

Portable Military Aircraft DC Contactor Tester



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Problem Statement

Develop a portable, automated test set to test aircraft DC contactors to their specification datasheets.

Product Requirements

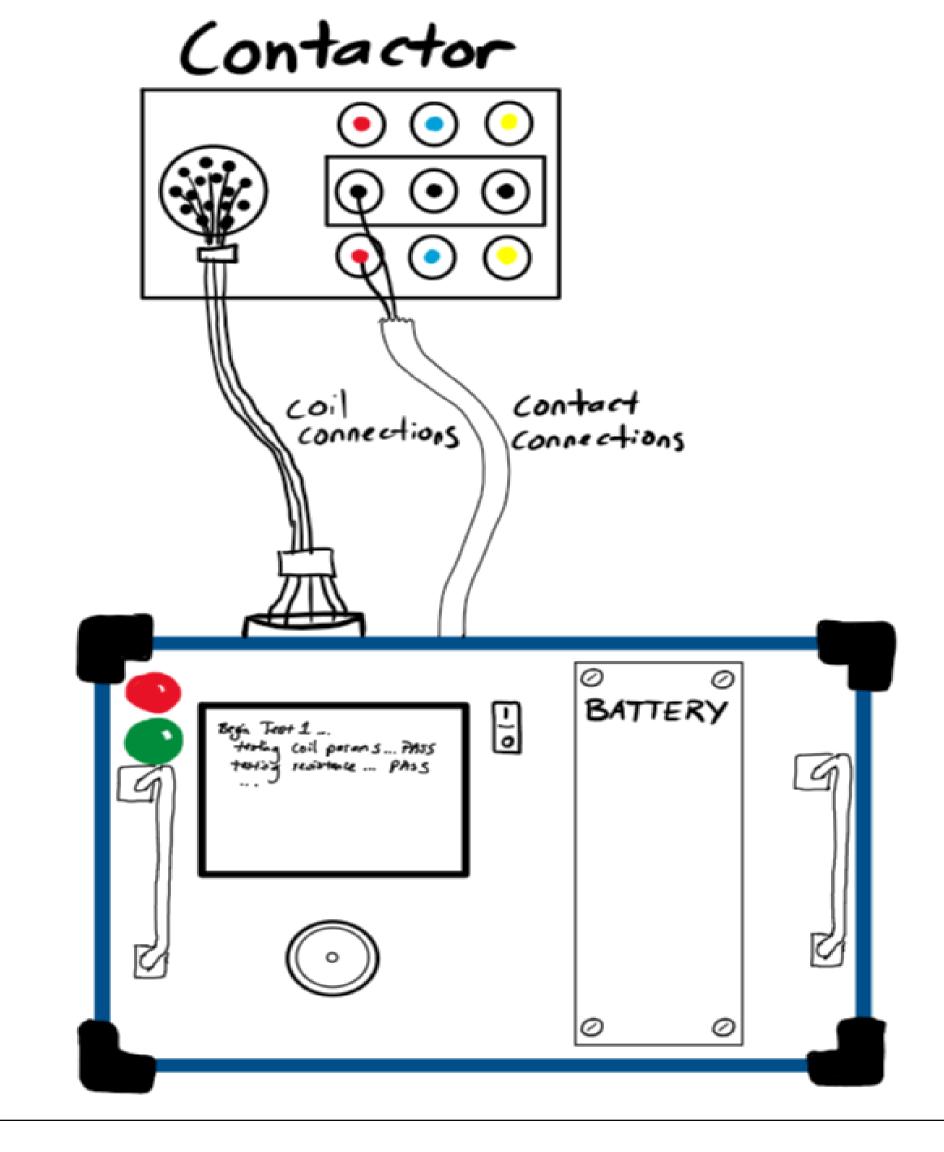
- Portable (less than 10lbs)
- Tests contactors according to manufacturer datasheet
- Display PASS/FAIL results
- Transfer data through USB to a non-network computer





Current System Diagram TFT LED Pass/Fail arrow keys + On/off Switch Display/SD Indicator select button Card Reader **GPIO GPIO** (3) 12V Power Supply Rechargeable MCU Module Batteries I2C 0-28V 5V ADC 5V Resistance Current Real Time Aircraft DC Measurement Measurement Clock Contactor Sensor Circuit

User Implementation





Major Achievements

- Variable voltage power supply
- Precise resistance measurement
- Intuitive user interface design
- File transfer capabilities
- Streamline system operation for reduced power consumption
- Migration to custom PCBA

Conclusion

- Achieved proof of concept full automation and comprehensive multi-configuration testing of DC contactors via portable test set
- Test set is scalable for higher power DC contactor configurations