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ABSTRACT

The curriculum guide is designed for a basic skills course for machine maintenance workers. The 12-week course is divided into three segments: English as a Second Language and vocabulary development; technical vocabulary and mathematics; and technical symbols, trouble-shooting, and word problems. For each of the three segments, a list of performance objectives is provided. A 5-week test and a 12-week test are also included. Each contains language skill items, tool vocabulary items, typical problems, and items involving the interpretation of pictures or diagrams. (MSE) (Adjunct ERIC Clearinghouse or Literacy Education)

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Juno Lighting Inc.

Curriculum • Basic Skills for Maintenance Workers

Worker Education Program

**Chicago Teachers' Center of Northeastern Illinois University and
the Amalgamated Clothing and Textile Workers Union**

July 1994 • Sabrina Budasi Martin

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Basic Skills for Maintenance Workers

Jul. 11 - Aug. 17 ESL & vocabulary development
Aug. 22 - Sept. 7 Technical vocabulary and Math for first hour of class
Sept. 12 - Sept. 28 Technical symbols, trouble shooting and word problems

- Week 1** Maintenance brainstorming, writing principles, and capitalization & punctuation.
- Week 2** Tools identification, their use, and begin journal writing.
- Week 3** Preventative Maintenance work forms, Milford machine parts identification, using Milford machines and parts index. Begin describing defects.
- Week 4** More Milford parts, tools, preventative maintenance forms, spelling and describing defects.
- Week 5** More Milford parts, Milford operating problems, reasons for using tools, capitalization, punctuation, spelling, and prepositions. Quiz.
- Week 6** Using indexes and table of contents using the Milford Operating Instructions and Maintenance Manual, Maintenance Work Request forms and Tool Request form. Concentration on reading and writing work problems and solutions.
- Week 7** Math and Maintenance Manual. Continue reading & using manual, machine vocabulary, spelling, writing, and other related grammar concerns.
- Week 8** Math. Same as week 7.
- Week 9** Math. Same as week 7 & 8
- Week 10** Milford parts identification, (review), electrical symbols, and trouble shooting.
- Week 11** Trouble shooting and word problems.
- Week 12** Problem solving, review, and testing.

Course Objectives

Juno Lighting, Inc. Basic Skills for Maintenance Workers

Week 1 - 6

- Understand and put to use general punctuation and capitalization rules by correcting a short dialogue with less than five errors.
- Understand how to use Milford Parts Manual by successfully labeling numbered diagram parts with correct technical term and (with minimal assistance by the instructor), by working in teams to verbally identify parts on machines.
- Understand, use and write tools requested for Tool Sign Out form by pointing out the appropriate items in the tool room when asked by the instructor and by writing a specific tool, with less than 3 spelling errors, next to its appropriate function.
- Verbally identify defects when presented with photographs of a variety of physical problems with miscellaneous work materials.
- Orally describe three problems with riveting machines with less than 3 grammar and/or spelling errors.
- Orally describe three problems related to other problems, not related to the riveting machines, that occur on the assembly lines.
- Use a parts list to verify that a set of parts is complete and/or defective.
- Write six vocabulary words related to defects with less than 3 spelling errors.
- Write the location of job specific tools with less than errors using learned prepositions.
- Write five typical problems at Juno when someone needs to use a specific tool with less than 5 grammatical and punctuation errors
- Understand the concept of alphabetization by writing 15 words in their correct alphabetical order and by looking up new vocabulary words identified in assigned reading.
- Explain job description for the Class C Maintenance position by verbally communicating related responsibilities to the instructor.

- Name and identify machine parts on four Preventative Maintenance schedules by pointing out machine parts on riveting machines when asked by the instructor and by labeling a diagram with less than five errors.
- Identify and use the table of contents and/or index in Milford (and other) maintenance manuals.
- Write three problems with riveting machines with less than 3 grammar and/or spelling errors.
- Write three problems related to other problems, not related to the riveting machines, that occur on the assembly lines with less than 3 grammar and/or spelling errors.
- Further understand general punctuation and capitalization rules by writing a paragraph about a problem at work with 5 or less errors.
- Develop problem solving skills by choosing and using correct manual to find solutions to problems conceptualized in previous objectives.
- Orally explain and write current job description by completing a writing sample and the beginning and end of the course.

