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# **Fast Track 2+2/386**<sup>®</sup>

## **2000 Series Drive-Thru Timer System**

### **Installation Guide**



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## **PHASE RESEARCH**

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## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION</b> .....	1-1
1-1	General .....	1-1
1-2	Elements of a Fast Track 2+2/386 2000 Series Timer .....	1-1
1-3	Timer Operation .....	1-2
1-3.1	General.....	1-2
1-3.2	Timing Sequence .....	1-4
1-3.3	Multiple Vehicles.....	1-6
1-3.4	Remote Display(s).....	1-6
<b>2</b>	<b>BEFORE STARTING</b> .....	2-1
2-1	General .....	2-1
2-2	Equipment and Materials Supplied.....	2-1
2-3	Tools and Materials Needed But Not Supplied.....	2-2
2-4	Customer Supplied Equipment .....	2-3
2-5	Set Parameters Worksheet.....	2-3
<b>3</b>	<b>TECHNICAL DATA</b> .....	3-1
3-1	General .....	3-1
3-2	General Specifications.....	3-1
3-3	Detail Specifications .....	3-1
3-3.1	Main Console.....	3-1
3-3.2	Remote Display.....	3-2
<b>4</b>	<b>SPECIAL SUGGESTIONS AND PRECAUTIONS</b> .....	4-1
4-1	General .....	4-1
4-2	Special Suggestions .....	4-1
4-3	Special Precautions .....	4-2
<b>5</b>	<b>INSTALLING LOOPS</b> .....	5-1
5-1	General .....	5-1
5-2	Special Suggestions and Precautions .....	5-1
5-3	Installing Factory Prefabricated Loops.....	5-2
5-4	Installing Loops in Saw Cuts.....	5-4
<b>6</b>	<b>PRE-INSTALLATION PROCEDURES</b> .....	6-1
6-1	General .....	6-1

6-2	<b>Adding a Fast Track 2+2/386 2000 Series Timer to an Existing Store</b> .....	6-1
6-3	<b>Installing a Fast Track 2+2/386 2000 Series Timer in a New Store</b> ...	6-1
6-4	<b>Pulling Cable</b> .....	6-2
6-4.1	Pulling Cable.....	6-2
<b>7</b>	<b>INSTALLING EQUIPMENT</b> .....	7-1
7-1	<b>General</b> .....	7-1
7-2	<b>Installing Equipment</b> .....	7-1
7-2.1	Installing The Main Console.....	7-1
7-2.1.1	Selecting a Location.....	7-1
7-2.1.2	Mounting the Main Console .....	7-3
7-2.2	Installing Remote Displays.....	7-5
7-2.2.1	Selecting Locations.....	7-5
7-2.2.2	Vertical Surface Mounting.....	7-5
7-2.2.3	Suspended Ceiling and T-Bar Mounting .....	7-7
7-2.3	Installing a Line Share Controller.....	7-11
7-2.3.1	General.....	7-11
7-2.3.2	Installing a 2-Device Line Share Controller .....	7-11
7-2.3.3	Installing a 3-Device Line Share Controller .....	7-11
<b>8</b>	<b>CONNECTING WIRING</b> .....	8-1
8-1	<b>General</b> .....	8-1
8-2	<b>Interfacing with Menu Board Vehicle Detection and Intercom/Headset Systems</b> .....	8-1
8-2.1	Types of Menu Board Systems and Methods for Interfacing.....	8-1
8-2.2	Typical Menu Board Vehicle Detection and Intercom System .....	8-2
8-2.3	Fan-Out Box Installation Procedure .....	8-4
8-2.4	Multiple Output Vehicle Detector (M.O.V.D.) Installation Procedure .....	8-6
8-2.5	Interfacing with a Dual Output Menu Board Loop Detector.....	8-8
8-2.6	Typical Interface with Greet Timer Cancellation Signal (For Systems without Backup) .....	8-10
8-2.7	Typical Interface with Greet Timer Cancellation Signal (For Systems with Backup).....	8-12
8-2.8	Interfacing with 3M Intercom Systems (without Backup) .....	8-14
8-2.9	Interfacing with the HME WBS2000 (without Backup) .....	8-16
8-2.10	Interfacing with the HME 1000 .....	8-18
8-2.11	Interfacing with the HME 2500D .....	8-20
8-2.12	Interfacing with Panasonic Intercom Systems (without Backup).....	8-22
8-2.13	Interfacing with the Marsh 650/917-1S Dual Output Loop Detector .....	8-24
8-2.14	Connecting the Window (Cashier and Pick-Up) Loops to the Vehicle Detector Boards .....	8-26

8-2.15	Interfacing with a Sonar or IR Detector for Window Detection.....	8-29
8-2.16	Interfacing with the HME 400 .....	8-31
<b>9</b>	<b>POWER UP AND TESTING .....</b>	<b>9-1</b>
9-1	General .....	9-1
9-2	Check Wiring .....	9-1
9-3	Power Up.....	9-1
9-4	Changing the Configuration Setting .....	9-2
<b>10</b>	<b>UPGRADING A FAST TRACK 2+2 DRIVE-THRU TIMER .....</b>	<b>10-1</b>
10-1	General .....	10-1
10-2	Upgrade Procedure .....	10-1
10-2.1	Save Data from Fast Track 2+2 Drive-Thru Timer (your current unit).....	10-1
10-2.2	Remove Main Board from the Main Console.....	10-1
10-2.3	Install the New Main Board (Fast Track 2+2/386) into the Main Console ....	10-2
10-2.4	Return the old Main Board to Phase Research .....	10-3
<b>11</b>	<b>REFERENCE DIAGRAMS AND WORKSHEETS .....</b>	<b>11-1</b>
11-1	General .....	11-1
11-2	Diagrams .....	11-1
11-3	Worksheets .....	11-1

## SECTION 1 - INTRODUCTION

### 1-1 General

The Fast Track 2+2/386 2000 Series Timer (hereinafter referred to as the Timer) helps operate a drive-thru store more efficiently and profitably by tracking the progress of customer vehicles through the ordering and delivery process. Management and staff can use this information in crucial ways:

- To analyze service time
- To improve productivity
- To set performance goals and incentives
- To measure performance
- To predict staffing requirements based on past experience
- To compare shifts, seasons, and stores

### 1-2 Elements of a Fast Track 2+2/386 2000 Series Timer

The Timer consists of the following elements:

- A Main Console with:
  - a Liquid Crystal Display (LCD)
  - Status Lights for monitoring eight stations
  - a Thermal Printer
  - a Keypad
  - An optional data modem in the Main Console
- Up to six large LED Remote Displays that show time and performance information
- Sensor data channels that detect vehicles in the drive-thru lanes (Loops embedded in the drive-thru pavement are a typical kind of vehicle sensor.)
- Communication sensor data channels that detect conversation between employees and customers

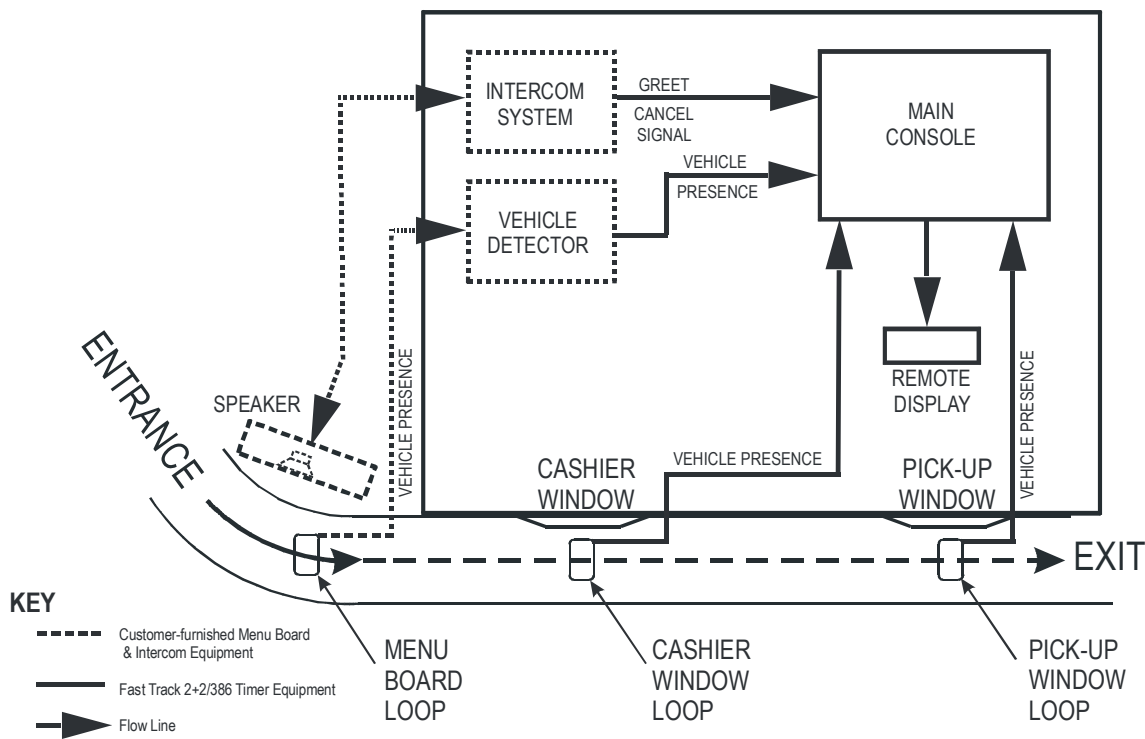
### 1-3 Timer Operation

#### 1-3.1 General

A fully functional timer requires a customer furnished Intercom, Menu Board Loop with a Vehicle Detector, and the Timer. As a minimum, the Timer must include a Main Console and a Remote Display. The Main Console interfaces with the customer furnished Intercom and Vehicle Detector, Cashier Loop and Pick-Up Loop (Window Loops), a Remote Display, and a power source. Up to six Remote Displays may be connected to the Main Console.

A simple Fast Track 2+2/386 2000 Series Timer (for a single lane drive-thru) is pictured below:

**NOTE:** Though this example depicts a “typical,” simple system, the Fast Track 2+2/386 can be configured for virtually any other drive-thru restaurant setup.



**Figure 1-1. Timer - Block Diagram**

**NOTE:** Operating a one-window Fast Track 2+2 Timer in a two-window store without an event measurement at the cashier (first) window, can result in inconsistent and inaccurate readings of both line times and car counts. Times both lower and higher than actual are commonly recorded under the following scenarios. Having an event that is not measured during a car’s movement through the drive-thru lane distorts measurement of the actual time between events and can lead to excessive Drive-Offs.

### **No Measurement at Window One in a Two-Window Store**

If there is no loop or measurement at the cashier window, the time the car spends at that window paying for its order could cause it to exceed the time the timer allows it to reach the pick-up window, thereby causing the timer to report a Drive-Off. If a car that triggers a Drive-Off is still in the drive-thru lane when the next car arrives at the menu board and starts a new line time, the car that triggered the Drive-Off will take over the time of the new car. When the first car completes its cycle and leaves the pick-up window, the total line time recorded for it will be less than its actual time since the line time recorded for it began when it was already partially through its cycle. This can create a domino effect and shorter than actual line times may be recorded for all cars following the first car. The timer can correct this situation after the pick-up window is completely free of cars by resynchronizing itself.

This problem may be alleviated by increasing the Drive-Off time setting to allow enough time for the car to complete its transaction at the cashier window and reach the pick-up window before a Drive-Off is activated. But, since the Drive-Off time setting is also the length of time that the pick-up window must be free of cars to enable the timer to resynchronize itself, any increase in the Drive-Off time setting serves to increase the time before the timer can correct the situation. This can result in inaccurate time measurements being recorded over unacceptably long periods of time.

While a standard Drive-Off time setting is 30 seconds for a one-window Timer, using a one-window Timer in a two-window store requires the Drive-Off time setting to be increased anywhere from a minute and a half to four minutes. However, to prevent inaccurate time measurements from being recorded over long periods of time, the Drive-Off setting must be kept as small as possible.

### **Drive-Offs Out of Open Drive-thru Lanes**

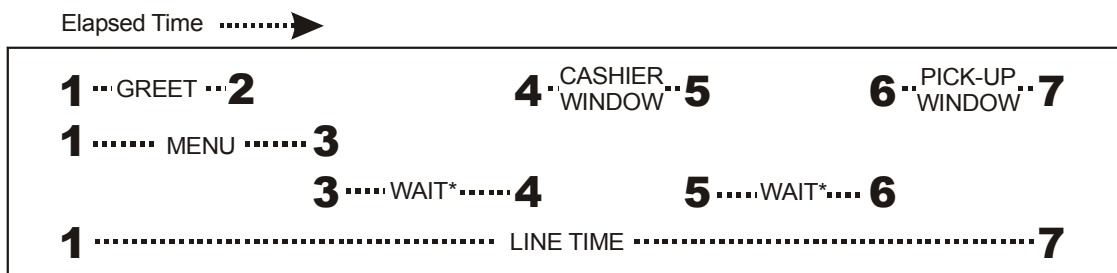
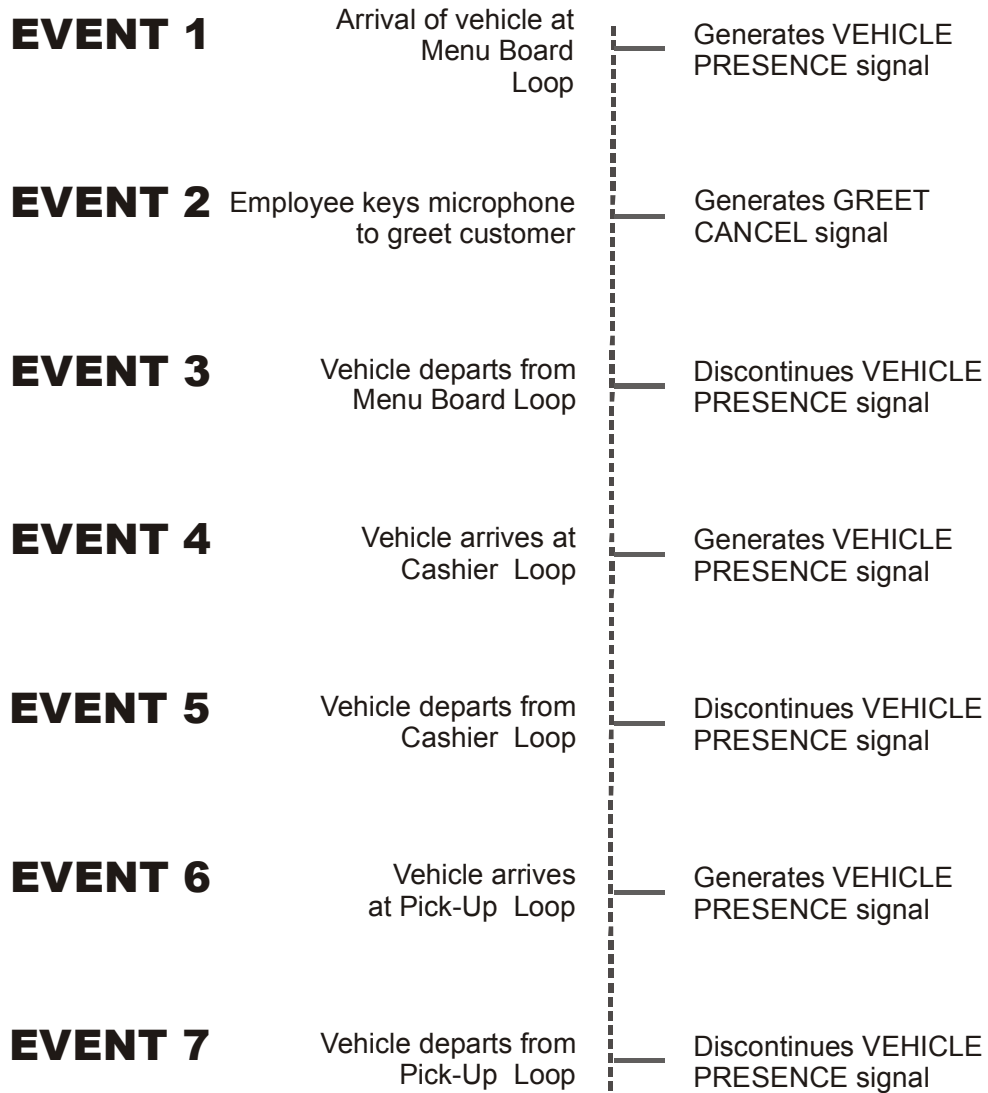
A Drive-Off can also be triggered in a two-window store with an open drive-thru lane when a car that was served at the first window leaves the lane, bypassing the final event measurement at the pick-up window and as a result not stopping the measurement of his total line time. If another car then enters the drive-thru before the Drive-Off time has been exceeded for the car that drove off, it will assume the first car's time as its own, therefore recording a higher total line time than actual. As in the first example above, this effect will cascade through the system, giving each following car a higher than actual line time, resulting in higher average line times as well, until the second window is free of cars for a time long enough for the timer to remove the car that drove off (a time equal to the Drive-Off time setting).

For the above reasons, even though a loop and event measurement at the cashier window of a two-window store may not be a requirement at some stores, it is a recommended option for achieving the best possible measurement and recording of accurate drive-thru times. In addition, with an event measurement at the cashier window, the Drive-Off time setting will not have to be raised to an artificially high number to avoid triggering a large number of Drive-Offs.

### **1-3.2 Timing Sequence**

The Main Console's interface with the customer-furnished Intercom and Vehicle Detector allows the Timer to detect a vehicle that has been greeted via Intercom upon arrival at the Menu Board. Window Loops allow the Timer to detect the car's arrival at and departure from the cashier and service window and/or other detection points. For simplicity, the following sequence of events assumes that there are Loops at the Cashier Window and Pick-Up Window (See *Figure 1-2*):

1. A vehicle arrives at the Menu Board where the Loop detects its presence. A VEHICLE PRESENCE SIGNAL is sent by the Vehicle Detector to the Main Console which starts the timing sequence.
2. An employee keys the Intercom microphone to greet the customer. The employee's voice generates a GREET CANCEL signal that is sent to the Main Console which records the 1-2 time as the GREET time.
3. When the vehicle departs from the Menu Board deactivating the Menu Board Loop the VEHICLE PRESENCE SIGNAL discontinues. The Main Console interprets the 1-3 time as the MENU time.
4. When the vehicle arrives at the Cashier Loop, a VEHICLE PRESENCE SIGNAL is sent to the Main Console. The Main Console interprets the 3-4 time as WAIT time.
5. When the vehicle departs from the cashier's window deactivating the Cashier Loop the VEHICLE PRESENCE SIGNAL discontinues. The Main Console interprets the 4-5 time as the Cashier time.
6. When the vehicle arrives at the Pick-Up Loop, a VEHICLE PRESENCE SIGNAL is sent to the Main Console. The Main Console interprets the 5-6 time as WAIT time.
7. When the vehicle departs from the service window, deactivating the Pick-Up Loop, the VEHICLE PRESENCE SIGNAL discontinues. The Main Console interprets the 6-7 time as Pick-Up time. Additionally the Main Console interprets the 1-7 time as this customer's total Line Time.



\*NOTE: Full Line Time includes the wait time between 3 - 4 and 5 - 6

Figure 1-2. Timing Sequence

### 1-3.3 Multiple Vehicles

The Timer is capable of keeping track of up to 16 vehicles moving simultaneously through the drive-thru lane(s). The Timer can track the progress of each vehicle independently, accurately noting when each car moves onto or off a vehicle detection zone.

### 1-3.4 Remote Display(s)

The Main Console works with one to six Remote Display units. Five Remote Displays are 5-by-9 inch modules with three illuminated red digits displayed on both sides. These displays show either minutes and seconds or seconds only to display the time each car spends during the key steps in the ordering and sales process. When no cars are in the system, the remote displays flash the average times of the selected event during the daypart or other appropriate time period.

The sixth Remote Display shows in either red or green numerals the percentage of cars satisfying the A-grade target time of the event being monitored by the Display. If the percentage of cars satisfying the A-grade target time is below a percentage selected by the user, or the default percentage (80%), the Display numerals will be red. If the percentage is equal to or higher than the selected percentage, the Display numerals will be green.

The five Remote Display(s) may be programmed (see the *User Guide* manual for detailed information) to:

1. Show the elapsed time for a selected event in progress.
2. Show the average event time for a selected time period (indicated by flashing mode).
3. Show the same information on more than one display (examples: one remote for your cashier and customer, and another for the cooks).
4. Communicate information through audible beeps (example: a car arrives at a station or a Target Time is exceeded).

## SECTION 2 - BEFORE STARTING

### 2-1 General

Review the equipment and materials you received from *Phase Research*, the materials needed but not supplied, and the list of customer supplied equipment.

### 2-2 Equipment and Materials Supplied

The following equipment and materials are supplied with the Fast Track 2+2/386 2000 Series Timer:

- Installation Manual
- Fast Track 2+2/386 2000 Series Timer Main Console
- Remote Display(s)
- Interface PCB for Full Line Timer Option (located in Main Console)
- Green Stripe Interface Cable (connects Interface Board in Main Console to customer's furnished Menu Board Vehicle Detector and Intercom)
- Yellow Stripe Loop Cable (connects Vehicle Detector Board in the Main Console to Cashier Loop)
- Red Stripe Loop Cable (connects Vehicle Detector Board in Main Console to Pick-Up Loop)
- Primary Blue Stripe Remote Display Cable (connects Main Board in Main Console to the first Remote Display); this cable has one DIN connector on one end and wires connected to a Phoenix connector on the other end, which, in turn, is plugged into the Main Board of the Main Console
- Daisy Chain Blue Stripe Remote Display Cable(s) (connects between two Remote Displays); this cable has a DIN connector on each end
- Remote Display Termination Plug (plugs into the open socket of the last Remote Display)
- Installation Hardware Kit
- Saw Cut Kit (if needed)
- Set Parameters Worksheet (used to record hours, shifts, dayparts, targets, etc.)

- *User Guide*
- Roll of Thermal Printer Paper (See *User Guide* for installation and ordering)
- Optional — Photo-Couple
- Optional — Fan-Out Box (connects to the Menu Loop Detector to provide three separate isolated vehicle detection outputs)
- Optional — Multiple Output Vehicle Detector (connects to the Menu Traffic Loop to provide two separate isolated vehicle detection outputs)

## 2-3 Tools and Materials Needed But Not Supplied

The following equipment and materials are NOT supplied with the Fast Track 2+2/386 2000 Series Timer:

- 5/16 in. diameter drill bit for routing wires
- 5/16 in. diameter masonry bit, 18 in. length for saw cut (required if saw cuts are required to install Loops)
- Drill Motor
- Center punch
- Assorted screwdrivers (including a short handled Phillips driver)
- Wire strippers
- Digital Volt Meter
- Level
- Hammer
- Solder and Soldering Iron
- Fish tape or pull wire
- Wire molding and/or conduit. Not absolutely necessary, however, the finished appearance of the installation and its reliability is improved (helps to prevent damage to wiring). **Wiring run in conduit prevents call backs for damaged wiring or loose connections.** Wire molding and conduit supplies are found at local hardware stores and suppliers.

## 2-4 Customer Supplied Equipment

The following customer supplied equipment is required to complete the installation. Section 8 of this manual provides detailed instructions for connecting the Timer to customer supplied equipment:

- Menu Board with Speaker
- Loop at the Menu Board Location
- Intercom System
- Vehicle Detector for detecting a vehicle at the Menu Board Loop (may be part of the Intercom System); a *Phase Research* Multiple Output Vehicle Detector (M.O.V.D.) can be used in place of the customer furnished Vehicle Detector

## 2-5 Set Parameters Worksheet

In order to properly program the Main Console, certain store operations, targets, days and hours of operation, shift hours, dayparts, printer options, station options, beeper options, etc., must be determined. The worksheet is to be supplied to the store management and filled out to assist in properly programming the Main Console. See Section 11 for a sample of a filled-out worksheet, and a blank worksheet to be filled out.

