product
modification

## GERMANIUM TRANSISTOR REPLACEMENT

For the following TEKTRONIX Type Plug-ins

| Type | 3B1 | Serial Numbers | 101-ur |
| :--- | :--- | :--- | :--- |
| Type | 3B3 (Q114) | Serial Numbers | $100-2318$ |
| Type | 3B3 (Q214) | Serial Numbers | $100-9539$ |

Silicon transistor, PN 151-0223-00, replaces Germanium transistor, PN 151-0062-00, which is no longer available.

The change requires that R 110 (R208) be changed and R108 (R211) added.

> NOTE: If the serial number of your instrument is above those listed or if this kit has been installed disregard these instructions as PN 151-0223-00 is a direct replacement.


FIG. 1
(3B1)

| Ckt. No. | Quantity | Part Number | Description |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Q114 or Q214 | 1 ea. | 151-0223-00 | Transistor, silicon, 2 N4275 |  |  |
| R108 or R211 | 1 ea. | 321-0380-00 | Resistor, MF 88.7k | 1/8W | 1\% |
| $\begin{aligned} & \text { R110 or } \\ & \text { R208 } \end{aligned}$ | 1 ea. | 321-0392-00 | Resistor, MF 118k | 1/8W | 1\% |
|  | 1 ea. |  | Tubing, \#20 TEFLON* 3" (162-0026-00 |  |  |
|  | 1 ea. |  | Wire, \#26 stranded wht-brn-red-trn 3" |  |  |

## INSTRUCTIONS

After making the appropriate changes as follows make the necessary changes to your Instruction Manual Electrical Parts List and Schematics, for future reference.
A. $\quad 3 \mathrm{~B} 1-\mathrm{Q} 114$. REFER TO FIGURE 1.
( ) 1. Replace transistor Q114, 151-0062-00, with 151-0223-00.
( ) 2. Remove resistor R110, $82 \mathrm{k} 1 / 4 \mathrm{~W} 5 \%$ between CSN-44 and CSM-43.
( ) 3. Add a new R110, $118 \mathrm{k} 1 / 8 \mathrm{~W} 1 \%$ between CSN-44 and CSN-37 (+125V).
( ) 4. Add resistor R108, $88.7 \mathrm{k} 1 / 8 \mathrm{~W} 1 \%$ between CSM-44 and CSJ-12 (-100V).
B. $3 B 1$ - Q214. REFER TO FIGURE 1.
( ) 1. Replace transistor Q214, 151-0062-00 with 151-0223-00.
() 2. Remove resistor $\mathrm{R} 210,82 \mathrm{k} 1 / 4 \mathrm{~W} 5 \%$ between CSB-40 (gnd) and CSB-44.
( ) 3. Add resistor R208, $118 \mathrm{k} 1 / 4 \mathrm{~W} 5 \%$ between CSB-44 and CSB-53 ( +125 V ). Cover leads with tubing.
( ) 4. Add resistor R211, $88.7 \mathrm{k} 1 / 8 \mathrm{~W} 1 \%$ between CSA-44 and CSB-54 (-100V). Cover leads with tubing.


FIG. 2
(3B3)


Partial Sweep Generator


Partial Delayed Sweep Generator

## INSTRUCTIONS: (continued)

C. 3B3-Q114. REFER TO FIGURE 2.
( ) 1. Replace transistor Q114, 151-0062-00, with 151-0223-00.
() 2. Remove resistor R110, $82 \mathrm{~K} 1 / 4 \mathrm{~W} 5 \%$, between CSP-32 and the ground lug under potentiometer R168.
( ) 3. Remove the bare wire strap between CSN-32 and CSN-33.
( ) 4. Move the leads of R109, $330 \Omega$ and C109, 470pF from CSN- 32 to CSN-33.
( ) 5. Add a length of white-brown-red-brown wire between CSG-13 ( +125 V ) and CSN-32.
() 6. Add R110, 118 K , between $\operatorname{CSN}-32$ and CSP-32.
( ) 7. Add R108, 88.7K, between CSP-28 (-100V) and CSP-34 (junction R109/C109).
D. 3B3-Q214. REFER TO FIGURE 2.
( ) 1. Replace transistor Q214, 151-0062-00 with 151-0223-00.
() 2. Remove resistor R210, $82 \mathrm{~K} 1 / 4 \mathrm{~W} 5 \%$ between CSA- 42 and the solder lug.
() 3. Add resistor R208, $118 \mathrm{~K} \quad 1 / 8 \mathrm{~W} 1 \%$, between CSA-33 and CSA-42.
() 4. Add resistor R211, $88.7 \mathrm{~K} 1 / 8 \mathrm{~W} 1 \%$ between CSB-41 and CSJ-3.

