

ABSTRACT

PT Showa Indonesia is a company that produces shock absorbers both for two wheel vehicles, four wheel vehicles and ATV. There are two types of shock absorber, namely front fork and rear cushion. One of the main parts of the rear cushion is the damper case. Damper case is a part that functions as a casing for small parts in it, such as piston rods and valve systems. In the damper case section there are three lines, namely line A, line B and line C. PT Showa Indonesia Manufacturing wants to add one reinforce welding machine in line A to increase the production capacity.

In the process of adding a new reinforce welding machine in line A, a new DM-350 and Welbee M-350L transformers need to be trial, because the type of transformer used is discontinued. To determine which transformer produces welding according to PT Showa Indonesia Manufacturing, the authors carry out tensile testing and welding penetration testing.

The result of tensile test shows that the value of the maximum force produced by the Welbee M-350 transformer is qualify with the standards PT Showa Indonesia Manufacturing means more than 1000 kgf and the condition of the part after tensile test process is break on the material (main pipe). While the part produced by the DM-350 transformer is not qualify with the standards, because even though the value of the maximum force is more than 1000 kgf, the condition of the part after tensile test process is break on the area of reinforce welding. The penetration test shows that, the penetration produced by the Welbee M-350L transformer is deeper than the penetration produced by the DM-350 transformer. From the two tests that have been carried out, it can be determined that the type of transformers that is qualify with the welding standards at PT Showa Indonesia Manufacturing is a Welbee M-350L transformer.

Keywords : *damper case, reinforce welding, tensile testing, welding penetration testing, transformer.*

INTISARI

PT Showa Indonesia merupakan perusahaan yang memproduksi *shock absorber* baik untuk kendaraan roda dua, roda empat dan ATV. *Shock absorber* terbagi menjadi dua jenis yaitu *front fork* (*shock absorber* bagian depan) dan *rear cushion* (*shock absorber* bagian belakang). Salah satu bagian utama pada *rear cushion* adalah *damper case*. *Damper case* merupakan *part* yang berfungsi sebagai *casing* untuk *part-part* kecil di dalamnya, seperti *piston rod* dan *system valve*. Di seksi *damper case* terdapat tiga *line*, yaitu *line A*, *line B* dan *line C*. PT Showa Indonesia Manufacturing ingin menambah satu mesin *reinforce welding* pada *line A* untuk meningkatkan proses produksi.

Pada proses penambahan mesin *reinforce welding* baru di *line A*, perlu dilakukan *trial* trafo baru yaitu trafo DM-350 dan trafo Welbee M-350L karena jenis trafo yang biasa digunakan sudah *discontinue*. Untuk menentukan trafo mana yang menghasilkan *welding* sesuai standar PT Showa Indonesia Manufacturing, penulis melaksanakan pengujian tarik dan pengujian penetrasi *welding*.

Hasil pengujian tarik menunjukkan nilai tegangan maksimum yang dihasilkan oleh *part trial* trafo Welbee M-350L memenuhi standar PT Showa Indonesia Manufacturing yaitu diatas 1000 kgf serta kondisi *part* setelah pengujian putus di area material (*main pipe*). Sedangkan *part trial* trafo DM-350 tidak memenuhi standar, karena meskipun nilai tegangan maksimum diatas 1000 kgf, masih dididapati kondisi *part* setelah pengujian putus di area *reinforce welding*. Pengujian penetrasi menunjukkan hasil penetrasi yang dibentuk oleh *part* hasil *trial* trafo Welbee M-350L lebih dalam dibandingkan hasil penetrasi yang dibentuk oleh *part* hasil *trial* trafo DM-350. Dari kedua pengujian yang telah dilakukan dapat ditentukan bahwa jenis trafo yang memenuhi standar *welding* di PT Showa Indonesia Manufacturing adalah trafo Welbee M-350L.

Kata kunci : *damper case*, *reinforce welding*, pengujian tarik, pengujian penetrasi *welding*, trafo.