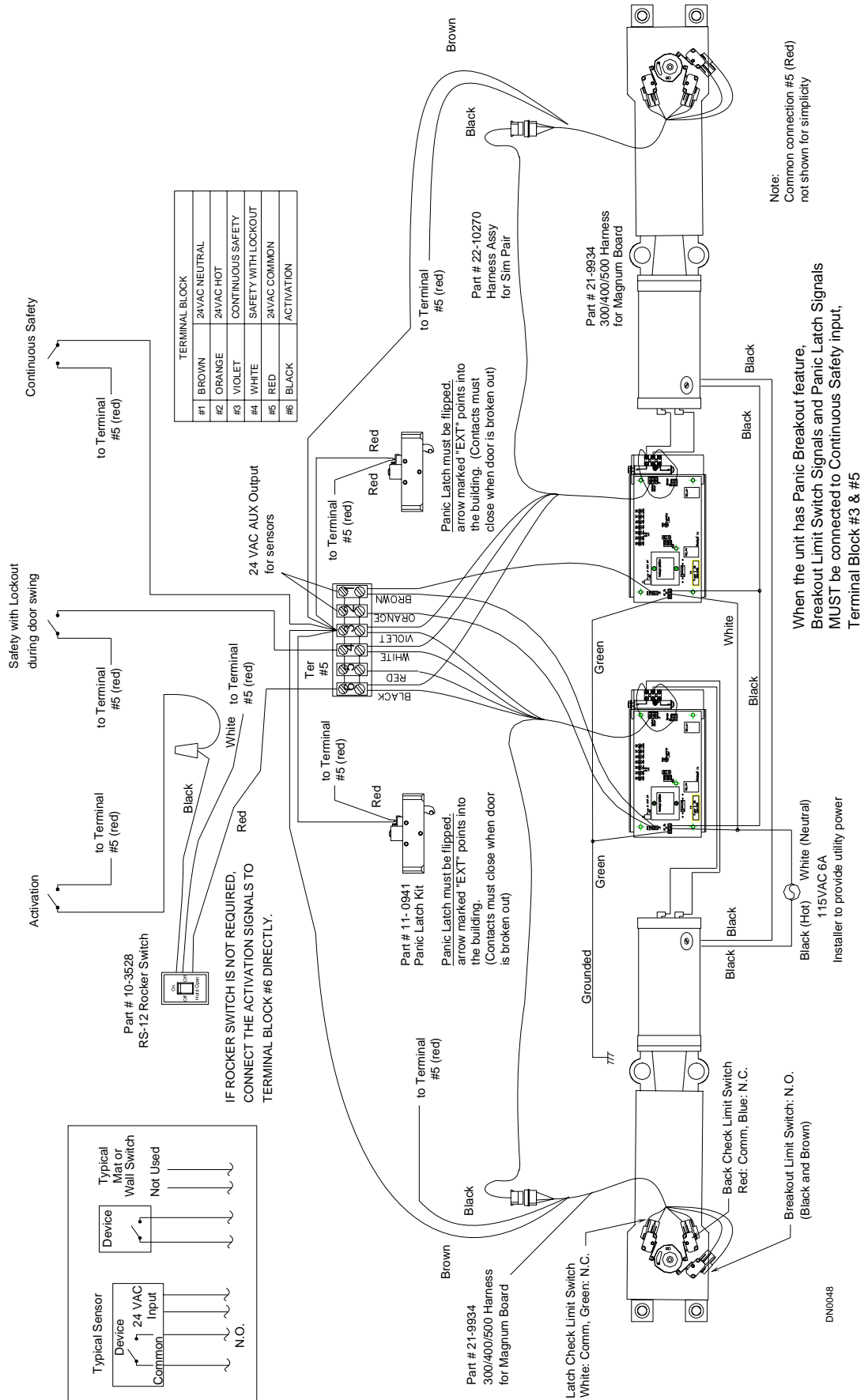


Figure 12 - General Wiring - Simultaneous Pair

Section B

Retrofit Kit Manual

Model 300/400/500 Swing Door System

With Magnum IV Control

This section offers instructions on how to upgrade an existing GT300/400/500 installation with the Magnum IV and related hardware.

Tools required: Phillips Screwdriver, #0 (for potentiometers),
#2 Slotted Screwdrivers, Small and Medium
9/16" socket and ratchet

Table 1 – Comparison of Magnum IV to the Analog Controller

Magnum IV Board	Analog Controller
Adjustable opening speed via potentiometer	Three position adjustment on opening speed.
Adjustable closing speed via potentiometer	Adjustment by changing resistors
Adjustable Back-check speed via potentiometer	Three position speed adjustment
Adjustable Latch-check speed via potentiometer	Three position speed adjustment
Adjustable current limit/door block trip.	No adjustment.
Adjustable activation timer (0 to 60 seconds)	Requires separate time delay module
Adjustable separate Push-N-Go timer (0 to 60 seconds)	No adjustment.
Adjustable door action when detection (continuous safety) occurs – allow door to stop, creep open or creep closed.	No adjustment.
Automatic shut-off of motor if door does not open within 15 seconds.	N/A
Separate connections provided for swing side mats and swing side presence detector (Continuous safety and safety with lockout).	Only one connection provided
Enable/disable sequential operation via dip switch.	N/A
Enable/disable Push-N-Go via dip switch.	Requires separate module
Visual onboard LED status indicators	Not Available

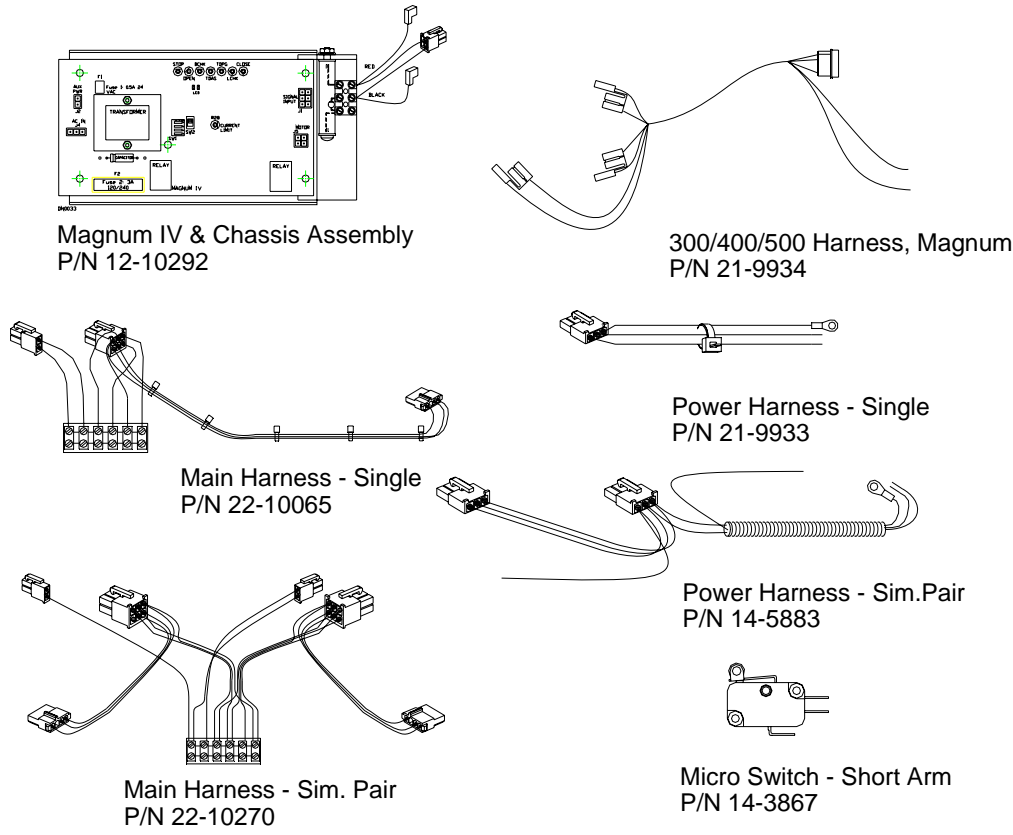
Hard Ware Kit List:

