

**INSTRUCTION MANUAL**

**DOUTHITT  
MAGIC 83  
LIGHT INTEGRATOR**

**DOUTHITT**

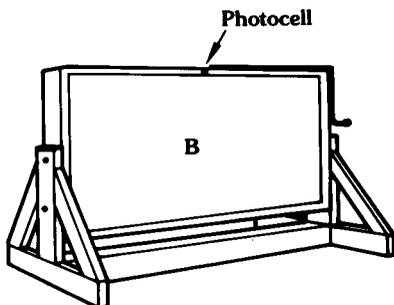
**THE DOUTHITT CORPORATION**

245 Adair St., Detroit, Michigan 48207-4287 • Established 1919 • Call Toll Free  
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# INSTALLATION AND OPERATIONAL INSTRUCTIONS FOR DOUTHITT MODEL MAGIC 83 LIGHT INTEGRATOR

## I. INTRODUCTION

Quality demands control and consistency. Light source variations effect the quality of your exposed film, plates, screens or proofs. With advanced microprocessor technology, Douthitt's light integrators automatically compensate for these variations by adjusting the length of the exposure to provide the correct amount of light every time. The Douthitt Corporation has the most complete selection of the world's best integrators. This manual explains how to install and operate the Model Magic 83 ten memory combination light integrator & digital timer. Should any questions arise, do not hesitate to call our factory toll free for consultation (1-800-DOUTHIT(T)).



## II. INSTALLATION

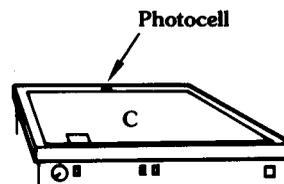
If your Magic 83 was purchased built-in to a new Option "X" Vacuum Frame, please omit this section and refer to the Option "X" manual for integrator installation instructions.

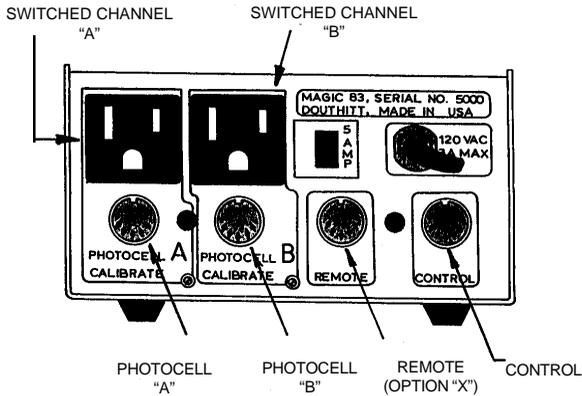
### MOUNTING THE PHOTOCELL

Mount photocell(s) with double-sided tape provided or a screw.

**A- On a Camera Copyboard:** mount it in the middle of the top, fastening the cable with plenty of slack at the pivot point to avoid pinching.

**B & C- On Contact and Platemaking Frames:** mount it in the center of the longest side, facing the light, not to be affected by reflection from copy, glass, curtains, safe-lights, etc.





## 1. POWER

The line cord is plugged into a wall outlet with 120 Volt, 60 Hz (cycle), common on the North American Continent. For use with other voltages, or 50 Hz, check with DOUTHITT.

## 2. BREAKER

The breaker will disconnect the power, should an overload occur, to protect operator and equipment. MAXIMUM OUTPUT per outlet is 250 Watts.

## 3. PHOTOCELLS

**STANDARD PHOTOCELLS** - Connect cable from integrator to outlet marked PHOTOCELL "A". If a second photocell is to be used, connect it to outlet marked PHOTOCELL "B".

**OPTIONAL DUAL PHOTOCELLS** - Connect photocell to integrator control unit outlet marked PHOTOCELL "A" with QC cable.

## 4. CONVENTIONAL LIGHT CONTROLS

Outlet "A" or "B" load is: **120 volts, 250 watts MAXIMUM.**

These outlets carry power to turn on the exposure light directly, see item (1) below, or through a contactor, see items (2), (3) below.

(1) **Lower Power Lights**, such as 100 watt point lights or flash lamps, are plugged into the corresponding outlet "A" or "B".

(2) **High Power Lights**, such as 8000 Watt Pulsed Xenon or Quartz Copyboard Lights, or 3000 Watt or 5000 Watt Printing Lights, generally have built in contactors, powerful relays that switch the high current of the lights but use only little power on the control coil. Such lights can be connected safely to the outlet.