Week 7 - 12 (Math)

- Use basic math skills (addition, subtraction, multiplication & division) by calculating word problems related to paychecks.
- Solve 4 each, large division and multiplication equations with no more than 3 errors.
- Provided with oral instructions, correctly divide circles and rectangles by half, fourths, eighths etc.
- Compute 8 problems using fractions (2 each, + - x +) with no more than 3 errors.
- Demonstrate the ability to show the connection between numbers and ideas expressed by words such as half, third, fourth, fifth...by verbally explaining a fraction math problem on the board.
- Identify and use various measurement tools by naming a tool and why when presented with a situation by the instructor
- Using basic mathematical concepts, demonstrate understanding of problems at work by solving three word problems with no errors.

Week 10 - 12

- Given flash cards, identify 26 electrical symbols and what they represent by matching the appropriate symbol with its meaning.
- Given the Milford Parts Catalog, identify all machine parts on Monthly and Weekly Preventative Maintenance Schedules by working in small groups and labeling diagrams.
- Identify working parts and understand functions on the lines by answering questions on Monthly Line Check questionnaire.
- Identify 26 electrical symbols and what they represent by writing the appropriate terminology next to the correct symbol with no more than 2 errors.
- Given the vocabulary in no particular order, label Milford machine parts diagrams with no more than 2 errors.
- Demonstrate ability to use Maintenance Manuals by writing solutions to 4 simple machine maintenance problems.

NAME: _____ DATE: _____

Five Week Quiz
Juno Maintenance

Correct this dialogue. Put in capital letters and punctuation.

Ninfa: juan i need a hammer can you get it for me

Juan: sure i have to go to the tool room and ask jesus

Ninfa: never mind he s in mexico i can use a screwdriver

Juan: are you sure it will work ninfa

Ninfa: hmmmm i m not sure let s try it and see if it works

Write the tool needed for the following problems.

1. Jose needs to tighten and loosen some bolts. _____
2. Ninfa wants to cut wires and connect them. _____
3. Juan needs to cut insulation and plastic bags. _____
4. Humberto wants to hit the roll set because it sticks. _____
5. Juan needs something to know the height and distance of a table. _____

Write down a typical problem at Junc when someone needs to use the following tools.

- 1. Screwdriver: _____

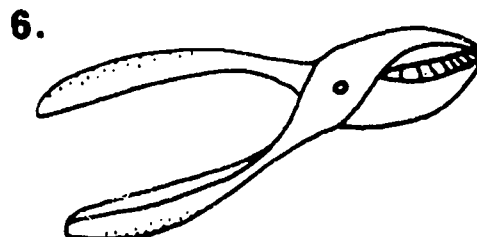
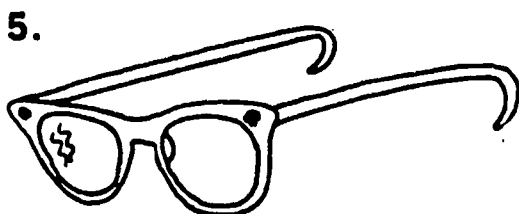
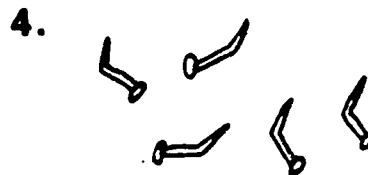
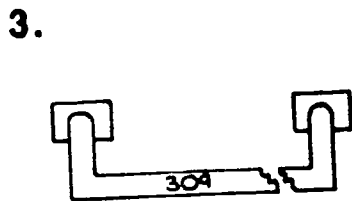
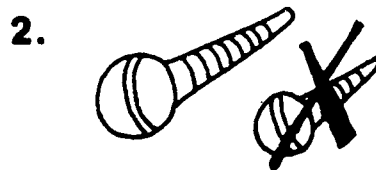
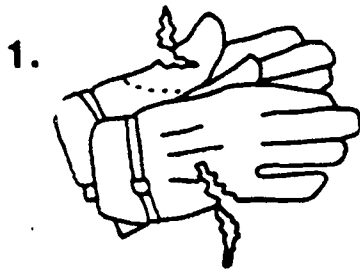
- 2. Allen wrench: _____