## SECTION 3 - TECHNICAL DATA

### 3-1 General

This section provides technical data for the *Phase Research* Fast Track 2+2/386 2000 Series Timer.

### 3-2 General Specifications

- The Timer uses an external UL Class 2, 12 Vac, 50 VA transformer. In its various configurations the Main Console uses from 4 to 45 VA, depending upon the quantity of Remote Displays and Vehicle Detectors included. Each unit is shipped with the wiring completed to the transformer.
- The Main Console is internally fused with a fast acting 4 Amps replaceable fuse in the power input path on the main board.
- All wires are CL2/CM rated. The 12 Vac wiring is 22 AWG. The Remote Display cable(s) is 2-pair 22 AWG Each-Pair-Shielded (EPS). The ground Loop wire from the Timer to the Loop connector is 18 AWG UL1007, sealed with silicone caulk with a 15-foot lead-in of 18 AWG twisted pair CL2 cable.
- Remote Display connectors are standard 5-pin DIN connectors.

### 3-3 Detail Specifications

#### 3-3.1 Main Console

- Width 11 inches
- Height 9.5 inches
- Depth 3.5 inches
- Weight 6 pounds
  
- Display 4 x 3 inches 20 character x 16 line super twist LCD
- Printer 24 character-per-line Thermal Printer
- Thermal Printer Paper Thermal paper - 2¼-inch wide x 2-inch diameter rolls
  
- Memory Backup M4T28-BR12SH1 Timekeeper Snapat Lithium Battery; user replaceable; 5+ year capacity

- Case Material Anodized aluminum front with Lexan label, acrylic windows, and epoxy painted steel back
- Mounting Keyhole mount to wall with 4 No. 10 screws; two additional mounting holes are provided for security
- Power Consumption Normal operation: 500 mA  
Printing: 550 mA  
4 Vehicle Detectors, 2 Interface Boards, 8 events running and printing: 900 mA  
Each additional Vehicle Detector: 60mA for normal operation and 70 mA during vehicle detection  
Each additional Interface Board: 25 mA for normal operation and 60 mA during vehicle detection and greeting
- Power Protection UL Class 2 30 VA internal resettable fuse with wires attached
- Connectors Connectors provided for remote cable, ac power, interface to wireless system (internal 45 degree screw-cage clamp mini terminal block [22-12 AWG, 15A, 300V rated]).
- Computer Interface Female DB9 connector with standard pin assignments. Serial communication 38400 bps. Computer operation requires *Phase Research* proprietary Download and Remote Software Suite (optional).

### 3-3.2 Remote Display

- Width 9 inches
- Height 5 inches
- Depth 2.25 inches
- Weight 1.75 pounds
- Display 3.75 x 7 inches  
3 red LED 2.75 inch high digits
- Typical Power Colons only: 85 mA  
Displaying 8:58: 250 mA

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- Mounting                      Screw keyhole mount to wall or self-securing T-Bar mount for drop ceilings
  
- Case Material                Epoxy painted aluminum with acrylic lens

## SECTION 4 - SPECIAL SUGGESTIONS AND PRECAUTIONS

### 4-1 General

This section provides special suggestions and precautions to help you to successfully install the *Phase Research* Fast Track 2+2/386 2000 Series Timer.

### 4-2 Special Suggestions

- When cleaning equipment cases, use a soft, clean cloth slightly dampened with a diluted, mild soapy solution. Follow up with another soft, clean cloth slightly dampened with clean water. **DO NOT ALLOW ANY WATER OR MOISTURE INSIDE ANY PART OF THE MAIN CONSOLE OR REMOTE DISPLAYS.**
- Always follow the directions in the *User Guide* when changing the paper in the Thermal Printer located in the Main Console. Instructions are also included on the back of the *Phase Research* printer paper.
- Run all wires inside conduit or wire molding. Conduit and wire molding protects the wiring, simplifies future upgrades and repairs, and improves the finished appearance of the installation. Unprotected cables and wires can be damaged by maintenance (such as employees cleaning near wire runs or banging equipment into the wires), mice or other small animals chewing the wires, moisture, etc.
- Make sure Loops are properly placed. Improperly placed Loops can cause the Timer to miscalculate times during heavy traffic. The only correction for a Loop installed in the wrong location is to make new saw cuts and install a new Loop. **SEE SECTION 5 FOR INFORMATION RELATING TO PROPER PLACEMENT OF LOOPS.**
- Make sure the Main Console is placed in a useful location. *Phase Research* suggests that the Main Console be placed in the Manager's office. This makes it harder for employees to tamper with settings and allows the manager to observe operations while in the office.
- Place the Main Console at a convenient height. Remember that some store managers might be short — place the Main Console where it will be easy to read and program.
- Place the Remote Display(s) where the crew can easily read them. A well run drive-thru requires team effort.

### 4-3 Special Precautions

- Never install or service the Main Console or Remote Display with ac power applied. Always unplug the power transformer to disengage the power before starting installation or servicing.
- When clearing a paper jam or changing paper in the Thermal Printer, never use any device (scissors, screwdriver, pointed object, etc.).
- All wire-to-wire connections must be soldered. **DO NOT USE WIRE NUTS.** All wire ends to terminal blocks must be tinned. Failure to solder wire connections and to tin wire ends to terminal blocks can ultimately result in a malfunction.
- Do not change factory settings on circuit board pots or dip switches without checking with a *Phase Research* representative. Call 1-800-858-1320 during normal business hours (8:00 am to 5:00 pm Pacific Standard Time) to speak to a *Phase Research* representative.

## SECTION 5 - INSTALLING LOOPS

### 5-1 General

This section provides instructions for the proper installation of Cashier and Pick-Up Loops. **Placement of Loops is critical.** Follow these instructions carefully to avoid the necessity of having to replace a Loop.

### 5-2 Special Suggestions and Precautions

- Make sure Loops are properly placed. Improperly placed Loops can cause the Fast Track 2+2/386 2000 Series Timer to miscalculate times during heavy traffic. The only correction for a Loop installed in the wrong location is to make new saw cuts and install a new Loop.
- Generally, the Loop should be located so that it will be *approximately* under the vehicle engine when the vehicle stops at the window.
- Run all wires inside conduit or wire molding. Conduit and wire molding protects the wiring, simplifies future upgrades and repairs, and improves the finished appearance of the installation. Unprotected cables and wires can be damaged by maintenance (such as employees cleaning near wire runs or banging equipment into the wires), mice or other small animals chewing the wires, moisture, etc.
- All wire-to-wire connections must be soldered. **DO NOT USE WIRE NUTS.** All wire ends to terminal blocks must be tinned. Failure to solder wire connections and to tin wire ends to terminal blocks can ultimately result in a malfunction.
- When installing the Loop wires in saw cuts, it is absolutely necessary that the wire insulation not be damaged during installation and that the cuts be properly sealed with silicone concrete patch. **MOISTURE IN A SAW CUT CAN DAMAGE THE WIRES AND CAUSE MALFUNCTIONS.**
- When possible, install prefabricated Loops. *Phase Research* factory fabricated Loops are contained inside PVC pipe and are well protected from moisture and wire damage.
- When connecting additional PVC pipe to factory prefabricated Loops (to allow connections to the inside junction box), make sure to use PVC cement to properly join fittings and pipe. **IT IS IMPORTANT TO MAKE SURE THE PIPE IS HERMETICALLY SEALED.**

### 5-3 Installing Factory Prefabricated Loops

**NOTE:** Prefabricated Loops must be installed and stubbed out before foundation and drive-thru concrete is poured.

1. Review Figure 5-1.
2. Install a junction box under cashier's window (Cashier) and service window (Pick-Up) as shown in Figure 5-1.

**IMPORTANT:** MAKE SURE LOOPS ARE PROPERLY PLACED. IMPROPERLY PLACED LOOPS CAN CAUSE THE TIMER TO MISCALCULATE TIMES DURING HEAVY TRAFFIC. THE ONLY CORRECTION FOR A LOOP INSTALLED IN THE WRONG LOCATION IS TO MAKE NEW SAW CUTS AND INSTALL A NEW LOOP.

3. Position the Loop so that its back edge is 24 inches past (in traffic flow direction) the centerline of the window. For best operation, the Loop should be located so that it will be *approximately* under the vehicle engine when the vehicle stops at the window.
4. The Loop should be positioned so that it will be 1½ to 2 inches under the surface of the drive-thru surface. If positioned too close to the surface, damage is likely to occur. If positioned too deep, detection problems will occur.

**IMPORTANT:** MAKE SURE LOOP LEAD WIRES ARE TWISTED.

5. Add PVC pipe and fittings as necessary to connect to the junction box. (*Hint: before applying cement to permanently fasten the additional PVC pipe and fittings, route the twisted pair of wires through the pipe and fittings.*)
6. Review Figure 5-1 and verify that the Loop is correctly placed.

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. FAILURE TO SOLDER WIRE CONNECTIONS CAN ULTIMATELY RESULT IN A MALFUNCTION.

7. Using an ohmmeter, check for continuity of the Loop wire at the junction box. The ohmmeter should show approximately 0.5 - 1.0 ohms. If a short or open is detected, replace the Loop.

**NOTE:** You may want to complete the Timer installation prior to pouring the drive-thru concrete and thus sealing the Loop.

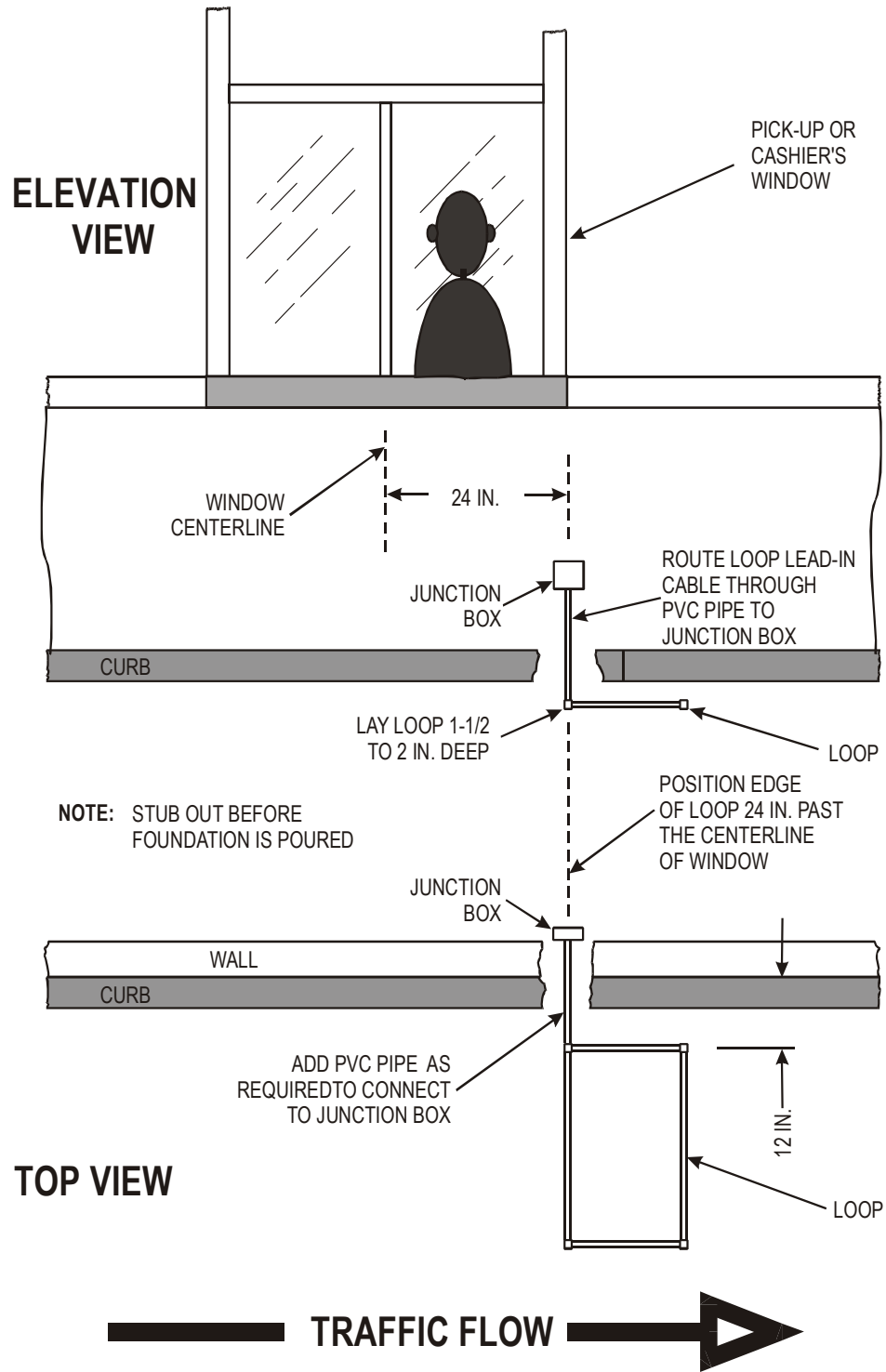


Figure 5-1. Installing Factory Prefabricated Loops

## 5-4 Installing Loops in Saw Cuts

1. Review Figure 5-2.
2. Install a junction box under cashier's window (Cashier) and service window (Pick-Up) as shown in Figure 5-2.

**IMPORTANT:** MAKE SURE LOOPS ARE PROPERLY PLACED. IMPROPERLY PLACED LOOPS CAN CAUSE THE TIMER TO MISCALCULATE TIMES DURING HEAVY TRAFFIC. THE ONLY CORRECTION FOR A LOOP INSTALLED IN THE WRONG LOCATION IS TO MAKE NEW SAW CUTS AND INSTALL A NEW LOOP.

3. Mark the saw cut pattern on the surface of the drive-thru pavement as shown in Figure 5-2. Position the Loop so that its back edge is 24 inches past (in traffic flow direction) the centerline of the window. For best operation, the Loop should be located so that it will be *approximately* under the vehicle engine when the vehicle stops at the window.
4. Make saw cuts 1½ to 2 inches under the surface of the drive-thru pavement surface.
5. Make a saw cut as shown in Figure 5-2 through the curb as close to the building wall as possible.
6. Drill a 3/8 inch diameter hole through the wall as shown in Figure 5-1. This hole should be located so that a junction box can be conveniently located at the hole site on the inside wall.
7. Install junction box as shown in Figure 5-2.
8. If necessary to prevent any exposed wire, install conduit at wall.
9. Stuff five turns of no. 18 AWG XLPE insulated direct burial wire into saw cuts as shown in View A of Figure 5-2. Be sure to route wire through diagonal cuts (avoid square corners) to prevent damage to wire insulation.
10. Make a twisted pair leader of the remaining wire (a minimum of 15 feet long).
11. Route leader through saw cut and hole into building and the junction box as shown in Figure 5-2.

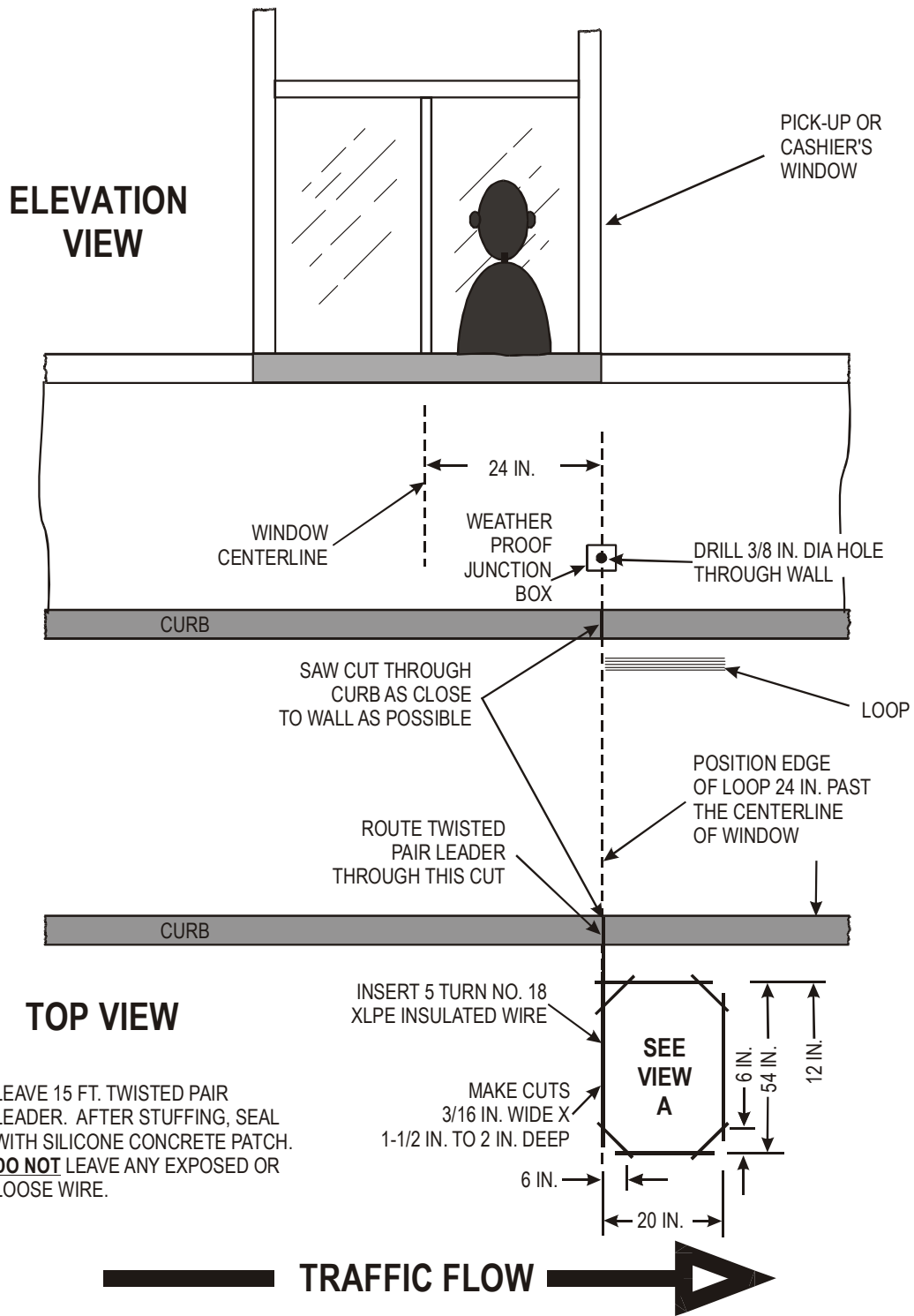
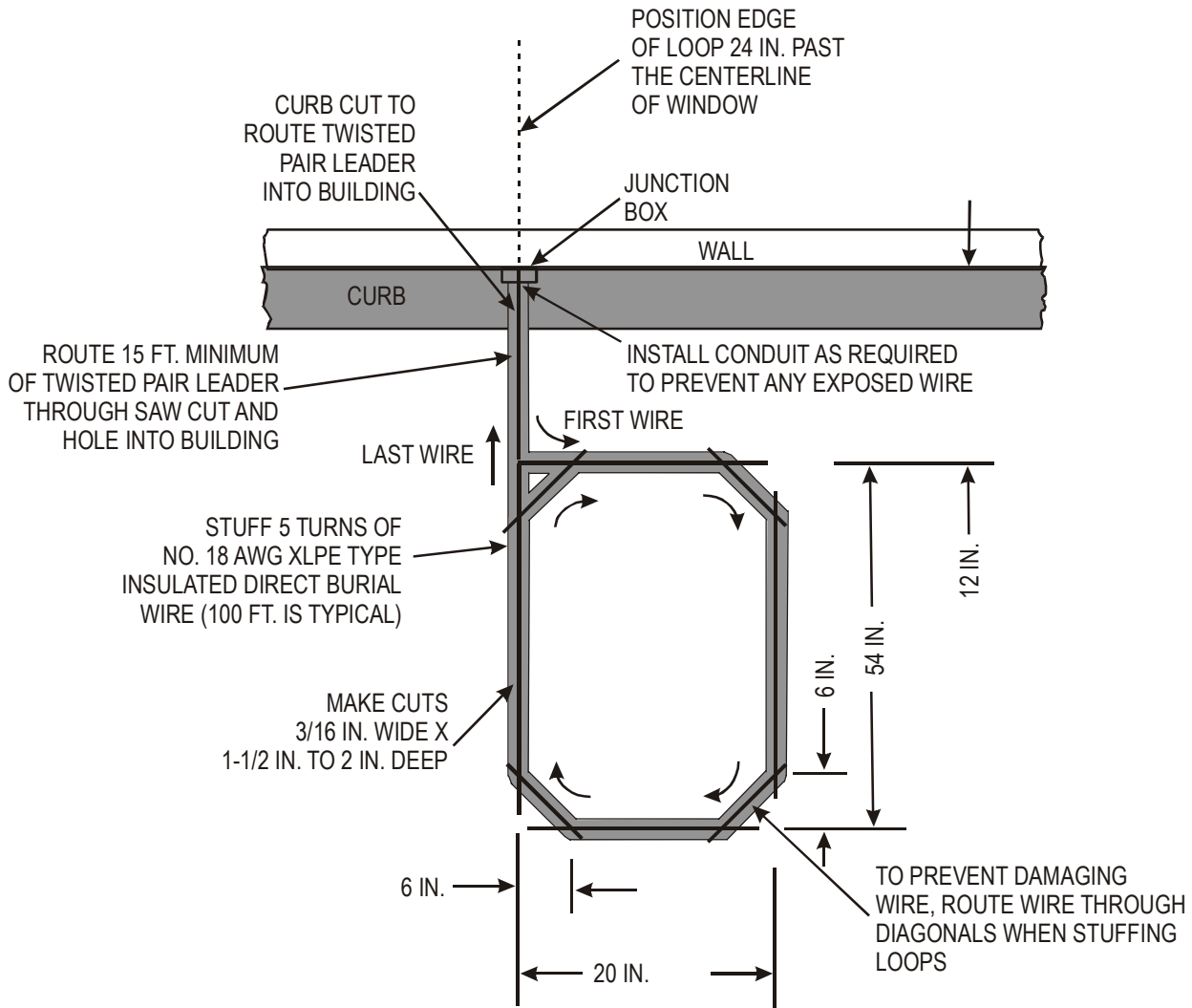


Figure 5-2. Installing Loops in Saw Cuts (Sheet 1 of 2)



**IMPORTANT:** THE WIRE FOR THE LOOP MUST BE 18 AWG XLPE TYPE INSULATED DIRECT BURIAL WIRE. LOOP WIRE MUST BE ONE PIECE WITH NO SPLICE OR DAMAGED INSULATION.

**NOTE:** TAKE CARE WHEN MAKING THE SHARP TURN WITH THE FIRST WIRE NOT TO DAMAGE INSULATION OR TO STRESS THE WIRE.

**KEY:**

- LOOP WIRE
- LOOP SAW CUT

## VIEW A

**Figure 5-2. Installing Loops in Saw Cuts (Sheet 2 of 2)**

12. Using an ohmmeter, check for continuity of the Loop wire at the junction box. The ohmmeter should show approximately 0.5 - 1.0 ohms. If a short or open is detected replace the wire.