(3a) **1000 Watt or 600 Watt Quartz Lamps**, carbon arcs, or other lights up to 1200 Watts that do not have a built-in contactor, can be connected only with a DOUTHITT QX or QXD Accessory Box as described on page 4.

(3b) **Cameras, Platemakers** or other equipment that draw more than 1200 Watts and are not equipped with contactors should have one installed. It will not only carry the switching current but electrically separate both instruments. Cameras or equipment

with contactors but no ready provision for external switching should be equipped with a suitable relay. The 120 VAC coil will be connected and activated by the integrator and should be electrically insulated and completely isolated from other circuitry. The relay contacts should be wired in parallel with the manual ON or EXPOSE switch contacts.

**IMPORTANT:** All electrical wiring, adaptations, or modification to equipment other than that manufactured by DOUTHITT must be made by qualified electricians who will accept full responsibility for the safety and operation of the equipment. No one is authorized to modify equipment manufactured by DOUTHITT. Should any questions arise, call the factory toll free for consultation.

## 5. CONTROL

Connect OLITE Printing Light to this outlet with QC 15 Cable. It can turn the power supply ON and select the intensity of the Light - High, Medium (not on AL15) or Low.

## 6. REMOTE

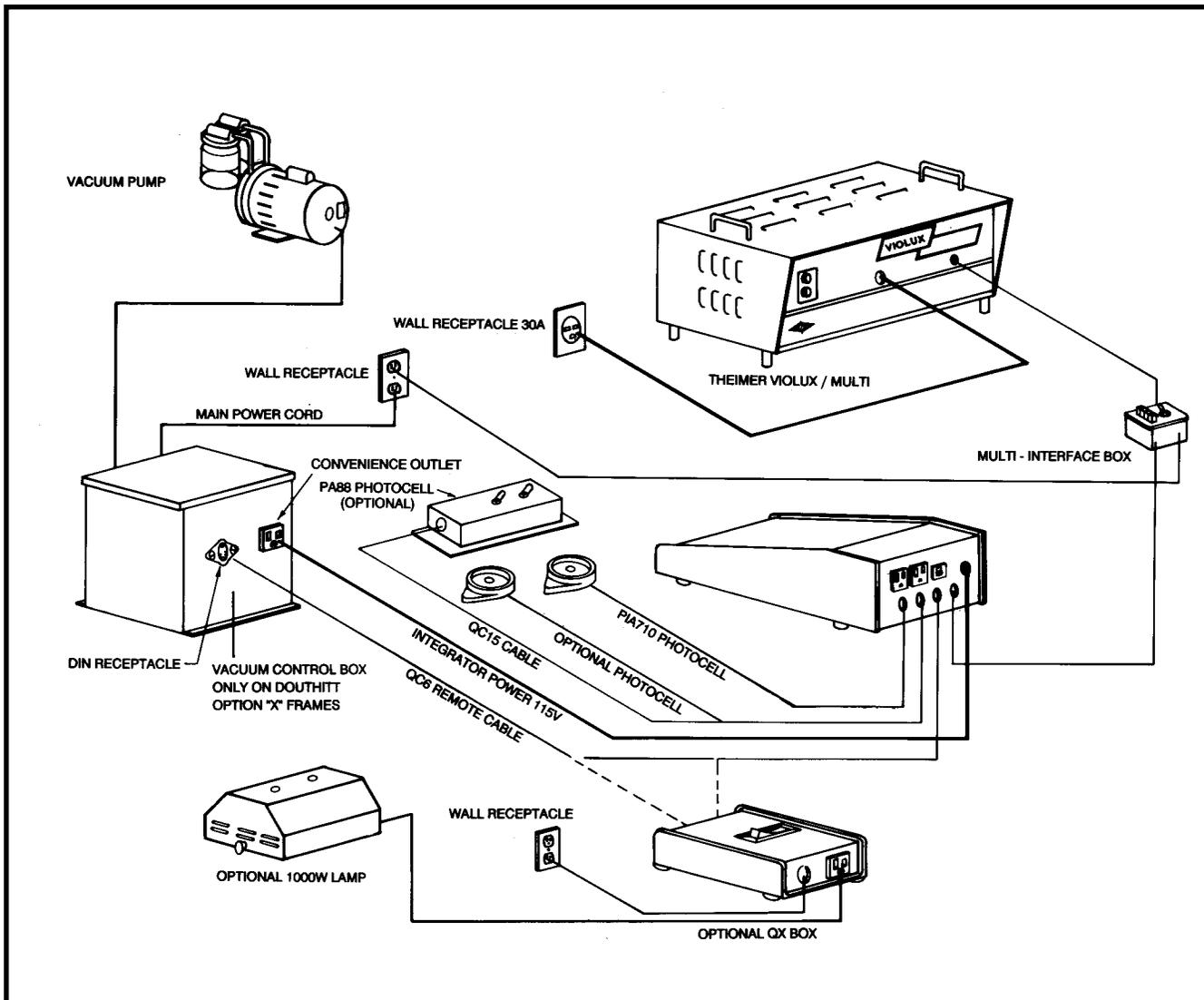
Connect Remote Switch (see item (1) below), QX or QXD Box (see item (2) below) or Option "X" Vacuum Control Cable.