- 3. Extension cord: _____

- 4. Drill: _____

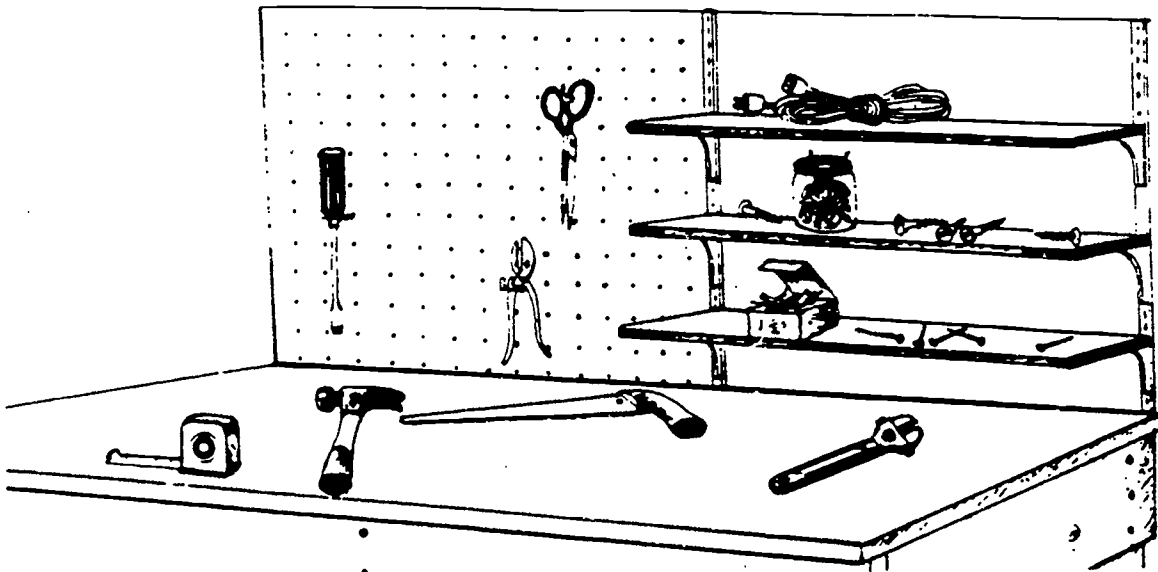
- 5. Saw: _____

There is something wrong in each picture. Write the name of the defect next to each item.



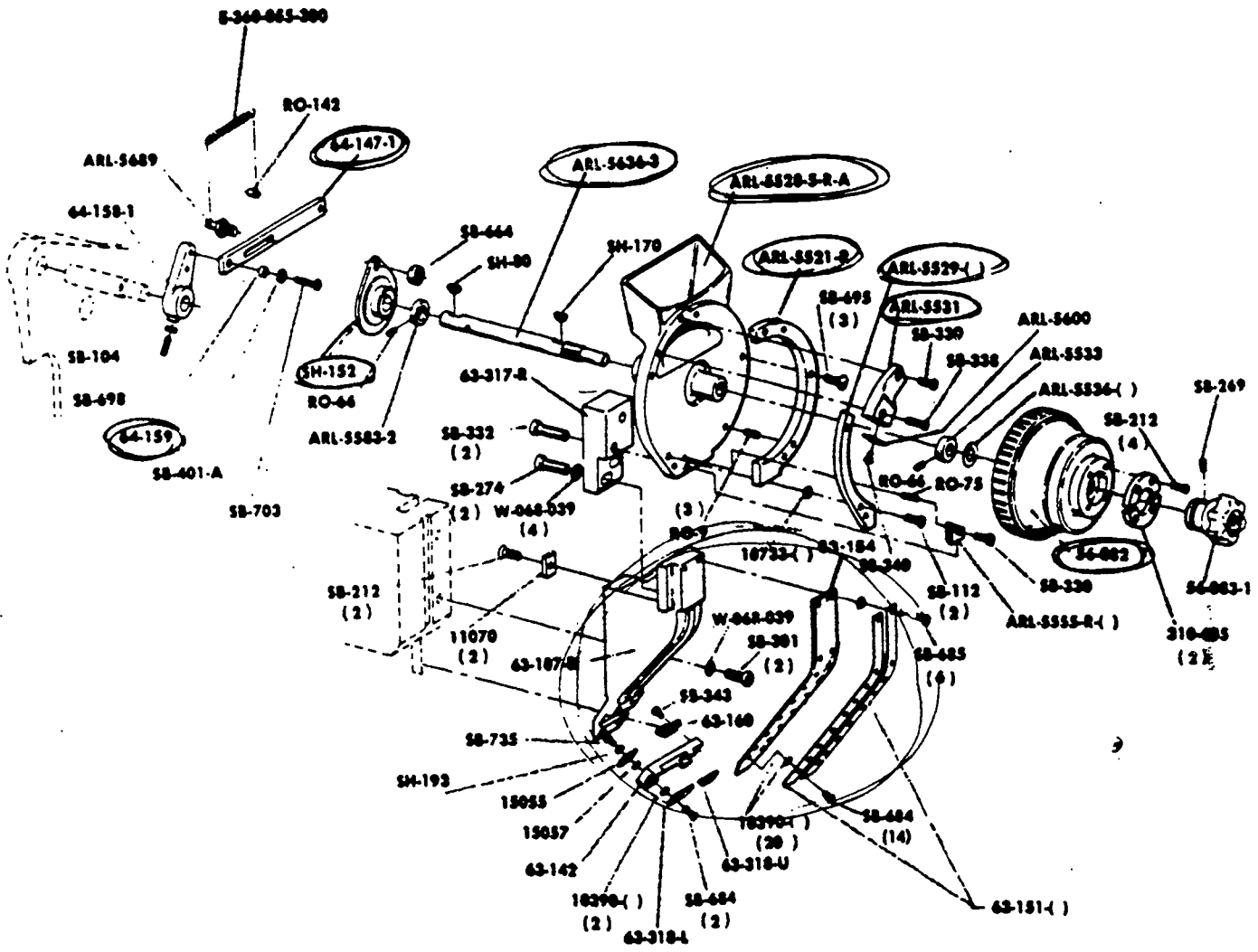
There are ten tools in the work room. Circle five, and tell me exactly where they are.

