

DOCUMENT RESUME

ED 197 142

CE 027 770

AUTHOR Osland, Walt  
 TITLE Mountain Plains Learning Experience Guide: Automotive Repair. Course: Parts and Accessories.  
 INSTITUTION Mountain-Plains Education and Economic Development Program, Inc., Glasgow AFB, Mont.  
 SPONS AGENCY Office of Vocational and Adult Education (ED), Washington, D.C.  
 BUREAU NO 498MH90008  
 PUB DATE Mar 76  
 CONTRACT 300-79-0153  
 NOTE 104p.: For related documents, see CE 027 766-775 and CE 027 777-780.

EDRS PRICE MF01/PC05 Plus Postage.  
 DESCRIPTORS Adult Education: \*Auto Mechanics: \*Cleaning: Disadvantaged: Equipment Maintenance: Family Programs: \*Individualized Instruction; Instructional Materials: Learning Activities; Learning Modules; Motor Vehicles: Postsecondary Education: \*Reference Materials: Resource Materials: Skilled Occupations: \*Vocational Education  
 IDENTIFIERS \*Automobile Parts: Mountain Plains program

ABSTRACT One of twelve individualized courses included in an automotive repair curriculum, this course covers the use of parts and reference manuals: care, use, and cleaning of parts: and care for work areas. The course is comprised of three units: (1) Reference Manuals, (2) Parts Manuals, and (3) Cleaning Parts and Work Area. Each unit begins with a Unit Learning Experience Guide that gives directions for unit completion. The remainder of the unit consists of Learning Activity Packages (LAP) that provide specific information for completion of a learning activity. Each LAP is comprised of the following parts: objective, evaluation procedure, resources, procedure, supplemental sheets, study guide, and a LAP test with answers. The course is preceded by a pretest which is designed to direct the student to units and performance activities. (LRA)

ED197142

MOUNTAIN PLAINS LEARNING EXPERIENCE GUIDE:

Automotive Repair.

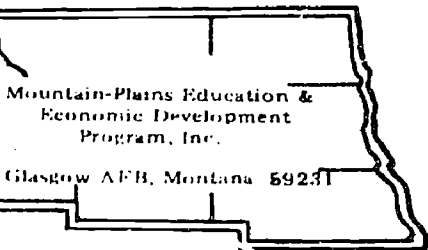
Course: Parts and Accessories

---

CE 021 110

U S DEPARTMENT OF HEALTH,  
EDUCATION & WELFARE  
NATIONAL INSTITUTE OF  
EDUCATION

THIS DOCUMENT HAS BEEN REPRO-  
DUCED EXACTLY AS RECEIVED FROM  
THE PERSON OR ORGANIZATION ORIGIN-  
ATING IT. POINTS OF VIEW OR OPINIONS  
STATED DO NOT NECESSARILY REPRE-  
SENT OFFICIAL NATIONAL INSTITUTE OF  
EDUCATION POSITION OR POLICY



# Learning Experience Guide

COURSE: PARTS AND ACCESSORIES

## DESCRIPTION:

Parts and accessories covers the use of parts and reference manuals, care, use, and cleaning of parts and work areas.

## RATIONALE:

The techniques covered in this course will enable you to use parts and reference manuals and to care properly for parts and work areas.

## PREREQUISITES:

None.

## OBJECTIVE:

Use automotive manuals and work orders. Effectively wash automotive parts and clean the service area.

## RESOURCES:

A course resource list is attached.

## GENERAL INSTRUCTIONS:

This course has three units. Each unit has a Unit Learning Experience Guide (LEG) that gives directions for unit completion. Each unit consists of Learning Activity Packages (LAPs) that provide specific information for completion of a learning activity. Pretesting results direct the student to units and performance activities.

The general procedure for this course is as follows:

- (1) Read the assigned unit LEG for this course.
- (2) Begin and complete the first assigned LAP.
  - a. Take and score the LAP test.
  - b. Turn in the LAP test answer sheet.
  - c. Determine the reason for any missed items on the LAP test.

Principal Author(s): Walt Osland

GENERAL INSTRUCTIONS (Cont.)

- d. Proceed to the next assigned LAP in the unit.
  - e. Complete all required LAPs for the unit by following steps (a) through (d).
- (3) Take the unit tests as described in the Unit LEG "Evaluation Procedures".
  - (4) Proceed to the next assigned unit in this course.
  - (5) Follow steps 1 through 4 for all required units for this course.
  - (6) Proceed to the next assigned course..

You will work independently unless directed to do otherwise. When questions or problems arise, you are expected to discuss them with the instructor. At all times remember to follow correct safety procedures during the performance activity.

UNIT TITLES:

- .01 Reference Manuals
- .02 Parts Manuals
- .03 Cleaning Parts and Work Area

EVALUATION PROCEDURE:

Course evaluation is by pre and post testing using a multiple-choice type of test.

In this course, the course test is used as a pretest to determine which units, if any, the student may be able to validate. The student is considered validated for a particular unit if 4 out of 5 items are correctly answered for each LAP part on the course pretest and that particular unit does not have a performance test requirement.

For those units with performance test requirements, the student must also satisfactorily complete the performance test to validate that unit. Unit performance test validation procedures are given in the "Evaluation Procedure" section of the unit Learning Experience Guide (LEG)

The course test will also be taken by the student as a post test to determine any changes resulting from taking all or part of the course.

Score at least 80% on the course post test and 80% correct on the unit performance and cognitive tests.

FOLLOW-THROUGH:

Go to the first unit Learning Experience Guide (LEG) listed on your Student Progress Record (SPR).

## RESOURCE LIST

Printed Materials

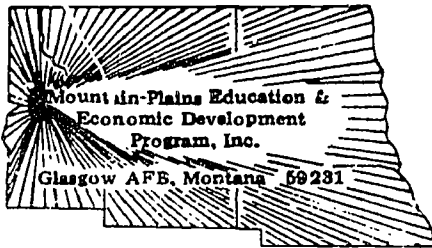
1. Auto Service and Repair. Martin W. Stockel, Goodheart-Willcox Company, Inc., 1975.
2. Motor's Auto Repair Manual. Motor. The Hearst Corporation, 1972 or equivalent.
3. Time and Parts manual.

Audio/Visuals

None

Equipment

1. Broom.
2. Brush.
3. Carbon scraper.
4. Cleaning tank.
5. Compressed air.
6. Disposable towels.
7. Dust pan.
8. Gasket scraper.
9. Parts to be cleaned.
10. Rags.
11. Solvent.
12. Squeegee.
13. Trash can.
14. Wire brush.



## COURSE TEST: PARTS AND ACCESSORIES

37.03.01.01

1. The Contents of a reference manual gives what information?
  - a. definition of terms.
  - b. listings and page numbers.
  - c. how to overhaul a part on a car.
  - d. parts numbers.
2. What information does an Index give in a reference manual?
  - a. how much money the parts cost.
  - b. a breakdown of where a specific part is located in the book.
  - c. part number.
  - d. definitions of words.
3. Locating information in a manual should be done by use of:
  - a. table of contents.
  - b. glossary.
  - c. guessing.
  - d. glancing through a book.

37.03.01.02

4. Where in the reference manual is the Table of Contents generally found?
  - a. middle of book.
  - b. rear of book.
  - c. after the glossary.
  - d. front of book.
5. There are two labor listings in most labor manuals; one is for:
  - a. cost of car.
  - b. commission.
  - c. cost of foreign car and cost of American car.
  - d. time.

37.03.02.01

6. The contents page of a labor and parts manual gives what information?
  - a. repair section and page numbers.
  - b. vehicles, models and page numbers.
  - c. definition of terms.
  - d. cost of repair and parts.

37.03.02.01 (continued)

7. A mechanical skill rating is to determine.
- the skill of a mechanic that is required to do the job.
  - if anyone can do the repair job in the same length of time as a skilled mechanic.
  - the exact time needed for a poor skilled mechanic to do a job.
  - how well the job is done.
8. In a labor and parts manual, you will have two time listings; one is shop time and the other is:
- customer's time.
  - warranty time.
  - parts time.
  - tune-up time.

37.03.02.02

9. When given a car and model to work on, you would find the page or pages it is on in a parts manual, how many pages would you generally find?
- 1
  - 2
  - 3
  - 4
10. If you find a number of signs which you do not understand (such as ) you can find the definition by looking:
- on the glossary page in the manual.
  - in the dictionary.
  - on the contents page in the manual.
  - on the interchangeable parts page in the manual or at the bottom of the page.

37.03.03.01

11. Before parts are placed in the solvent tank, they should be thoroughly:
- checked.
  - steam cleaned.
  - measured.
  - scraped.
12. When submerging a part with an air-tight compartment, you should always place the hollow:
- it doesn't matter.
  - sideways.
  - down.
  - up.

37.03.03.01 (continued)

13. When they say a cleaner is caustic, it means it will:
- have a poisonous gas.
  - clean better than any other cleaner.
  - have an acid residue.
  - burn the skin.
14. The temperature of a hot tank usually runs between:
- 212 degrees and 225 degrees F.
  - 110 degrees and 180 degrees F.
  - 180 degrees and 210 degrees F.
  - 90 degrees and 110 degrees F.
15. Piston-ring grooves are best cleaned with:
- a power brush.
  - a strong cleaning solution.
  - hot soapy water.
  - a ring groove cleaner.

37.03.03.02

16. It is important to put tools away before hosing down a stall because:
- they might keep the water from hitting the floor.
  - some sockets are small enough to be washed down the drain.
  - the tools might get cleaned.
  - it isn't necessary to do so.
17. When cleaning a bench top, you should place equipment in:
- a cleaning solution.
  - separate containers in cabinets.
  - an orderly fashion.
  - a pile on one section of the bench.
18. You would clean up oil spills and grease with:
- soap and water.
  - a disposable rag.
  - gasoline.
  - a broom.
19. If gasoline spills in a closed garage, you should:
- clean it up.
  - let it evaporate by itself.
  - pour water into it so as to dilute it.
  - sweep it into a can because it can still be used in a car.



37.03.03.02

20. If grease spills on the floor, it is best to:
- clean it up immediately.
  - leave it there until cleaning up at the end of the day.
  - thin it out with gas and mop it up.
  - spread it out, so it doesn't stay in one lump.

