

HICKOK SERVICE OPTIONS

The following services and upgrades are available for many Hickok testers!

ADDITIONAL SERVICE WORK ACTIVITY:

A1. SS-83 solid state rectifier: This replaces the 83 mercury vapor tube! This eliminates the hazardous material issue and reduces the typical problem of calibration drift in the tester. The 83 tube is the first and primarily the main cause of out of calibration and drift in the tester. All my devises are designed to meet the requirements of the Hickok circuit design and operation to ensure proper calibration and correct/accurate Gm measurements.

Plug in units sells for \$69.50 (currently only availability for units sent in for repair)

SPECIAL DESIGN SS-83 to extend the life of power test transformers in the tube tester. Plug in units designed to eliminate the 5 amps 25 watts or power/heat developed in the transformer which is causing its earlier than necessary failure and reducing its current capacity which reduces the testers performance and test accuracy as well. This unit is designed and built for your tester based on its transformer actual condition. The internal wear and damage already within the tester can not be repaired or corrected but in many cases it will be greatly delayed and most often the testers performance is improved for many circuits if not all. **The cost for this unit is \$79.50**

A2. SS-5Y3 solid state rectifier: replaces 5Y3 tube! This tube is the second cause for out of calibration conditions in the tester! All my devises are designed to meet the requirements of the Hickok circuit design and operation to ensure proper calibration and correct/accurate Gm measurements.

Plug in units sells for \$69.50 (currently only availability for units sent in for repair)

SPECIAL DESIGN SS-5Y3 to extend the life of power test transformers in the tube tester. Plug in units designed to eliminate the 5 amps 25 watts or power/heat developed in the transformer which is causing its earlier than necessary failure and reducing its current capacity which reduces the testers performance and test accuracy as well. This unit is designed and built for your tester based on its transformer actual condition. The internal wear and damage already within the tester can not be repaired or corrected but in many cases it will be greatly delayed and most often the testers performance is improved for many circuits if not all. **The cost for this unit is \$79.50**

The next two services are not a normal repair activity: As they require from 2.5 to 4 hours or more to perform in them selves alone not including the other repair activity required on the tester itself. These two type items push button test switches and wire wound bias and shunt potentiometers were never built to be disassembled and repaired/cleaned they were expected to simply be replaced when required. As these key parts are no longer available repair and cleaning is often the only reasonable alternative. However, with out the required equipment and know how trying often can cause more problems and even destroy the assembly/pot in the process. I have developed safe procedures and developed equipment/jigs/fixtures to do the disassembly, repair, cleaning and re-assemble both safely and correctly. The wrong process or cleaning material can also make the item worse or damaging it.

A3. Hickok and military push button test switches assembly: The safe disassembly and a safe manual repair, and cleaning can be performed, see photos at the end of this document. Contact slides are hand cleaned, and the worn slides are re-zinc coated and buffed then coated with a high quality metal contact cleaner/corrosion protecting compound which has metal seeking VpCLs that seals & protects the cleaned metal contacts with a self -repairing “ **Molecular Umbrella™**” with no chemical build up on the contacts. **Added Labor cost is \$30.00**

A4. Many top panel type wire wound operational controls: Can be safely disassembled and repaired and cleaned properly to greatly improve their performance and in some cases this may even be required to return the tester to a reliable and accurate testing unit. Required repairs can be made if they are deemed to be reliable. Contacts, wiper arms and internal metal parts are hand cleaned, tarnish removed and old greases removed. Any worn or broken wire or items are repaired and where required are re-zinc coated and buffed then coated with a high quality metal contact cleaner/corrosion protecting compound which has metal seeking VpCLs that seals & protects the cleaned metal contacts with a self -repairing “ **Molecular Umbrella™**” with no chemical build up on the contacts. **Added Labor cost is \$30.00**

A5. Bogey tube: This is a 6L6 reference tube that is burned in and then tested to laboratory standards! The tube comes with a manual containing detailed data charts for use in checking, or calibrating most any tube tester. All data for accurately testing Hickok testers are provided. Data for most other makes and models are also in the manual. In addition the tube test results are compared to the tube manual (tube specification data sheet)! **See website for pricing and details!** www.alltubetesters.com

A6. Add Ferrite beads: This is to ensure the tester can accurately perform Gm test measurement on high mu/Gm tubes like 6DJ8 and similar tubes. **Beads are \$1.50 each and labor is \$5.00 per tube socket.**

A7. Cleaning: Top panel and under chassis cleaning. **\$30.00**

A8. Top chassis wood frame supports replacement: This is the full replacement of the top wooden support frame which the chassis is attached to. New wood for supporting the mounting of the chassis, and new screws.

\$65.00 labor includes wood and screws.

A9. New case hardware: New latches and corner hardware (Chrome) installed (removable hinges not available). **Email for more details and pricing. (Currently not available).**

A10. Tight calibration with added calibration trim control: This improves the calibration and also allows for the trimming of key calibration items rather than selectively installing a resistor close enough to the required value based on standard resistor values which is the standard calibration method! The tighter calibration accuracy varies with the model version tester you have. It can improve the accuracy by as much as 5% in worse case for some models, and better for higher end models (does not apply to the 539B, or 539C or 580/580A models), from the original factory calibration value! **This is a Labor charge and includes all the required parts to improve the calibration! Price \$25.00**

