



SECTION 5 - MERIDIA STARTUP PROCEDURES With Motor Generator Set

Machine Room Preparations

FIELD WIRING CHECK

1. Verify Mainline disconnect is in the off position and properly locked out.
2. Verify all the circuit breakers on the front panel (located at the top of the controller) are in the off position. [See Figure 3-1.]

Meridia Circuit Breakers

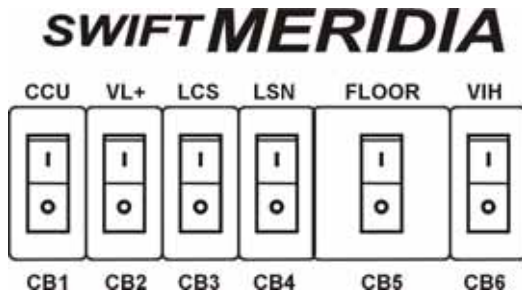


Figure 5-1

3. Turn the Inspection switch to the **ON** position.
4. Verify Door Bypass switches are in the **OFF** position.
5. Verify that the following field wires are connected as described in the Installation portion of this manual.
 - A. **Power wiring to the controller:** The power wiring can be a 2, 3 or 4 circuit configuration, depending on the drive system that is supplied.
 - 1) An independent, single-phase supply for the cab lighting circuit is the first circuit common to all drive types.



Warning! The MERIDIA controller transformer is not designed to support cab lighting and cab ventilation. Using the MERIDIA 120 VAC control circuits in this manner may cause permanent damage to the main controller transformer.

- 2) An independent, emergency backed, single-phase 120 VAC circuit is common to all drive types (for the first controller of each group only) [See Figure 3-2.]

Hall Call Power Circuit

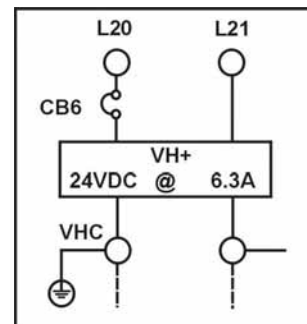


Figure 5-2

- 3) The third circuit is a separate fused circuit from the primary side of the power transformer terminals L1 and L2 to the FP1 fuse block on the drive side of the controller. [See Figure 5-4.]

Controller Power Circuit

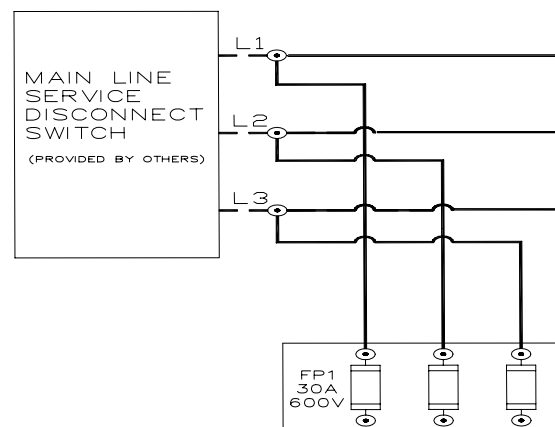


Figure 5-4

Note: All wire sizes are to be in accordance to the National Electrical Code.



B. Governor Wiring two 18 gauge wires are required from the electrical safety switch on the governor to the controller. See [Figure 5-9.]

Governor Wiring

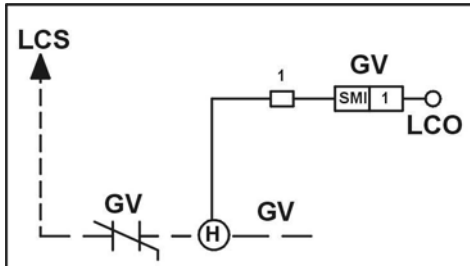


Figure 5-9

VERIFYING CIRCUIT RESISTANCES

1. Check the brake coil:
 - A. Disconnect the brake coil leads (BK- & BK+).
 - B. With an ohmmeter, measure the coil resistance and verify it matches the value given on the wiring diagram power distribution page. Note this value.
 - C. Next measure the brake coil leads to ground and verify that neither brake lead is grounded.
2. Disconnect Motor Field Leads. With an ohmmeter measure the motor leads at the controller to ensure the motor is not grounded. Record this value. Verify the motor field is wired in the proper. See Notes page on the wiring diagrams for details.

JUMPER CONFIGURATION

Install the following jumpers to bypass these circuits that may not be installed at this time. [See Table A.]