37.03.03.03

21. What is meant by gasket material compressibility?
- how easily the gasket flattens out under pressure.
  - how well the gasket material can withstand oil pressure, etc.
  - how well the gasket material can seal.
  - how well the gasket material can withstand pressure when tightened down, withstanding moisture.
22. What is usually written on a head gasket?
- the word "bottom".
  - the word "top".
  - the amount of torque the gasket can withstand.
  - the type of sealer to use.
23. Loss of moisture can cause a cork gasket to:
- curl up.
  - expand.
  - rot.
  - shrink.
24. A rubber gasket should be installed:
- without a sealant.
  - the same as a cork gasket.
  - with a small amount of sealant.
  - with an extra amount of sealant.
25. When a pan gasket has become too small for the oil pan because it has become too dry, you can fix it by:
- cooling it.
  - soaking it in oil.
  - stretching it.
  - soaking it in water.

37.03.03.04

26. One of the most commonly used tubing materials is:
- cork.
  - asbestos.
  - steel.
  - cast iron.

37.03.03.04 (continued)

27. After cutting tubing, you should:
- flange the end.
  - sand the end.
  - ream the end.
  - flare the end.
28. When storing tubing after you have cut it once, what should you do with the end?
- ream it.
  - flange it.
  - flare it.
  - tape it.
29. On double wrapped steel tubing you should always:
- put on extra torque to insure holding.
  - use it in a low pressure area.
  - double-flare it.
  - single-flare it.
30. If you force fittings that start hard; you will:
- branch tee them.
  - cross-thread them.
  - strip them.
  - rib them.

37.03.03.05

31. Replacement battery cable terminals should be:
- soldered on.
  - glued on.
  - pushed on.
  - riveted on.
32. Strands of primary wire are made of:
- rubber.
  - stainless steel.
  - copper.
  - aluminum.
33. The larger the wire number:
- the more resistance decreases.
  - the smaller the wire's diameter.
  - resistance is not altered.
  - the longer the wire can be.

37.03.03.05 (continued)

34. What is the standard measure for wire size?
- a. hydrometer.
  - b. tape measure
  - c. wire gauge.
  - d. dial indicator.
35. What protects a circuit from an overload?
- a. wiring harness.
  - b. fuse box.
  - c. bullets.
  - d. conjunction blocks.

37.03.03.06

36. Why is it beneficial to the repairman to listen to the customer's description of any irregular noise, etc.?
- a. to help him diagnose the problem.
  - b. to be courteous.
  - c. to promote good will for the shop.
  - d. to make the customer feel as if the mechanic is taking an interest.
37. How many different copies of the work order are needed?
- a. 4
  - b. 2
  - c. 3
  - d. 5
38. To obtain the approximate cost of the parts needed, the mechanic can:
- a. ask the customer.
  - b. look in the repair book.
  - c. look in the parts and labor manual.
  - d. call a chop and ask for the price.
39. What is meant by "model" designation on a work order?
- a. body style.
  - b. the person who brought it in.
  - c. seating capacity.
  - d. the weight of the car.
40. The repair date on the work order request form is provided to log:
- a. the date the parts were ordered.
  - b. the date the work was totally completed.
  - c. the day maintenance was started.
  - d. the date the parts were received.

COURSE PRETEST ANSWER KEY: PARTS AND ACCESSORIES

Occupational Area:

File Code:

Name:

AUTOMOTIVE

37.03.00.00.B1-2

Parts and Accessories

ANSWERS

37.03.01.01.	1. C _____	37.03.03.03.	21. B _____	41. _____
	2. B _____		22. C _____	42. _____
	3. C _____		23. D _____	43. _____
37.03.01.02.	4. A _____		24. D _____	44. _____
	5. A _____		25. A _____	45. _____
37.03.02.01.	6. C _____	37.03.03.04.	26. B _____	46. _____
	7. A _____		27. C _____	47. _____
	8. A _____		28. A _____	48. _____
37.03.02.02.	9. B _____		29. D _____	49. _____
	10. A _____		30. B _____	50. _____
37.03.03.01.	11. D _____	37.03.03.05.	31. C _____	51. _____
	12. D _____		32. C _____	52. _____
	13. B _____		33. A _____	53. _____
	14. C _____		34. B _____	54. _____
	15. B _____		35. B _____	55. _____
37.03.03.02.	16. C _____	37.03.03.06.	36. A _____	56. _____
	17. B _____		37. C _____	57. _____
	18. A _____		38. C _____	58. _____
	19. B _____		39. C _____	59. _____
	20. A _____		40. A _____	60. _____

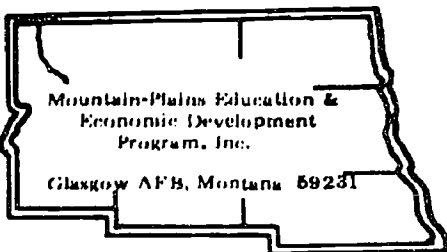
UNIT TEST ANSWER SHEET

Occupational Area: Automotive  
 File Code: 37.03  
 Name: \_\_\_\_\_  
 Family Pay Number: \_\_\_\_\_

Sex: M F (Circle 1)

ANSWERS

- |      |     |          |      |     |          |     |       |
|------|-----|----------|------|-----|----------|-----|-------|
| 0101 | 1.  | <u>B</u> | 0303 | 21. | <u>A</u> | 41. | _____ |
|      | 2.  | <u>B</u> |      | 22. | <u>B</u> | 42. | _____ |
|      | 3.  | <u>A</u> |      | 23. | <u>D</u> | 43. | _____ |
| 0102 | 4.  | <u>D</u> |      | 24. | <u>A</u> | 44. | _____ |
|      | 5.  | <u>D</u> |      | 25. | <u>D</u> | 45. | _____ |
| 0201 | 6.  | <u>B</u> | 0304 | 26. | <u>C</u> | 46. | _____ |
|      | 7.  | <u>A</u> |      | 27. | <u>C</u> | 47. | _____ |
|      | 8.  | <u>B</u> |      | 28. | <u>D</u> | 48. | _____ |
| 0202 | 9.  | <u>A</u> |      | 29. | <u>C</u> | 49. | _____ |
|      | 10. | <u>D</u> |      | 30. | <u>B</u> | 50. | _____ |
| 0301 | 11. | <u>D</u> | 0305 | 31. | <u>A</u> | 51. | _____ |
|      | 12. | <u>D</u> |      | 32. | <u>C</u> | 52. | _____ |
|      | 13. | <u>D</u> |      | 33. | <u>B</u> | 53. | _____ |
|      | 14. | <u>C</u> |      | 34. | <u>C</u> | 54. | _____ |
|      | 15. | <u>D</u> |      | 35. | <u>B</u> | 55. | _____ |
| 0302 | 16. | <u>B</u> | 0306 | 36. | <u>A</u> | 56. | _____ |
|      | 17. | <u>C</u> |      | 37. | <u>C</u> | 57. | _____ |
|      | 18. | <u>B</u> |      | 38. | <u>C</u> | 58. | _____ |
|      | 19. | <u>A</u> |      | 39. | <u>A</u> | 59. | _____ |
|      | 20. | <u>A</u> |      | 40. | <u>C</u> | 60. | _____ |



# Learning Experience Guide

UNIT: REFERENCE MANUALS

## RATIONALE:

The fundamentals and procedures in this unit will enable you to use reference manuals.

## PREREQUISITES:

None.

## OBJECTIVE:

Recognize the procedures for the correct usage of the reference manuals.

## RESOURCES:

Motor's Auto Repair Manual.

## GENERAL INSTRUCTIONS:

This Unit consists of two Learning Activity Packages (LAPs). Each LAP will provide specific information for completion of a learning activity.

The general procedure for this Unit is as follows:

- (1) Read the first assigned Learning Activity Package (LAP).
- (2) Begin and complete the first assigned LAP.
- (3) Complete all required LAPs for the Unit.
- (4) In this Unit, the LAP and Unit tests are combined. This combined test is taken after completing the last LAP in the Unit.
- (5) Take the Unit/LAP test as described in the Unit LEG "Evaluation Procedures".
- (6) Proceed to the next assigned unit.

## PERFORMANCE ACTIVITIES:

- .01 Fundamentals of Reference Manuals
- .02 Reference Manual Practice

Principal Author(s): C. Schramm/W. Osland

EVALUATION PROCEDURE:

When pretesting:

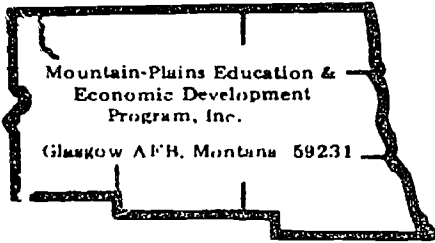
1. The student takes the unit multiple-choice pretest.
2. Successful completion is 4 out of 5 items for each LAP part of the pretest.
3. The student then takes a unit performance test if the unit pretest was successfully completed.
4. Satisfactory completion of the performance test is meeting the criteria listed on the performance test.

When post testing:

1. The student takes a multiple-choice unit post test and a unit performance test.
2. Successful unit completion is meeting the listed criteria for the performance test.

FOLLOW-THROUGH:

Go to the first assigned Learning Activity Package (LAP) listed on your Student Progress Record (SPR).



# Learning Activity Package

Student: \_\_\_\_\_

Date: \_\_\_\_\_

**PERFORMANCE ACTIVITY:** Fundamentals of Reference Manuals**OBJECTIVE:**

Recognize the correct procedure for using the reference manuals.

**EVALUATION PROCEDURE:**

Eight correct responses to a ten-item multiple choice objective test to be taken after LAP 37.03.01.02.

**RESOURCES:**

Motor's Auto Repair Manual.

**PROCEDURE:**

### Steps

1. Obtain a manual and secure a quiet place to study.
2. Open the manual to the manual's main index. Study the various listings given of makes, models, years and appropriate pages. Also study the unit section repair listings and appropriate pages.
3. Ask the instructor to assign a vehicle year and model and job.
4. Refer to the page given. On the given page, study the vehicle service index.
5. From the vehicle service index, find the particular job listing. Locate the indicated page.
6. On the given page, you will notice the procedure and pictorials given for that particular job. Read through the procedure and the helpful information given.
7. Return to the Vehicle Index page and locate the pages listed for locating the specification charts.
8. Record on separate paper the information from the manual that you would need to complete the assigned repair job on the assigned year and model.
9. Also be sure to notice what type of information is supplied by the use of footnote markings. Give the answer sheet to the instructor for evaluation.
10. Return the manual.
11. Proceed to the next LAP.

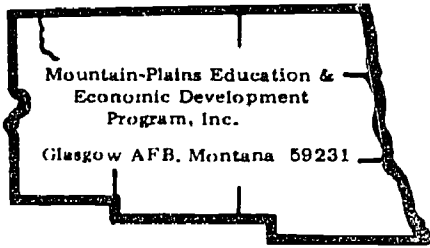
Principal Author(s): W. Osland



NOTE: The first main section of the manual is used for listing troubleshooting all areas of auto repair and diagnosis. This is helpful in determining a diagnostic procedure in analyzing difficult problems, noises, and particular situations.

