This Index lists the many electronics products Service Notes currently available from Hewlett-Packard. Service Notes contain information that will help you get the most out of your purchases. Typically they contain parts placement information, calibration procedures or modifications to improve or update your HP products.

APRIL 1973
Service Notes are listed in numerical order and a short description is included. To obtain any desired Service Notes, see the order form on the next page.

There are three types of service notes—general, instrument, and parts.

**GENERAL SERVICE NOTES**

These notes cover a very wide range of instruments, often being applicable to an entire product line. They are labeled with an “M” prefix and are listed at the front of the index. For example, M-49 gives recommendations on servo motor repairs.

**INSTRUMENT SERVICE NOTES**

The Service Notes contained in this index all relate to a specific instrument or series of instruments, and are labeled with the model number of the applicable product and a number suffix to identify that particular Service Note. In addition, a letter suffix may be added to indicate that a revision has been made on a previously issued Service Note.

For example, Service Note 8553L-4A is the fourth Service Note written for Model 8553L. The “A” indicates a revision of the original Service Note. If changes were required on this note, the number would become 8553L-4B, superceding the present note. Subsequent revisions would be indicated by incrementing the letter suffix to C, D, E, etc.

If you do not have a desired Service Note, or if the current letter suffix has been changed from that on your copy, request the new Service Note and destroy the superceded one. Having the latest Service Note is recommended since it contains the most current information.

**PARTS SERVICE NOTES**

A series of Service Notes exist that are related to a particular replacement part and they are identified with the part number preceded by a “P.” For example, P-05055-60013.

These Service Notes often give modification instructions or precautions for use of the part.

Parts Service Notes are not listed in this index since they are automatically shipped with the replacement part when required.

To obtain Service Notes for your HP instruments, cut the order form from the index and write in the complete Service Note number.

The order form can be folded two ways. European customers should fold it to expose this address:

Hewlett-Packard S.A.
C/o Philippens and Co.
Attn: Peter Tacz
Freeport Bldg., Room 209
Schiphol, Centrum, Holland

For the United States and elsewhere, fold the order form to expose:

Hewlett-Packard Company
195 Page Mill Road
Palo Alto, California 94306

An additional order form is available at the end of the Index. If both order forms are used, send the complete number of the desired service notes to the correct address above.
ORDER FORM

Please print your name and address clearly. This will be used as a shipping label.

☐ Check here to receive a qualification form for a free subscription to Bench Briefs.

Please list below the numbers of any desired service notes.

Would you give us your opinion? Hewlett-Packard provides some Operating and Service Manuals with all pages bound together and some in loose-leaf form in a three-ring binder.

Have you had occasion to use at least one bound and one loose-leaf HP manual?

☐ YES  ☐ NO

If “YES”, which method of binding do you prefer?

☐ BOUND  ☐ LOOSE-LEAF

Do you have any suggestions to improve the loose-leaf manuals?

Do you have any suggestions to improve the bound manuals?

Which category best describes your involvement with the HP product?

☐ Using the HP product
☐ Calibrating the HP product
☐ Repair/Maintenance of the HP product
☐ Interface/System Configuration of the HP product
☐ Quality Control/Incoming inspection of the HP product
☐ Other

Company Name (Optional) _______________________________

Thank you for your help.
GENERAL
AUTOGRIP: Autogrip retrofit instructions for older X-Y Recorders.
M19C Recommended replacement of precision potentiometers.
M20E Recommended procedures for component replacement on etched circuit boards.
M-23-B Cabinet to rack mount conversion kit.
M-37 Transient-response test set for constant-voltage, regulated DC power supplies.
M-38 Troubleshooting tips for HP Power Supplies.
M-40 Identification photos of terminal posts, pin connectors, stand offs and feed thru's, etc.
M-44 New part numbers for analog head assemblies.
M-45-B Recommended cleaning and lubricating of rotary switches.
M-47 Main power wiring for cabinet models.
M-48 Recommended procedure for cleaning Autogrip tables (Supersedes Autogrip-1, July 1965, Paragraph 6-1).
M-49 Recommendations on Servo Motor Repairs.
M-5G-B Recommended touch-up paints for use with HP Data Acquisition system.

OEM PERIPHERALS
SP2-1 Lubrication for Friden Model SP-2 Motorized Tape Punch used with HP Data Acquisition system.

2D SERIES X-Y RECORDERS

2FA X-Y RECORDERS
2FA-1 Serial Prefix below 619 Replace channel mounting yoke A-14370 with part number A-11385 for increased reliability.

F-3B LINE FOLLOWER
1-3B-1 Serial Prefix 645- and below. Modification for best performance when replacing line follower head.

60B/D LOGARITHMIC CONVERTERS
60D-1A Modification for oven assembly.
60D-2A Recommended replacement diodes.

100B/C/D FREQUENCY STANDARDS
M-4 Replacement of crystal oven mercury column thermostat.

115 B FREQUENCY DIVIDER & DIGITAL CLOCK
H20-115BR-1 Modifications for increased output lock stability and alignment of output circuits.

117A VLF COMPARATOR
117A-5 Modification for elimination of erratic linear phase detector operation.

120 A OSCILLOSCOPE
120A-7 Modification for increased high voltage circuit reliability.

120B OSCILLOSCOPE
120B-3 Modification for increased high voltage circuit reliability.

122 A DUAL TRACING OSCILLOSCOPE
122A-4 Serials prefixed below 521-... Recommended power transformer replacement.
122A-5 Serials below 521-07401 Modification for increased high voltage circuit reliability.

130C OSCILLOSCOPE
130C-2 Serials prefixed below 445-... Modification for improved low frequency response and common mode rejection.
130C-3 Serials prefixed below 438-... Modification for improved power supply reliability.
130C-4 Serials prefixed below 537-... Modification for improved diode turn-on protection.
130C-5 Serials prefixed below 627-... Modification for improved sweep time accuracy.
130C-6A Preferred replacement for Q421, Q441, Q461.
130C-7 Serials 627-05110 & below. Modification to protect low voltage series regulator transistors.
130C-8 Serials below 644-07511. Modification for increased high voltage circuit reliability.
130C-9 Serials 938 & below. Recommended replacement of transistors Q1, Q2, Q201 & Q202.

132A DUAL BEAM OSCILLOSCOPE
132A-2 Preferred replacement for Q621, Q641, Q661, and Q681.
132A-3 Recommended replacement for R578.
132A-4 Serials 938-01335 & below. Recommended replacement of transistors Q1, Q5, Q201 & Q202.

135 SERIES X-Y RECORDERS
M011-2 More reliable replacement for sweep-timing capacitor.

136A X-Y RECORDERS
M011-2 More reliable replacement for sweep-timing capacitor.

140A OSCILLOSCOPE
140A-8A Serials prefixed 520-... Above. Preferred replacement of power transistors Q421, Q441, Q461, and Q481.
140A-12 Serials prefixed 748-... & below. HVPS modification for increased Q601 reliability.
140A-13A Serials prefixed 520-... thru 748-... Modification to correct low Voltage Power Supply malfunction.
140A/141A-6A Serials prefixed 634 & below. Modification for use with new sampling plug-Ins.

141A STORAGE OSCILLOSCOPE
141A-3A Preferred power transistor replacements.
141A-5 Serials prefixed below 620-... Improvement of erase function.
140A/141A-6A Serials prefixed 634 & below. Modification for use with new sampling plug-Ins.
141A-7 Serials with letter "H" following prefix. Special instructions for ordering replacement CRT.
141A-8B Serials below 634-00330 Modification for extended collimator voltage range.
141A-9A Serials above 634-00330 & below prefix 801-... Modification for improved storage time.
141A-10 Serials prefixed 703-... & above. Modification kit for remote erase.
141A-12 Serials 634-00330 thru 635-00525 Modification kit for replacing mode switch.
141A-13 Modification permits operation on 50, 60 and 400-Hz power.
141A-14B Serials prefixed 815-... & below. Modification for improved long-term storage.
141A-15 Serials prefixed 820-... & below. Modification to protect CRT during Beam Finder operation.
141/187C


141/A-17 Procedure for correct CRT selection and installation.

141/A-18 CRT Hood Gun Accelerator Modification.

141B OSCILLOSCOPE

141B/T-1 Serials 1104A00385 and below. Preferred replacement.

141B/T-2 Serials 1145A00565 and below. Preferred replacement.

141S STORAGE OSCILLOSCOPE

141S-1 CRT Hood gun accelerator modification.

141T DISPLAY SECTION

141B/T-1 Serials 1047A01300 and below. Preferred replacement.

141B/T-2 Serials 1113A02200 and below. Preferred replacement.

143A 8 X 10 OSCILLOSCOPE

143A-1 Serials below 838-00140. Modification to damp oscillations in 1400A plug-in.

143A-2 High voltage protection fuse change.

143A-3 Serial prefix 925 and below. Replacement CRT Information.

143S DISPLAY SECTION

143S-1 Serial prefix 925 and below. Replacement CRT Information.

180A/AR OSCILLOSCOPE

180A/AR-3A Serials 822-04194 & below. Modification for increased high voltage adjustment range and prevention of high voltage oscillator double moding.

180A/AR-4 Serials prefixed 822- & below. Recommended replacement for R204.

C05-180A-5 Preferred replacement for the Series Regulator transistors.


180A/AR-6A Preferred replacement for R126 and R310.

180A/AR-7 Preferred replacement for Q104 and addition of R122 in the Gate Amplifier.

180A/AR-8 Gate amplifier reliability modifications.

180A/AR-9 All serials preferred replacement for R305.

180A/AR-10 All serials. Procedure to install Option 807 Rearpanel connections.

180C/D OSCILLOSCOPE

180C/D-1 180C serials 1125A00140 & below. 180D serials 1125A00115 & below. Improved Alternate operation.

180C/D-2 All serials. Procedure to install Option 807 Rearpanel connections.

181A/AR STORAGE OSCILLOSCOPE

181A-1 Precautions for the replacement of storage cathode ray tube.

181A/AR-2 Serials 814-00300 & below. Modification to prevent high voltage oscillator double moding.

181A/AR-3 Serials prefixed 838- & below. Modification to prevent storing in the NORMAL mode.

190A Q METER
190A-3 Serials below 2536. Modification for the replacement of the type 9005 tube.

191A TV WAVEFORM OSCILLOSCOPE
191A-1 Preferred replacement for A1R108.
191A/193A-1 Serials 716-00833 & below. Modification to prevent high frequency roll-off problems.

193A TV WAVEFORM OSCILLOSCOPE
191A/193A-1 Serials 716-00833 & below. Modification to prevent high frequency roll-off problems.
193A-3 Serial 0961A01129 and below. Correct mounting polarity for C702.

195A OSCILLOSCOPE CAMERA
195A-1 Serial prefix 941A. Reduced shutter sensitivity to line transients and static discharges.

196A OSCILLOSCOPE CAMERA
196A-3 Beveled edge adapter ring for Tektronix oscilloscope to guard against light leakage.

197A OSCILLOSCOPE CAMERA
197A-1 Serials 610-01090 and below. Modification to improve switching between "Time" and "Bulb", and to prevent shutter from triggering on noise.
197A-2 Serials prefixed 730- & below. Preferred replacement for transistors Q11 and Q41.
197A-3 Serials 805-02251 & below. Modification to prevent shutter triggering on line noise.
197A-4 Option 12 fuse change.
197A-5 Modification for adoption of polatolod roll film back.
197A-6 Serial prefix 913 and below. Reduced shutter sensitivity to line transients and static discharges.

200AB AUDIO OSCILLATOR
200AB-1B Range switch replacement and frequency adjustment.
200AB-2D Test and adjustment procedures.
200AB-3D Serial 310-19474 & below. Modification to decrease hum and distortion.
200CD-7B Tuning capacitor replacement procedure.

200CD WIDE RANGE OSCILLATOR
200CD-1C Range switch replacement and frequency adjustment.
200CD-1D Test and adjustment procedures.
200CD-7B Tuning capacitor replacement procedure.
200CD-8B Modification to suppress hum at lower than 50/60 Hz operation.
200CD-9A Modification to permit synchronizing with external signal source.

201C AUDIO OSCILLATOR
201C-1 Serials 351-06257 & below. Modification to reduce distortion.
200CD-7B Tuning capacitor replacement procedure.

202C LOW FREQUENCY OSCILLATOR
200CD-7B Tuning capacitor replacement procedure.

202H FM-AM SIGNAL GENERATOR
202H-7 Serials below 6350. Modification to improve piston attenuator probe head and associated components. All serials Replacement procedure for same.

202J FM-AM SIGNAL GENERATOR

203A VARIABLE PHASE FUNCTION GENERATOR

204C OSCILLATOR
204C-1 Serials 808-00500 & below. Modification to improve operation.