Example: The screwdriver is hanging on the left side of the pegboard.



1. _____
2. _____
3. _____
4. _____
5. _____

Write the names of all the circled items on the diagram for the Raceway Assembly.



- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____

TWELVE WEEK TEST

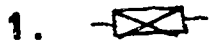
Name: _____

Date: _____

Identify each symbol and write what they represent.

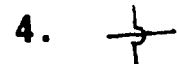
Example:

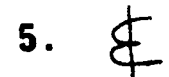
Ground

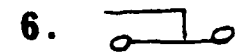


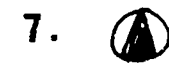


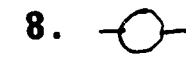


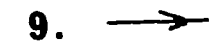


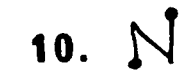


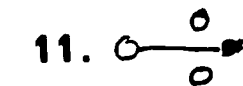


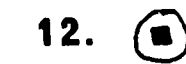


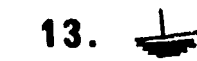


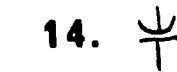


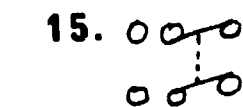




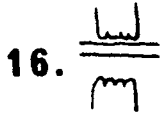


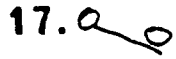


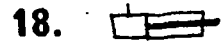


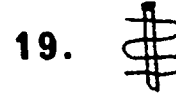


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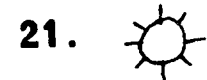


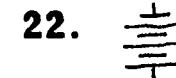


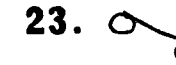


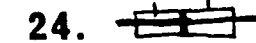


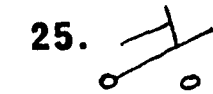


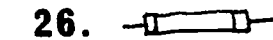












Answer the following math problems. Show your work.

1.
$$\begin{array}{r} 4987 \\ \times 56 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 8994.00 \\ - 3755.90 \\ \hline \end{array}$$

3.
$$\overline{)23\ 8457}$$

4. You received your paycheck on Thursday for \$300.00. Before you could spend your money, you needed to save \$75.00 for rent and \$50.00 for bills. Afterward, you spent \$37.00 on Friday and \$19.00 on Saturday. How much money do you have left?

Write the tool needed for the following problems.

1. Jose needs to tighten and loosen some bolts. _____
2. Ninfa wants to cut wires and connect them. _____
3. Juan needs to cut insulation and plastic bags. _____

Write down a typical problem at Juno when someone needs to use the following tools.