Notice the condition of the manual you have. List what possibilities you think are the greatest causes of manual damage.

Notice on these given pages the various charts listing General Engine, Tune-Up, Valve, Distributor, Electrical, Alignment, and other necessary specification charts. Each chart is divided into sub-divisions of year, model and section of each categorized specification. The reference manual can be considered the "mechanics bible". The mechanic who uses it well can be assured of accomplishing all new and difficult repair problems. His manuals should be kept neat, handy and updated to be his advisor, technical aid, instructor and judge of each and every repair job.



# Learning Activity Package

Student: \_\_\_\_\_

Date: \_\_\_\_\_

PERFORMANCE ACTIVITY: Reference Manual Practice

## OBJECTIVE:

Use repair manuals.

## EVALUATION PROCEDURE:

100% accuracy on performance checklist.

Eight correct responses to a ten-item multiple-choice objective test.

## RESOURCES:

Motor's Auto Repair Manual.

## PROCEDURE:

1. **From the instructor, obtain a vehicle model assignment. Record vehicle identification at the top of the Reference Manual Worksheet.**
2. **Obtain the necessary information from the reference manuals, and neatly record the information in each blank on the Reference Manual Worksheet.**
3. When completed, give the work to the instructor for evaluation.
4. Return manuals to their proper places.
5. Take and score the Unit/LAP post test.

Principal Author(s):

J. Anderson/C. Schramm/W. Osland

## REFERENCE MANUAL WORKSHEET

Vehicle Identification:

Make \_\_\_\_\_ Model \_\_\_\_\_ Year \_\_\_\_\_ Instructor \_\_\_\_\_  
 Engine \_\_\_\_\_ Carburetor \_\_\_\_\_ Type of Transmission \_\_\_\_\_

Tune-up:

Firing Order \_\_\_\_\_ Ignition Timing \_\_\_\_\_ Name of Manual \_\_\_\_\_  
 Engine Hot Idle \_\_\_\_\_ Distributor Dwell \_\_\_\_\_ Year \_\_\_\_\_  
 Page Numbers \_\_\_\_\_

Engine Specifications:

Main Bearing Journal Diameter \_\_\_\_\_ Oil Clearance \_\_\_\_\_ End Play \_\_\_\_\_  
 Rod Bearing Journal Diameter \_\_\_\_\_ Oil Clearance \_\_\_\_\_ End Play \_\_\_\_\_  
 Exhaust Valve Face Angle \_\_\_\_\_ Stem Diameter \_\_\_\_\_ Stem Clearance \_\_\_\_\_  
 Intake Valve Face Angle \_\_\_\_\_ Stem Diameter \_\_\_\_\_ Stem Clearance \_\_\_\_\_  
 Name of Manual \_\_\_\_\_  
 Year \_\_\_\_\_  
 Pages \_\_\_\_\_

Torque Specifications:

Main Bearing Bolts \_\_\_\_\_ Flywheel Bolts \_\_\_\_\_  
 Head Bolts \_\_\_\_\_ Flywheel or Ring Gear Bolts \_\_\_\_\_  
 Rod Bearings \_\_\_\_\_ Intake Manifold Bolts \_\_\_\_\_  
 Name of Manual \_\_\_\_\_  
 Year \_\_\_\_\_  
 Pages \_\_\_\_\_

Rear Axles:

Backlash \_\_\_\_\_ Differential Bearing Cap Bolts Torque \_\_\_\_\_  
 Pinion Flange Nut Torque \_\_\_\_\_ Name of Manual \_\_\_\_\_  
 Axle Shaft End Play \_\_\_\_\_ Year \_\_\_\_\_  
 Pages \_\_\_\_\_

Wheel Alignment Specifications:

Toe-in \_\_\_\_\_ Camber \_\_\_\_\_ Riding Height \_\_\_\_\_  
 Caster \_\_\_\_\_ Tire Inflation \_\_\_\_\_ Name of Manual \_\_\_\_\_  
 Year \_\_\_\_\_  
 Pages \_\_\_\_\_

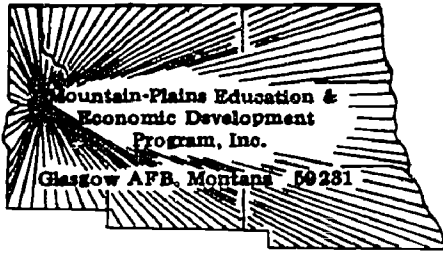
Repair Procedures:

Remove and Replace Lower Ball Joints, Pages \_\_\_\_\_  
 Remove and Replace Pan Gasket, Pages \_\_\_\_\_  
 Automatic Transmission Bands Adjustments, Pages \_\_\_\_\_  
 Universal Joint Replacement, Pages \_\_\_\_\_

Student: \_\_\_\_\_

File Code: \_\_\_\_\_

Date: \_\_\_\_\_

Date Published: 3/12/76

## UNIT/LAP PRETEST: REFERENCE MANUALS

37.03.01.01

1. The Contents of a reference manual gives what information?
  - a. Definition of terms.
  - b. Listings and page numbers.
  - c. Part numbers.
  - d. How to overhaul a part on a car.
  
2. Locating information in a manual should be done by:
  - a. glancing through the book.
  - b. using the Glossary.
  - c. using the Contents.
  - d. guessing.
  
3. What information does an Index give in a reference manual?
  - a. A general summary of what is in the book.
  - b. Definitions of words.
  - c. Location in the book.
  - d. Part numbers.
  
4. What is the difference between the Index and the Contents of a reference manual?
  - a. They have the same material but the Index is combined with the Glossary.
  - b. There is no difference.
  - c. The Contents has more of a breakdown on material.
  - d. They have the same material but the Index has a breakdown of the information.
  
- 5.

37.03.01.02

6. There are two labor listings in most labor manuals; one is for:
  - a. time.
  - b. cost of foreign car and cost of American car.
  - c. commission.
  - d. cost of car.
  
7. There are two labor listings in most labor manuals; one is for:
  - a. commission.
  - b. part numbers.
  - c. warranty time.
  - d. cost of car; foreign or domestic.
  
8. Where in the reference manual is the **Contents** generally found?
  - a. After the Index.
  - b. Rear of book.
  - c. Front of book.
  - d. After the Glossary.
  
9. Where in the reference manual is an Index usually found?
  - a. Before the Contents.
  - b. In the first section of the book.
  - c. Before the Glossary.
  - d. In the last section of the book.
  
10. If the author's name of the reference or parts manual is not found on the outside cover of the manual, it is generally found:
  - a. on the inside cover.
  - b. on the rear cover.
  - c. in the middle of the book.
  - d. no where.

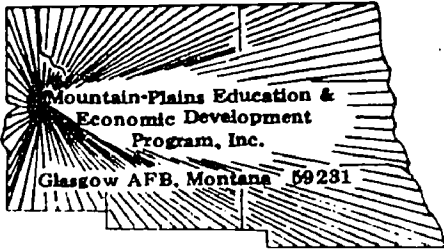
UNIT/LAP PRETEST ANSWER KEY: REFERENCE MANUALS

LAP 01

1. b
2. c
3. c
4. d
5. c

LAP 02

6. a
7. c
8. c
9. d
10. a



## UNIT/LAP POST TEST: REFERENCE MANUALS (A)

37.03.01.01

1. Locating information in a manual should be done by use of the:
  - a. glancing through a book.
  - b. Glossary.
  - c. table of contents.
  - d. guessing.
2. The Contents of a reference manual gives what information?
  - a. Definition of terms.
  - b. Listings and page numbers.
  - c. Parts numbers.
  - d. How to overhaul a part on a car.
- 3.
4. What information does an Index give in a reference manual?
  - a. . general summary of what is in the book.
  - b. Definitions of words.
  - c. Location in the book.
  - d. Part number.
5. What is the difference between the Index and the Contents of a reference manual?
  - a. They have the same material but the Index is combined with the Glossary.
  - b. There is no difference.
  - c. The Contents has more of a breakdown on material.
  - d. They have the same material but the Index has a breakdown of the information.

37.03.01.02

6. There are two labor listings in most labor manuals , one is for:
  - a. time.
  - b. cost of foreign car and cost of American car.
  - c. commission.
  - d. cost of car.
  
7. There are two labor listings in most labor manuals , one is for:
  - a. commission.
  - b. part numbers.
  - c. warranty time.
  - d. cost of car, foreign or domestic.
  
8. Where in the reference manual is the Contents generally found?
  - a. After the Index.
  - b. Rear of book.
  - c. Front of book.
  - d. After the Glossary.
  
9. If the author's name of the reference or parts manual is not found on the outside cover of the manual, it is generally found:
  - a. on the inside cover.
  - b. on the rear cover.
  - c. in the middle of the book.
  - d. nowhere.
  
10. Where in the reference manual is an Index usually found?
  - a. Before the Contents.
  - b. The first section of a book.
  - c. Before the Glossary.
  - d. The last section of a book.



UNIT/LAP POST TEST ANSWER KEY: REFERENCE MANUALS(A)

LAP 01

1. c
2. b
  
4. c
5. d

LAP 02

6. a
7. c
8. ~~a~~
9. a
10. ~~a~~ B

Subject: \_\_\_\_\_

Date: \_\_\_\_\_

Date Published: 6-1-77



UNIT/LAP POST TEST: REFERENCE MANUALS (B)

37.03.01.01

1. What is the difference between the Index and the Contents of a reference manual?
  - a. they have the same material but the Index is combined with the Glossary.
  - b. there is no difference.
  - c. the Contents has more of a breakdown on material.
  - d. they have the same material but the Index has a breakdown of the information.
2. What information does an Index give in a reference manual?
  - a. a general summary of what is in the book.
  - b. definitions of words.
  - c. location in the book.
  - d. part number.
3. The Contents of a reference manual gives what information?
  - a. definition of terms.
  - b. listings and page numbers.
  - c. parts numbers.
  - d. how to overhaul a part on a car.
4. Locating information in a manual should be done by the use of the:
  - a. glancing through a book.
  - b. Glossary.
  - c. table of contents
  - d. guessing.

37.03.01.02

5. Where in the reference manual is an index usually found?
  - a. before the Contents.
  - b. the first section of a book.
  - c. before the glossary.
  - d. the last section of a book.
6. If the author's name of the reference or parts manual is not found on the outside cover of the manual, it is generally found:
  - a. on the inside cover.
  - b. on the rear cover.
  - c. in the middle of the book.
  - d. nowhere.

37.03.01.02 (continued)

7.