204D OSCILLATOR
204D-1 Serials 910-00273 & below. Modification for ground continuity.

205A/AG AUDIO SIGNAL GENERATOR
205A/AG-1B Replacement of frequency range switch.
205A-4 Change in replacement diodes.

200CD-7B Tuning capacitor replacement procedure.

207H UNIVERTER
207H-3 Serial prefix 635A thru 1125A. Recommended replacement for Q300 is IS80-0425.

209A SINE/SQUARE OSCILLATOR
209A-3 Revised flatness check.
209A-4 Serials 818-00951 thru 818-01149. Modification to assure front panel ground.

211B PULSE GENERATOR
211B-1 Serial prefix 0817A. Assembly error.
211B-2 Serial prefix 817 thru 1228A. External sync wiring error.

214A PULSE GENERATOR
214A-2 Serials prefixed below 433- Modification for improved heat dissipation.
214A-3B Serials below 545-02126. Updating modification.
214A-4 Serials below 550-02201. Modification to reduce trailing edge overshoot.
214A-5 Serials 722-04075 & below. Simple modification to prevent loss of trigger output pulses, jitter and variations in rise time, particularly at low line voltage.
214A-7 Serials prefixed below 921-. Line filter replacement kit for use where high transient line voltage are encountered.

216A PULSE GENERATOR
216A-1A Serials 717-00450 & below. Modification to improve operation of count-down mou and rate generator.
218A DIGITAL DELAY GENERATOR

219B DIGITAL DELAY PLUG-IN UNITS
219B-1 Recommended replacement for CR702 and CR706.

220A SQUARE WAVE GENERATOR
220A-1 Serials 909-00326 & below: Modification for output saturation.

221A SQUARE WAVE GENERATOR
221A-1 Serials below 927-00161: Modification for improved performance.

222A PULSE GENERATOR
222A-1A Serials 607-00875 & below: Modification to improve high frequency response.
222A-2 Serials 740-01315 & below: Add diode to permit applying up to 1 vdc to output terminals without damaging output circuit.
222A-3 Serials 928-01601 & below: Modification to improve reliability.
222A-4A Serials 842-01635 & below: Modification to strengthen PULSE AMPLITUDE switch mounting.
222A-5 Serials 928-01846 & below: Modifications to prevent output pulse loss.

230A POWER AMPLIFIER
230A-3 RF alignment; selection and replacement of glass capacitor tubes and pistons; modifications; additional operating precautions and service information.

232A GLIDE SLOPE SIGNAL GENERATOR
232A-3 Recommended replacement tubes.

241A PUSHBUTTON OSCILLATOR
241A-1 Serials below 324-00929: Modification for improved stabilization time.

250B RX METER
250B-1 Replacement of RF transformer.

302A WAVE ANALYZER
302A-2 Serials below 412-00375, except serials prefixed 149: Modification for use with grounded input recorder.
302A-3 Illustrated parts identification.
302A-4A Serials below 741-05976: Recommended replacement for pilot lamp.

310A HIGH FREQUENCY WAVE ANALYZER
310A-1A Installation of 100 Kc crystal calibration kit.
310A-6 Serials below 516-01186: Modification for improved bandwidth accuracy.

312A WAVE ANALYZER
312A-2 Serials prefixed 712—& below: Adding ferrite beads to prevent spurious responses or oscillations.
312A-3 Serials prefixed 706—& below: Preferred replacement for A9Q3, 4, 5, & 6.
312A-4 Serials 720-00660 & below: Preferred replacement parts.

331A/332A DISTORTION ANALYZERS
331A/332A-1B Serials 716-02010 & above (331A); Serials 717-01061 & above (332A): Recommended replacement parts.
331A/332A-7 Serials 716-02300 & below (331A); Serials 605-01060 & below (332A): Modification to reduce zero offsets.

335A FM MONITOR & MODULATION METER
M-4 Replacement of crystal oven mercury column thermostat.

335E FM MONITOR
335E-2B Replacement of 3740-0010 fan motor.

340B NOISE FIGURE METER
340B/342A-1 Adjustment to protect against burnout.

342A NOISE FIGURE METER
340B/342A-4 Adjustment to protect against burnout.

343A VHF NOISE SOURCE
343A-1 New excess-noise specification and correction factor for excess noise.

347A WAVEGUIDE NOISE SOURCE
347A-1E Procedure for installing gas tubes.

349A UHF NOISE SOURCE
347A-1E Procedure for installing gas tubes.

350C/D ATTENUATOR
350C/D-1 Replacement instructions for 10 db and 100 db attenuator assemblies.

382A PRECISION VOLTAGE WAVEGUIDE ATTENUATOR
382A-1C Procedure for calibration and alignment.

394A VARYING COAXIAL ATTENUATOR
394A-1 Serials 1834 & above: Absolute accuracy specification correction.
400D VACUUM TUBE VOLTMETER
400D-2 Test, adjustment, and certification methods
400D-3D Serials 14770 & below Replacement components for feedback circuit.
400D-4C Serials 17970 & below Modification of the input attenuator to reduce residual noise.
400D/H/L-10C Simplified calibration procedure
400D/H/L-11B Replacement Range Switch Assembly
400D/H/L-12 Recommended replacements for V1 and V2
400D/H/L-13 Procedure for replacement of 6AX5 rectifier.

400E/EL AC VOLTMETER
400E/EL-1 Pin connector compatibility.
400E/EL-2A Serials prefixed 536- & below Recommended replacement parts.

400F/FL/GL AC VOLTMETER
400F/FL-1B Serials 617-01375 & below Recommended replacement parts
400F/FL/GL-1A Serials 734-01526 & above (400F/FL); Serials 737-00456 & above (400GL) A2 circuit board change.

400H VACUUM TUBE VOLTMETER
400H-2 Test, adjustment, and certification methods.
400H-4C Serials 2237 & below Replacement components for feedback circuit.
400H/H/L-10C Simplified calibration procedure
400H/H/L-11B Replacement range switch assembly.
400H/H/L-12 Recommended replacement for V1 and V2
400H/H/L-13 Procedure for replacement of 6AX5 rectifier.

400I LOGARITHMIC VACUUM TUBE VOLTMETER
400I-2 Test, adjustment, and certification methods.
400I/H/L-10C Simplified calibration procedure
400I/H/L-11B Replacement range switch assembly.
400I/H/L-12 Recommended replacements for V1 and V2
400I/H/L-13 Procedure for replacement of 6AX5 rectifier.

400J DC VACUUM TUBE VOLTMETER
400J-2 Test, adjustment, and certification methods.
400J/H/L-10C Simplified calibration procedure
400J/H/L-11B Replacement range switch assembly.
400J/H/L-12 Recommended replacements for V1 and V2
400J/H/L-13 Procedure for replacement of 6AX5 rectifier.

410A RF MILLIVOLT METER
410A-1 Recommended replacement for V3.
410A-2 Serials 938-04683 thru 938-04719 Modification to eliminate meter ringing.

412A DC VACUUM TUBE VOLTMETER
412A-1 Meter replacement.
412A-3 Installation of demodulator assembly.
412A-6C Range switch maintenance.
412A-7A Replacement parts for voltage probe assembly
412A-8 Serials 134-07482 & below Modification kit to reduce strain on input cables.
412A-9A Safety precaution when using probe.
412A-11 Serials 424-14482 & below Instructions for adding a zero adjust control to prevent zero offset.
412A-12 Modification to reduce noise and zero offset.
412A-13/413A-3 Modulator cable assembly available separately
412A-14A Mechanical Parts Identification.
412A-15 Serials 649-17582 & below Modification to prevent regulator tube V105 breakdown.
412A/AR-1C Serials 424-14482 & below Recommended replacement for input circuit assembly.
412A/AR-3 Serials 424-14482 & below Recommended replacement for CR101.

412AR DC VACUUM TUBE VOLTMETER
412AR-1 Serials 315-02310 & below Recommended replacement for input circuit assembly.
412AR-2 Serials 134-07482 & below Modification kit to reduce strain on input cables.
412AR-9A Safety precaution when using probe.
412AR-11 Serials 424-14482 & below Instructions for adding a zero adjust control to prevent zero offset.
412AR-12 Modification for improved ground connection.
412AR-3 Serials 424-15082 & below Instructions for adding a zero adjust control to prevent zero offset.
412AR-4/413AR-2 Modulator cable assembly available separately
412AR-5 Illustrated parts identification.
412AR-6 Serials 649-17582 & below Modification to prevent regulator tube V105 breakdown.
412AR-1C Serials 424-14482 & below Recommended replacement for input circuit assembly.
412AR-3 Serials 424-14482 & below Recommended replacement for CR101.

413A DC NULL VOLTMETER
413A/AR-1 Serials 315-02310 & below Recommended replacement for input circuit assembly.
413A-2 Modification to reduce noise and zero offset.
313AR--465A

412A-13/413A-3 Modulator cable assembly available separately.

413AR DC NULL VOLTMETER
413A/AR-1 Serials 315-02310 & below. Recommended replacement for input circuit assembly.
412AR-4/413AR-2 Modulator cable assembly available separately.

41SC STANDING WAVE RATIO METER
413A Serials above 315-02310. Recommended replacement for input circuit assembly.

419A DC NULL VOLTMETER
419A-1 Serials 532-00675 & below. Recommended replacement for transistors Q101 and Q102.
419A-3B Serials 636-01275 & below. Modification to enable direct current measurements from 10 pA to 30 nA.
419A-5A Serials 532-01275 & below. Replacement for BTS battery holder.

423A, 424A CRYSTAL DETECTOR
423A/424A-1 Replacement diode assemblies.

425A DC MICRO VOLT-AMMETER
425A-2A Serials 022-02550 & below. Circuit modifications to increase reliability and stability.
425A-6 Modulators available in two sub-assemblies for greater ordering convenience.

427A VOLTMETER
427A-1B Modification to allow operation with battery or AC line supply.
427A-3 Improved zero offset.
427A-4 Serials 621-02300 & below. Recommended replacements for A104 and A108.

430B MICROWAVE POWER METER
430B-1 Procedure for checking and adjusting bias current.
430B-2 Modification for increased flexibility and convenience.

431A POWER METER
431A-1C Modification to allow for battery power operation.
431A-2 Serials below 210-00666. Modification to improve electrical zero set control.
431A-3 Installation of equalizer network assembly.
431A-4/431B-4/431C-4 Serial prefix 210 and above. Preferred replacement ZERO control.
431A-5 Modification for smooth zero set operation below zero.

431B POWER METER
431B-1 Procedure for installing long cable (between mount and meter) options.
431B-3 Serials below 423-04101. Recommended replacement for Q106 for easier recalibration.
431A-1C Modification to allow for battery power operation.
431A-4/431B-4/431C-4 Preferred replacement ZERO control.

431C POWER METER
431C-1 Procedure for installing long cable options.

431C-2 Serials 618-01450 & below. Replacement zener diode kit for power supply.
431C-3 Serials 707-04050 & below. Recommended replacement for F1.
431A-4/431B-4/431C-4 Preferred replacement ZERO control.

432A POWER METER
432A-1 Calibration procedure (without using 8477A).
432A-2 Serials prefixed 843- & below. Increased stability during calibration.
432A-3 Serials below 937-01850. Modification for improved battery charger adjustment range.
432A-4 Serials 812-00200 & below. Modification for improved zero carryover and range-to-range tracking.
432A-6 Installation of long thermistor mount cable options.

432A 7 Serials 957-02950 & below. Modification for operation in cold environments.
432A-8 Serials 843 & below. Recommended replacement for the A2 Logic Board.
432A-9 Serials 968-03550 & below. Modification to improve stability for 100 ohm operation.

432B DIGITAL POWER METER
432B-1 Serial 1143A00310 and below. Recommended replacement for 115 V fuse 2110-0201.
432B-2 Serial prefix 1141A and below. Modification to improve operation with SOSSA Digital Recorder.

434A CALORIMETRIC POWER METER
434A-1G Head Box installation procedure.
434A-2 Operating precautions.

432C POWER METER
432C-1 Serial prefix 1213A and below. Modification for computer operation.

461A AMPLIFIER
461A-1A Serials 418-00700 & below. Replacement of transistors Q4, Q5, Q6, Q7, and Q8.
461A/462A-2 Procedure for eliminating noise caused by jarring the amplifier.

462A AMPLIFIER
461A/462A-2 Procedure for eliminating noise caused by jarring the amplifier.

463A PRECISION AMPLIFIER
463A-2 How to align range switch to prevent pushbuttons from sticking.
463A-3 WARNING note to avoid shock or damage to instruments.
463A-4 Serials 738-00340 & below. Recommended replacement for A304 and A3Q6.
463A-6 Prevention of Oscillations resulting in power supply damage.

465A AMPLIFIER
465A-1 Serials 530-00410 & below. Replacement of CS to increase gain accuracy at 5 Hz.