This kit has been shipped with the following installation hardware.

- 01 11-10293-01 Magnum Board Retrofit Kit for Single Swinger
- 02 11-10293-02 Magnum Board Retrofit Kit for Simultaneous Pair Swinger

	Part #	Part Description	Qty		Notes
			-01 Single	-02 Sim- Pair	
1	12-10292	Magnum IV Board & Chassis Assembly	1	2	With Braking Module
2	22-10065	Main Harness - Single	1	---	With Terminal Block
3	22-10270	Main Harness – Simultaneous Pair	---	1	With Terminal Block
4	21-9934	300/400/500 Harness, Magnum Board	1	2	
5	21-9933	Power Harness - Single	1	---	
6	14-5883	Power Harness – Simultaneous Pair	---	1	
7	14-3867	Micro switch – Short Arm	1	2	
8	15-10682	Magnum IV Control Wiring & Adjustment Manual for Gyro Tech Swing Door Operators	1	1	
9	24-3258-01	Screw, Micro switch	2	4	
10	24-0017-19	Washer, Micro switch	2	4	

**FIGURE 13
MAGNUM CONTROL
AND HARNESSES**

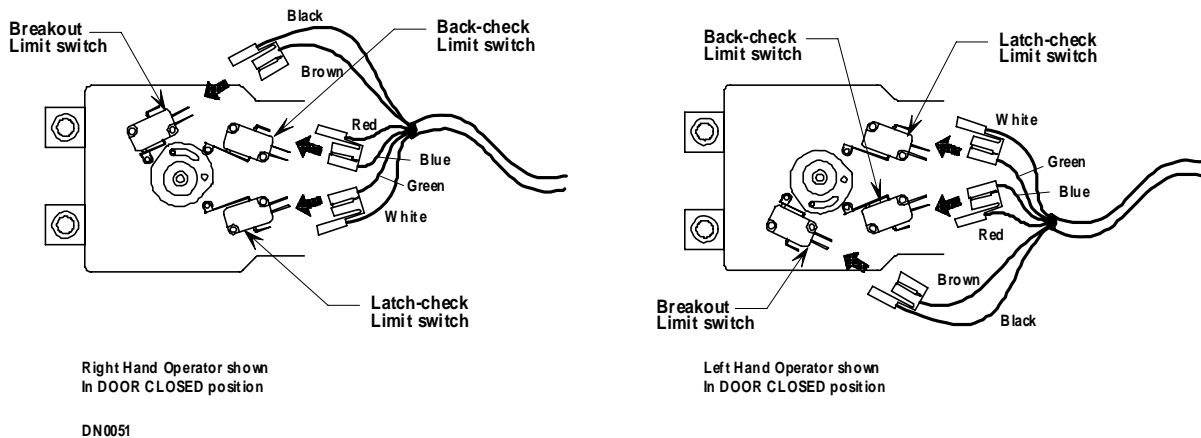


DN0046

Conversion of a GT300/400/500 to a Magnum IV :

1. Shut off power to the header.
2. Uninstall the swing operator from the header.
3. Remove all wires and the switch harness from the operator.
4. Remove the control board and the appropriate wiring from the header. Mounting clip would be used for Magnum IV assembly.
5. Install the Magnum IV board next to the operator using the mounting clip from the analog control box.
6. After removing the existing switch harness from the operator, install the GT 300/400/500 Magnum Harness P/N 21-9934 to the back-check, latch-check and break-out limit micro switches on the operator as shown below. The operator used with the GT-300, GT-400 and GT-500's provide the necessary latch check and back check limit switches the Magnum IV control requires for correct operation. These switches are mounted on the top of the operator assembly as illustrated in Figure 14 below. Note: position of cams on right hand versus left hand operator.

FIGURE 14 - BACK CHECK AND LATCH MICRO SWITCHES

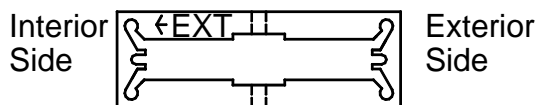


When the unit has a break-out feature, the panic breakout circuit must be connected to shut down the system when the door is broken out in the opposite direct. Please refer to the following procedure.

- a. A Panic Latch kit must be installed

When a unit has a panic breakout feature a panic breakout latch must be used. This latch is flipped so that the contacts will close when the door is broken out.

When installing the panic latch, flip the direction of the panic latch so that the “ ← EXT” arrow points to Interior side of the building. This makes the switch close instead of opening when the door is broken out. The contacts of the switch would be changed to normally open from normally closed. See Figure 15 below.

