

## 138A TEST SET DESCRIPTION AND USE

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### 1. GENERAL

1.01 This section covers the description and use of the 138A test set.

1.02 This portable, battery-operated test set is a precision tone generator for use in fault locating and pair identification. This test set generates the same 577.5 Hz signal as the KS-14103 L6 breakdown test set and at approximately the same

output level. The 138A test set is particularly useful in toning operations where noise or power influence is a problem. When other tones are difficult to detect, the 577.5 Hz tone will be heard if it is filtered at the pick-up point. The 1097A filter, provided separately, is tuned precisely to 577.5 Hz and provides a very narrowband rejection to all other interfering signals.

1.03 The 138A test set is designed to be used in conjunction with the 147C amplifier, 1097A filter, 105D exploring coil, or 513A probe.

### 2. PRECAUTIONS

2.01 Caution must be exercised when making tests so that contact is not made with any high voltage lines.

2.02 Exercise care to protect the test set from water damage as it is NOT waterproof.

3. DESCRIPTION

3.01 The 138A test set (Fig. 1) is a lightweight solid state test set powered by a single 45

volt KS-14196 battery. The test set is housed in a fiberglass case that is 7 inches by 6 inches by 6 inches and weighs approximately four pounds with battery, cover, and attached test cord.

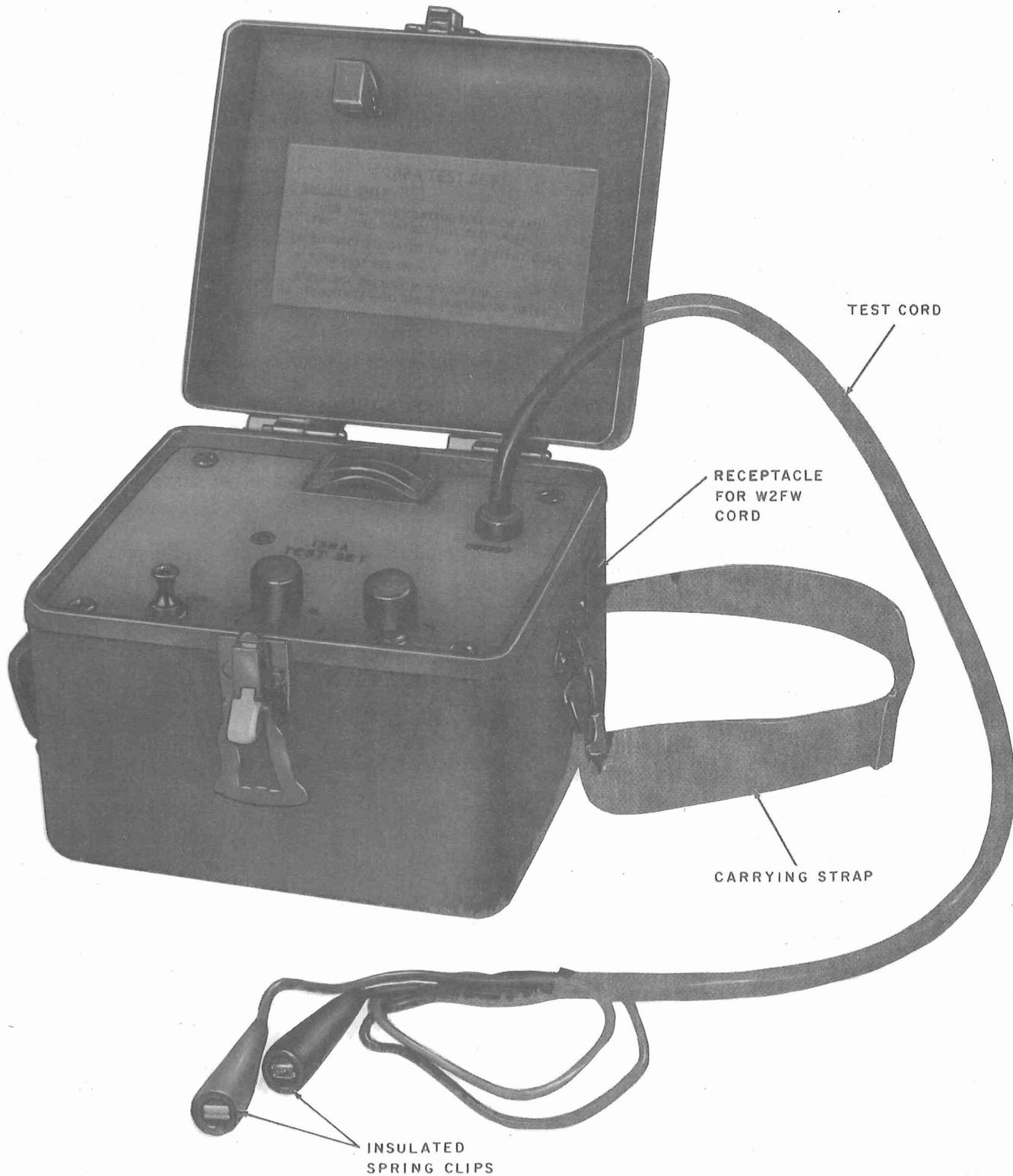
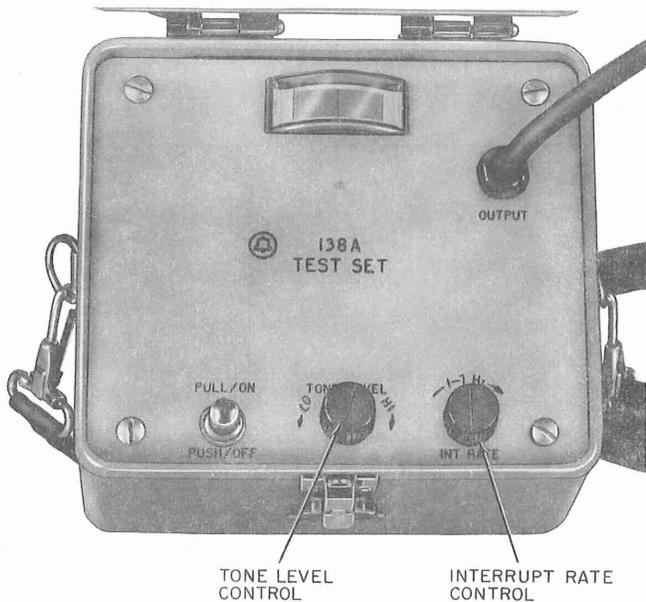


