

Circuit Ref.	Description	Mfg. *	Type or Part No.
Q400	NPN Silicon Transistor	NA	2N3904
D401	Germanium Diode	TI	1N270
L420, 421, 422, 423	Light-Emitting Diodes	CM	CM4-43B
R400	39,000 ohm, 5%, 1/4 W Resistor	AB	CB
R402, 403, 406, 407, 408	2700 ohm, 5-Resistor Network	CT	75061-R2.7K
R401, 405	2700 ohm, 5%, 1/4 W Resistor	AB	CB
R409	47,000 ohm, 5%, 1/4 W Resistor	AB	CB
R420, 421, 422, 423	390 ohm, 5%, 1/4 W Resistor	AB	CB
C401, 402	750 pF Ceramic Disc Capacitor	CE	DD
C403	910 pF, 5% Mica Capacitor	AR	DM15-911J
C404	1500 pF Ceramic Disc Capacitor	CE	DD

#### 8-11. POWER SUPPLY PARTS LIST

##### Resistors

Circuit Ref.	Description	Mfr. *	Type or Part No.
R54, 56	51 ohm, 1%, 1/2 W Resistor	AB	RN60D
R304	4990 ohm, 1%, 1/4 W Resistor	AB	RN55D
R305	634 ohm, 1%, 1/4 W Resistor	AB	RN55D
R306	3320 ohm, 1%, 1/4 W Resistor	AB	RN55D
R307	4750 ohm, 1%, 1/4 W Resistor	AB	RN55D
R308	3740 ohm, 1%, 1/4 W Resistor	AB	RN55D
R314	7150 ohm, 1%, 1/4 W Resistor	AB	RN55D
R315	7820 ohm, 1%, 1/4 W Resistor	AB	RN55D
R316, 317	3320 ohm, 1%, 1/4 W Resistor	AB	RN55D
R318	4990 ohm, 1%, 1/4 W Resistor	AB	RN55D
R320, 321	20 ohm, 1%, 1/4 W Resistor	AB	RN60D

\* See Section 8-2 for Mfg.

## Integrated Circuits and Semiconductors

Circuit Ref.	Description	Mfg. *	Type or Part No.
D301, 302, 303, 304, 305, 306	Rectifier Diodes	TI	1N4004
IC301	Voltage Regulator	NA	LM-340-5
HS301	Heat Sink for IC301	WK	672-3B
IC303, 310	Voltage Regulator	TI	u723DIP
IC320	Dual Operational Amplifier	NA	LM1458N
Q304	PNP Power Transistor	TI	TIP-30
Q305	NPN Power Transistor	TI	TIP-29
Q311	PNP Transistor	MO	2N2905A

### Capacitors

C300	0.01 uF, 1000 V Disc Capacitor	SP	TG-S10
C301a, 301b	2200 uF, 10 V Electrolytic Capacitor	SP	EV-1180
C302	22 uF, 15 V Tantalum Capacitor	KE	K22E15
C303, 304	1000 uF, 25 V Electrolytic Capacitor	SP	EV-1360
C307, 308, 317, 318, 320, 321	10 uF, 25 V Tantalum Capacitor	KE	K10E25
C305, 315	1000 pF, 25 V Disc Capacitor	CE	DD-102
C306, 310, 316	0.1 uF, 25 V Disc Capacitor	CD	UK25-104

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\*See Section 8-2 for key to abbreviations.

IX. DIAGRAMS

List of Drawings

Drawing 25810 - Location Diagram-Current Transformer Termination Board  
& Schematic