* INDICATES RECENT ADDITION OR REVISION
465A-3A Recommended replacement for Q6
467A POWER AMPLIFIER/SUPPLY
467A-1 Serials 949-02245 & below. Recommended replacement for A1CRI14 and A1CRI07 for improved positive and negative output current limit.

477A THERMISTOR MOUNT
477A-1F Procedure for disassembly, assembly, and testing.

489A 1WT AMPLIFIER
489A/491C-1 Serials below 226-00246. Installation of air duct kit.
489A/491C-2A Serials below 449-00506. Increased TWT filament life.
489A/491C-3 Serials below 449-00566. Improved power supply regulation.
489A-S/491C-5 Serials below 930-01316. Modification to increase adjustment range of K3.

491A TRAVELING WAVE TUBE AMPLIFIER
491A-1B Serials 130 & below. Replacement of cam shaft parts.

491C TRAVELING WAVE TUBE AMPLIFIER
491C-1 Serials below 226-00246. Installation of air duct kit.
491C-2A Serials below 449-00506. Increased TWT filament life.
491C-3 Serials below 449-00566. Improved power supply regulation.
491C-S/491C-5 Serials below 930-01316. Modification to increase adjustment range of K3.

493A TRAVELING WAVE TUBE AMPLIFIER
493A-1 Serials below 304-00226. Installation of air duct kit.
493A-2A Serials below 449-00496. Modification to increase TWT filament life.
493A-3 Preferred replacements for V403 and V404.
493A-S/491A-4 Serials below 826-01256. Modification to protect TWT from current overloads.

506A DIGITAL RECORDER
506A-1B Replacement of cam shaft parts.
506A-2D Procedure for replacement of clutch solenoid assembly.
506A-3 Procedure for replacement of clutch solenoid assembly.
506A-9 Procedure for replacement of clutch solenoid assembly.
506A-10B Procedure for replacement of output attenuators.
506A-13D Maintenance Kit.
506A-14A Printer mechanism maintenance schedule.

508A/B/C/D TACHOMETER GENERATORS
508A/B/C/D-1 Illustrated parts identification.

606A IF SIGNAL GENERATOR
606A-2B Serials below 038-01732. Replacement of percent modulation or RMS volts meter.
606A-3 Replacement of drive cable assembly.
606A-4 Serials 038-02230 & below. Replacement of tank coils.
606A-8 Illustrated parts identification.
606A/B-10 Written copy of Service Tips on a 606 Video Tape.

608A/B VHF SIGNAL GENERATORS
608A-3A Procedure to replace oscillator and amplifier turrets.
608A-7 Procedure for repair of output attenuators.

608C VHF SIGNAL GENERATOR
608C-2A Serials below 247-00456. Modification for regulated DC filament operation.
608C/D/E/F-1A Serial between 247-0456 and 548-06809. Modification to add fuse protection to DC filament supply and wiring.
608C/D/E/F-8 Serials below 832-07540. Recommended replacement for R7 and R8.
608C/D/E/F-9 Serials below 832-07415. Recommended replacement for fuse F1.
608D-3A Serials below 01287. Recommended replacement procedure for power monitor detector assembly.
608D-4A Serials below 02354. Recommended replacement of rectifiers for increased reliability.

608D VHF SIGNAL GENERATOR
608C-2A Serials below 247-0081115. Modification for regulated DC filament operation.
608E/F—620B

608C/D/E/F-1A Serials between 247-08115 and 548-11960. Modification to add fuse protection to DC filament supply and wiring.


608C/D/E/F-8 Serials below 828-12556. Recommended replacement for R7 and R8.


608D-3A Serials below 02383. Recommended replacement procedure for power meter detector assembly.

608D-4A Serials below 04916. Recommended replacement of rectifiers for increased reliability.

608D-6B Recommended replacement of CR21 for improved precision of filament power supply.


608E/I'-11 608E serials below 832-01251. Recommended replacement of CR1 is 1910-0011.

608E/I'-12 608E serials below 832-01251. Recommended replacement of CR1 is 1910-0011.

608E/I'-13 608E serials below 832-01251. Recommended replacement of CR1 is 1910-0011.

608E/I'-14 608E serials below 832-01251. Recommended replacement of CR1 is 1910-0011.

608E/I'-16 Written copy of service tips on a video tape.

608E/I'-17 608E serials below 832-01251. Recommended replacement of CR1 is 1910-0011.

612A-4 Procedure for replacement for output attenuator.

612A-5B Serials 329 thru 299-01815. Replacement of rectifiers for increased reliability.

612A-6 Serials below 446-04467. Modification to improve modulator low frequency response.


612A-8A Serials below 601-05133. Modification to protect R95 and R97 inside RF tuning assembly.


612A-10 Serials below 352-03615. Modification for regulated DC filament operation.

614A SIGNAL GENERATOR

614A-1C Replacement of attenuator and power monitor probe.

614A-3 Illustrated parts identification.

614A-4 Fuse change.

616A/B VHF SIGNAL GENERATORS

616A-4A Replacement of attenuator and power monitor probe.

616A-5 Illustrated parts identification.

616B-6 Serials below 226-02591. Modification to reduce residual AM.

616B-7B Serial prefix 1128A and below. Modification to suppress transient at Sync input jack.

618A SIGNAL GENERATOR

618A-1F Procedure for replacing and aligning the power monitor probe and output attenuator.

618A-4 Suppression of switching transients at Sync input.

618A-5 Procedure for replacing and aligning the power monitor probe and output attenuator.

618B-7A Suppression of switching transients at Sync input.

618C SIGNAL GENERATOR

618C-1A/620B-1A Serials below 740-00701. Preferred replacement for R523 for improved A/F operation.

618C-2/620B-2 Serials below 740-00576. Modification to reduce AM noise sidebands in the CW mode.

618C-4 Serials below 645-00277. Fan installation kit.

618C-5 Serial prefix below 0979A. Suppression of switching transients at Sync input.

620A SHF SIGNAL GENERATOR

620A-1A/620B-1A Serials below 740-00701. Preferred replacement for R523 for improved A/F operation.

620A-2D Replacement of attenuator and power monitor probe.


620A-6 Illustrated parts identification.

620A-7A Suppression of switching transients at Sync input.

620B SIGNAL GENERATOR

620B SIC SIGNAL GENERATOR

620B-1A/620B-1A Serials below 740-00601. Preferred replacement for R523 for improved A/F operation.

623B SHF TEST SET
623B-5 Procedure for replacement of attenuator assembly
623B-6 Recommended replacement procedure for fan motor

624C X-BAND TEST SET
624C-1 Illustrated parts identification
624C-3 Recommended replacement procedure for fan motor
624D-1/H04-624C Recommended replacement procedure for fan motor

626A SHF SIGNAL GENERATOR
626A-IF Replacement cavity-klystron assembly.
626A-2A Modification to allow for operation from AC line of 50 to 400 Hz.
626A-3 Illustrated parts identification.
626A-6 Serials 1210AO1730 and below. Ext. Sync minimum pulse width.
626A-7 Serial prefix 003 and below. Selenium rectifier replacement

628A SHF SIGNAL GENERATOR
628A-4 Illustrated parts identification.
628A-2C Modification to allow for operation from AC line of 50 to 400 Hz.
628A-6 Serials 008-00328 and below. Selenium rectifier replacement.
628A-7 Serials 1149AO1968 and below. Ext. Sync minimum pulse width.

651A TEST OSCILLATOR
651A-8 Meter diode replacement

651B TEST OSCILLATOR
651B-1 Modification to convert power monitor to dBm/600 ohms
651B-2A Modification to convert to 75-ohm output (Option 02)
651B-3 Recommended replacement for A2R17.
651B-4A Serials 911-01911 & below. Recommended replacement of power supply transistors.
651B-5 Serials 0961A06600 and below. Recommended replacement of power transistors.
651B-6 Meter diode replacement.

652A TEST OSCILLATOR
652A-1 Recommended replacement for A2R17.
652A-2A Serials 912-04651 & below. Recommended replacement of power supply transistors.
652A-4 Meter circuit diode replacement

653A TEST OSCILLATOR
653A-1A Serials 955-00281 and below. Improved Sync stability
653A-2 Maintenance procedures for attenuator switch

675A SWEEPING SIGNAL GENERATOR

676A PHASE-AMPLITUDE TRACKING DETECTOR
676A-1 Procedure for system compatibility check

680 SERIES ELECTRONIC SWEEP OSCILLATORS
682A-4A Modification and adjustment procedures.
682A-6 Recommended for increased reliability.
684A-1C Replacement of UWG Tube

690A/B SERIES SWEEP OSCILLATORS
690A-1 Conversion of A Series to B Series.
690A/B-1 Serials below 409-00161. Updating modifications.
690A/B-2 Serials below 410-00186. Modifications for improved stability when power meter leveling.
690A/B-3A Serials above 341-00121. Installation of option 01.
690A/B-4 Serials below 424-00361. Updating modifications.
690A/B-5A Serials below 435-00511. Modification for improved square wave modulation and reduction of RF interference.
690A/B-6 Modification for the addition of a blanking output

690C/D SERIES SWEEP OSCILLATORS
690C/D-1 Serials below 548-00401. Anode fuse protection.
690C/D-2 Serials below 548-00806. Modification to reduce turn-on transients in 6 3V DC Power Supply.
690C/D-3 Serials 548-00401 & below. Recommended resistor changes for improved reliability.
690C/D-4 Recommended replacement for neon lamp DS1, 2 & 3.

694B, 695A, 696A, 697A, SWEEP OSCILLATORS
694B-1 Modification to prevent accidental blowing of anode fuse due to switching transients.

712C DC POWER SUPPLY
712C-1 Serials 545 & below. Modification to improve reference supply with constant current and line regulation.

715A KLYSTRON POWER SUPPLY
715A-3A Replacement of regulated RF oscillator assembly.

716A KLYSTRON POWER SUPPLY
716A-1B Modification for improved klystron protection

735A DC TRANSFER STANDARD
735A-2 Serials 547-00330 & below. Modification to hold oven in place.

738AR VOLTMEaR CALIBRATOR
738AR-1D Modification to enable calibration of 1-3-10 and 1 5-5-15 full scale Voltmeters.
738AR-2A Serials 441-01255 & below. Modification for increased reliability
738BR—851B

738AR-3/738BR-1 Recommended replacement for L1.

738BR VOLTOMETER CALIBRATOR
738AR-3/738BR-1 Recommended replacement for L1
738BR-2 Serials 503-03200 & below. Preferred replacement capacitors.

740B DC STANDARD VOLTMETER
740A-4/740B-1A Serials 610-00110 & below. Addition to alignment instructions on inside top cover.
740B-4 Serials 722-00790 & below. Modification to eliminate possible intermittent operation of K1 Output Relay at low line voltage.
740B-5 Serials 722-00909 & below. Modification to center zero control.
740B-6A Serials 946-00951 & above. Recommended replacement of sensitivity switch shafts.

741B DC STANDARD VOLTMETER
741B-2B Serials 634-00514 & below. Modification to increase reliability of Power Switch
741B-3 Serials 824-00540 & below. Modification to eliminate thermal voltage of variable Standard Vernier
741B-4 Serials 828-00560 & below. Modification for improved output voltage reliability
741B-5A Serials 844-00620 & below. Modification to stabilize loop bias adjustment.
741B-6A Serials 944-00781 & above. Recommended replacement of sensitivity switch shafts.

745A AC CALIBRATOR
745A-2A Serials 912-00410 & below. Modification to allow operation with 746A High Voltage Amplifiers.
745A-3 Serials 741-00310 & below. Modification for increased AGC Level Control range.
745A-4 Serials 741-00310 & below. Recommended replacement for A3Q21.
745A-5 Troubleshooting procedure.
745A-6 Serials 912-00480 & below. Recommended transistor replacement to improve overload recovery at 100V - 100KHz
745A-7 Serials 953-00550 & below. Modification to prevent erroneous overload indications.
745A-8 Reduce Acoustical Noise.
745A-9 Prevent Sticking of Pushbuttons

746A HIGH VOLTAGE AMPLIFIER
746A-1 Serials 933-00120 & below. Permanent filter screen mounting.
746A-2 Serials 933-00121 & below. Modification to eliminate parasitic oscillations.
746A-3 Modification for increased reliability.
746A-4 Serials 933-00215 & below. Modification to improve reliability of A9Q1 and A9Q2.
746A-5 Serials 933-00265 & below, excepting serials 933-00120, -00209, -00213, -00244, -00246, & -00262. Modification to eliminate high frequency oscillations.
746A-6A Serials 933-00215 & below, excepting serials 933-00214, -00213, -00211, -00209, -00204, -00202, -00200, -00199, -00197, -00192. Modification to raise the A5 Board high voltage output.
746A-7A Serials 933-00266 to 990-00356. 1006.1 Divider Adjust Reversal.

