MOBILE RADIO

LBI-4912D
****
(DF8411)

MAINTENANCE MANUAL
FOR
ELECTRONIC DIGITAL CLOCK
19C321135G1

CONTENTS

OPTION NUMBER	PRODUCT LINE
8576 - 8579	MASTR CONTROLLER
8613 - 8620	MASTR LOCAL CONTROLLER
8451 - 8458	ROYAL EXECUTIVE TABLE-TOP STATION
9913 - 9920	MASTR EXECUTIVE II TABLE-TOP STATION

DESCRIPTION

The General Electric Electronic Digital Clock is designed to operate from either 121 VAC or 242 VAC, 50 or 60 Hertz with a 12-hour or 24-hour readout. Selecting the desired modes of operation is accomplished by removing jumpers from the printed board and/or changing connections at the power transformer primary windings. The readout consists of six digit positions. Each digit position is composed of a seven-segment display. If the seconds digit readout is not desired, the customer may remove a jumper on the board which will result in only hours and minutes (4-digit positions) readout.

Three setting switches are provided on the clock: FAST SLEW, SLOW SLEW and HOLD. The FAST SLEW switch is operated to allow getting close to, but not past, the desired time. The SLOW SLEW switch is operated to bring the clock slowly up to the desired time. The HOLD switch will hold the selected time when depressed. This allows setting the clock slightly ahead of the correct time, holding it and then releasing the switch at the desired second.

INSTALLATION

The Electronic Digital Clock may be installed in existing radio equipment or control equipment in the field. Refer to the proper Installation Instructions. See Table of Contents.

The following instructions should be used when modifying the clock for the various modes of operation.

24 Hour - 60 Hertz Operation

1. Remove jumper between H3 and H4 on printed board.

12 Hour - 50 Hertz Operation

1. Remove jumper between H1 and H2 on printed board.

24 Hour - 50 Hertz Operation

1. Remove jumper between H1 and H2 on printed board.
2. Remove jumper between H3 and H4 on printed board.

CIRCUIT ANALYSIS

The Electronic Digital Clock is composed of the digital MOS clock circuit (U1), six optoelectronic 7-segment display IC's (DS1-DS6), seven display segment driver transistors (Q3-Q9), twelve display enable transistors (Q10-Q21) and a power supply.

Power Supply

The line voltage (121 VAC or 242 VAC) is stepped down by transformer T1 and the resulting 20 VAC is applied to the full-wave rectifier CR1-CR4. The rectifier output is filtered by C1.

Q1, Q2, VR1 and R3 - R6 comprise a low-voltage display blanking circuit. Q1 controls the current to the 7-segment display drivers. The base voltage of Q1 is the sum of the zenner level of VR1, V_{ce} SAT of Q2 and the IR drop of R5. Q1 conducts as long as its emitter is approximately 0.7 volt higher than its base voltage. If the voltage charge across C1 drops 0.7 volt below the reference, current to the segment drivers is cut off. The remaining charge on C1 is sufficient to keep the memory in the U1 IC active for about 30 - 40 seconds.

The stepped-down line voltage is also applied to half-wave rectifier CR5. The rectified output of CR5 is squared by shaping circuit R1-C2 and connected to the 50/60 Hz REFERENCE INPUT circuit of U1 at pin 16.

Clock Circuit U1

The input signal applied to the Clock Circuit is divided by either 50 or 60, depending on the 50/60 Hz SELECT input (determined by whether the jumper between H1 and H2 is present). Three counter stages in U1 (Figure 1) complete the division to 12 or 24 hours, depending on the 12/24 HOUR SELECT input (determined by whether the jumper between H3 and H4 is present). Logic gates between the counters allow time-setting at the rate of one hour digit per second or one minute digit per second (controlled by the SLOW SLEW and FAST SLEW switches S2 and S3). The HOLD input (controlled by HOLD switch S1) allows stopping the entire counter chain.

A multiplexer samples the outputs from the seconds, minutes and hours counters (in the six digit mode), routing this data to a programmable READ ONLY MEMORY (ROM). The outputs of the ROM are the multiplexed 7-SEGMENT OUTPUTS on U1 pins 3-9. The multiplexed rate is controlled by an oscillator and divider. The frequency of this oscillator is determined by R2 and C3 (approximately 2-3 kHz). The six (or four) states of the divider are brought out on the six (or four) DIGIT ENABLE OUTPUTS at U1 pins 17-22.

Digit Indicators

The MULTIPLEXED 7-SEGMENT OUTPUTS drive the display segment transistors (Q3-Q9). Conduction of any of these transistors applies a high to the segment bus common to

that transistor. For example, operating Q3 from pin 3 of U1 results in a high on the segment driver bus connected to pin 10 of each digit indicator (DS1-DS6).

The DIGIT ENABLE OUTPUTS operate the digit enable transistors (Q10-Q21). A ground provided at the DIGIT ENABLE OUTPUT HR10 (pin 19 of U1) will operate Q10. Conduction of Q10 turns on Q11. Conduction of Q11 applies ground to pins 1 and 6 of DS1. These pins connect to the common cathodes of the Light Emitting Diodes (LED) making up the seven segments of the indicator. Thus the segments in DS1 which are driven from a common segment bus will be illuminated. The indicators are strobed in sequence by the DIGIT ENABLE OUTPUTS.

TROUBLESHOOTING PROCEDURE

SYMPTOM	PROBABLE CAUSE	TEST
1. NO DISPLAY	NO AC INPUT VR1, Q1 OR Q2 DEFECTIVE	CHECK AC INPUT CHECK COMPONENTS.
2. TIME-KEEPING ERRACTIC	WRONG POWER FREQUENCY.	CHECK FOR JUMPER* BETWEEN H1 & H2.
3. DISPLAY FLICKERS	MULTIPLEX FREQUENCY TOO LOW; DEFECTIVE U1, C3 OR R2.	CHECK FREQUENCY OF SAWTOOTH AT U1-23. SHOULD BE 2-3 kHz.
4. ONE DIGIT NOT TURNED ON.	DEFECTIVE DISPLAY (DS1-DS6); DEFECTIVE DIGIT ENABLE TRANSISTOR (Q10-Q21); NO DIGIT ENABLE OUTPUT AT U1.	CHECK WAVEFORM AT PIN 6 OF DISPLAY. CHECK WAVEFORM AT CORRESPONDING DIGIT ENABLE PIN AT U1. VOLTAGE SHOULD DROP TO ZERO AT MULTIPLEX FREQUENCY.
5. ONE SEGMENT OF DISPLAY NOT TURNED ON.	DEFECTIVE LED IN DISPLAY; DEFECTIVE DRIVE TRANSISTOR (Q3-Q9); NO SEGMENT OUTPUT AT U1.	CHECK WAVEFORM AT CORRESPONDING PIN ON DISPLAY AND ON U1. SHOULD SHOW PULSING AT VARYING RATES.

* 17 Volt peak-to peak distorted sinewave at power frequency at U1-pin 16.

