Job Methods – Session I

Before you begin Session I, be sure you have these materials.

- Attendance record
- Outline for suggested introduction
- JM instruction cards
- Demonstration kit (contents below)
- Present method layout
- Proposed method layout
- Present method break down
- Proposed method break down
- Blank method break down sheets

Demonstration Kit*

- 1 Fixture
- 2 Jigs
- 2 Staples
- 1 Stamp Pad
- 250 “brass” cards
- 250 “copper” cards

*Note: If you don’t use this example you’ll have to create your own.

Be at the plant 30 minutes before the start of the session is due to open

See the plant executive. Make certain that he is prepared to open the meeting with a suitable introduction. Give him a copy of the suggested introduction if he has not already received one.

Be at the meeting room 15 minutes ahead of time.

- Arrange chairs around the conference table. If there is no table put the chairs in a “U” shape
- Put a finished shield on the table also one copper sheet and one brass sheet.
- Place two chairs to be used as supply boxes six feet back of the table
- Put a supply of copper sheets on one chair and of brass sheets on the other chair
- Place two waste paper baskets to the right of the table to serve as scrap bins.
- Put one stapler, the stamp pad, and the stamp on the table
- Place a waste paper basket to the left of the table (to serve as a tote box)
- Put the extra stapler, the jigs and fixture, out of sight of the group
- Place sample hand out sheets and instruction cards on the table

Work from this outline. Don’t trust to memory

Outline for Session I

1. **Introduction by the plant executive**

   Suggested introduction to include:

   - Program name and purpose
   - The need for improvements in the company
   - Pledge of cooperation and support
   - Schedule of Sessions I – V
   - Introduction of the trainer

2. **Introduction by the trainer**

   Establish and informal atmosphere

   - Write your name on the board and state your background
   - Use name cards for everyone if practical
   - Have each member introduce themselves and say a word about their job
   - "This is an informal training session, similar to Job Instruction training sessions. Ask questions at any time. No notes are necessary."
   - Cover the five needs of a supervisor (not over 3 minutes)

     1. Knowledge of work
     2. Knowledge of responsibility
     3. Skill in instructing
     4. Skill in improving (Focus of this class)
     5. Skill in leading

   Question: "What is our purpose today?"

   Answer: "I'm not here to tell you how to do your jobs or discuss the technical part of your work. We will discuss one problem common to all of us: How to improve Job Methods."

   "This job methods program will help you produce greater quantities of quality products in less time by making the best use o manpower, machines, materials, and methods now available."

   "We all realize that the responsibility for production is assigned to us as supervisors."

   "We must increase production in due to competitive pressures and company goals. We must all improve if our company is to survive and grow in our

competitive market." (Note: The original TWI/JM pressure was war and materials shortages)

3. Job methods improvement is not a new problem

"Where is the best source of ideas for giving us this necessary increased production now?"

"It is the supervisor and the employees of an area. These people know more about the jobs than anyone else. (Some discussion)

"Everyone in this group no doubt has some ideas on how to improve methods."

"Perhaps we have never fully developed them all."

"Job methods improvement has always been a regular part of every supervisor's job."

"Most of the progress we enjoy today is the results of improvements in production methods."

Cite some examples of improvements in society and inside the company

"These results have been accomplished by improvements developed and applied over time by practical supervisors like ourselves."

"Ordinarily these improvements are made slowly. But in today's competitive environment they have to be made more often."

"The purpose of the course is to make it easier for us to improve our job methods."

"It will provide a practical plan to help us improve."

"This method has been tried and proved in thousands of plants and was developed by practical industry people. (Historical note: This course was used by Toyota Motor Corporation in the 1950's along with the other two TWI courses JI and JR. JM was eventually dropped in favor of standardized work and kaizen courses but this course influenced their development and is a good safe place to start for anyone.)

"We'll discuss the contents and see how it can be used on our daily jobs right now."

"During each of the next four sessions each of us will have a chance to use the methods on jobs in our departments."

"A certificate of completion will be given to all who attend all five sessions and complete this course with good cooperation."

"These methods have been tried on many jobs and they work well."

4. Describe the use of the demonstration job

"This method can be best demonstrated by showing how it can be applied to an actual job. Since we are in a conference room we will show the merits of the method via a demonstration based upon an actual job in another plant."

