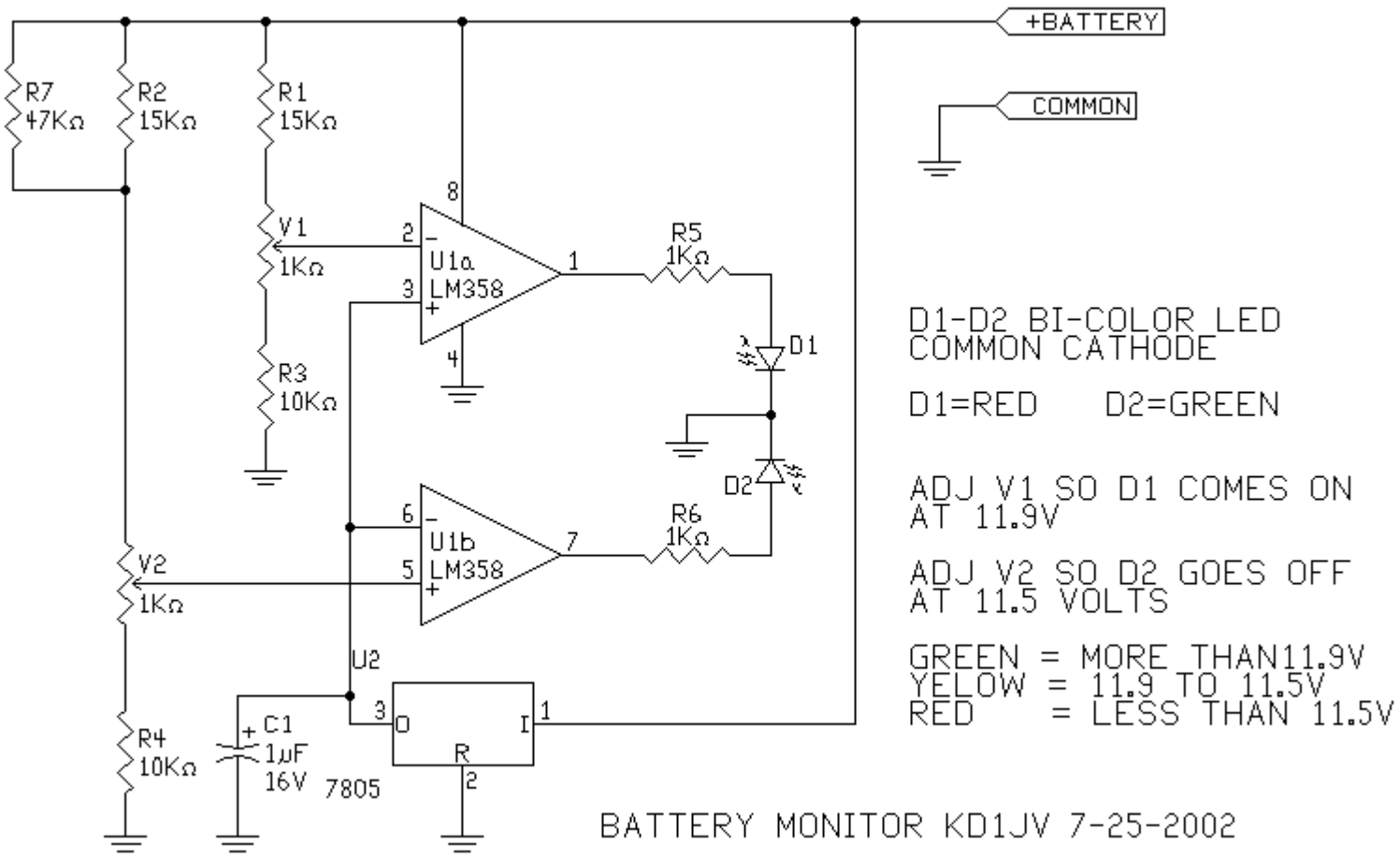
BATTERY VOLTAGE MONITOR CIRCUIT



This circuit is used to monitor the battery voltage, using a bi-color LED to indicate the state of the battery. When the LED is "GREEN" the battery voltage is above 11.9 volts. When the LED is "YELLOW", the battery voltage is between 11.9 and 11.5 volts. When the LED is "RED" the battery voltage is below 11.5 volts. You can of course, modify the trigger points by using the trimmer resistors and/or changing the value of the dropping resistors in the divider.

A dual op amp is used as a voltage comparator. The green LED is on so long as the voltage across the circuit is above 11.5 volts. The red LED comes on when the voltage across the circuit drops to below 11.9 volts. Therefore, in the 11.9 to 11.5 volt range, both LED's are on, producing a some what yellow color. When the voltage drops below 11.5 volts, the green LED turns off and now only the red LED is on, indicating a low voltage condition.

It is recommended that multi-turn trimmer be used for V1 and V2. Muti-turn trimmer will make it much easier to set the trigger points than using a less expensive single turn trimmer. The trimmers could be eliminated entirely, if one had access to an assortment of 1% resistors and carefully calculated the values needed. One would also want to use a more precise voltage reference than the common 78L05 regulator provides.