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

GENERAL ELECTRIC

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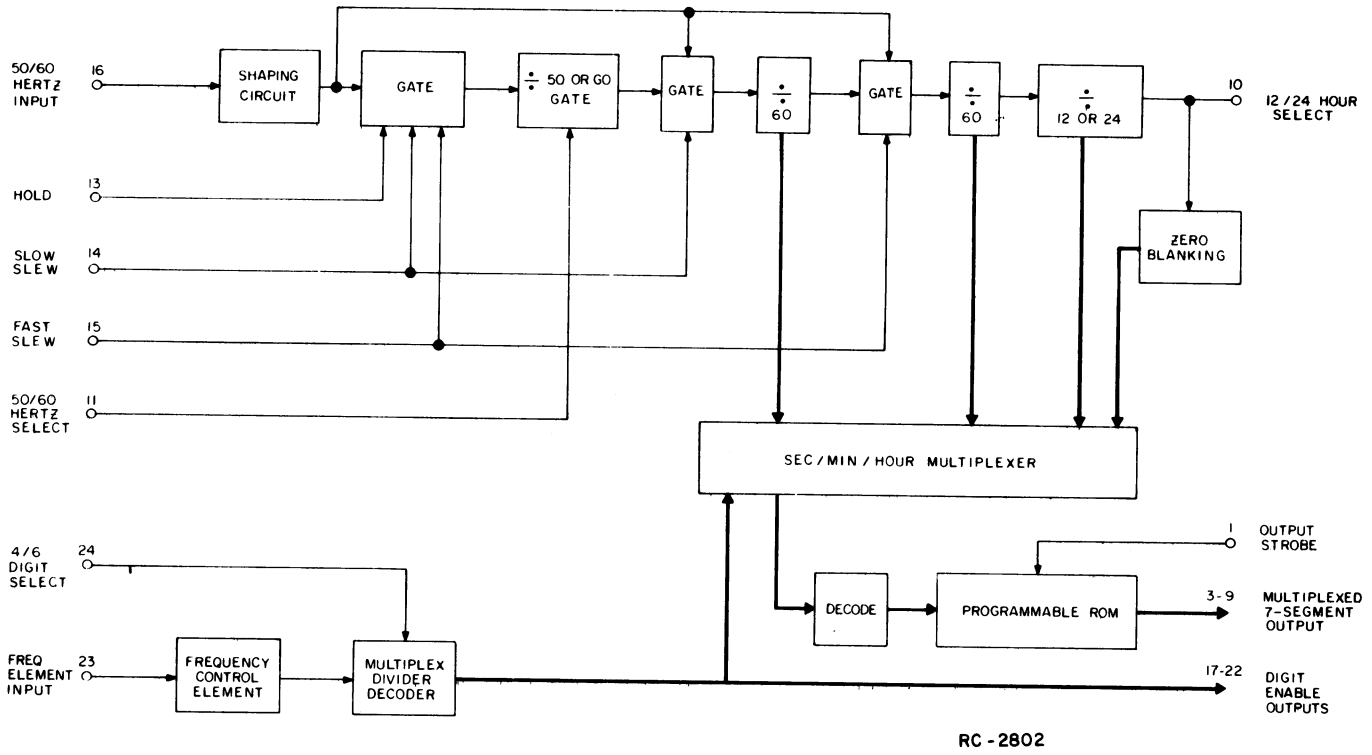
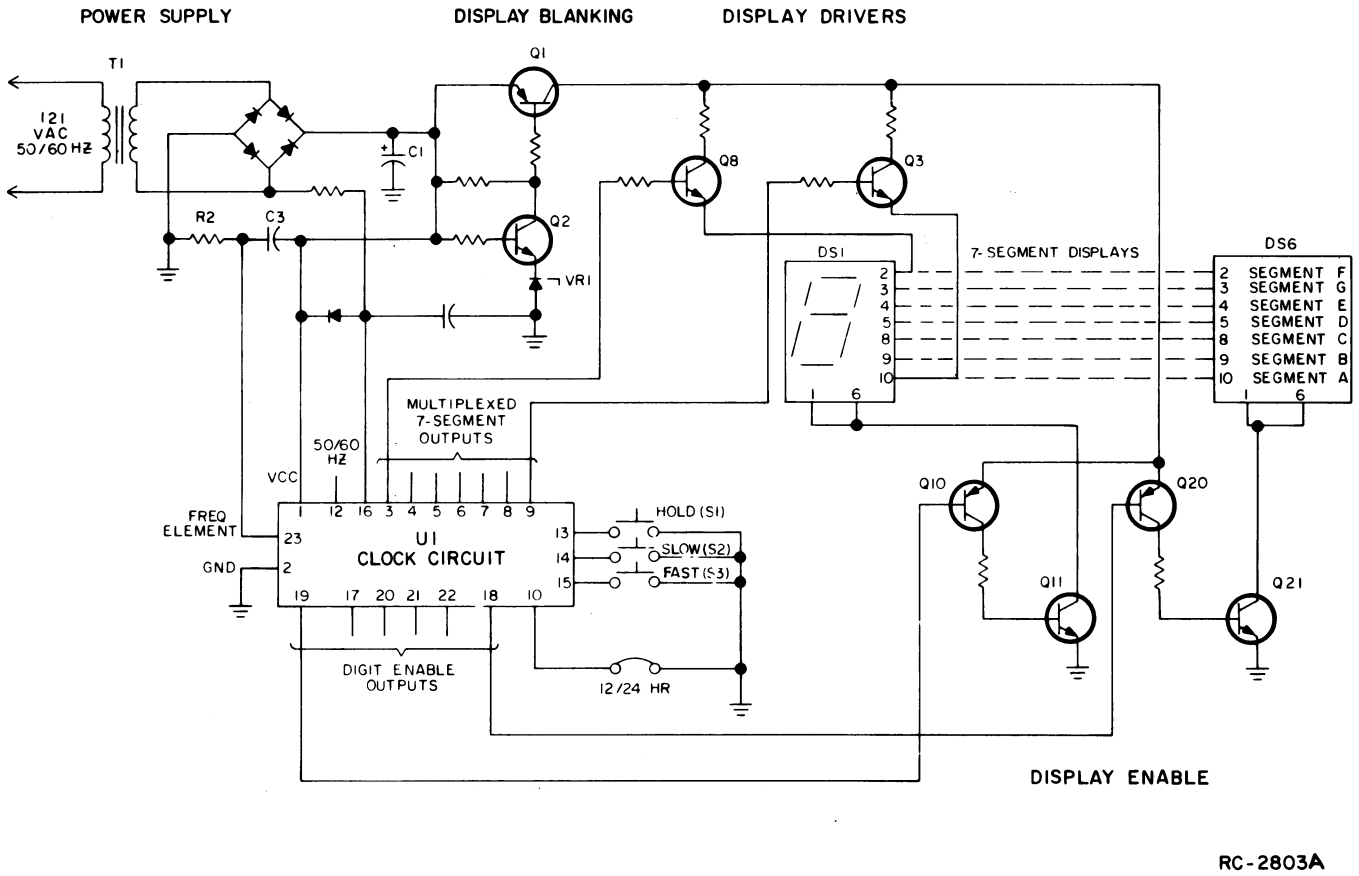


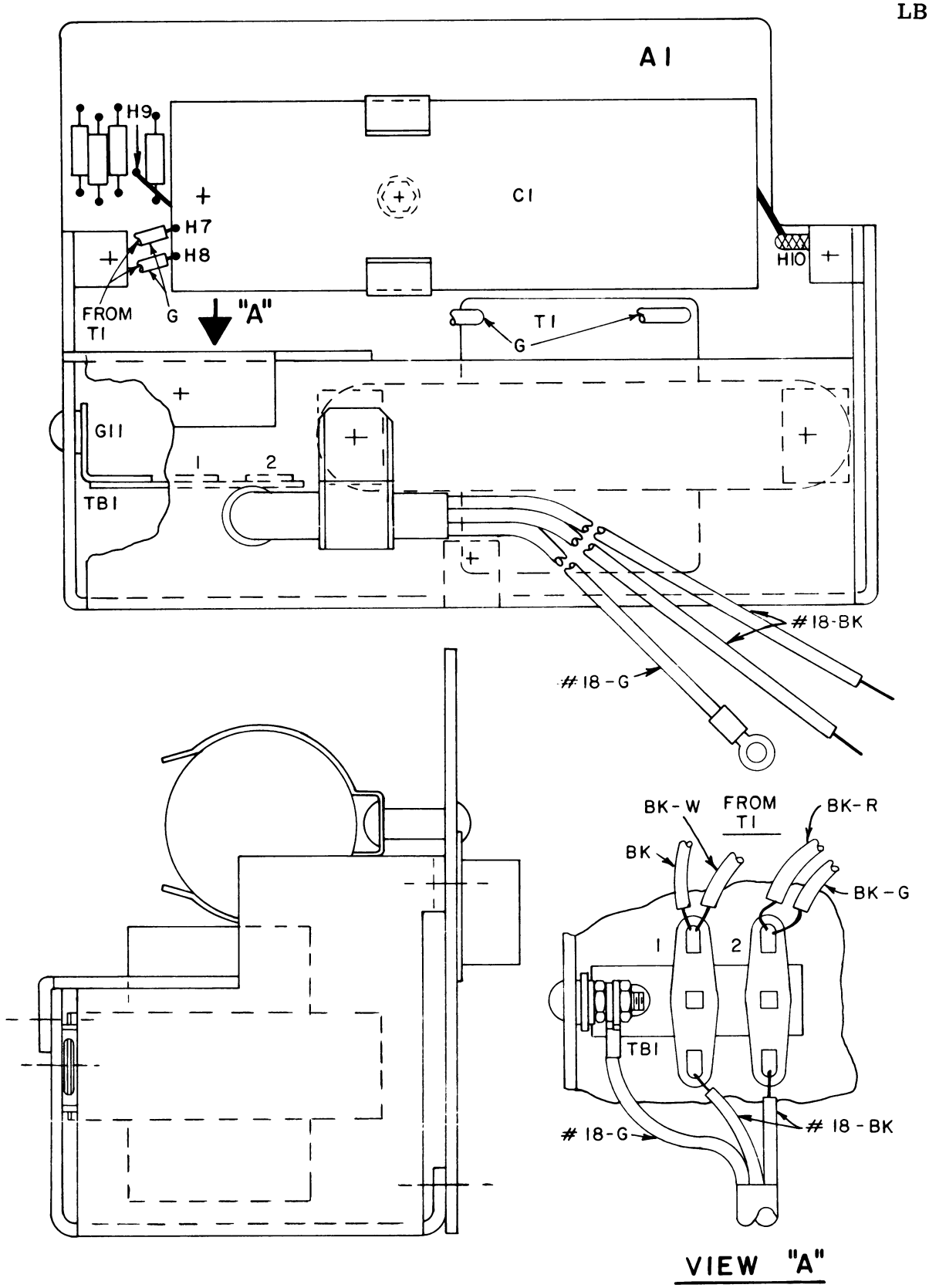
ELECTRONIC DIGITAL CLOCK BLOCK DIAGRAM

Figure 1



ELECTRONIC DIGITAL CLOCK FUNCTIONAL DIAGRAM

Figure 2



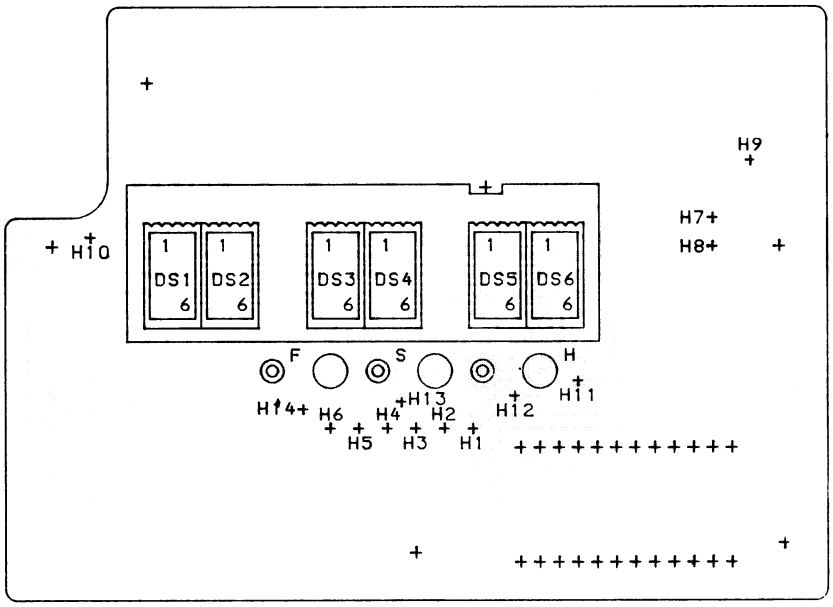
VIEW "A"

