MAINTENANCE MANUAL
DELTA STATION DISPLAY BOARD
19D901523G1

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DESCRIPTION

The Display board for the DELTA Desk Top Station provides real time status display of station operation. It consists of seven LED bar indicators, two seven-segment channel displays and associated drivers, latches, and a PROM used for binary interface.

Indicators on the display board include:

- MONITOR
- CHANNEL BUSY
- INTERCOM
- SUPERVISORY CONTROL
- TRANSMIT
- STANDBY POWER
- SCAN

The Display board is mounted directly behind the display panel on the right front of the desk top station. The indicators are visible through the display panel.

CIRCUIT ANALYSIS

The function indicators and channel displays indicate the real time status of the DELTA Station. The keyboard controls the volume, channel select, intercom, supervisory control, and scan (when present). The transmit function is available only from the desk mic which contains two transmit PTT switches: one on the base and the rear of the microphone stern. The monitor function is activated by the MON pushbutton on the keyboard or the MONITOR button on the microphone base. The channel busy indicator lights when a carrier is received. (Pushing the monitor button will also turn on the channel busy light.) The keyboard outputs (ground when active) are applied to the keyboard interface circuitry on the system board. The keyboard interface circuitry constantly monitors the keyboard for any change in status. Any change on the keyboard causes the system board to execute the selected function and provides a status display on the display panel.

DISPLAY

The display circuitry consists of seven LED bar indicators (H1-H7) previously identified and a Darlington array driver U1. The Darlington array is controlled by the keyboard through the keyboard interface circuitry on the system board. When a displayed function is selected a positive voltage is present on the appropriate pin of J1. This voltage turns on the associated driver in U1. U1 applies A- to the selected LED bar indicator on the display panel, turning it on. For example: If supervisory control (SUPV CONT) pushbutton was pressed J1-8 on the keyboard is grounded, supplying A- to the keyboard interface circuitry (U7A, B and U4B) which then supplies a positive voltage through J5-2 on the system board to J1-2 on the display board. The Darlington turns on and supplies A- to SUPV CONT indicator H4.

CHANNEL DISPLAY

The channel display circuitry consists of two seven-segment displays, H9 and H10, (units digit and ten's digit), two BCD to seven-segment latches, U2 and U3 and PROM U4. Transistors Q1-Q8 provide buffering between the PROM and the BCD 7-segment latch.

The channel displayed is identified by the 4-bit binary input present at J2-5, 4, 1 and 2 with J2-5 being the least significant bit. The most significant bit is on J2-2. This 4-bit configuration allows a maximum of 16 channels to be displayed. PROM U4 converts the 4-bit binary data to 2-digit BCD (binary coded decimal) data and presents this code to the BCD to 7-segment latch U2 and U3. U2 drives the ten's digit and U3 drives the units digit. Transistors Q5-Q8 provide buffering for the ten's digit and Q1-Q4 provides buffering for the units digit.

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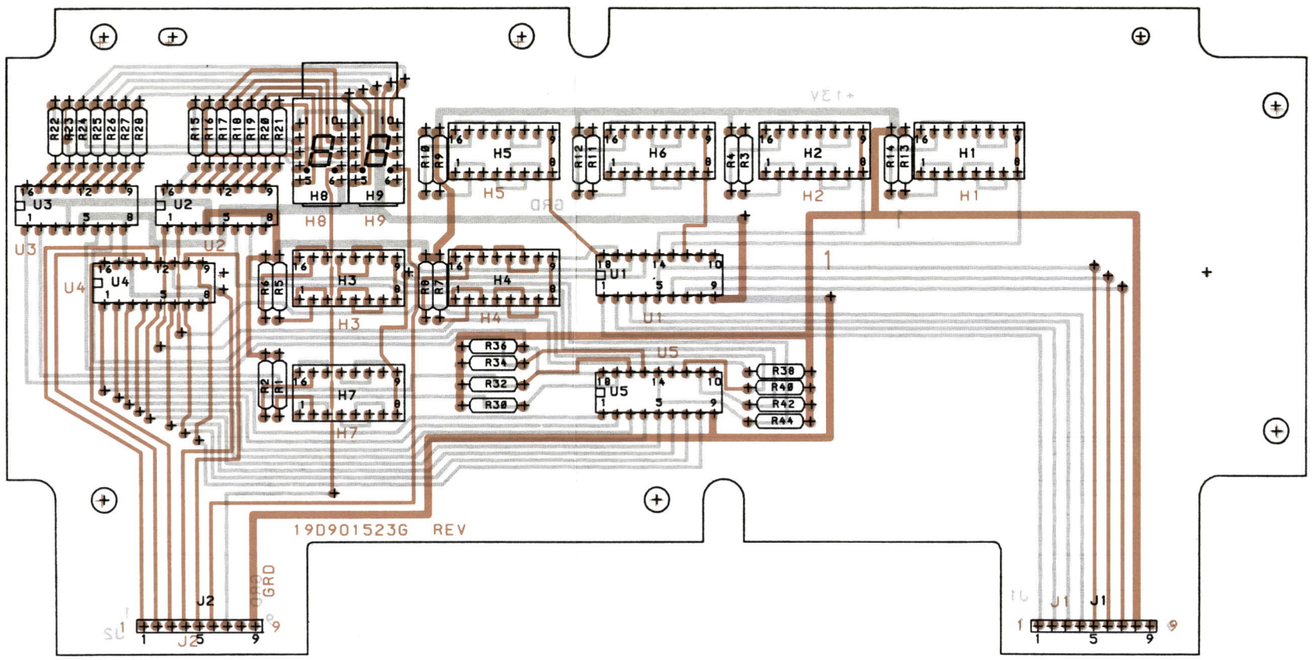
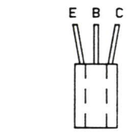
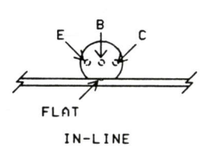