(1) Two remote switches are available, **RS1**, a hand held type designed to hang from above, and **RS2**, a flat switch for counter, wall or floor that can be operated by hand or foot.

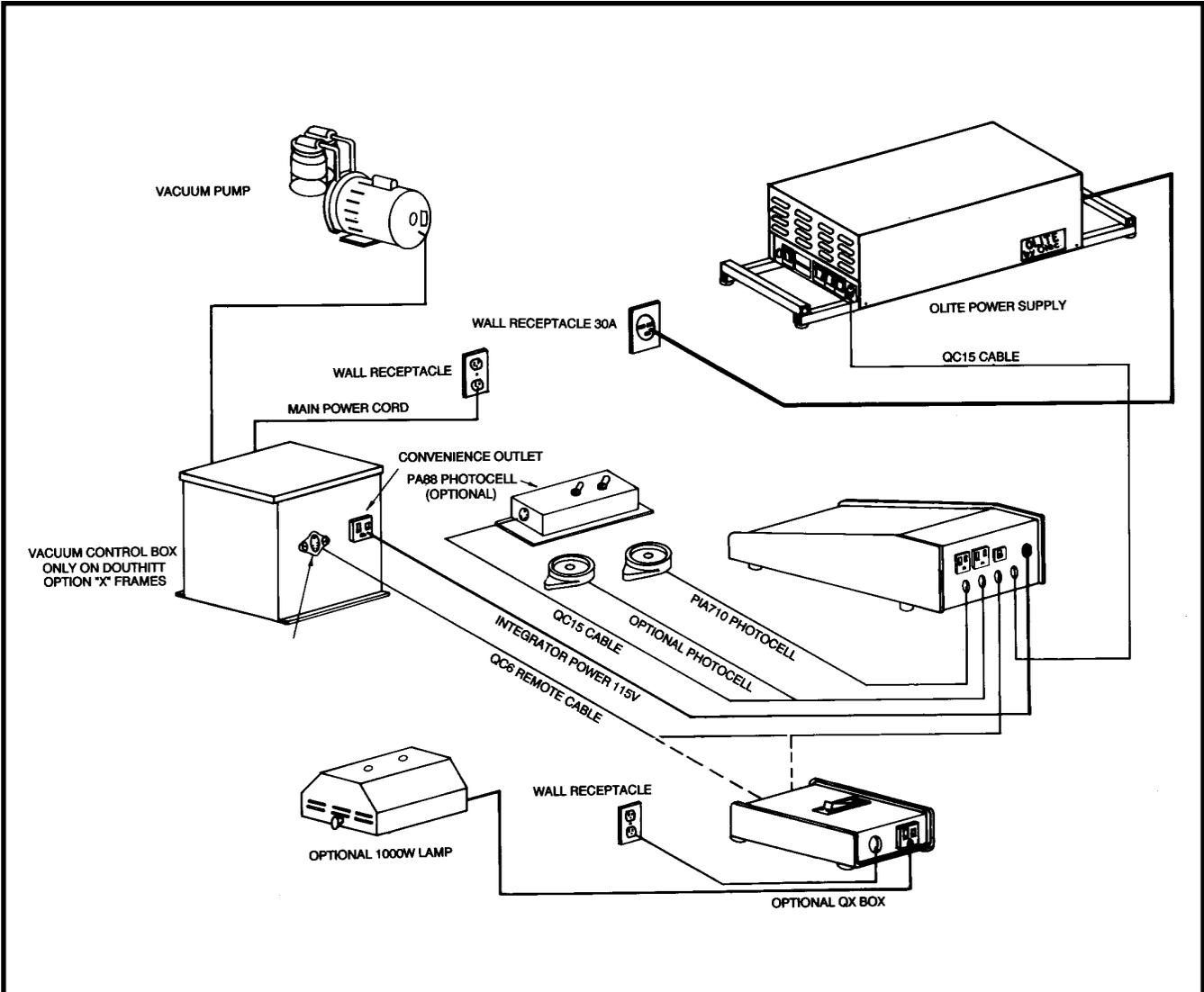
(2) To operate a 1000 watt quartz light (see item 2(a) below) or a vacuum pump(see item (2b) below) use a **QX** accessory box. To operate both use a **QXD** accessory box. Connect INTEGRATOR REMOTE outlet on the QX or QXD box to the integrator control unit outlet marked REMOTE with QC cable. Plug the AC connector of the QX/QXD box directly into a wall outlet, 120 VAC.