**NOTE:** You may want to complete the installation prior to sealing saw cuts with silicone concrete patch.

13. After you are positive that the Loop is functioning properly and the wires are not damaged, seal all saw cuts with silicon concrete patch. **DO NOT LEAVE ANY EXPOSED OR LOOSE WIRES.**

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. FAILURE TO SOLDER WIRE CONNECTIONS CAN ULTIMATELY RESULT IN A MALFUNCTION.

## SECTION 6 - PRE-INSTALLATION PROCEDURES

### 6-1 General

This section provides pre-wiring instructions to help you to successfully install the *Phase Research* Fast Track 2+2/386 2000 Series Timer.

### 6-2 Adding a Fast Track 2+2/386 2000 Series Timer to an Existing Store

The following instructions assume that the Timer will be added to an operating store with an existing Intercom and Menu Board vehicle detection system. Since the building structure is already built, usually it is not likely that in-wall conduit is feasible. If conduit is not feasible for some or all of the wire runs, you might want to consider wire molding. Running wires and cables in conduit or wire molding will protect the wires from damage and gives a more finished look to the installation.

1. Install junction boxes at Cashier (cashier's window) and Pick-Up (service window). It may be necessary to install a surface mount box if in-wall installation is not desirable.
2. Determine the best location for the Main Console (refer to Section 7) and, if feasible, install a junction box.
3. Determine the best location(s) for the Remote Display(s).
4. If possible, install conduit for all wire runs. Conduit is always desirable in overhead ceiling spaces as this will protect the wires and cables from mice and other small animals and maintenance damage from workers who are working in the overhead area.
5. If necessary, install a 115 vac power outlet within 5 feet of the Main Console location. This power outlet should be located where it is unlikely to be accidentally unplugged. A power outlet located in an out of the way overhead area can be a good location.

### 6-3 Installing a Fast Track 2+2/386 2000 Series Timer in a New Store

The following instructions assume that the Timer will be installed in a new store where early association with the general contractor can be accomplished. *Phase Research* recommends that conduit and junction boxes be installed during construction of the building. Running wires and cables in conduit will protect the wires from damage and gives a more finished look to the installation. Installation of conduit and junction boxes are usually accomplished by the electrical contractor. If the locations of the boxes are ordered during early construction, it should be a simple job for the electrician to install all requested conduit and junction boxes.

1. Install junction boxes at Cashier (cashier's window) and Pick-Up (service window).

2. Determine the best location for the Main Console (refer to Section 7) and install a junction box. A good location for the junction box is immediately behind the location for the Main Console (Refer to Section 7).
3. Determine the best location(s) for the Remote Display(s).
4. Run conduit from Cashier and Pick-Up junction boxes to the Main Console junction box.
5. Install a 115 vac power outlet within 5 feet of the Main Console location. Install this power outlet in a secure location where it is unlikely that the power supply can be accidentally unplugged. A power outlet located in an out of the way overhead area can be a good location.
6. Install a conduit from the power supply power outlet to the Main Console junction box.

## 6-4 Pulling Cable

This paragraph provides instructions for pulling cables and connecting wires to the various pieces of equipment.

### 6-4.1 Pulling Cable

- IMPORTANT:**
- ① **WHEN MAKING CABLE/WIRE RUNS, LEAVE SUFFICIENT EXCESS CABLE/WIRE TO ALLOW PROPER CONNECTIONS TO THE EQUIPMENT. WIRE SPLICES ARE DISCOURAGED EXCEPT WHERE ABSOLUTELY NECESSARY.**
  - ② **WHEN MAKING CABLE/WIRE RUNS, KEEP WIRES AND CABLES AWAY FROM EQUIPMENT AND STRUCTURES THAT COULD DAMAGE WIRES OR INSULATION.**
  - ③ **DO NOT STRESS CABLES AND WIRES BY EXCESS PULLING.**
  - ④ **DO NOT MAKE SHARP BENDS WITH CABLES AND WIRES. PULLING CABLES OR WIRES OVER OR AROUND SHARP BENDS MAY DAMAGE THE WIRES OR INSULATION.**
  - ⑤ **USE SUFFICIENT DIAMETER CONDUIT TO ALLOW ENOUGH SPACE FOR ALL THE CABLES IN IT.**

1. After the building has been completed to the appropriate level, run all wires and cables (refer to wiring diagram in Section 11). Typical wire/cable runs are:
  - Green Stripe Interface cable from the Main Console location to the existing Intercom and Menu Vehicle Detector system(s)
  - Yellow Stripe Loop Cable from the Main Console location to the Cashier Loop junction box, if applicable

- Red Stripe Loop Cable from the Main Console location to the Pick-Up Loop junction box

**NOTE:** The primary Blue Stripe Remote Display Cable has a DIN connector at one end that plugs into the primary Remote Display. Daisy Chain Blue Stripe Remote Display Cables have DIN connectors on both ends that allows connection of one Remote Display to another.

- Primary Blue Stripe Remote Display Cable from the primary Remote Display location to the Main Console location.
- Daisy Chain Blue Stripe Remote Display Cable(s) from each Remote Display to the next Remote Display (if two or more Remote Displays are to be installed); Remote Displays are connected in series in a daisy chain manner in any order.

2. After completing each run, check wires and cables for continuity and shorts.

## SECTION 7 - INSTALLING EQUIPMENT

### 7-1 General

This section provides instructions for installing the Main Console and Remote Display.

### 7-2 Installing Equipment

#### 7-2.1 Installing The Main Console

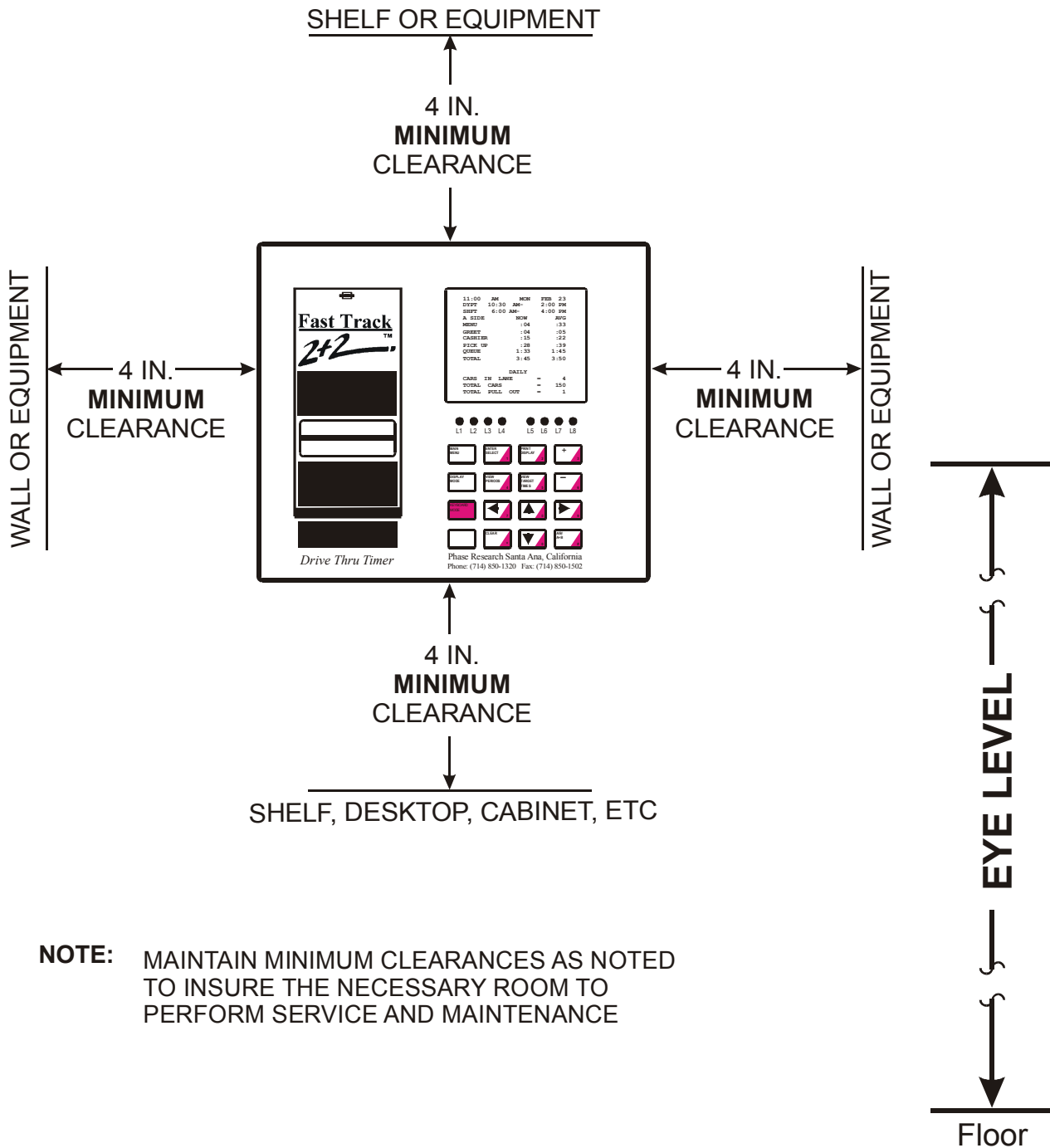
##### 7-2.1.1 Selecting a Location

Proper location will provide the store manager with an efficient easily-used Fast Track 2+2/386 2000 Series Timer. A poorly located Main Console can be difficult to use and program. The following suggestions are offered for selecting a good location for the Main Console (Refer to Figure 7-1):

#### **DO:**

- **DO — MOUNT THE MAIN CONSOLE IN THE MANAGER'S OFFICE.** This allows the manager access to the Timer as needed and a nearby phone for customer service, if necessary.
- **DO — MOUNT THE MAIN CONSOLE AT EYE LEVEL.** Consider that the manager, present or future, may be short.
- **DO — ALLOW A MINIMUM OF 4 INCHES OF SPACE ON EACH SIDE AND ON TOP OF THE MAIN CONSOLE.** These clearances are necessary to perform service and maintenance.
- **DO — FOLLOW DIRECTIONS WHEN CHANGING PRINTER PAPER.** Improperly changing printer paper or clearing a paper jam can damage the printer. Follow the directions in the *User Guide* when changing paper or clearing a paper jam.

While a certain amount of surge suppression is built into the Timer through the use of particular components on the Main Console motherboard, in areas prone to a high incidence of either natural power disruptions (from hurricanes, tornados, lightning strikes, etc.) or power variations/surges from man-made occurrences, the use of an additional protective device between the Timer and its power source is recommended. In such areas, when installing the Timer, plug the power cord from the transformer into a surge protector connected to the selected power supply junction box or power strip.



**NOTE:** MAINTAIN MINIMUM CLEARANCES AS NOTED TO INSURE THE NECESSARY ROOM TO PERFORM SERVICE AND MAINTENANCE

Figure 7-1. Choosing a Location for the Main Console

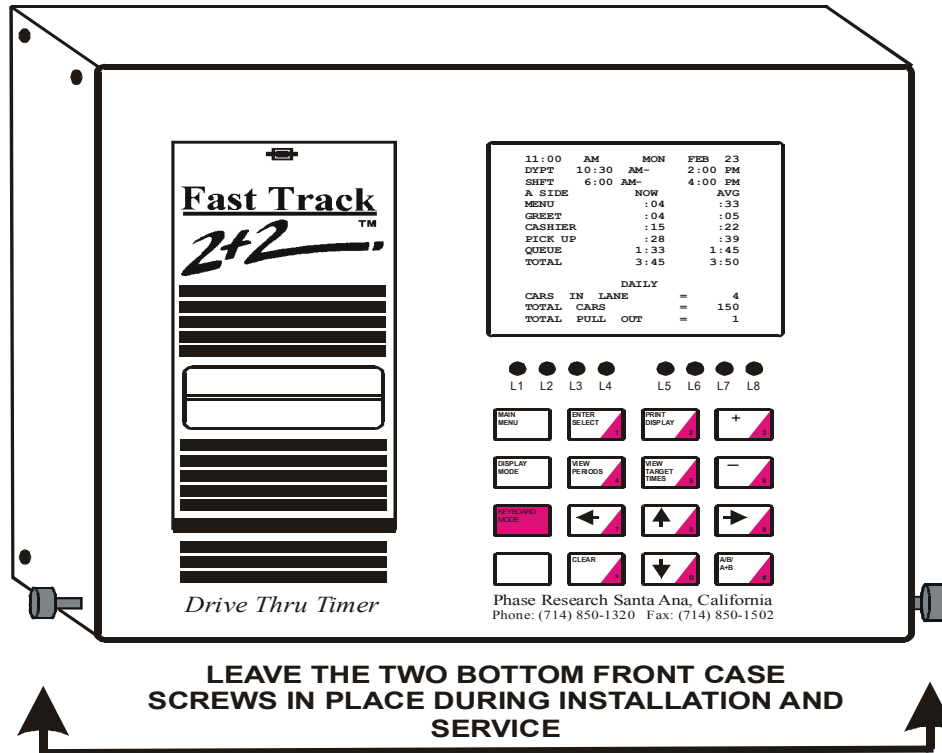
## **DO NOT:**

- **DO NOT — MOUNT THE MAIN CONSOLE AT THE SERVICE WINDOW.** If the Main Console is located at the service window, non-management employees can tamper with the Timer. Servicing the Timer is often inconvenient at the service window and can interfere with store operations.
- **DO NOT — MOUNT THE MAIN CONSOLE ABOVE EYE LEVEL.** A Main Console mounted above eye level will encourage employees to stand on something in order to access the Timer and thus create a SAFETY HAZARD. In addition, the user will not be able to conveniently use the Keypad or conveniently see the LCD screen or printed reports.
- **DO NOT — SHORT OR CONNECT THE POWER TRANSFORMER TERMINALS TOGETHER.** Shorting the power transformer will cause permanent damage requiring replacement.
- **DO NOT — ALLOW WATER OR MOISTURE INSIDE ANY EQUIPMENT.** Mount the Main Console where liquid spills are unlikely. Only clean the case with a clean cloth lightly dampened with diluted mild soapy solution. **DO NOT USE WATER OR CLEANERS DIRECTLY ON ANY CASE.**

### **7-2.1.2 Mounting the Main Console**

1. After choosing the proper location for the Main Console, use Template in Section 11 to locate the proper positions for four No. 10 screws.
2. Using standard techniques, drill four holes for No. 10 screws as shown in the template and install the four screws leaving approximately ½ inch between head of screws and the wall.
3. Remove six case screws securing the Main Console panel leaving the two bottom front case screws in place as shown in Figure 7-2. These two remaining screws allow the panel to be opened down and supported.

**IMPORTANT:** **DO NOT REMOVE THE TWO BOTTOM FRONT SCREWS. REMOVING ALL SCREWS REQUIRES REMOVING SUB-ASSEMBLY CONNECTIONS OR WILL ALLOW THE PANEL TO DANGLE FROM THE SUB-ASSEMBLY WIRING AND WILL VOID THE WARRANTY.**



**IMPORTANT:** DO NOT REMOVE THE TWO BOTTOM FRONT SCREWS. REMOVING ALL SCREWS REQUIRES REMOVING SUB-ASSEMBLY CONNECTIONS OR WILL ALLOW THE PANEL TO DANGLE FROM THE SUB-ASSEMBLY WIRING AND WILL VOID THE WARRANTY.

Figure 7-2. Case Screws

4. Open the Main Console panel. Place the Main Console in position over the mounting screws, slide the keyholes onto the screws, and slide the Main Console down to lock it in place.
5. Tighten the screws securing the Main Console to the wall.
6. Close the Main Console panel and secure by installing the six case screws.

## 7-2.2 Installing Remote Displays

### 7-2.2.1 Selecting Locations

Remote Displays should be installed where the crew members can easily see them and respond to the information provided. As many as six Remote Displays can be connected to the Timer. The first five Displays use red numerals to show time data in minutes:seconds or in seconds only. One of these Displays is standard with every Timer. The sixth Display is optional and shows in either red or green numerals the percentage of cars satisfying the A-grade target time of the event being monitored by the Display.

Time data is displayed only during the hours the store is open. When the store is closed, only a colon (2 dots) is shown on a minutes:seconds Display; a seconds only Display is blank.

### 7-2.2.2 Vertical Surface Mounting

*(See Figure 7-3)*

1. Using the vertical surface mounting bracket as a guide, drill two holes for screws in the window frame, wall or other vertical surface.
2. Install the two window frame screws and tighten until the screw heads are approximately 1/8 inch from the mounting surface.
3. Install the vertical surface mounting bracket to either side of the Remote Display as shown in Figure 7-3 and secure bracket to Remote Display with two 4-40 screws (furnished with bracket).
4. Position the Remote Display in place over the installed mounting screws. Slide the keyholes onto the mounting screws and slide the Display down to lock it in place.

**NOTE:** If this Remote Display is the last one in the series or the only Remote Display, a Remote Display Termination Plug is plugged into the second DIN socket. This is necessary to properly terminate the Remote Display circuit.

5. Plug the Blue Stripe Remote Display Cable(s) into the Remote Display. Dress the cable(s) along the mounting surface and secure in place with cable clamps.

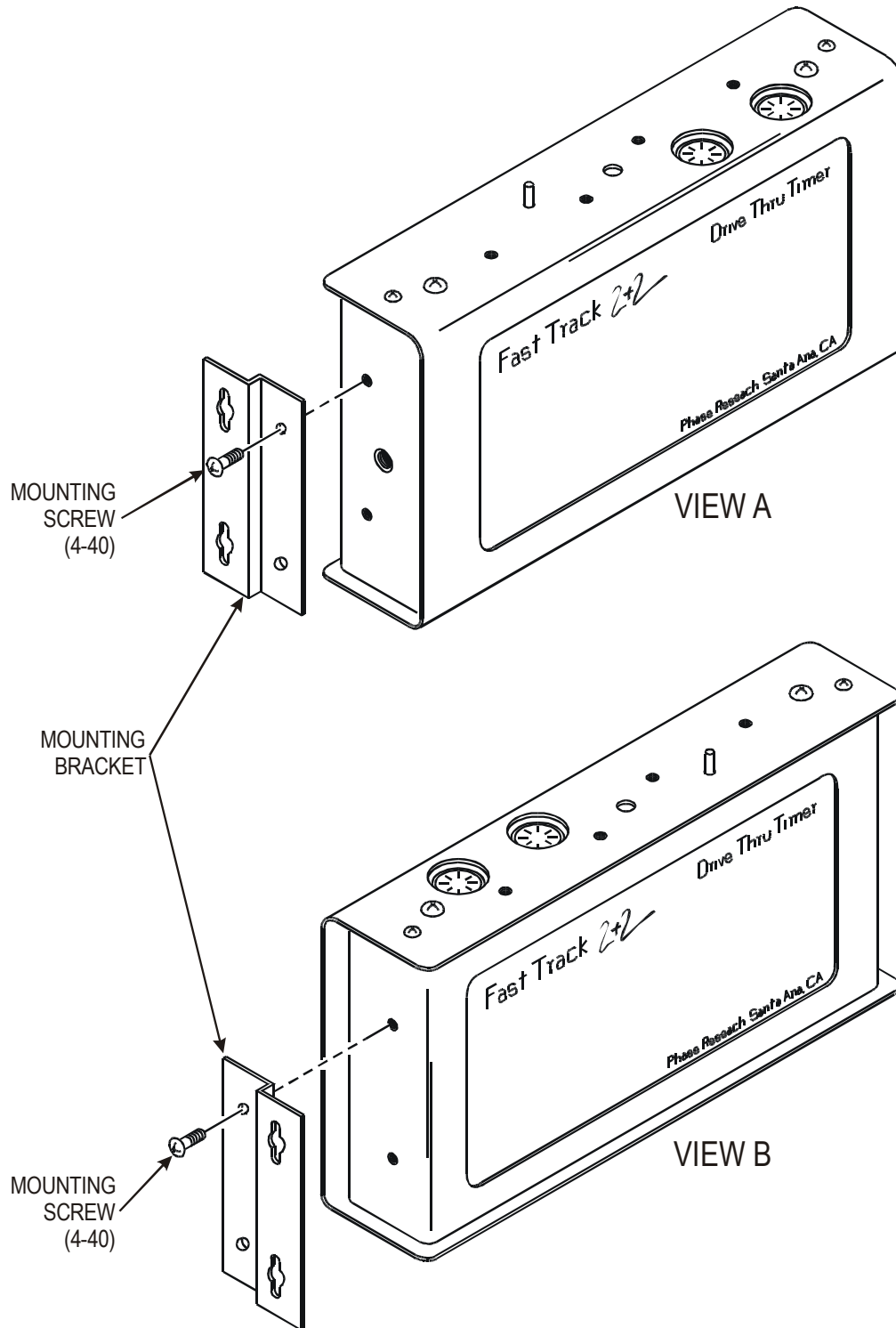


Figure 7-3. Vertical Surface Mounting

### 7-2.2.3 Suspended Ceiling and T-Bar Mounting

*(See Figures 7-4 through 7-6)*

1. Install two mounting brackets onto the top of the Remote Display(s) as shown in Figure 7-4. Secure the brackets with 4-40 screws (furnished with brackets).
2. Notch the ceiling tile(s) then feed the Blue Strip Remote Display Cable(s) through the notch and down three inches as shown in Figure 7-4.
3. Position the Display in place on the ceiling so the T-bar goes between the mounting brackets. Push the ceiling tile, with the brackets, up about ½ inch, then rotate the Display 90 degrees so the Display is in line with and tight against the T-bar.
4. Check to make sure the Remote Display is secure.

**NOTE:** If this Remote Display is the last one in the series or the only Remote Display a Remote Display Termination Plug is plugged into the second DIN socket. This is necessary to properly terminate the Remote Display circuit.

5. Plug the Blue Stripe Remote Display Cable(s) into the Remote Display as shown in Figure 7-5.
6. Pull any extra cable above the ceiling and secure.