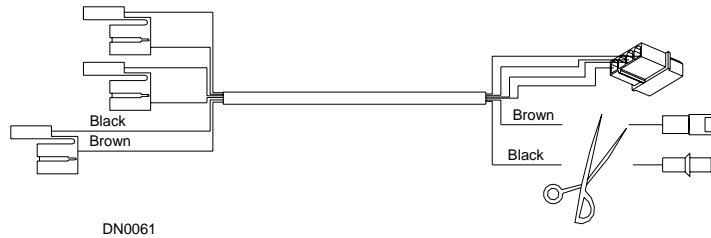


DN0060

FIGURE 15 - BOTTOM VIEW OF PANIC LATCH

- b. Cut the connectors from the Brown and Black wires on the GT 300/400/500 Magnum Micro Switch Harness P/N 21-9934 as shown below. Connect the Brown and Black wires to Continuous Safety” input of Terminal Block. (Between Terminal Block #3 violet and

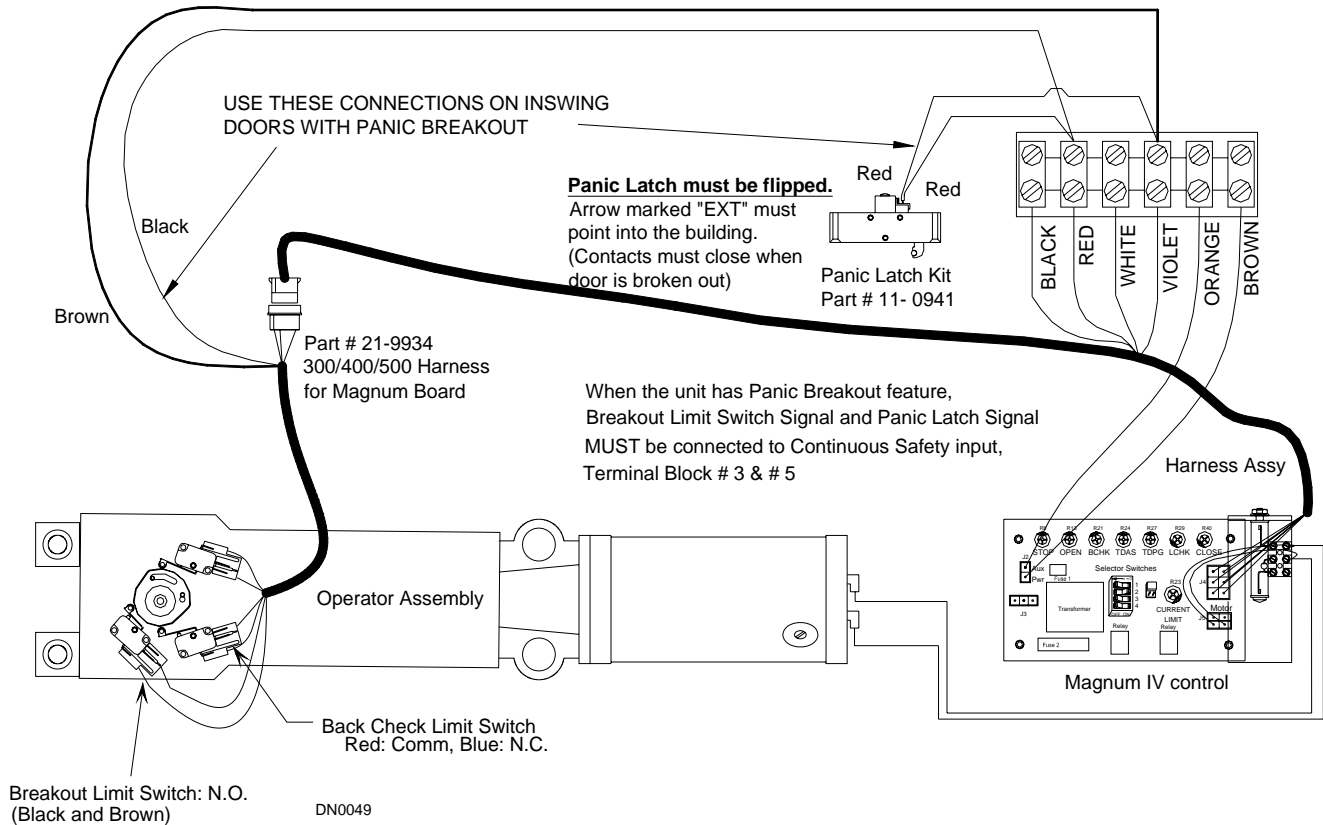
FIGURE 16 - MICRO SWITCH HARNESS



#5 red) as shown below.

- c. Also cut the connectors off the Panic Latch harness and connect these wires to “Continuous Safety” input of Terminal Block.(Between Terminal Block #3 violet and

FIGURE 17 - PANIC LATCH AND PANIC BREAKOUT LIMIT SWITCH WIRING INSTRUCTIONS



7. Plug the power harness into the Magnum IV board. Connect the green wire (ground) to the header chassis, black 120 VAC wire to black through thermal protector, and white wire to white wire as shown on the next page.
8. Connect the four-pin plug from the limit switches to the plug at the end of the main harness. (Figure 18)
9. Connect the Rocker Switch to the terminal block of the main harness. (Figure 18)
10. Connect the motor harness from J5 (marked MOTOR) on the Magnum IV board to the associated red and black terminals on the motor. (Figure 18)
11. Connect the six-pin connector from the main harness to J1 on the Magnum IV board.
12. Connect the two-pin connector from the main harness to J2 (marked AUX PWR) on the Magnum IV board.
13. Connect the activation/detection devices to the terminal block of the main harness. (Figure 18).
14. Cap off all unused wires.

