

PRODUCTIVITY ENHANCEMENT THROUGH PROCESS IMPROVEMENT AND MATERIAL OPTIMIZATION

PART NAME:

RETAINER SEAT USED IN ENGINE ASSEMBLIES

ABSTRACT

This paper deals with SAF's process optimization for the manufacturing of subjected part through parts former route. Currently, this product is being produced through conventional cold forging process from annealed billets to Rough forging shape. Then it undergoes various machining operations and the 14 teeth outer serrations are achieved through milling process. SAF has adapted part former route cold forging to finish the near net shape forged component from annealed coil.

Close to seven machining operations were eliminated and 80 grams (27% approx.) of weight saving as against the existing process of making the part. The main problem in the serration milling route was deburring of all teeth. Customer prescribed material SAE 4140 is not suitable for such severe deformations to achieve the product shape. To overcome this, SAF proposed an alternate micro alloy material SAE 10B35, which will meet the final mechanical and strength requirements of the part.

SAE 10B35 has better formability when compared to SAE 4140 and the near net shape forged part was achieved without compromising on the tool life.