ABSTRAK

Rear Case Flow Path merupakan salah satu komponen dari *Engine* CFM56-7B yang sering mengalami kegagalan dalam perbaikan proses *thermal spray*. Komponen tersebut sering mengalami *unbonding* terhadap *coating thermalspray.* Pada proses *thermal spray*, *surface preparation* (*grit blasting)* berperan penting dalam menentukan hasil *bonding* dari proses *coating thermal spray.* Proses *grit blasting* dilakukan dengan menyemprotkan pasir alumina ke suatu permukaan substrat sehingga mendapatkan kekasaran permukaan. Kakteristik kekasaran permukaan tersebut dipengaruhi oleh sudut dan lama waktu proses *blasting.* Tujuan dari penelitian ini mengetahui pengaruh sudut dan lama waktu proses *blasting* terhadap kekuatan *bonding thermalspray coating*. Parameter yang divariasikan yaitu sudut *blasting* sebesar 45 dan 90 derajat serta variasi lama waktu proses *blasting* 60, 90, dan 120 detik. Berdasarkan penelitian yang telah dilakukan, sudut dan lama waktu proses *blasting* memiliki pengaruh terhadap kekuatan *bonding thermal spray.* Hal ini dibuktikan pada proses pengujian *roughness test* diperoleh skema kenaikan nilai *adhesive bonding* sejalan dengan meningkatnya nilai *roughness.* Nilai minimum (pada perlakuan sudut 45 derajat dan 60 detik proses *blasting*), *yaitu* sebesar 83 μin Ra dengan hasil *bond test* 25.22 MPa dan nilai optimum (pada perlakuan 90 derajat dan 120 detik proses *blasting)* sebesar 147.4 μin Ra dengan hasil *bond test* 57.09 MPa. Selain itu penelitian ini membuktikan bahwa sudut *blasting* 45 derajat menghasilkan sebaran profil *undercut* yang menghasilkan porositas sehingga menurunkan nilai kekuatan *adhesive bonding.*

KATA KUNCI : *rear case flow path, thermal spray coating, bonding, CFM56-7B*, *kekasaran permukaan, persiapan permukaan*, *sand blasting, pengujian tarik,* metalografi.

ABSTRACT

Rear Case Flow Path is one of the components of the CFM56-7B Engine which often fails in the thermal spray repair process. These components are often unbonded to the thermal spray coating. In the thermal spray process, surface preparation (grit blasting) plays an important role in determining the bonding results of the thermal spray coating process. The grit blasting process is carried out by spraying alumina sand onto a substrate surface so that the surface roughness is obtained. The characteristics of the surface roughness are influenced by the angle and time of the blasting process. The purpose of this study was to determine the effect of the angle and time of the blasting process on the bonding strength of the thermal spray layer. The parameters that were varied were blasting angles of 45 and 90 degrees and variations in the length of time for the blasting process of 60, 90, and 120 seconds. Based on the research that has been done, the angle and length of time of the blasting process have an effect on the bonding strength of thermal spray. This is evident in the process of testing the roughness of the test obtained an increase in the value of the adhesive bond as well as the roughness value. The minimum value (at an angle of 45 degrees and 60 seconds of the blasting process) is 83 μin Ra with a bond test result of 25.22 MPa and the optimum value (at a treatment of 90 degrees and 120 seconds of blasting process) is 147.4 μin Ra with a bond test result of 57.09 MPa . In addition, this study proves that the blasting angle of 45 degrees produces a distribution of the undercut profile which results in porosity, thereby reducing the bonding adhesive strength.

KEYWORDS : rear case flow path, thermal spray coating, bonding, CFM56-7, roughness, surface preparation, sand blasting,tensile bond test, metalography