

**INSTALLING, OPERATING AND MAINTAINING**

**THE MODEL D1086**

**5 AMP GENERATOR**

**FIELD CONTROL**

REVISION: 2.0  
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## SECTION ONE GENERAL INFORMATION

### INTRODUCTION

Thank you for purchasing an *IPC Automation* elevator control.

At *IPC* we are committed to designing and manufacturing high quality controls that meet or exceed our customers needs. This manual provides the information you will need in order to properly install, operate and troubleshoot the **Model D1086 5 Amp Generator Field Control**. Please read this manual completely before attempting to install or operate the **Model D1086**.

Please feel free to call *IPC Automation* with any questions you may have **BEFORE** performing installation or start-up.

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## SECTION ONE GENERAL INFORMATION

### 1.1 SAFETY

There are certain fundamental warnings, which must be kept in mind at all times. These include:

**WARNING THE D1086 GENERATOR FIELD CONTROL SHOULD BE INSTALLED, ADJUSTED AND SERVICED BY QUALIFIED ELECTRICAL MAINTENANCE PERSONNEL FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF ALL EQUIPMENT IN THE ELEVATOR SYSTEM, PERSONAL INJURY AND/OR EQUIPMENT DAMAGE MAY OCCUR IF INDIVIDUALS ARE NOT FAMILIAR WITH THE HAZARDS RESULTING FROM IMPROPER OPERATION.**

**WARNING THE USER IS RESPONSIBLE FOR CONFORMING TO THE NATIONAL ELECTRICAL CODE WITH RESPECT TO MOTOR, CONTROLLER AND OPERATOR DEVICE INSTALLATION, WIRING AND START-UP. THE USER IS ALSO RESPONSIBLE FOR UNDERSTANDING AND APPLYING ALL OTHER APPLICABLE LOCAL CODES, WHICH GOVERN SUCH PRACTICES AS WIRING PROTECTION, GROUNDING, DISCONNECTS AND OVER CURRENT PROTECTION.**

### 1.2 WARRANTY

Standard conditions of sale for the company include a Statement of Warranty, which covers the control equipment. This Statement of Warranty covers all new equipment.




**The Model D1086 Generator Field Control has been designed as a standard product to meet the general criteria for controlling a motor-generator set in conjunction with an elevator. IPC does not warrant that the Model D1086 will meet all application requirements, codes and safety standards.**

### 1.3 Q.C. TESTING

Quality is an important factor of each phase of the manufacturing and development process. Each unit must pass rigorous quality tests as well as static and dynamic performance checks and a final inspection for quality of workmanship. A unit is allowed to ship only after acceptance of all aspects of Q.C. testing and inspection. This assures that you receive only those controls that meet our demanding quality standards.

### 1.5 STORAGE

Please take the following precautions if it should be necessary to store the control for any length of time.

-  Store the control in a clean, dry (non-corrosive) environment that is protected from sudden variations in temperature and high levels of moisture, shock and vibration.
-  The ambient temperature where the control is stored should be maintained between zero (0) and 65 degrees Centigrade.
-  The control should be stored in the original package in order to protect from dust and dirt contamination.

## SECTION TWO



## **SECTION THREE INSTALLATION INSTRUCTIONS**

### **3.1 INTRODUCTION**

The following section contains installation information and hook-up drawings for the Model D1086 5 Amp Generator Field Control. All instructions reference the hook-up diagram # 930-1222-002 included at the end of this section. A copy of this diagram is also separately included with the control.

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**WARNING: THE USER IS RESPONSIBLE FOR CONFORMING TO THE NATIONAL ELECTRICAL CODE WITH RESPECT TO MOTOR, CONTROLLER AND OPERATOR DEVICE INSTALLATION, WIRING AND START-UP. THE USER IS ALSO RESPONSIBLE FOR UNDERSTANDING AND APPLYING ALL OTHER APPLICABLE LOCAL CODES, WHICH GOVERN SUCH PRACTICES AS WIRING PROTECTION, GROUNDING, DISCONNECTS AND OVER CURRENT PROTECTION.**

### **CONTROL POWER**

The control power connections are made to the L1 and L2 terminals of TB1. Connect a 208/220 VAC 50/60 Hz single Phase line to the terminals. The control is protected from excess current draw through the use of onboard replaceable fuses rated at 5 Amps.

### **GENERATOR FIELD**

Connect the Generator Field to the + and – terminals on TB1. Ensure proper polarity of the field connections to avoid improper operation or damage to the control.

## **FEEDBACK**

Connect a jumper from **FB** to – on TB1. This will provide the proper path for field voltage feedback and allow the D1086 to regulate field voltage properly.

**Failure to install this jumper will cause the Model D1086 to produce full output voltage whenever any speed reference input is applied.**

## **SPEED INPUT**

Connect the output from an external pattern generator to TB2 terminal 9. The external pattern generator must produce a zero to plus 10-volt signal. If not using an external pattern generator, connect a multi-tap resistor to terminals 8, 9 and 10 on TB2 as shown on the hook-up drawing.