(2a) To operate **1000 Watt Quartz Lights** or other high power lights up to 1200 Watts, plug the light into the AC outlet on the QX box and switch to LIGHT, or make certain the right AC outlet is used on the QXD Box. The Remote Switch can be connected to the extra outlet on the QX/QXD Box.

(2b) To operate a **Vacuum Pump** in connection with the Delay feature provided on the MAGIC 83 integrator, plug the pump connector into the AC outlet on the QX Box and switch to PUMP, or plug into AC outlet with the picture of a pump on the QXD Box. (Not needed on DOUTHITT Option "X" frames with built-in integrator.)



**FIGURE 1 SYSTEMS HOOK-UP / MAGIC 83 - THEIMER MULTI 4,6,10**



**FIGURE 2 SYSTEMS HOOK-UP / MAGIC 83 - OLEC LAMPS**

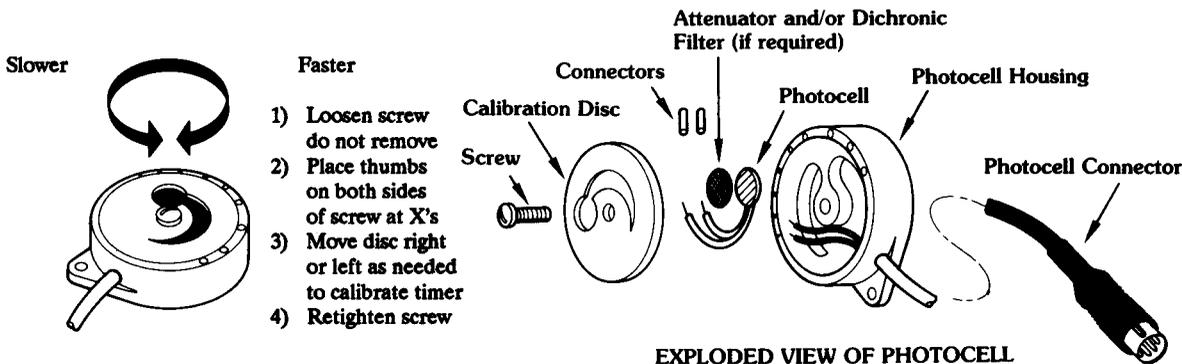
### III. PHOTOCELL CALIBRATION

For ease of operation, better control and meaningful numbers DOUTHITT recommends that photocells be calibrated so that 1.0 counting unit is equal to approximately 1.0 second. Do not move this setting once it is established as it will change all exposure values. Through aging of the lamp or other influences times will eventually become somewhat longer or shorter but ex-

posures will be consistent.

In order to calibrate your photocell, you will have to be acquainted with several of the function keys on the MAGIC 83. It may therefore be necessary to proceed to section IV. and practice with the integrator in timer mode before calibrating your photocell.