748D COAXIAL DIRECTIONAL COUPLER
748D-1 Explanation of differences between various kinds of Type N connectors.
748D-2A/775D-1A Specifications correction for insertion loss.

756D COAXIAL DIRECTIONAL COUPLER
756D-1 Clarification of insertion loss spec.

777D COAXIAL DIRECTIONAL COUPLER
777D-1 Clarification of insertion loss spec.

799D DIRECTIONAL COUPLER
799D-1 Clarification of insertion loss spec.

X781 A COAXIAL DIRECTIONAL DETECTOR
X781A-1 Clarification of insertion loss spec.

851A SPECTRUM ANALYZER DISPLAY SECTION
851A-1 Serials 439-00402 & below. Modification for improved 1 MHz log display.
851A-2 Modification for added Video Amplifier protection.
851A-3 Procedure for field installation of external sweep input.
851A/B-6 Recommended transistor replacement.
851A/B-7 Recommended transistor replacement.
851A/B-8/852A-4 Recommended replacement for A1 IF Gain Switch Assembly.

805A/C SLOTTED LINE
805A-3 Replacement of end connectors.

851A SPECTRUM ANALYZER DISPLAY SECTION
851B-1/852A-1 Serials 808-01973 thru 850-02947 Modification for improved 15V power supply reliability.
851B-3 Serials 813-02122 thru 933-03197 Modification for improved diode protection.
851A/B-6 Recommended transistor replacement.
851A/B-7 Recommended transistor replacement.
851A/B-8/852A-4 Serial prefixes 808 & below. Recommended replacement for A1 IF Gain Switch Assembly.
# 852A SPECTRUM ANALYZER


852A-3 CRT failures

851A/B-8/852A-4 Serial prefixes 809- & below. Recommended replacement for A1 IF Gain Switch Assembly.

852A-5 CRT flood gun accelerator modification.

# 885A PHASE SHIFTER

885A-1A A technique for calibrating Phase Shifters to high accuracy.

# 110A TRIGGER COUNTDOWN

110A-1 Revised bias adjustment procedure.

# 110A PULSE GENERATOR

110A-1 Replacement of R11.

# 1106A TUNNEL DIODE

1106A-1 All serial prefixes, repair policy.

# 111A AC PROBE AMPLIFIER

111A-1A Recommended diode replacement.

1121A AC PROBE

1121A-1 All serial prefixes; replacement probe assembly

# 1200 SERIES OSCILLOSCOPES

1200A-1 Serials below 808-00221. Improved LV regulator transistor mounting kit.

1200A-3A Modification for additional High Voltage Oscillator transistor protection.

1200A/B-4 1200A serials below 1044A01396, 1200B serials below 0931A00973. Increased protection for input preamplifier boards when making power measurements.

1201A/B DUAL TRACE OSCILLOSCOPE

1201A/B-1A Serials prefixed 901 & below. Modification to standardize erase time.

1201A/B-2A Serials 924 & below. Modification to eliminate momentary write gun turn-on after erase.

1201A/B-3 1201A serials below 1117A00616. 1201B serials below 1120A00296. Increased protection for input preamplifier boards when making power measurements.

1201A/B-4 1201A serial prefix 1234A and below, 1201B serial prefix 1245A and below. Less of intensity control.

1201A/B-6 Serial prefix 1234A and below, 1201B serial prefix 1245A and below. Preferred replacement for VR6 on the storage pulse board HP P/N 01201-66502.

1202A/B OSCILLOSCOPE

1202A/B-1 1202A serials below 1044A00631. 1202B serials below 0931A00941. Increased protection for input preamplifier boards when making power measurements.

1205A/B OSCILLOSCOPE

1205A/B-1 1205A serials below 1045A00946. 1205B serials below 0931A00941. Increased protection for input preamplifier boards when making power measurements.
1310A—1423A

1310A DISPLAY
1310A-1 Serial prefix 1148A & below. Intermittent or flickering display intensity.
1310A-2 Serial prefix 1148A00215 & below. Insufficient high voltage.
1310A-3 Serial prefix 1148A & below. Phosphor protection circuit reaction time reduction.
1310A-4 All serial prefixes. Service Tool.

1311A DISPLAY
1311A-1 Serial prefix 1148A & below. Intermittent or flickering display intensity.
1311A-2 Serial prefix 1148A00161 & below. Insufficient high voltage.
1311A-3 Serial prefix 1148A & below. Phosphor protection circuit reaction time reduction.
1311A-4 All serial prefixes. Service tool - extender cable for A12 and A14

1310A-5 High voltage transformer replacement.

1311A DISPLAY
1311A-1 Serial prefix 1148A & below. Intermittent or flickering display intensity.
1311A-2 Serial prefix 1148A00161 & below. Insufficient high voltage.
1311A-3 Serial prefix 1148A & below. Phosphor protection circuit reaction time reduction.
1311A-4 All serial prefixes. Service tool - extender cable for A12 and A14

1330A X-Y DISPLAY

1330A-2 All serials. Preferred replacement for high voltage oscillator.

1331A/C/E DISPLAY
1331A/C/E-1 Serial prefix 1149A & below. Modification to prevent failure of filter capacitor ASC2.
1331C-1 All serials. Service Tool

1401A DUAL TRACE AMPLIFIER
1401A-1 Serials 516-000765 & below. Preferred replacement sets for Q101, Q102 and Q201, Q202.

1402A DUAL TRACE AMPLIFIER
1402A-1 Serials below 444-00426. Modification to eliminate intensity modulation.
1402A-3 Serials below 524-00641. Modification for improved pulse response.
1402A-4 Modification for X-Y operation above 100 Hz.
1402A-6A Serials below 535-001376. Modification for improved transient voltage protection.
1402-7 Some serials between 716-02450 & 716-02625, must change R460.

1404A 4-CHANNEL VERTICAL AMPLIFIER
1404A-1 Serials 910 & below. Modification to improve high frequency trigger sensitivity.

1406A DIFFERENTIAL AMPLIFIER
1406A-1 Serials 704-000200 & below. Modification to increase life of Q1 and Q2
1406A-2 Serials 740-00250 & below. Preferred replacement for Q1, Q2, Q201 and Q202.
1406A-3A Serials 740-00250 & below. Modification to improve reliability.

1407A DIFFERENTIAL AMPLIFIER
1407A-1 Preferred replacement for V201 and V202
1407A-2 Serials 626-00175 & below. Modification to improve DC stabilizer operation.
1407A-3 Serials 704-00275 & below. Modification to prevent Q1 and Q2 burnout due to turn-on transients.
1407A-4 Serials 740-00325 & below. Preferred replacement for Q1, Q2, Q201 and Q202.
1407A-5A Serials 740-00250 & below. Modification to increase reliability.

1410A SAMPLING VERTICAL AMPLIFIER
1410A-1 Improved method for adjusting 1 mv/cm vertical gain.

1411A SAMPLING VERTICAL AMPLIFIER
1411A-1 Improved method of adjusting the 1 mv/cm vertical gain.
1411A-2 Serials 705-00300 & below. Preferred replacement for Q503 and Q504.
1411A-3A Serials 705-00100 & below. Simple change to reduce low-frequency distortion when using the 1432A 4GHz Sampler Head.
1411A-4A Serials 724-00375 & below. Modification to prevent "Lock up" between the 100 mv-200 mv/cm ranges.

1415A TIME DOMAIN REFLECTOMETER
1415A-6B Serials below 512-00536. Modification for reduced interference.
1415A-7 Serials below 548-00696. Required modification for use with Model 141A Oscilloscope.

1416A SWEPT FREQUENCY INDICATOR

1420A TIME BASE
1420A-2 Serials 441-01325 & below. Modification for operation with D3 stabilized vertical plug-ins.
1420A-3A Serials below 639-01876. Improved trigger sensitivity potentiometer.

1421A TIME BASE AND DELAY GENERATOR
1421A-1A Serials prefixed below 803-. Modification for additional gate protection against transient voltages.
1421A-2A Serials prefixed 545- & below. Modification for operation with DC stabilized vertical plug-ins.
1421A-4 Serials prefixed below 803-. Modification to prevent burnout of CR305, 306, 311, 312 when integrator output is accidentally grounded.

1423A TIME BASE
1423A-3 Serials 709-00350 & below. Modification to prevent burnout of CR305, 306, 311, 312 when integrator output is accidentally grounded.
1423A-2 Serials 709-00350 & below Recommended replacement for A204.

1423A-3 Serials below 847-00491 Modification to improve reliability.

1424A SAMPLING TIME BASE
1424A-1 Serials 801-00225 & below Diode holders for threshold detector tunnel diodes.
1424A-2 Serials 801-00225 & below Replacement of Mode and Level pots and knobs.
1424A-3A Serials 803-00270 & below Replacement of A4.
1424A-4 Recommended diode replacement.
1424A-5 Serials 822 & below Recommended replacement of AIR3.

1425A SAMPLING TIME BASE
1425A-1 Serials 707-00168 & below Modification to increase range of Minimum Delay. Preferred replacement for A3Q3.
1425A-2 Trouble shooting guide for threshold Detector.
1425A-3 Selected replacements for A2VRI, RIO, A2T1, and A3T1.
1425A-4 Serials 748-00675 & below Tunnel diode holders available.
1425A-5 Recommended diode replacement.

1430A SAMPLER
1430A-1 Serials 715-00325 & below Replacing CR110 or CR111.
1431A SAMPLER
1431A-1 Serials 707-00205 & below Recommended diode replacement.

1700A OSCILLOSCOPE
1700A-1A Serials prefixed 1046A & below Modification to improve low temperature turn-on and high frequency auto triggering.
1700A-2 Serial prefix 1102A & below Modification to prevent sweep time switches from dragging or hanging up.
1700A-3 Serials 1119A00310 & below Excessive Battery Charge.
1700A-4A Serial prefix 1141A & below Leaky line rectifier A2Z1.
1700A-5 Modification for selectable triggering.

1701A OSCILLOSCOPE
1701A-1 Serials prefixed 1046A & below Modification to improve low temperature turn-on and high frequency auto triggering.
1701A-2 Serials prefixed 1102A & below Modification to prevent sweep time switches from dragging or hanging up.
1701A-3 Serials 1119A00310 & below Excessive battery charge.
1701A-4A Serial prefix 1204A & below Leaky line rectifier A2Z1.
1701A-5 Serial prefix 1117A & above Modification for selectable triggering.

1702A OSCILLOSCOPE
1702A-1 Serial prefix 1230 & below Reduced sensitivity to CRT charged particles.
1702A-2 Serial prefix 1230 & below Reduced sensitivity to CRT charged particles.
1703A OSCILLOSCOPE
1703A-1 Serial prefix 1230 & below Reduced sensitivity to CRT charged particles.
1703A-2 Serials 1150A00160 & below Wiring error on high voltage multiplier.
1820B/E—2212A

1820A-6 Preferred replacements for C301, 2, 3, and 4.

1820B/E TIME BASE PLUG-INS

1820B-1 Preferred replacement of sweep timing capacitors.

1821A TIME BASE AND DELAY GENERATOR

1821A-1 Serials prefixed 712–& below. Modification to improve triggering at high frequencies with temperature changes.


1821A-3 Serials prefixed below 640–. Modification kit to permit operating with 1801A Amplifier with serials prefixed 644 & above.

1821A-5 Serials prefixed 809– & below Preferred replacement VR201 and VR203 zener diodes

1821A-6 Serials prefixed 859– & below Modification for elimination of high frequency oscillations.

1821A-7A Preferred replacement of sweep timing capacitors

1821A-8 Trigger modification for computer field service applications HP part kit no. 01821-63503

1821E/F TIME BASE AND DELAY GENERATOR

1821A-7A Preferred replacement of sweep timing capacitors.

1822A TIME BASE PLUG-IN

1822A-1 Preferred replacement of sweep timing capacitors

1822A-2 Prefix 0907A & below. Preferred replacements

1830A VERTICAL AMPLIFIER

1830A-1 Serials below 968. Recommended replacement for A2 preamplifier board and A5 output amplifier board

1830A-2 Serials below 981–. Modification to prevent oscillations.

1831A/B VERTICAL AMPLIFIER

1831A/B-1 All serials. Reduced cross coupling

1840A TIME BASE

1840A-1 Serials 941 & below Modification to improve triggering above 200 MHz

1840A-2 Serial prefix 941. Improved trigger compatibility

1840A-3A Serial prefix 1120A & below. Recommended replacement for tunnel diodes CR8 and CR9

1840A-4 Serial prefix 1120A & below. Recommended replacement for A1Q11, A1Q12, A1Q13 and A1Q26

1840A-5 All serials. Troubleshooting aid, supplements service manual

1840A-6 Preferred replacement for A1R21

1841A TIME BASE

1841A-1 Troubleshooting aid, supplements service manual

1841A-2 Serial prefix 1116A & below Recommended replacement for tunnel diodes.