Fig. 1—138A Test Set

**3.02** The push-pull switch is provided for turning the test set ON and is automatically switched OFF when the cover is closed and latched. A INT RATE control on the panel adjusts the tone interrupt rate. A meter is provided to indicate the presence of tone and to test the condition of the battery. The tone output level may be adjusted by the TONE LEVEL control on the panel (Fig. 2).



**Fig. 2—138A Test Set Panel**

**3.03** A four foot test cord is permanently attached to the test set and the free end is terminated with two insulated spring clips. A receptacle is provided on the side of the test set to accept the W2FW cord used with the KS-14103 L5 breakdown test set. After the KS-14103 L5 breakdown test set is used to breakdown the pair, the W2FW cord can be removed from the test set and inserted into the 138A for toning.

#### **4. USE**

**4.01** The battery should be checked before testing. Rotate the INT RATE control full counterclockwise and the TONE LEVEL control full clockwise. Connect the two insulated spring clips together and pull the ON/OFF switch. The meter indicator should read in the green area of the meter. If not, replace the battery and repeat the test.

4.02 Attach the 138A test set to the pair to be tested as shown in Fig. 3. When tone is applied, the meter indicator will fluctuate due to the meter responding to a pulse. The output of the 138A test set and the gain of the 147C amplifier must be adjusted to a usable but low level tone at the receiving headset. Setting the amplifier gain and/or the tone output too high produces a

saturation and makes the tone to appear to spread to other pairs or past a fault. Saturation is indicated when an increase in the amplifier gain causes little or no increase and sometimes even a decrease in the sound level at the headset. Saturation prohibits the detection of tone level changes important to successful fault location and pair identification.