#### CALIBRATION INSTRUCTIONS:

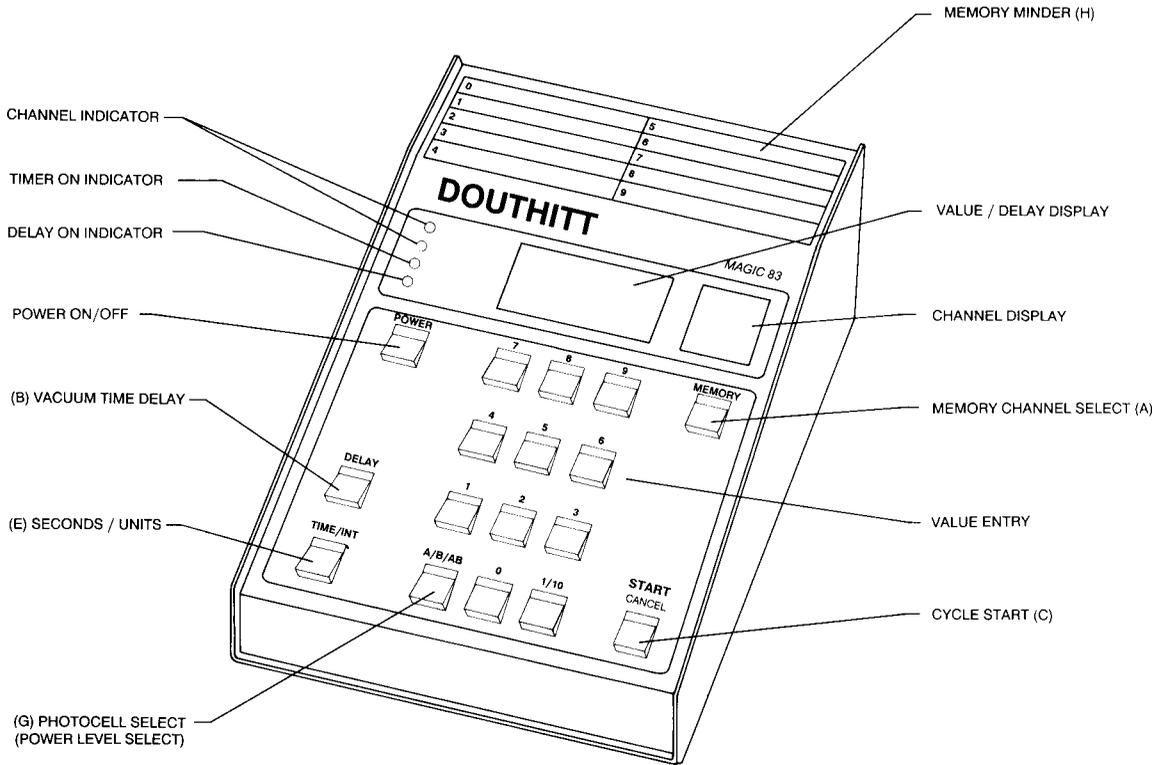


On the standard photocell, turning the cover disc makes the display count faster or slower (see illustration). On the optional dual photocell, use the screws provided on the photocell. For fine tuning use the screws on the back of integrator marked "A" CALIBRATE & "B" CALIBRATE.

With a watch, try to get the integrated units close to seconds. It will never be right on, nor will it repeat exactly as the light inten-

sity changes constantly. This is the true function of the integrator. Should the count still be too fast with the disc closed all the way, insert the neutral density filter supplied or make a little round one. A Dichroic filter is available to reduce IR of lamps such as the 1000 Watt Quartz lights. Filtration of your own can also be placed over the top of the photocell.

# IV. OPERATING INSTRUCTIONS



Your Magic 83 Integrator is simple and straight forward to use. Practice will soon show how easy it is to master the system. The following is a guide to the use of the function keys:

**A. MEMORY** - Press MEMORY repeatedly and the display will step through the ten memory locations. Press MEMORY and then a number and it will instantly display

the selected memory. Enter exposure values (using the numeric keys) and the choice of light/photocell (A,B,AB) in each memory location for different applications. They will all be stored for instant recall.

