# APPLICATION CASE STUDY #106

## RETURNABLE PACKAGING: ENGINE RACK VIBRATION DAMPENING PUCK


## APPLICATION:

Returnable racks for shipping fully assembled engines from the OEM's engine plants to the assembly plants. The racks must protect the parts and keep the engines nested in the racks during the transportation process.

## PROBLEM:

Excessive vibration during shipping had caused the OEM to design and manufacture a vibration dampening puck from a compression molded rubber. Initially the product corrected the issue and reduced the harmonics to an acceptable level during testing. Once production began of the dampening puck the issues in the field resurfaced. After further investigation it was found that the material held a hardness variance of +/- 15 points and was very inconsistent during the manufacturing process. The OEM reached out to PolyFlex Products to evaluate the current solution and advise on a possible solution.

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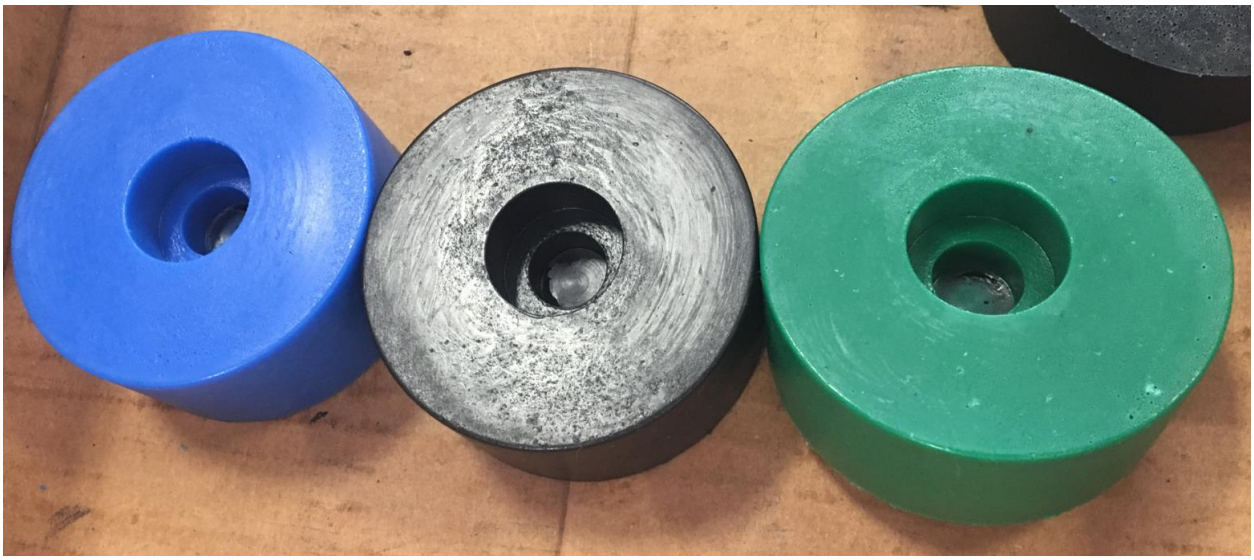
## SOLUTION:

Since the issue was impacting existing production and a new engine launch that was in the final stages PolyFlex Products had to act quickly. After sending in a group of engineers to evaluate the current problems and the desired outcome, the PolyFlex urethane team was assembled to brainstorm a solution. Urethane material was chosen because of its ability to hold a +/- 5 point durometer reading vs the more unstable rubber application. Additionally, cast urethane was not as susceptible to taking a set and would provide a better impact dampening effect.

The team decided an off the shelf urethane was not suitable for the application, therefore a custom blend was required. After evaluation and trials three blends were produced in different colors to be able to track and test the variations. These samples were assembled to the engine racks and then tested with the OEM. The result, one of the three custom blended durometer pucks passed all testing.



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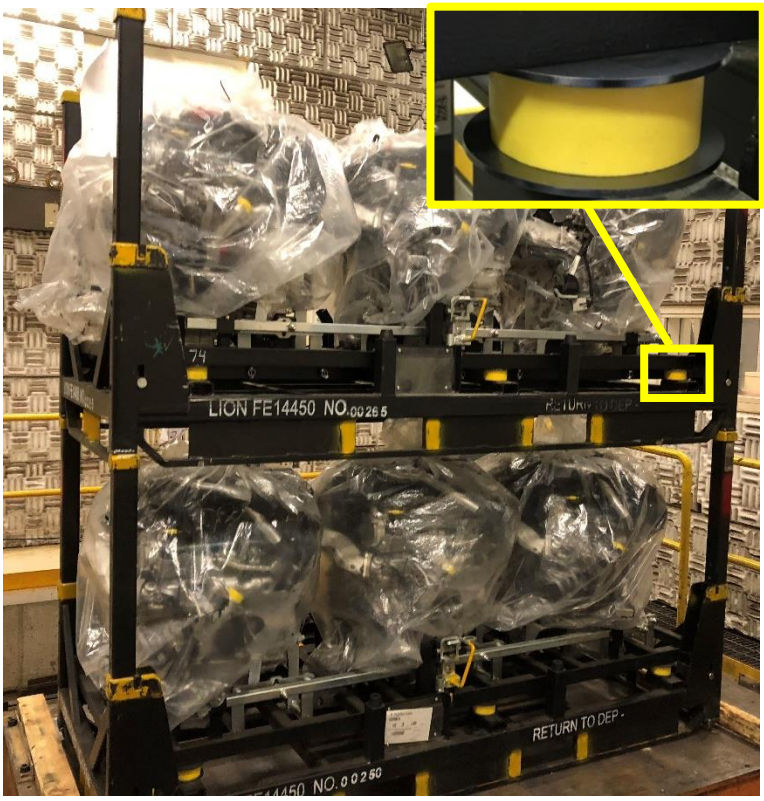


This was a major win for the OEM, helping to eliminate part damage in the field. The solution was derived over a few short weeks and would allow the OEM to meet it's launch requirements. These vibration dampening pucks are now used worldwide.

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