Drawing 25812 - Location Diagram - Voltage Attenuator Box  
& Schematic

Drawing 25814 - Schematic Diagram - Analog Section

Drawing 25815 - Location Diagram - Main Printed Circuit Board

Drawing 25816 - Schematic Diagram - Digital Section

Drawing 25818 - Schematic Diagram - Power Supplies

Drawing 25519 - Location Diagram - Display Board

Drawing 25520 - Schematic Diagram - Display Board



D

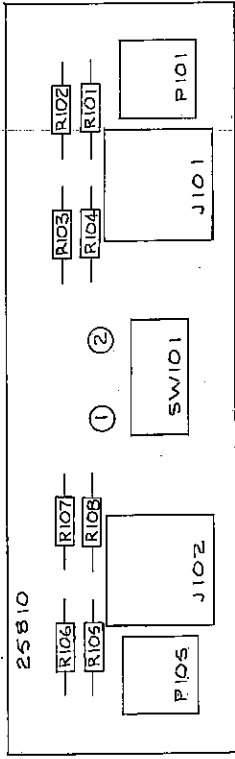
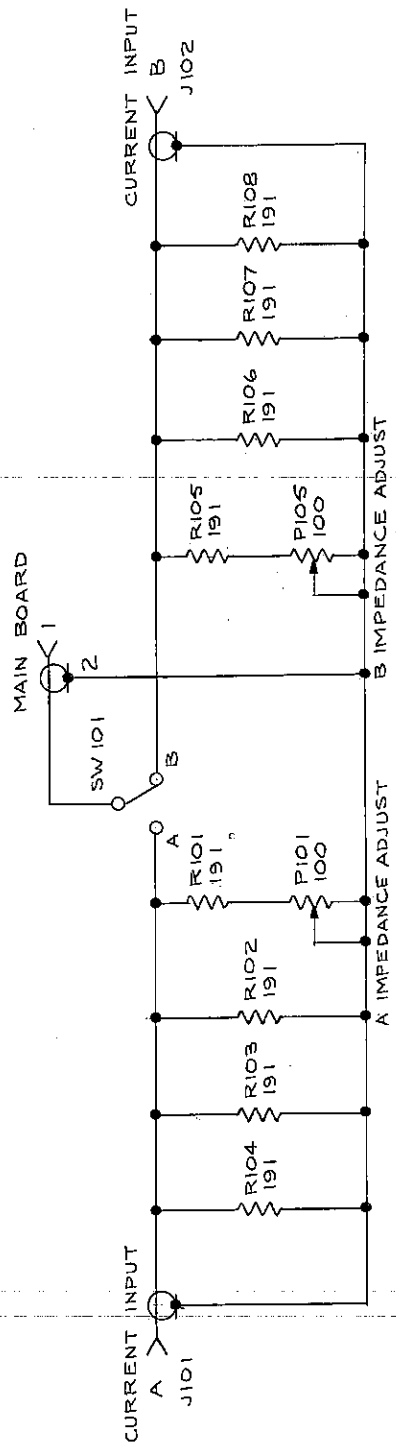
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REVISION RECORD



- NOTES:
1. RESISTOR VALUES ARE IN OHMS.
  2. RESISTOR GROUPS R101-R104 & R105-R108 MAY BE CHANGED TO PROVIDE MATCHING FOR DIFFERENT INPUT CURRENT SENSING DEVICES.

WRONG!

CLARKE-HESS		COMMUNICATION RESEARCH CORP. N.Y. N.Y.	
CONTRACT NO.		MODEL 258	
DESIGNER		CURRENT BOARD SCHEMATIC & ASS'Y.	
CHECKER		DRAWING NO. 25810	
ENGINEER		REV.	
SIZE	SCALE	SHEET	OF
C		1	1

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BRUNNIG 40-105 35993

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## VOLTAGE BOX CHANGES FROM DRAWING 25812

In the present version of the Model 258 there are several changes from the circuit described in Drawing 25812 (opposite). These changes involve the input attenuator and are described below.

The Voltage Attenuator Board is located inside the VOLTAGE ATTENUATOR BOX which is in turn located just behind the Voltage Input Terminals.

The Voltage Box contains the high impedance, capacitive input attenuator, a unity gain buffer amplifier with a low output impedance and the low impedance attenuators to reduce the voltage for the second and third voltage ranges. The input voltage is attenuated for all ranges by the 10 pF (C130) and 2000 pF (C132) input attenuator. (The value given for C132 is for the case where the lowest voltage range is 20.00 V full scale. For other full scale values the value of C-131 or C-132 may be different.) R130, and C133 are omitted from present versions of the Model 258. R 132 is chosen to provide the "best" low frequency phase matching for the input current transformer. The final value is usually around 50 Megohms. (Assuming a 20V minimum voltage range.)

The use of a capacitive input attenuator in the voltage channel provides an "optimum" phase match for the transformer input to the current channel and allows better low frequency, low power factor readings than are obtainable with a resistive input attenuator.

If the voltage range combination in a particular instrument is changed from the normal set of 20.00, 100.0, and 200.0 volts then some of the resistors in the two output attenuator chains will also change (that is resistors R-136 through R141)