1841A-3 Serial prefix 1116A & below Recommended replacement of FET 1855-Q062 for improved reliability.

1841A-4 All serials. Preferred replacement for A1R17 and A1R90

1900A PULSE GENERATOR MAINFRAME

1900A-1 Serials prefixed below 931— Modification for elimination of ±25 volt power supply oscillation.

1900A-2 Serials prefixed below 939— Modification for improved reliability of ±25 volt power supply

1900A-3 Serials below 924-00196. Modification for improved reliability of 70 volt power supply

1901A PULSE GENERATOR MAINFRAME

1901A-1 Serials prefixed below 931— Modification for elimination of ±25 volt power supply oscillation.

1905A RATE GENERATOR PLUG-IN

1905A-1 Serials below 905-00151. Modification for improved minimum rate output

1906A RATE GENERATOR

1906A-1 Serials 946-00138 & below. Modification to eliminate double triggering.

1908A DELAY GENERATOR PLUG-IN

1908A-1 Serials below 833-00125. Modification to improve compatibility with 1906A

1915A VARIABLE TRANSITION TIME OUTPUT

1915A-2 Serials below 925-00191. Modification to decrease Output Pulse transition times.

1915A-3 Serials 925-00181 thru 936-00250. Modification to decrease transition times at low range settings.

1915A-4 Serials below 946-00036. Modification to improve Transition Time Circuitry

1915A-5 Serials prefixed 946 & below Preferred replacements for 19Q18 and 19Q19

1915A-6A Serials 946-00326 & below Modification for improved reliability

1915A-7 Serials 960 & below. Modification to eliminate saturation of ±12 volt power supplies when amplitude vernier is full CWo

1915A-8 Serials prefixed 0964A & below. Recommended replacement for transistor heat sinks.

1915A-9 Serial prefix 1102A & below. Improved reliability kit

1915A-10B Serial prefix 1203A & below. Improved reliability

1915A-11 Serial prefix 1203A & below. Reduction of output transistor failures

1917A PULSE GENERATOR OUTPUT AMPLIFIER

1917A-1 Serials below 947-00176. Modification to eliminate Voltage Shifter oscillation.


1920A PULSE GENERATOR OUTPUT AMPLIFIER


1925A WORD GENERATOR

1925A-1 Serials below 953-00166. Modification to eliminate spurious output.


2070A DATA LOGGER

2070A-1 All 2070A option 005 Data Loggers with storage.

2210 VOLTAGE-TO-FREQUENCY CONVERTER

2210-1 Recommended replacement of A2 Chopper Stabilized Amplifier.

2212A VOLTAGE-TO-FREQUENCY CONVERTER

2212A-1 Serials prefixed 644– & below Recommended replacement for A3C17

2212A-2 Serials prefixed 644– & below. Modification to reduce zero drift.

2212A-3 Serials prefixed below 730–. Modification to prevent erroneous count at low temperature.

INDICATES RECENT ADDITION OR REVISION
2212A-4 Modification to speed up overload recovery.
2212A-5 Modification to reduce power supply ripple.
2212A-6 Preferred replacement transistors.
2212A-7 Serials prefixed 748--& below. Modification to eliminate oscillation.
2212A-8 Serials prefixed 804--& below. Modification to prevent lock-up near zero.
2212A-9 Manual correction.
2212A~ A3 board date code below 1132-6. Frequency stability at low line voltages.

2311A/2312A/2310C SUBSYSTEMS

2311A-1 2311A subsystem software refinements.
2311A-2 2311A subsystem manual error correction.
2311A-3 Serials below 709-. Modiflcatkln to prnt
2311A-4 Serials below 844-. Preferred replacement for 2116A Computer.
2311A-5 Serials prefixed below 605-. Modification to prevent oscillation in +12V power supply (eliminates 12 noise count).
2311A-6 Serials prefixed below 735-. Preferred replacement line filter.
2311A-7 Oscillating power supplies.
2311A-8 Model 2311A-M31. Serials prefixed below 759-. Modification to prevent accidental channel skipping due to noise.
2311A-9 Serials prefixed below 739-. Modification to prevent accidental channel skipping due to noise.
2311A-10 Serials prefixed below 732-. Modification to prevent oscillation at low temperature.
2311A-11 Serials prefixed below 730-. Modification to provide increased holding current.

2401B INTEGRATING DIGITAL VOLTmeter

2401B/C-2 Serials above 444-01336. Change resistor value to prevent occasional hangup of DY-2010 systems.
2401B/C-3 Serials below 536-00221. Change resistor value to prevent occasional hangup of DY-2010 systems.
2401C-1 2401C-2 Serials below 405-001216. Preferred replacement for 2116A Computer.
2401C-2 Change resistor value to prevent occasional hangup of DY-2010 systems.
2401C-3 Serials below 709-. Modification to prevent accidental channel skipping due to noise.
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5050A-5275A

5050A DIGITAL RECORDER
5050A-1 Serial prefix 744 & below. Modification to provide storage capacity.
5050A-2 Serial prefix 752 & above Modification to provide storage capacity.
5050A-3 Installation of motor control.

5055A DIGITAL RECORDER
5055A-1 Modification to increase immunity to electrical noise.

5050B DIGITAL RECORDER
5050B-1 Installation of digital clock and motor control.
5050A-3 Installation of motor control

5060A CESIUM BEAM FREQUENCY STANDARD
5060A-4 Recommended cesium beam tube replacement procedure.

5061A CESIUM BEAM FREQUENCY STANDARD
5061A-1 Serials 728-00250 & below. Modification to improve operation of Decade Divider IC4.
5061A-2 Serials 924 & below. Preferred replacement parts that increase reliability.

5065 FREQUENCY STANDARD
5065A-1 Serials below 956-00256. Power line safety modifications.

5090B STANDARD FREQUENCY RECEIVER
5090B-1 Serials prefixed below U958-. Modification for improved high temperature performance.

5110A FREQUENCY SYNTHESIZER
5110A/B-2 Installation of options 02, 03, and 04.

5110B FREQUENCY SYNTHESIZER
5110A/B-1 Installation of options 02, 03, and 04.

5216A ELECTRONIC COUNTER
5216A-1 Serials 948A0126 to 1040A03875 Modification to increase lamp life.

5221A ELECTRONIC COUNTER
5221A/5321A-1 Modification to reduce amplifier bandwidth.
5221A/5321A-2A All serials except those with options 03, 103, and 203. Modification to improve stability of time base in the presence of power line noise.
5221A/5321A-3A All serials 1 MHz Crystal Time Base option 0031 Installation procedure for the 5221A and the 5321A

5221B ELECTRONIC COUNTER
5221B/5321B-1 Modification to insure accurate frequency measurements below 100 KHz.

5233L ELECTRONIC COUNTER
5233L-1 Serials prefixed 544- & below. Recommended transistor replacement.

5240A DIGITAL FREQUENCY METER
5240A-1 Modification to improve phase lock characteristics.

5242L ELECTRONIC COUNTER
5242L/5344L-1 Serials prefixed 316- & below. Inhibit signal modification to improve compatibility with 562A Digital Recorder.

5243L ELECTRONIC COUNTER
5243L-1B Serials prefixed 328- & below Modification to operate with 5264A or 5265A.
5243L/5245L-2 Serials prefixed 326- & below. Inhibit signal modification to improve compatibility with Model 562A.
5243L-4 Preferred replacement for A25Q2

5244L ELECTRONIC COUNTER
5244L/5244L-1 Serials prefixed 328- & below. Inhibit signal modification to improve compatibility with 562A Digital Recorder.
5244L/5245L-4 Serials prefixed 544- & below. New fan and housing reduce noise level.
5244L/5245L-6 Serials prefixed 544- & below. Preferred replacement for A1709.
5245L-5 Recommended transistor replacement
5245L-7 Serials prefixed 648- & below. Preferred replacement for A25Q2

5245M ELECTRONIC COUNTER
5245M-1/5248M-1 Serials below 1124A01411. Modification to prevent erratic gating.
5248M ELECTRONIC COUNTER
5245M-1/5248M-1 Serials below 1124A00836 Modification to prevent erratic gating.

5252A PRESCALER PLUG-IN
5252A-2 Serials prefixed 532- & below. Preferred replacements.

5253B FREQUENCY CONVERTER
5253B-1 Serials prefixed 513- & below. Illustrated parts identification.

5254A FREQUENCY CONVERTER
5254A-1 Modification to prevent oscillation in A5 after replacing 55012.
5254A-2 Mixer diode replacement procedure.
5255A FREQUENCY CONVERTER

5260A FREQUENCY DIVIDER
5260A-1 Serial prefix 836A thru 1052A. Modification to improve phase lock characteristics.

5265A DIGITAL VOLTMETER PLUG-IN
5265A-1 Preferred replacement for C1
5265A-2 Replacement of CR1 and CR3

5275A TIME INTERVAL COUNTER
5275A-1 Serials 402-00315 & below. Modification to reduce transients caused by manual reset.

INDICATES RECENT ADDITION OR REVISION
5321A ELECTRONIC COUNTER
5321A/5321A-1 Modification to reduce amplifier bandwidth.
5321A/5321A-2 All serials except those with options 03, 103, and 203. Modification to improve stability of time base in the presence of power line noise.

5321B ELECTRONIC COUNTER
5321B/5321B-1 Modification to insure accurate frequency measurements below 100 KHz.

5323A FREQUENCY COUNTER
5323A-1/5323A/B-1 Serial prefix 1144A & below. Recommended replacement for crystal oscillator assembly.

5323A/B ELECTRONIC COUNTER
5323-1/5323A/B-1 Serial prefix 1144A & below. Recommended replacement for crystal oscillator assembly.

5326/5327 SERIES ELECTRONIC COUNTERS
5326/5327-2A Serial prefix 1120A & below. Recommended replacement for crystal oscillator assembly.
5326/5327-3 All serials. Service tip on A9 counter display board.

5360A COMPUTING COUNTER
5360A-2 Serials prefixed 974 & below. Modification to improve digital display tube reliability.
5360A-3 Serials prefixed 940 & below. Modification to prevent current limit.
5360A-4 Serial prefix 1128A & below. 5V SCR desensitizing.

5365A INPUT MODULE
5365A-1 B Serials prefixed 904 thru 936. Modification for remote selection of Channel A/B.

5381 TEST SET
5381-2/5731-1 Recommended zener diode replacement.

5401A/B MULTICHANNEL ANALYZERS
5401A/B-1A Serials prefixed 036 & above. Modification to provide signal averaging capability.
5381-2/5731-1 Recommended zener diode replacement.

5406B MULTICHANNEL ANALYZER
5406B-1 Modification to improve visual resolution.

5450 FOURIER ANALYZER

5475A KEYBOARD
5475-1 Lubrication and adjustment for keyboard assembly.

5480A SIGNAL ANALYZER
5480A-1A Serials below 928-00176. Improved A2A12 Time Base board.
5480A-2 All serials. Improved A3A9 Address Adder board.
5480A-3 All serials. Service tips for plotter interface problems.

5525B LASER
5525B-1 5505A serial 1116A00131 & below. Modification to prevent laser tube damage when replacing laser tube.
5525B-2 05035-60512 Board replacement.

5550A LASER DISPLAY
5550A-1 Modification to prevent laser tube damage when using 5505A display serial 1116A00131 & below. With 5500C Laser Head.

5550A POWER SUPPLY

5636B—BAND TEST SET
5636-1 Recommended replacement procedure for fan motor.
5636-2 Recommended procedure for conversion from 115VAC to 220VAC operation.

5731 TEST SET
5731-1/5731-1 Recommended zener diode replacement.

610A STB POWER SUPPLY
6110A-1/6110A-1 Serials 00452 & below. Modification to improve 50Hz operation.

6113A STB POWER SUPPLY
6113A-1 Serials 00345 and below. Modification to prevent high frequency oscillation.

6129B DIGITAL VOLTAGE SOURCE
6129B-1 All serials. Improved A2 buffer reliability.

6130A DIGITAL VOLTAGE SOURCE
6130A-3 All serials. Improved A2 buffer reliability.

6130B DIGITAL VOLTAGE SOURCE
6130B-1/6130B-1/6933A-1 Modification to correct erratic operation at low line voltages.
6130B-2/6131B-1/6933B-1 Serials 428 & below. Modification to improve temperature coefficient and power supply reliability.
6130B-3/6131B-2/6933B-3 Serials 500 & below. Modification of gate pulse generator for only one initial state.
6130B-5 All serials. Improved A2 buffer reliability.