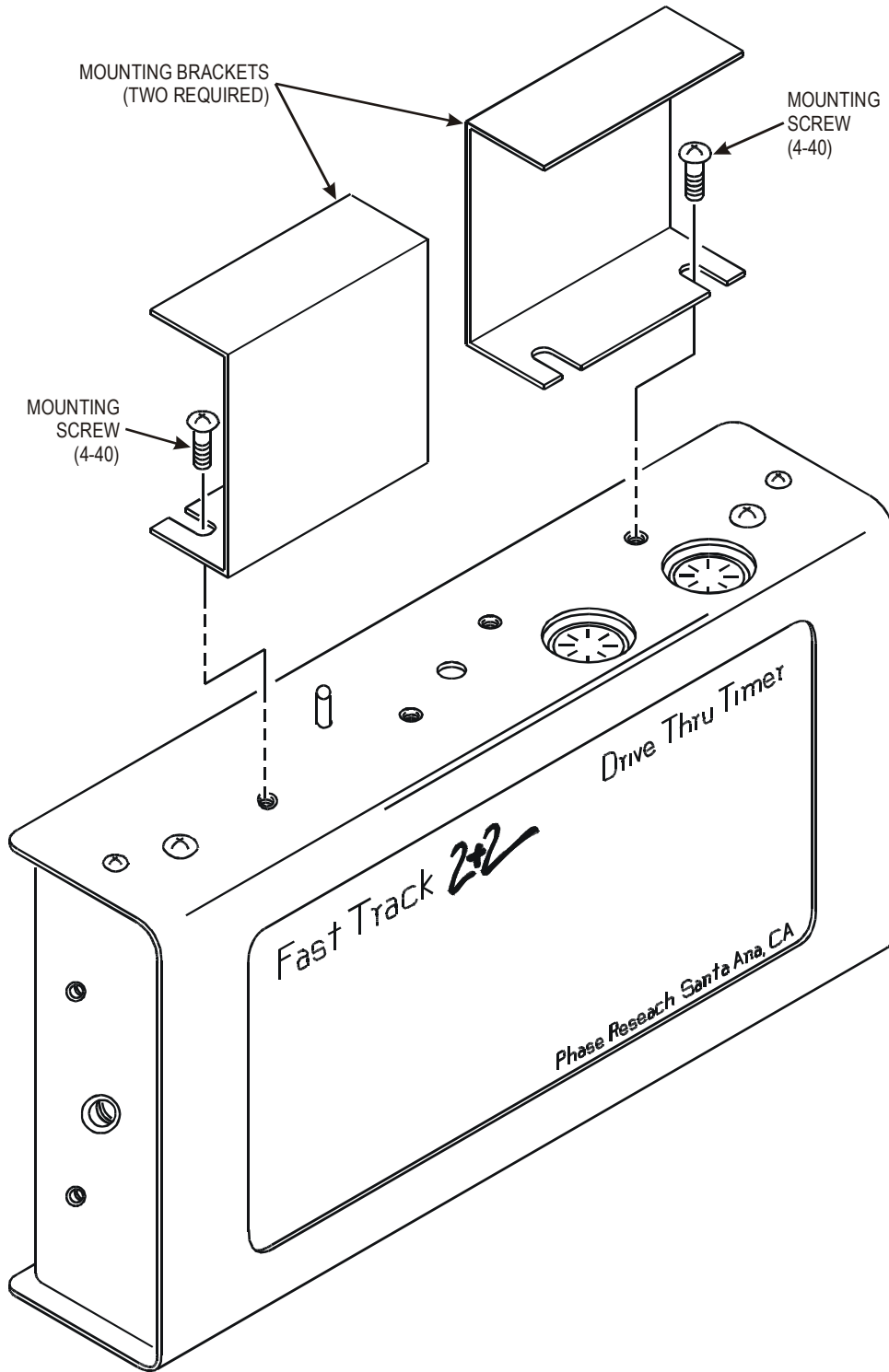
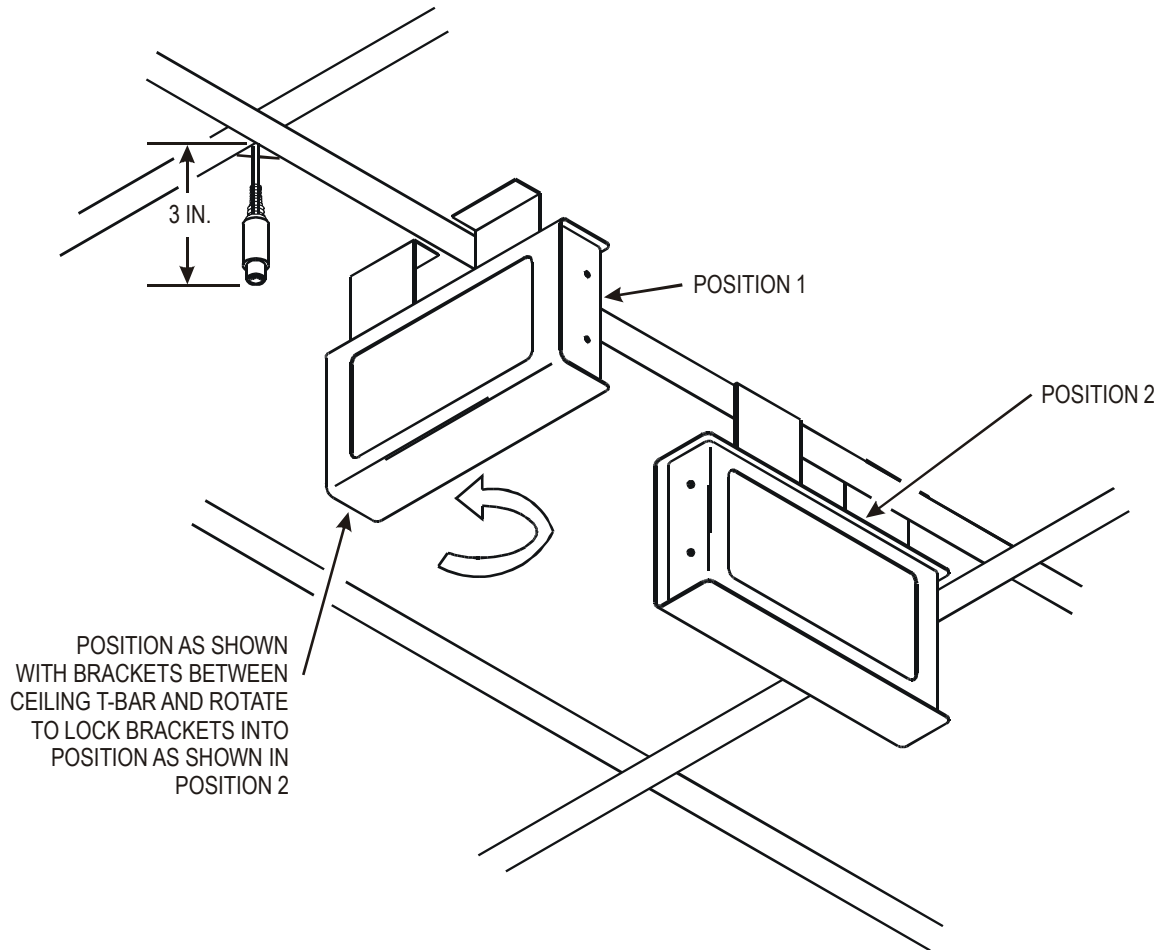


Figure 7-4. Installing T-Bar Brackets



**IMPORTANT:** ROUTE BLUE STRIPE REMOTE DISPLAY CABLE SO AS NOT TO PUSH ON A MOUNTING BRACKET AND POSSIBLY DISLODGE THE REMOTE DISPLAY FROM ITS MOUNTED POSITION. NEVER ALLOW THE REMOTE DISPLAY TO BE SUPPORTED BY THE BLUE STRIPE REMOTE DISPLAY CABLE.

Figure 7-5. Installing Remote Display onto Ceiling T-Bar Support

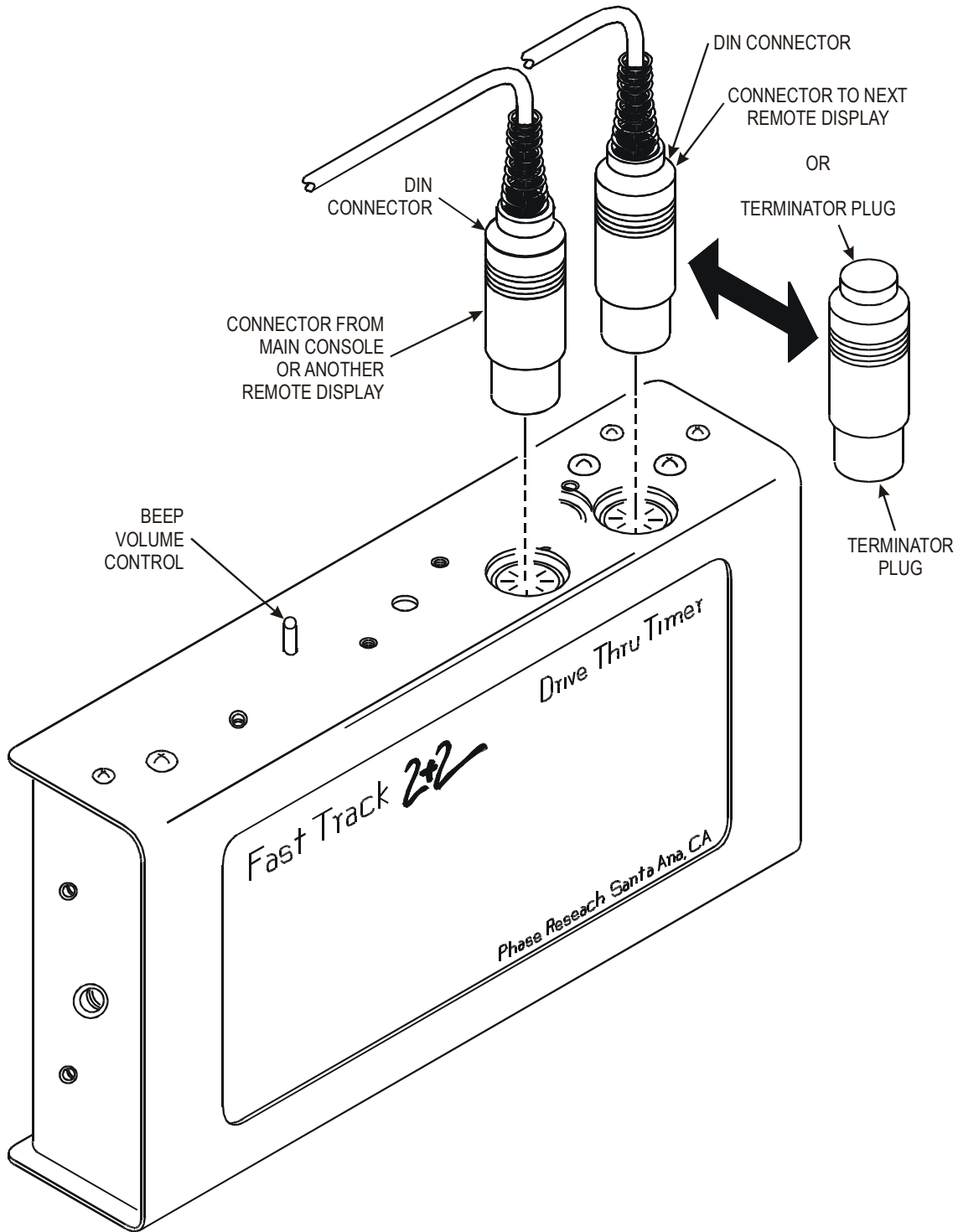


Figure 7-6. Installing Remote Display DIN Connectors

## **7-2.3 Installing a Line Share Controller**

### **7-2.3.1 General**

When the PC Download and Remote Control Software Suite is installed in the Fast Track 2+2/386 2000 Series Timer, the number of telephone lines or devices sharing them in the facility becomes important. If there are more devices (modem, fax, telephone, etc.) than lines available, a line share controller can be used to allow multiple devices to simultaneously use a single telephone line.

### **7-2.3.2 Installing a 2-Device Line Share Controller**

When installing a 2-Device Line Share Controller, refer to Figure 7-7. A 2-Device Controller allows you to connect the Timer fax/modem and a second device (phone or other device).

### **7-2.3.3 Installing a 3-Device Line Share Controller**

When installing a 3-Device Line Share Controller, refer to Figure 7-8. A 3-Device Controller allows you to connect the Timer fax/modem and two additional devices (phone, fax or other device).



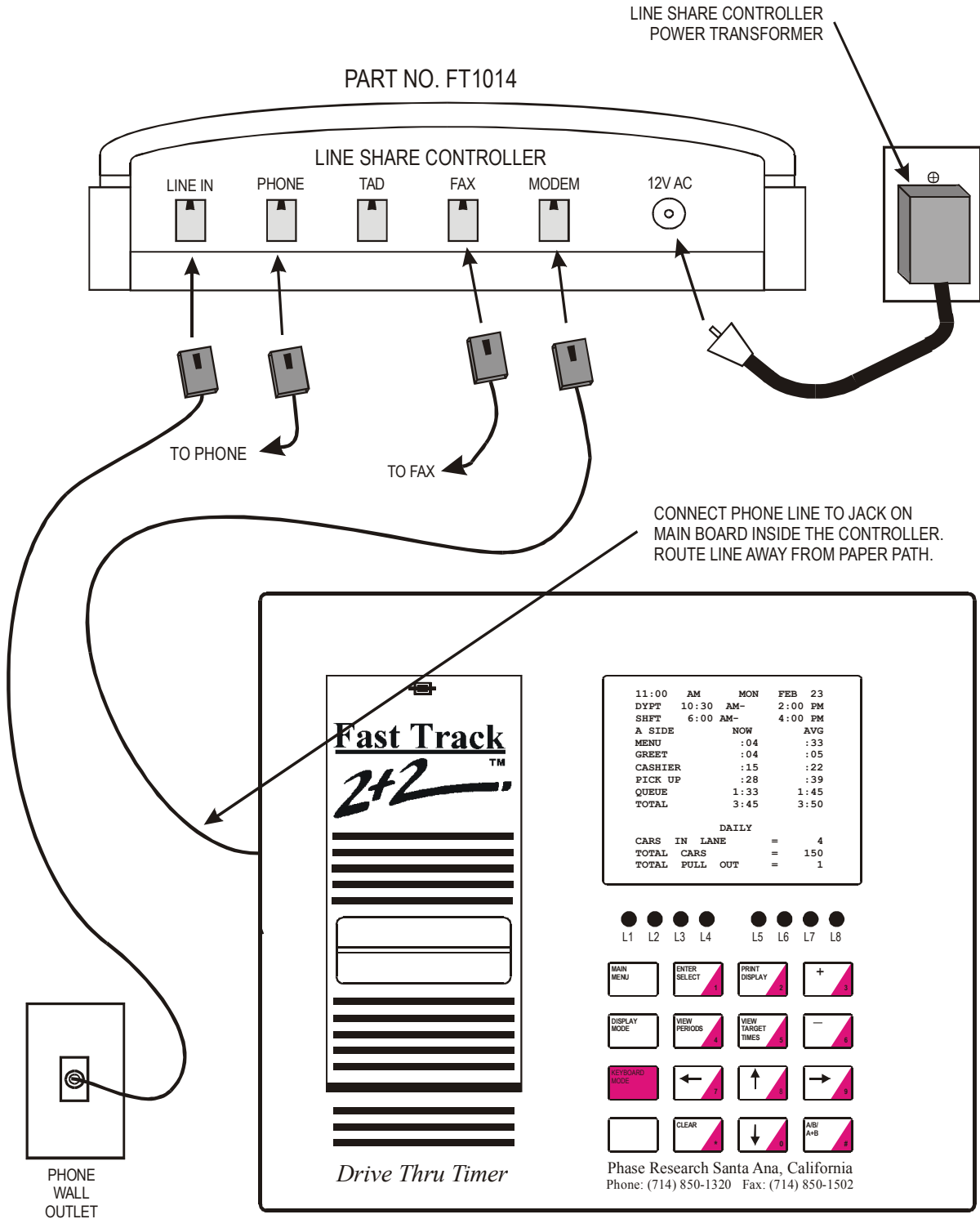


Figure 7-8. 3-Device Line Share Controller Connections

## SECTION 8 - CONNECTING WIRING

### 8-1 General

This section provides instructions for wiring the various pieces of equipment of the Fast Track 2+2/386 2000 Series Timer.

### 8-2 Interfacing with Menu Board Vehicle Detection and Intercom/Headset Systems

There are several manufacturers, models and configurations of Menu Board Vehicle Detection and Intercom systems in use. The Fast Track 2+2/386 2000 Series Timer works with all current models of the Menu Board systems. Successful operation of a full-line Timer depends upon proper interface with the Menu Board system. Full-line Timers start the timing sequence with arrival of the vehicle at the Menu Board (See Section 1).

**NOTE:** Full-line Timers must be connected to the Menu Board Vehicle Detection and Intercom systems. The Timers described in this Section are applicable to almost any system in use. Review the procedures and diagrams provided to determine the best method applicable to the system with which the Timer will interface.

**IMPORTANT:** MENU BOARD VEHICLE DETECTION MUST BE MAINTAINED TO THE TIMER WHETHER THE PRIMARY OR BACKUP INTERCOM SYSTEM IS IN USE. GREET TIMER CANCELLATION MUST OCCUR WHETHER THE PRIMARY OR BACKUP INTERCOM SYSTEM IS IN USE.

#### 8-2.1 Types of Menu Board Systems and Methods for Interfacing

Various Menu Board Systems may be encountered and are covered in this section as follows:

**NOTE:** The photo-couple requires a RED Vehicle Detect LED for reliable operation.

1. *Photo-Couple Menu Interface*— A small boot-like photo-couple is placed directly on a RED Vehicle Detect LED located on the Menu Board Detector Box or Intercom system.
2. *Fan-Out Box*— This device takes the normally open single output from a Detector and fans it out into three separate and isolated normally open outputs.
3. *Multiple Output Vehicle Detector (M.O.V.D.)*— This device provides two separate and isolated normally open outputs and a Vehicle Detect LED for a photo-couple if a third output is needed.

4. *Intercom System with no backup*— This Intercom system utilizes a single Intercom without a backup Intercom. With this type of Intercom system, the Greet Timer input to the Main Console is connected directly to the Intercom speaker output terminals paralleling the audio output from the Intercom system to the Main Console.
5. *Intercom System with backup*— This Intercom system utilizes two separate Intercom systems. One is the primary Intercom system and the other is the secondary or backup Intercom system. In this type of system, the Greet Timer input to the Main Console is connected to an interconnect A-B box output terminals paralleling the audio output from the Intercom to the Main Console.
6. *Primary Intercom System with backup that uses separate Menu Board Speakers*—This Intercom utilizes two separate Intercom systems. Each system utilizes its own speaker (two separate speakers in the Menu Board). This is a special configuration and may require additional hardware. Please contact **Phase Research** Service in this situation.

## **8-2.2 Typical Menu Board Vehicle Detection and Intercom System**

A typical Menu Board Vehicle Detection and Intercom System consists of a Menu Board Loop, a Vehicle Detector (may be a separate unit or an integral part of the Intercom), Intercom Unit, and a Speaker.

*See Figure 8-1 for a diagram of a typical Menu Board Vehicle Detection and Intercom System.*

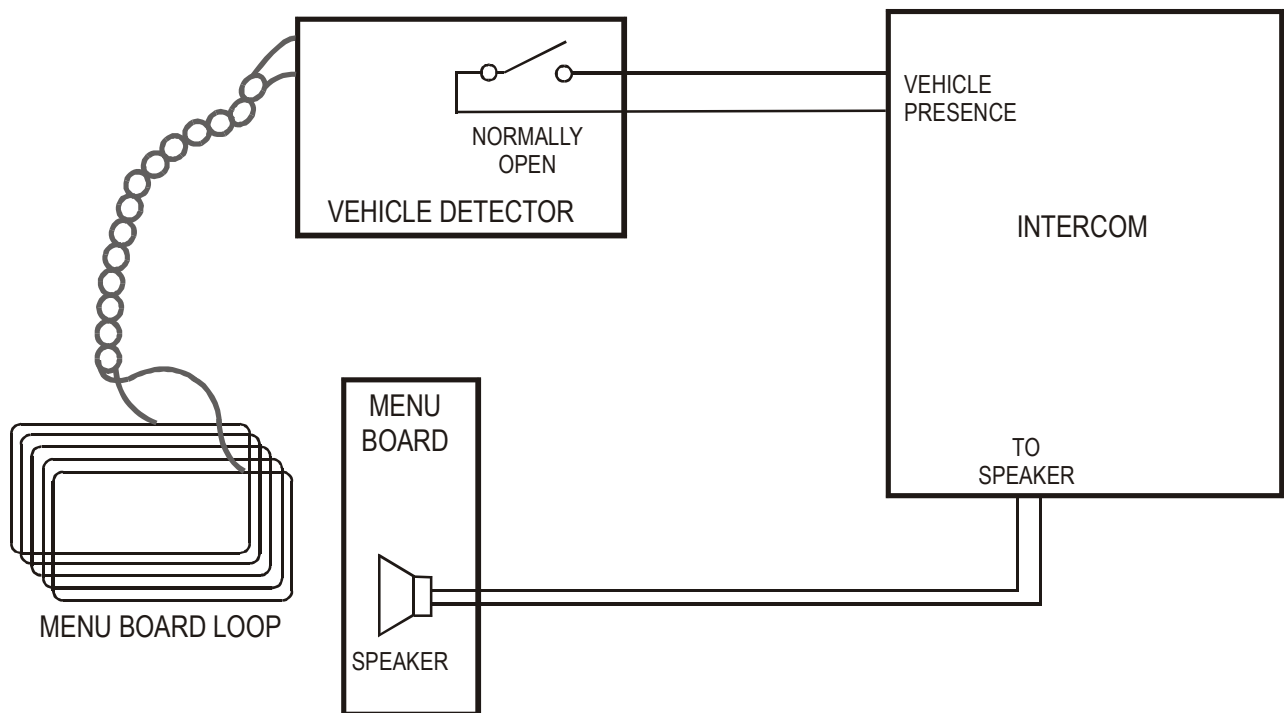


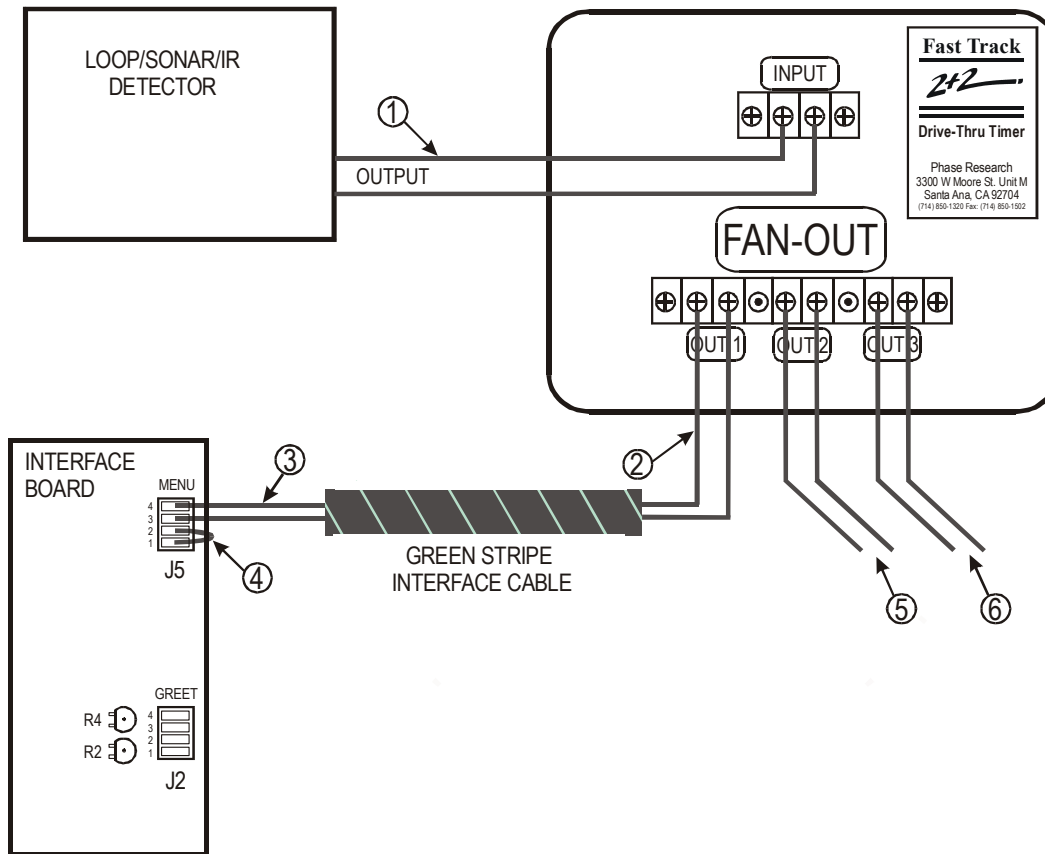
Figure 8-1. Typical Menu Board Vehicle Detection and Intercom System

### 8-2.3 Fan-Out Box Installation Procedure

*(See Figure 8-2)*

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Connect the Loop Detector, Sonar Detector, or IR Detector to the input terminals of the Fan-Out Box.
2. Connect one pair of wires from the Green Stripe Interface Cable to one of the three output terminals of the Fan-Out Box.
3. Connect the same pair (same colors) of wires from the Green Stripe Interface Cable to pins 4 and 3 of J5 connector on the Interface Board located in the Main Console.
4. Connect a jumper wire between pins 1 and 2 of J5 connector on the Interface Board.
5. Use one of the other outputs from the Fan-Out Box to provide vehicle detection to the Primary Intercom System or interconnect A-B Switch (as appropriate).
6. Use the other output of the Fan-Out Box to connect to the Backup Intercom System, Automatic Message Greeter, etc., if needed.
7. Plug in the power transformer to the 12 VOLT dc receptacle.



