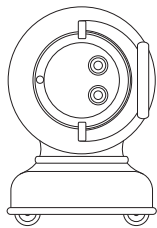


LOCKSMITH APPRENTICESHIP PROGRAM
1ST PERIOD

PROFILE SUBJECT NUMBER: F-8

**DEMONSTRATE THE SAFE OPERATION
OF KEY MACHINES**



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Δ PREREQUISITES:

Δ MODULE OBJECTIVE:

Demonstrate the safe operation and maintenance of key machines.

Δ RATIONALE:

The skill to service and maintain key machines is required to keep adjustments within tolerances for proper duplication of keys. The safe operation of key machines is critical to you and others in the work place. It is less difficult to be a locksmith with two hands, ten fingers and two eyes.

Δ OBJECTIVE(S):

1. Demonstrate the ability to safely use, service and adjust cutter type key machines.
2. Demonstrate the ability to safely use, service and adjust punch type key machines.

Δ PERFORMANCE EVALUATION

1. You will be assessed on 19 points Objective No.1
2. You will be assessed on 23 points Objective No. 2

Δ OBJECTIVE NO. ONE:

Demonstrate the ability to safely use, service and adjust cutter type key machines.

Δ LEARNING ACTIVITIES

1. Study the instruction sheet(s).
2. Obtain the equipment and material.
3. Refer to the performance evaluation sheet(s) to determine how you are assessed.
4. When complete, assess yourself.
5. Submit the project and performance evaluation sheet(s) to your instructor for marking.
6. When you are successful proceed to the next objective.

Δ RESOURCE:

Next page

Consult your instructor.

Found at end of this module.

Performance evaluation sheets.

Δ Consult with your Instructor to obtain the following:

- √ Manual or semi-automatic cutter type key machine.
- √ Micrometer or Caliper.
- √ Corresponding key blanks.
- √ Hand tools for disassembly.
- √ Lubricants
- √ Paper Towel or rag
- √ Soft cloth
- √ Key machine brush
- √ Lock cylinder with keys

Approved type of eye protection is required

Δ Disassemble key machine using the following procedure:

INSTRUCTION SHEET
PROFILE SUBJECT NO. F-8
OBJECTIVE NO. 1

1. remove cover assembly
2. remove belt
3. remove brush
4. remove cutting wheel using hardwood block as a stop
5. remove pulley from cutting wheel shaft
6. remove cutting wheel shaft from key machine
7. remove carriage assembly
8. remove shaft from carriage
9. clean all parts with WD-40 and paper towel
10. lubricate carriage shaft with graphite and a soft cloth
11. check for wear and reinstall shaft in carriage
12. check for wear and reinstall carriage in key machine
13. check for wear and reinstall cutting wheel shaft in key machine
14. check for wear and reinstall cutting wheel on shaft
15. check for wear and reinstall pulley on cutting wheel shaft
16. check for wear and reinstall brush
17. check for wear and reinstall belt
18. check adjustment
19. adjust depth to within .003" using a test key and micrometer or calipers
20. check and adjust spacing
21. reinstall cover
22. cut a test key to 3rd generation duplicate numbering the keys, test each duplicate in a lock
23. measure tolerances of all cuts with a micrometer
24. Determine the cut-to-cut variance by measuring the accuracy of shallow cuts vs. deep cuts. Express this as the difference in accuracies, in thousandths of an inch, in the space provided on the performance evaluation sheet.

Δ PERFORMANCE EVALUATION OBJECTIVE NO. ONE

PROFILE SUBJECT F-8
OBJECTIVE NO. 1

Name: _____

DIRECTIONS:

Demonstrate your ability to service duplicating key machine.

Your performance of this objective will be evaluated using the items listed below. Discuss any major discrepancies between your rating and the Instructor's to determine where any error occurred. Your instructor will calculate your mark on this objective by dividing the Instructor's rating total by the Objectiverating total.