(19C321874, Rev. 0)

OUTLINE DIAGRAM

DIGITAL CLOCK 19C321135G1

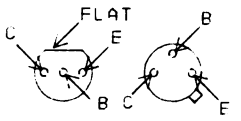
Issue 1



(19B226472, Sh. 2, Rev. 1)

JUMPER CONNECTION CHART		
FROM	TO	WIRE
H1	H2	DA
H3	H4	DA
H5	H6	DA

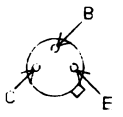
LEAD IDENTIFICATION
FOR Q2-Q21



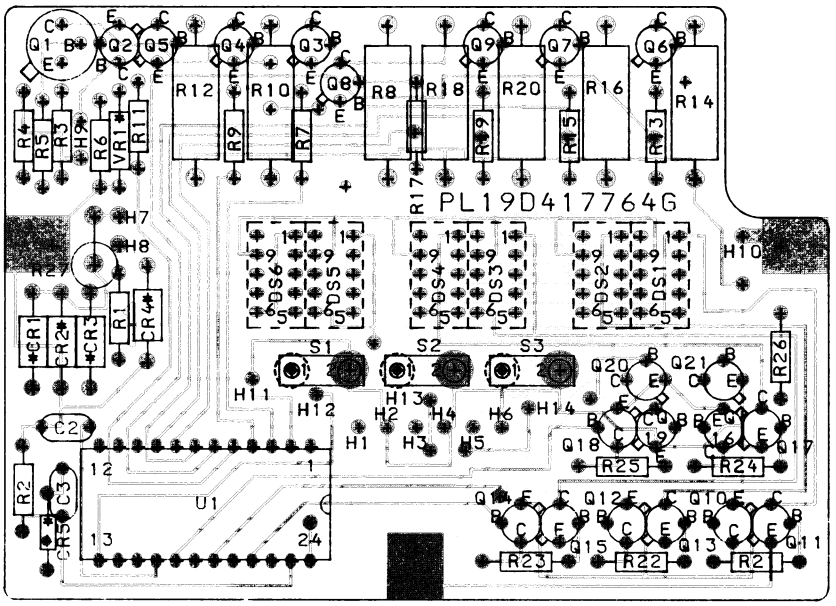
TOP VIEW

NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

LEAD IDENTIFICATION
FOR Q1



TOP VIEW

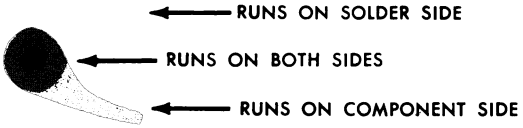


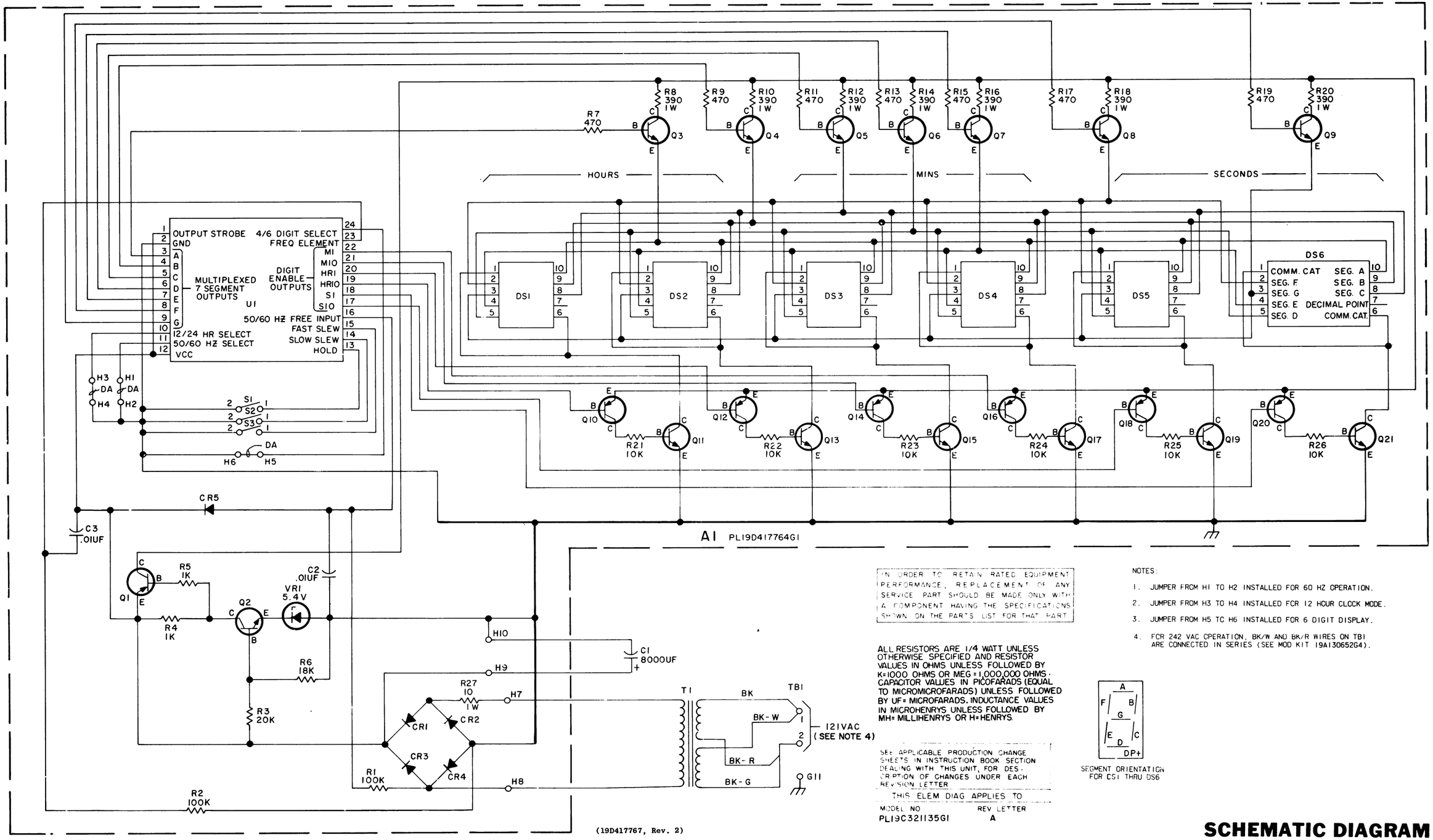
(19B226472, Sh. 1, Rev. 1)
(19B226472, Sh. 2, Rev. 1)

(19D423632, Rev. 2)

OUTLINE DIAGRAM

DIGITAL CLOCK COMPONENT BOARD A1





(19D417767, Rev. 2)

IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SERVICE PART SHOULD BE MADE ONLY WITH A COMPONENT HAVING THE SPECIFICATIONS SHOWN ON THE PARTS LIST FOR THAT PART.

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF= MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH= MILLIHENRYS OR H=HENRYS.

SEE APPLICABLE PRODUCTION CHANGE SHEETS IN INSTRUCTION BOOK SECTION DEALING WITH THIS UNIT, FOR DESCRIPTION OF CHANGES UNDER EACH REVISION LETTER.

THIS ELEM DIAG APPLIES TO

MODEL NO	REV LETTER
PL19C321135G1	A

NOTES:

1. JUMPER FROM H1 TO H2 INSTALLED FOR 60 HZ OPERATION.
2. JUMPER FROM H3 TO H4 INSTALLED FOR 12 HOUR CLOCK MODE.
3. JUMPER FROM H5 TO H6 INSTALLED FOR 6 DIGIT DISPLAY.
4. FOR 242 VAC OPERATION, BK/W AND BK/R WIRES ON TB1 ARE CONNECTED IN SERIES (SEE MOD KIT 19A130652G4).

