



### Current Mode, Coil Driver Power Inverter

The HS-- coil driver is designed to work with the HR-- coil driver latch circuit. When the HS-- driver receives a negative input from HR--, it develops a +46v output and provides enough current to pick a coil (see logic application above). The HS-- card is presented here as a part of a multicard coil driver circuit so overall circuit function and purpose are better visualized. The HR-- driver develops a negative output when it recognizes a coincidence of plus inputs. Once picked, it latches for the duration of the gate signal supplied to it by the FU-- gate and reset driver. The FU-- driver accepts a +55v cb input and provides a +6v output to gate HR--.

#### Circuit Description

As shown, tx1 is forward-biased and tx2 is reverse-biased. Tx3, tx4, and tx6 are reverse-biased because divider currents have established their base levels as shown. T4 and tx5 are reverse-biased by their base return potential. The output of T4 is 0v and the coil is not picked.

When the cb closes, the base divider of tx5 attempts to rise to +38v, but its collector-to-base is forward-biased and the base clamps to +6v. The emitter of tx5 follows its base upward so the emitter of tx4 is now gated to

receive an input to its base. When the input to tx1 rises, tx2 is forward-biased and tx1 is cut off. Current flow from -12v through 18K, 5.1K, and tx2 to +6v raises the base potential of tx3 and it conducts. Current flow from -6v through tx3, 3.6K, and 62K to +30v attempts to lower the base of tx4 to +2.3v which forward-biases tx4. Current flow from -12v through 1K, 1.2K, tx4, and tx5 to +6v raises the base level of tx6 and it conducts. The drop across the 1K resistor attempts to raise the anode of D1 to -3.8v which forward-biases D1. Current flows from -12v through 18K, D1, 1.2K, tx4, and tx5 to +6v. Thus, the base of tx3 remains forward-biased after tx2 is cut off because tx3 is now latched by D1. This latch is maintained until the +55v cb source is removed. Current flow through tx6 to +55v lowers the base level of T4 and it conducts. Current flows through the coil and T4 to +46v and the coil picks. Input A increases the input resistance to T4 by 1K which reduces the forward bias of T4 and thereby limits current through T4. D2 absorbs the coil voltage on drop-out.

The circuit is dropped out by opening the cb which lowers the base and emitter potential of tx5 to -6v which drops out tx4 and tx5. With tx4 cut off, D1, tx3, tx6, and T4 cut off.