"Observe this demonstration in terms of any job in your own department."

"The same types of improvements that can be made on this job can be made on any job which includes one or more of three basic types of work."

Ask the members to identify types of work in their areas

"Typically jobs in production fall into three broad categories. Material handling, machine work, and manual work."

Write on the board:

- Material handling
- Machine work
- Hand work

"The demonstration job includes elements of material handling, machine work, and hand work. These are the features to be compared to your jobs – not the produce or the exact production process."

"The focus is not the method that we will employ and not the specifics of the job. Let's be sure that no one thinks this method does not apply because their job is different. It is the method for improvement that we will focus on."

Note: Make sure this point is understood.

Describe the job:

- Product: Radio shield (show example)
- Materials: Copper and brass sheets (explain use of cardboard)
- Operations: Inspect, assemble, rivet, stamp, and pack. (Explain the use of the stapler in place of rivet machine)
- Operators: 4 people at 4 benches
- Work place: Supply area, scrap bins, tote boxes

5. Demonstrate the present method

Note: Unless you are familiar with this demonstration you will have to invent your own that is suitable and useful for the methods to be applied.

Follow the present method layout and present work method break down exactly.

- Do the job at a good pace. Tell them what you are doing.
- Get, inspect and lay out 12 copper sheets
- Get, inspect and lay out 12 brass sheets
- Stack sets of sheets to the right of riveter
- Rivet each set
- Stamp each shield. Pile shields on table.
- Place 12 shields on table.
- Carry 75 pound tote box 50 feet to the scale.
- Weigh and make out ticket.
- Handler takes tote box 100 feet to packing department.
- Packer unloads box, puts 200 shields in case.
- Packer closes, stencils, and weighs case.
- Empty tote boxes returned by material handler

Handout the present method layout sheet

- Point out the flow of material and bench arrangement
- Discuss the three types of work
  - Material handling (Carry boxes)
  - Machine work (Riveting)
  - Manual work (Laying out, lining up, stamping)
- Have some discussion of each and highlight obvious problems

Note: 35 minutes to here

6. Demonstrate the proposed method

A better way of doing this job

"Now let's look at a better method of doing this job. It was worked out by the foreman of the area with the help of an operator – after they applied the Job Method plan."

"Consider this improvement in terms of any job in your department."

"First we will see what they did, and then develop how they did it."

- Set up the proposed method and explain the changes

"The sheets were now delivered onto the bench."

Explain and show the riveting fixtures and guides

Describe and show jigs for sheets

"Less experienced operators were used with the new method and made fewer mistakes. More experiences workers were upgraded to other tasks."

Explain the slots for scrap.

"Cases were placed at the bench by the handler."

Perform the proposed method

- Follow the proposed method layout, and the proposed method job break down exactly.
- Place sheets in jigs
- Pick up sheets and inspect
- Assembly and place in fixture
- Rivet bottom – then rivet top
- Place shields in front of fixture
- Place 20 shields in case. (Explain count)
- Handler takes cases to Packing Department
- Packer closes, weighs, and stencils the cases

Hand out the proposed method layout

- Point out the flow of material and bench arrangement
- Compare the present method layout
- Discuss the changes

7. Results of the this job methods improvement

Question the members for their best estimate of the improvement in the use of manpower, machines, and material.

“In the actual case each operator was able to make three times as many shields per day as before.”

“Each machine riveted 50% more shields per day.”

“And as for scrap it was reduced from 15% to 2% right away. And further gains were identified as well.”

“Improvements were made by making better use of manpower, machines, and materials by changing work methods. The operator did not have to work any harder or in a hurry on this proposed method.”

“Doing jobs in a hurry can result in bad work and that is not what we are aiming for here (discuss if needed).

Act out a speed up of the current method to prove the point if needed. (Actually hurry)

“Absolutely not one worker should have to speed up if we apply job methods correctly.”

“Improved job methods give good work results because production is increased by eliminating unnecessary parts of the job and making necessary parts of the job easier and safer to do.”

The principles used in the demonstration apply to all jobs that include material handling, machine work, or hand work.”

“This demonstration job is only a sample job and what can be done.”

“Hundreds of other jobs in the same plant were improved in the same way.”