SEGMENT ORIENTATION FOR DS1 THRU DS6

SCHEMATIC DIAGRAM

DIGITAL CLOCK

Issue 2

PARTS LIST

LBI4996C

ELECTRONIC DIGITAL CLOCK
19C321135G1

SYMBOL	GE PART NO.	DESCRIPTION
A1		COMPONENT BOARD 19D417764G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C2 and C3	19A116080P101	Polyester: 0.01 µf ±10%, 50 VDCW.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - - - -
CR1 thru CR4	4037822P1	Silicon, 1000 mA, 400 PIV.
CR5	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV.
		- - - - - - - - - INDICATING DEVICES - - - - - - - -
DS1 thru DS6	19A134063P1	Display, optoelectronic: sim to Fairchild FND 70.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1	19A115562P2	Silicon, PNP; sim to Type 2N2904A.
Q2 thru Q9	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q10	19A115852P1	Silicon, PNP; sim to Type 2N3906.
Q11	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q12	19A115852P1	Silicon, PNP; sim to Type 2N3906.
Q13	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q14	19A115852P1	Silicon, PNP; sim to Type 2N3906.
Q15	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q16	19A115852P1	Silicon, PNP; sim to Type 2N3906.
Q17	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q18	19A115852P1	Silicon, PNP; sim to Type 2N3906.
Q19	19A115910P1	Silicon, NPN; sim to Type 2N3904.
Q20	19A115852P1	Silicon, PNP; sim to Type 2N3906.
Q21	19A115910P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - RESISTORS - - - - - - - - - -
R1 and R2	3R152P104J	Composition: 0.10 megohm ±5%, 1/4 w.
R3	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R4 and R5	3R152P102J	Composition: 1K ohms ±5%, 1/4 w.
R6	3R152P183J	Composition: 18K ohms ±5%, 1/4 w.
R7	3R152P471J	Composition: 470 ohms ±5%, 1/4 w.
R8	3R78P391J	Composition: 390 ohms ±5%, 1 w.
R9	3R152P471J	Composition: 470 ohms ±5%, 1/4 w.
R10	3R78P391J	Composition: 390 ohms ±5%, 1 w.
R11	3R152P471J	Composition: 470 ohms ±5%, 1/4 w.
R12	3R78P391J	Composition: 390 ohms ±5%, 1 w.
R13	3R152P471J	Composition: 470 ohms ±5%, 1/4 w.
R14	3R78P391J	Composition: 390 ohms ±5%, 1 w.
R15	3R152P471J	Composition: 470 ohms ±5%, 1/4 w.
R16	3R78P391J	Composition: 390 ohms ±5%, 1 w.
R17	3R152P471J	Composition: 470 ohms ±5%, 1/4 w.
R18	3R78P391J	Composition: 390 ohms ±5%, 1 w.
R19	3R152P471J	Composition: 470 ohms ±5%, 1/4 w.
R20	3R78P391J	Composition: 390 ohms ±5%, 1 w.
R21 thru R26	3R152P103J	Composition: 10K ohms ±5%, 1/4 w.
R27*	3R78P100K	Composition: 10 ohms ±10%, 1 w. Added by REV A.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1		Switch. Includes:
	19A130231P1	Spring.
	19B226457P1	Button.
	N330P604F22	Eyelet.
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - - -
U1	19A134062P1	Digital, Mos, P Channel Enhancement Mode Low Threshold Clock Circuit; sim to National Semiconductor MM5314N.
		- - - - - - - - VOLTAGE REGULATORS - - - - - - - -
VR1	4036887P5	Zener: 500 mW, 5.4 v. nominal.
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	5493132P17	Electrolytic: 8000 µf +150 -10%, 20 VDCW; sim to Mallory SP032-7444.
		- - - - - - - - - - TRANSFORMERS - - - - - - - - -
T1	19B209431P1	Power, step-down: Pri: 117 VRMS, 50/60 Hz (Parallel connected), Sec: 16.25 VRMS (no load).
		- - - - - - - - TERMINAL BOARDS - - - - - - - -
TB1	7775500P147	Phen: 5 terminals.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B209573G1	Clock Set Kit. Contains (3) 7481654P6 pushbutton switches and necessary external wiring, aluminum bracket; sim to Secode B53053-001 (5-13-74).
	7142162P28	Spacer, sleeve. (Used with C1).
	7118719P6	Clip, spring tension: sim to Prestole E-50008-003. (Used with C1).
	19A130219P1	Cover.
	4029851P14	Cable clamp.
	19B209268P101	Solderless terminal.
	7160861P16	Nut, sheet spring; sim to Tinnerman C8091-632-157.
	4036555P1	Insulator, washer: nylon. (Used with Q1).

PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter," which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

19C321135G1

REV. A - To improve operation. Added R27.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

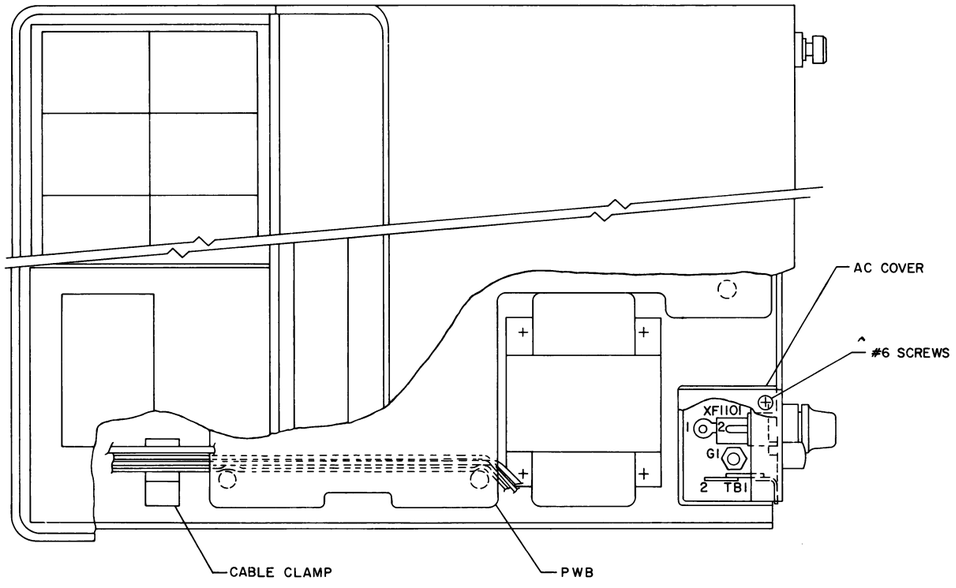


FIG. 2

THESE INSTRUCTIONS COVER THE INSTALLATION OF DIGITAL CLOCK PL19C321135G1 IN MASTR CONTROLLER.

(1) INSTALLATION INSTRUCTIONS:

1. LOOSEN THUMBSCREWS ON REAR OF UNIT AND REMOVE COVER.
2. REMOVE 4- #8 SCREWS FROM BASE PLATE AND REMOVE HOUSING FROM BASEPLATE.
3. REMOVE DUMMY WINDOW IN CLOCK OPENING AND REPLACE WITH CLOCK WINDOW PL19B226461G1. RETURN DUMMY TO STOCK.
4. MOUNT CLOCK AS SHOWN IN FIG. 1 WITH 2- 19B201074P306 SCREWS (#6 X 3/8) AND #6 WASHER.
5. ROUTE WIRES FROM CLOCK UNDER PWB AS SHOWN IN FIG. 2 DO NOT ROUTE THRU CABLE CLAMP OR SPOT TIE TO OTHER WIRING.
6. REMOVE 2- #6 SCREWS AND AC COVER.
7. SOLDER ONE BLACK WIRE TO XF1101-2 AND THE OTHER BLACK WIRE TO TB1-2.
8. REMOVE NUT FROM GI. PLACE LUG FROM GREEN WIRE ON GI FOLLOWED BY L'WASH. THEN RE-ASSEMBLE NUT.
9. RE-ASSEMBLE UNIT.

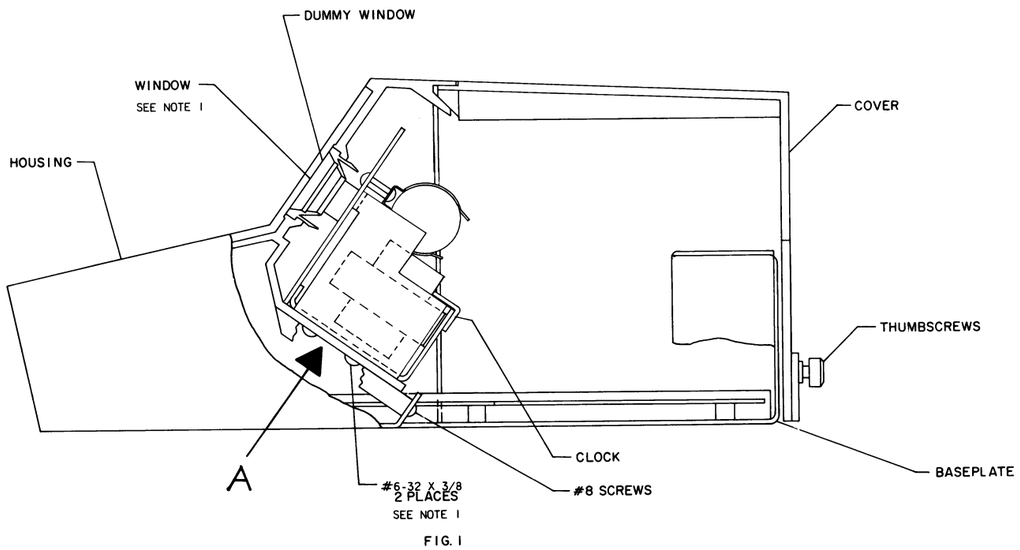
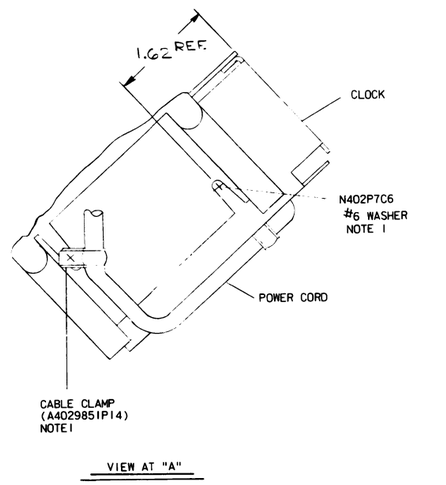


FIG. 1

NOTE:
1. INCLUDED IN HARDWARE KIT PL19A130243.