6131B DIGITAL VOLTAGE SOURCE
6131B-1/6131B-1/6933B-2 Serials 125 & below. Modification to improve temperature coefficient and power supply reliability.
6131B-2/6131B-2/6933B-2 Serials 170 & below. Modification of gate pulse generator for only one initial state.
6131B-4 All serials. Improved A2 buffer reliability.

6181B CCB CONSTANT CURRENT POWER SUPPLY
6181B-1 Serials 461 & below. Modification to improve reliability.

6186B CONSTANT CURRENT SUPPLY
6186B-1 Serials 00418 & below. Modification to improve reliability.
6268 B-3 Serials 00370 & below Modification to improve pre-regulator reliability.

6186 B-4 Modification to improve reliability.

6206 B DC POWER SUPPLY
6206 B-1 Serials 02176 & below Modification to improve reliability.

6256 B DC POWER SUPPLY, LVR
6256 B-1/6256 B-2/6267 B-1 Serials 00251 thru 00431. Modification to improve 208/230 volt reliability.


6259 B DC POWER SUPPLY, LVR
6259 B-1 Serials 00170 & below. Modification to reduce noise & spikes from output terminals

6260 B DC POWER SUPPLY
6260 B-1 Serials below 00266. Modification to improve pre-regulator reliability and general updating.

6261 B DC POWER SUPPLY
6261 B-1 Serials below 00150 Modification to improve pre-regulator reliability and general updating.

6263 B DC POWER SUPPLY, LVR
6263 B-1/6265 B-1/6266 B-1/6271 B-2 Serials 00220 & below. Modification to improve Voltmeter accuracy


6264 B DC POWER SUPPLY, LVR
6264 B-1/6264 B-2/6267 B-2/6271 B-4 Serials 00471 thru 00700 Modification to improve 208/230 volt reliability


6265 B DC POWER SUPPLY, LVR
6265 B-1/6265 B-1/6266 B-1/6271 B-2 Serials 00190 & below Modification to improve Voltmeter accuracy


6266 B DC POWER SUPPLY, LVR
6266 B-1/6265 B-1/6266 B-1/6271 B-2 Serials 00200 & below Modification to improve Voltmeter accuracy


6267 B DC POWER SUPPLY, LVR
6267 B-1/6265 B-1/6267 B-1/6271 B-2 Serials 00341 thru 00780 Modification to improve 208/230 volt reliability


6268 B DC POWER SUPPLY
6268 B-1 Serials below 00361 Modification to improve pre-regulator reliability and general updating

6269 B DC POWER SUPPLY
6269 B-1 Serials below 00256. Modification to improve pre-regulator reliability and general updating.

6296 B-2 Serials below 00430. Modification to improve crowbar operation and general reliability

6427 B SCR-1P POWER SUPPLY
6427 B-1/6433 B-1/6438 B-1/6443 B-1 Serials 00490 & below. Modification to reduce SCR failures under line transient conditions

6428 B SCR-1P POWER SUPPLY
6428 B-1/6434 B-1/6439 B-1/6448 B-1 Serials below 01103. Modification to reduce SCR failures under line transient conditions

6433 B SCR-1P POWER SUPPLY
6427 B-1/6433 B-1/6438 B-1/6443 B-1 Serials below 01310. Modification to reduce SCR failures under line transient conditions

INDICATES RECENT ADDITION OR REVISION
6434B SCR-1P POWER SUPPLY
64288/6434B-1/6439B-1/6448B-1 Serials below 00451. Modification to reduce SCR failures under line transient conditions.

6438B SCR-1P POWER SUPPLY
64218/6433B-1/64388-1 Serials below 00140. Modification to reduce SCR failures under line transient conditions.

6439B SCR-1P POWER SUPPLY
64288-1/6434B-1/6439B-1 Serials below 00631. Modification to reduce SCR failures under line transient conditions.

64438 SCR-1P POWER SUPPLY
64218/6433B-1/64388-1 Serials 00820 & below. Modification to reduce SCR failures under line transient conditions.

6463A TO 64838 INDUSTRIAL SUPPLIES
6515A HIGH VOLTAGE POWER SUPPLY
6516A HIGH VOLTAGE POWER SUPPLY
6521A POWER SUPPLY
6522A-1 Serials 80302 & below. Preferred replacement SCR's.
6521A-4/6522A-4/6525A-4 Serials 00590 & below. Modification to allow line power to cycle rapidly.
6521A-5 Modifications to improve reliability and general updating.

6522A POWER SUPPLY
6522A-1 Serials 80309 & below. Preferred replacement SCR's.
6522A-4/6525A-4 Serials 658 & below. Modification to allow line power to cycle rapidly.
6522A-5 Modification to improve reliability and general updating.

6525A POWER SUPPLY
6521A-4/6522A-4/6525A-4 Serials 1741 & below. Modification to allow line power to cycle rapidly.
6525A-5 Modification to improve reliability and general updating.

6917B OVERVOLTAGE PROTECTOR
6917B-1 Serials 00202 & above. Modification to improve 208- and 330-volt operation.

6920A/B METER CALIBRATORS
6920A/B-3 Modifications for updating 6920A to 6920B equivalent.
6920A/B-4 All serials Calibration and service tips.

6933A D/A CONVERTER
6933A-3 All serials Modification to improve A2 buffer reliability.

6933B D/A CONVERTER
6130A/2/6131B-2/6933B-2 Serials 00165 & below. Modification to improve temperature coefficient and power supply reliability.
6130B-3/6131B-2/6933B-3 Serials 00180 & below. Modification to improve temperature coefficient and power supply reliability.
6933B-5 All serials Modification to improve A2 buffer reliability.

6945A TV MONITOR
6945A-4 Q521 Modification and quad box replacement.

6946A TV MONITOR
6945A-3/6946A-3 Recommended replacement procedure for high voltage transformer T201.

6947A TV MONITOR
6947A-3 Serials 00355 & below. Modification to improve stability of the high voltage supply.
6947A-4 Serials prefixed 960- Modification to improve the Sync circuit.
6947A-6 Serials below 00556 Modification required when replacing A2Q6.

7000A X-Y RECORDER
7000A-4 Modification to eliminate zero shift when changing ranges.
7000A-5B/7001A-1B Serial prefix 713 thru 730. Modification for improved performance of the variable range control.
7000-6A/7001A-2A Serial prefix 722- and 726- Preferred replacement for CR301.

7001A X-Y RECORDER
7001A-1 Serials prefixed 641 thru 933 Modification to correct zero offset error.
7000A-5B/7001A-1B Serial prefix 713 thru 730. Modification for improved performance of the variable range control.
7004A-8003A

7009A-6A/7001A-2A Serials prefixed 722- & 726-. Preferred replacement for CR301

7004A X-Y RECORDER

7004A-5 Operating cautions.
7004A-6A Serials prefixed below 919. Modifications for improved reliability.
7004B-1A Serials prefixed below 1020A. Modification for improved reliability.
7004B-3 Installation procedure for incremental chart advance compatibility kit.
7004B-4 Serial prefix 1108A & below. Improved power transistors.

7004A X-V RECORDER

7004B-1A Serials prefixed below 1020A. Modification for improved reliability.
7004B-2 Serials prefixed below 1045A. Correct use of the response switch.
7004B-3 Installation procedure for incremental chart advance compatibility kit.
7004B-4 Serial prefix 1102A & below. Improved power transistors.

7005A X-Y RECORDER

7005A-1 Serials prefixed below 726-. Modification to prevent X-Y interaction due to motor brush arcing.
7005A-2 Preferred replacement for Q109 and Q209.

7005B X-Y RECORDER

7005B-1 Serials prefixed 1044A01501 thru 1044A01525. Modification procedure to correct a miswire in the power receptacles.

7005A-1/7005B-1 Recommended replacement for limit switches.
7005A-2 Procedure for installing limit switches.
7005A-3 Serial prefix 1110A & below. Modification to reduce servo gear wear.
7005A-4/7005B-4 Serial prefix 1111A (7128). Modification to eliminate erratic Time Base Reset.

7100 SERIES STRIP CHART RECORDERS

7100A-1/7101-1/7127-1/7128-1 Recommended replacement for limit switches.
7100-5/7101-5/7127-5/7128-5 Serial prefix below 1113A (7100), serial prefix below 1107A (7101); serial prefix below 1110A (7127); serial prefix below 1111A (7128). Modification to reduce servo gear wear.
7100-6/7101-6/7127-6/7128-6 Recommended pen lift relay replacement.

7123A/B STRIP CHART RECORDERS

7123A-1 Serial prefix 1042A. Transmission modification.
7123A-2 Cleaning and lubricating balance potentiometer.
7123A-3 Cleaning and lubricating balance potentiometer.
7123A-5 Serial numbers 00746, 00747, 00749 thru 00769, 00857 thru 00866, 00912 thru 00921 and 00957 thru 00966. Option 100 chart drive modification.
7123A/B-6/7143A/B-2 Serial prefix below 1235A. Improved ink writing kit.

7123A/B-1/7143A/B-3 All serials. Disposable pen kits.

7127A and 7128A STRIP CHART RECORDERS

7127A-7/7128A-7 Serial prefix below 1148. 7128A serial prefix below 1150. Modification to improve transmission assembly.

7143A/B STRIP CHART RECORDERS

7123A-2 Cleaning and lubricating balance potentiometer.
7123A-3 Cleaning and lubricating balance potentiometer.

7402 OSCILLOGRAPHIC RECORDER

7402A-1 All serials. Listing of ink pen part numbers.

7562A LOG CONVERTER

7562A-2 Serials prefixed 844- & below. Meter replacement kit.

8002A PULSE GENERATOR

8002A-1 Serial G916-00680 & below. Recommended transistor replacement.
8002A-3 Serials prefixed 1201A and 1206A (below 00594).

8002A PULSE GENERATOR

8003A-2 Serials prefixed 1201A and 1206A (below 00594).

- INDICATES RECENT ADDITION OR REVISION
8004A PULSE GENERATOR
8004A-1 Serials G956-000370 & below. Modification to enable setting the pulse width to zero at low repetition rates.

8005A PULSE GENERATOR
8005A-1 Serials G918-00200 & below. Recommended transistor replacement.

8006A WORD GENERATOR
8006A-1 Serials 1049G00270 and below. Also serials 00213, 00274, 00275, 00278, 00280, 00281, 00284, 00285, 00286. Correction of wiring error.

8012A PULSE GENERATOR
8012A-2 Serial prefix 1148A. Free-running rate in EXT.

8051A LOUDNESS ANALYZER
8051A-1 Serials prefixed below 139-. Calibration procedure.
8051A-2 Serials 139-00461 thru -00520. Modification to improve reliability.

8054A SPECTRUM ANALYZER
8054A-1 Serials G915-(}oI50 & below. Modification to eliminate power switching transients.

807A MODULATOR
807A-1 Serials below 523-00276. Increasing PIN modularor bias range.
807A-2 Serials below 629-00651. Preferred replacement for Q402 positive spike transistor.
807A-3 Serials below 736-00365. Modification to avoid loss of width control due to premature triggering of the neg. spike.
807A-4 Serials below 736-00373. Modification to improve general pulse output and reduce minimum pulse width.

807A VECTOR VOLTMETER
807A-1C Performance check procedure.
807A-3 CAUTION — More than 2 VAC peak or more than 50 VDC burns out the probe with or without the blocking capacitor.

84028 CALIBRATOR
84028-1 Serials prefixed below 139-. Calibration procedure.
84028-2 Serials 139-00540. Modification to improve reliability.

8410A NETWORK ANALYZER
8410A-1 Serials 750-00280 & below. Modification to improve AGC and phase lock.
8410A-2/8414A-4 Serials 806-00680 & below. New top covers which allow better ventilation.
8410A-4 AGC Monitor adjustment.

8411A HARMONIC FREQUENCY CONVERTER
8411A-1 Serials prefixed 855- & below. Modification to reduce VTO feedthrough.

8412A PHASE-MAGNITUDE DISPLAY
8412A-1 Correction of specification for phase accuracy vs. display amplitude.

8413A TRACKING GENERATOR/COUNTER
8413A-1 Serials prefixed 955- & below. Modification to eliminate 50 MHz spurious responses.
8413A-2 Serials 964-00245 & below. Modification to increase A6 high frequency decade reliability.
8413A-4 Serial prefix 1145A & below. Restored signal operation.
8413B/1 Serials 1049A00440 & below. Modification to improve -12V supply stability.

8414A POLAR DISPLAY
8414A-1 Serials 750-00215. Modification for improved grounding.
8414A-2/8414A-4 Serials 833-00340 & below. New top covers which allow better ventilation.

8433A TRACKING GENERATOR/COUNTER
8433A-1 Serials prefixed 955- & below. Modification to improve -12V supply stability.
8433A-2/8414A-4 Serials 833-00340 & below. New top covers which allow better ventilation.