“Let’s see how the job methods plan was used by this foreman in making this specific improvement demonstrated.”

“Also let’s see how this plan will help us make many improvements on our jobs.”

“The details of this plan are printed on this pocket sized instruction card.”

- Handout the JM instructions card to each person

8. **Present the job methods plan**

Present the 4-step method from the instruction card

- Read the purpose
- Read only the 4 main steps
- Note: Keep the card in your hand from now on

"These 4 steps are all that was used by the foreman in improving this sample job."

"Let's apply the 4 steps to the sample job to see how the foreman used this plan."

"Also to find out how we can apply the plan to our jobs."

Note: Erase the white board.

9. **Step 1 – Break down the job**

Read entire Step 1

Write: Step 1 – Break down the job – list all details

"A job break-down is the starting point for all job methods improvements"

"Listing all the details gives a complete record and accurate picture of how the job is done."

"It indicates the need for improvement."

"It brings out many details about the job that we never realized were there."

"A detailed break-down gives us the facts."

- Cite personal examples of jobs with familiar details that are difficult to remember

"The more detailed and accurate the breakdown the more complete the improvements will be."

"Let's define a detail – every single thing that is done, every inspection, every delay."

- Develop the first five details of the demonstration job on the whiteboard quickly and accurately.

Write on Whiteboard

1. Walk to the box of copper sheets
2. Pick up 15 to 20 copper sheets
3. Walk to bench
4. Inspect and lay out 12 sheets
5. Walk to box and replace extra sheets

    - Point out how easily and quickly these five details were listed.

“Here is a copy of the complete break-down for this job as made by the foreman.”

- Hand out the present method break-down
- Compare the first five details with the break-down on the board.
- Discuss the details.

“The little time you spend listing the details often uncovers big improvements.”

- Explain the items at the top of the break-down sheet.
- Explain the use of notes column as a reminder of distances, tolerances, waste, safety, etc.
- Explain the difference between the break-downs for Job Instruction and those for Job Methods.”

“In Job Instruction, only the important steps are listed. A step may include several details.”

“Because when instructing many steps are obvious and need not be listed.”

“In Job Methods, on the other hand, all details must be listed.”

“Because nothing should be omitted when studying the method of production.”

“A break-down is an easy, common sense way to get all the facts about any job method quickly and accurately.”

“The best place to make a break-down is on the job and not from memory.”

“Let the operators know what your are doing and why you are doing it.”

“Show him the break-down, let him help you make it; tell him about these meetings; show him the card; do whatever is appropriate’ be frank and open.”

“We have seen how easy it was to make a break-down for the demonstration job.”

"How many of you think you can make a break-down by list all the details of the job the way Bill Brown did (the person who made the break down). Ask for a show of hands.

"Now we will find out how a job break-down is used in applying Step 2."

Note: Erase the 5 details only from the board.

Note: About 60 minutes to here.

10. Step 2 – Question every detail

Read item 1 of Step 2

"The success of any improvement depends on our ability to develop a questioning attitude."

"We must question everything that is done; every single detail of the job."

"These six very important questions taught us practically all we know."

"Young people ask questions to get knowledge. Many of us stop questioning things too soon."

"We must deliberately question all the details of the job we want to improve."

"The answers to these questions will give the information we need to make improvements."

- Ask Group members to read you the questions.

Write on whiteboard:

<u>Step 2 Questions:</u>
Why?
What?
Where?
When?
Who?
How?

"These questions are asked in a definite order."

"Asking 'how' before 'why' and 'what' would waste time and effort if the detail was found to be unnecessary.

"All the questions should be asked of each detail before proceeding to the next detail.

"Let's examine each of the six questions."

"First - **WHY** is it necessary?"

"We need to ask this question first for each detail."

"We want to distinguish necessary details from those that are unnecessary or doubtful."

"It provides the information that leads to big improvements if we find many unnecessary details."

"It is often the hardest to get answered properly."

"Therefore we have a check question to make sure we get sound and reasonable answers."

"Second – **WHAT** is its purpose?"

"We want to find out if the detail has a useful purpose or adds quality to the product."

"If not, we will reconsider its necessity"

"What is its purpose is a check question on 'Why is it necessary'"?

