

The Last Word—The “Job Shop” Forum

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June's column is the first in a series of features that spotlight a job shop. We will discuss their areas of expertise, some questions and answers about specific applications, and pictures of the shop.

AAR Engine Component Services in Windsor, CT, with worldwide facilities, is committed to aircraft and land-based turbine repair. They overhaul landing gear and other aircraft parts. Discussions with Jean Martin of AAR's quality control department disclosed that their phenomenal growth is caused by the company's commitment to have “off-the-shelf” components available whenever possible and to keep their “turn times” lower than the industry average. Turn times are the amount of time it takes a shop to ship parts after they are received. The aircraft industry is demanding shorter times because they have reduced their inventory of spares. Figure 1 is a view of the shop showing parts in process.

New approved materials becoming available increase the capabilities of the shop and reduce the number of parts classified as scrap. AAR Engine Component Services strongly emphasizes diversity of available services as do most

job shops in the aircraft engine overhaul business. Thermal spraying has diversified AAR's equipment purchases. Plasma spraying and twin wire arc complement each other in spraying carbides for wear and restoration of dimensions. Both types of equipment were being used during our visit.

Spray shop masking, shown in Fig. 2, is an important part of the process. In this shop where the similar parts on a given day are small lot sizes, tape is used to mask the areas where no spray is wanted. The tape is usually a silicone adhesive fiberglass tape impregnated with silicone. This type of tape usually withstands both the grit blast and spray operations.

Nickel aluminum, nickel chromium aluminum, molybdenum, and silicon aluminum are the wires sprayed. Metallics, carbides, and ceramic powders are the variety of plasma-sprayed powders. The majority of the parts are stators and cases and some parts such as bearing housings. Spray cells complete with automation and dust collection are important parts of the operation to keep dust off the part and away from the operator. The automation and fixturing keep coatings consistent from one part to another. Figure 3 illustrates a typical electric arc setup for a stator using fix-

turing on a turntable and holding the gun in a fixed position.

Needs and Trends

The needs as discussed with J. Martin reflect the views of many of the operations personnel in shops that I've visited. Much of the information that the operations people would be interested in doesn't filter down to them from the manufacturers or managers of the job shop. Everyone should strive to “spread the word.” Active participation in societies, writing specifications and articles, and participation in Internet e-mail groups are methods of making information more accessible. One trend that's gaining momentum is Internet “chat sessions” about thermal spray application. Job-shop home pages on the worldwide web and thermal spray websites with technical papers are powerful media. Jean Martin mentioned that a computer was being installed at the Windsor facility for anyone to use. Thank you, Mr. Martin for your time helping to produce this feature.



Fig. 1 Parts in process



Fig. 2 Stator masking



Fig. 3 Typical stator fixturing