

OFFICE OF PRODUCTION MANAGEMENT

Labor Division
“Training Within Industry”

Bulletin #2-A

TRAINING PRODUCTION WORKERS

Many defense contractors are facing these common questions:

Where can I get skilled operators?
Is it too late to start training now?
Where can I train them?
How long does it take to get results?
Where can I get help on training plans?
How about the cost?
How should I start?

There are no stock answers to such questions which fit all localities or industries, but one defense contractor who had to answer them and triple his workforce reports:

“As learners were ‘broken in’ on the day shifts, they were transferred to the second and third shifts and placed on their own. This kept up until all machines on all shifts were filled, resulting in a 24-hour day, 7-day week for the machines. Since the operators work a 5-day week, additional trained workers were made ready to take the places of the men who are off, to keep all machines running continuously.

“We found this system of training short and good; we know it will work in any industry and on any kind of work.”

The following procedures represent successful practices in many leading companies. They are recommended to any company that wishes to get new workers into production in a minimum of training time and to develop experienced workers to their greatest usefulness.

C. R. Dooley, Director
Training Within Industry

EXPEDITING PRODUCTION THROUGH TRAINING

Three steps normally are taken in training production workers:

1. Engineer the jobs.
2. Instruct new workers on beginning jobs.
3. Instruct experienced workers in new skills.

These steps are such that any or all of them can be used and adapted to any company’s production problem.

ENGINEER THE JOBS

Some companies find it possible and advantageous to so engineer their producing facilities that each operation requires but one principal skill on the part of the worker to perform it.

Although the engineering of production processes may not seem to be a part of a training program, it does represent the first and basic step in meeting and simplifying the training problem because it sets up the steps to be followed in doing the work.

INSTRUCT NEW WORKERS ON BEGINNING JOBS

In most cases the surest, quickest, and most thorough way to train a new man is on-the-job, where he does, or helps to do, productive work. This is true whether the new man has had no prior training; has perhaps learned beginning skills in a vocational school; has had prior experience in the field but in another industry; or possesses a skill that has not been used for many years, and must be brought up-to-date.

Through this plan, the principal features of which are given below, many companies have doubled their personnel and production in six months time.

Experienced operators from the various types of operations or machines, are selected to “break in” new men. Good “mechanics” do not necessarily make good teachers, so the selections are made with extreme care.

Those selected to instruct new men are made familiar with the basic principles of job analysis and job instruction as outlined in Bulletin #2-C: “Helping the Experienced Worker to ‘Break In’ a Man on a New Job.”

New operators are carefully selected. Tests, administered by someone familiar with their limitations, provide valuable aids to judgment.

A new man (several if the process permits) is placed with each experienced worker who has been selected to give the instruction. The more apt of the new men are placed on the more difficult operations.

The experienced operator gives the new man his initial job instruction and teaches him the entire operation as rapidly as he can master it. On many operations the help of the new man is such that production is increased, in which case the experienced operator may receive the benefit of such additional production in his pay. On others, there may be a temporary drop in production, in which case the experienced operator should receive extra compensation, i.e., beyond his reduced earnings, while engaged in instruction work.

This plan operates particularly well on jobs where there are several things to do, so that the experienced operator can keep the learner busy most of the time. Examples: machine tool operation, pipe fitting, boiler making. Where the job is a continuous series of repetitive operations, appropriate adaptation must be made. Examples: punching, drilling, stamping. Sometimes the new man can be put on the machine next to the experienced operator’s machine.

Often it is necessary for the experienced operator to spend some time—from an hour to a day—with the new man getting him properly started.

Best results from this plan are obtained, of course, when the supervisory force understands the procedure and lends help and encouragement to both the experienced operators and the new men. The shop superintendent and all the supervisors should be familiar with the fundamentals of job analysis and also job instruction. The latter is outlined in Bulletin #2-C: "Helping the Experienced Worker to 'Break In' a Man on a New Job."

INSTRUCT EXPERIENCED WORKERS IN NEW SKILLS

This important phase of instruction on the job is one which is all too often overlooked. Many companies lose the full benefit of capable men, and many employees lose the opportunity to render their best service because no one takes the trouble to develop them to the maximum of their individual abilities.

The following are some of the many ways in which instruction may be given to experienced workers.

a. Through instruction or "coaching" by the foreman.

Here are just a few of the ways a foreman can help "bring a man along." Any foreman can use them if he is wide awake to his opportunities.

- Point out the important "tricks" or "knacks" of the job.
- Ask questions (tactfully, of course) regarding parts of the operation—where a certain part fits into the final product—why a tolerance is important to successful use—what would happen if certain mistakes were made.
- Explain technical and safety points through sketches that can be quickly drawn at the employee's workplace.
- Call operators from several inter-related operations together to inspect and review some scrapped material or faulty operation.
- Take or send operators to the final assembly line; to the department where their work is used; to the experimental or test department; or to wherever it is necessary for them to gain a full understanding of the complete job.

b. Through special instructors

Some companies have set up training sections separate from the regular production shop, using the output of such sections in the regular manufacturing process. Whether the instruction is given in production shops or in separate training sections, it is necessary to equip those selected to do the instructing with an organized knowledge of production operations and the ability to impart it to others. In some cases the number of men to be trained justifies making the experienced operator a full time instructor. (See Bulletin #2-B: "How to Prepare Instructors to Give Intensive Job Instruction.")

- c. Through special arrangements so an employee can “get his hand in on new work.”

Sometimes it is possible for some of the machinery or equipment to be used after the close of the regular work shift by employees who wish to qualify for new jobs.

Where this is not possible, some companies put machinery and equipment in a special location expressly for the use of employees who wish to qualify for better jobs.

In each case, of course, a foreman or instructor is present, not only to instruct the employees thus engaged, but also to assure that the equipment is properly used and left in proper condition for the next regular work shift or “practice group.”

- d. Through the use of local schools

Often vocational schools, high schools, and engineering colleges can provide valuable help to experienced employees where there is machinery and equipment on which employees may practice higher-skilled operations. These are effective to the extent that school and industry plan together and agree upon the instruction to be given.

It is equally important that a similar agreement be reached regarding related technical instruction to be given by the schools.

Washington, D.C.
August 15, 1941