Temporary Jumpers					
Circuit	From	To	Circuit	From	To
UP Normal Limit	LCS	UNL	Car Gate	GLT	CG
DN Normal Limit	LCS	DNL	Front Locks	GLT	DL
Governor	LCS	GV	Group Power	V+	VG+

Hoistway Safeties	GV	HS	Group Common	VC	VGC
Car Safeties	HS	ICS	Normal Power	VG+	NP
Car Insp. Switches	ICS	II	Drive Switch	V+	DRVS
Rear Gate	GLT	RCG	Rear Locks	RDL	GLT
Panel test operation	TIC	TIA			

Table A

Warning!



These jumpers are only temporary and must be removed as the circuits are installed. Never operate a car at high speed with door and safety related circuit jumpers still installed.

AC VOLTAGE AND SWITCH TEST

1. With the controller circuit breakers off, turn on the mainline disconnect and verify the building 3 phase is within 10% of what is noted on the wiring diagrams.
2. Verify that the voltages across the bottom of the FP1 fuses are the same as the building 3 phase voltage noted in Step 1.
3. Verify the voltage is within 10% at the T1 controller transformer located behind the logic door. See wiring diagrams for proper voltages.

115VAC from X0 to X1, X0 to X2, and X0 to X3 at the T1 transformer.

115VAC from Z1 to Z2 at the T1 transformer.

115VAC from Y1 to Y2 at the T1 transformer.

CIRCUIT BREAKER & POWER VERIFICATION

1. Turn on CB3 and verify there is 115VAC between LCS & LCO.
2. Make sure there is 115VAC from X0 to L11, X0 to L12, and X0 to L13 terminals. Standby voltage as indicated on the Power Control Schematic for motor field terminals MF+ to MF-.
3. Turn on CB4 and verify there is 115VAC between LSN & LCO.



4. Turn on CB5 and verify there is the proper voltage for the door operator. See wiring diagrams for details.
5. Turn on CB1 and verify the following.
 - A. The CCU V+ LED should be lit and the display active. Disregard any other LEDs.
 - B. Only the +/-15 volt power indicator LED and the triggering oscillator LED (OSC) must be illuminated on the REG board.
 - C. Ensure that the "CEN" (Control Enable) relay is energized. (If it is not, refer to the schematics.)
 - D. The processor will turn on the 'GEN' output as long as the following inputs are energized: NP (Normal Power), DRVS (Drive Switch), DF (Drive Fault), GV,HS, CS, and ICS.

WARNING: If the PF LED on the REG is lit, it indicates that a phase is missing or that the phase rotation is incorrect. The phase must be switched only at the FP main fuse block. Changing the phase rotation at the RTG board or at the SCR packs can damage the regulator board and the elevator equipment.

6. Turn off all circuit breakers and mainline disconnect.

PRELIMINARY ADJUSTMENTS

CAUTION: All preliminary adjustments on the REG board must be done with the car not running.

Regulator Board Preliminary Adjustments

Adjust the following pots on the REG board as indicated:

1. T—Tach Scaling: Turn fully counterclockwise.
2. R—Response: Turn fully counterclockwise, then 3 turns clockwise.
3. IR—Current Feedback: Turn fully counterclockwise.
4. LT—Linear Time: Turn fully clockwise.

CAUTION: No other pots on the regulator board should be adjusted or tampered with at this point.

CCU POWER-UP, INITIALIZATION

1. With the mainline disconnect switch on, turn on CB1.
2. Verify the CCU front panel V+ LED stays lit green and display is active. [See Figure 5-13.]

Note: First, the window will display the job number and the car number you are working on. Next, the window will display any Communication faults with the CCU devices. If the Car Top Box is not connected, a CTC fault will occur. Disregard any faults for devices that are not connected.

3. Press the <MENU> key on the CCU for accessing password menu. [See Figure 5-12.]

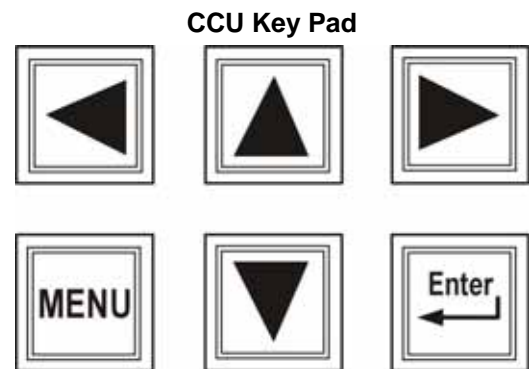


Figure 5-12

4. After reading the directions, enter the password "INSTALL" then press the <ENTER> key (the display should now show the main menu. If not, enter the password again).
 - A. Use the ▲▼ arrow keys to select the proper character. Starting with the ▼ (down) button will display the alphabetic characters first.
 - B. Use the ◀▶ arrow keys to move from one character to another.