8. There are two labor listings in most labor manuals, one is for:

- a. commission.
- b. part numbers.
- c. warranty time.
- d. cost of car, foreign or domestic.

9. There are two labor listings in most labor manuals, one is for:

- a. time.
- b. cost of foreign car and cost of American car.
- c. commission.
- d. cost of the car.

UNIT/LAP POST TEST ANSWER KEY: REFERENCE MANUALS (B)

LAP 01

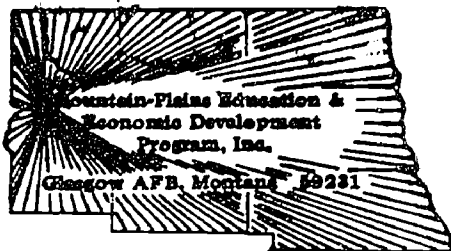
1. D
2. C
3. B
4. C

LAP 02

5. ~~C~~ B
6. A
7. ~~A~~
8. C
9. A

Date: \_\_\_\_\_

Date Published: 6-2-77



UNIT/LAP POST TEST: REFERENCE MANUALS (C)

37.03.01.01

1. The Contents of a reference manual gives what information?
  - a. Definition of terms.
  - b. Listings and page numbers.
  - c. Parts numbers.
  - d. How to overhaul a part on a car.
2. What is the difference between the Index and the Contents of a reference manual?
  - a. They have the same material but the Index is combined with the Glossary.
  - b. There is no difference.
  - c. The Contents has more of a breakdown on material.
  - d. They have the same material but the Index has a breakdown of the information.
3. Locating information in a manual should be done by use of the:
  - a. glancing through a book.
  - b. Glossary.
  - c. table of contents.
  - d. guessing.
4. What information does an Index give in a reference manual?
  - a. A general summary of what is in the book.
  - b. Definitions of words.
  - c. Location in the book.
  - d. Part number.

37.03.01.02

5. If the author's name of the reference or parts manual is not found on the outside cover of the manual, it is generally found:
  - a. on the inside cover.
  - b. on the rear cover.
  - c. in the middle of the book.
  - d. nowhere.
6. There are two labor listings in most labor manuals, one is for:
  - a. commission.
  - b. part numbers.
  - c. warranty time.
  - d. cost of car, foreign or domestic.

37.03.01.02 (continued)

7. Where in the reference manual is an Index usually found?
  - a. Before the Contents.
  - b. The first section of a book.
  - c. Before the Glossary.
  - d. The last section of a book.
  
8. There are two labor listings in most labor manuals, one is for:
  - a. time.
  - b. cost of foreign car and cost of American car.
  - c. commission.
  - d. cost of car.
  
- 9.

37.03.01.00 C1-2  
37.03.01.01 C1-2  
37.03.01.02 C1-2 (C)

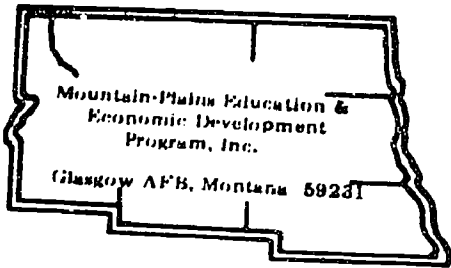
UNIT/LAP POST TEST ANSWER KEY: REFERENCE MANUALS (C)

LAP 01

1. B
2. D
3. C
4. C

LAP 02

5. A
6. C
7. ~~B~~
8. A
9.



# Learning Experience Guide

UNIT: PARTS MANUAL

## RATIONALE:

The fundamentals and procedures in this unit will enable you to use parts manuals.

## PREREQUISITES:

None.

## OBJECTIVE:

Identify the proper procedures for using parts manuals.

## RESOURCES:

Time and parts manual.

## GENERAL INSTRUCTIONS:

This unit consists of two Learning Activity Packages (LAPs). Each LAP will provide specific information for completion of a learning activity.

The general procedure for this unit is as follows:

- (1) Read the first assigned Learning Activity Package (LAP).
- (2) Begin and complete the first assigned LAP.
- (3) Complete all required LAPs for the Unit.
- (4) In this Unit, the LAP and Unit tests are combined. This combined test is taken after completing the last LAP in the Unit.
- (5) Take the Unit/LAP test as described in the Unit LEG "Evaluation Procedures".
- (6) Proceed to the next assigned unit.

## PERFORMANCE ACTIVITIES:

- .01 Fundamentals of Parts Manuals
- .02 Parts Manuals Practice

Principal Author(s): C. Schramm/W. Osland



EVALUATION PROCEDURE:

When pretesting:

1. The student takes the unit multiple-choice pretest.
2. Successful completion is 4 out of 5 items for each LAP part of the pretest.
3. The student then takes a unit performance test if the unit pretest was successfully completed.
4. Satisfactory completion of the performance test is meeting the criteria listed on the performance test.

When post testing:

1. The student takes a multiple-choice unit post test and a unit performance test.
2. Successful unit completion is meeting the listed criteria for the performance test.

Score at least 80% correct on the unit post test and score with 100% accuracy on the performance test.

FOLLOW-THROUGH:

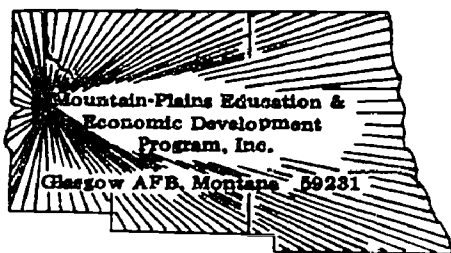
Go to the first assigned Learning Activity Package (LAP) listed on your Student Progress Record (SPR).

Student: \_\_\_\_\_

File Code: \_\_\_\_\_

Date: \_\_\_\_\_

Date Published: 3/4/76



UNIT/LAP PRETEST: PARTS MANUALS

37.03.02.01

1. If you do not know how to use a parts and labor manual, how can you find out the easiest way?
  - a. Open the book to the instruction page.
  - b. Ask your instructor.
  - c. Ask a student.
  - d. Obtain an instruction book of all other books and read this.
  
2. A mechanical skill rating is to determine:
  - a. the exact time needed for a poor or skilled mechanic to do a job.
  - b. how well the job is done.
  - c. the skill of a mechanic that is required to do the job.
  - d. if anyone can do the repair job in the same length of time as a skilled mechanic.
  
3. Labor time is given in the following way in a parts and labor manual.
  - a. 1.5
  - b. 1050
  - c.  $1\frac{1}{2}$
  - d. 1
  
4. In a labor and parts manual, you will have two time listings; one is shop time and the other is:
  - a. warranty time.
  - b. parts time.
  - c. tune-up time.
  - d. customer's time.
  
5. The contents page of a labor and parts manual gives what information?
  - a. Vehicles, models, and page numbers.
  - b. Repair section and page numbers.
  - c. Definition of terms.
  - d. Cost of repair and parts.

37.03.02.02

6. When given a car and model to work on, you would find the page or pages it is on in a parts and labor manual. How many pages would you generally find?
  - a. 2
  - b. 1
  - c. 3
  - d. 4
  
7. The parts prices which are listed in a parts and labor manual are:
  - a. suggested retail prices.
  - b. wholesale prices.
  - c. warehouse prices.
  - d. used only on people who don't know any better.
  
8. If there is a black star ( \* ) following a part number , it would mean:
  - a. that the part is interchangeable with another model.
  - b. that the part is out of date and not made anymore.
  - c. that the part is not interchangeable.
  - d. that you will need two mechanics to repair part.
  
9. If you find a number of signs which you do not understand (such as • , 77 , # , § ) you can find the definitions by looking:
  - a. on the interchangeable parts page in the manual.
  - b. on the contexts page in the manual.
  - c. on the glossary page in the manual.
  - d. in the dictionary.
  
10. When buying parts, service station mechanics are:
  - a. usually charged wholesale prices.
  - b. usually charged the full retail price.
  - c. usually given a rebate by the parts store.
  - d. usually charged a special rate that they negotiate with the parts store owner.

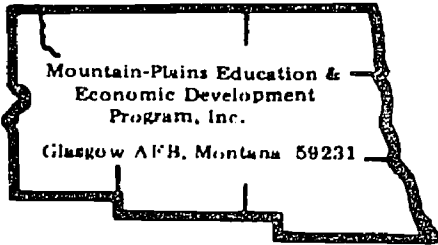
UNIT/LAP PRETEST ANSWER KEY: PARTS MANUALS

LAP 01

1. a
2. c
3. a
4. a
5. a

LAP 02

6. b
7. a
8. b
9. a
10. d



# Learning Activity Package

Student: \_\_\_\_\_

Date: \_\_\_\_\_

PERFORMANCE ACTIVITY: Fundamentals of Parts Manual

## OBJECTIVE:

Use the correct procedure for using a time and parts manual.

## EVALUATION PROCEDURE:

Eight correct responses to a ten-item multiple choice objective test to be taken after LAP 37.03.02.02; 80% correct on LAP study questions.

## RESOURCES:

Time and Parts Manual

## PROCEDURE:

### Steps

1. Obtain the latest time and parts manual available and secure a quiet place to study.
2. Open the cover to the manual's instruction page. Study the procedure on using the labor section. NOTE: The mechanical skill rating of each job helps determine exact time needed for a poor or skilled mechanic.
3. Notice the labor time is given with two digits and a decimal, (example 1.1). The labor charge amount is given using the manual's suggested hourly charge for labor repair. If your hourly rate is different, use the rated time and refer to the Labor Price Conversion Chart.
4. Locate and study manual Contents page. Notice all vehicles and models are listed with their appropriate page number.
5. Choose a vehicle and turn to its appropriate page. Study the complete index for this vehicle and the repair jobs that are done. Notice the two columns of pages given. One is for the labor and the other is for the parts.

Principal Author(s): J. Anderson  
C. Schramm  
W. Osland

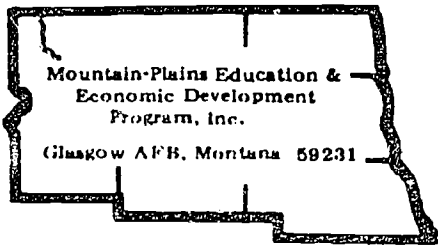
PROCEDURE (continued)

6. Choose a job and locate the labor page. Notice on that particular page under the Labor section the existing Labor Operation Index.
7. Study the Labor Operation Index. Notice the capital letter behind each job. NOTE: This is the skill rating required by the mechanic to effectively complete this repair.
8. Choose a repair job and operation number. Locate the repair job and operation number. Study the list and notice the years, models, and notations under each repair job. Notice the listing of two times: the first one is the factory recommended time and the other is average recommended repair time. The dollar amount is also listed using the manual's suggested hourly rate.
9. Refer back to the Vehicle Index and choose a particular part for a working example.
10. Refer to the page given and study the Parts Index.
11. The Parts Index gives the section number to follow through.
12. Under the parts section listing, notice the part number given and the price. Also notice the exception, conditions, and notes of each part listed. NOTE: The manual will enable you to estimate the total cost of a repair job when requested by a customer. Also in determining the fair charge for work completed, it is best to refer to the time and parts manual for the recommended prices.