Cut-to-cut Variance _____

	Self Check √	Rating	Score
1. Selection of proper tools			
Micrometer or Caliper		1	
Key machine brush		1	
Crescent wrench		1	
Screwdrivers		1	
Allen wrenches		1	
Hardwood block		1	
2. Selection of proper key blanks		1	
3. Proper cleaning and lubrication		1	
4. Proper re-assembly			
reinstall shaft in carriage		1	
reinstall carriage in key machine		1	
reinstall cutting wheel shaft in key machine		1	
reinstall pulley on cutting wheel shaft		1	
reinstall cutting wheel on shaft		1	
reinstall brush		1	
reinstall belt		1	
5. Accuracy of spacing adjustment		1	
6. Accuracy of depth adjustment		1	
7. Accurate determination of cut-to-cut variance		1	
8. Approved eye protection worn at all times		1	
Rating total		19	

Your score

Final mark for this objective: Instructor's rating _____

Objective rating \div 19

Mark _____%

Subject: F-8

Instructor Initials

Δ OBJECTIVE NO. TWO:

Demonstrate the ability to safely use, service and adjust punch type key machines

Δ LEARNING ACTIVITIES:

1. Study the instruction sheet(s).
2. Obtain the equipment and material.
3. Refer to the performance evaluation sheet(s) to determine how you are assessed.
4. When complete, assess yourself.
5. Submit the project and performance evaluation sheet(s) to your instructor for marking.
6. When you are successful proceed to the next module.

Δ RESOURCE:

Next page.

Consult your instructor.

Found at end of this module.

Performance evaluation sheets.

Δ Consult with your Instructor to obtain the following:

- √ Punch type code cutting machine with cam and carriage
- √ Micrometer or Caliper
- √ General Motors key blanks
- √ Hand tools for disassembly
- √ Lubricants
- √ Paper Towel or rag.
- √ Large heavy duty rubber band.

Δ **Disassemble and reassemble the key machine as follows:**

1. remove the cam-set and carriage
2. remove the saddle and saddle spring
3. remove the handle
4. remove the cam holder assembly
5. remove the punch, punch spring and anvil
6. clean and lubricate all parts
7. re-install the punch, punch spring and anvil
8. re-install the cam holder assembly
9. re-install the handle
10. re-install the saddle and saddle spring

11. adjust the saddle spring tension
12. test the saddle spring tension by cutting a test key, using the proper key blank for the cam-set and carriage.
13. re-install the cam-set and carriage
14. cut a General Motors key to code 1 2 3 4 5 3 and measure depth of cuts with a micrometer or caliper. Compare against factory specifications and re-adjust if necessary.

Factory Cut Specifications

1	2	3	4	5
.248	.223	.198	.173	.148

- 15 record final measurements on self-test
16. measure tolerances of all cuts with a micrometer or caliper.

Δ PERFORMANCE EVALUATION OBJECTIVE NO. TWO:

PROFILE SUBJECT F-8
OBJECTIVE NO. 2

Directions:

Name: _____

Demonstrate your ability to service Curtis #15 code cutter.

Your performance of this objective will be evaluated using the items listed below. Discuss any major discrepancies between your rating and the Instructor's to determine where any error occurred. Your instructor will calculate your mark on this objective by dividing the Instructor's rating total by the Objectiverating total.

	Self Check	Rating	Score
1. Selection of proper tools	√		
<u>Micrometer or Caliper</u>		1	
<u>Screwdrivers</u>		1	
<u>Heavy duty rubber band</u>		1	
2. Selection of proper cam-set and carriage for			
<u>General Motor Key blanks</u>		1	
3. Proper cleaning and lubrication		1	
4. Proper re-assembly			
<u>re-install the punch, punch spring and anvil</u>		1	
<u>re-install the cam holder assembly</u>		1	
<u>re-install the handle</u>		1	
<u>re-install the saddle and saddle spring</u>		1	
5. Accuracy of saddle spring adjustment		1	
6. Accuracy of depth adjustment within .003"		1	
7. Accurate of depth adjustment measurement		1	
8. Key cut to correct code.		1	
9. Approved eye protection worn at all times		1	
10. Key measurements		6	
1 ____ 2. ____ 3. ____ 4. ____ 5. ____ 6. ____	1 x 6		
Rating total		23	

Your score

Final mark for this objective: Instructor's rating _____

Objective rating \div 23

Mark _____%

Instructor Initials