- ① Connect detector output wires to input terminal of Fan-Out Box
- ② Connect one pair of wires from the Green Stripe Interface Cable to one of the three output terminals of the Fan-Out Box.
- ③ Connect same pair of wires (same colors) from the Green Stripe Interface Cable to pins 4 and 3 of J5 connector on the Interface Board.
- ④ Connect a Jumper between pins 1 and 2 of J5 Connector on the Interface Board.
- ⑤ Use one of the other outputs from the FAN-OUT BOX to provide vehicle detection to the Primary Intercom System or Interconnect A-B Switch.
- ⑥ Use the other output of the Fan-Out Box to connect to the Backup Intercom System, Automatic Message Greeter, etc., If needed.

**CAUTION**

ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

Figure 8-2. Fan-Out Box Installation

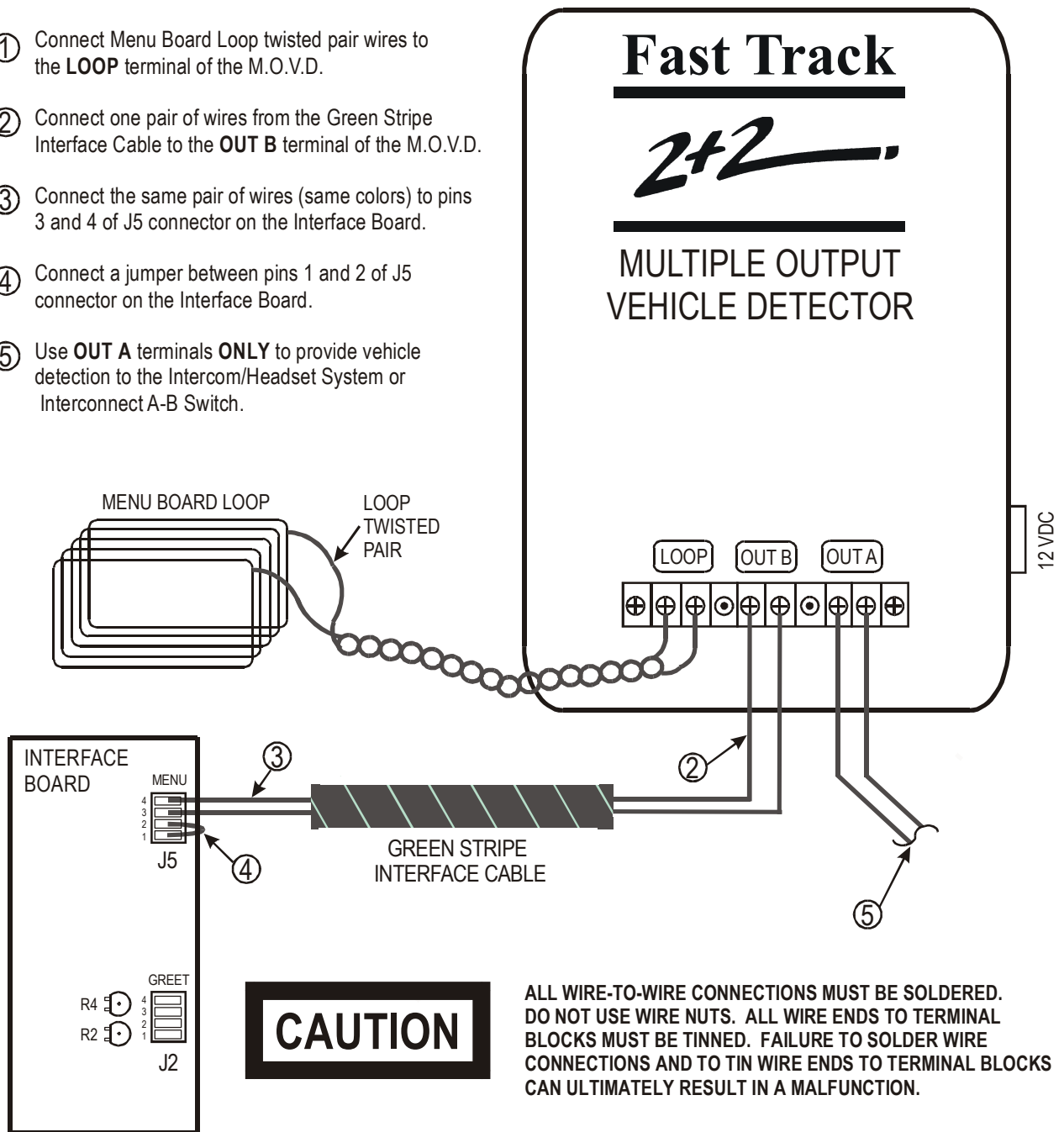
## 8-2.4 Multiple Output Vehicle Detector (M.O.V.D.) Installation Procedure

*(See Figure 8-3)*

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Connect the Menu Board Loop twisted pair wires to the LOOP terminals of the M.O.V.D.
2. Connect one pair of wires from the Green Stripe Interface Cable to the OUT B terminals of the M.O.V.D.
3. Connect the same pair (same colors) of wires to pins 4 and 3 of J5 connector on the Interface Board located in the Main Console.
4. Connect a jumper wire between pins 1 and 2 of J5 connector on the Interface Board.
5. Use OUT A terminals only to provide vehicle detection to the Intercom System or the Interconnect A-B switch.
6. Plug in the power transformer to the 12 VOLT dc receptacle.

- ① Connect Menu Board Loop twisted pair wires to the **LOOP** terminal of the M.O.V.D.
- ② Connect one pair of wires from the Green Stripe Interface Cable to the **OUT B** terminal of the M.O.V.D.
- ③ Connect the same pair of wires (same colors) to pins 3 and 4 of J5 connector on the Interface Board.
- ④ Connect a jumper between pins 1 and 2 of J5 connector on the Interface Board.
- ⑤ Use **OUT A** terminals **ONLY** to provide vehicle detection to the Intercom/Headset System or Interconnect A-B Switch.



**Figure 8-3. Multiple Output Vehicle Detector Installation**

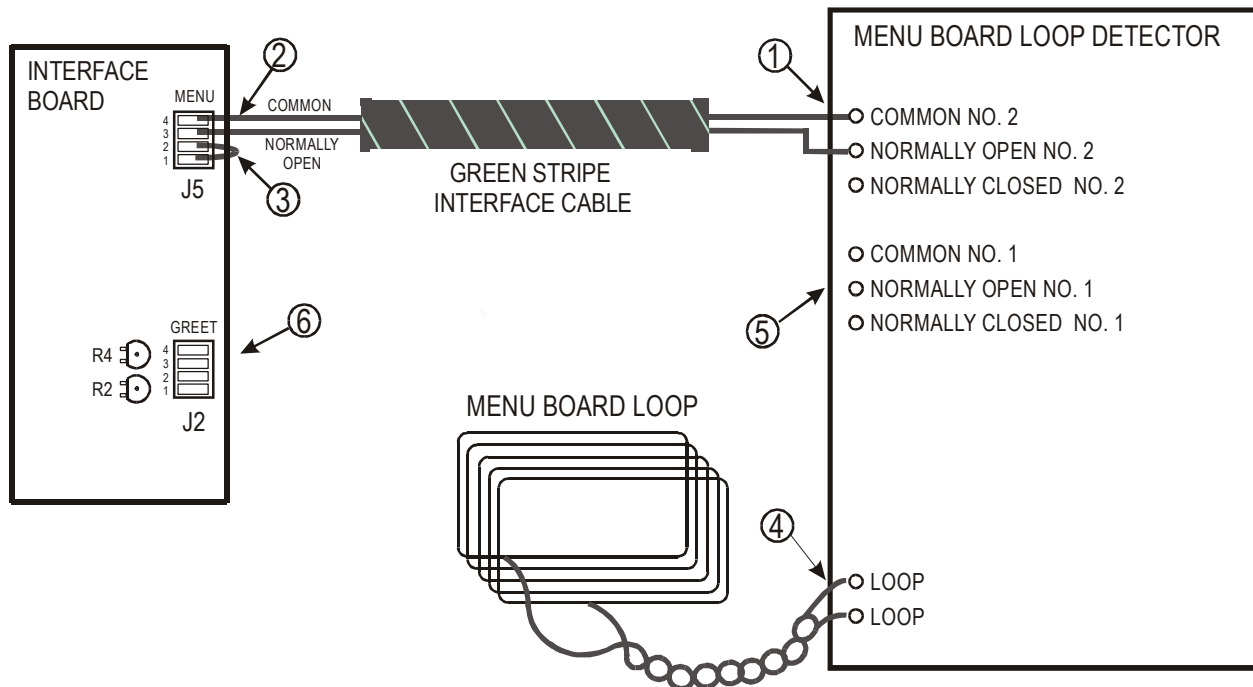
## 8-2.5 Interfacing with a Dual Output Menu Board Loop Detector

*(See Figure 8-4)*

The Fast Track 2+2/386 2000 Series Timer is capable of interfacing with any Dual Output Menu Board Loop Detector as long as the second output of the Detector provides a VEHICLE PRESENCE SIGNAL (normally open contact closure).

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Connect one pair of wires from the Green Stripe Interface Cable to the NORMALLY OPEN NO. 2 and the COMMON NO. 2 output on the Menu Board Loop Detector.
2. Connect the same pair (same colors) of wires to pins 4 and 3 of J5 connector on the Interface Board located in the Main Console.
3. Connect a jumper wire between pins 1 and 2 of J5 connector on the Interface Board.
4. Verify that the Intercom System is connected to the No. 1 terminals.
5. Connect GREET CANCELLATION SIGNAL per paragraph 8-2.6.



- ① Connect one pair of wires from the Green Stripe Interface Cable to the NORMALLY OPEN NO. 2 and the COMMON NO. 2 output on the Menu Board Loop Detector.
- ② Connect same pair of wires (same colors) from the Green Stripe Interface Cable to pins 4 and 3 of J5 connector on the Interface Board.
- ③ Connect a Jumper between pins 1 and 2 of J5 Connector on the Interface Board.
- ④ Verify that the Menu Board Loop is connected to the LOOP input of the Menu Board Loop Detector.
- ⑤ Verify that the Intercom System is connected to the No. 1 terminals as appropriate for the Intercom System.
- ⑥ Connect GREET CANCELLATION SIGNAL per Greet Timer Connection Diagram.

**CAUTION**

ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

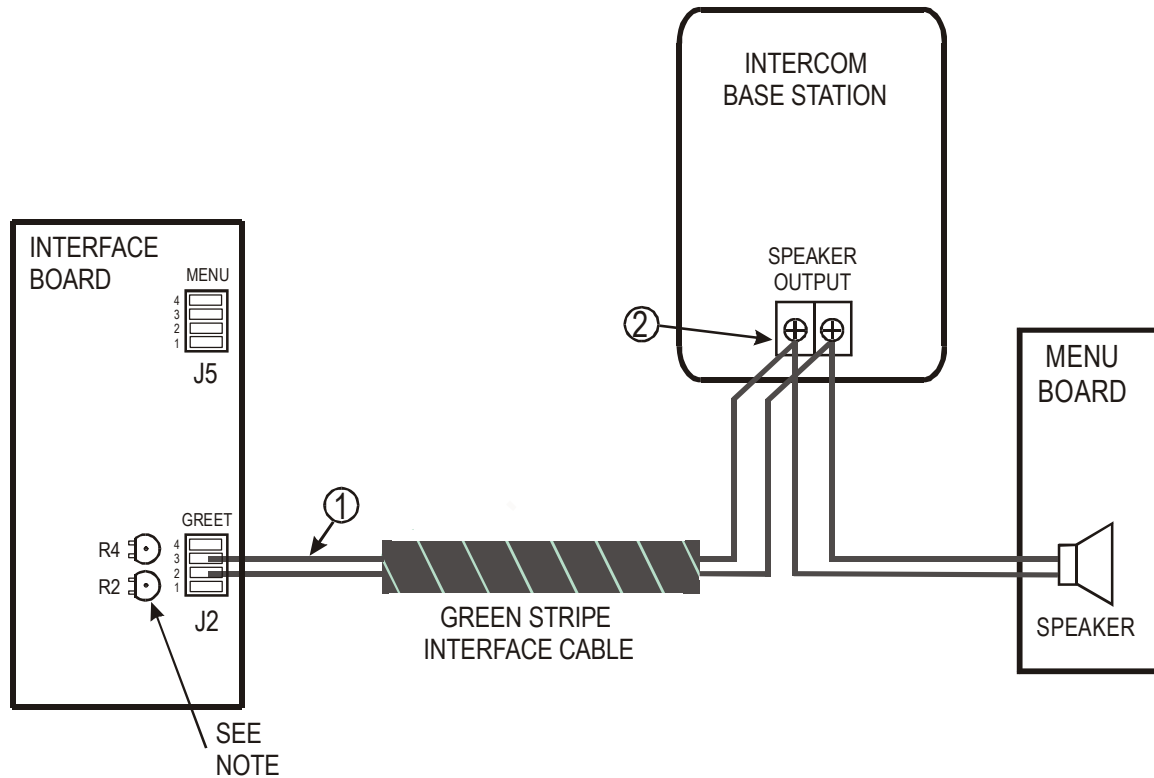
Figure 8-4. Dual Output Menu Board Loop Detector Interface

## 8-2.6 Typical Interface with Greet Timer Cancellation Signal (For Systems without Backup)

*(See Figure 8-5)*

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Connect one pair of wires from the Green Stripe Interface Cable to pins 3 and 2 of connector J2 of the Interface Board located in the Main Console.
2. Connect the same pair of wires (same colors) from the Green Stripe Interface Cable to the SPEAKER OUTPUT terminals of the Intercom Base Station.



- ① Connect one pair of wires from the Green Stripe Interface Cable to pins 3 and 2 of J2 connector on the Interface Board.
- ② Connect the same pair of wires (same colors) from the Green Stripe Interface Cable to the SPEAKER OUTPUT terminals of the Intercom Base Station.

## CAUTION

ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

**NOTE:** If Greet Timer Cancellation does not occur, the sensitivity pot R2 may need to be adjusted. Rotate R2 counterclockwise. When adjusting R2, rotate it very little and check for proper cancellation operation. If necessary, rotate R2 a little more, then check again for proper cancellation.

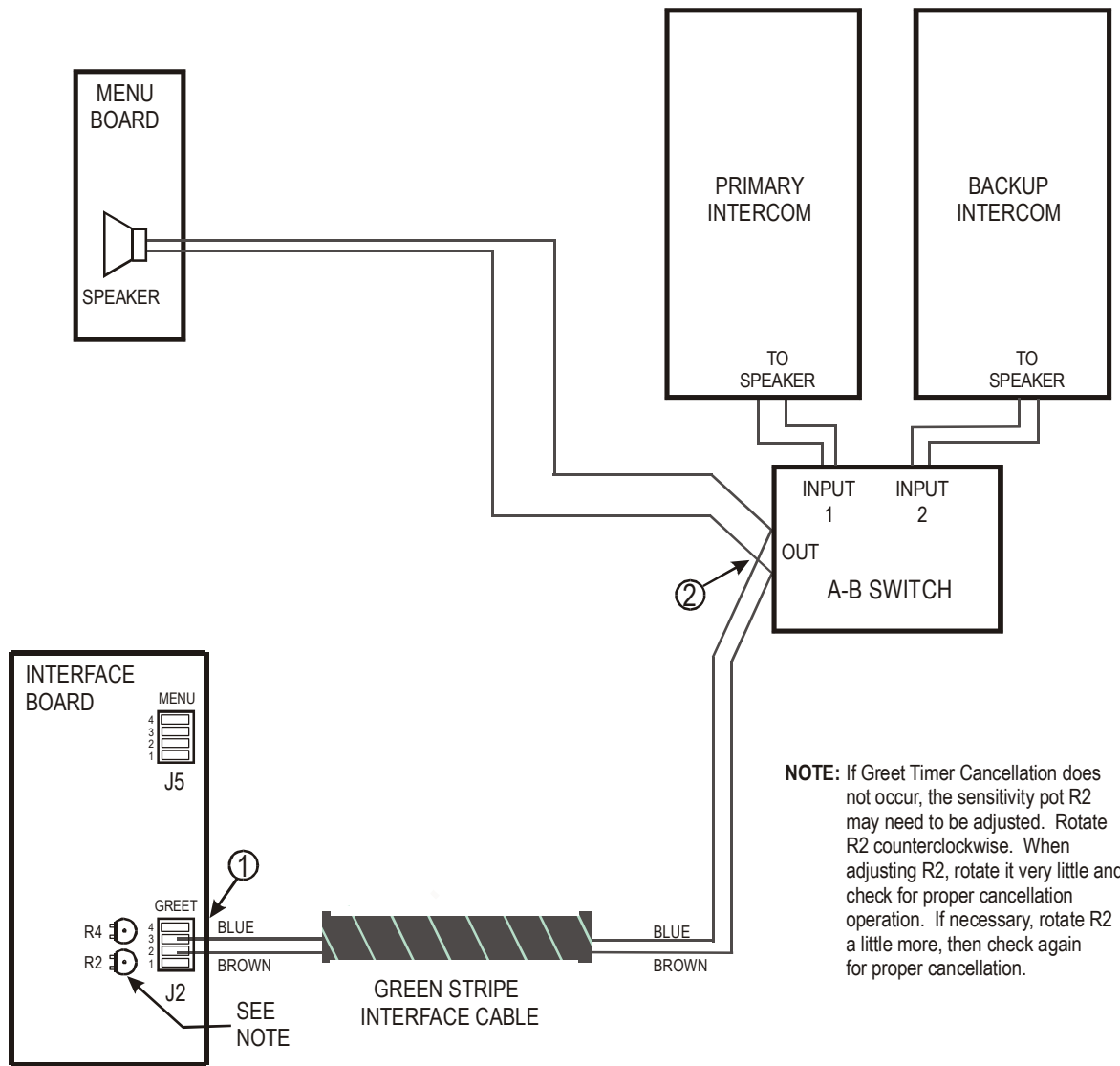
Figure 8-5. Greet Timer Cancellation Interface

## 8-2.7 Typical Interface with Greet Timer Cancellation Signal (For Systems with Backup)

*(See Figure 8-6)*

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Connect the blue and brown wires from the Green Stripe Interface Cable to pins 3 and 2 of connector J2 of the Interface Board.
2. Connect the blue and brown wires from the Green Stripe Interface Cable to the SPEAKER output connection from the Intercom.



- ① Connect blue and brown wires from the Green Stripe Interface Cable to pins 3 and 2 of J2 Connector.
- ② Connect blue and brown wires from the Green Stripe Interface Cable to the speaker out connection from the A-B Switch.

**CAUTION**

ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

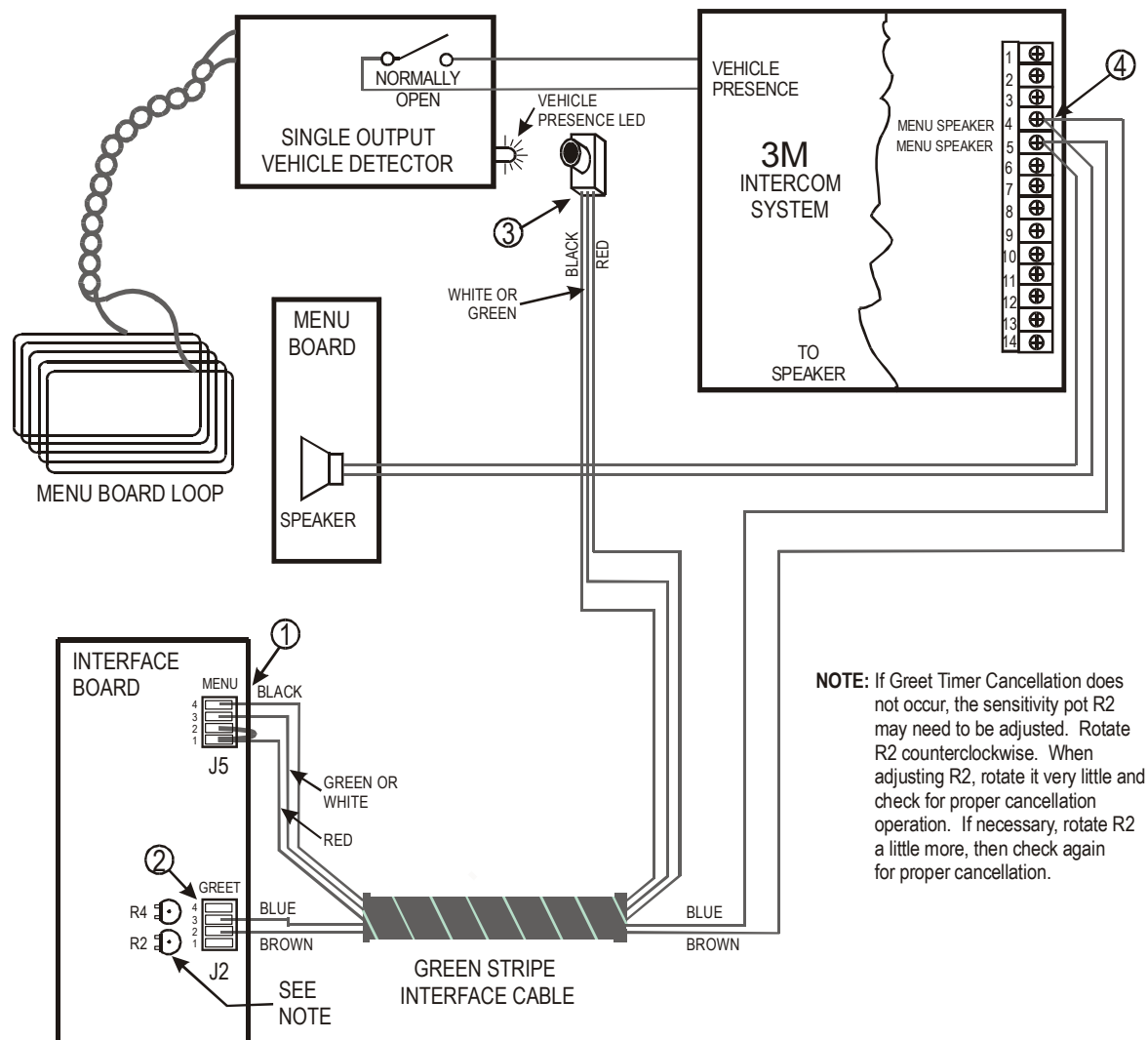
**Figure 8-6. Typical Intercom Interface for Systems with Backup**

## 8-2.8 Interfacing with 3M Intercom Systems (without Backup)

*(See Figure 8-7)*

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Connect the black, green or white, and red wires from the Green Stripe Interface Cable to pins 4, 3 and 1 of connector J5 of the Interface Board located in the Main Console. Connect a jumper wire between pins 1 and 2 of connector J5.
2. Connect the blue and brown wires from the Green Stripe Interface Cable to pins 3 and 2 of connector J2 of the Interface Board.
3. Connect the black, green or white, and red wires from the Green Stripe Interface Cable to the Photo-Couple.
4. Insert the Photo-Couple over the Vehicle Presence LED located on the Vehicle Detector Board. Secure the Photo-Couple.
5. Connect the blue and brown wires from the Green Stripe Interface Cable to the SPEAKER output connection from the Intercom.



- ① Connect black, green or white, and red wires from the Green Stripe Interface Cable to pins 4, 3 and 1 of J5 connector. Connect jumper wire between pins 1 and 2 of J5 connector.
- ② Connect blue and brown wires from the Green Stripe Interface Cable to pins 3 and 2 of J2 Connector.
- ③ Connect black, green or white, and red wires from the Green Stripe Interface Cable to the Photo-Couple. Insert Photo-Couple over the Vehicle Presence LED on the Vehicle Detector board. Secure Photo-Couple with a small bead of silicon adhesive.
- ④ Connect blue and brown wires from the Green Strip Interface Cable to the SPEAKER to the LED out connection from the Intercom System.

**CAUTION**

ALL WIRE-TO WIRE-CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

**Figure 8-7. Interfacing with 3M Intercom Systems (without Backup)**

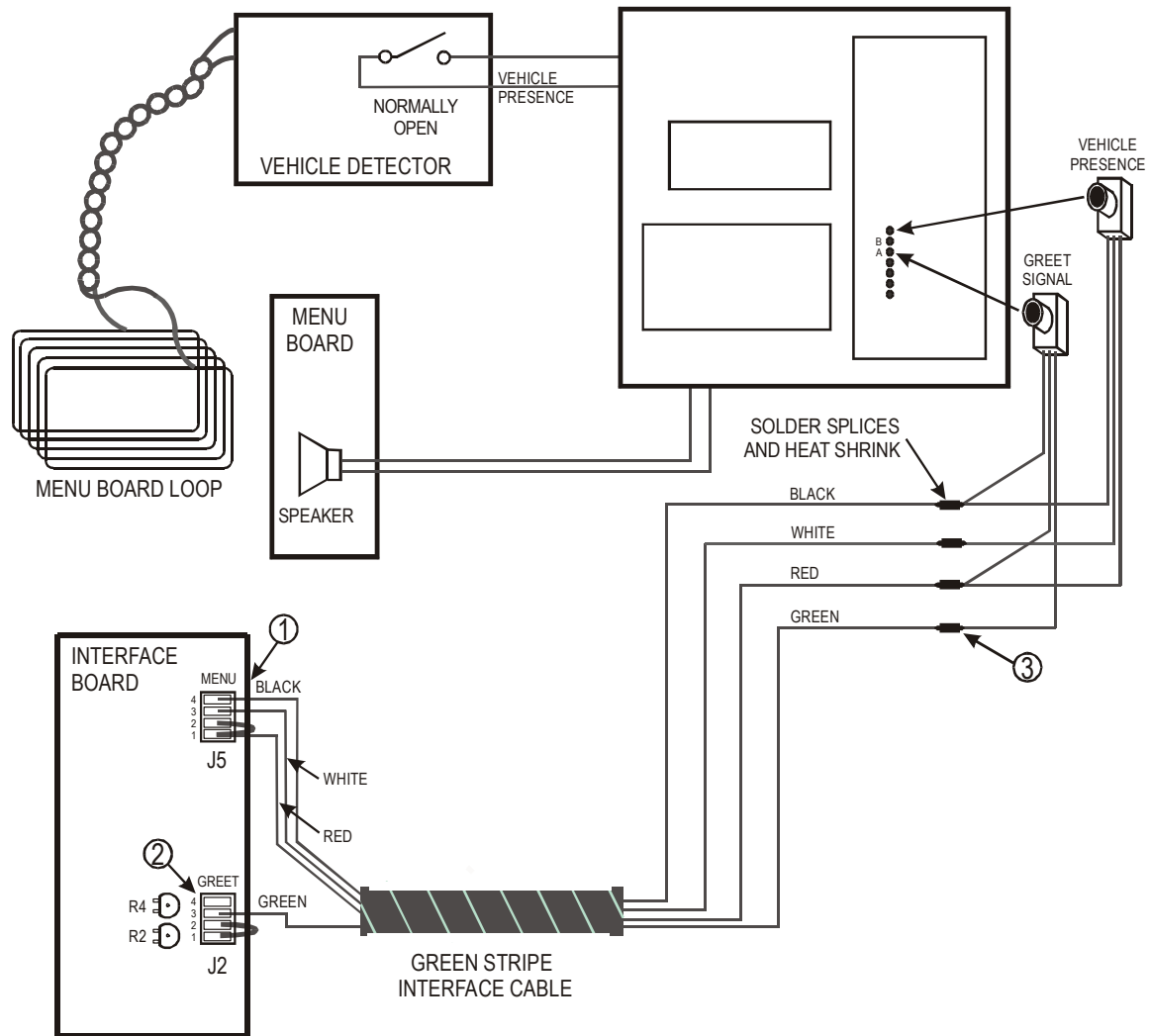
## 8-2.9 Interfacing with the HME WBS2000 (without Backup)

(See Figure 8-8)

**IMPORTANT:** ❶ ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

❷ INTERFACING WITH THIS INTERCOM WILL REQUIRE THE USE OF 2 PHOTO-COUPLES.

1. Connect the black, white, and red wires from the Green Stripe Interface Cable to pins 4, 3 and 1 of connector J5 of the Interface Board located in the Main Console.
2. Connect jumper wires between pins 1 and 2 of connector J5 and between pins 1 and 2 of connector J5.
3. Connect the green wire from the Green Stripe Interface Cable to pin 3 of connector J2 of the Interface Board.
4. Connect jumper wires between pins 1 and 2 of connector J5 and between pins 1 and 2 of connector J2.
5. Connect the black, green, and red wires from the Green Stripe Interface Cable to the Greet Photo-Couple.
6. Connect the black, white, and red wires from the Green Stripe Interface Cable to the Vehicle Presence Photo-Couple.
7. Insert the Photo-Couple over the Vehicle Presence LED located on the Vehicle Detector Board. Secure the Photo-Couple.



- ① Connect black, white, and red wires from the Green Stripe Interface Cable to pins 4, 3 and 1 of J5 connector. Connect a jumper wire between pins 1 and 2 of J5 connector.
- ② Connect the green wire from the Green Stripe Interface Cable to pins 3 of J2 Connector. Connect a jumper wire between pins 1 and 2 of J2 connector.
- ③ Connect black, red, and green wires from the Green Stripe Interface Cable to the Greet Photo-Couple. Connect the black, white, and green wires from the Green stripe Interface Cable to the Vehicle Presence Photo-Couple. Insert Photo-Couple sincerely over the Greet LED and the Vehicle Presence LED on the Vehicle Detector board. Secure Photo-Couples to the LED..

**CAUTION**

ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

INTERFACING WITH THIS INTERCOM REQUIRES THE USE OF 2 PHOTOCOUPLES.

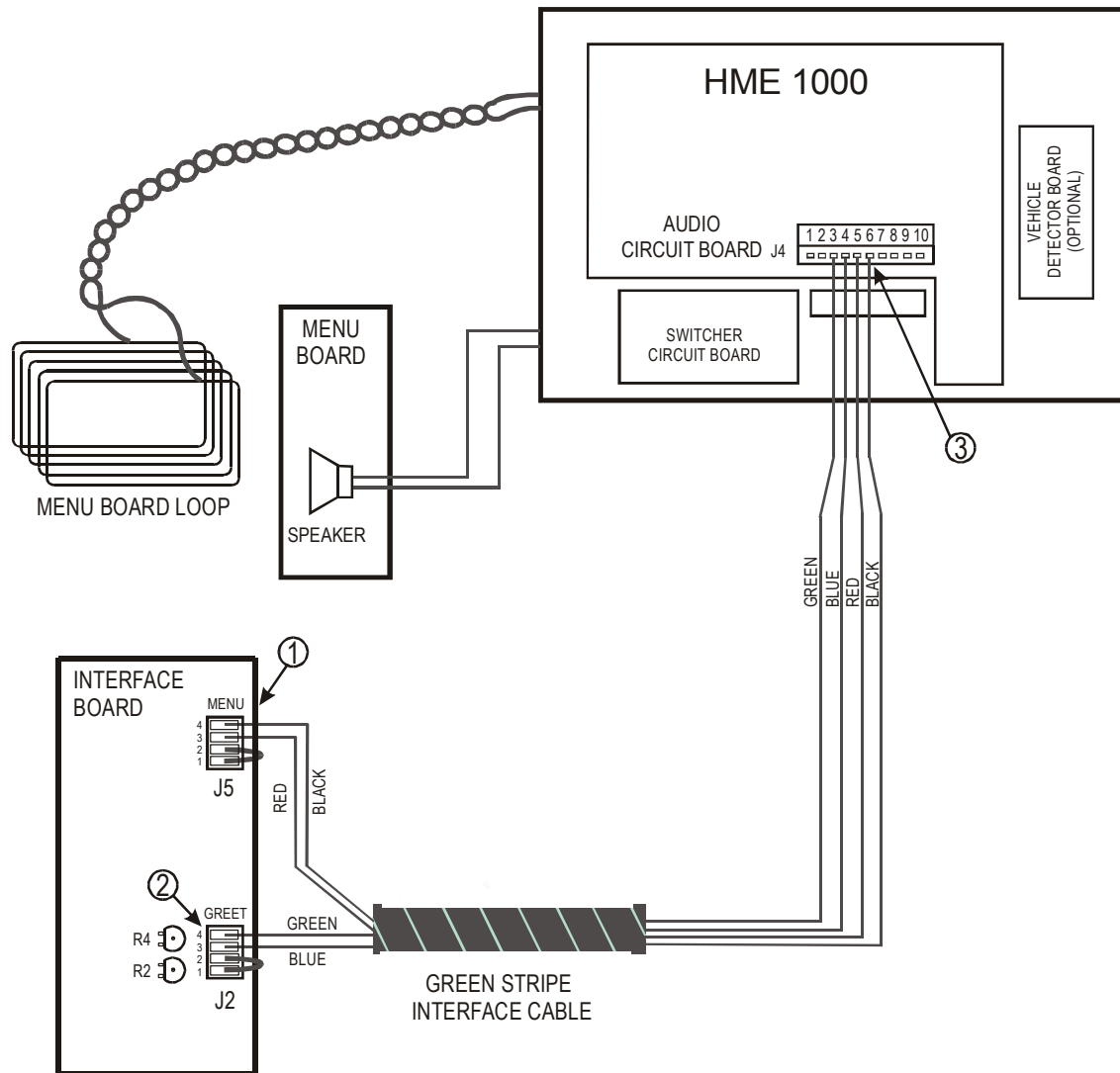
**Figure 8-8. Interfacing with the HME WBS2000 (without Backup)**

## 8-2.10 Interfacing with the HME 1000

*(See Figure 8-9)*

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Connect the black and red wires from the Green Stripe Interface Cable to pins 4 and 3 of connector J5 of the Interface Board located in the Main Console.
2. Connect a jumper wire between pins 1 and 2 of connector J5.
3. Connect the green and blue wires from the Green Stripe Interface Cable to pins 4 and 3 of connector J2 of the Interface Board.
4. Connect a jumper wire between pins 1 and 2 of connector J2.
5. Connect the green, blue, red, and black wires from the Green Stripe Interface Cable to pins 3, 4, 5, and 6 of J4 terminal board of the HME 1000 Intercom System.



- ① Connect black and red wires from the Green Stripe Interface Cable to pins 4 and 3 of J5 connector. Connect a jumper wire between pins 1 and 2 of J5 connector.
- ② Connect green and blue wires from the Green Stripe Interface Cable to pins 4 and 3 of J2 connector. Connect a jumper wire between pins 1 and 2 of J2 connector.
- ③ Connect green, blue, red, and black wires from the Green Stripe Interface Cable to pins 3, 4, 5, and 6 of J4 Terminal Block of the HME 1000.

**CAUTION**

ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

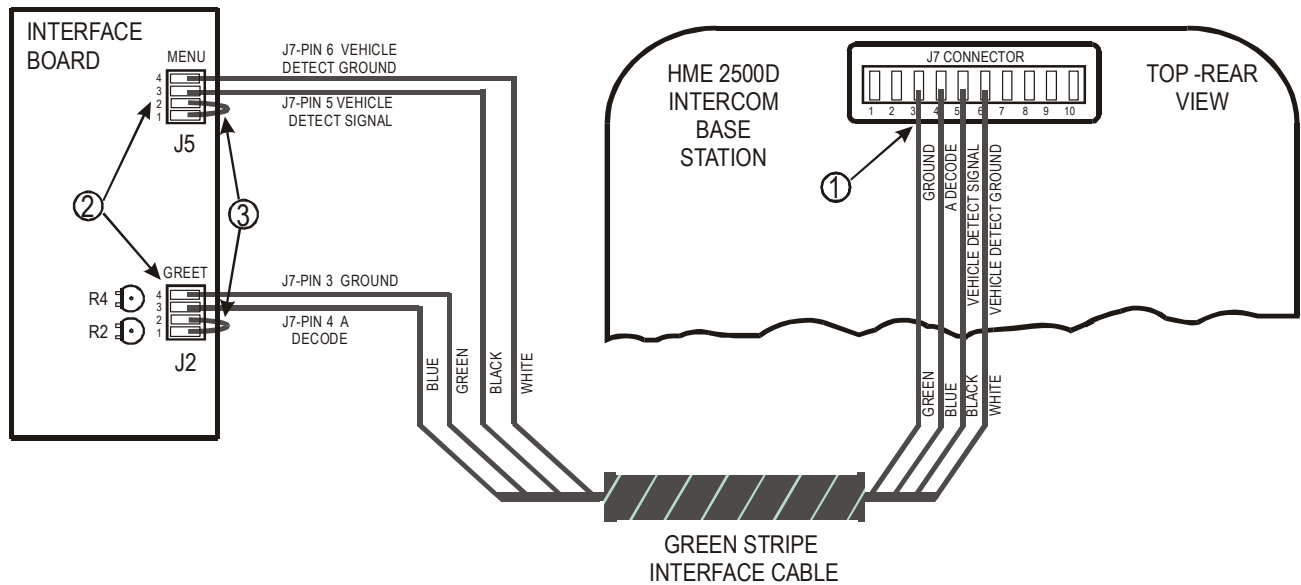
Figure 8-9. Interfacing with the HME 1000

## 8-2.11 Interfacing with the HME 2500D

*(See Figure 8-10)*

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Connect the green and blue wires from the Green Stripe Interface Cable to pins 3 and 4 of connector J7 on the HME 2500D.
2. Connect the black and white wires from the Green Stripe Interface Cable to pins 5 and 6 of connector J7 on the HME 2500D.
3. Connect the green and blue wires from the Green Stripe Interface Cable to pins 4 and 3 of connector J2 on the Interface Board located in the Main Console. Connect a jumper wire between pins 1 and 2 of connector J2.
4. Connect the black and white wires from the Green Stripe Interface Cable to pins 4 and 3 of connector J5 on the Interface Board. Connect a jumper wire between pins 1 and 2 of connector J2.



- ① Connect green and blue wires from the Green Stripe Interface Cable to pins 3 and 4 of J7 connector on the HME2500D. Connect the black and white wires from the Green Stripe Interface Cable to pins 5 and 6 J7 connector on the HME2500D.
- ② Connect green and blue wires from the Green Stripe Interface Cable to pins 4 and 3 on J2 connector on the Interface Board located in the Main Console. Connect the white and black wires from the Green Stripe Interface Cable to pins 4 and 3 of J5 connector on the Interface Board.
- ③ Connect a jumper wire between pins 1 and 2 of J2 connector on the Interface Board located in the Main Console. Connect a jumper wire between pins 1 and 2 of J5 connector on the Interface Board.

**CAUTION**

ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCK CAN ULTIMATELY RESULT IN A MALFUNCTION.

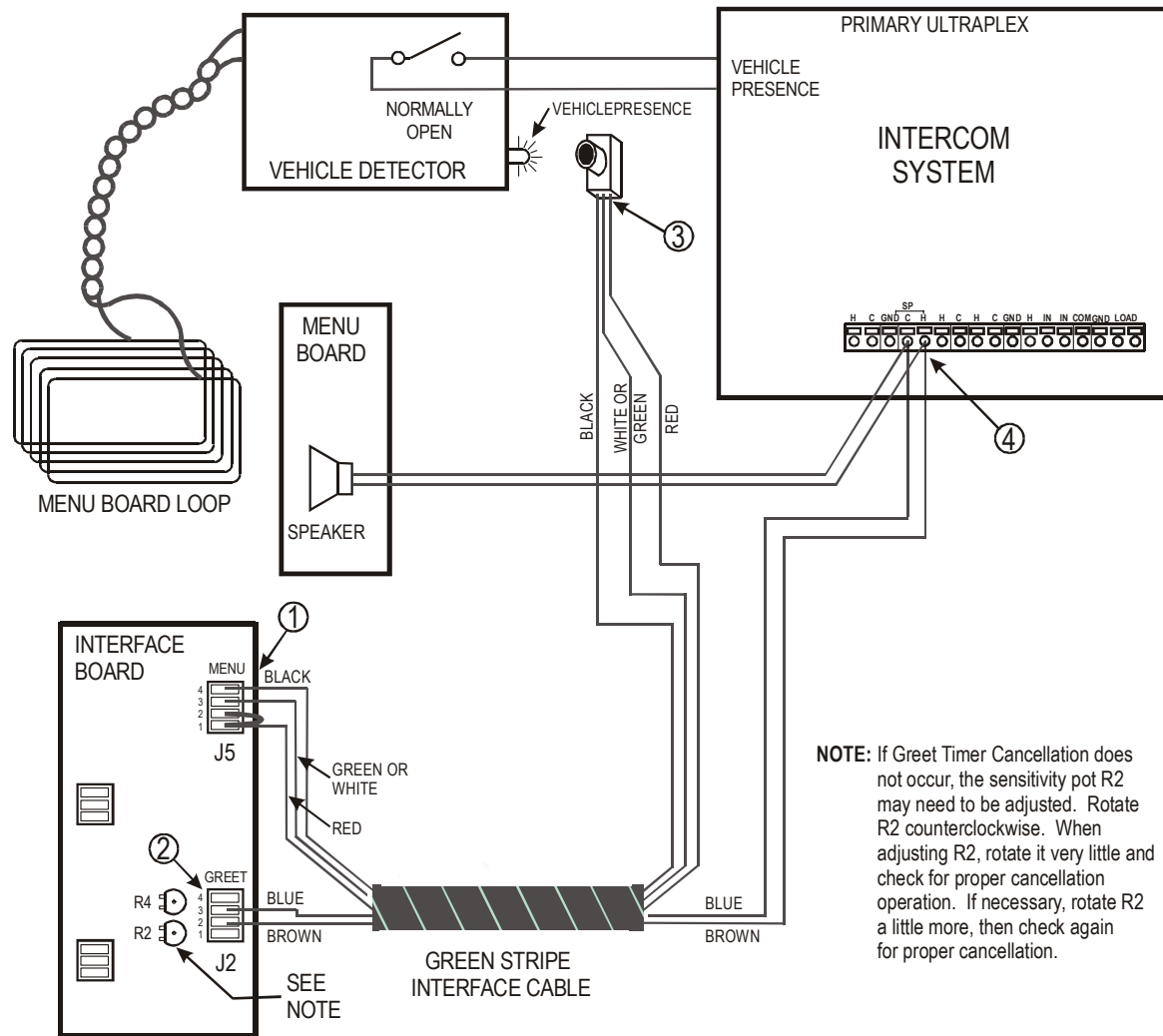
**Figure 8-10. Interfacing with the HME 2500D**

## 8-2.12 Interfacing with Panasonic Intercom Systems (without Backup)

*(See Figure 8-11)*

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Connect the black, green or white and red wires from the Green Stripe Interface Cable to pins 4, 3 and 1 of connector J5 of the Interface Board located in the Main Console.
2. Connect a jumper wire between pins 1 and 2 of connector J5.
3. Connect the blue and brown wires from the Green Stripe Interface Cable to pins 3 and 2 of connector J2.
4. Connect the black, green or white, and red wires from the Green Stripe Interface Cable to the Photo-Couple. Insert the Photo-Couple over the Vehicle Presence LED on the Vehicle Detector Board and secure it in place.
5. Connect the blue and brown wires from the Green Stripe Interface Cable to the speaker out connection of the Panasonic Intercom System.



- ① Connect black, green or white, and red wires from the Green Stripe Interface Cable to pins 4, 3 and 1 of J5 connector. Connect a jumper wire between pins 1 and 2 of J5 connector.
- ② Connect blue and brown wires from the Green Stripe Interface Cable to pins 3 and 2 of J2 Connector.
- ③ Connect black, green or white, and red wires from the Green Stripe Interface Cable to the Photo-Couple. Insert Photo-Couple over the Vehicle Presence LED on the Vehicle Detector board. Secure Photo-Couple in place.
- ④ Connect blue and brown wires from the Green Stripe Interface Cable to the speaker out connection from the Intercom System.

**CAUTION**

ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

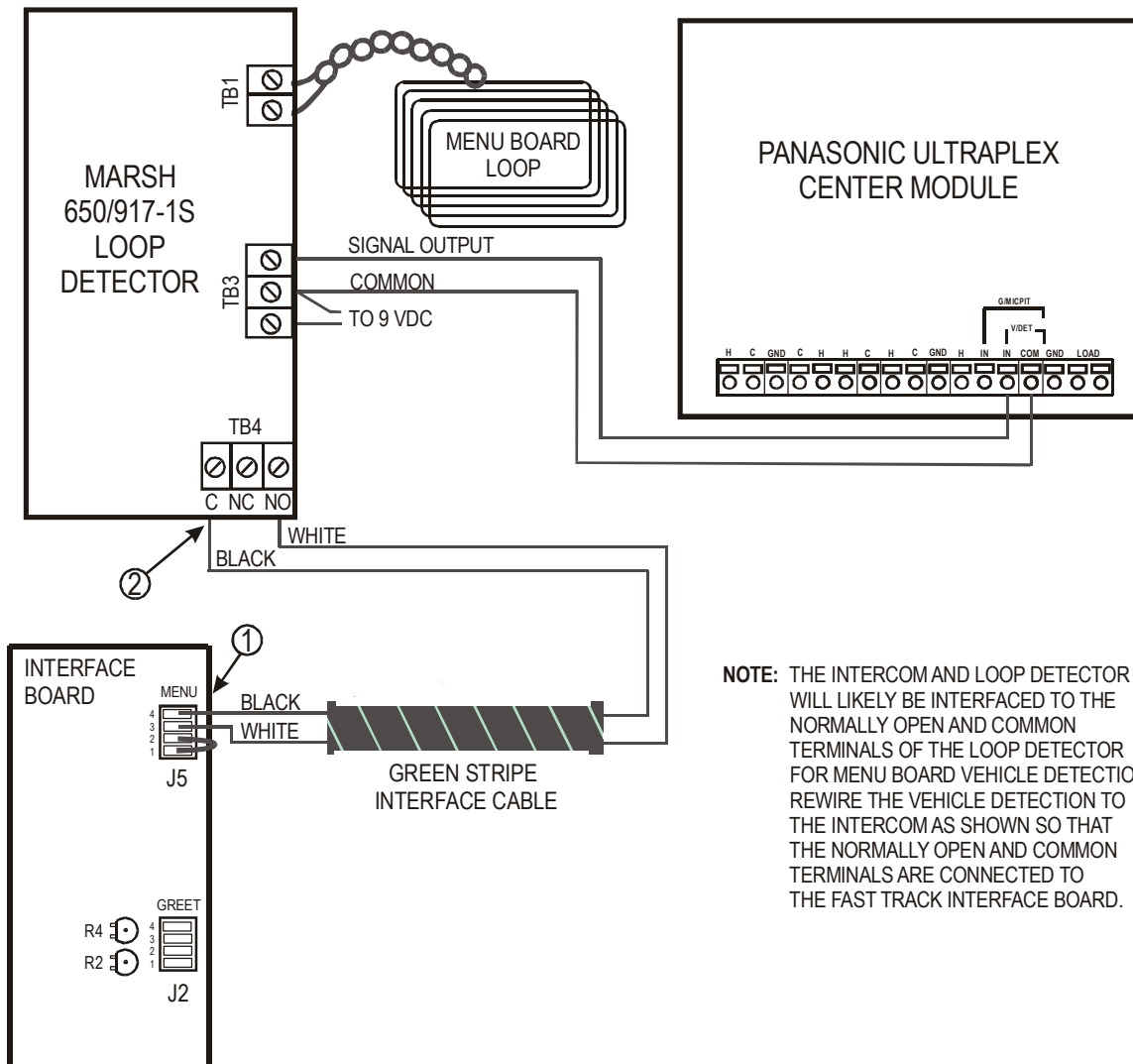
**Figure 8-11. Interfacing with the Panasonic Intercom Systems (without Backup)**

### 8-2.13 Interfacing with the Marsh 650/917-1S Dual Output Loop Detector

*(See Figure 8-12)*

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Connect the black and white wires from the Green Stripe Interface Cable to pins 4 and 3 of connector J5 of the Interface Board located in the Main Console.
2. Connect a jumper wire between pins 1 and 2 of connector J5.
3. Connect the black wire from the Green Stripe Interface Cable to the C (common) terminal of TB4 terminal board on the Marsh Loop Detector. Connect the white wire from the Green Stripe Interface Cable to the NO (normally open) terminal of TB4 terminal board.