(19D901521, Sh. 1, Rev. 1)
(19A704386, Sh. 1, Rev. 1)
(19A704386, Sh. 2, Rev. 1)

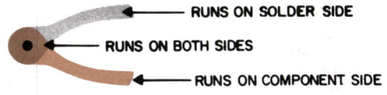




IN-LINE

NOTE: CASE SHAPE IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

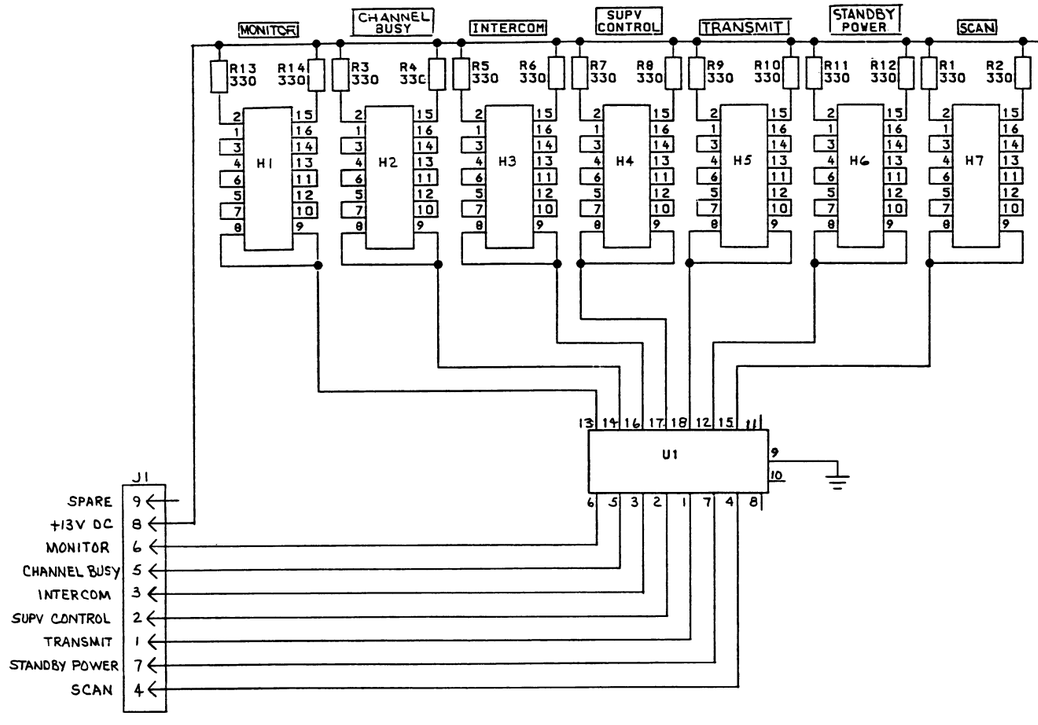
LEAD IDENTIFICATION FOR Q1-Q8

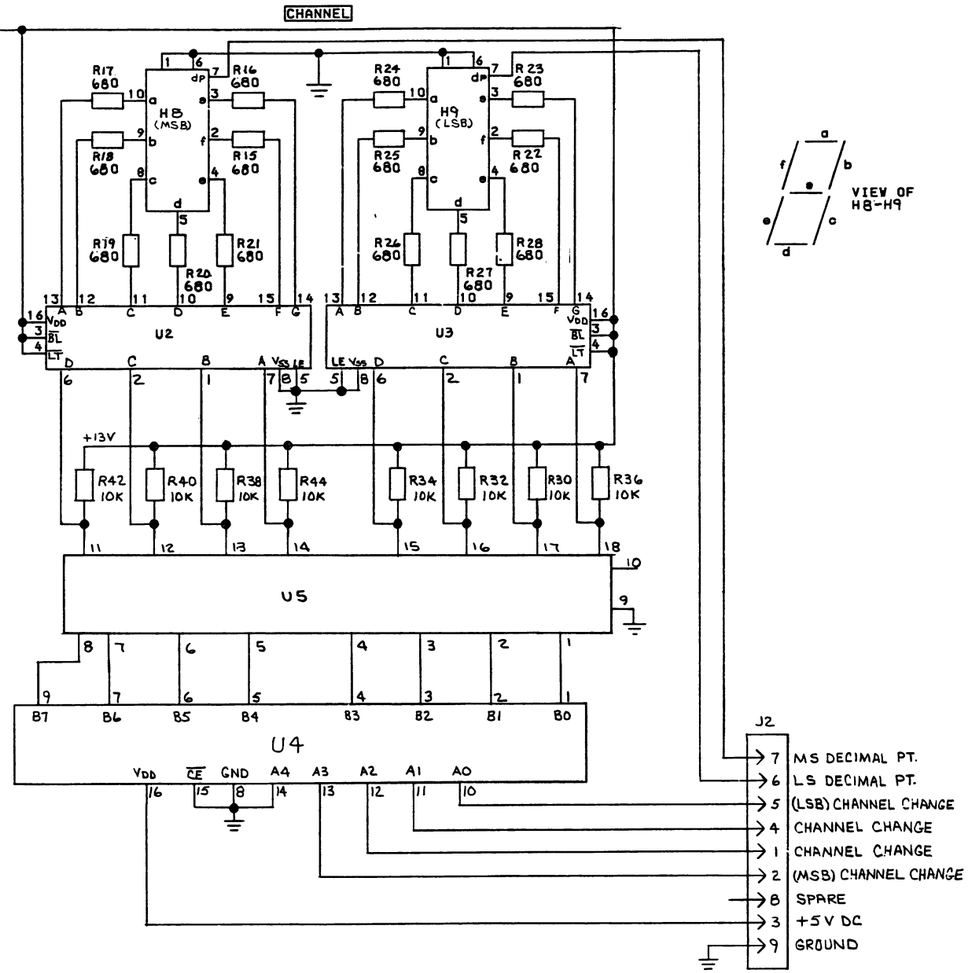


OUTLINE DIAGRAMS

DISPLAY BOARD

2 Issue 2





NOTES:

1. ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED.
   RESISTOR VALUES IN Ω UNLESS FOLLOWED BY MULTIPLIER k OR M.
   CAPACITOR VALUES IN F UNLESS FOLLOWED BY MULTIPLIER μ, n OR p.
   INDUCTANCE VALUES IN H UNLESS FOLLOWED BY MULTIPLIER m OR μ.
2. MARKING SHOWN IN BLOCKS [ ] ARE PART OF DISPLAY PANEL 19C851042P1

MODEL NO	REV LETTER
PL19D901523G1	A

(19D901522, Rev. 1)

SCHEMATIC DIAGRAM

DISPLAY BOARD

PARTS LIST

DISPLAY MODULE (A2)
19D901523G1
ISSUE 3

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - - - LEDS - - - - - - - - - - -
H1	19A701919P6	Light indicator, optoelectronic; sim to HP HLMP-2885.
H2	19A701919P5	Light indicator, optoelectronic; sim to HP HLMP-2785.
H3 and H4	19A701919P6	Light indicator, optoelectronic; sim to HP HLMP-2885.
H5	19A701919P4	Light indicator, optoelectronic; sim to HP HLMP-2685.
H6 and H7	19A701919P6	Light indicator, optoelectronic; sim to HP HLMP-2885.
H8 and H9	19A134712P5	Optoelectronic display: green; sim to HOSP 3603.