"Beware of taking action on flash ideas for improvements"

"As we get definite answers to these questions, flash ideas for improvements will come to our minds rapidly".

"Hold these ideas, but note the answers on the break-down sheet."

"Don't decide on anything yet. Keep on questioning. A better and more complete idea usually develops."

"If the detail is necessary continue with the other four questions."

"Third, - **WHERE** should it be done?

"We ask this question to find the best place to do each detail."

"In which department? In which section? On which machine, bench, or equipment?"

"Fourth – **WHEN** should it be done?"

"We ask this question to find the best time to do each detail."

"Should the detail be done first or last? In what order? Must it be done before or after some other details?"

"When will the necessary men, machines, materials, equipment, or tools be available?"

"Fifth – **WHO** is best qualified to do it?"

"We ask this question to find the best person to do each detail."

"Who is best for the job from the standpoint of skill? Experience? Physical strength?"

"Sixth – **HOW** is the best way to do it?"

"We ask this question of every necessary detail only after we have asked Where? When? And Who?"

"We want to find out if there is a better way to do each detail."

"Usually there is a better way but to find it we must first question the 'how' of the necessary details."

- Read Item 2 of Step 2 and comment as follows

"These are very important factors in any job."

"Each item should be questioned the same as the details in the job break-down."

- Cite an example if appropriate as you discuss any of the following."

"Materials, machines, equipment, and tools are often scare and hard to get."

"A small change in design may make possible a big job methods improvement."

"An improvement in the layout of the area or the work-place may save floor or bench space."

"Poor safety and poor housekeeping can cause waste of lives, time, and space."

"Now let's see how Bill Brown used these questions on the details of his job."

- Ask the group to follow the present method break-down.

"Bill Brown got these answers to his questions."

"Whenever he got a good clue he wrote it down in the notes column."

DETAIL No. 1. – Walking Answers

Why? Not necessary if sheets can be moved closer to the bench. (Write in notes column "No, if sheets near bench"

DETAIL No. 2. – Pick up copper sheets

Why? Necessary to assemble the shield
What? Necessary to assemble the shield
Where? Close to riveter (Write: Close to riveter)
When? Anytime before assembly
Who? Riveting operator
How? Must be a better way (Write: "Better way")

DETAIL No. 3. – Walk to bench

Why? Unnecessary to walk over; unnecessary to walk back. (Write same as #1)

DETAIL No. 4. – Inspect and layout copper sheets (Inspection 4a)

Why? Necessary to maintain quality
What? Necessary to maintain quality
Where? At the riveting bench
When? Just before assembly (Write: Just before assembly)
Who? Riveting operator
How? Look for a better way. (Write: Better way)

Inspection and layout copper sheets (Layout 4b)

Why? Not necessary, adds no quality to the product if the sheets are moved close to bench. (Write: "No if sheets nearer bench")

DETAIL No. 5. – Walk to box and replace extra sheets

Why? If no need to walk to box to get sheets no need to walk to replace (Write: same as #1)

DETAIL No. 6. – Walk to box of brass

Why? If no need to walk for copper sheets why walk for brass sheets? (Write: same as #2)

DETAIL No. 7. – Pick up brass sheets

Why? Same as with copper sheets. (Write: same as #2)
DETAIL No. 8. – Walk to bench

Why? More walking. (Write: Same as #1)

DETAIL No. 9. – Inspect and lay out

Why? Same as with copper sheets. (Write: Same as #4)

DETAIL No. 10. – Walk to the box and replace extra sheets

Why? More walking to replace sheets. (Write: Same as #1)

DETAIL No. 11. – Walk to bench

Why? More walking. (Write: Same as #1)

DETAIL No. 12. – Stack 12 sets (criss cross)

Why? Not necessary if layout is not necessary. (Write: No, if no layout)

DETAILS No. 13-20 – Inclusive Riveting

"Billy questioned details 13-20 in the exact same way. He questioned each detail separately."

"To conserve time in this meeting, let's just look at the information he noted."

"On each detail, Bill felt there must be a better way" – Write: Better way after each.

DETAIL 21 – Stamping

Why? Specification calls for it.
What? Purpose unclear. Check with engineering. (Write: Find out)

DETAILS 22-30 Inclusive – were questioned by Bill Brown in the same way

"He questioned the necessity of carrying and weighing the tote boxes."