Note: Do not press <ENTER> after each character. Only press the <ENTER> key after the last character has been selected for the password.



Display Menu (While Entering Password)

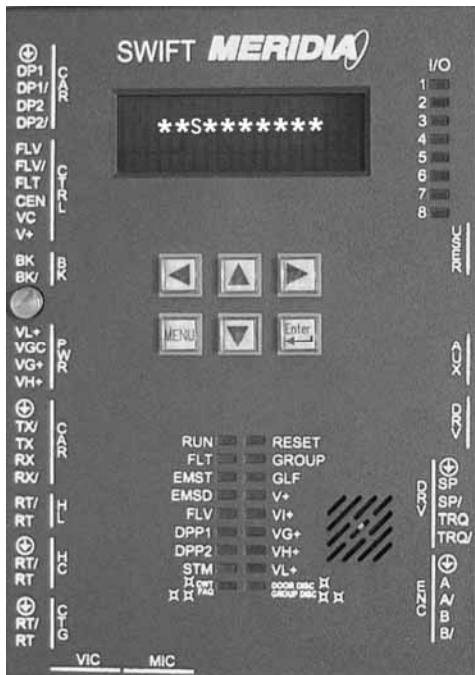


Figure 5-13

SETUP MODE AND WRT COMMAND

- Using the ▲▼ arrow keys scroll to **Car Control** and press <ENTER>.

Display Menu (While on Main Menu)

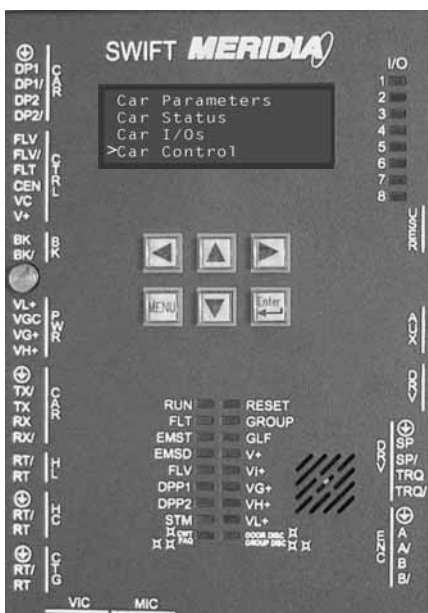


Figure 5-14

- Scroll down to **Set UP Mode Sel** (this mode allows you to move the car without the cartop devices installed) and press <ENTER>. This should start the STM LED to start flashing orange. [See Figure 3-15.]
- Press <MENU> button until you return to the Diagnostic Status Display.
- Verify CEN, DL and CG relays are energized.

Note: If CEN, DL and CG relays are not energized, check temporary jumpers and troubleshooting section of this manual.

Meridia CCU (While on Diagnostic Screen)

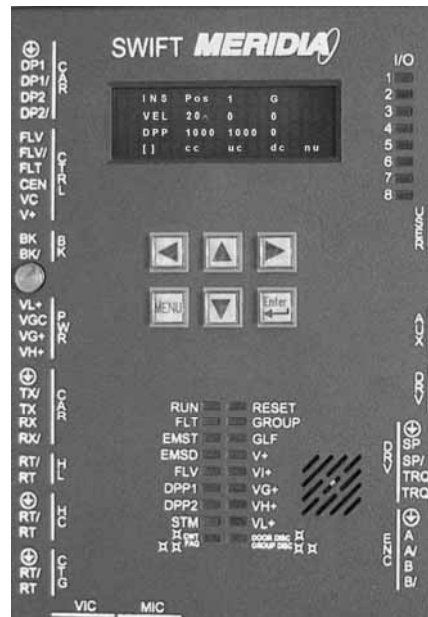


Figure 5-15

Parameter Adjustment

Note: To change a parameter value, use the arrow keys to scroll to the parameter desired. Press <ENTER>. This will cause the last digit of that value to blink. Use the ▲▼ keys to change this value. Use the ◀▶ keys to move from digit to digit. Press <ENTER> to save desired value.