VIEW AT "A"

INSTALLATION INSTRUCTIONS

MASTR CONTROLLER

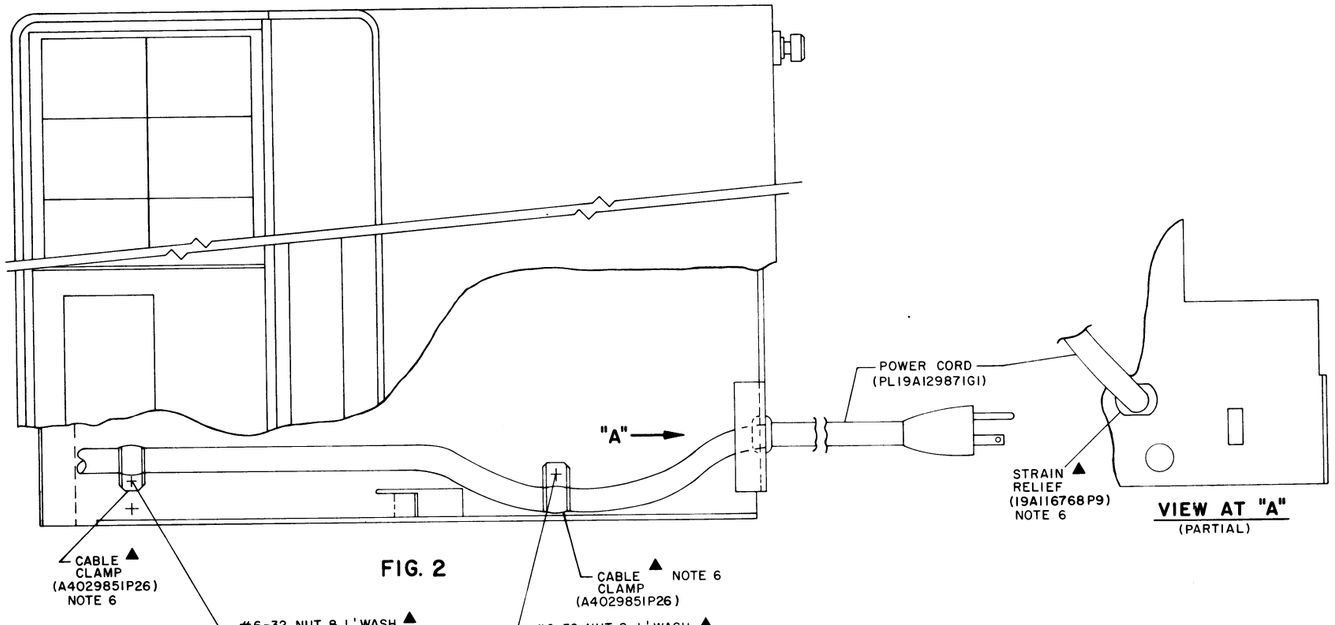


FIG. 2

THESE INSTRUCTIONS COVER THE INSTALLATION OF DIGITAL CLOCK PL19C321135G1 IN LOCAL MASTR CONTROLLER

(1) INSTALLATION INSTRUCTIONS:

1. LOOSEN THUMB SCREWS ON REAR OF UNIT AND REMOVE COVER.
2. REMOVE 4 #8 SCREWS FROM BASE PLATE AND REMOVE HOUSING FROM BASEPLATE.
3. REMOVE DUMMY WINDOW IN CLOCK OPENING AND REPLACE WITH CLOCK WINDOW PL19B226461G1. RETURN DUMMY TO STOCK.
4. ROUTE POWER CABLE THROUGH HOLE IN CHASSIS AS SHOWN IN FIG. 2 AND VIEW "A". REMOVE 4 SCREW AND COVER FROM DIGITAL CLOCK (PL19C321135G1). FIG. 3 REMOVE 6 SCREW AND CABLE CLAMP THAT HOLDS TWO #18 BK WIRES AND 1 #18 GREEN WIRE. UNSOLDER TWO BK WIRES FROM TB1 AND DISCONNECT GREEN WIRE FROM G11. REPLACE WITH POWER CORD (PL19A129871G1) BY SOLDERING BK WIRE TO TB1-1, WHITE WIRE TO TB1-2 AND CONNECT GREEN WIRE TO G11. REPLACE CABLE CLAMP AND COVER.
5. MOUNT CLOCK AS SHOWN IN FIG. 1 WITH 19B201074P306 SCREWS (#6 X 3/8) AND #6 WASHER.
6. INSTALL CABLE CLAMPS AND INSTALL STRAIN RELIEF.
7. RE-ASSEMBLE UNIT.

▲ INCLUDED IN HARDWARE KIT PL19A130243.

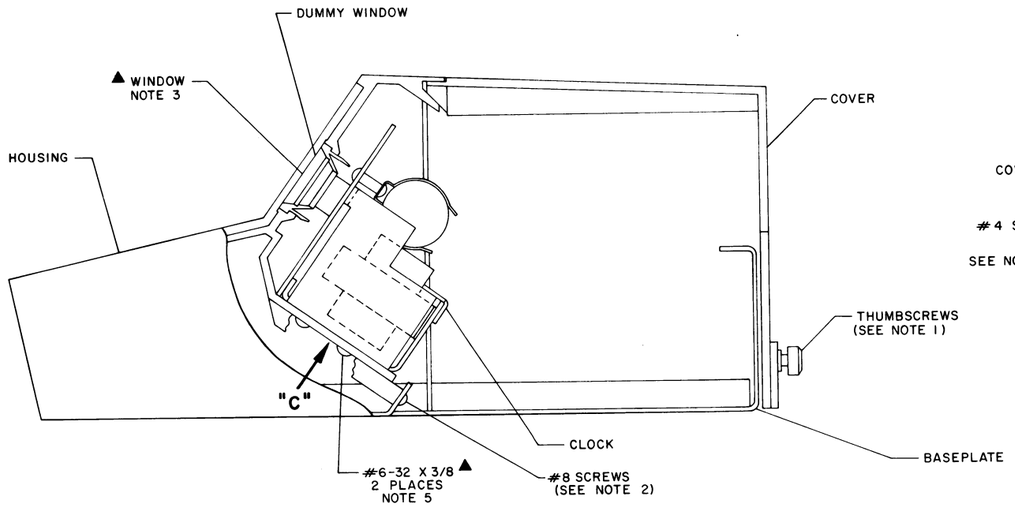


FIG. 1

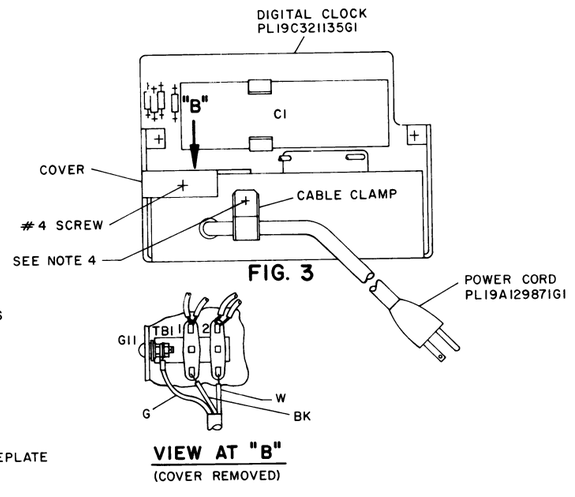
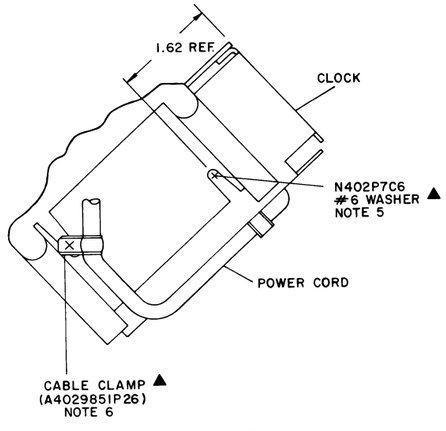


FIG. 3

VIEW AT "B"
(COVER REMOVED)



VIEW AT "C"
(PARTIAL)

INSTALLATION INSTRUCTIONS

LOCAL MASTR CONTROLLER

(19D417782, Sh. 1, Rev. 5)

