

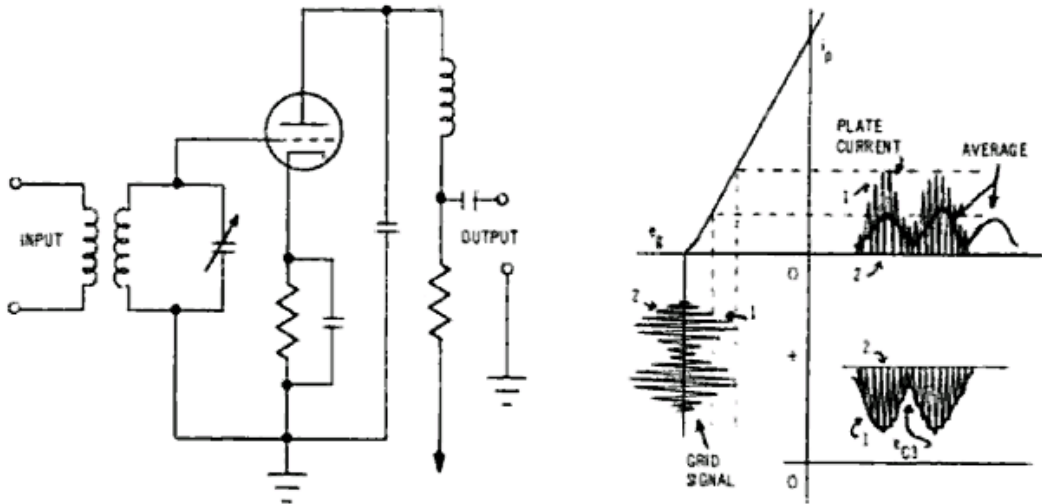
Angelodyne Regenerative Plate Detector

PLATE "ANODE BEND" DETECTION
CATHODE-FOLLOWER TICKLER REGENERATION
HELLENEDYNE "High-Gm High-Rp" FRAME-GRID TRIODE
FEEDBACK-INDUCED GRID-BIAS CYCLING SUPER-REGENERATION

VERSION 5 ©2008

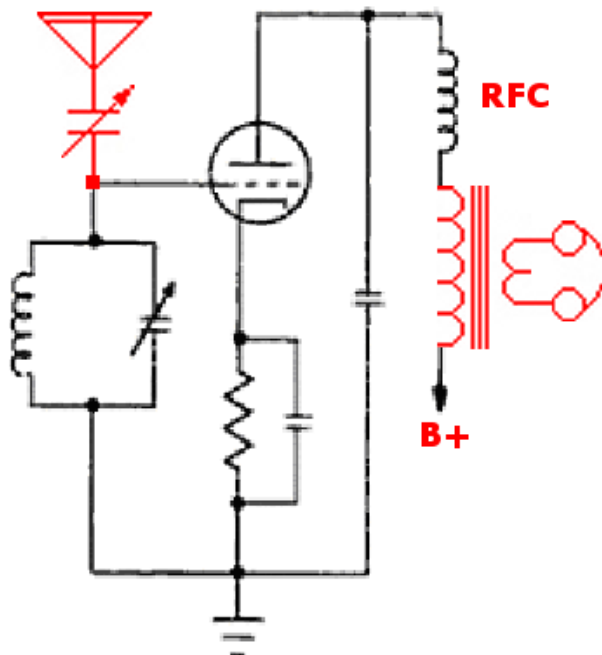
The information below is not guaranteed to be free of errors.

1. STANDARD PLATE DETECTOR



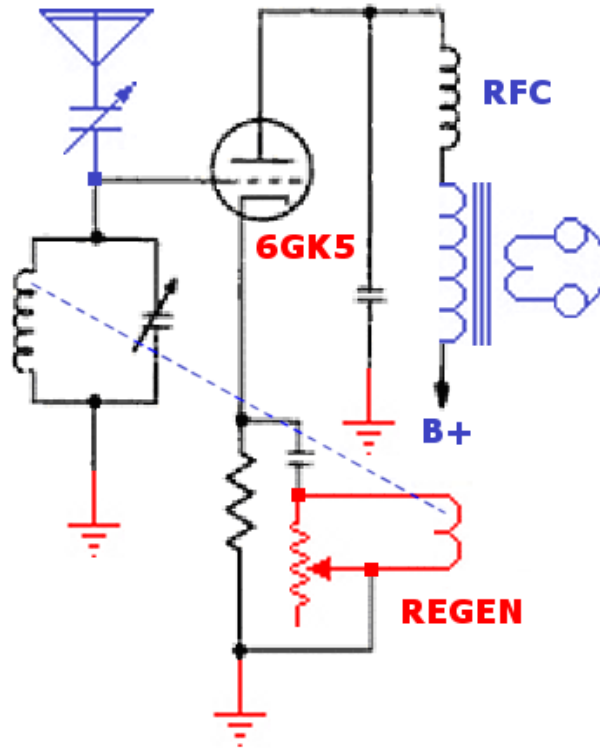
The [Hellenedyne](#) resembles a [plate detector](#). [Dave Schmarder](#), creator of [TheRadioBoard](#), figured this out. Plate detectors are known for their **selectivity**, linearity, and input capabilities.