**NOTE:** THE INTERCOM AND LOOP DETECTOR WILL LIKELY BE INTERFACED TO THE NORMALLY OPEN AND COMMON TERMINALS OF THE LOOP DETECTOR FOR MENU BOARD VEHICLE DETECTION. REWIRE THE VEHICLE DETECTION TO THE INTERCOM AS SHOWN SO THAT THE NORMALLY OPEN AND COMMON TERMINALS ARE CONNECTED TO THE FAST TRACK INTERFACE BOARD.

- ① Connect black and white wires from the Green Stripe Interface Cable to pins 4 and 3 of J5 connector on the interface Board. Connect a wire jumper between pins 1 and 2 of J5 connector.
- ② Connect black wire from the Green Stripe Interface Cable to the C (common) terminal of TB4 terminal board on the Marsh Loop Detector. Connect the white wire from the Green Stripe Interface Cable to the NO (normally open) terminal of TB4 terminal board on the Marsh Loop Detector.

**CAUTION**

ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

Figure 8-12. Interfacing with the Marsh 650/917-1S Dual Output Loop Detector

## 8-2.14 Connecting the Window (Cashier and Pick-Up) Loops to the Vehicle Detector Boards

*(See Figures 8-13 and 8-14)*

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Use Yellow Stripe Loop Cable for the Cashier Window and/or Red Stripe Loop Cable for the Pick-Up Window.

**IMPORTANT:** IF YOU CUT EXCESS FROM THE RED OR YELLOW STRIPE LOOP CABLE, DO NOT CUT AT THE VEHICLE DETECTION BOARD CONNECTOR END. REMOVE EXCESS FROM THE WIRE END ONLY.

2. Plug in the Red Stripe or Yellow Stripe Loop Cable connector to pins 9 and 10 of connector J1 of the Vehicle Detector Board located in the Main Console (see Wiring Diagram in Section 11 for location of the two Detector Boards).
3. Connect the shield spade lug to the ground blade connector as shown in Figure 8-13.

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS.

4. Connect the opposite end of the Red Stripe and/or Yellow Stripe Loop Cable to the Window Ground Loop twisted pair in the Junction Box. Solder connections and cover with heat shrink tubing. DO NOT USE WIRE NUTS.
5. Check the dipswitch settings on the Vehicle Detector Board. If necessary, set dipswitch as shown in Figure 8-14. Dipswitch settings are factory configured and should require no change.

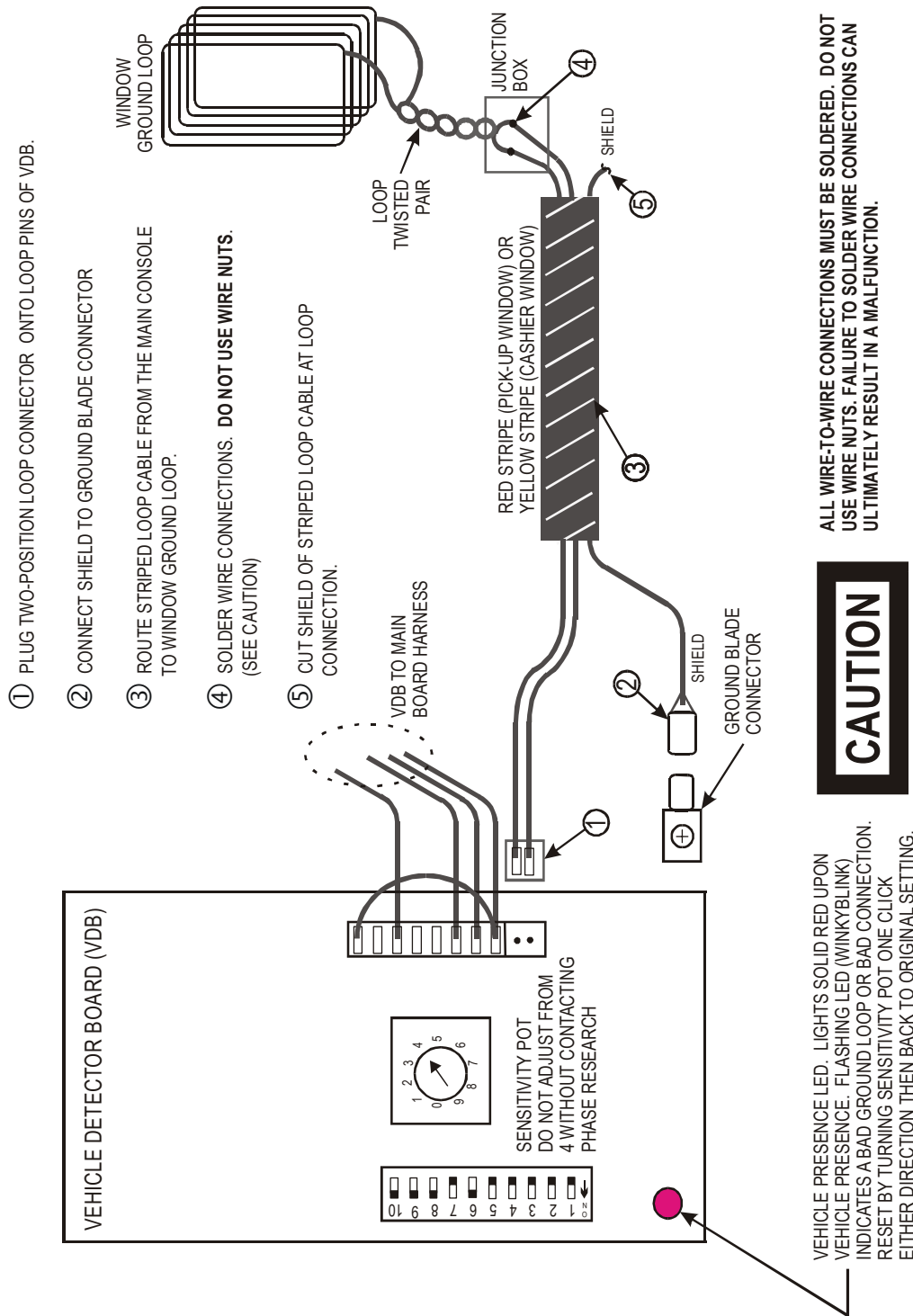
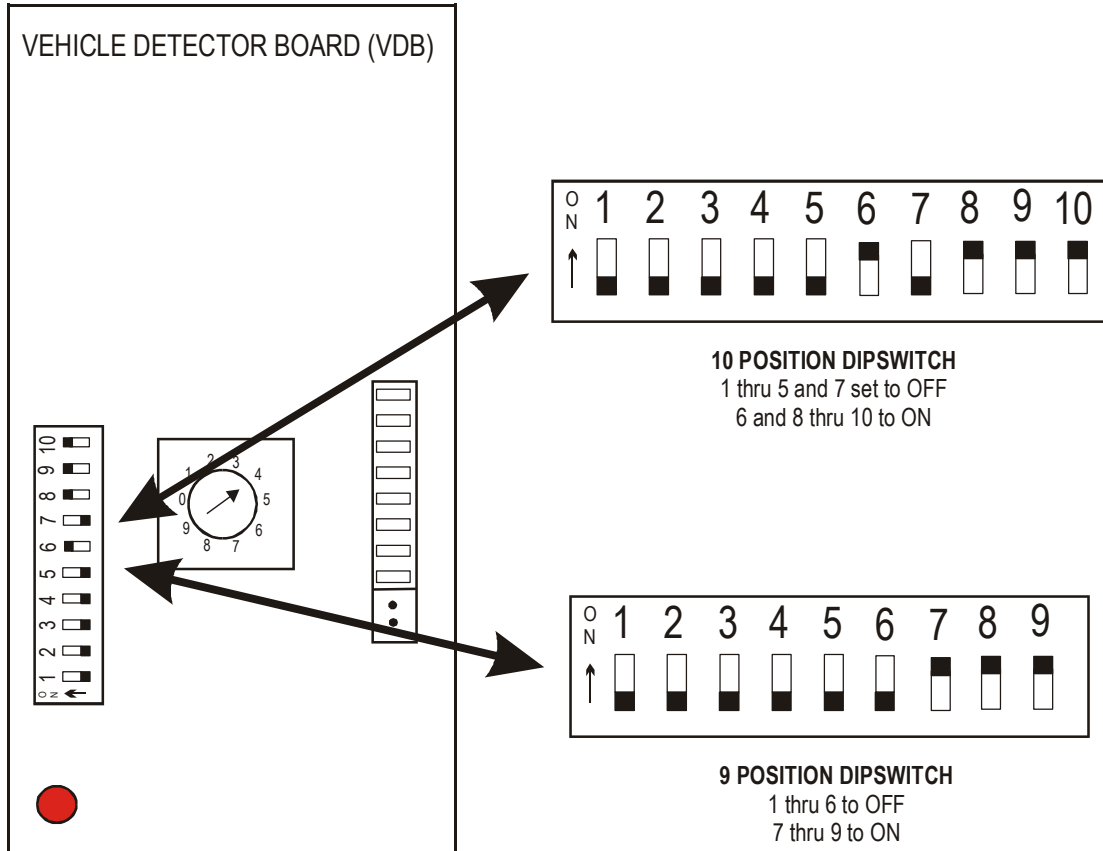


Figure 8-13. Connecting the Window Loop to the Vehicle Detector Board



**NOTE:** DIPSWITCH SETTINGS ARE FACTORY CONFIGURED AND SHOULD REQUIRE NO CHANGE.

Figure 8-14. Checking the Vehicle Detector Board Dip Switch

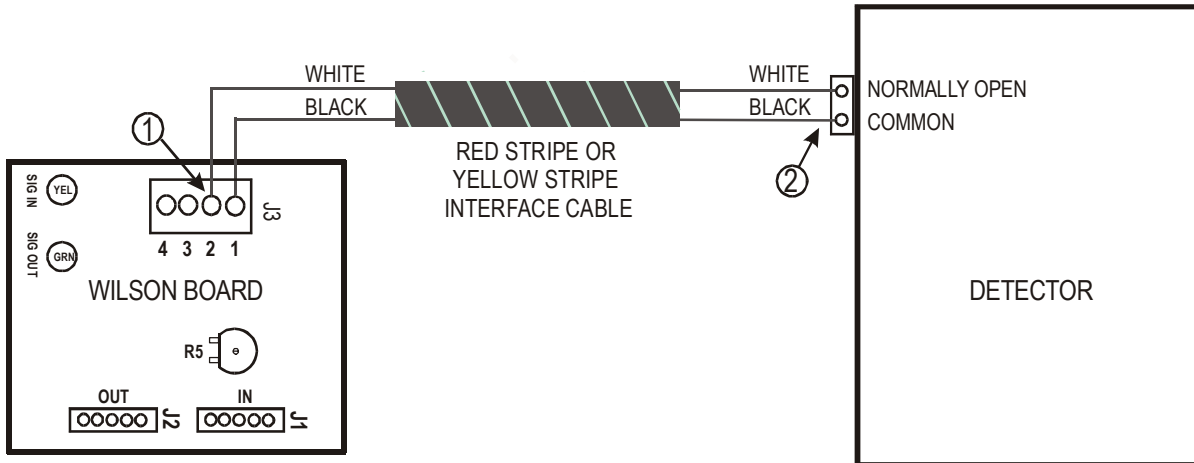
## 8-2.15 Interfacing with a Sonar or IR Detector for Window Detection

(See Figure 8-15)

**IMPORTANT:** ❶ ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

❷ GROUND LOOPS ARE THE MOST RELIABLE METHOD OF VEHICLE DETECTION. *PHASE RESEARCH* RECOMMENDS THE USE OF GROUND LOOPS RATHER THAN SONAR OR IR DETECTORS.

1. Use Yellow Stripe Loop Cable for the Cashier Window and/or Red Stripe Loop Cable for the Pick-Up Window.
2. Connect the black and white wires from the Red Stripe or Yellow Stripe Loop Cable to pins 1 and 2 of connector J3 of the Wilson Board located in the Main Console.
3. Connect the black wire from the Red Stripe or Yellow Stripe Loop Cable to the C (common) terminal of the Sonar or IR Detector. Connect the white wire from the Red Stripe or Yellow Stripe Loop Cable to the NO (normally open) terminal of the Sonar or IR Detector.



Use Yellow Stripe Loop Cable for cashier window and/or Red Stripe Loop Cable for pick-up window.

- ① Connect black and white wires from the Red Stripe or Yellow Stripe Loop Cable to pins 1 and 2 of J3 connector on the Wilson Board.
- ② Connect black wire from the Red Stripe or Yellow Stripe Loop Cable to the C (common) terminal of the Sonar or IR Detector. Connect the white wire from the Red Stripe or Yellow Stripe Loop Cable to the NO (normally open) terminal of the Sonar or IR Detector.

**CAUTION**

ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

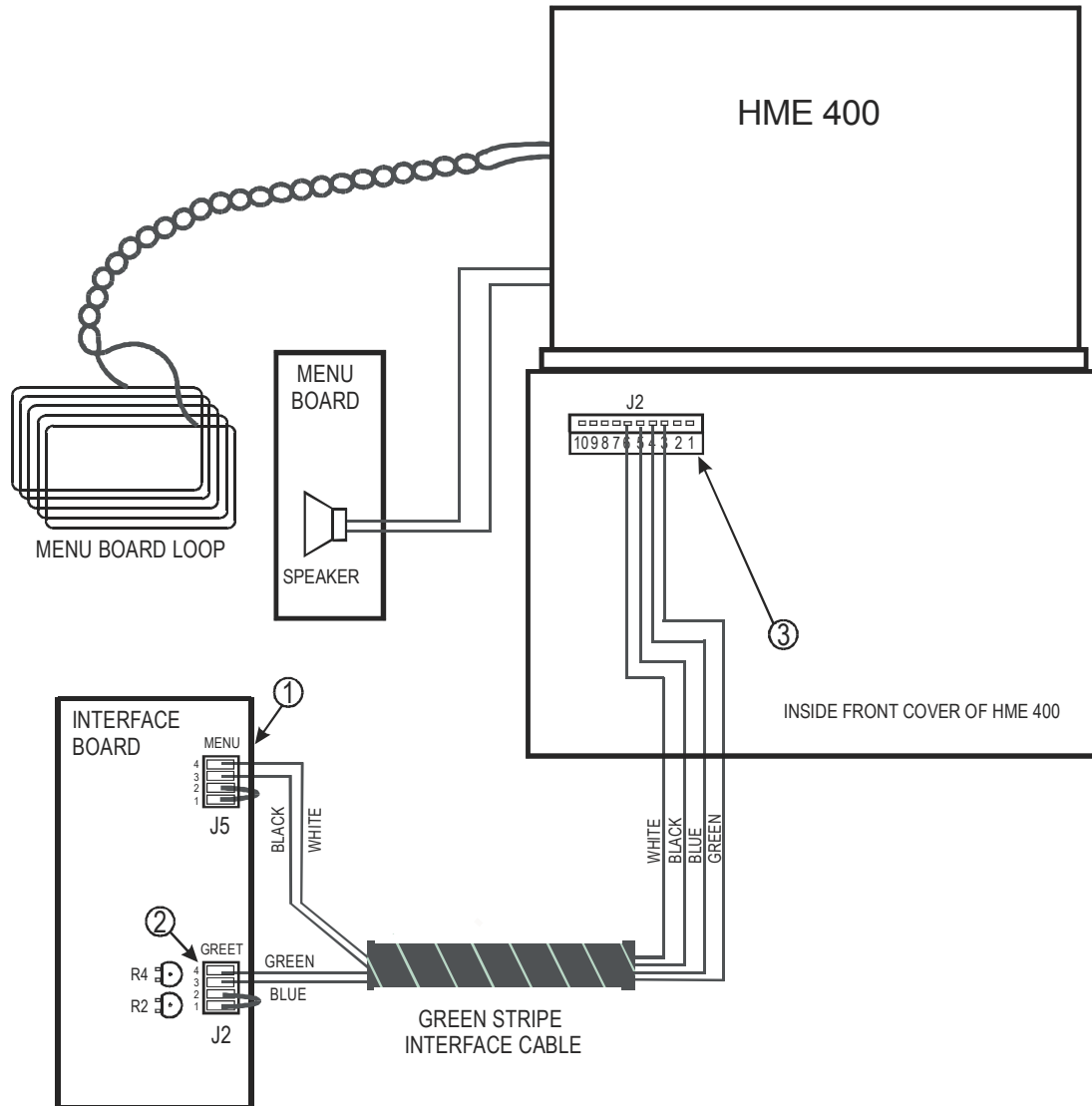
Figure 8-15. Interfacing with a Sonar or IR Detector

## 8-2.16 Interfacing with the HME 400

*(See Figure 8-16)*

**IMPORTANT:** ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

1. Connect the white and black wires from the Green Stripe Interface cable to pins 4 and 3 of connector J5 of the Interface Board located in the Main Console.
2. Connect a jumper wire between pins 1 and 2 of connector J5.
3. Connect the green and blue wires from the Green Stripe Interface cable to pins 4 and 3 of connector J2 of the Interface Board.
4. Connect a jumper wire between pins 1 and 2 of connector J2.
5. Connect the green, blue, black, and white wires from the Green Stripe Interface Cable to pins 3, 4, 5, and 6 of J2 terminal board of the HME 400 System.



- ① At the Interface Board, connect white and black wires from the Green Stripe Interface Cable to pins 4 and 3 of J5 connector. Connect a jumper wire between pins 1 and 2 of J5 connector.
- ② At the Interface Board, connect green and blue wires from the Green Stripe Interface Cable to pins 4 and 3 of J2 Connector. Connect a jumper wire between pins 1 and 2 of J5 connector.
- ③ At the HME 400, connect green, blue, black, and white wires from the Green Stripe Interface Cable to pins 3, 4, 5, and 6 of J2 connector.

**CAUTION**

ALL WIRE-TO-WIRE CONNECTIONS MUST BE SOLDERED. DO NOT USE WIRE NUTS. ALL WIRE ENDS TO TERMINAL BLOCKS MUST BE TINNED. FAILURE TO SOLDER WIRE CONNECTIONS AND TO TIN WIRE ENDS TO TERMINAL BLOCKS CAN ULTIMATELY RESULT IN A MALFUNCTION.

**Figure 8-16. Interfacing with the HME 400**

## SECTION 9 - POWER UP AND TESTING

### 9-1 General

This section provides instructions for powering up and testing the Fast Track 2+2/386 2000 Series Timer.

### 9-2 Check Wiring

1. Check that each cable connection has been installed as shown in Section 8.
2. Check that all wire-to-wire connections are soldered and insulated with heat-shrink tubing and that no wire nuts have been used.

### 9-3 Power Up

**NOTE:** Refer to the *User Guide* for information pertaining to screen displays and initial operation.

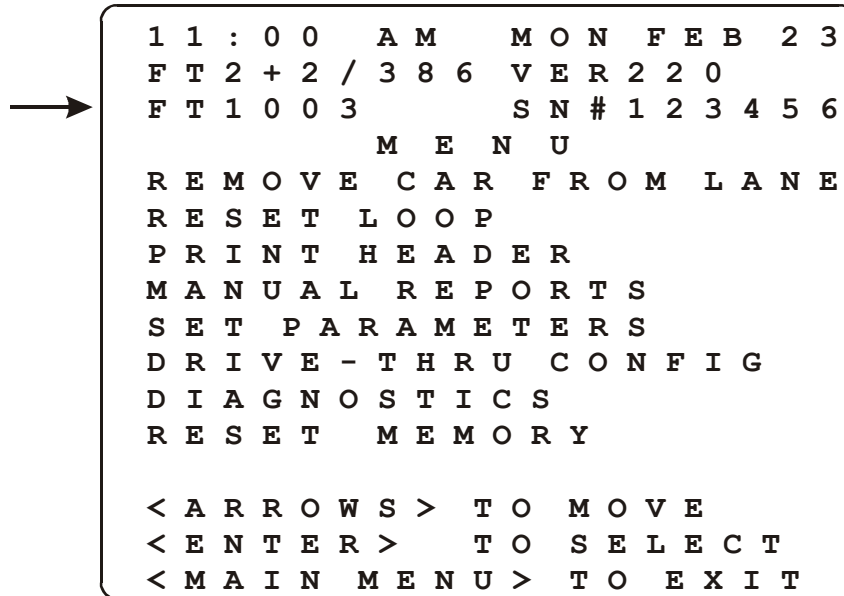
1. Plug in power transformer to Main Console.
2. The Main Console LCD display turns on and displays a boot screen.
3. The printer line then prints THERMAL PRINTER READY, MEMORY VALID, the time, day, and date, and POWER ON RESET.
4. The L3 and L4 (also L7 and L8 if a two lane drive-thru) may light. This is ok.
5. The Remote Display(s) display their address setting, beeps 10 times as the Display counts down from 9:99 to 0:00, and finally displays only a colon (:). No colon is displayed on a Seconds Only Display.
6. If the Pick-Up Loop is activated (L4 lights), the Remote Display(s) might start counting up. This is ok.
7. If the Timer does not function properly, unplug the power transformer and recheck all wiring. If necessary, contact *Phase Research* technical support at 1-800-858-1320.