8443A TRACKING GENERATOR/COUNTER
8443A-1 Serials prefixed 955- & below. Modification to improve -12V supply stability.
8443A-2/8414A-4 Serials 833-00340 & below. New top covers which allow better ventilation.

8444A TRACKING GENERATOR
8444A-1 Serial prefix 1147A & below. Improved power supply stability.

8477A CALIBRATOR
8477A-1 Updated performance tests and calibration procedure for 8477A. Manual part number 08477-90002.

8478B THERMISTER MOUNT
8478B-1 Serials 07383 & above. Thermister assembly replacement kit.

8543A AUTOMATIC NETWORK ANALYZER
8543A-4 All serials 1127 Special Board exchange.
8543A-5 All serials. System specifications.

8551A SPECTRUM ANALYZER, RF SECTION
8551A-5 Modification for addition of vernier fine tuning.
8551A-6A Modification to add Preselector Drive Output for use with the 8441A Preselector.
8551A-8 Recommended replacement for R6.
8551B—8554L

8551A/B-1 Recommended replacement for A9A3U1.
8551A/B-2 Procedure for measuring 8551A/B sensitivity.
8551A/B-3 Modification to improve swept frequency linearity.
8551A/B-4 Preferred replacement for A13V1 and required modifications.
8551A/B-6 Changing ASV1 may necessitate changing IF ampl. tuning slug.
8551A/B-7 Preferred replacement diodes in RF section for greater reliability.
8551A/B-8 Modification to reduce FM.
8551A/B-9 Procedure for measuring relative conversion loss.
8551A/B-11 Serials 618-00510 & below. Improved replacement for A3 coax mixer.
8551A/B-12 Replacement of C7 and C8.
8551A/B-13A Standby operation.
8551A/B-14 Modification to improve 180 MHz oscillator stability.
8551A/B-15A Modification may be required when BWO is replaced. See also 8551A/B-8.
8551A/B-16 Recommended replacement for A18CR1 and A18CR2.
8551A/B-17 Recommended fan motor replacement.
8551A/B-18 Recommended replacement for resistors A14R1 and A14R7.

8551B SPECTRUM ANALYZER, RF SECTION
8551B-1 Recommended replacement for R6.
8551B-2 Serials 933-02111 thru 925-02535 Recommended transistor replacement.
8551B-3 Serials 933-03310 & below. Recommended replacement for A3R1.
8551B-4 Serials 905 thru 933. Modification to improve reliability by adding surge protection to 13040B.
8551B-1 Recommended replacement for A9A3U1.
8551B-2 Procedure for measuring 8551A/B sensitivity.
8551B-3 Serials 625-00935 & below. Modification to improve swept frequency linearity.
8551B-4 Serials below 727-01411. Preferred replacement for A13V1 and required modification.
8551B-6 Changing ASV1 may necessitate changing IF ampl. tuning slug.
8551B-7 Preferred replacement diodes for greater reliability.
8551B-8 Serials below 731-01586. Modification to reduce FM.
8551B-9 Procedure for measuring relative conversion loss.
8551B-10 Serials 618-00510 & below. Improved replacement for A3 coax mixer.
8551B-12 serials below 720-01261. Replacement of C7 and C8.
8551B-13A Standby operation.
8551B-14 Serials 823-02211 & below. Modification to improve 180 MHz oscillator stability.
8551B-15 Serials prefixed below 823-. Modification may be required when BWO is replaced. See also 8551A/B-8.
8551B-16 Serials 813-02085 & below. Recommended replacement for A18CR1 and A18CR2.
8551B-17 Serials prefixed 933- & below. Recommended fan motor replacement.
8551B-18 Serials 842 & below. Recommended replacement for resistors A14R1 and A14R7.

8552A SPECTRUM ANALYZER, IF SECTION
8552A-1 Serials below 905-00565 Modification to eliminate trace foldback.
8552A-2A Serials 1110A3294 & below. Recommended replacement for A702 and A709.
8552A-3A Serials prefixed 905- & below. Modification for reduced spurious sidebands.
8552A-4A Serials 945-01889 & below. Modification for use with Tracking Generator.
8552A-5 Serials prefixed 945- & below. Modification to allow operation with 600-ohm earphones.
8552A-7 Serials 1101A03094 & below. Improved log/lin switching operation.
8552A-8 Serials 1110A03095 & below. Preferred replacement for A7010 and A7019.
8552A-9 Serials 991-02994 & below. Modification for compatibility with 8556A.
8552A-10 Serials 945-01890 through 1144A03694. Tracking generator restored signal operation.

8552B SPECTRUM ANALYZER, RF SECTION
8552B-1 Serials 977-00260 & below. Preferred replacement for A5U1, A5U2, A6U1, A6U2, and A12U1.
8552B-2 Serials 1050A00435 & below. Modification for improved log/lin switching operation.
8552B-3 Serials 1050A00385 & below. Preferred replacement for A7010 and A7019.
8552B-4 Serials 977-00310 and below. 8556A compatibility modification.
8552B-5 Serials 1121A00810 & below. Adding stability to the 3KHz bandwidth.
8552B-6 Serials prefixed 1107A & below. Improved amplitude stability for 2dB Log and 10 dB Log Operation.
8552B-7 Serials prefixed 1209A & below. Tracking generator restored signal operation.

8553B SPECTRUM ANALYZER, TUNING SECTION
8553B-1 Serial prefix 1144A & below. Modification for Tracking Generator restored signal operation.

8553L SPECTRUM ANALYZER, RF SECTION
8553L-1 Serials prefixed below 838 . Preferred replacement diodes.
8553L-2 Procedure for replacement of input mixer diode.
8553L-3A Serials 933-01035 & below. Recommended transistor replacements.
8553L-4A Modification for use with Tracking Generator.
8553L-S All serials. Improved fine tuning control.
8553L-6 Serial prefix 841 & below. Modification to increase input voltage rating.

8554L SPECTRUM ANALYZER, RF SECTION
8554L-1A Serials 823-00170 & below. Modification for improved Tuning Stabilizer operation.
8554L-3A Serials prefixed 925- & below. Modification for improved Second Local Oscillator operation.
8554L-4 Serials prefixed 950 & below. Modification to improve fine tune control resolution.
8554L-5 Serials 1101A03335 & below. Preferred replacement for A4U1, A5U1, and A6U1.
8601A-6 Serial prefix 1101A & below. Modification to provide
front panel first and second I/O outputs.

8556A SPECTRUM ANALYZER, TUNING SECTION
8556A-1 Serial prefix 1104A & below. Improved zero adjustment
range
8556A-2 Serial prefix 1124A & below. Preferred replacement
for A8Q1.

8601A GENERATOR/SWEEPER
8601A-1 Serials below 839-00381. Recommended replacement
for Series Regulator Q3.
8601A-2 Serials below 838-00181. Improved manual trigger
operation in slow sweep. Improve Retrace line in line Sync mode.
8601A-3 Serials below 838-00181. Reduction of spurious signals.
8601A-4 Serials below 838-00125. Reduction of residual FM.

8605A SWEEP OSCILLATOR
8605A-1 Improved operational amplifiers for A2 and A3 boards.
8605A-2 Recommended replacement for line filter capacitor C1.
KS 20626 (8605A) SWEEP OSCILLATOR
KS 20626-1 Improved operational amplifiers for A2 and A3 boards.
KS 20626-2 Recommended replacement for line filter capacitor C1.

8614A SIGNAL GENERATOR
8614A-1 Serials below 411-00376. Reduction of residual FM.
8614A-2 Serials prefixed 433 thru 511 - Modification to extend external prf range.
8614A-5A Illustrated parts identification.
8614A-6/8614B-1/8616A-4/8616B-1 Serials below 745-01901
Recommended switch replacements.
Installation of fuse and zener diode to increase reliability.
Modification for low power supply ripple and residual FM.
8614A-10/8616A-8 Serials below 815-01681. Modification to reduce transient spikes at the External pulse Input.
8614A-12A/8614B-6A/8616A-10A/8616B-6A A100 high voltage board assembly - correct replacement board numbers and their instrument.
8614A-14/8616A-12 Serials 749-02001 thru 953-02975. Modification to prevent Klystron heater-cathode shorts.

8614B SIGNAL GENERATOR
8614B-4/8616B-4 Serials below 916-00451. Recommended transistor replacement.
8614A-6/8614B-1/8616A-4/8616B-1 Serials below 748-00281
Recommended switch replacements.
Installation of fuse and zener diode to increase reliability.
8614A-9/8614B-3/8616A-7/8616B-3 Serials below 748-00341.
Modification for reduced power supply ripple and residual FM.
8614A-12A/8614B-6A/8616A-10A/8616B-6A A100 high voltage board assembly. Correct replacement board numbers and their instrument.
8614A-15/8614B-7/8616A-13/8616B-7 All serials. Procedure for replacing cavity wipers and center conductor.

8616A SIGNAL GENERATOR
8614A-3/8616A-2 Serials below 511-00381 Modification to extend prf range.
8614A-6/8614B-1/8616A-4/8616B-1 Serials below 744-01256
Recommended switch replacements.
Installation of fuse and zener diode to increase reliability.
8614A-8B/8616A-6B Serials below 749-01281. Modification to protect klystron filaments.
Modification for reduced power supply ripple and residual FM.
8614A-10/8616A-8 Serials below 815-01681. Modification to reduce transient spikes at the External pulse Input.
8614A-12A/8614B-6A/8616A-10A/8616B-6A A100 high voltage board assembly - correct replacement board numbers and their instrument.
8614A-13/8616A-1 Serials below 411-00280 & below. Modification to increase reliability of ALC board frequency adjust pots, R614, R615, R620 & R621.
8614A-14/8616A-12 Serials 749-01281 thru 951-01930 Modification to prevent Klystron heater-cathode shorts.
8614A-15/8614B-7/8616A-13/8616B-7 All serials. Procedure for replacing cavity wipers and center conductors.
8620A/B—8707A

8620A/B SERIES SWEEP OSCILLATORS
8620A-2 Serial prefix 1120A & below. Modification to reduce residual FM.
8620A-3 All serials. Installation procedure for remote frequency programming (opt 001).

8640A/B SIGNAL GENERATOR
- 8640B-3 Serial prefix 1229A & below. Elimination of frequency shift in expanded X100 mode.

8660A SYNTHESIZER
8660A-1 All serials. Installation of option 009
- 8660A-2A Serial prefix 1219A & below. High frequency adjustment improvement.
- 8660A-3 Serials below 1141A00131. Power supply improvements.
- 8660A-5A Serials below 1201A00161. Increase 500 MHz output level.
- 8660A-6 Serials 1219A00230 & below. Increase power supply adjustment range.
- 8660A-7 Serials 1219A00250 & below. Increase high frequency section adjustment range.
- 8660A-10 Serial prefix 1239A & below. Improved 100 KHz filtering.
- 8660A-12 Serial prefix 1241A & below. 50 MHz OSC suppression.

8660B SYNTHESIZER
- 8660B-1 Serials 1242A00180 & below. Modification to improve +4V filtering.
- 8660B-2 Serials prefix 1228A & below. Increased D/A ramp output for operation with external input of 8552A/B.
- 8660B-4 Serial prefix 1240A & below. Improved 100KHz filtering.
- 8660B-5 Serial prefix 1240A00180 & below. Modification to correct intermittent read-out.
- 8660B-6 Serial prefix 1245A & below. Modification to Winchester connector to reduce susceptibility to pin damage.
- 8660B-7 Serial prefix 1241A & below. 50MHz oscillation suppression to reduce false lock.

8690A-2A 8690 SERIES SWEEP OSCILLATORS

8690A-3 All serials. Preferred replacement for A14Q3.
8690A-4 All serials. Preferred replacement for S4 thru S8.
8690A-6 Serials below 747-01711. Modifications to permit operation with 8706A and 8707A.
8690A-7 Serials below 641-00261. Modification to permit operation with RF Units with serial prefix 724 and above.
8690A-8 Serial prefix 803 only. Recommended replacement for pen lift relay A9K1.
8690A-9 Serials below 717-00911. Improved power supply reliability and square wave symmetry.
8690A-10/8690B-1 Serials 803-01061 thru 818-02430. Procedure for the installation of a missing connection.
8690A-12 Replacement of capacitor containing PCB.
8690B-3/86988-1/86998-1 Tightening of voltage to tolerances.
8690B-4 Serials below 921-00801. Recommended replacements for A14Q3 and A2R63.
8690B-5 Serial numbers below 1050A02191. Modification to improve line Sync triggering.
8690B-6 Serial prefix 1124A & below. Modification to improve reliability.
8690B-7 Replacement of capacitors containing PCB.
8690B-U-3 Serials with a "U" prefix. Tightening of voltage tolerances.
8691-1 Installation of Shunt Tube Modulator.
8691-4A-1/8695-7A-1 Serials prefixed 715- thru 835-. Modification for improved reliability and added BWO protection.
8691-4A-2/8695-7A-2 Serials below 835-01406 (8691-4A); Serials below 835-00481 (8695-7A) Reduction of AM.
8691-4A-7/8695-7A-6 Serials below 916-02256 (8691-4A); Serials below 916-00616 (8695-7A). Modification to reduce residual FM.
8691-4A-8/8695-7A-7/8691-5B-6. BWO replacement procedure.
8692-4A/B-1 Installation of Shunt Tube Modulator.
8692-4A/B-7 Grounding Varian BWO to eliminate possible shock hazard.
8692-7A-1 Installation of Shunt Tube Modulator.
8693B-1 Installation of Shunt Tube Modulator.
8695B-2 Serials below 919-00331. Recommended pot replacements.
8695B-3 Serials below 1105A01416. Transient suppression filter to protect Yig Oscillator.

