

## The Harvey Wells Field Strength Meter

The Harvey Wells Field Strength Meter HW-509 was produced for the US military during the 1940s as a maintenance aid for the servicing of VHF and UHF radio transmitters. The Harvey Wells Company was formed in 1940 when John Wells joined Clifford Harvey in his Harvey Radio Laboratories. The company was located in Southbridge, Massachusetts, USA and produced a range of military equipment ranging from signal generators, transmitters, antenna couplers, radar transponders, some receivers and associated test equipment. After WWII the company produced radio transmitters for civil services and also radio amateurs. After a number of buyouts /takeovers the company operated until the 1960s.



This field strength meter is a very simple passive design and comprises a tuned circuit with a crystal diode feeding into a 50 uA meter with a 5 kohm resistor across the meter as a sensitivity control. Construction is very robust with the main butterfly capacitor beautifully crafted with a 2:1 reduction gear to the pointer. It is calibrated from 90 to 420 MHz but it actually operates from about 85 to over 475 MHz. A telescopic antenna plugs into the front panel and extends from 170 to 870 mm providing an adjustable 1/4 wave antenna across the frequency band.

The whole unit is built into a strong die cast container with a removable lid and rubber seal with overall dimensions of 190 x 130 x 110 mm. The circuit, parts list and the operating instructions are printed in the cover. There is a warning not to overload the instrument with a high level signal but there is no inbuilt protection for the crystal diode and in this particular unit, the diode was O/C and was replaced with a CV488. There is actually a clip holder for a spare crystal diode mounted on the capacitor!



The remarkable thing is that after some 70 years, the device is still quite useful for measuring antenna patterns. Although it is not particularly sensitive it may be used for both 2 m, 70 cm amateur and

commercial bands. With the proliferation of UHF citizens band transceivers operating at 475 MHz in many 4WD vehicles the effectiveness of a range of antennae mounted on the bull bar or vehicle roof can be readily compared.