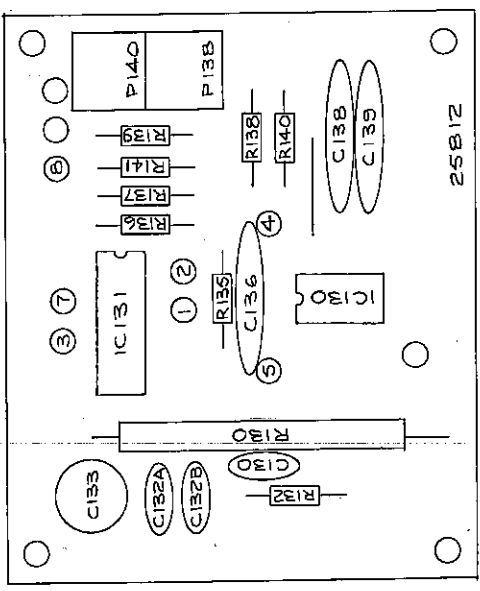
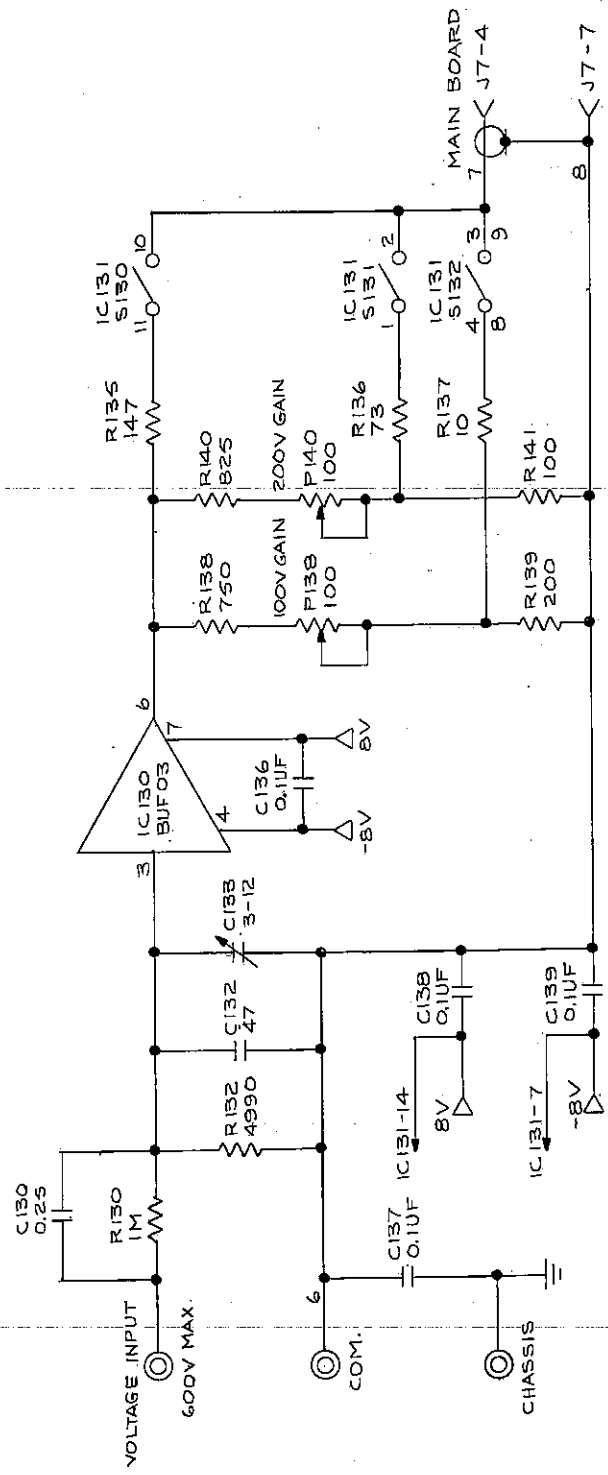
For any combination of ranges a full scale value input on any voltage range should cause a voltage box output of approximately 100 mV at pin 5 of IC3 on the main printed circuit board.

For the normal set of ranges the potentiometer located behind the "1000" hole in the cover to the voltage box is used to adjust the 100.0V range.

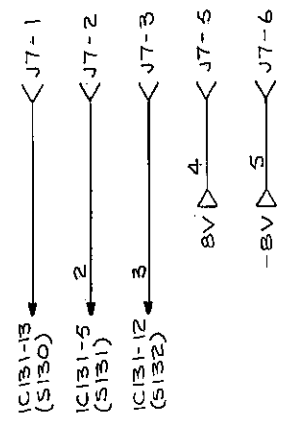
In all cases the lowest voltage range is adjusted with P 1 (on the main printed circuit board) and the other two ranges are adjusted with P 138 or P140 (located inside the Voltage Box and reachable through holes in its lid.)



ZONE	REV.	REVISION RECORD	DATE	DES.



NOTES:  
 1. RESISTOR VALUES ARE IN OHMS.  
 2. UNSPECIFIED CAPACITOR VALUES ARE IN PICOFARADS.



CLARKE-HESS COMMUNICATION RESEARCH CORP. N.Y. N.Y.		CONTRACT NO. HTD 2-282
ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		DTA 2-282
DRAFTSMAN CHECKER ENGINEER	TOLERANCES FRACTIONS DECIMALS ANGLES HOLE SPACING POSITIVES	MATERIAL FINISH
NEXT ASSEMBLY USED ON APPLICATION		DRAWING NO. 25812
SIZE C		DRAWING NO. 25812
SCALE 1		REV. OF SHEET 1