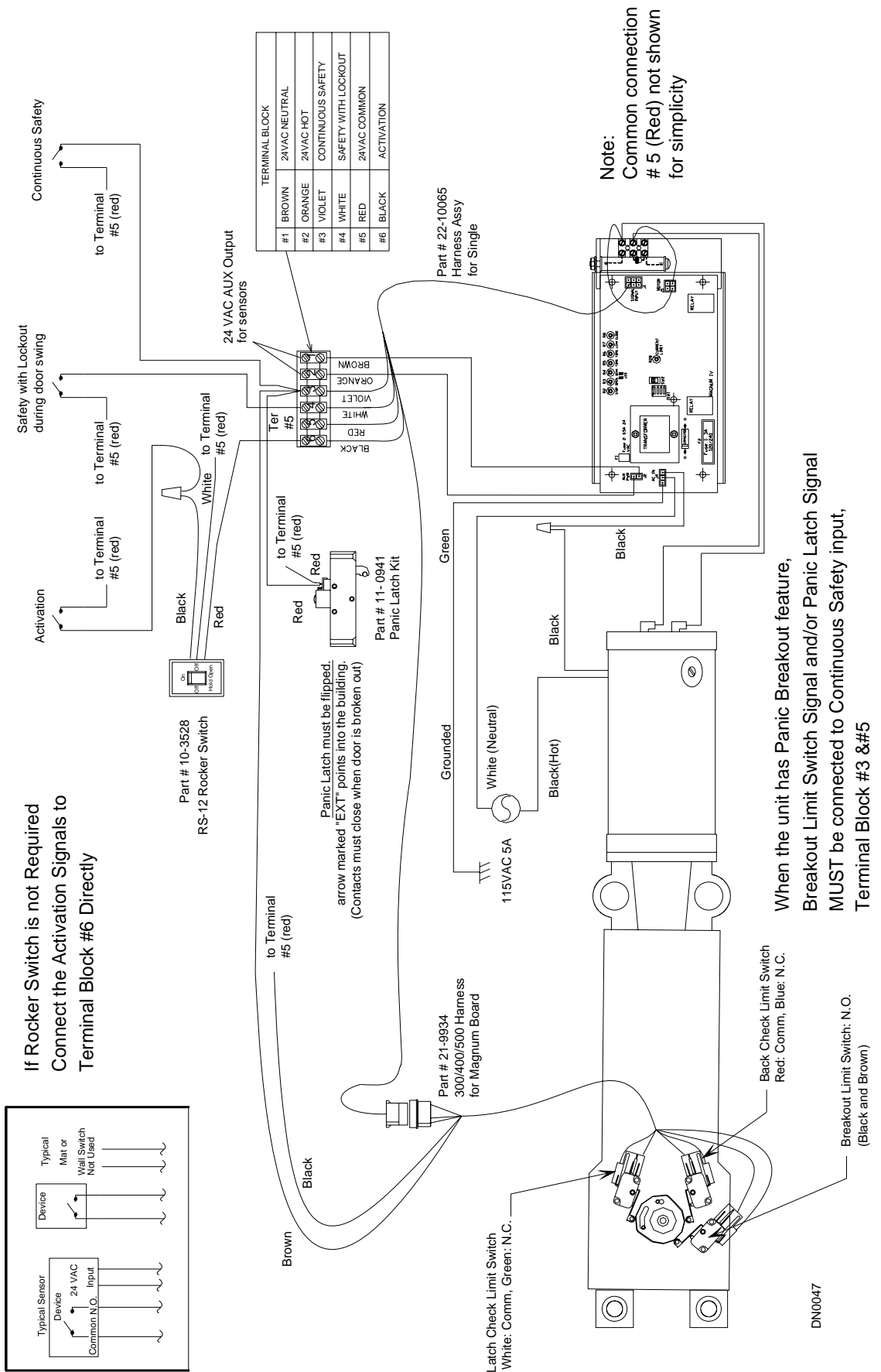
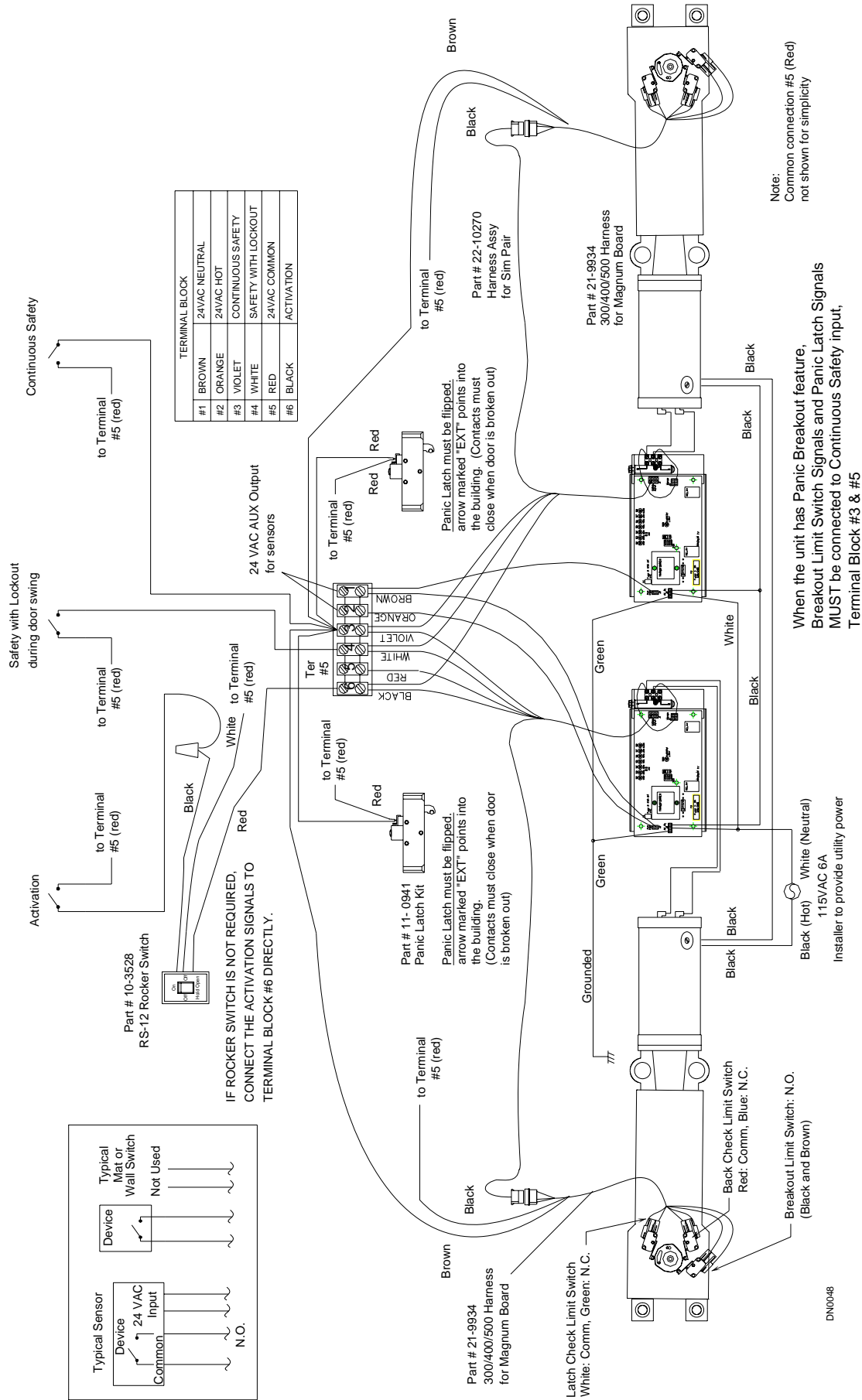