This manual is of special interest to the mechanic who is working on the flat rate commission pay because it is to his advantage to complete the job faster than the recommended flat rate time.

In some cases, it can be used to allow only the recommended repair time be charged to the customer instead of an hourly timed repair job.

13. Ask the instructor for an assignment of a repair job and a part installation.
14. Find the total time and total price from the manual and record on a separate sheet of paper.
15. Ask the instructor to evaluate your answer sheet.
16. Return manual.
17. Proceed to the next LAP.



# Learning Activity Package

Student: \_\_\_\_\_

Date: \_\_\_\_\_

**PERFORMANCE ACTIVITY:** Parts Manuals Practice**OBJECTIVE:**

Use the correct procedure to accurately complete the parts manual worksheet.

**EVALUATION PROCEDURE:**

Complete parts worksheet with 100% accuracy; eight correct responses to a ten-item multiple choice objective test.

**RESOURCES:**

- Proper Parts Manual for appropriate vehicle.
- Parts Worksheet (Attached)

**PROCEDURE:****Steps**

1. Obtain a vehicle assignment from the instructor.
2. Record assigned vehicle at the top of the worksheet.
3. Obtain the appropriate Parts Manual from the tool room.
4. Using the correct procedure, obtain and accurately record all required information on the worksheet.
5. Upon completion, return the Parts Manual to the proper place.
6. Give the complete worksheet to the instructor for evaluation.
7. Take and score the Unit/LAP post test.

**Principal Author(s):** J. Anderson/W. Osland

## PARTS WORKSHEET

## I. Vehicle Identification:

Make \_\_\_\_\_ Model \_\_\_\_\_ Engine \_\_\_\_\_ Year \_\_\_\_\_  
 Transmission Type \_\_\_\_\_ Carburetor \_\_\_\_\_ Instructor \_\_\_\_\_

## Parts Cost: (for above vehicle)

			<u>Part Number</u>	<u>Page Number</u>
II.	1 Camshaft	\$ _____	_____	_____
	1 Timing Chain	\$ _____	_____	_____
	1 Connecting Rod	\$ _____	_____	_____
	1 <u>Set of Rod Bearings</u>	\$ _____	_____	_____
			<u>Part Number</u>	<u>Page Number</u>
III.	1 Right Rear Wheel Bearing	\$ _____	_____	_____
	1 Right Rear Brake Drum	\$ _____	_____	_____
	1 Pinion and Ring Gear Set	\$ _____	_____	_____
	1 Universal Joint (Rear)	\$ _____	_____	_____
			<u>Part Number</u>	<u>Page Number</u>
IV.	1 <del>Rebuilt Carburetor</del>	\$ _____	_____	_____
	1 Carburetor Rebuild Kit	\$ _____	_____	_____
	1 Set of Ignition Points	\$ _____	_____	_____
	1 Set of New Spark Plugs	\$ _____	_____	_____
			<u>Part Number</u>	<u>Page Number</u>
V.	1 Oil Filter	\$ _____	_____	_____
	1 Lower Ball Joint	\$ _____	_____	_____



UNIT/LAP POST TEST ANSWER KEY: PARTS MANUALS (A)

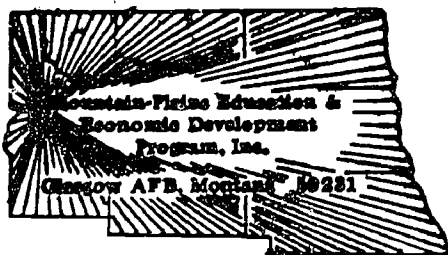
LAP 01

1. a
2. c
3. a
4. a
5. a

LAP 02

6. b
7. a
- ~~8. b~~
9. a
10. d

Date: \_\_\_\_\_



## UNIT/LAP POST TEST: PARTS MANUALS (B)

37.03.02.01

1. The contents page of a labor and parts manual gives what information?
  - a. Vehicles, models, and page numbers.
  - b. Repair section and page numbers.
  - c. Definition of terms.
  - d. Cost of repair and parts.
  
2. In a labor and parts manual, you will have two time listings; one is shop time and the other is:
  - a. warranty time.
  - b. parts time.
  - c. tune-up time.
  - d. customer's time.
  
3. Labor time is given in the following way in a parts and labor manual.
  - a. 1.5
  - b. 1050
  - c. 1½
  - d. 1
  
4. A mechanical skill rating is to determine:
  - a. the exact time needed for a poor or skilled mechanic to do a job.
  - b. how well the job is done.
  - c. the skill of a mechanic that is required to do the job.
  - d. if anyone can do the repair job in the same length of time as a skilled mechanic.
  
5. If you do not know how to use a parts and labor manual, how can you find out the easiest way?
  - a. Open the book to the instruction page.
  - b. Ask your instructor.
  - c. Ask a student.
  - d. Obtain an instruction book of all other books and read this.

37.03.02.02

6. When buying parts, service station mechanics are:
  - a. usually charged wholesale prices.
  - b. usually charged the full retail price.
  - c. usually given a rebate by the parts store.
  - d. usually charged a special rate that they negotiate with the parts store owner.

37.03.02.02 (continued)

7. If you find a number of signs which you do not understand (such as •, 7, F, f) you can find the definitions by looking:
- a. on the interchangeable parts page in the manual.
  - b. on the contexts page in the manual.
  - c. on the glossary page in the manual.
  - d. in the dictionary.
8. The parts prices which are listed in a parts and labor manual are:
- a. suggested retail prices.
  - b. wholesale prices.
  - c. warehouse prices.
  - d. used only on people who don't know any better.
9. When given a car and model to work on, you would find the page or pages it is on in a parts and labor manual. How many pages would you generally find?
- a. 2
  - b. 1
  - c. 3
  - d. 4

37.03.02.00 C1-2  
37.03.02.01 C1-2  
37.03.02.02 C1-2 (B)

UNIT/LAP POST TEST ANSWER KEY: PARTS MANUALS (B)

LAP 01

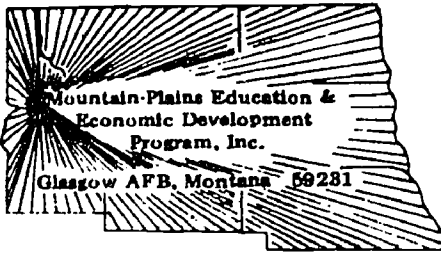
1. A
2. A
3. A
4. C
5. A

LAP 02

6. D
7. A
8. A
9. B

37.03.02.02

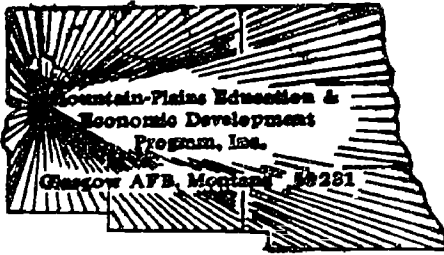
6. When given a car and model to work on, you would find the page or pages it is on in a parts and labor manual. How many pages would you generally find?
- 2
  - 1
  - 3
  - 4
7. The parts prices which are listed in a parts and labor manual are:
- suggested retail prices.
  - wholesale prices.
  - warehouse prices.
  - used only on people who don't know any better.
- 8.
9. If you find a number of signs which you do not understand (such as •, π, ≠, §) you can find the definitions by looking:
- on the interchangeable parts page in the manual.
  - on the contexts page in the manual.
  - on the glossary page in the manual.
  - in the dictionary.
10. When buying parts, service station mechanics are:
- usually charged wholesale prices.
  - usually charged the full retail price.
  - usually given a rebate by the parts store.
  - usually charged a special rate that they negotiate with the parts store owner.



## UNIT/LAP POST TEST: PARTS MANUALS *A*

### 37.03.02.01

1. If you do not know how to use a parts and labor manual, how can you find out the easiest way?
  - a. Open the book to the instruction page.
  - b. Ask your instructor.
  - c. Ask a student.
  - d. Obtain an instruction book of all other books and read this.
  
2. A mechanical skill rating is to determine:
  - a. the exact time needed for a poor or skilled mechanic to do a job.
  - b. how well the job is done.
  - c. the skill of a mechanic that is required to do the job.
  - d. if anyone can do the repair job in the same length of time as a skilled mechanic.
  
3. Labor time is given in the following way in a parts and labor manual.
  - a. 1.5
  - b. 1050
  - c. 1½
  - d. 1
  
4. In a labor and parts manual, you will have two time listings; one is shop time and the other is:
  - a. warranty time.
  - b. parts time.
  - c. tune-up time.
  - d. customer's time.
  
5. The contents page of a labor and parts manual gives what information?
  - a. Vehicles, models, and page numbers.
  - b. Repair section and page numbers.
  - c. Definition of terms.
  - d. Cost of repair and parts.



## UNIT/LAP POST TEST: PARTS MANUALS (C)

37.03.02.01

1. In a labor and parts manual, you will have two time listings; one is shop time and the other is:
  - a. warranty time.
  - b. parts time.
  - c. tune-up time.
  - d. customer's time.
  
2. The contents page of a labor and parts manual gives what information?
  - a. Vehicles, models, and page numbers.
  - b. Repair section and page numbers.
  - c. Definition of terms.
  - d. Cost of repair and parts.
  
3. If you do not know how to use a parts and labor manual, how can you find out the easiest way?
  - a. Open the book to the instruction page.
  - b. Ask your instructor.
  - c. Ask a student.
  - d. Obtain an instruction book of all other books and read this.
  
4. Labor time is given in the following way in a parts and labor manual.
  - a. 1.5
  - b. 1050
  - c. 1½
  - d. 1
  
5. A mechanical skill rating is to determine:
  - a. the exact time needed for a poor or skilled mechanic to do a job.
  - b. how well the job is done.
  - c. the skill of a mechanic that is required to do the job.
  - d. if anyone can do the repair job in the same length of time as a skilled mechanic.

37.03.02.02

6. The parts prices which are listed in a parts and labor manual are:
  - a. suggested retail prices.
  - b. wholesale prices.
  - c. warehouse prices.
  - d. used only on people who don't know any better.

7. When buying parts, service station mechanics are:
- a. usually charged wholesale prices.
  - b. usually charged the full retail price.
  - c. usually given a rebate by the parts store.
  - d. usually charged a special rate that they negotiate with the parts store owner.
8. If you find a number of signs which you do not understand such as ( • , n , f , § ), you can find the definitions by looking:
- a. on the interchangeable parts page in the manual.
  - b. on the contexts page in the manual.
  - c. on the glossary page in the manual.
  - d. in the dictionary.
9. When given a car and model to work on, you would find the page or pages it is on in a parts and labor manual. How many pages would you generally find?
- a. 2
  - b. 1
  - c. 3
  - d. 4



37.03.02.00 C1-2  
37.03.02.01 C1-2  
37.03.02.02 C1-2 (C)

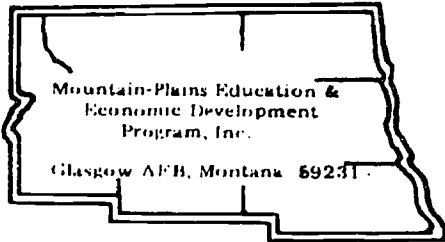
UNIT/LAP POST TEST ANSWER KEY: PARTS MANUALS (C)

LAP 01

1. A
2. A
3. A
4. A
5. C

LAP 02

6. A
7. D
8. A
9. B



# Learning Experience Guide

UNIT: CLEANING PARTS AND WORK AREA

## RATIONALE:

The fundamentals and procedures in this unit will familiarize you with the parts and procedures used in all automotive shops.

## PREREQUISITES:

None.

## OBJECTIVE:

Identify the components and uses of gaskets, sealants, seals, tubing, hose, wire, wiring, and work orders.

Recognize the correct procedure for parts washing and stall cleaning.

## RESOURCES:

### Printed Material

Auto Service and Repair. Martin W. Stockel, Goodheart-Willcox Company, Inc.

### Equipment

Broom  
Brush, solvent  
Carbon scraper  
Cleaning tank  
Compressed air  
Dust pan  
Gasket scraper  
Parts to be cleaned  
Rags  
Wire brush

Principal Author(s): C. Schramm/W. Osland

GENERAL INSTRUCTIONS:

This unit consists of six Learning Activity Packages (LAPs). Each LAP will provide specific information for completion of a learning activity.

The general procedure for this unit is as follows:

- (1) Read the first assigned Learning Activity Package (LAP).
- (2) Begin and complete the first assigned LAP.
- (3) Take and score the LAP test.
- (4) Turn in the LAP test answer sheet.
- (5) Determine the reason for any missed items on the LAP test.
- (6) Proceed to and complete the next assigned LAP in the unit.
- (7) Complete all required LAPs for the unit by following steps 3 through 6.
- (8) Take the unit tests as described in the Unit LEG "Evaluation Procedures".
- (9) Proceed to the next assigned unit.

PERFORMANCE ACTIVITIES:

- .01 Washing Parts
- .02 Cleaning Stall
- .03 Fundamentals of Gaskets, Sealants, and Seals
- .04 Fundamentals of Tubing and Hose
- .05 Fundamentals of Wire and Wiring
- .06 Fundamentals of Work Orders

EVALUATION PROCEDURE:

When pretesting:

1. The student takes the unit multiple-choice pretest.
2. Successful completion is 4 out of 5 items for each LAP part of the pretest.
3. The student then takes a unit performance test if the unit pretest was successfully completed.
4. Satisfactory completion of the performance test is meeting the criteria listed on the performance test.

When post testing:

1. The student takes a multiple-choice unit post test and a unit performance test.
2. Successful unit completion is meeting the listed criteria for the performance test.

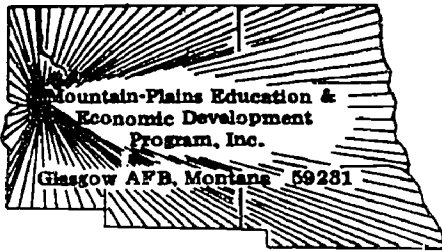
FOLLOW-THROUGH:

Go to the first assigned Learning Activity Package (LAP) listed on your Student Progress Record (SPR).

37.12.03.06 (continued)

30. Why is the mileage put on the work order?

- a. For customer's convenience.
- b. To determine when a car was brought in.
- c. To let the manufacturer know how long the car part lasted.
- d. To let the seller of the car know if the warranty is still good.



## UNIT PRETEST: CLEANING PARTS AND WORK AREA

37.03.03.01

1. Following rinsing, you let parts drain and dry them by:
  - a. applying a small amount of heat to them.
  - b. letting the moisture evaporate.
  - c. wiping the parts with a clean rag.
  - d. compressed air.
2. The correct procedure for starting a steam cleaner is to first turn on:
  - a. the heating coils.
  - b. the water source.
  - c. the water pump.
  - d. the valve to mix the solvent with water.
3. In a high pressure spray cleaner the pressure at the nozzle runs up to:
  - a. 500 psi.
  - b. 100 psi.
  - c. 300 psi.
  - d. 800 psi.
4. When cleaning solutions are in a container or a cleaner, what prevents the solution from evaporating?
  - a. A special sealing solution which floats on top.
  - b. An air pocket is formed when solution is sitting open.
  - c. Put a cover over the solution.
  - d. Put in a closed room to prevent evaporation.
5. A sand blasting gun will use what kind of material for cleaning?
  - a. regular sand
  - b. aluminum oxide
  - c. small, light gravel
  - d. metal flakes

37.03.03.02

6. To wash a stall floor, you put water down first, then the cleaning soap, and:
  - a. scrub with a broom or brush.
  - b. squeegee.
  - c. wipe with a mop.
  - d. use a steam cleaner.
  
7. After rinsing a floor, you remove the excess water with:
  - a. a squeegee.
  - b. a broom.
  - c. an air hose.
  - d. a mop.
  
8. Why is it important to clean up spilled anti-freeze right away?
  - a. It doesn't evaporate.
  - b. It will eat away cement.
  - c. It is a very dangerous fire hazard.
  - d. It will produce a toxic gas if let set in the open.
  
9. What is usually put on an oil spill on a garage floor?
  - a. floor-dry solution
  - b. sawdust
  - c. used rags
  - d. soap and water
  
10. If gasoline spills in a closed garage, you:
  - a. clean it up.
  - b. let it evaporate by itself.
  - c. pour water into it so as to dilute it.
  - d. sweep it into a can because it can still be used in a car.

37.03.03.03

11. Since gaskets come in sets, what kind of a set would a mechanic ask for when he is overhauling a carburetor?
  - a. An overhaul set.
  - b. A manifold gasket set.
  - c. A carburetor gasket set.
  - d. A head set.

37.03.03.03 (continued)

12. For proper sealing of two surfaces you must do what?
- Use an over thick gasket.
  - Use a generous quantity of sealant.
  - Be sure the surfaces are clean.
  - Use two gaskets that are alike.
13. If you placed a pan gasket over heat to expand it, what would be the maximum temperature you could place on it?
- 200 degrees F
  - 50 degrees F
  - 250 degrees F
  - 110 degrees F
14. When you chamfer a bolt hole on the block, it will help prevent:
- the gasket from slipping.
  - the top thread from being pulled up above the block.
  - the gasket from sealing.
  - the engine from overheating.
15. Sealants are good for sealing most places except for the:
- gasoline system.
  - oil pass.
  - water system.
  - manifold.




37.03.03.04

16. How many different types of tube connections are there?
- 5
  - 2
  - 4
  - 3
17. Name one type of a tube fitting.
- compression
  - flange
  - ream
  - burr

37.03.03.04 cont.

18. To make satisfactory connections, tubing must be cut:
- squarely.
  - diagonally.
  - slanted.
  - horizontally to the pipe.
19. As opposed to the standard nut, of a flare connection, the long nut provides better resistance to:
- flaring.
  - corrosion.
  - cross threading.
  - vibration.
20. When you are making long tubing runs, you should be certain to do what with the tubing?
- Support it.
  - Bend it.
  - Let it be free of old connections and supports.
  - Support it every three (3) inches.



37.03.03.05

- \* 21. What does this symbol stand for  ?
- fuse
  - circuit breaker
  - terminal
  - spark gap
- \* 22. What does this symbol stand for  ?
- splice
  - terminal
  - fuse
  - ohm
- \* 23. What does this symbol stand for  ?
- resistor
  - rheostat
  - splice
  - relay

\* (Adapted from Auto Service and Repair,  
 Stockel, Goodheart-Wilcox, 1975, p. 6-  
 56 13, #30.)



37.03.03.05 (continued)

- \* 24. What does this symbol stand for  ?
- condensor
  - switch
  - relay
  - transistor
- \* 25. What does this symbol stand for  ?
- terminal
  - resistor
  - ground
  - splice

37.03.03.06

26. One of the things that make up a work order is:
- when the car was last tuned-up.
  - at what altitude the customer drives.
  - what kind of gas the customer uses.
  - the type of engine.
- 27.
28. After the work is done and the work order is completed, what do you do with it?
- Throw it away; it is of no further use.
  - Give it to the customer.
  - Keep it for your records to see how much work you have done.
  - Have the instructor evaluate it.
29. When you split the copies of the work order, where does the white copy go?
- To the shop who sold the car.
  - In the wastepaper basket; only one copy is needed.
  - To the manufacturer of the car.
  - In the permanent shop files.

\* (Adapted from Auto Service and Repair, Stockel, Goodheart-Wilcox, 1975, p. 6-13, #30.)

## UNIT PRETEST ANSWER KEY: CLEANING PARTS AND WORK AREA

LAP 01

1. d
2. b
3. a
4. a
5. b

LAP 02

6. a
7. a
8. a
9. a
10. a

LAP 03

11. c
12. c
13. a
14. b
15. d

LAP 04

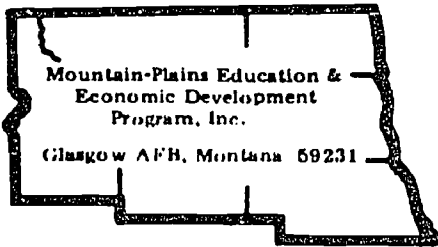
16. d
17. a
18. a
19. d
20. a

LAP 05

21. b
22. b
23. a
24. d
25. c

LAP 06

26. d
27. b
28. d
29. d
30. b



# Learning Activity Package

Student: \_\_\_\_\_

Date: \_\_\_\_\_

**PERFORMANCE ACTIVITY:** Washing Parts**OBJECTIVE:**

Identify the correct procedure for washing and cleaning parts.

**EVALUATION PROCEDURE:**

Eight correct responses to a ten-item multiple choice objective test. 100% accuracy on LAP worksheet.

**RESOURCES:**

Compressed air  
Part, needing cleaning  
Scraper tool  
Shops Standard Checklist (attached)  
Solvent brush  
Solvent and container  
Trash can

**PROCEDURE:****Steps**

1. Clean all excessive dirt and grease from the part with a scraper tool. Deposit dirt and grease in a trash receptacle.
2. Immerse the part in a cleaning solvent and use the brush to remove the remaining grease.
3. Shake the part to remove excess solvent.
4. Using the blow nozzle, carefully blow the remaining solvent from the part. Position part so that the solvent will flow back into the container and not on the floor. If solvent is on the floor, wipe up with a rag.
5. Inspect the part to be sure that it is completely clean.
6. Ask the instructor to evaluate your work using the attached checklist.
7. Return all equipment and parts to their proper places.
8. Take and score the LAP test.

**Principal Author(s):** J. Anderson  
C. Schramm  
W. Osland

## SHOP STANDARDS CHECKLIST

1. All spilled oil wiped up with a rag, and then with solvent.
2. All dirt swept from stall.
3. Trash and rag cans emptied.
4. All tools and equipment cleaned and put away.
5. All dirt cleaned from parts with wire brush and scraper.
6. All grease and oil cleaned from parts with solvent and brush.
7. All solvent cleaned from parts with compressed air.

Satisfactory

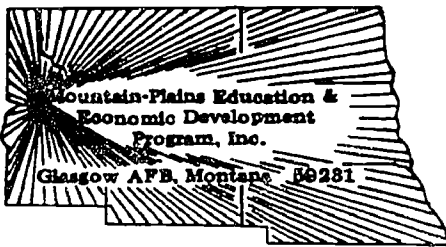
Unsatisfactory

Instructor's Evaluation

\_\_\_\_\_

\_\_\_\_\_

Instructor's Initials \_\_\_\_\_



## LAP TEST: WASHING PARTS

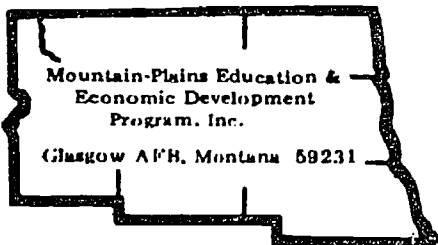
1. The wire wheel or the rotary wire brush can be used to clean:
  - a. piston ring grooves.
  - b. carburetor flanges.
  - c. wheel bearing races.
  - d. carbon from valves.
  
2. When they say a cleaner is caustic, it means it will:
  - a. not clean bearings of any kind.
  - b. have a poisonous gas.
  - c. clean better than any other cleaner.
  - d. burn the skin.
  
3. Before parts are placed in the solvent tank, they should be thoroughly:
  - a. measured.
  - b. scraped.
  - c. checked.
  - d. steam cleaned.
  
4. Most two compartment cold solution parts washers have one compartment for a soaking compartment and the other for what kind of compartment?
  - a. Steaming solvent.
  - b. Agitation of air.
  - c. Boiling solvent.
  - d. Burning the exhaust fumes.
  
5. When submerging a part with an air-tight compartment, you should always place the hollow:
  - a. sideways.
  - b. down.
  - c. up.
  - d. it doesn't matter.

6. Following rinsing, you let parts drain and dry them by:
  - a. applying a small amount of heat to them.
  - b. letting the moisture evaporate.
  - c. wiping the parts with a clean rag.
  - d. compressed air.
  
7. The temperature of a hot tank usually runs between:
  - a. 90 degrees and 110 degrees F.
  - b. 180 degrees and 210 degrees F.
  - c. 110 degrees and 180 degrees F.
  - d. 212 degrees and 225 degrees F.
  
- 8.
  
  
  
  
  
  
  
  
  
  
9. When shutting down a steam cleaner, what do you do first?
  - a. Shut off the water source.
  - b. Shut off the solution control valve.
  - c. Shut off the water pump.
  - d. Shut off the burner.

10.

LAP TEST ANSWER KEY: WASHING PARTS

1. d
2. d
3. b
4. b
5. c
6. d
7. b
  
9. b



# Learning Activity Package

Student: \_\_\_\_\_

Date: \_\_\_\_\_

**PERFORMANCE ACTIVITY:** Cleaning a Stall**OBJECTIVE:**

Recognize the correct procedure to properly clean a stall.

**EVALUATION PROCEDURE:**

100% accuracy on LAP worksheet and eight correct responses to a ten-item multiple choice objective test.

**RESOURCES:**

Cleaning Equipment  
Shop Standards Checklist (attached)  
Stall (needing cleaning)

**PROCEDURE:****Steps**

1. Clean the bench area of the stall.
2. Place equipment and parts on a bench in an orderly fashion.
3. Sweep the stall area. Deposit dirt in a trash receptacle.
4. Wipe up oil spills, grease and fluids with a rag.
5. Wet the stall floor with water. Apply floor cleaning soap and scrub with a floor broom or brush.
6. Rinse off stall floor with water and squeegee water into the floor drain.
7. Replace equipment in proper places on the cleaned stall.
8. When stall is completed, ask the instructor to evaluate your work using the checklist.
9. Take and score the LAP test.

**Principal Author(s):** J. Anderson  
C. Schramm  
W. Osland



## SHOP STANDARDS CHECKLIST

1. All spilled oil wiped up with a rag, and then with solvent.
2. All dirt swept from stall.
3. Trash and rag cans emptied.
4. All tools and equipment cleaned and put away.
5. All dirt cleaned from parts with wire brush and scraper.
6. All grease and oil cleaned from parts with solvent and brush.
7. All solvent cleaned from parts with compressed air.
8. Spilled anti-freeze should be rinsed off with water and the floor squeegee to remove remaining water because anti-freeze will not evaporate and tracks the floor quite easily.
9. Excessive amount of spilled oil should be quickly wiped up with used paper disposable towels and deposited in a metal container, then followed by application of floor-dry which should be worked into the oil stain to completely remove it. The floor should be swept and the floor-dry returned to the floor-dry container if reuseable. Excessively wet floor-dry can be discarded. Floor-dry left on the floor not only is a fire hazard, but may also be a cause of a possible fall.
10. All benches should be left in an orderly condition. Disassembled parts should be arranged and covered to insure safe storage until reassembled.

Satisfactory

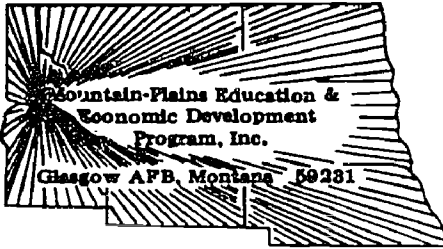
Unsatisfactory

Instructor's Evaluation:

\_\_\_\_\_

\_\_\_\_\_

Instructor's Initials \_\_\_\_\_



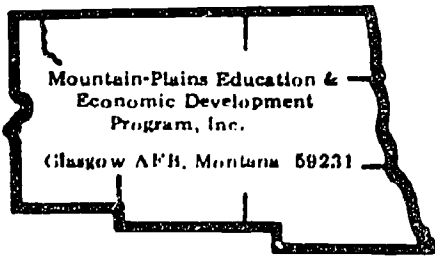
## LAP TEST: CLEANING STALL

1. When cleaning a bench top, you should place equipment in:
  - a. a cleaning solution.
  - b. separate containers in cabinets.
  - c. an orderly fashion.
  - d. pile on one section of the bench.
  
2. The dirt and trash on a bench is swept where?
  - a. Onto one section of the bench.
  - b. Into a cleaning solution.
  - c. Into a trash container.
  - d. Into a cleaning solution.
  
3. You would clean up oil spills and grease with:
  - a. soap and water.
  - b. a disposable rag or floor dry.
  - c. a cleaning solution.
  - d. a broom.
  
4. To wash a stall floor, you put water down first, then the cleaning soap, and:
  - a. scrub with a broom or brush.
  - b. squeegee.
  - c. wipe with a mop.
  - d. use a steam cleaner.
  
5. After rinsing a floor, you remove the excess water with:
  - a. a squeegee.
  - b. a broom.
  - c. an air hose.
  - d. a mop.

6. Why is it important to clean up spilled anti-freeze right away?
- It doesn't evaporate.
  - It will eat away cement.
  - It is a very dangerous fire hazzard.
  - It will produce a toxic gas if let set in the open.
7. What is usually put on an oil spill on a garage floor?
- floor-dry solution
  - sawdust bags.**
  - new rags.
  - soap and water
8. If gasoline spills in a closed garage, you should:
- clean it up.
  - let it evaporate by itself.
  - pour water into it so as to dilute it.
  - sweep it into a can because it can still be used in a car.
9. It is important to put tools away before hosing down a stall because:
- they might keep the water from hitting the floor.
  - some sockets are small enough to be washed down the drain.
  - the tools might get cleaned.**
  - it isn't necessary to do so.
10. If grease spills on the floor, it is best to:
- clean it up immediately.
  - leave it there until cleaning up at the end of the day.
  - thin it out with gas and mop it up.
  - spread it out, so it doesn't stay in one lump.

LAP TEST ANSWER KEY: CLEANING STALL

1. c
2. c
3. b
4. a
5. a
6. a
7. a
8. a
9. b
10. a



# Learning Activity Package

Student: \_\_\_\_\_

Date: \_\_\_\_\_

**PERFORMANCE ACTIVITY:** Fundamentals of Gaskets, Sealants, and Seals

## OBJECTIVE:

Recognize the types and proper uses of gaskets, sealants, and seals.

## EVALUATION PROCEDURE:

Score at least 80% accuracy on the study questions in this LAP and eight correct responses to a ten-item multiple choice objective test.

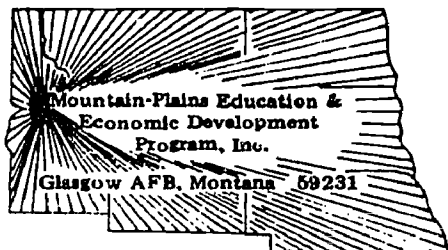
## RESOURCES:

Auto Service and Repair, Stockel,

## PROCEDURE:

### Steps

1. Obtain a text copy and secure a quiet place to study.
2. Read Chapter 4, "Gasket, Sealants, Seals" pages 4-1 through 4-14.
3. Study figures 4-1 through 4-24 for added information.
4. On separate paper, neatly answer questions 2, 3, 5, 11, 13, 19, 20, 22, 27, 29, 34, and 35 from pages 4-14.
5. Identify the important ideas stressed in the paragraph, "So What's A Little Leak?", pages 4-14.
6. Give the answer sheet to the instructor for evaluation.
7. Return the text to the proper shelf.
8. Take and score the LAP test.