**B. DELAY** - Pressing this button will show all three points on the main display. Any

number entered indicates the delay in full seconds. Press **START** and the delay will be displayed counting down. The pump will operate until the exposure starts and during the exposure, and will shut off 1 second after the exposure is completed. (On DOUTHITT Option “X” frames the **AUTO/MANUAL** switch must be in the **AUTO** position for the pump to auto cancel.) To cancel a delay entry press **DELAY** and 0. After entering a delay time, press **DELAY** again (1 decimal point will display instead of three) to view or change exposure units. Note: The delay feature may require the use of a **QX** or **QXD** Accessory Box connected to the **REMOTE** Outlet on the rear panel of the Control Unit. See further details on Page 4. *Automatic Vacuum Time Delay is standard on Option “X” frames with built-in integrator.*

**C. START/CANCEL** - Pressing this button will start the delay / exposure sequence. If button is pressed while in delay / exposure sequence, the sequence will cancel. On DOUTHITT Option “X” frames canceling will turn the pump off only if the vacuum power switch is in the **AUTO** position.

**D. POWER** - Pressing this button turns on the integrator. All entries in the memory will be retained as long as the integrator is not unplugged or the main power shut down.

## **E.TIME/INT**

**(TIMER-INTEGRATOR)** - When the integrator is first turned on it comes up in the **INTEGRATOR** mode. Press **TIME/INT** and the indicator light will show the change. Each output, **A** and **B**, are controlled independently on different memories so that light **A** on memory 1 may be integrated while light **B** on memory 2 is timed.

**F. 1/10** - When the integrator is first turned on the decimal point for exposures allows for units up to 99.0, in .1 unit increments. For up to 99 seconds it is advisable to leave the decimal point moved in, as in 10.0, and show the “tenth” counting down. Should longer exposure times become necessary, press **1/10** and the decimal point for exposures will move to the right allowing for units up to 999, in 1 unit increments.

**G. A/B/AB** - Pressing this button selects light/photocell connected to output “**A**” or “**B**” according to indicator lamps. With an **OLEC** light source it will also control lamp power (**A** - High power, **B** - Low power, **AB** - Middle power).

**H. MEMORY MINDER** - Allows the operator to record exposures for different applications with a water soluble erasable pen. **Do not use pencil!** It will record all values in the ten Memory Magic 83 or allow you a convenient area to record often used values.

## V. MAINTENANCE

It is important to keep the integrator clean and dry. Information, accessories, and service are available through DOUTHITT. For repairs always return complete unit with photocell.

If the integrator works in the timer mode, but refuses to function as an integrator, check the photocell and the connecting cable. Most malfunctions are caused by broken or shorted cables that were pinched, stepped on or torn off.

Due to severe line noise and interference in

some locations, the microprocessor may get confused, momentarily misinterpreting such a signal as a legitimate command. Unplugging the unit for 10 seconds will restore the operation. Should such problems persist, use a line filter, as common with computers, or contact DOUTHITT.

**NOTE:** Do not open the unit yourself or let anyone else try to repair it. **There are no user serviceable parts inside.** Today's highly sophisticated equipment can no longer be repaired with tools or parts available even to the finest technician because most of the functions are in software.

# NOTES

## WARRANTY

The Douthitt Corporation warrants all equipment manufactured by them for a period of one year, against breakage of parts resulting from defects in material or workmanship under normal conditions of operation, installation and usage. Douthitt's liability under this warranty shall extend only to repair or replacement, E.O.B. Douthitt's factory, and all broken or defective parts are to be returned to Douthitt if Douthitt so requests. Douthitt reserves the right to inspect such broken or defective parts prior to repairing or replacing same.

Douthitt's warranty of purchased parts and components is limited to the warranty extended by the original manufacturer of such purchased parts and components. This warranty shall apply only if complaint is made in writing to Douthitt's factory within the warranty period.

The period of this warranty shall begin on the date of shipment from Douthitt's factory, and shall extend for twelve (12) calendar months thereafter on

all equipment installed without Douthitt's supervision. On all equipment installed under Douthitt's supervision, this warranty shall extend for twelve (12) calendar months after the date of completion of installation, unless installation is unreasonably delayed by the purchaser, or for causes beyond Douthitt's control and in such cases the maximum warranty period shall be thirteen (13) calendar months after the date of shipment from Douthitt's factory.

The liability of Douthitt shall in no case exceed the obligation to replace such broken parts as herein provided.

This warranty shall be of no force or effect if alterations or modifications of any nature are made by the purchaser without Douthitt's full knowledge and consent.

No guarantees or warranties apply except as above set forth.

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