Figure 18 - General Wiring - Single Diagram



DN0046

Figure 19 - General Wiring – Simultaneous Pair

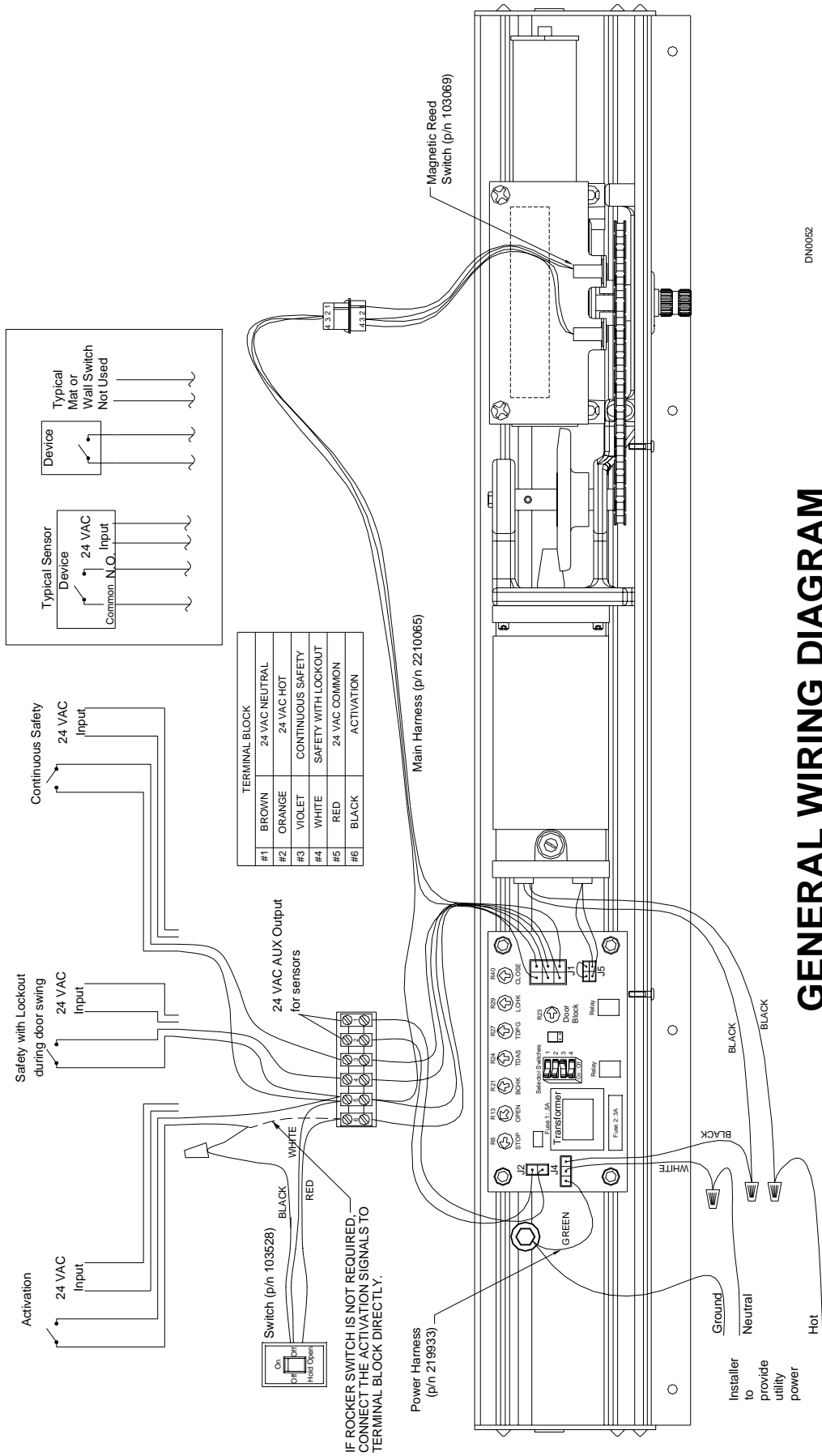
Section C

Wiring and Adjustment for GT-710 Operators

This section details the installation and adjustments of the Magnum IV control in a GT-710 swing door unit.

Step 1: Install all components as per the applicable hardware installation manual.

Step 2: Connect all wiring and harnesses as per the following wiring information as they pertain to wiring and adjustments for GT-710 Operator.



IF ROCKER SWITCH IS NOT REQUIRED, CONNECT THE ACTIVATION SIGNALS TO TERMINAL BLOCK DIRECTLY.