"And he found that counting and packing could be done anytime and anywhere after riveting."

"While he was questioning and getting definite answers he did not make any changes."

"When all details on the break-down have been thoroughly questioned then we are ready to use Step 3.

11. Step 3 – Develop the new method

Read titles of Items 1, 2, 3, 4 of Step 3.

Write on white board

Step II Question	Step III Develop
Why? What? Where? When? Who? How?	

"Answers to the questions asked in Step 2 lead to developing a new method in step 3.

"We can increase production only when details are eliminated, combined, rearranged, or simplified."

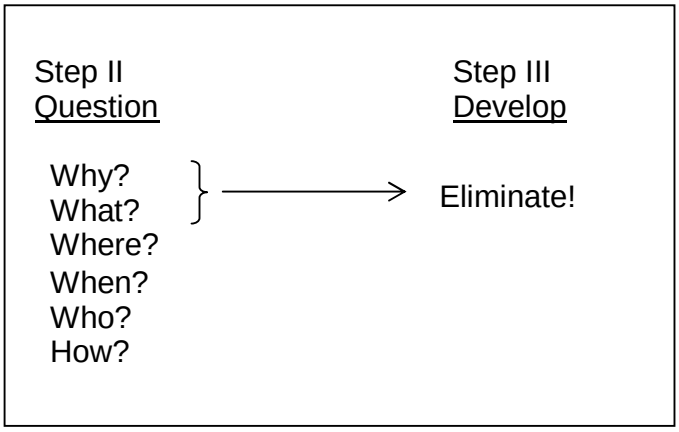
"Notice the order of the first four items – To eliminate after simplifying would waste time"

"Item 1. – Eliminate unnecessary details"

"The answers to Why? and What? lead us to eliminate unnecessary details."

"We eliminate details to avoid unnecessary use of manpower, machines, and materials."

Add to white board



"Let's see how Bill Brown eliminated unnecessary details."

- Have group check or cross off each detail on the Present Method break-down as it is eliminated

"From his notes, Bill decided that details No. 1, 3, 5, 6, 8, 10, 11 (Walking) would be unnecessary if the sheets could be delivered nearer the bench."

"Bill found room on the bench for the supply boxes. He found it was not extra work for the handler. So he eliminated them."

"The details of No. 4b, 9b and 12 (Laying out and stacking) added no quality if the sheets were moved to the bench – so he eliminated them."

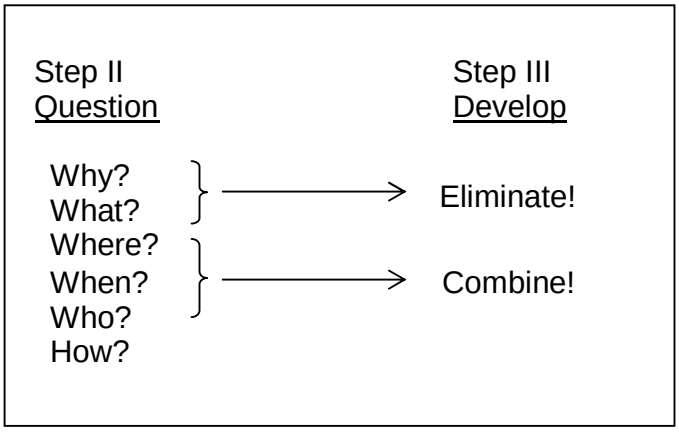
"Detail 21 was found to be unnecessary once he checked with engineering. So the stamping step was eliminated."

"Details 23 and 24 (Carrying and weighing) served no useful purpose since shields were sold by count. So those details were eliminated."

- Item 2 – Combine details when practical

"The answers to Where? When? And Who? are leads for combining necessary details."

Add to white board



"Possibilities for combining details are often discovered by find the best place, best time, and best person to do each detail.

"Details are combined to reduce inspections and handlings between operations."

"Let's see how Bill Brown combined some of the necessary details on the demonstration job.

"He had asked of details Nos. 22, 26, 27, Where? And When? should the shields be packed and by Whom?

"He decided to bring he cases to the bench and pack them there. Therefore the three details were combined."

