

7. SKILL IMPROVEMENT FOR OPERATORS AND MAINTENANCE WORKERS

Improving operational and maintenance skills is the fourth TPM development activity and the tenth step of the TPM development program.

In Japan, the large steel and electronics corporations provide their employees with technical training at well-equipped centres, but many other Japanese companies underestimate the value of training, especially training in maintenance techniques. Education and training are investments in people that yield multiple returns. A company implementing TPM must invest in the training that will enable employees to manage their equipment properly. In addition to training in maintenance techniques, operators must also sharpen their conventional operation skills.

The content and organization of introductory materials may not vary much from company to company; technical education and training for operation and maintenance, on the other hand, must be tailored to the individual requirements of the workplace. At this Mizushima plant of Nihon Zeon, winner of the 1982 PM Prize, for example, operators were taught to perform daily inspections and simple repairs. Using equipment that simulated abnormal conditions in the production plant, operators learned first-hand how to deal with unusual or crises situations. This simulation training was conducted at different levels.

Maintenance personnel are like doctors—they must be competent, otherwise their patient's condition can only worsen. To promote quality in equipment maintenance, technical qualifying examinations for equipment maintenance personnel were established in Japan in 1984. These examinations are similar to the national examinations for mechanics. In the past, individuals were certified as equipment maintenance personnel when they qualified in such areas as finishing and machining. Now, however, maintenance workers can be certified in their own field. In addition, the Ministry of Labor has established a qualifying system for electrical maintenance

Responding to the demand for maintenance training, JIPM, with the help of its member companies, has established training centres at most of its branch offices. In the four month/four part technical course taught at these centres, maintenance workers from companies in the process of implementing TPM learn more about their equipment. Section 2.30 summarizes the syllabus for this course.

Syllabus for Maintenance Training Course

Required Days	Subject	Elements
2 days	1. Nuts and bolts	<ol style="list-style-type: none">1. Basics of connecting nuts and bolts2. How to avoid loosening3. Handling maintenance tools and equipment
3 days	2. Key matching	<ol style="list-style-type: none">1. Types and appropriate use of keys2. Filing and matching keys3. Techniques for withdrawing keys
3 days	3. Shaft and bearing maintenance	<ol style="list-style-type: none">1. Fitting shafts and bosses2. Attaching bearing and performing test runs3. Shaft-cause lubrication and related problems
3 days	4. Transport equipment	<ol style="list-style-type: none">1. Gear-driven unit basics2. Chain-driven unit basics3. Belt and brake system basics
3 days	5 sealing methods	<ol style="list-style-type: none">1. Importance and basic techniques of sealing2. Types of gaskets3. Assembling O-rings and taper pipe thread and performing pressure tests.