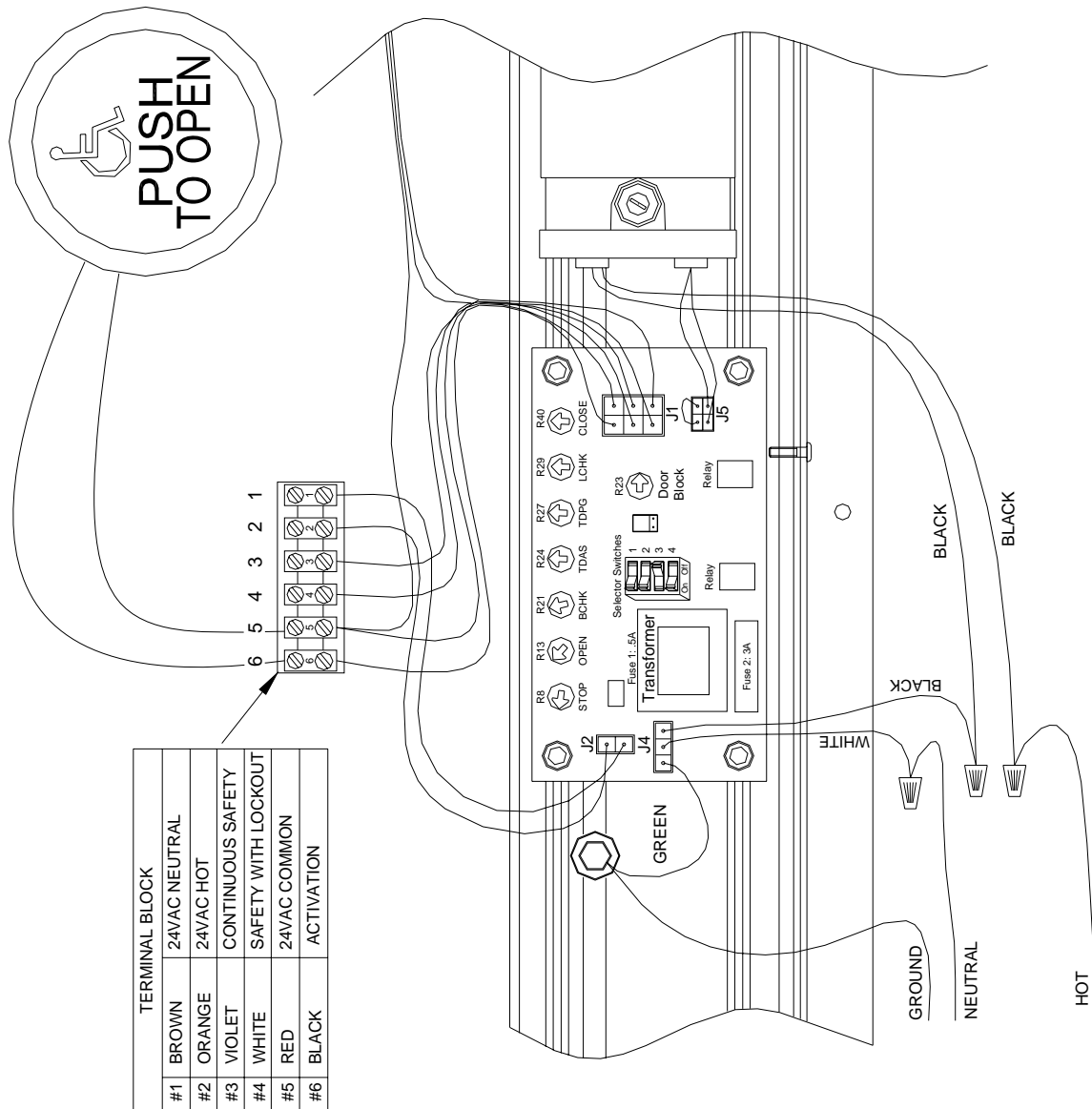
GENERAL WIRING DIAGRAM

Single Door

Figure 20

Figure 21

Wiring Diagram for Wall Switch Activation



DN0053