		- - - - - - - - - - - - JACKS - - - - - - - - - - - -
J1 and J2	19A700072P8	Printed wire: 9 contacts; sim to Molex 22-03-2091.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 thru R14	H212CRP133C	Deposited carbon: 330 ohms + or -5%, 1/4 w.
R15 thru R28	H212CRP168C	Deposited carbon: 680 ohms + or -5%, 1/4 w.
R30	H212CRP310C	Deposited carbon: 10K ohms + or - 5%, 1/4 w.
R32	H212CRP310C	Deposited carbon: 10K ohms + or - 5%, 1/4 w.
R34	H212CRP310C	Deposited carbon: 10K ohms + or - 5%, 1/4 w.
R36	H212CRP310C	Deposited carbon: 10K ohms + or - 5%, 1/4 w.
R38	H212CRP310C	Deposited carbon: 10K ohms + or - 5%, 1/4 w.
R40	H212CRP310C	Deposited carbon: 10K ohms + or - 5%, 1/4 w.
R42	H212CRP310C	Deposited carbon: 10K ohms + or - 5%, 1/4 w.
R44	H212CRP310C	Deposited carbon: 10K ohms + or - 5%, 1/4 w.
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - -
U1	19A134693P2	Interface: sim to ULN-2803A.
U2 and U3	19A700029P204	Digital: BCD-TO-SEVEN SEGMENT LATCH/DECODER/DRIVER.
U4	19A703329G2	Digital. (SHOTTKY, PROM, FAMILY).
U5	19A134693P2	Interface: sim to ULN-2803A.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B800983P2	Spacer. (Used with H8 & H9).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES.

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.

REV A - DISPLAY BOARD 19D901523G1

Revised Display Board to allow for connector mounting on the component side of the board.