## **ACCELERATION AND DECELERATION**

When using an external pattern generator, jumper terminal 5 to terminal 6 and terminal 5 to terminal 7. This will set the internal acceleration/deceleration ramps to the fastest setting, allowing the external pattern generator to control the acceleration and deceleration rates. If not using an external pattern generator, connect an acceleration rate resistor from terminal 5 to terminal 6. Connect a deceleration rate resistor from terminal 5 to terminal 7. The acceleration/deceleration rate resistors should be variable resistors in order to adjust the acceleration and deceleration rates. The maximum resistance needed should not exceed 5K Ohms.

## **SECTION FOUR TROUBLESHOOTING**

The following pages contain tables which list common problems that may be encountered during set up and operation of the model D1086 5 Amp Generator Field Control. The probable cause column contains the most likely reason for the problem. The corrective action column contains steps, which may be taken to correct the problem.

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**WARNING: THE USER IS RESPONSIBLE FOR CONFORMING WITH THE NATIONAL ELECTRICAL CODE WITH RESPECT TO MOTOR, CONTROLLER AND OPERATOR DEVICE INSTALLATION, WIRING AND START UP. THE USER IS ALSO RESPONSIBLE FOR UNDERSTANDING AND APPLYING ALL OTHER APPLICABLE LOCAL CODES, WHICH GOVERN SUCH PRACTICES AS WIRING PROTECTION, GROUNDING, DISCONNECTS AND OVERCURRENT PROTECTION.**



<b>PROBLEM</b>	<b>PROBABLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
<b>CAR RUNS IN OPPOSITE DIRECTION</b>	Field wires reversed	Check the field wiring. The D1086 is a unidirectional control and cannot produce a negative output.
<b>CAR DOES NOT REACH HIGH SPEED</b>	Incorrect speed selection	Check to make sure there is no problem with the D1086 by shorting TB1 terminal 5 to TB1 terminal 6 and TB1 terminal 8 to TB1 terminal 9. This should cause the D1086 to produce full output voltage (180V) at the + and – terminals of TB2. If the D1086 does produce full output voltage then it points to a speed selection wiring error. Check your speed selection wiring against the hook-up diagram.
	Incorrect or missing Acceleration/Deceleration resistors	Short TB1 terminal 5 to TB1 terminal 6. Also, short TB1 terminal 5 to TB1 terminal 7. This will set the Accel/Decel to the fastest setting. Call for a run, the car should rapidly accelerate to the selected speed. If this occurs, check your acceleration and deceleration input wiring.
	Full Speed Limiting Resistor (R1) Value too high	If the value of R1 is too high, the majority of the output voltage produced by the D1086 will be dropped across R1 and the Generator Field will see very little of the output voltage. Short out R1 and see if the speed increases. If yes, lower R1 until you can reach high speed under all load conditions.
	Up or Down Contacts are not fully closed and are resistive.	Verify that when the Up or Down contacts are closed that there is minimal resistance across the contacts

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
	Hoist Motor Field Voltage Too High	If the Hoist Motor Field Voltage is too high you may not be able to reach contract (HI) speed. If the output voltage of the D1086 is approximately 180 – 190 VDC, then the D1086 is producing full output. Try lowering the Hoist Motor Field Voltage and see if the condition improves.
	D1086 power supplies are loaded down	Using a digital voltmeter, measure from TB1 terminal 1 (+15V) to TB1 terminal 3 (common). You should read +15 Volts +/- 1 volt. Measure from TB1 terminal 2 (-15V) to TB1 terminal 3 (common). You should read -15 Volts +/- 1 volt. If you read less than either of these settings, something is loading down the power supplies. Remove all connections from TB1 and repeat reading. If there still is a problem, the board must be repaired.
<b>NO OUTPUT VOLTAGE AT THE + AND – TERMINALS</b>	Blown fuses	Check to make sure that the F1 and F2 fuses are good using an Ohmmeter.
	No input speed selected	The control will only produce output voltage when a speed input is selected. Refer to the <b>CAR DOES NOT REACH HIGH SPEED</b> section for further action.
	Improper or missing Acceleration/Deceleration connections.	The Acceleration and Deceleration path must be present in order for the D1086 to produce an output voltage. Refer to the <b>CAR DOES NOT REACH HIGH SPEED</b> section for further action.

<b>PROBLEM</b>	<b>PROBABLE CAUSE</b>	<b>CORRECTIVE ACTION</b>
<b>NO CONTROL OF OUTPUT VOLTAGE / CONTROL PRODUCES FULL OUTPUT VOLTAGE WITH ANY SPEED INPUT</b>	Missing Feedback Jumper	The jumper from <b>TB2-</b> to <b>TB2 FB</b> is probably missing. Verify that there is a connection from the minus terminal to the FB terminal by measuring with an Ohmmeter. The meter should read zero Ohms.