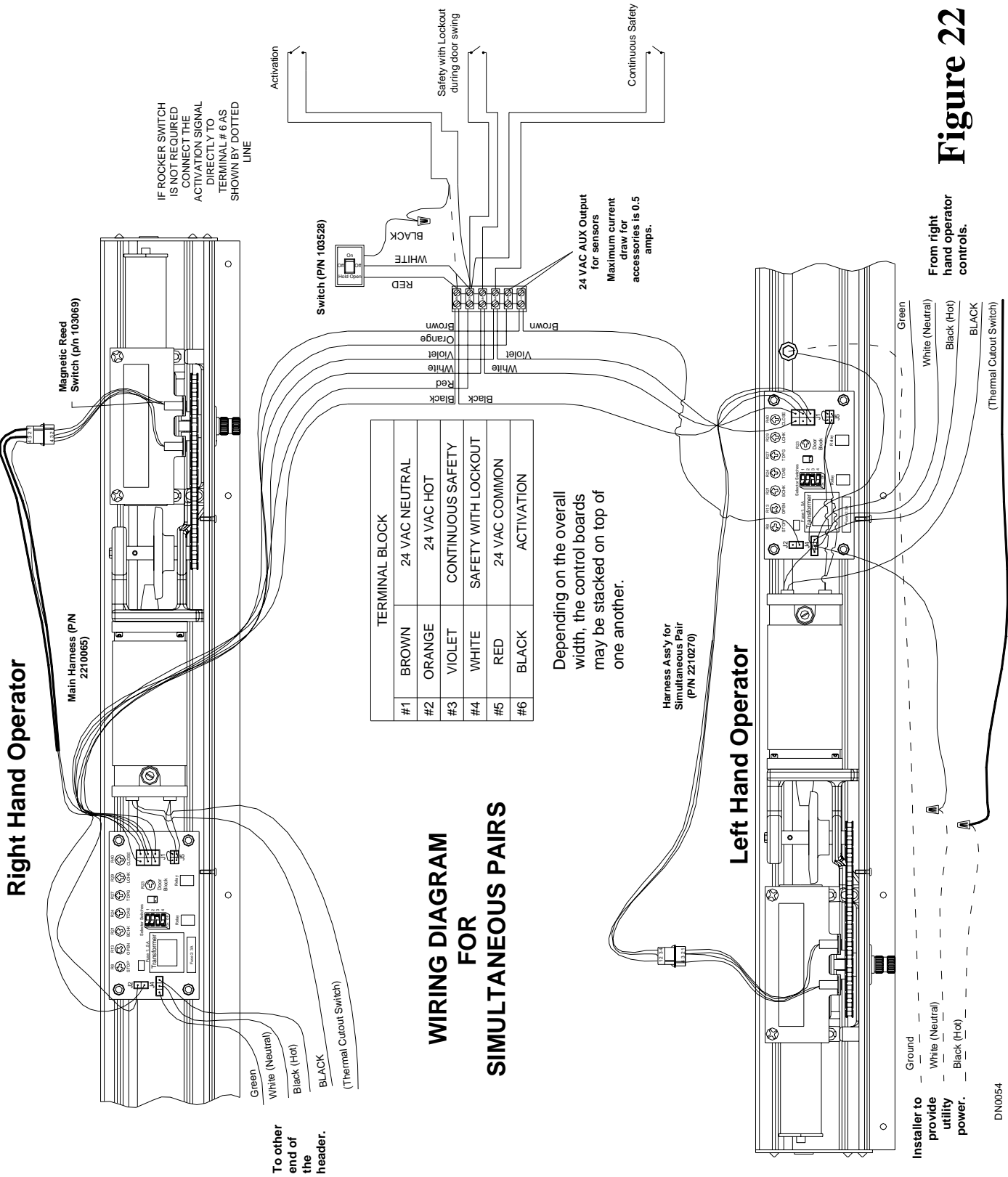


Figure 22

Transformer Installation and Wiring for 240 Volts

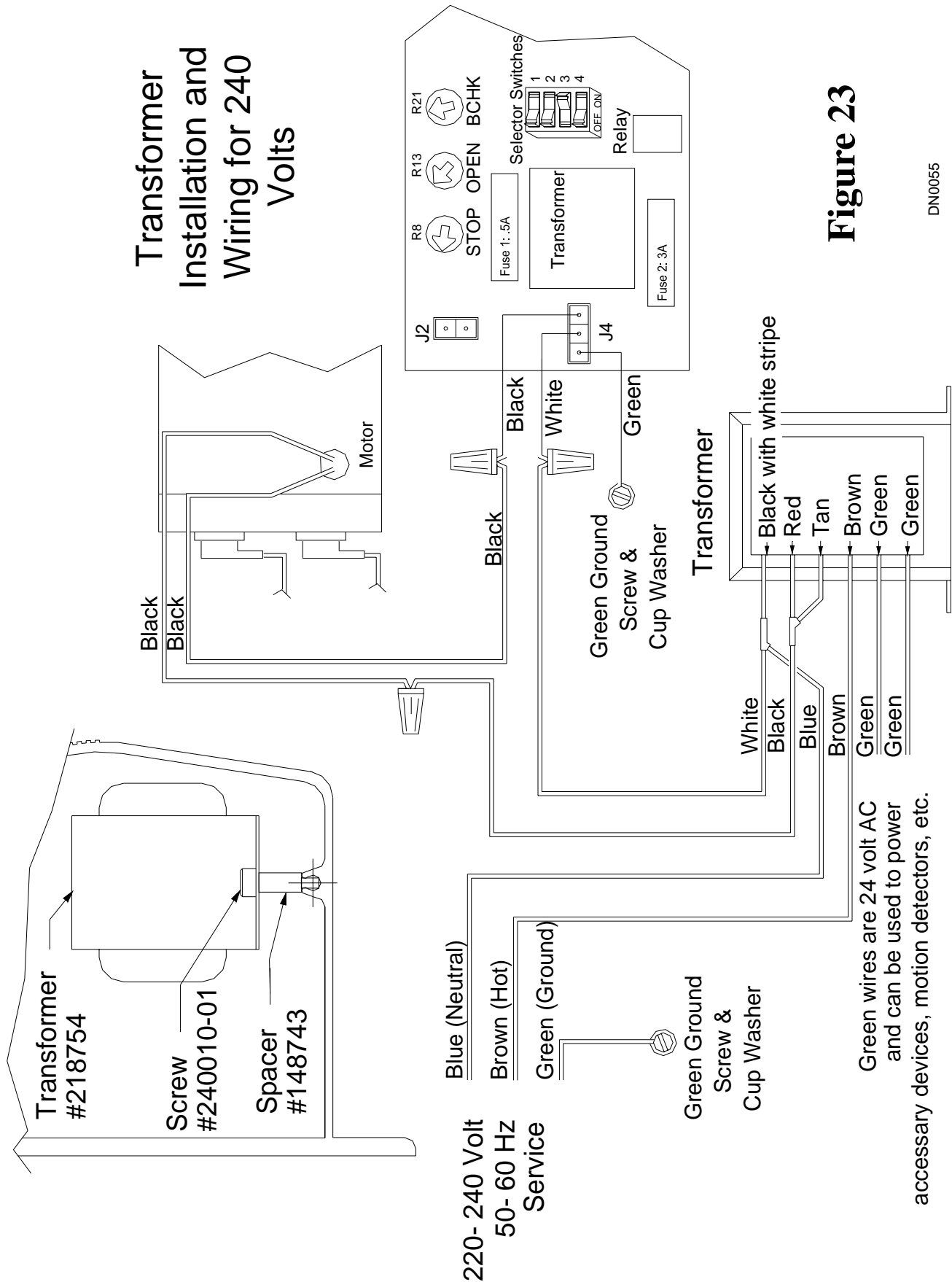
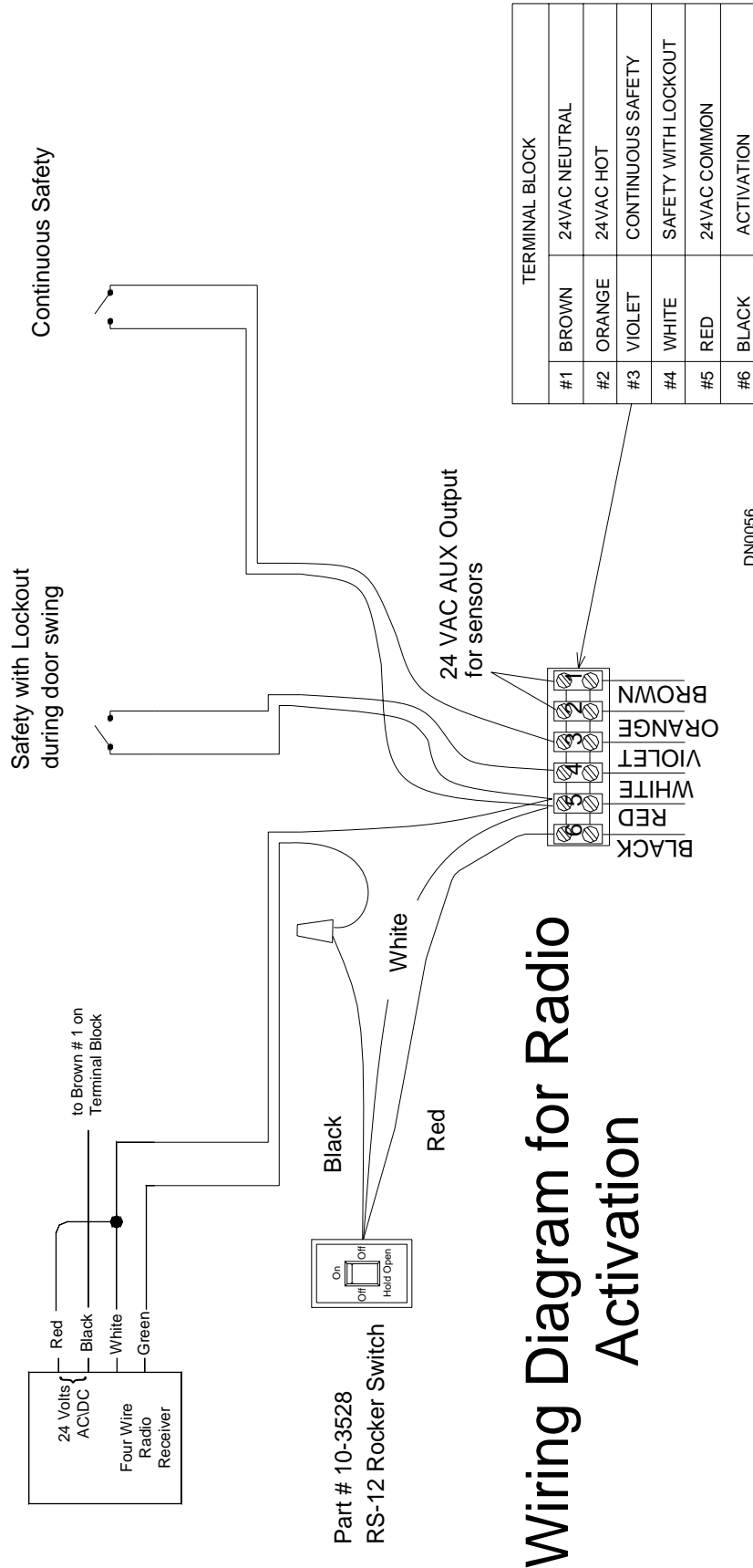