## 9-4 Changing the Configuration Setting

If the configuration of a drive-thru is known at the time of purchase of a timer, that configuration will be loaded into the timer. If the drive-thru configuration is not known, the standard default configuration, FT2002, will be loaded into the timer. The Timer drive-thru configuration can be changed with a few simple keystrokes from the activity screen. To change the configuration setting in the Timer proceed as follows:

1. Press <MAIN MENU>
  2. Press <ARROW> to move to drive-thru configuration
  3. Press <DISPLAY MODE>
- At this point, a TECH CODE is required to proceed. A list of defaults will appear. The letters indicate the store type.
    - WDS = Wendy's
    - FT = Generic
    - KFC = Kentucky Fried Chicken
    - THD = Tim Horton Doughnuts
  - The numbers indicate the drive-thru configuration.
    - 2002 = 1 window full line timer
    - 2003 = 2 window full line timer
  - SET DEFAULTS
    - WDS2002
    - WDS2003
    - FT2002
    - FT2003
    - KFC2003
    - THD2002
    - THD2003

4. Use <ARROWS> to select the desired default
  5. Press <ENTER> to load the desired default
- At this point, the unit is loading the default. The screen will revert back to the MENU screen. Your new default selection will be displayed on the 3rd line down from the top.



```
1 1 : 0 0   A M   M O N   F E B   2 3
F T 2 + 2 / 3 8 6   V E R 2 2 0
F T 1 0 0 3           S N # 1 2 3 4 5 6

           M E N U
R E M O V E   C A R   F R O M   L A N E
R E S E T   L O O P
P R I N T   H E A D E R
M A N U A L   R E P O R T S
S E T   P A R A M E T E R S
D R I V E - T H R U   C O N F I G
D I A G N O S T I C S
R E S E T   M E M O R Y

< A R R O W S >   T O   M O V E
< E N T E R >     T O   S E L E C T
< M A I N M E N U > T O   E X I T
```

- Your new default setting is now loaded.

## SECTION 10 - UPGRADING A FAST TRACK 2+2 DRIVE-THRU TIMER

### 10-1 General

This section provides instructions for upgrading a Fast Track 2+2 Drive-Thru Timer to a Fast Track 2+2/386 2000 Series Timer.

### 10-2 Upgrade Procedure

#### 10-2.1 Save Data from Fast Track 2+2 Drive-Thru Timer (your current unit)

1. Run printed reports of all data stored in Fast Track 2+2 Drive-Thru Timer.
2. If the Timer is connected to a PC with Fast Track Download Software, download all data from the Timer to the PC. If the Timer has a modem connected to the RS-232 port, make arrangement with the office to poll the Timer.

#### 10-2.2 Remove Main Board from the Main Console

1. Unplug power to the Main Console from the 115 Vac wall outlet.
2. Remove six case screws securing the Main Console panel, **leaving the two bottom front case screws in place as shown in Figure 7-2.** The two remaining screws allow the panel to be opened down and supported by the remaining screws.

**IMPORTANT:** **DO NOT REMOVE THE TWO BOTTOM FRONT SCREWS. REMOVING ALL SCREWS WILL ALLOW THE PANEL TO DANGLE FROM THE SUB-ASSEMBLY WIRING AND WILL VOID THE WARRANTY.**

3. Newer models, Serial Nos. 6000 and up, have a line filter in series between the pluggable transformer connection and the Main Board connection. The transformer needs to be unplugged from the line filter and the line filter needs to be unplugged from the Main Board. Older models, Serial Nos. 5999 and previous, have no line filter and the transformer is connected directly to TB1 with screw terminals (there is no pluggable connection at TB1). A Phoenix connector, which mates with the pluggable connector, on the new 386 Main Board will be supplied with the new 386 Main Board when it is to upgrade an older model Main Console.
4. Disconnect the Blue Stripe Remote Display Cable from the Remote Display(s) from the TB3 connector located on the Main Board. The TB3 is a pluggable Phoenix connector. Some older units do not have a Phoenix connector and individual wires will have to be disconnected.

5. Unplug all harness connectors from the Main Board, carefully noting their precise location (connector) on the board from which they are removed. (*Hint: As you will need this information to install the new Main Board, you may want to tag the harness connectors to make certain you remember their exact locations.*)
6. Remove 10 screws securing the Main Board to the Main Console panel (nine behind the keyboard and one at the heatsink).

**IMPORTANT:** TAKE CARE WHEN REMOVING THE MAIN BOARD NOT TO DISTURB THE KEYBOARD KEYS. IF THE KEYS ARE NOT CENTERED EXACTLY, THEY WILL NOT OPERATE CORRECTLY.

7. Carefully remove the Main Board taking care not to disturb the keyboard keys.
8. Visually check the position of each keyboard key to make sure it is centered properly.

**IMPORTANT:** IN ORDER TO RECEIVE FULL CREDIT, TAKE CARE NOT TO DAMAGE THE MAIN BOARD WHEN REMOVING AND PACKING FOR SHIPMENT TO *PHASE RESEARCH*.

9. Set the Main Board in a safe location until it can be repackaged for shipment to *Phase Research*.

### 10-2.3 Install the New Main Board (Fast Track 2+2/386) into the Main Console

(See Wiring Diagram in Section 11)

**NOTE:** The following instructions assume that the Main Console contains one Interface Board, two Vehicle Detector Boards (one for the Cashier Window and one for the Pick-Up Window), and a Thermal Printer.

1. Carefully unpack the new Main Board from the packing box. Retain the packing box for shipping the old Main Board back to *Phase Research*.
2. Remove the screw and nut securing the heatsink and retain the screw for later use (the screw and nut are both used to secure the heatsink during shipment, but only the screw is used in the installation of the Main Board).

**IMPORTANT:** TAKE CARE WHEN REPLACING THE NEW MAIN BOARD NOT TO DISTURB THE KEYBOARD KEYS. IF THE KEYS ARE NOT CENTERED EXACTLY, THEY WILL NOT OPERATE CORRECTLY.

3. Carefully position the new Main Board on the Main Console panel taking care to properly and carefully connect the edge connector to the Thermal Printer Board and not to disturb the keyboard keys.

4. Secure Main Board to panel with the nine screws located behind the keyboard. Install the heatsink in place and secure with the tenth screw.
5. Temporarily close the Main Console panel and push each keyboard key to check for proper feel and operation. You should be able to feel each key click into place when pressed.
6. If any key does not operate correctly, remove the Main Board and reposition that key, then repeat steps 3 through 5. When all keys operate correctly, proceed with step 7.
7. Reconnect all harnesses and connectors/cables on the new Fast Track 2+2/386 Main Board, making sure they are in precisely the same locations (connectors) as those that were on the old Main Board (only Wendy's Main Board Locations will be different).
8. Carefully check that all cables are connected as shown in the Wiring Diagram.
9. Plug the power plug (from the power transformer) at JP1 connector located on the Main Board.
10. Close the Main Console panel and secure with panel screws.
11. Fasten the furnished FCC label to the top of the Main Console.
12. Check for proper operation as directed in Section 9.

#### **10-2.4 Return the old Main Board to Phase Research**

**IMPORTANT:** IN ORDER TO RECEIVE FULL CREDIT, TAKE CARE NOT TO DAMAGE THE MAIN BOARD WHEN REMOVING AND PACKING FOR SHIPMENT TO *PHASE RESEARCH*.

1. Using the packing materials retained from the new Fast Track 2+2/386 Main Board, carefully pack the old Main Board and place it into the packing box.
2. Make sure the board is placed properly in the packing box to protect it from shipping damage. Make sure sufficient packing material is used to prevent movement during shipping.
3. Affix the pre-addressed label, which is provided by *Phase Research*, to the box. Ship the box, prepaid, to *Phase Research* at the following address:

Phase Research  
3500 W. Moore Avenue, Suite M  
Santa Ana, CA 92704

## SECTION 11 - REFERENCE DIAGRAMS AND WORKSHEETS

### 11-1 General

This section provides reference diagrams useful during installation of the Fast Track 2+2/386 2000 Series Timer. This section also provides sample Set Parameters Worksheets.

### 11-2 Diagrams

- Main Console Wiring Diagram: This diagram shows the proper connections for the cabling to the various circuit boards contained in the Timer's Main Console.
- Mounting Template for the Main Console: This template can be used for drilling and installing the four screws required to mount the Main Console to a wall or cabinet.

### 11-3 Worksheets

This section provides sample Set Parameters Worksheets, it also provides blank copies of these worksheets for printing purposes. Actual entries will differ from store to store depending upon their targets, shift times, etc.

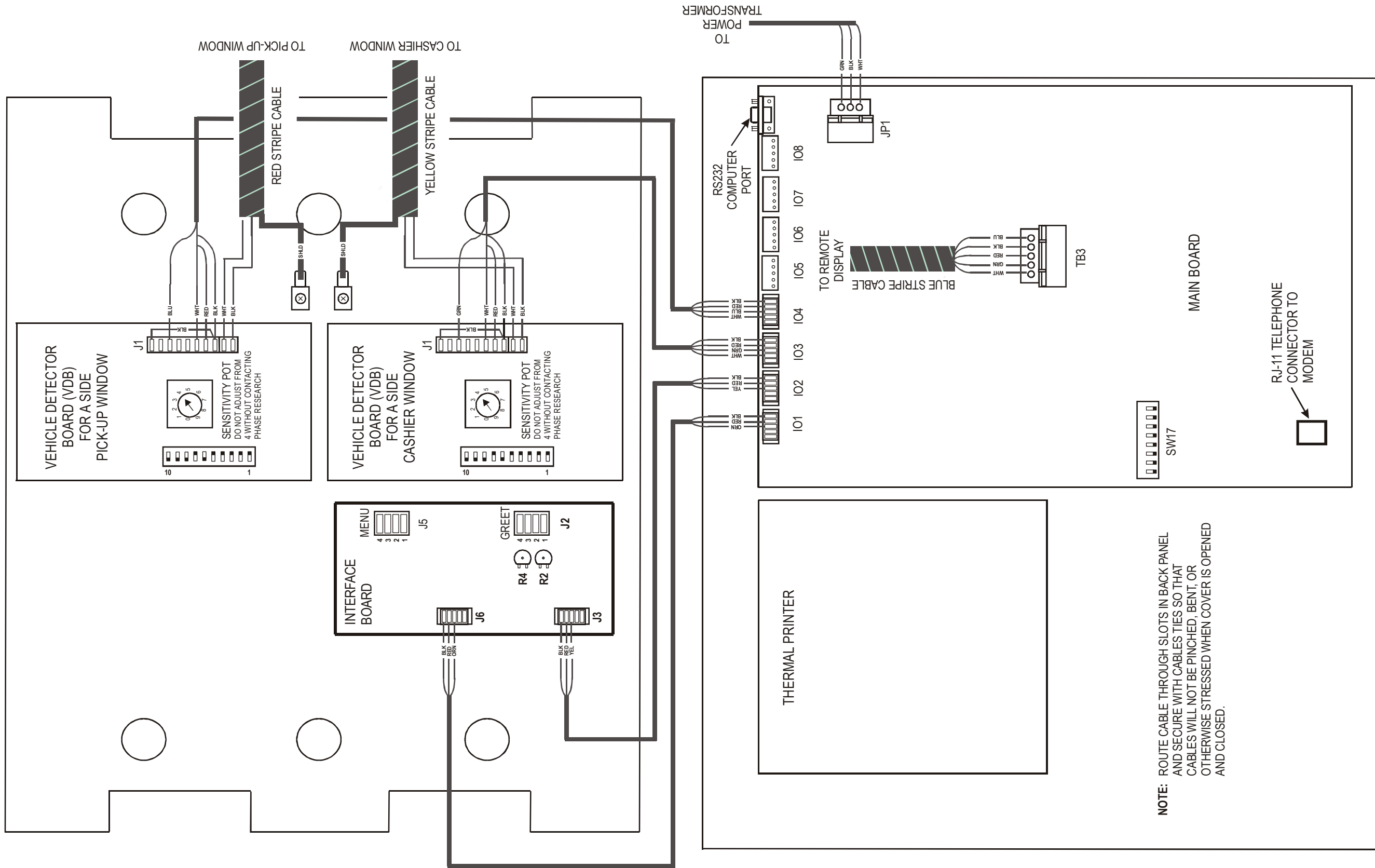


Figure 11-1. Fast Track 2+2/386 Main Console Wiring Diagram

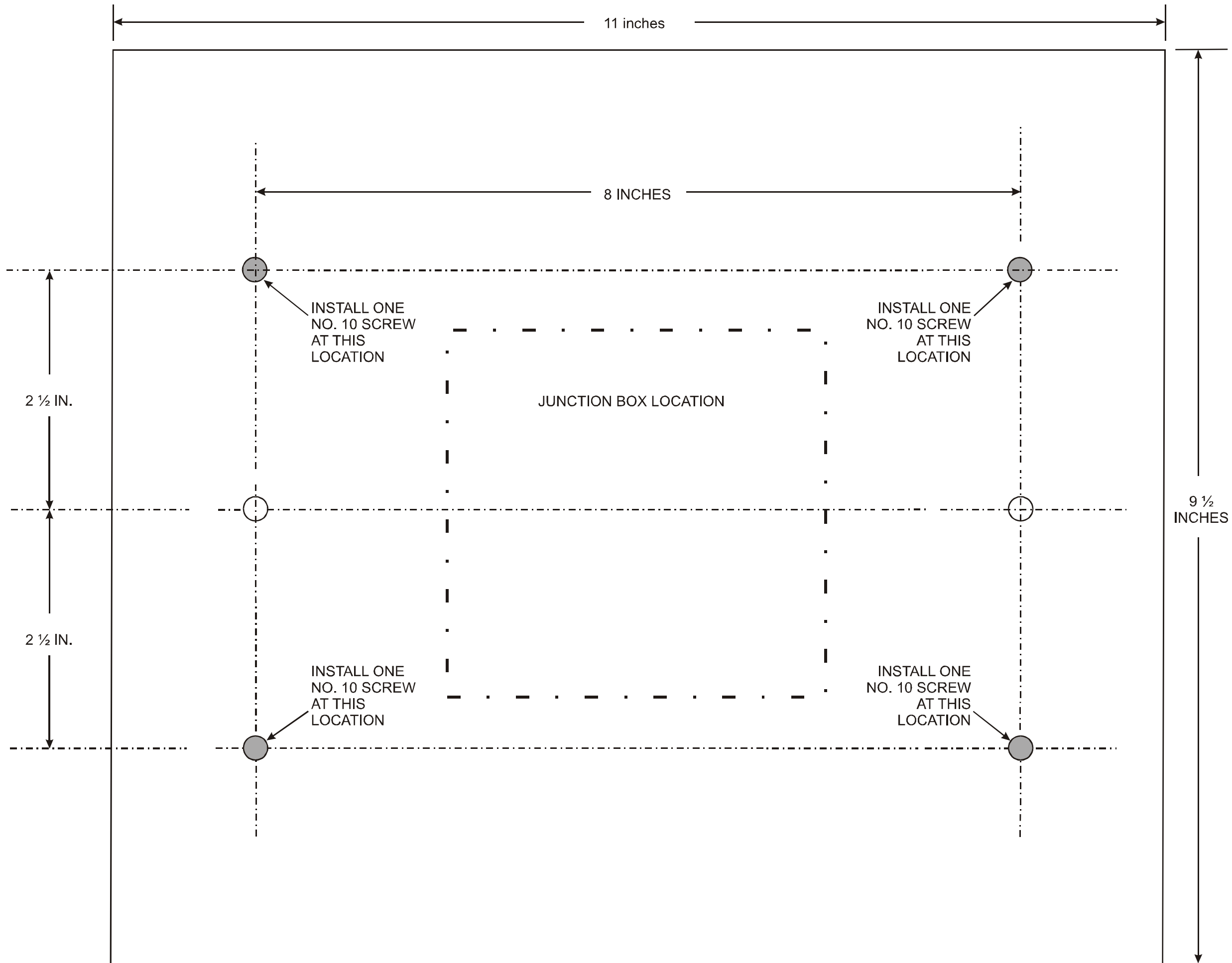


Figure 11-2. Main Console Mounting Template

# SET PARAMETERS WORKSHEETS

## SET PARAMETERS WORKSHEET SAMPLE

Sheet 1

### Store Header

Store: **FAST BURGER**  
 Number: **1234**  
 Manager: **JONES**  
 Phone: **(123) 456-7889**  
 City: **ANY TOWN**  
 State: **CA**

### STORE HOURS

1<sup>st</sup> day of week: MON

	OPEN	-	CLOSE
SUN	<u>6:00AM</u>	-	<u>1:00AM</u>
MON	<u>6:00AM</u>	-	<u>1:00AM</u>
TUE	<u>6:00AM</u>	-	<u>1:00AM</u>
WED	<u>6:00AM</u>	-	<u>1:00AM</u>
THU	<u>6:00AM</u>	-	<u>1:00AM</u>
FRI	<u>6:00AM</u>	-	<u>1:00AM</u>
SAT	<u>6:00AM</u>	-	<u>1:00AM</u>

### DAYPARTS

	START	-	STOP
1	<u>6:00AM</u>	-	<u>10:30AM</u>
2	<u>10:30AM</u>	-	<u>1:00PM</u>
3	<u>1:00PM</u>	-	<u>5:00PM</u>
4	<u>5:00PM</u>	-	<u>8:00PM</u>
5	<u>8:00PM</u>	-	<u>1:00AM</u>
6		-	
7		-	
8		-	

### SHIFTS

	START	-	STOP
1	<u>6:00AM</u>	-	<u>4:00PM</u>
2	<u>4:00PM</u>	-	<u>1:00AM</u>
3		-	
4		-	

### PRINTER OPTIONS

	RT	DA	WK	MO
Hour	<u>X</u>			
Daypart	<u>X</u>		<u>X</u>	<u>X</u>
Shift	<u>X</u>			
Daily		<u>X</u>	<u>X</u>	<u>X</u>

Report @ CLOSE + 00:15 or  
time=

Header	<u>ON</u>	PEC	<u>OFF</u>
Targets	<u>ON</u>	AUTO	<u>ON</u>

### Remote Display

Remote #1	<u>A</u>	<u>WINDOW</u>
Remote #2	<u>A</u>	<u>TOTAL</u>
Remote #3		
Remote #4		
Remote #5		
Remote 80%		

Flash avg DAILY

## SET PARAMETERS WORK SHEET SAMPLE

Sheet 2

Target= A MENU  
 BEEP ON ARRIVAL= NO

	Time	B	P
A <=	<u>:30</u>	<u>1</u>	<u>N</u>
B <=	<u>:45</u>	<u>2</u>	<u>N</u>
C <=	<u>1:00</u>	<u>3</u>	<u>N</u>
D <=	<u>1:30</u>	<u>4</u>	<u>N</u>
F >	<u>1:30</u>	<u>2</u>	<u>N</u>
F Repeat @	<u>30</u>	SEC	

Target= A GREET  
 BEEP ON ARRIVAL= NO

	Time	B	P
A <=	<u>:04</u>	<u>0</u>	<u>N</u>
B <=	<u>:07</u>	<u>0</u>	<u>N</u>
C <=	<u>:10</u>	<u>0</u>	<u>N</u>
D <=	<u>:10</u>	<u>0</u>	<u>N</u>
F >	<u>:10</u>	<u>0</u>	<u>N</u>
F Repeat @	<u>OFF</u>	SEC	

Target= A WINDOW  
 BEEP ON ARRIVAL= NO

	Time	B	P
A <=	<u>:30</u>	<u>1</u>	<u>N</u>
B <=	<u>:45</u>	<u>2</u>	<u>N</u>
C <=	<u>1:00</u>	<u>3</u>	<u>N</u>
D <=	<u>1:30</u>	<u>4</u>	<u>N</u>
F >	<u>1:30</u>	<u>2</u>	<u>N</u>
F Repeat @	<u>30</u>	SEC	

Target= A TOTAL  
 BEEP ON ARRIVAL= NO

	Time	B	P
A <=	<u>1:30</u>	<u>1</u>	<u>N</u>
B <=	<u>1:45</u>	<u>2</u>	<u>N</u>
C <=	<u>2:00</u>	<u>3</u>	<u>N</u>
D <=	<u>2:30</u>	<u>4</u>	<u>N</u>
F >	<u>2:30</u>	<u>2</u>	<u>Y</u>
F Repeat @	<u>30</u>	SEC	

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A <=	_____	_____	_____
B <=	_____	_____	_____
C <=	_____	_____	_____
D <=	_____	_____	_____
F >	_____	_____	_____
F Repeat @	_____	SEC	

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A <=	_____	_____	_____
B <=	_____	_____	_____
C <=	_____	_____	_____
D <=	_____	_____	_____
F >	_____	_____	_____
F Repeat @	_____	SEC	

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A <=	_____	_____	_____
B <=	_____	_____	_____
C <=	_____	_____	_____
D <=	_____	_____	_____
F >	_____	_____	_____
F Repeat @	_____	SEC	

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A <=	_____	_____	_____
B <=	_____	_____	_____
C <=	_____	_____	_____
D <=	_____	_____	_____
F >	_____	_____	_____
F Repeat @	_____	SEC	

## SET PARAMETERS WORKSHEET

**Store Header**

Store: \_\_\_\_\_  
 Number: \_\_\_\_\_  
 Manager: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 City: \_\_\_\_\_  
 State: \_\_\_\_\_

**STORE HOURS**

1<sup>st</sup> day of week: \_\_\_\_\_

	OPEN	-	CLOSE
SUN	_____	-	_____
MON	_____	-	_____
TUE	_____	-	_____
WED	_____	-	_____
THU	_____	-	_____
FRI	_____	-	_____
SAT	_____	-	_____

**DAYPARTS**

	START	-	STOP
1	_____	-	_____
2	_____	-	_____
3	_____	-	_____
4	_____	-	_____
5	_____	-	_____
6	_____	-	_____
7	_____	-	_____
8	_____	-	_____

**SHIFTS**

	START	-	STOP
1	_____	-	_____
2	_____	-	_____
3	_____	-	_____
4	_____	-	_____

**PRINTER OPTIONS**

	RT	DA	WK	MO
Hour	_____			
Daypart	_____			
Shift	_____			
Daily	_____			

Report @ **CLOSE +** \_\_\_\_\_ or  
**time=** \_\_\_\_\_

Header \_\_\_\_\_ PEC \_\_\_\_\_  
 Targets \_\_\_\_\_ AUTO \_\_\_\_\_

**Remote Display**

Remote #1 \_\_\_\_\_  
 Remote #2 \_\_\_\_\_  
 Remote #3 \_\_\_\_\_  
 Remote #4 \_\_\_\_\_  
 Remote #5 \_\_\_\_\_  
 Remote \_\_\_% \_\_\_\_\_

Flash avg \_\_\_\_\_

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A	<= _____	_____	_____
B	<= _____	_____	_____
C	<= _____	_____	_____
D	<= _____	_____	_____
F	> _____	_____	_____
F Repeat	@ _____	SEC	_____

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A	<= _____	_____	_____
B	<= _____	_____	_____
C	<= _____	_____	_____
D	<= _____	_____	_____
F	> _____	_____	_____
F Repeat	@ _____	SEC	_____

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A	<= _____	_____	_____
B	<= _____	_____	_____
C	<= _____	_____	_____
D	<= _____	_____	_____
F	> _____	_____	_____
F Repeat	@ _____	SEC	_____

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A	<= _____	_____	_____
B	<= _____	_____	_____
C	<= _____	_____	_____
D	<= _____	_____	_____
F	> _____	_____	_____
F Repeat	@ _____	SEC	_____

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A	<= _____	_____	_____
B	<= _____	_____	_____
C	<= _____	_____	_____
D	<= _____	_____	_____
F	> _____	_____	_____
F Repeat	@ _____	SEC	_____

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A	<= _____	_____	_____
B	<= _____	_____	_____
C	<= _____	_____	_____
D	<= _____	_____	_____
F	> _____	_____	_____
F Repeat	@ _____	SEC	_____

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A	<= _____	_____	_____
B	<= _____	_____	_____
C	<= _____	_____	_____
D	<= _____	_____	_____
F	> _____	_____	_____
F Repeat	@ _____	SEC	_____

Target= \_\_\_\_\_  
 BEEP ON ARRIVAL= \_\_\_\_\_

	Time	B	P
A	<= _____	_____	_____
B	<= _____	_____	_____
C	<= _____	_____	_____
D	<= _____	_____	_____
F	> _____	_____	_____
F Repeat	@ _____	SEC	_____



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## PHASE RESEARCH

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