Note: These changes are only saved and not written to flash memory until the WRT command has been selected under the Car Commands menu



1. Measure resistance between BR1 & BR2 with brake leads connected. Record this value for calculation of parameter BRR. (Brake Board located on Rear of Swing Door.)
2. Press <MENU> button until you get to Main Menu.
3. Scroll to **Car Parameters** and press <ENTER>.
4. Scroll to **Brake** and press <ENTER>.
5. Verify the parameters for the Brake Adjustments. [See Table B.]

Initial Brake Parameters

Parameter	Description
BMV=	Max AC Voltage. Refer to brake wiring diagrams.
BLV =	Brake Lift Voltage as shown in diagrams
BHV =	Brake Hold Voltage as shown in wiring diagrams.
BCL =	16
BLT =	1
BRR=	Brake coil resistance x 100 /(Resistance between Terminals BR1 & BR2 on Brake Regulator Board) <i>if applicable</i>

Table B

6. Press <MENU> once to return to the **Car Parameters** sub-menu.
7. Scroll to **Control** and press <ENTER>.
8. Set parameters listed in Table C.

Control Parameters

Parameter	Description
CCN =	car number in the group you are working on.
BED =	Building Elevator Number
RPM =	as per wiring diagrams power distribution page (top Speed RPM) (Note: Same as Drive A1 P11 motor speed)
PPR =	Per motor encoder name plate. (Note: Same as Drive P10 encoder pulses per

	revolution.)
SCT =	Set to 25
LAG =	Set to 15

Table C

9. Press the <MENU> key to return to Car Parameters sub-menu screen.
10. Scroll to **Pos** and press <ENTER>.
11. Verify the **DPF** parameter matches what is required for this job. Change as above if required. [See Table D]

DPF Requirements

Rail Encoder	DPF = 2552
Tape	DPF = 320
Governor Shaft Encoder	DPF = PPR/FPR
FPR = (Governor Sheave diameter* X 3.1416) / 12	
PPR = Encoder pulses per revolution on data tag.	

Table D (* in inches)

12. Press <MENU> and return to the sub-menu screen.
13. Scroll to **Vel** and press <ENTER>.
14. Set the **IVE** parameter to 20 and press <ENTER>.
15. Press <MENU> until you return to the Main Menu.
16. Scroll to **Car Hoistway** and press <ENTER>.
17. Temporarily set parameters **ESV**, **ETV**, and **TSV** to contract speed minus 10 fpm (feet per minute).
18. Press <MENU> until you return to the Main Menu.
19. Scroll to **Car Commands** and press <ENTER>.
20. Scroll down to **WRT** Command and press <ENTER>.



TACH VOLTAGE VERIFICATION

1. Set the voltmeter for DC voltage and place the positive lead on T+U and the negative lead on T-U terminals.
2. Turn the tach shaft in the direction that it will rotate if the car is moving up. The UT input will turn on. The voltage on the meter must be positive. (Refer to the print for module location).
3. Turn on the tach shaft in the direction that it will rotate if the car is moving down. The DT input will turn on. The voltage on the meter must be negative. (Refer to the print for module location).

MOTOR FIELD VERIFICATION

Refer to table E for Motor Field Verification.

1. Remove power to the motor fields.
2. Wait 10 seconds for the field current to dissipate, then remove one of the motor field leads from MF+ or MF-.
3. Measure the resistance of the motor fields with an ohm meter. The resistance must be equal to that indicated in the Power Control schematic. If the resistance is Different, the motor fields may need to be reconnected in either series or series-parallel configuration.
4. After all necessary reconnections have been made to the motor field circuit, turn the power back on.
5. Set the voltmeter for DC voltage and place the positive led on the MF+ terminal and the negative lead on MF- terminal. The voltage must be the **Standby** voltage indicated on the Power Control schematic.