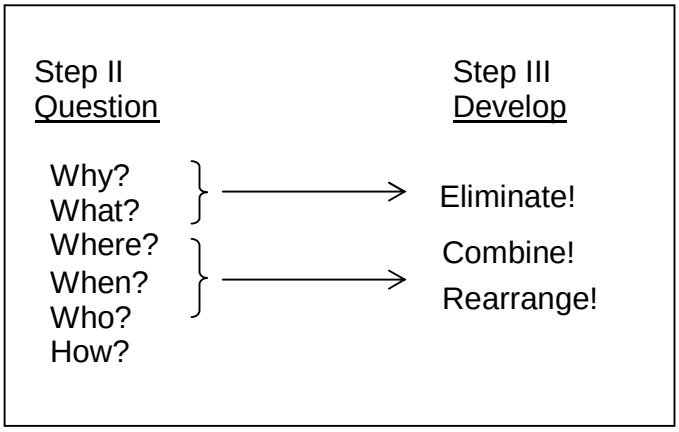
Item 3. Rearrange details for better sequence."

"If necessary details can't be combined, they may be rearranged for better sequence or order."

"We rearrange details to reduce handlings and back-tracking."

"The answers to the Where? When? and Who? also give leads for rearranging necessary details."

Add to white board:



"Rearranging the order of details often saves unnecessary moving of parts and avoids unnecessary pickup up and putting down details."

"Let's see how Bill Brown rearranged some of the necessary details on the demonstration job."

"Because he had changed the location of the supply boxes he had to rearrange the details of picking up the copper and brass sheets" (No. 2 and 7).

"Since he no longer laid out the sheets, he had to rearrange the inspection details." (Nos. 4a and 9a)

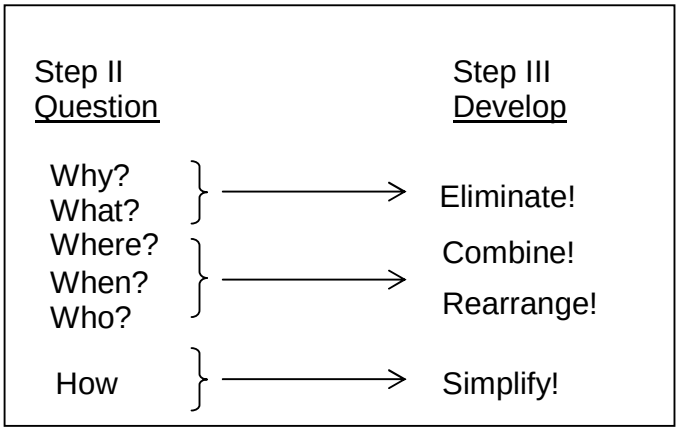
"It was not necessary to carry boxes to the scale, and the cases were packed at the bench. So he rearranged the delivery of cases to the packing department." (No. 25)

Item 4 – Simplify all necessary details.

"We simplify to make the necessary details safer and easier to do."

"The answers to How? Give us leads for simplifying necessary details."

Add to whiteboard:



- Read and explain the principles under item 4.

Pre-position materials, tools, etc. – "To put back into the best position for easiest pick up, ahead of time. In racks or holders."

Proper work area – "Convenient reaching area."

Gravity feed hoppers – "Use gravity to bring parts to the best place in the work area."

Drop delivery chutes – "Disposing of a part or piece by dropping it through a chute to a container.

Both hands – "Letting the two hands do useful work."

Jigs – "Movable mechanical holding devices."

Fixtures – "Fixed mechanical holding devices usually used in connection with a machine."

Let's see how Bill Brown applied these principle to simplify the details noted – "Better Way".

- Show how the proposed methods and work place were developed from the card by Bill Brown and the operator.
- Start with the sheets on the bench – one riveter, and cases beside the operator.
- Demonstrate all changes as you describe them from the card.

"The sheets were pre-positioned in the proper work area."

"Jigs were designed to hold the sheets."

"An angle arm was added to make the work easier."

“Now both hands could do useful work in picking up the sheets.”

“But it was still necessary to line up the sheets by hand – and to use one hand for holding.”

“A fixture was designed to position two riveters.”

“Guides were added to line up the sheets.”

“Now both hands could be used for riveting.”