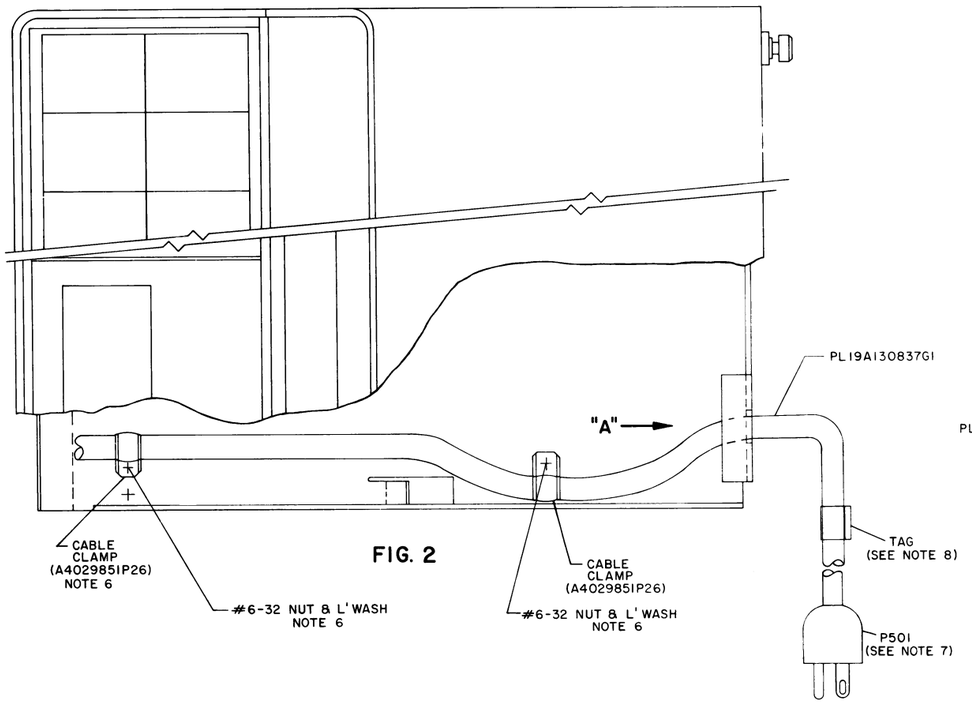
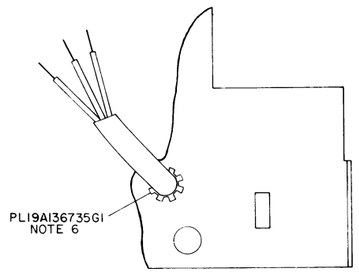


FIG. 2



VIEW AT "A"
(PARTIAL)

THESE INSTRUCTIONS COVER THE INSTALLATION OF DIGITAL CLOCK PL19C321135G1 IN LOCAL MASTR CONTROLLER FOR 220 VOLT OPERATION

(2) INSTALLATION INSTRUCTIONS:

1. LOOSEN THUMB SCREWS ON REAR OF UNIT AND REMOVE COVER.
2. REMOVE 4 #8 SCREWS FROM BASE PLATE AND REMOVE HOUSING FROM BASEPLATE.
3. REMOVE DUMMY WINDOW IN CLOCK OPENING AND REPLACE WITH CLOCK WINDOW PL19B226461G1. RETURN DUMMY TO STOCK.
4. ROUTE POWER CABLE THROUGH HOLE IN CHASSIS AS SHOWN IN FIG. 2 AND VIEW "A". REMOVE 4 SCREW AND COVER FROM DIGITAL CLOCK (PL19C321135G1). FIG. 3 REMOVE #6 SCREW AND CABLE CLAMP THAT HOLDS TWO #18 BK WIRES AND 1 #18 GREEN WIRE. UNSOLDER TWO BK WIRES FROM TB1 AND DISCONNECT GREEN WIRE FROM G11. REPLACE WITH POWER CORD (PL19A130837G1) BY SOLDERING BK WIRE TO TB1-1, WHITE WIRE TO TB1-2 AND CONNECT GREEN WIRE TO G11. REPLACE CABLE CLAMP AND COVER.
5. MOUNT CLOCK AS SHOWN IN FIG. 1 WITH 19B201074P306 SCREWS (#6 X 3/8) AND #6 WASHER.
6. INSTALL CABLE CLAMPS
7. CLIP P501 PLUG OFF THE AC POWER CABLE. STRIP OFF APPROX. 3 INCHES OF OUTSIDE JACKET. STRIP & TIN THE THREE WIRES APPROX. 1 2 INCH. REMOVE THE MARKER TAPE (IF PRESENT) WHICH INDICATES UL APPROVAL.
8. APPLY 5496537P24 TAG APPROXIMATELY 3 INCHES FROM STRIPPED END OF CABLE.
9. RE-ASSEMBLE UNIT.

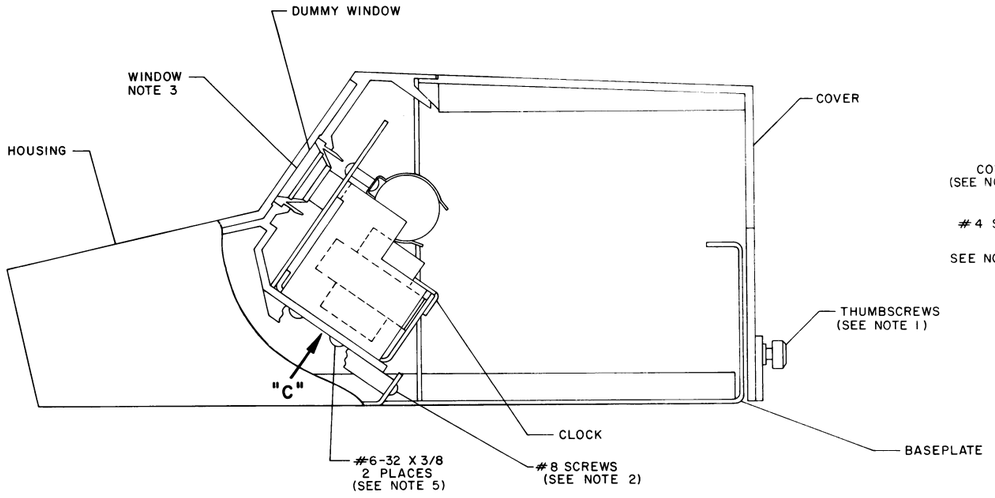


FIG. 1

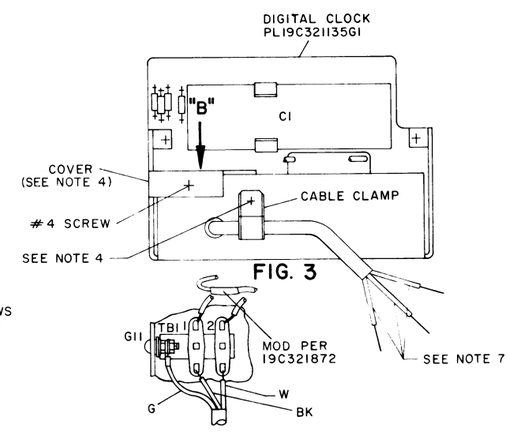
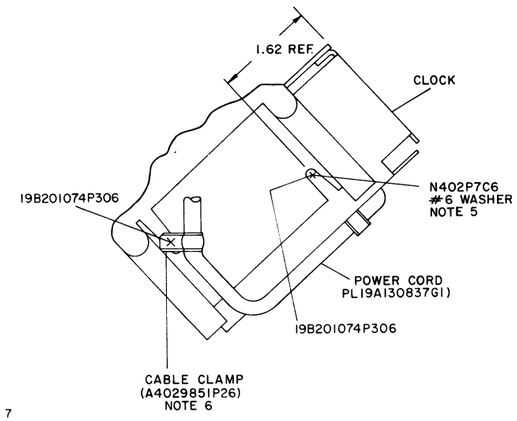


FIG. 3

VIEW AT "B"
(COVER REMOVED)
MOD PER 19C321872



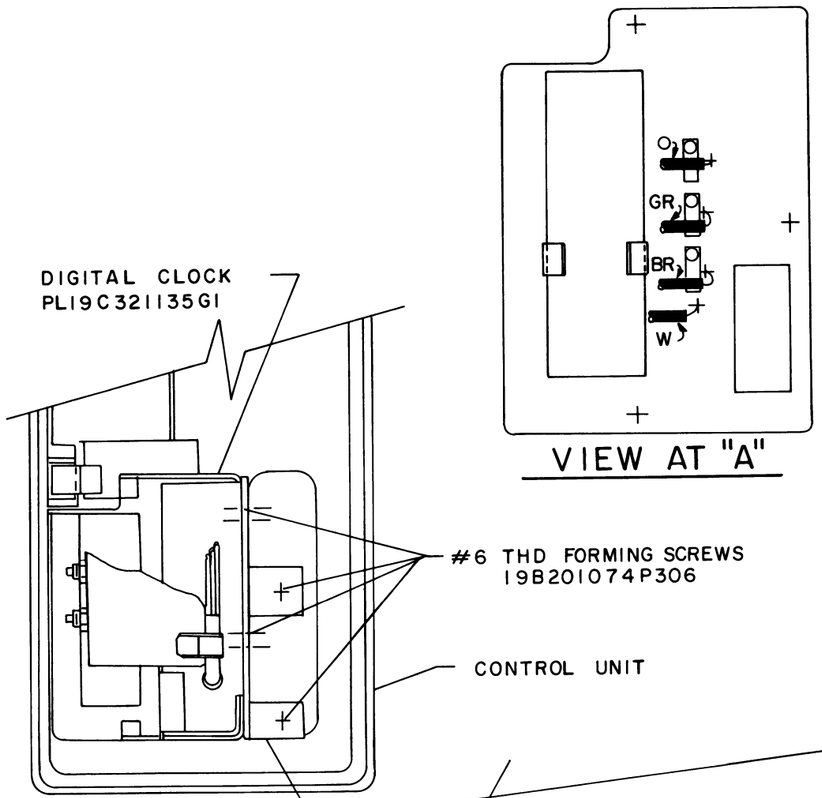
VIEW AT "C"
(PARTIAL)