MOTOR FIELD

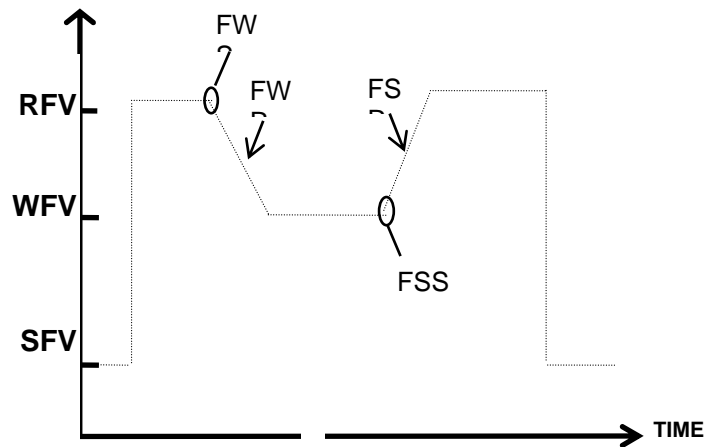


Fig 5-15

Adjustable Parameters

RFV	= Rated Field Voltage
WFV	= Weak Field Voltage
SFV	= Standby Field Voltage
FWR	= Field Weaken Rate (1/16 second)
FSR	= Field Strength Rate (1/16 second)
FWS	= Field Weaken Speed (fpm) Speed in fpm that field weaken starts.
FSS	= Field Strength Speed (fpm) Speed in fpm that field strengthen starts.
FLV	= Field Line Voltage
FBC	= Field Board Current Rating
MFC	= Minimum Field Current



Generator Verification

1. Turn off power to the controller and disconnect the DC loop circuit.
2. Remove a brake coil wire lead from either BK+ or BK- on brake controller.
3. Turn on the CB1 circuit breaker. (The SPU switch must be on.)
4. Place the positive lead of the meter on the GF+ terminal and the negative lead on the GF- terminal.
5. Monitor the DC voltage when pressing the UP inspection button. The panel switch must be on TEST. GF+ must be positive with respect to GF-.
6. Repeat the same procedure for the DN inspection button. GF+ must be negative with respect to GF-. The polarity of the voltage of the generator shunt fields (GF+ to GF-) must be the same as the speed reference voltage on the REG board, test point SR to common. If the voltage polarity is incorrect on the generator shunt fields, the cause is either an incorrect polarity from the speed reference, or a reverse wire connection on GF+ to GF-.
7. Place the positive lead of the meter on G+U and the negative lead on GC terminals. The interpole reference G-U should not be connected at this point.
8. Push the Up inspection button. G+U must be positive with respect to GC.
9. Repeat the same procedure for the DN inspection button. G+U must be negative with respect to GC. If the polarities are opposite, reverse the G+U and GC feedback wires.
10. Turn off power to the controller. Reconnect the DC loop circuit and the brake coil wire.
11. Apply power to the controller and press the UP inspection button for a couple of seconds (inching operation).

12. Verify that the rotation of the hoist motor is correct, and that the tach feedback voltage is positive on T+U to T-U.

CAUTION Before proceeding, ensure that all of the following are positive for the up direction of movement: G+U with respect to GC, T+U with respect to T-U, GF+ with respect to GF-, and SR with respect to common (▽).

Regulator Inspection Adjustments

CAUTION: The following adjustment procedure must be done with an empty car.

NOTE: Refer to Human Interface, for comprehensive descriptions on cited commands, parameters, and error codes.

1. Make sure that the diagnostic terminal is connected on the USER PORT.
2. With the car standing STILL, adjust parameter DZO for 0 volts.
3. Voltage on the REG board connector J2, pin 1 and 2, must read 0 mV. If does not, adjust DZO accordingly. Note that the value **2048** is equivalent to 0 volts. Higher values correspond to higher positive voltage.
4. Set the inspection speed to 10% of the top speed (IVE parameter).
5. Place meter leads on SR and common (▽) on the REG. The positive lead must be on SR. Run the car up and down on inspection and monitor the DC voltage.
6. Adjust the R50 pot (OFFSET) on the REG to equalize the voltages in both directions. **EXAMPLE:** If the R50 pot is -0.9 volts in the down direction and +1.0 volt in the up direction, adjust the OFFSET so that it reads -0.95 volts in the down direction and +0.95 volts in the up.
7. Adjust the R53 pot (Gain) to set the equal values. +1.00 volt in the up direction and -1.00 volt in the down direction.
8. Run the car in either direction and monitor the CCU Screen. Adjust the T pot (Tach Scaling)



on the REG board so that the actual car velocity equals the demand velocity. If there is no diagnostic screen, type **VEL** and then press **<Enter ↵>** on the terminal.