1. Screwdriver: _____

2. Allen wrench: _____

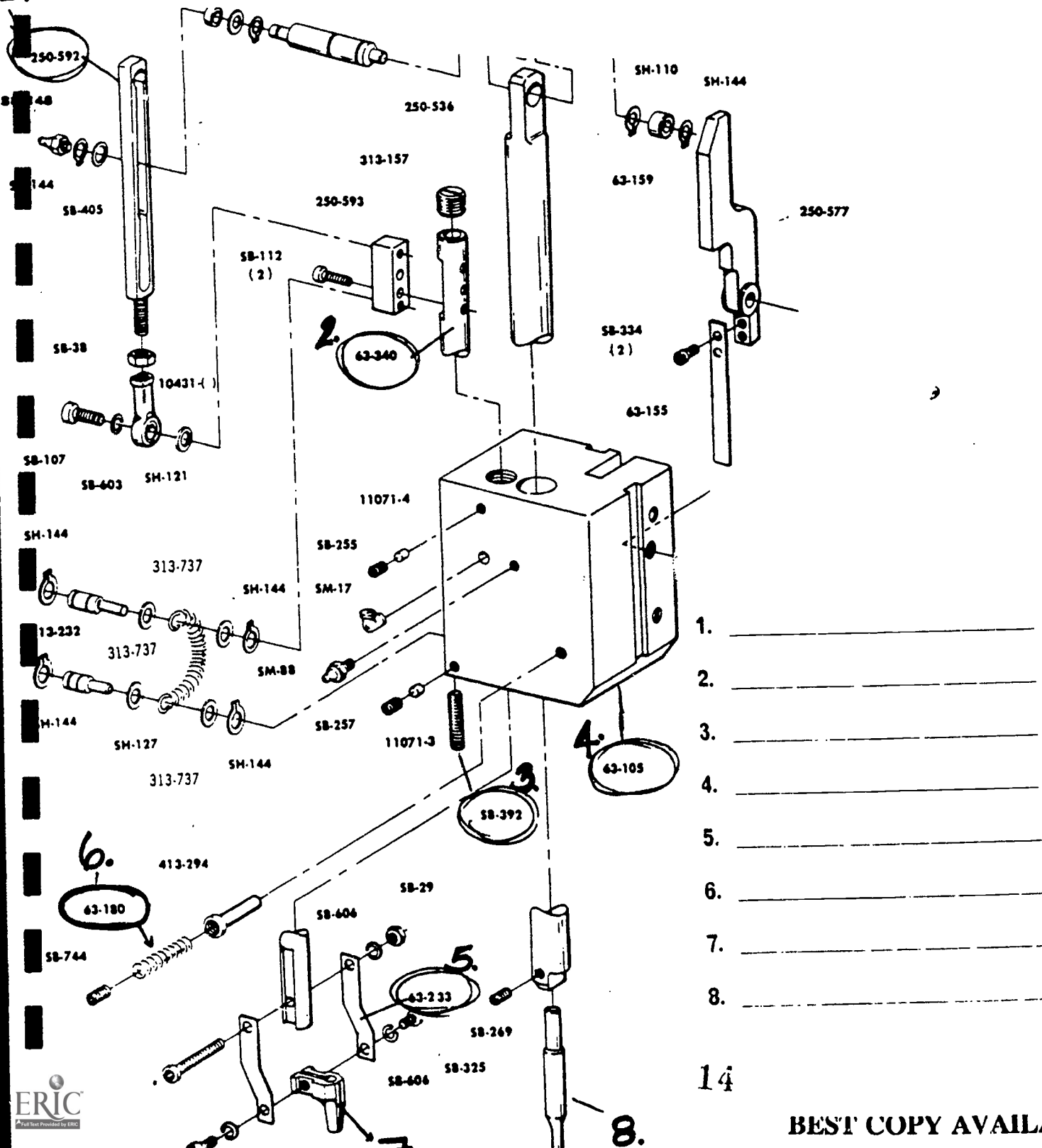
3. Saw: _____

Using your Milford riveting machine manual, write down a solution to the following problem.

- The rivets are getting damaged in the hopper barrel. It looks like they are sticking in the hopper barrel slots. How are you going to fix it? What tools do you need?

Write the names of all the circled items on the diagram for the Jaw Slide & Spindle Block Assembly.

