OSCILLATIONS - Sound Waves

C41

WAVE BEATS

C41

Oscillations

G1R1310B
No. 1

TO SCOPE CH 1

TO SCOPE CH 2

G1R1310B
No. 2

Scope Settings
CH1 - .5 VOLTS/DIV
CH2 - 5 VOLTS/DIV
VERT MODE - ADD
A TIME/DIV - 10ms
TRIG MODE - CH1/AUTO

Speakers #1 & 2 on Amplifier #1

Speakers #1 & 2 on Separate Amplifiers

Reversing switch to change Phase

AUX 1

8 ohm

BoGEN C-60

BoGEN CHS-60

No. 1

No. 2
OSCILLATIONS - Sound Waves

Frequency of HP3310A #1 - 400Hz
Frequency of HP3310A #2 - 410Hz

1. HP3310A #1
   R = 100Ω - 200Ω
   HP3310A #2
   STANCOR P-8130
   2 AMP FILAMENT TRANSFORMER

2. HP3310A #1
   TO 465 SCOPE
   BNC
   A
   B
   2 Signal Mixer box 741 OP Amp
   Check Batteries Before Using
   HP3310A #2

3. To CH A
   HP3310A #1
   BNC
   To CH B
   HP3310A #2
   BNC
   TEK 465 Scope
   Use TWO Channel ADD

4. To CH A - TEK 465
   HP3310A #1
   BNC
   Use Two Channel ADD
   HP3310A #2
   BNC
   2 Signal Mixer Box 741 OP Amp
   Check Batteries Before Using
   AUX IN
   gnd
   8 ohms
   BOGEN AUDIO AMP.

RNB 6/89
Assembly and Operation

1. Plug the male banana/female BNC adapters into the output connectors on the oscilloscope.

2. Attach a BNC cable to each of the adapters installed in 1.

3. Configuration

   a. Place a BNC double female barrel on each of the cables used in 2.

4. Place a male BNC/female banana adapter on each of the barrels installed in 3.

5. Screw a green wire from the transformer to one of the signal wires from an oscilloscope using the screw connector on the BNC/banana adapter.

6. Do the same for the other green wire of oscilloscope.

7. Attach the yellow wire from the transformer to the ground from one of the oscilloscopes through a resistor (use solder).

8. Screw the black wires from the transformer to the remaining female banana/male BNC adapter.


10. Run a BNC cable from the barrel just installed to the scope.
1. Two oscillators, Heath General Radio model 1310-B 2 Hz - 2 MHz
2. Two BNC/Banana adapters (male Banana, female BNC)
3. Oscilloscope (with television camera & monitor)
4. Two BNC cables.
   Configuration 1 (see diagram)
5. Three BNC/Banana adapters (female Banana, female BNC)
6. Three BNC barrels (double female)
7. Another BNC cable
   Configuration 2
8. Two signal mixer w/ 741 op amp
9. Another BNC cable
   Configuration 3
   — No more parts —
WAVE BEATS

Configuration 2

3. Run a BNC cable from each oscillator's outputs to the inputs of the 741 opamp mixer.

4. Run a cable from the output of the mixer box to the oscilloscope.

5. The relative amplitudes of the waves can be adjusted with the 10kΩ knobs on the mixer.

6. Check the batteries in the mixer box.

Configuration 3

3. Run a BNC cable from each oscillator to each input channel of the scope.

4. Use the hold button on the scope.

Settings:

- Set each oscillator to 4 kHz.
- Set the scope so there are 100 oscillations of one oscillator per screen width.
- Set the voltage/div so the entire wave is visible.

Adjust the scope trigger level and one of the oscillator's frequency for stability.

Adjust the one of the oscillator's output level so the envelope "pinches" to zero.

Diagram: