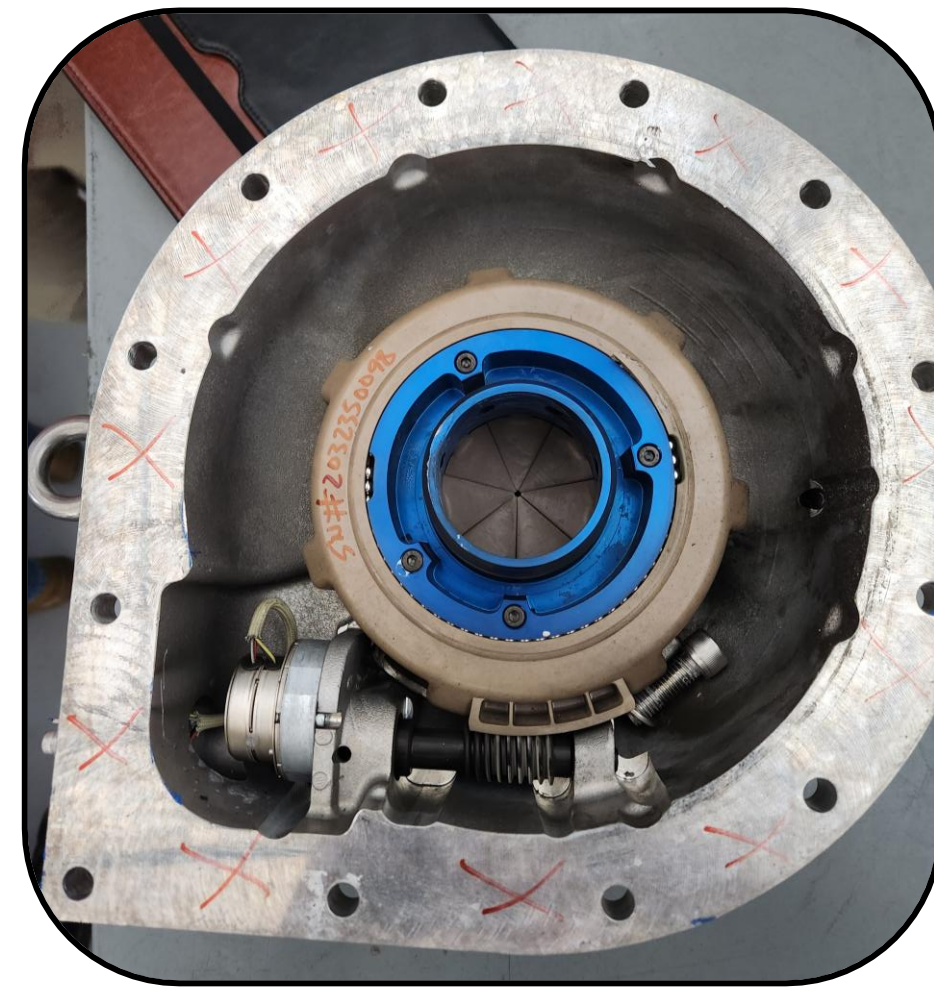


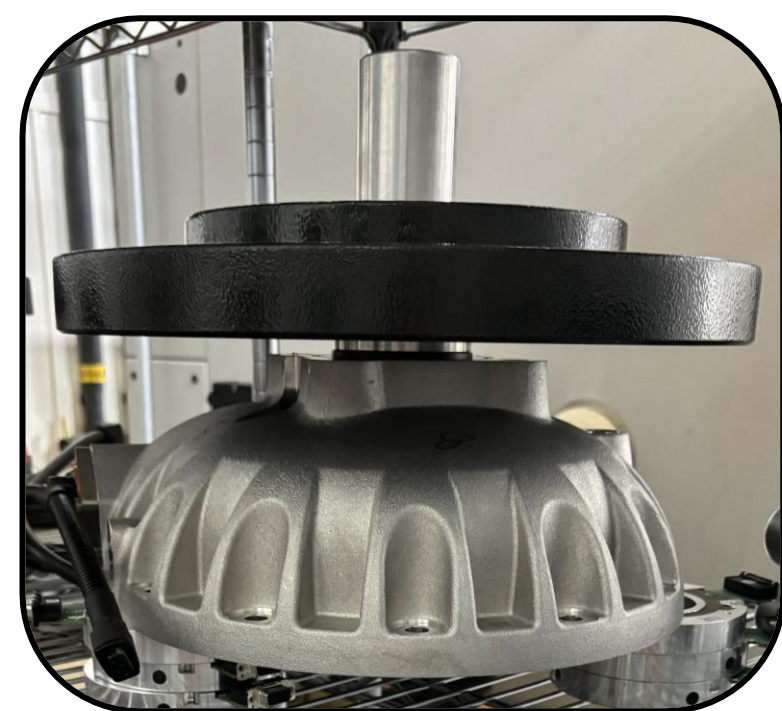
Background

- Stepper motor actuates the Inlet Guide Vane (IGV) in Danfoss compressors.
- Danfoss tests the stepper motors to verify lifecycle.
- Lifecycle test involves running the motor at a constant speed against resistance until failure.

IGV Assembly



Old Testing Fixture

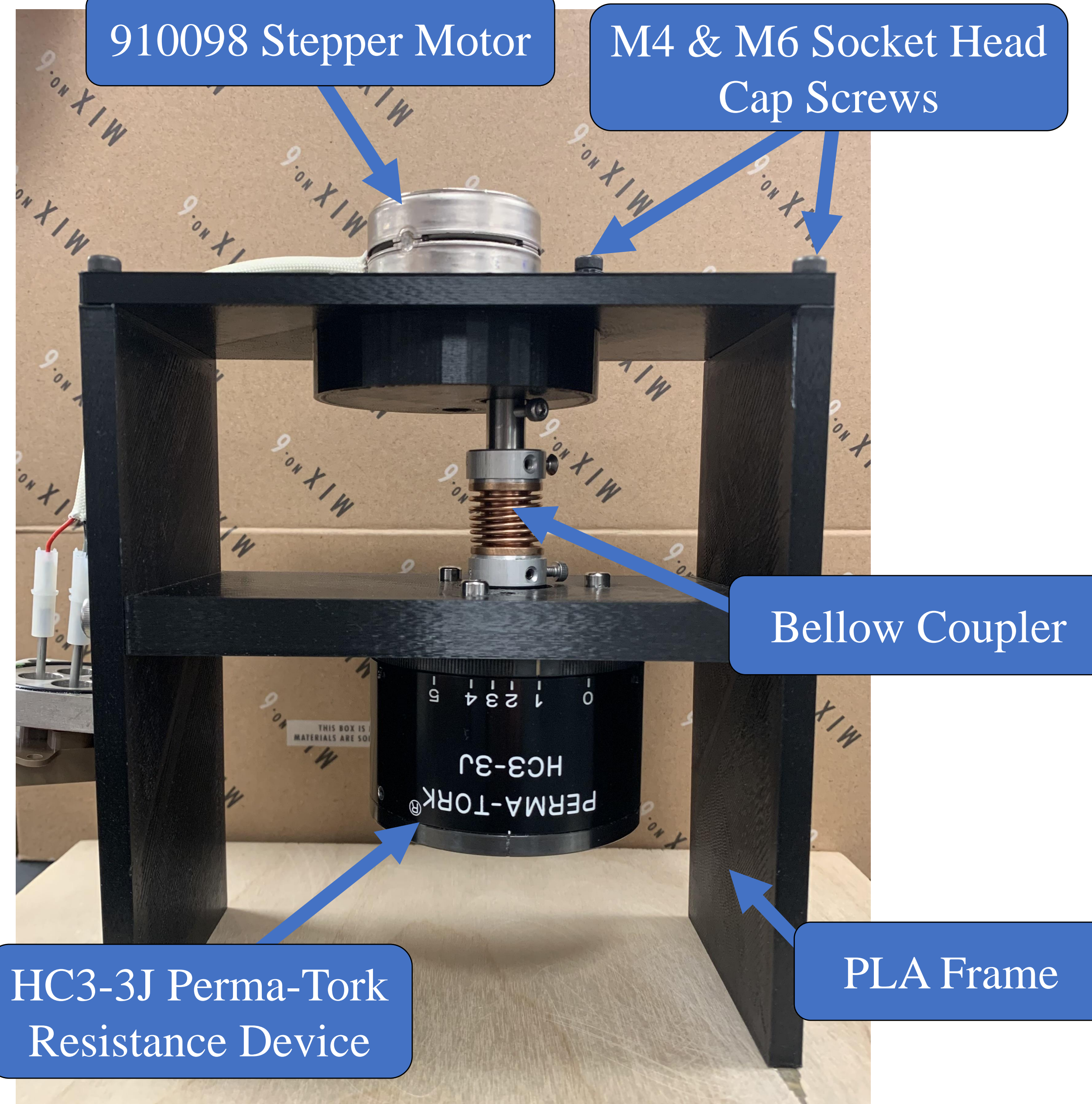


- Inaccurate representation of torque resistance
- Does not stop upon failure
- Does not track runtime
- Difficult user experience

Objective

The objective of this project is to design and produce a stepper motor lifecycle test fixture for Danfoss Turbocor to improve user-friendliness and reliability over their current testing procedure.

H-Frame Design



Testing Procedure

1. Secure motor and coupler in the fixture
2. Connect motor wires to power cord
3. Verify Perma-Tork resistance is set
4. Switch on Fixture
5. Input test parameters
6. Initiate test
7. Test tracks rotations/cycles and runtime
8. Once failure is detected, test stops
9. Record test results
10. Remove motor from fixture

Future Actions

- Finalize electronics
- Integrate electronics
- Develop electronics enclosure
- Program microcontroller
- Test prototype
- Evaluate improvements
- Finalize drawing package

Electronics