2. ANTENNA INPUT and HEADPHONE OUTPUT



Detector input can be derived from *numerous* antenna input methods. Output is through a transformer (here [Bogen T725](#)) feeding headphones (here 112 dB SPL/mW 16-Ω [Koss Sparkplug](#)).

3. CATHODE-FOLLOWER TICKLER and HELLENEDYNE TRIODE



Regeneration is added via a [cathode-follower](#) (high input impedance "tank Q" protecting; non-inverted unity voltage gain; current gain only) [tickler](#). The B7G-base 6GK5 offers both high transconductance (9000 μMHOS) and high plate resistance (5330 ohms) at 30V of plate voltage.

4. PRECISE DC GRID CONTROL

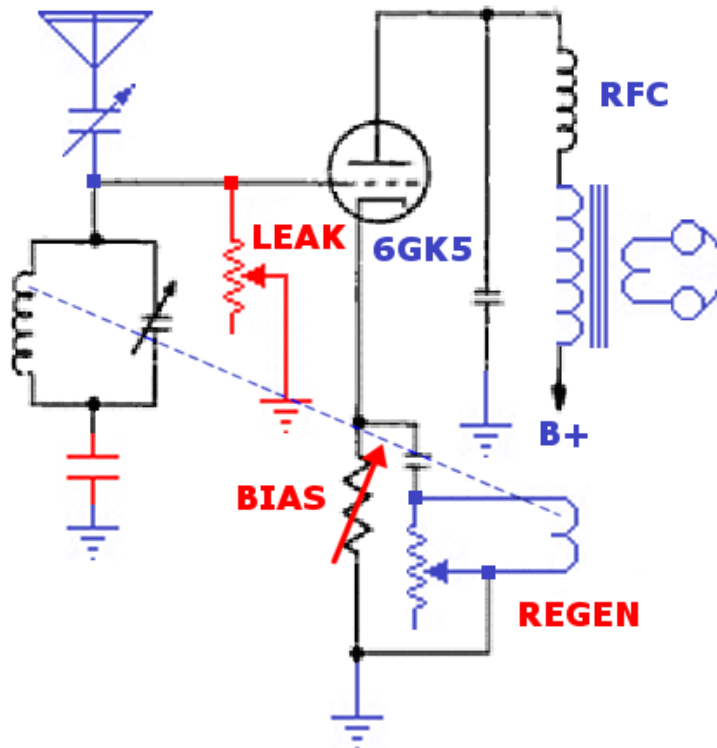
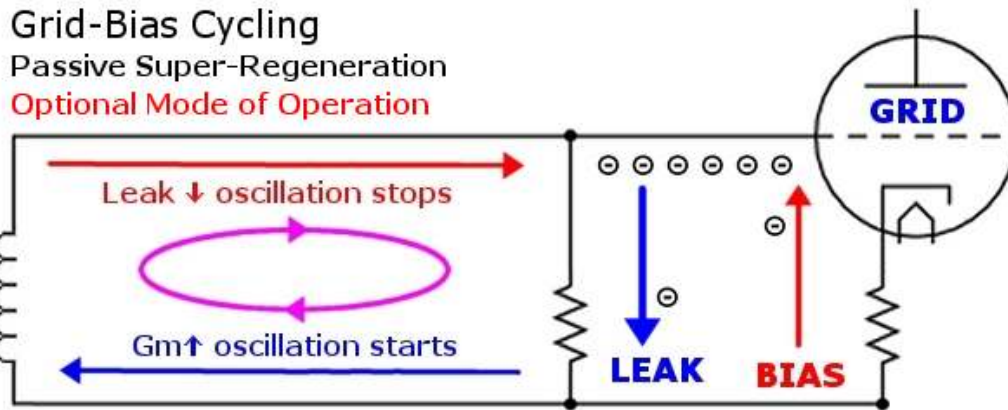
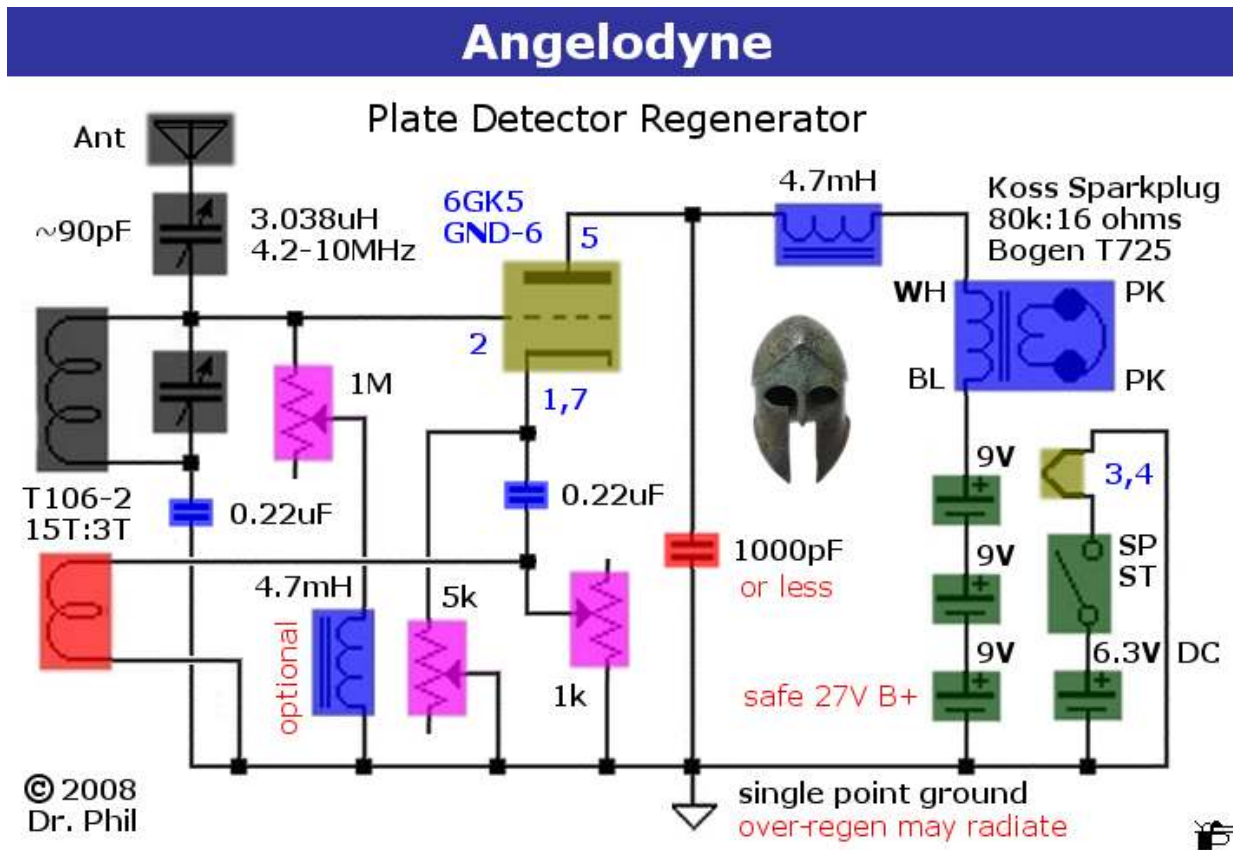


Plate detectors are biased near cut-off. Super-regeneration is doable via [feedback-induced grid-bias cycling](#). Electrons buildup on the grid due to [cathode-bias](#) and are drained via [grid-leak](#). Tickler electromagnetic induction stops leak: G_m falls, oscillations die, leak restarts, cycle repeats.



5. ANGELODYNE PLATE DETECTOR REGENERATOR

The Angelodyne is sensitive, selective, and allows for normal listening volume. My daily "shortwave listener" is now a single-triode radio: no lethal voltages or sound-powered phones! Blowtorches are heard at ~80 decibels (dial-tone level) of sound. I dedicate all efforts to God.



I wish to thank Dave Schmarder.

<http://schmarder.com/radios/tube/h-dyne.htm>

<http://schmarder.com/radios/>

<http://theradioboard.com/rb/>

REFERENCE

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