9. At this point, connect the G-U feedback wire. Lower the inspection speed to 6 FPM or as low as possible without a stall condition. Run the car in both directions and verify the speeds using the tach output voltage. Equalize the tach output voltage by adjusting the IR pot (Current Feedback).
10. Enter **STM** (Setup) mode. Run the car on inspection at 50 FPM (0.25 m/s). While the car is moving, type **IVE=0 <Enter ↵>** on the diagnostic terminal. The car must ramp immediately to zero speed and hold for at least 1/2 second: try this in both directions.
11. If the car drifts and does not hold zero speed, check the following:
 - A. Run the car at **IVE=0** and measure R+U and R-U for both directions. Make sure the voltage is equal to 0.000V with a tolerance of 0.001V.
 - B. If the voltage in step 1 is correct, measure the voltage from SR to common (⏚). If it is not 0.00V, readjust the R50 and R53 pots as necessary.
12. Place meter leads on test points TR to common (⏚) on the REG and monitor the DC voltage while running the car on inspection at 10% contract speed. Compare that value with the value on test points TFS to common (⏚) while running the car under the same condition.
13. Adjust R202 pot (Tach Fault Sensitivity) so that TFS voltage is equal to TR or greater than TR by no more than 0.02V. It is important, that TFS never be less than TR.

Digital Position Pulse (DPP) Verification

1. Connect a voltmeter between DP1 and DP1/ on the CCU. Run the car up and down on inspection at 50 FPM (0.25 m/s). Set the meter to the AC scale and monitor the pulsed DC voltage. The voltage should be ideally 2.7 VAC. If this is not

the case, adjust the distance between the sensor and the magnet accordingly. Do this again between the DP2 and DP2/ points.

2. If an isolated oscilloscope with two channels is available, place the leads on DP1 and DP2 and move the car. Verify that the amplitude of the square waves are correct, that the signals are not distorted, and that the two signals are approximately 90° out of phase with each other. See Figure 5-16 below. (If an oscilloscope is not available, the above procedure may be bypassed.)

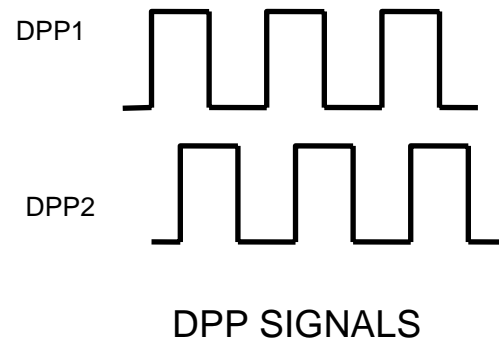


Fig 5-16

3. Verify that following conditions DO NOT exist in reference to the DPP signal:
 - Excessive electrical noise spikes
 - Ringing or oscillation
 - Distortion
4. Do the following if any of the above three conditions exist:
 - Verify that the DPP signal is wired (continuous run) through a twisted shielded cable.
 - Verify that cable shields are grounded only on the controller ground terminal.
 - Verify that the DPP wiring is not run in the same traveling cable with high voltage signals.
 - Verify that the minimum wire gauge used for the DPP signal is 18 AWG.



INSPECTION OPERATION

Note: *The brake assembly MUST be in good working condition in order to achieve proper brake operation. Do not continue until all operational problems have been corrected.*

1. Set the IVE parameter at a safe working speed and save the new parameter.
2. Verify that the brake is fully picking when the car runs. If not further adjustment of the brake or brake parameters may be required.
3. Verify brake can stop and hold 125% of the capacity of the elevator in the down direction. See manufacturer's information for details.
4. Verify the brake drops when the car stops.
5. Remove temporary jumper TIC – TIA to allow the car to run from the Car Top Station and disable the panel test buttons.
6. Remove temporary jumpers to II to ICS.
7. Verify that the Panel Test run buttons are inactive.
8. Verify the Governor switch opens the safety circuit and the car does not run.

Note: *When wiring in a car top run station make sure the stop switch is also wired in and functioning. [See Figure 5-17.]*

Car Top Inspection Wiring

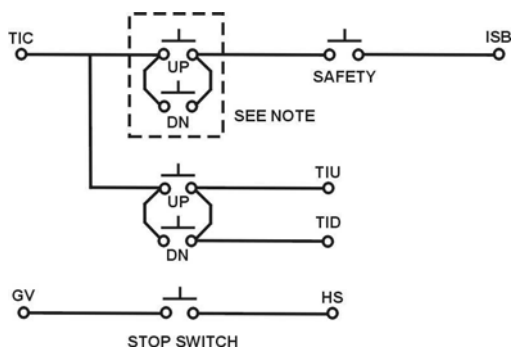


Figure 5-17

Note: *Make these connections only if two-pole buttons are used.*