Figure 23

DN0055

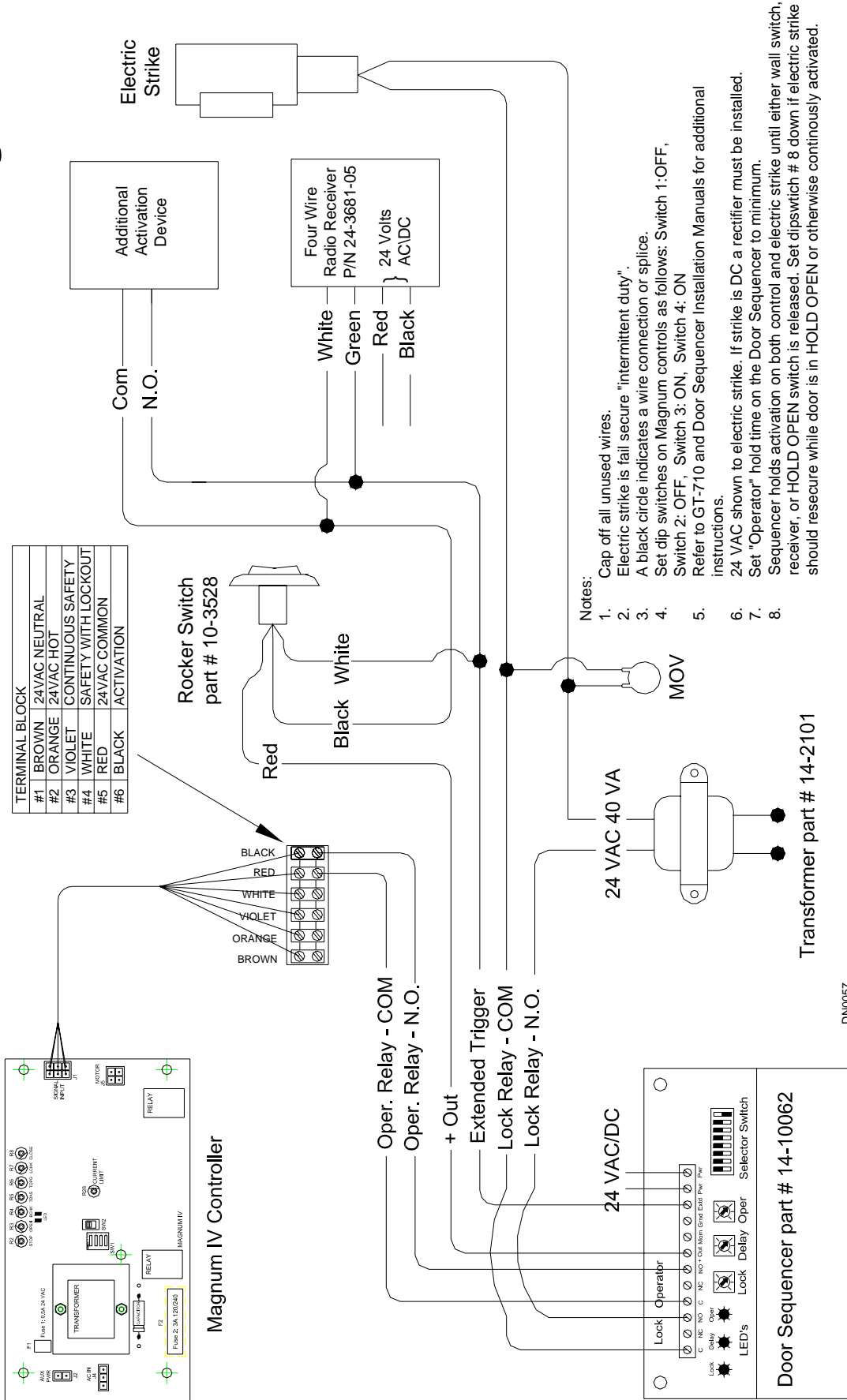
Green wires are 24 volt AC and can be used to power accessory devices, motion detectors, etc.

Figure 24



Wiring Diagram for Radio Activation

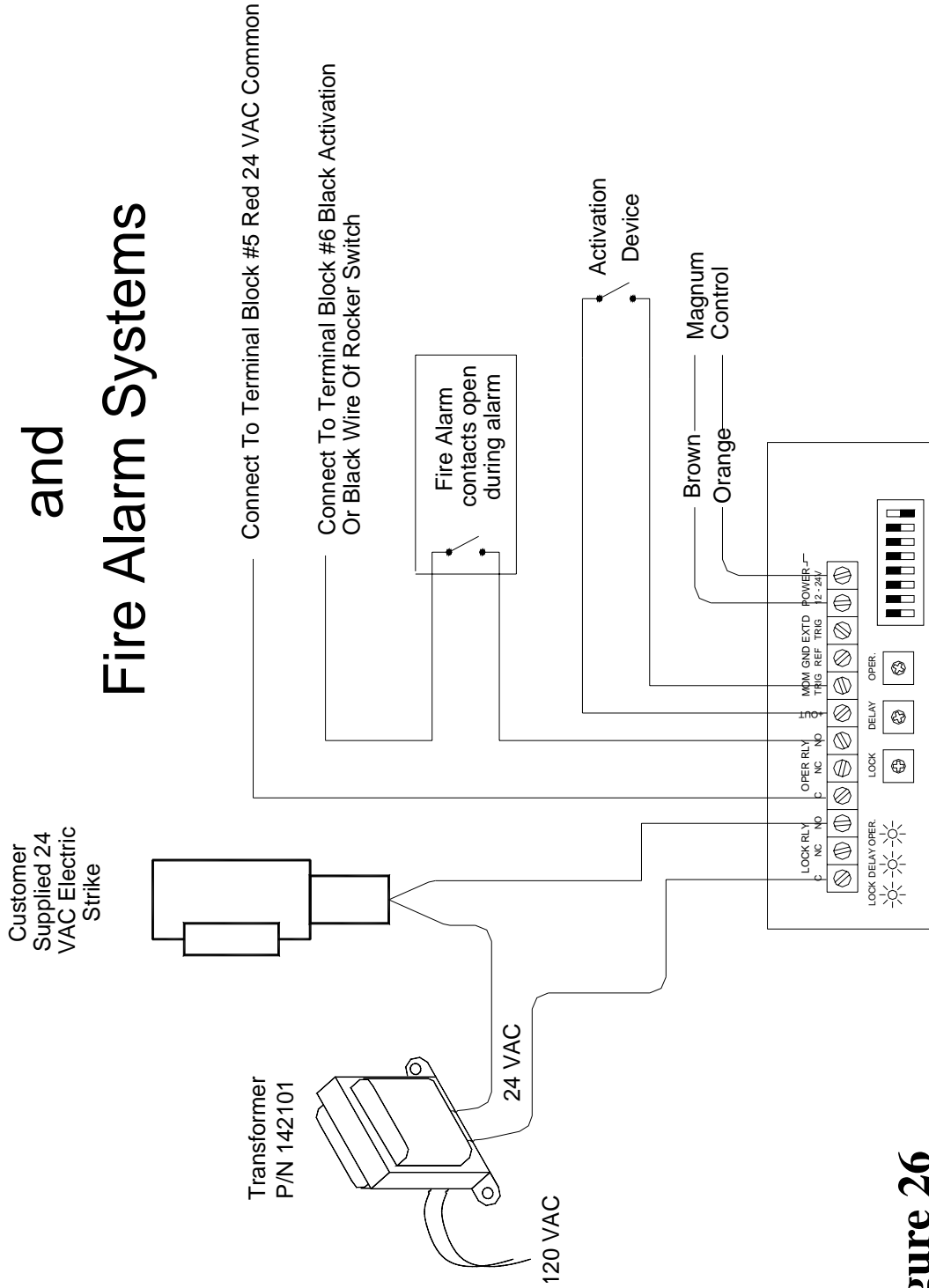
Figure 25



DN0057

Wiring Diagram for 4 Wire Radio Receiver and Electric Strike

Wiring Diagram for Electric Strike and Fire Alarm Systems



DN0058

Figure 26