“Slots were cut in the bench and scrap boxes were placed under the bench.”

“Thickness of the fixture was made so a pike of 20 completed shields was flush with the top.”

“Cases for finished shields wee pre-positioned within easy reach.”

“Gravity feed – only this principle was not used.”

“The principles of the card were used – and only these principles.”

Note: The group may offer ideas for father improvements.

- They may suggest: foot operated riveters, 4 rivets in one fixture, a bar over 2 riveters, etc.
- Compliment the members for doing the right kind of thinking, you know they will apply it to their jobs.
- Review how Step II and Step III are used in order to insure a complete improvement.

“The answers to Why? and What? Identify unnecessary details to be eliminated.”

“The answers to Where? When? and Who? give leads for combining and rearranging.”

“The answers to How? supply leads for developing the one best way today by simplifying.”

“Item 5. Work out your ideas with others”

“We often get valuable ideas from our bosses, colleagues, and operators.”

“Our boss is often the one who knows what changes will take place and where more production is necessary. He can give us practical leads.”

“We can also often get help from our fellow supervisors.”

“We can also get valuable input and ideas from employees. Working out ideas with them is crucial for acceptance.”

“Remember how Bill Brown worked with one of his operators. An interested and satisfied worker is just as important as the idea itself.”

“Usually everyone is glad to help if we ask him or her.”

“Item 6. – Write up your proposed new method.”

“Many ideas die before they are put into effect or are written down.”

“Write up exactly what your new method will do and how it can be done.”

“A written proposal is a complete summary of your proposed improvement.”

“We will discuss how to write up a proposal in detail, during session 2.

“After we have made a job break-down questioned every detail and developed the new method we are prepared to put it to work.”

12. Step IV – Apply the new method

Read entire Step IV

Add to white board.

Step IV – Apply the New Method

“Improvements are of no value unless put to work.”

“Using step IV insures the success of improvements.”

“Lack of Step IV, in the past, has prevented many good improvements from being put to work.”

- Item 1. Sell your proposal to the boss.

Add to the white board.

Step IV – Apply the New Method

Sell -

"To get his approval for a trial."

"Give your boss a short, complete story – facts only – in your written proposal."

"Use break-down sheets, samples, sketches."

"Put it up to the boss at the appropriate time – watch your timing."

- Hand out proposed method break-down.
- Compare with the present method. Show how they can be used to sell an improvement story.
- Also use written proposals to explain what this improvement will do and how it can be done.
- List production increases and better uses of manpower, machines, material, space, equipment, as well as quality and safety improvements.

Item 2 – Sell the new methods to the operators.

"So it will get a fair test explain why this test is being conducted to the operators."

"Perhaps only one helped develop it but several will have to use it so explain to all concerned."

"Instruct operators in the new methods carefully. Use the Job Instruction technique."

"Get the operators' cooperation and ideas on all improvements."

Item 3 – Get final approval of all concerned on safety, quality, quantity, and cost.

Add to whiteboard:

Step IV – Apply the New Method

Sell - Approvals

"Getting approvals will prevent trouble."

"Get approval of immediate supervisor on all factors."

"When it is necessary, get approval for things related to:

- Safety
- Quality
- Quantity
- Cost

"Follow regular organization lines of communication."

Item 4 – Put the new method to work and use it until a better way is developed

Add to whiteboard:

Step IV – Apply the New Method

Sell - Approvals - Use

"Avoid waiting, get action as quickly as possible. Waiting kills more ideas than lack of brains." (Some discussion)

"Right now is the time when we need every practical improvement working for us."

"Check to be sure the operators don't slip back to the old, more familiar methods."

"Remember there will always be a better way. Keep searching for further improvements."

Item 5. – Give credit where credit is due

Add to the white board

Step IV – Apply the New Method

Sell - Approvals - Use - Credit

"One stolen idea will stop all others. Stopping ideas is also sabotage"

"We want to be sure we give proper credit and show appreciation."

"Ask the boss to say a word of appreciation to the person who made or helped with the improvement."

"The more credit we give the more ideas we get back."

13. Sell the use of the Job Methods Plan

Review the 4-step plan

- Read each step and main items under each.

"These four steps were all the foreman used to make the improvement on the demonstration job."