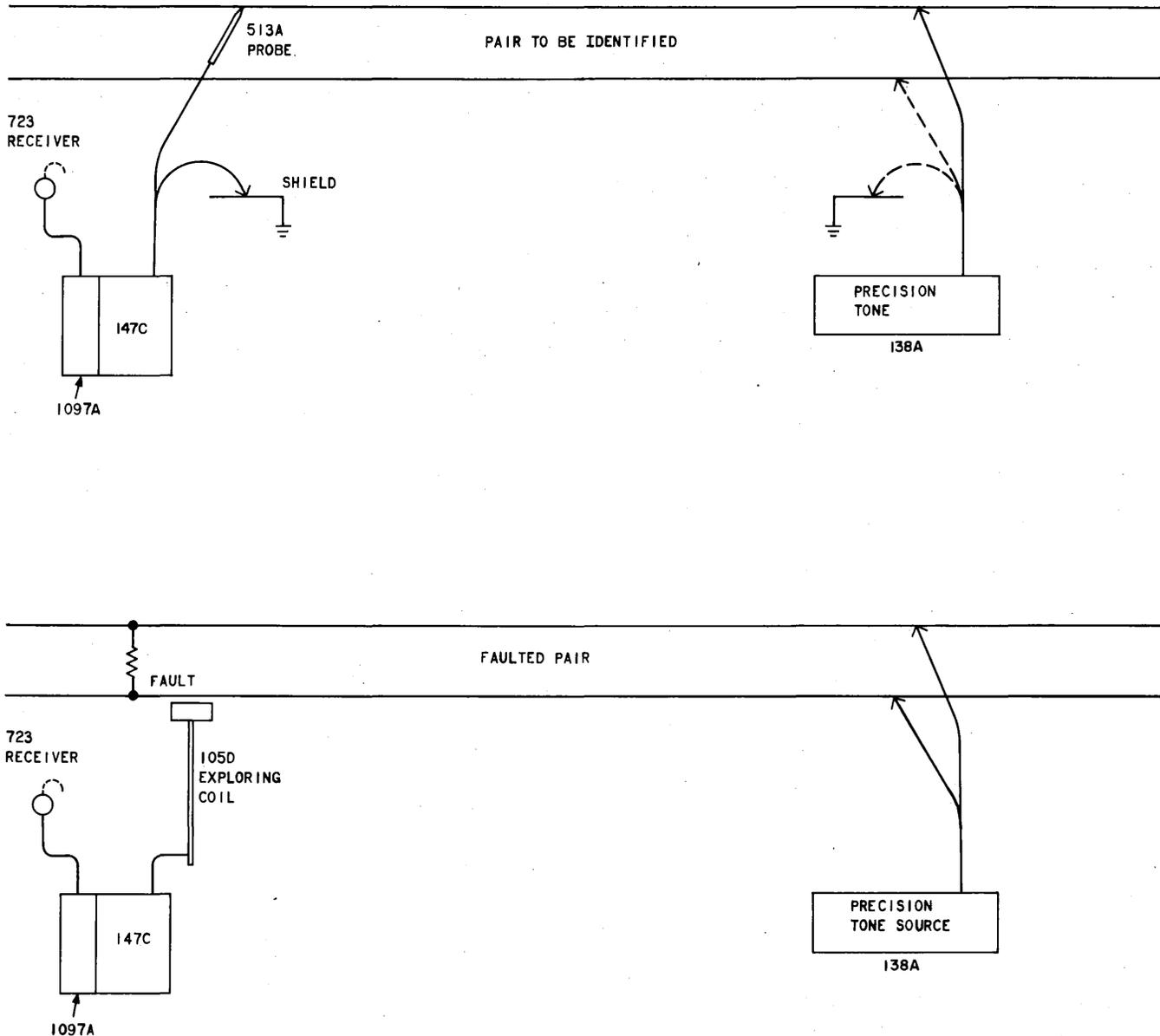


Fig. 3—138A Attached To Pair

**4.03** To avoid the effects of saturation, the suggested method is to first adjust the gain of the amplifier while listening to the noise level directly out of the amplifier before inserting the 1097A filter. **ONLY THE NOISE LEVEL IS IMPORTANT FOR THIS ADJUSTMENT.** The test set may or may not be connected to the pair to be tested. The pickup device (the probe or exploring coil) is connected to the input of the amplifier and is placed near the cable. The amplifier gain is adjusted until the noise level at the headset is loud or until saturation occurs. The gain is then adjusted back to one-half this value and the amplifier should be ready to use.

**4.04** With the 1097A filter connected to the 147C amplifier, adjust the 138A test set for a low level tone at the headset. If the tone is to be applied at a remote location where adjustment may

be difficult, the tone level should be set at the time the test set is connected. The tone level should be high for noisy areas and low for quiet areas. The 147C amplifier gain may require readjustment for use in the different noise level areas.

## **5. MAINTENANCE**

**5.01** No maintenance except battery and carrying strap replacement should be performed in the field. When the battery test shows a replacement is needed, remove the front panel by releasing the four self-locking screws. The battery is easily removed and replaced.

**5.02** If the test set does not operate after replacing the battery, return for repair in accordance with local routine.