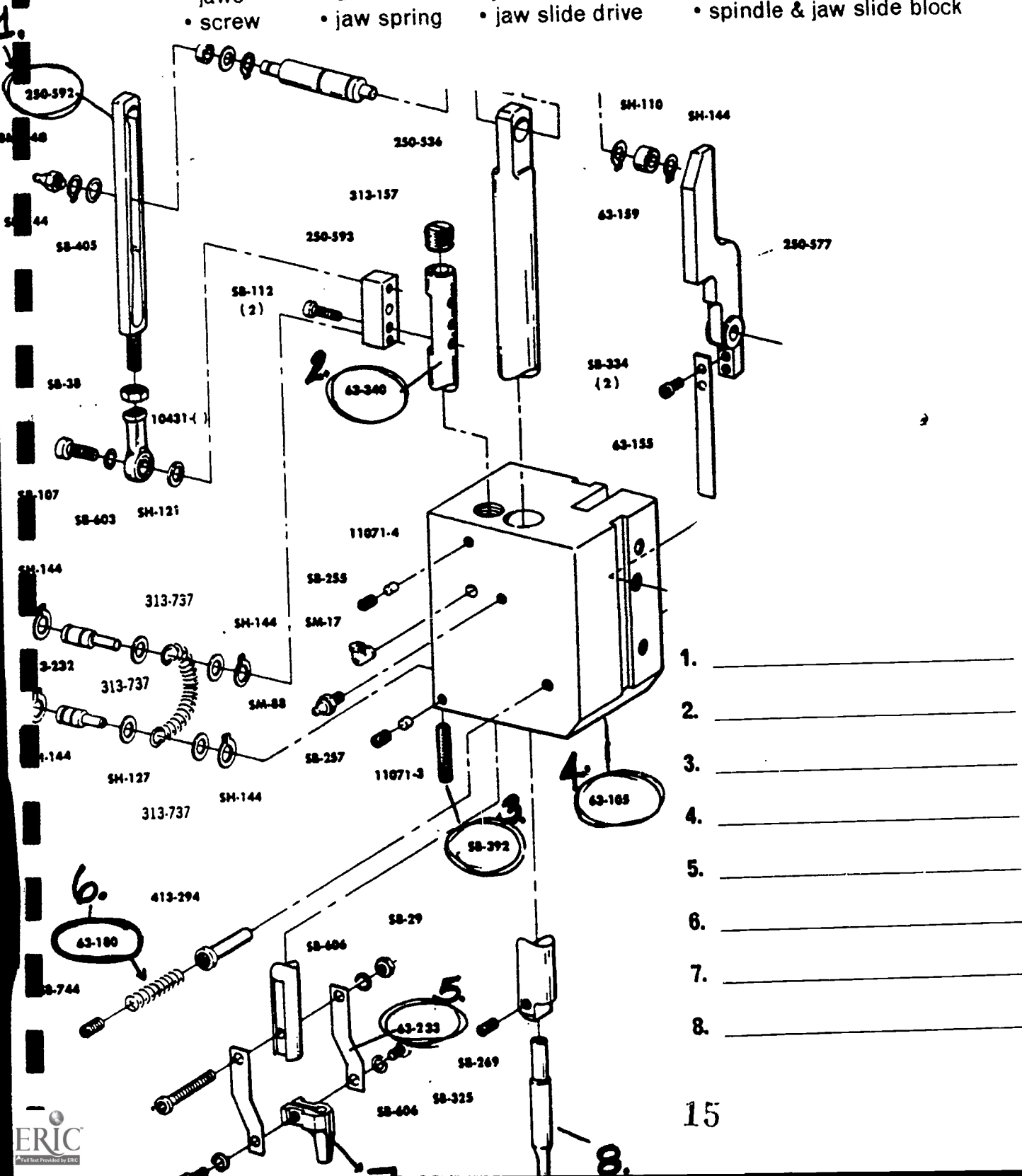
- jaws
- driver
- jaw slide
- shuttle return spring
- screw
- jaw spring
- jaw slide drive
- spindle & jaw slide block



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Write the names of all the circled items on the diagram for the Jaw Slide & Spindle Block Assembly.

- jaws
- driver
- jaw slide
- shuttle return spring
- screw
- jaw spring
- jaw slide drive
- spindle & jaw slide block



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

15