INSTALLATION INSTRUCTIONS

LOCAL MASTR CONTROLLER FOR 220 VOLT OPERATION

Issue 3

(19D417782, Sh. 2, Rev. 1)



VIEW AT "B"
ROTATED 90°

VIEW AT "A"

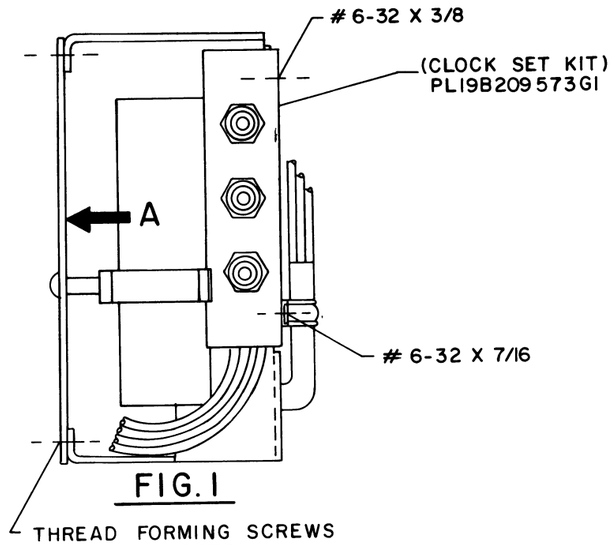


FIG. I

THIS INSTRUCTION COVERS INSTALLATION OF DIGITAL CLOCK PLI9C32II35GI INTO MASTR EXEC. DESK TOP STATION.

INSTRUCTIONS: FOR FIG. I

1. REMOVE 2 SCREWS THAT HOLD THE TRANSFORMER AND ASSEMBLE THE CLOCK SET KIT PL I9B209573GI.
2. REMOVE COMPONENT BD FROM METAL SUPPORT AND MAKE WIRE CONNECTIONS FROM CLOCK SET KIT TO BOARD AS SHOEN. REASSEMBLE BD TO METAL SUPPORT.
3. TERMINATE EITHER BLACK WIRE WITH A4029484P2.

INSTRUCTIONS: FOR FIG. 2

1. REMOVE NUT FROM PRESS IN STUD HOLDING MASKING PLATE. ADD LENS (I9B226983PI) AND REPLACE NUT AND TIGHTEN.
2. MOUNT SUPPORT (I9B205288PI) BY USING TWO #6 THD FORMING SCREWS (I9B20I074P306).
3. MOUNT DIGITAL CLOCK (PLI9C32II35GI) BY USING #6 THD FORMING SCREWS (I9B20I074P306).
4. ROUTE WIRES FROM DIGITAL CLOCK PARALLEL WITH CHASSIS AND CONNECT GR WIRE TO TB50I-I6 GR, ONE BK WIRE TO TB50I-I7 AND ONE BK WIRE TO TB50I-I8.

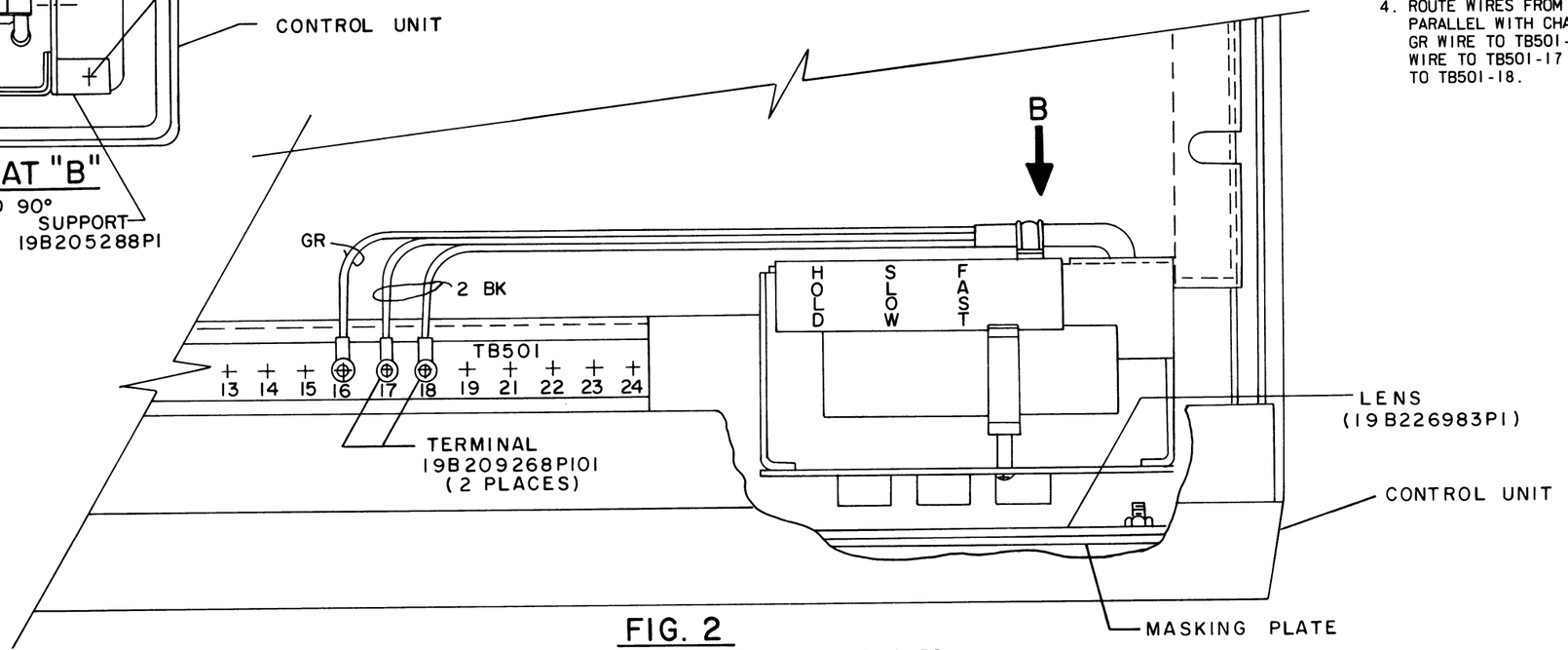
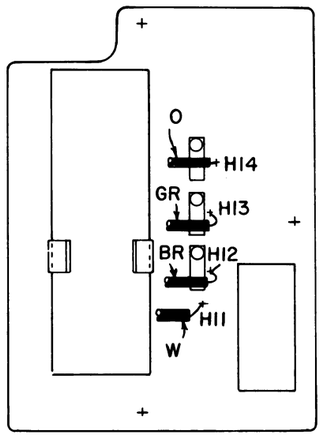


FIG. 2
TOP VIEW WITH TOP COVER REMOVED
(PARTIAL)

INSTALLATION INSTRUCTIONS



VIEW AT "C"

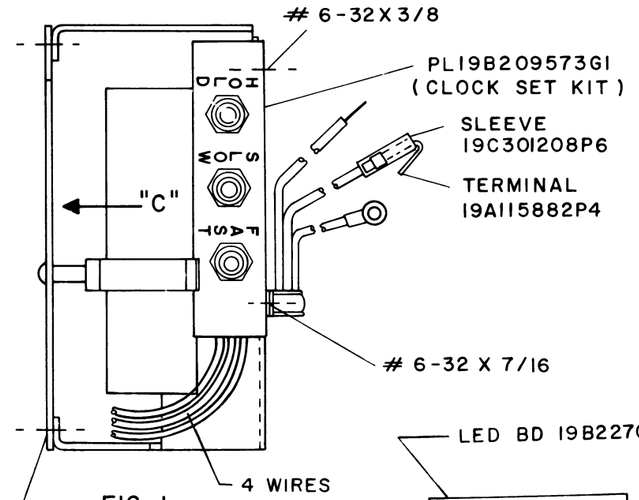
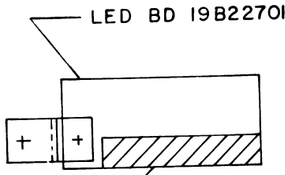


FIG. 1



VIEW "E"

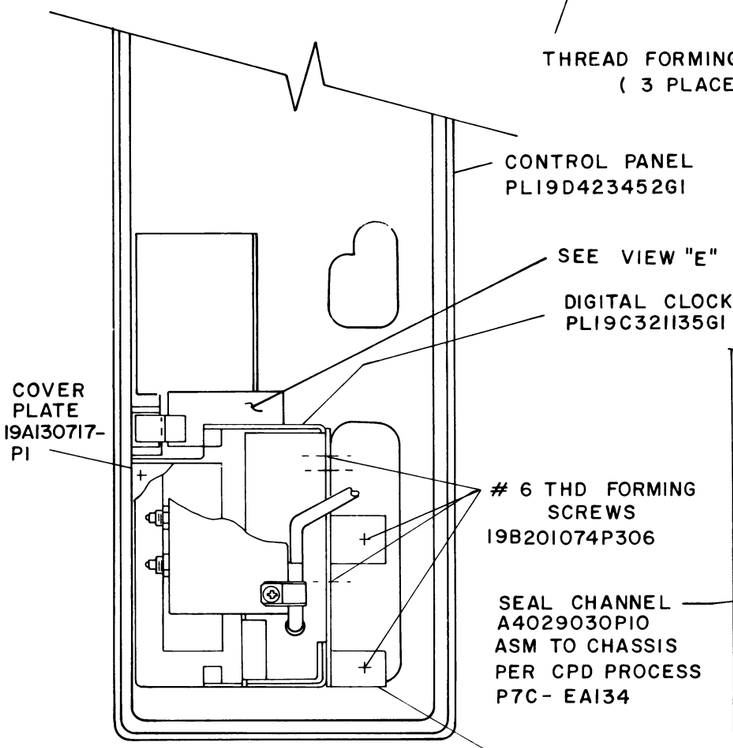
THIS INSTRUCTION COVERS INSTALLATION OF DIGITAL CLOCK PL19C321135G1, KIT PL19A130652G2 INTO MASTR EXEC II DESK TOP STATION.