"These principles are all we need to make thousands of valuable improvements."

- Stress the importance of learning by doing

"Would more improvements right now help you with your production problems?"

- Use the following five programs if "selling" is necessary.

"One improvement each week would make any supervisor's job easier, reduce bottlenecks and cut down the number of trouble jobs."

"One improvement today is worth ten times as much now as it would be next year."

"We can't afford to be "too busy" to find time to continually search for improvement."

"Our competitive situation requires that we strive to make improvements every day. If we don't do this then we will fall behind the competition."

"Will this Job Methods plan make it easier for you to develop and apply improvements?" (some discussion)

- If any say 'No' ask why and point out that the plan will help on any production job that includes material handling, machine work, or hand work.
- To break-down any 'our work is different' attitude point out that these principles have been applied by others to:
    - Mass production and job shops
    - Process, assembly, machine tool, and foundry work
    - Airplanes, tanks, guns, ships, munitions, chemicals, and lumber manufacturing

"Get all to agree that, "It can be done!"

14. Assign improvement demonstrations for Session II

"This is the whole story – let's put it to work."

"Everyone will make job methods improvements."

"Pick out a short job in your department on which you need greater quantities of quality product in less time. Perhaps, one that's giving you trouble."

"Don't try to find the one that is the hardest or will show the most startling results. We need to practice the method first and then move onto more challenging situations."

"Take any job – perhaps the first one that you think of – or the first one you see as you walk through the department."

"Make a job break-down of the present method. Question every detail on the break-down."

"Then develop the new method. Make a proposed method job break-down."

"If you don't find any improvement on the first job then tackle another one."

"Get ready to tell us how you applied or will apply the new method."

"Bring job break-downs and samples, sketches, material, equipment, and tools to show both the present and proposed methods to the group. Allow about 20 minutes presentation to describe both the previous and the proposed method."

- Ask for volunteers to present tomorrow and ask them to identify the job they will tackle if they already know (you may want to speak to them more after class to help them prepare).

- Of course do not allow and secret processes, dangerous examples, or other unfit items for discussion into the class session."
- Assign three improvement demonstrations for Session II. Get three volunteers. Have them apply the method to any suitable short job in their department.
- All improvements must be new ideas and not ancient history.
- Be sure they understand exactly what to do for Session II tomorrow. Have them explain it to you after class if necessary.

Hand out black job break-down sheets

- Provide two for each member (1 for present and 1 for proposed)

15. Resistance and resentment and closing

"Two human failings have stopped many improvements from being put to work."

"The first of these is **resistance** to new ideas."

"Don't be surprised if someone with whom you are checking over an idea tells you, 'The present method" has been successful for twenty years – why change it?' That is a natural reaction."

"Be careful of the natural resistance everyone seems to have toward new improvements."

"We all tend to defend past practice, precedent, tradition, custom, habit, and to argue against any new ideas."

- Cite some examples of resistance to things in the past.

"Don't let resistance interfere with improvements."

"The principles of the Job Methods plan are not new. They were developed many years ago."

"Job Methods is a streamlined and simplified version of tried and proven principles."

"The second failing is **resentment** of criticism."

"Perhaps someone may interpret our search for a better method as personal criticism."

"It is up to us to explain our purpose, which is a constructive search for a better way to get out the production needed for the war effort."
"Let's not be afraid to bring in improvements that may infer criticism of ourselves, i.e. 'why didn't you think of this before'?"

“Our discussion of each job improvement will be only constructive, not personal criticism.”

“Let’s be sure that fear of criticism doesn’t stop any of our ideas for improvements.”

Close promptly with these remarks

“Remember the job we all have to do in this competitive environment is to continuously improve. Otherwise we can not ensure our jobs for the future.”

“Keep in mind that improving our jobs is part of our daily responsibility.”

- Stress how Job Methods improvements will help in out drive to produce greater quantities of quality product in less time.

“Learn the JM instruction card contents before Session II. Remember your assignments for tomorrow as well if you are presenting.”

“Bring in actual sketches, break-downs, materials, etc. that will aid in the presentation.

- Confirm the time, location, and related matters for Session II
- Collect name cards, record attendance, erase the boards, and clean up the room as needed.

Note: 2 hours to this point