

Laser Distributors

3D printed retrofitting to a 1600cc VW engine distributor. Electronic analysis and theory of operation with mechanical dimensions are provided in the technical article.

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In summary, the single and dual laser distributors were conventional 1600cc VW engine distributors that had IR optical transmitter and receiver sensors retrofitted therein. These, in conjunction with shaft mounted rotating slotted discs were used to convert mechanical displacement into digital signal outputs. In the earliest embodiment, Stan only used one layer of these optical sensor stages to control his gaseous injection buggy. This first retrofit still utilized the standard HV ignition coil and rotor cap with terminals as (seen below).

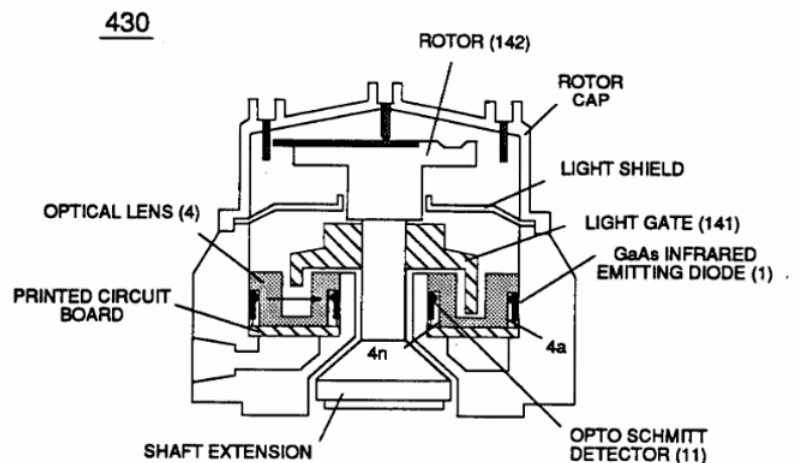
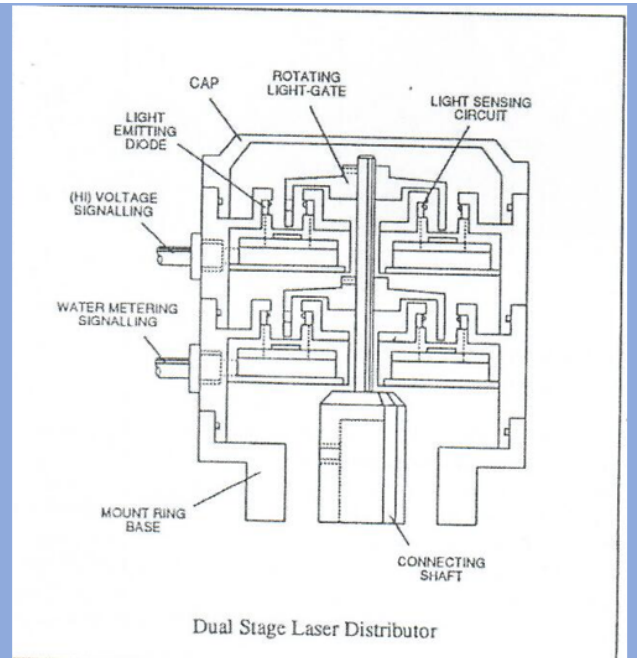
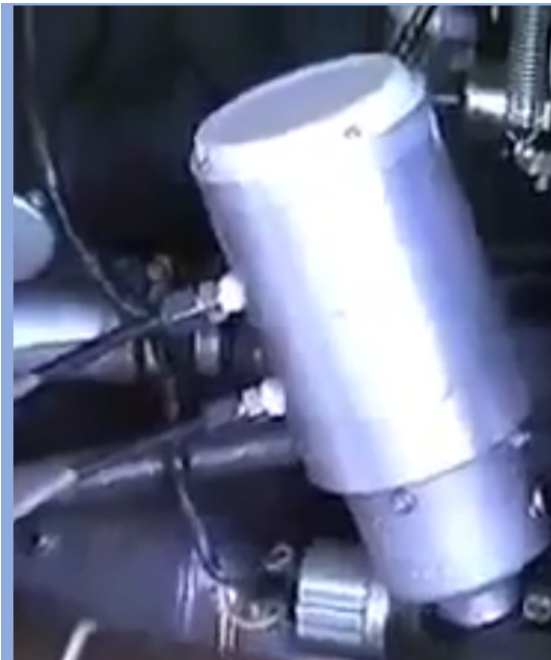


FIGURE 3-44: LASER DISTRIBUTOR

Later model of buggy, using liquid water fuel, had a dual stage retrofitted distributor that controlled both the injectors (water solenoid valves) and ignition (VIC based water splitting and ignition combo) as seen in the photo below.



My analysis includes using more modern optical slot switch sensors (ITR9608) and programming examples for Arduino (C++) and PIC18 curiosity board from Microchip (C).