A11. Calibration for using a variac (auto-transformer) to control the AC line set voltage: This is where the unit will be calibrated for allowing the customer to use a variac to adjust the line set on the tester. This greatly reduces the large line sag voltage that reduces the accuracy of the mutual conductance Gm measurement! Testers which have a separate line set meter like the 539A, 539B, and 539C already have improved capability because the ac line can be set separately and at the actual test load. The use of the variac provides even better accuracy over the adjustable resistor used in these testers as well which is in series with the primary of the power transformer! If calibrated with this method the tester must continue to be operated this way or the test result will have less than expected accuracy. **Price \$10.00**

A12. Add socket savers for 7 pin, 9 pin or 8 pin octal sockets:

7 pin = \$15.25 9 pin = \$12.75 8 pin octal = \$14.95

The above service options are available to be added to any service job and are not considered an up grade service activity, but as an optional additional service activity that may be requested and in some situations some may be required based on the actual condition of the parts, such as a potentiometer, push test switches, and Solid state units to take some of the burden off of the power test transformer and improve the reliability and testers performance and in may situations the accuracy of the tester over all. And in many cases the Gm test results as well. If you have any questions regarding any of this please email me and I will explain in greater detail. If you need to talk to me directly then email me and give me a phone number I can reach you at during the work day (my time in California) and a day and time your time I can call you!

Upgrades available to many Hickok model testers:

1. Digital AC line set meter: This allows for a more accurate setting of the line set which has an effect on the degree of measurement accuracy of the tubes Gm (mutual conductance also called trans-conductance). All service testers and all Hickok models also suffer from this inherent design trade off. The 539 series and the 536/538 versions reduced this problem with the addition of the independent AC line set meter which allows for correcting the error (line sag) by readjusting the line set during the test operation. The digital meter makes it easier to adjust to the correct voltage and is more accurate than the older mechanical models! [Call or email for current pricing!](#)

2. Higher current 6 amp, or 10 amp at 6.3 volt filament transformer: This is both useful for testing 6.3 volt heater tubes which require over 3 amps or more of heater current. This is important to meet the required 6.3 volt heater to improve the accuracy of the Gm test results on these tubes. Many of the older testers suffer from a low heater voltage especially under load test conditions. The original maximum current by original factory transformers was 3.0 amps when new. This addition will also will allow for a lower load on the main transformer in the tester! Other transformers for 5.0 and 2.5/3.0 volt heaters are also available on request. 6 amp or 10 amp are available: Other voltages may also be a possibility as well: [Email for current pricing.](#)

3. Precision calibration 539B & 539C models: This calibration includes installing precision resistors and trim controls to allow for improving the measurement accuracy of the tester! The improvement is typically from the standard +/- 10% to that of +/- 5% or better overall. This is a Labor charge which includes all the required parts to improve the calibration! [Price is \\$65.00](#)

4. Addition of bias fuse lamp protection for units with no bias fuse: Early Hickok units did not have a bias pot protection circuit. If an error is made in testing a bad tube there is a good possibility to burn out the bias control which are no longer available. This upgrade installs this device as a circuit protection and it can be installed on the top panel, or inside the tester! This option has the advantage that the lamp will absorb the excess current up to a critical point where the lamp will open like a fuse. If the lamp absorbs the current which does not approach a damaging value you can stop the test (provided the lamp is visible and not under the chassis) before the lamp goes out. If you fail to respond fast enough the lamp will open and you're still safe 95% of the time. There is always a 5% chance that depending on the bias pot position and the short/resistance value that neither a fuse, or a lamp can act fast enough to protect from some level of damage, including an open in the bias pot. But in such a case the pot will most likely be repairable in this situation. If mounted under the chassis it must be understood that if the lamp does blow out, you will have to remove the tester from the case to replace the fuse if not mounted on the top of the chassis. [Lamp type - Price \\$35.00, or \\$45.50 if mounted on the top of the chassis.](#)

5. Addition of bias fuse protection for units with no bias fuse: Early Hickok units did not have a bias pot protection circuit. If an error is made in testing a bad tube there is a good possibility to burn out the bias control which are no longer available. This upgrade installs this device as a circuit protection and it can be installed on the top panel, or inside the tester! Available for any unit without a bias fuse including the 539B and 539C models. This option will protect the bias pot but the fuse will act fast. There is always a 5% chance that depending on the bias pot position and the short/resistance value that neither a fuse, or a lamp can act fast enough to protect from some level of damage, including an open in the bias pot. But in such a case the pot will most likely be repairable in this situation. If mounted under the chassis it must be understood that if the fuse does blow out, you will have to remove the tester from the case to replace the fuse if not mounted on the top of the chassis. [Fuse type - Price \\$25.00, or \\$35.50 if mounted on top of the chassis.](#)

6. Digital DC plate current meter: Price depends on type of meter and mounting location. [Email for pricing.](#)

7. Traditional mechanical plate current meter: Price depends on type and mounting location. [Email for more details and pricing.](#)

8. Special bias adjust circuit independent of screen supply: Price varies by model call for details. Circuit modification makes the bias supply to 50 volts and it is separate from the screen supply!
[Email for more details and pricing.](#)

9. Digital meter set - AC line set, DC Bias, Plate Current: Price varies by combination.
[Email for pricing.](#)

The two major improvements one could have done if needed or wanted to make most any Hickok more accurate in its Gm test accuracy are the ability to adjust out the line sag error and the tightening up or improvement in the calibration accuracy by upgrading the circuits affected in calibration. Line sag elimination can be achieved by either the correct application of a Variac, and/or a separate AC line set meter. Not all of the above options are available for all models. Please contact me by Email, to find out which option applies to your tester.

Pricing effective 01/02/2014

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