8706A CONTROL UNIT
8706A-1 Serials below 803-00181. Preferred replacement for A2Q7 for improved reliability.
8706A-2/8707A-5 Serials below 903-00341. Modification to reduce residual AM.
8706A-3 Serials below 903-00410. Recommended replacement for A2R20 and A2R22.

8707A RF UNIT HOLDER
8707A-1 Serials below 815-00231. Addition of a clamp diode to increase reliability.
8707A-2 Serials below 822-00261. Recommended time delay relay replacements.

▶ INDICATES RECENT ADDITION OR REVISION
8707A-3 Installation of magnetic shield for improved relay operation.

8707A-4 Serials below 802-00230. Modification for improved reliability of Unity Gain Follower circuit.


8707A-6 Serials below 921-00401. Modification to improve power level regulation.

8707A-7 Serials 0947A00705 & below. Modifications to improve reliability of the unity gain follower circuit.

8708A SYNCHRONIZER


8708A-2 Serials below 806-00526. Modification to increase pulse balance range.

8708A-3 Serials below 806-00676. Recommended transistor replacements.

8717A TRANSISTOR BIAS SUPPLY

8717A-1 Installation of Option 001.


8717A-3 Serials below 917-00121. Modification for improved reliability.

8717A-4 Serials below 927-00141. Installation of power transistor collector covers for improved safety.

8717A-5 Serials below 927-00141. Modifications to replace A2 and A9 boards.

8740A TRANSMISSION TEST UNIT

8740A-1 All serials. Resonance reduction at RF input connector.

8743A REFLECTION TRANSMISSION TEST UNIT

8743A-1A RF troubleshooting information and coax switch procedure.


8745A S-PARAMETER TEST SET

8745A-1 Replacement of A3Q11, 12, 13, and 14.

8821A MEDIUM GAIN AMPLIFIER

8821A-1 Serials 90112 & below. Modification of amplifier circuit to eliminate oscillations.

8821A-2A Serials 00146 & below. Warning about fuse replacement.

8875A DIFFERENTIAL AMPLIFIER

8875-1 Recommended replacement for A29101 and A29102.

9100A/B CALCULATOR

9100A/9100B-1A Power Supply replacement procedure.

9100A/9100B-2A Recommended repair procedure for Power Supplies.

9100A/9100B-3A CRT failures.

9100A/9100B-4A Modification to the deflection boards so that more than one 9150A Display can be operated from the same calculator.

9100A/9100B-5 Serials 945-03400 thru 945-03546 (9100A), Serials 938-00700 thru 938-01419 (9100B). Modification to eliminate possibility of short-circuit by cable clamp.

9100A/9100B-6 All serials. Modification for 9150A horizontal deflection board.

9101A EXTENDED MEMORY

9101A-1 Serials 0980A00101 thru 0980A00214. Modification to insure compatibility of the 9101A in the 9100B system.

9100A-2 All serials. Procedures for proper sequence of turning power on and off.


9120 CALCULATOR PRINTER

9120A-1A Serials 942-00900 & below. Recommended replacement of Paper Advance pushbutton.

9120A-2 Serials 942-01000 & below. Modification to prevent lockup.

9120A-3 Serials 942-01479 & below. Recommended replacement of ASCI.

9120A-4 Securing cam replacement to correct failures.

9160A MARKED CARD READER

9160A-1A Serials prefixed 929 & 941. Recommended replacement for A1 control Board Assembly and Skip 77 Decode modification.

9160A-2 Procedure to insure proper data entry into the 9100 system via the 9160A.

9300N/P CARTRIDGE DRIVE DISK

9300N/P-1 Recommended Service Tools.

9300N/P-2 Recommended Spare Parts.

9300N/P-3 Replacement of Sector Transducer Serial numbers 305 - 562.

9300N/P-4a Servo Motor Oscillations - all serial numbers.

9300N/P-5 Control I/O board head selection timing problem. Date codes prior to K1144-6.

9300N/P-6 Bottom cover kit - all serial numbers.

9300N/P-7B Calibration Potentiometers - All serial numbers.

9300N/P-8 All serials. Cartridge receiver misalignment.

9862A CALCULATOR PLOTTER

9862A-1 Production changes.

9865A CASSETTE MEMORY

9865A-1 Serials 1205A00101 thru 1205A00173. Memory clearing during power off.

10004A OSCILLOSCOPE PROBE

10004A-1 Improved replacement probe cable.

10005A OSCILLOSCOPE PROBE

10005A-1 Improved replacement probe cable.

10006A OSCILLOSCOPE PROBE

10006A-1 Improved replacement probe cable.

10012A OSCILLOSCOPE PROBE

10012A-1 Improved replacement probe cable.

10407A PLUG-IN EXTENDER

10407A-1 Modification to improve performance and eliminate oscillation of Model 180/181 Oscilloscope.

10479A TILT TABLE

10479A-1 Add two Tilt Limit Bars to prevent overturning.

10529A LOGIC COMPARATOR

10529A-2 All serials clip cover replacement.
10536A—17503A

10536A PLUG-IN ADAPTER
10536A-1 Serials prefixed 200- & below. Modification to correct error defeat.

10626A DIRECT MEMORY INCREMENT COMPUTER ACCESORY
10626A-2 Serial prefix 956 & below. DMI—DMA compatibility.

11589A BIAS NETWORK
11589A-1 Nameplate connection.

11592A SERVICE KIT
11592A-1 Modification.
11592A-2 Service kit interconnector cables.

11661A EXTENSION MODULE FOR 8660A, B.
11661A-1 Serial 1216A00250 & below. Modification to increase search threshold adjustment range.
11661A-2 Serial prefix 1248A & below. Modification to Winchester connector to reduce susceptibility to pin damage.

12533A/12534A/12550A DIGITAL VOLTMETER—PROGRAMMER INTERFACE

12564A HIGH SPEED ANALOG INPUT
12564A-1 Modification to improve reliability of Sign Bit

12567A DIGITAL VOLTMETER—PROGRAMMER INTERFACE
12567A-1 Date code G-702-6 & below. Modification for decreased susceptibility to environmental noise.

12575A TAPE WINDER
12575A-1 Procedure to avoid electric motor interference.

12595A INTERFACE CARD
12595A-1 Serials prefixed 901-, 905-, and 908- Information on PON signal.
12595A-2 Modifications to the I/O Control Card to provide hardware conformity.

12620A 1/0 BREADBOARD
12620A-1 All 5080-5950 boards with date code A-812. Replacement to prevent damage to computer power supplies.

12661A DIGITAL VOLTAGE SOURCE INTERFACE
12661A-2 Date code A-902-6 & below. Modification to prevent the possibility of random outputs.

12800A 8-BIT DUPLEX REGISTER CARD
12800A-1 Date codes below 1039-6 Modification to prevent erroneous character punch.

13181A MAGNETIC TAPE INTERFACE
13181A-1 Serials prefixed 1025A. Modification to eliminate the possibility of tape unit select errors.
13181A-2 Fifteen foot interface cable
13181A-3 Serials prefixed 1042A & below. Modification to prevent read errors when operating with DMA.
13181A-4 Proper interface cable connection.

15524A/15525A/15526A COUPLING LINES

16008A RESISTIVITY CELL
16008A-1 Illustrated parts identification.

17005A INCREMENTAL CHART ADVANCE
17005A-1 Serials prefixed below 1048A. Recommended replacement for capacitor C503.
17005A-2 Serial prefix 835 to 1116A. Modification to improve incremental advance.

17005A-3 Operation with point plotting system.

17106A/17107A INPUT FILTERS
17106A-1/17107A-1 Calibration procedure and parts list.

17172A TIME BASE MODULE
17172A-1 Serial prefix 924 & below. Modification to eliminate noisy sweep.

17173A NULL DETECTOR MODULE
17173A-1 Serial prefixed 1011A. Modification to correct defect in the printed circuit board of the output card.
17173A-2 Serial prefix 1011A. Modification to eliminate output card failures.
17173A-3 Serial prefix 1011A and 1121A. Fuse change.

17175A ACTIVE FILTER MODULE
17175A-1 Serial prefix 818. Modification to decrease temperature drift.

17176A SCANNER MODULE
17176A-1 Serial prefix 1011A & 1043A. Fuse value change.

17500A INPUT MODULE
17500A-1 Serials prefixed below 833-. Modification to provide for increased reliability and power rating of the chopper circuit.

17501A INPUT MODULE
17501A-2/17503A-2 Serials prefixed below 717-. Modification to permit operation with 7100B and 7128A Electric Writing Recorders.
17501A-3 Serials prefixed below 828-. Modification to provide for increased reliability and power rating of the chopper circuit.

17502A INPUT MODULE
17502A-1 Serials prefixed below 828-. Modification to provide for increased reliability and power rating of the chopper circuit.
17502A-2 Serial prefix 908 & below. Modification for operation with 17505A or 17506A.

17503A INPUT MODULE
17503A-1 Serials prefixed below 647-. Recommended chopper replacement.
17503A-2 Serials prefixed below 717-. Modification to permit operation with 7100B & 7128 Electric Writing Recorders.
17503A-3 Serials prefixed below 834-. Modification to provide for increased reliability and power rating of the chopper circuit.
17504A INPUT MODULE
17504A-I Serials 00381 & below. Modification to increase the reliability of the chopper circuit.

60066B SLOT POWER SUPPLY
60066B-1/60126B-1 Serials 00150 & below. Modification to correct fuse size.

60125B SLOT POWER SUPPLY
60125B-1 Serials 00350 & below. Modification to improve crowbar reliability.

60126B SLOT POWER SUPPLY
60066B-1/60126B-1 Serials 00130 & below. Modification to correct fuse size.

85001A CASSETTE I/O UNIT
85001A-I Recommended preventive maintenance.

86220A PLUG IN
86220A-1 All serials. Installing opt 002 in 86220A option 004.
86220A-2 All serials. Installing opt 002 in 86220A.

86320/86330 MODULES
86320A-I/86330A-I Serial prefix below 1125A. Modification to increase the dynamic range of power level control for the 86320A.
86330A-2 Serials below 1109A00221. Modification to reduce residual FM.
86330A-3/86331A-1 Serial prefix 1125A & below. FM board replacement to eliminate spurious AM caused by ALC oscillations.

86350A OSCILLATOR MODULES
86350A-1 Serial prefix 1125A & below. Modification kit to add steel cover and heat sink.

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86601A RF SECTION FOR 8660A, B
86601A-1 Serial 1214A00200 & below. Meter replacement kit.
86601A-2A Serial 1249A00320 & below. Meter replacement kit (opt 001).
86601A-3 Serials 1201A00170 to 1214A00230. Modification to add pulse modulation capability.
86601A-4 Serial 1223A00240 & below. Power amp improvement.
86601A-5 Serial prefix 1223A & below. Modification to Winchester connector to reduce susceptibility to pin damage.

86602A RF SECTION FOR 8660A, B
86602A-1A Serials 1245A00170 & below. Meter replacement kit.
86602A-2 Serial prefix 1243A & below. Modification to Winchester connector to reduce susceptibility to pin damage.
86602A-3 Serial prefix 1240A & below. Modification to reduce oscillation in ALC amplifier.
86602A-4 Serial prefix 1239A & below. Modification to improve AM performance.

86631B AUXILIARY SECTION FOR 8660A, B
86631B-1 Serial prefix 1223A & below. Modification to Winchester connector to reduce susceptibility to pin damage.

86632A AM/FM SECTION 8660A, B
86632A-1A Serial prefix 1238A & below. Meter replacement kit.
86632A-3 Serial prefix 1226A & below. Modification to Winchester connector to reduce susceptibility to pin damage.
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☐ Service notes generally not retained.
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☐ For 5-10 years after product is no longer manufactured.
☐ For 10-20 years after product is no longer manufactured.
☐ Other

Thank you for your help.