INSTRUCTIONS: FOR FIG. 1

1. REMOVE 2 SCREWS THAT HOLD THE TRANSFORMER AND ASSEMBLE THE CLOCK SET KIT PL19B209573G1.
2. REMOVE COMPONENT BD FROM METAL SUPPORT AND MAKE WIRE CONNECTIONS FROM CLOCK SET KIT TO BOARD AS SHOWN. REASSEMBLE BD TO METAL SUPPORT.
3. TERMINATE EITHER BLACK WIRE WITH 19A115882P4.

INSTRUCTIONS: FOR FIG. 2

1. REMOVE AND DISCARD COVER PLATE 19A130717P1 - REPLACE WITH LENS (19B226983P1).
2. MOUNT SUPPORT (19B205288P1) BY USING TWO #6 THD FORMING SCREWS (19B201074P306).
3. MOUNT DIGITAL CLOCK (PL19C321135G1) BY USING #6 THD FORMING SCREWS (19B201074P306).
4. ROUTE WIRES FROM DIGITAL CLOCK THRU H6 TO BOTTOM OF CHASSIS AND CONNECT GR WIRE TO G11, ONE BK WIRE TO S801-1, SEE VIEW D AND SOLDER ONE BK WIRE TO XF801-2.



VIEW AT "A"

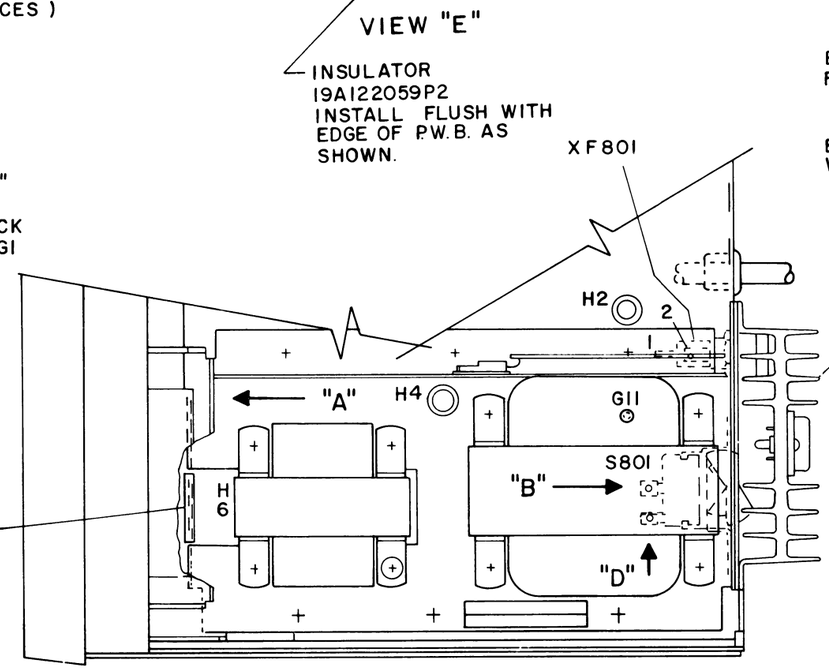
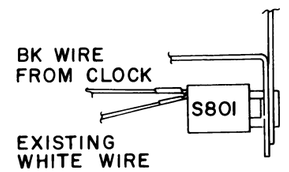
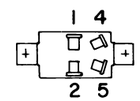


FIG.2

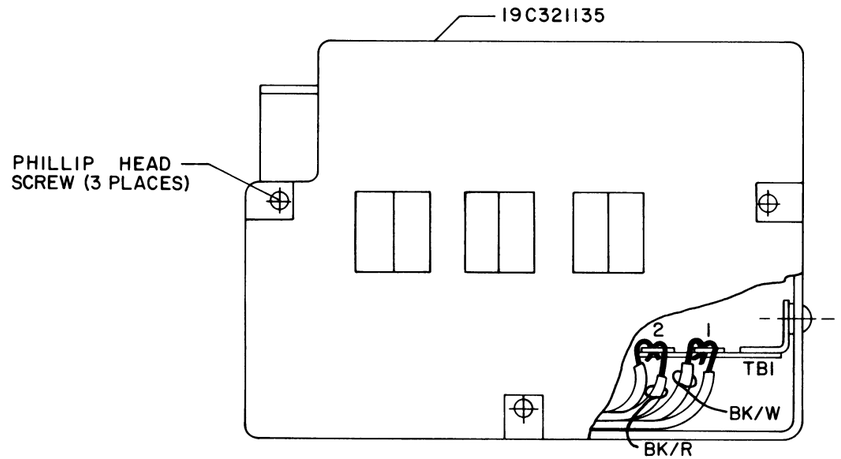


VIEW AT "D"

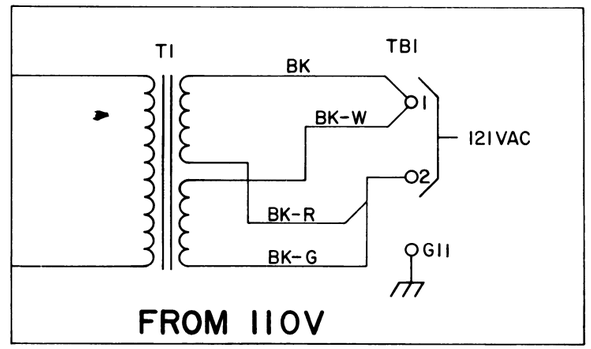


VIEW "B"
ROTATED 90° CCW

(19C321825, Rev. 3)



110V ASSEMBLY



FROM 110V

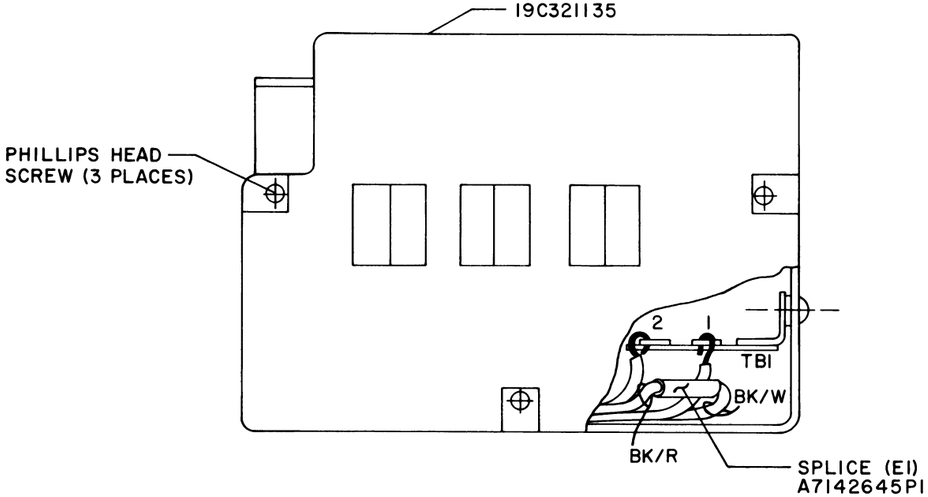
(1)

MODIFICATIONS INSTRUCTIONS

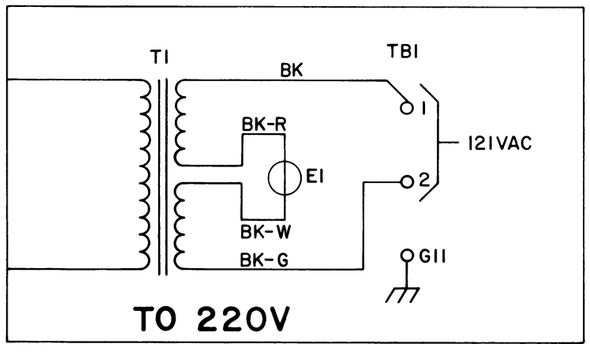
THIS INSTRUCTION COVERS THE MODIFICATION OF THE 19C321135 (DIGITAL CLOCK) FROM 110V TO 220V.

INSTRUCTIONS

1. REMOVE THREE (3) PHILLIPS HEAD SCREWS HOLDING COMPONENT BOARD IN POSITION. MOVE COMPONENT BOARD BACK OUT OF THE WAY. DO NOT REMOVE WIRES GOING TO COMPONENT BOARD. DO NOT DISCARD 3 PHILLIPS HEAD SCREWS.
2. UN-SOLDER THE BK/W WIRE FROM TB1-1. UN-SOLDER THE BK/R WIRE FROM TB1-2.
3. SPLICE THE DISCONNECTED BK/W AND BK/R WIRES TOGETHER USING (A7142645P1) SPLICE.
4. MOVE COMPONENT BOARD BACK INTO PROPER POSITION AND REPLACE THREE (3) PHILLIPS HEAD SCREWS RETAINED FROM STEP 1.



MODIFIED 220V ASSEMBLY



TO 220V

(19C321872, Rev. 2)

220 VOLT MODIFICATION INSTRUCTIONS