## LAP TEST: FUNDAMENTALS OF GASKETS, SEALANTS AND SEALS

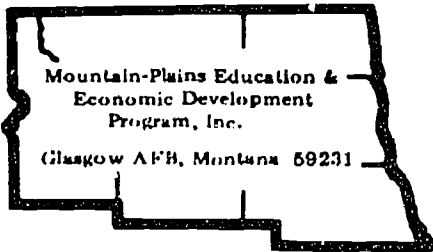
1. What is meant by gasket material compressibility?
  - a. How well the gasket material can seal.
  - b. How easily the gasket flattens out under pressure.
  - c. How well the gasket material can withstand oil pressure, etc.
  - d. How well the gasket material can withstand pressure when tightened down, withstanding moisture.
2. Rubber gaskets seal properly:
  - a. if the correct gasket sealer is used.
  - b. if excess rubber cement is wiped off.
  - c. normally without sealant.
  - d. if soaked first in water.
3. Gaskets can:
  - a. be reused until they are torn or broken.
  - b. be reused no more than three times.
  - c. be reused if the proper sealant is used.
  - d. never be reused.
4. Since gaskets come in sets, what kind of a set would a mechanic ask for when he is overhauling a carburetor?
  - a. an overhaul set.
  - b. a manifold gasket set.
  - c. a carburetor gasket set.
  - d. a head set.
5. For proper sealing of two surfaces you must do what?
  - a. use an over-thick gasket.
  - b. use a generous quantity of sealant.
  - c. be sure the surfaces are clean.
  - d. use two gaskets that are alike.
6. When a cork pan gasket has become too small for the oil pan because it has become too dry, you can fix it by:
  - a. cooling it.
  - b. soaking it in oil.
  - c. stretching it.
  - d. soaking it in water.

7. If you placed a pan gasket over heat to expand it, what would be the maximum temperature you could place on it?
- 200 degrees F.
  - 50 degrees F.
  - 250 degrees F.
  - 110 degrees F.
8. When you chamfer a bolt hold on the block, it will help prevent:
- the gasket from slipping.
  - the top thread from being pulled up above the block.
  - the gasket from sealing.
  - the engine from overheating.
9. Sealants are good for sealing most places except for the:
- rocker covers.
  - oil pan.
  - water system.
  - exhaust manifold.
10. Oil seals are made up of how many different parts?
- 1
  - 2
  - 3
  - 4

LAP TEST ANSWER KEY: FUNDAMENTALS OF GASKETS, SEALANTS  
AND SEALS

1. B
2. C
3. D
4. C
5. C
6. D
7. A
8. B
9. D
10. C





# Learning Activity Package

Student: \_\_\_\_\_

Date: \_\_\_\_\_

**PERFORMANCE ACTIVITY:** Fundamentals of Tubing and Hose**OBJECTIVE:**

Recognize the proper uses and applications of tubing and hose.

**EVALUATION PROCEDURE:**

Score at least 80% correct on the LAP study questions and eight correct responses to a ten-item multiple choice objective test.

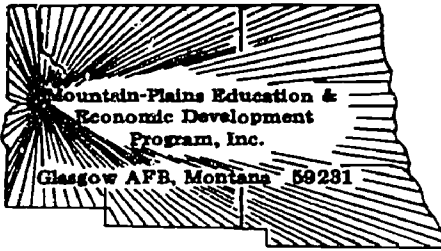
**RESOURCES:**

Auto Service and Repair, Stockel,

**PROCEDURE:****Steps**

1. Obtain a text and secure a quiet place to study.
2. Read Chapter 5, "Tubing and Hose", pages 5-1 through 5-19.
3. Study figures 5-1 through 5-60 closely.
4. Read "Simple Jobs", pages 5-17 and 5-18.
5. Neatly answer chapter questions (page 5-18) 2, 5, 9, 10, 13, 15, 19, 22, 25, 29, 33, 35, 38, 42, and 50.
6. Give answer sheet to the instructor for evaluation.
7. Return text to the proper shelf.
8. Take and score the LAP test.

Principal Author(s): J. Anderson  
W. Osland



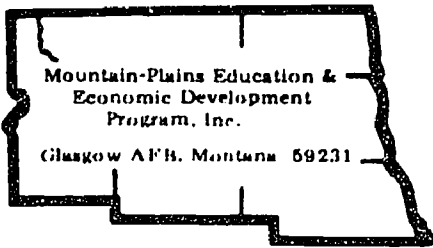
## LAP TEST: FUNDAMENTALS OF TUBING AND HOSE

1. Copper tubing is usually used for:
  - a. power steering hoses.
  - b. high pressure applications.
  - c. low pressure applications.
  - d. braking hoses.
  
2. When steel tubing is used for power steering or brake application, it should be of what type?
  - a. Polyethylene.
  - b. **Double wrapped, brazed and tin-plated.**
  - c. **Nylon center-coated.**
  - d. **Annealed stainless steel.**
  
3. What are the two materials used to make up a plastic tube?
  - a. Fabric ply and steel wire.
  - b. Annealed polyethylene and aluminum.
  - c. Rubber and steel wire.
  - d. Polyethylene and nylon.
  
4. After cutting tubing, you should:
  - a. flange the end.
  - b. sand the end.
  - c. ream the end.
  - d. flare the end.
  
5. How many different types of tube connection are there?
  - a. 5
  - b. 2
  - c. 4
  - d. 3

6. To make satisfactory connections, tubing must be cut:
  - a. squarely.
  - b. diagonally.
  - c. slanted.
  - d. horizontally to the pipe.
  
7. On double wrapped steel tubing you should always:
  - a. use it in a low pressure area.
  - b. put on extra torque to insure holding.
  - c. single-flare it.
  - d. double-flare it.
  
8. If you force fittings that start hard, you will:
  - a. strip them.
  - b. cross thread them.
  - c. branch tee them.
  - d. rib them.
  
9. When you have **skived** a hose, you have:
  - a. lubricated the hose's outer end.
  - b. heat tempered the hose.
  - c. cut the outside layer off of the hose.
  - d. flared the inside of a hose to fit over another hose.
  
10. When you are making long tubing runs, you should be certain to do what with the tubing?
  - a. **Support it.**
  - b. **Bend it.**
  - c. Let it be free of all connections and supports.
  - d. Support it every three (3) inches.

LAP TEST ANSWER KEY: FUNDAMENTALS OF TUBING AND HOSE

1. c
2. b
3. d
4. c
5. d
6. a
7. d
8. b
9. c
10. a



# Learning Activity Package

Student: \_\_\_\_\_

Date: \_\_\_\_\_

**PERFORMANCE ACTIVITY:** Fundamentals of Wire and Wiring**OBJECTIVE:**

Recognize the components of and recommended procedure for electrical wiring of the automobile.

**EVALUATION PROCEDURE:**

Score at least 80% correct on LAP study questions and eight correct responses to a ten-item multiple choice objective test.

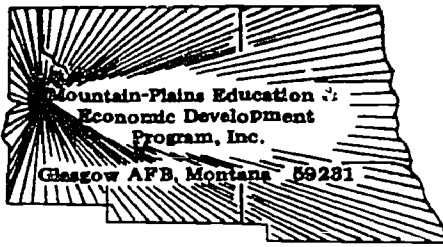
**RESOURCES:**

Auto Service and Repair, Stockel,

**PROCEDURE:**Steps



1. Obtain a text and secure a quiet place to study.
2. Read Chapter 6, "Wire and Wiring", pages 6-1 through 6-12.
3. Study figures 6-1 through 6-26 closely.
4. Read the paragraph, "Tools are important".
5. Neatly answer chapter questions on pages 6-12 and 6-13 on a separate paper.
6. Give answer sheet to the instructor for evaluation when completed.
7. Return text to the proper shelf.
8. Take and score the LAP test.

Principal Author(s): J. Anderson  
W. Osland



## LAP TEST: FUNDAMENTALS OF WIRE AND WIRING

1. What is the standard for wire size?
  - a. hydrometer
  - b. tape measure
  - c. wire gauge
  - d. dial indicator
  
2. Replacement battery cable terminals should be:
  - a. soldered on.
  - b. glued on.
  - c. pushed on.
  - d. riveted on.
  
3. The larger the wire number:
  - a. the more resistance decreases.
  - b. the smaller the wire's diameter.
  - c. resistance is not altered.
  - d. the longer the wire can be.
  
4. What protects a circuit from an overload?
  - a. bullets
  - b. fuse box
  - c. conjunction blocks
  - d. wiring harness
  
5. An undersize wire will increase:
  - a. efficiency.
  - b. resistance.
  - c. cooling of wire.
  - d. resistance to burning of the wire.

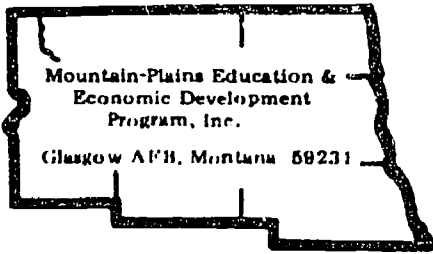
6. If, when joining wire ends, it is desirable to be able to disconnect them at a future date, what type of connector would be a good choice?
- spade or lug
  - slide or bullet
  - flag or roll
  - ring and roll
7. A corroded connection will increase \_\_\_\_\_ to the electric flow?
- capacitance
  - resistance
  - transformer action
  - filtering
8. When spark plug wires serve cylinders that fire consecutively, what occurs if they are too close together?
- Resistance is decreased.
  - Flashover occurs.
  - Crossfiring occurs.
  - Insulation melts.
- \* 9. What does this symbol stand for  ?
- fuse
  - circuit breaker
  - terminal
  - spark gap
- \* 10. What does this symbol stand for  ?
- transistor
  - switch
  - relay
  - condensor

\* (Adapted from Auto Service and Repair, Stockel, Goodheart-Wilcox, 1975, p. 6-13, #30.)

LAP TEST ANSWER KEY: FUNDAMENTALS OF WIRE AND WIRING

1. c
2. a
3. b
4. b
5. b
6. b
7. b
8. c
9. b
10. a





# Learning Activity Package

Student: \_\_\_\_\_

Date: \_\_\_\_\_

PERFORMANCE ACTIVITY: Fundamentals of Work Orders

## OBJECTIVE:

Use the proper procedure to correctly fill out a work order.

## EVALUATION PROCEDURE:

Eight correct responses to a ten-item multiple choice objective test and 100% accuracy on the LAP study worksheet.

## RESOURCES:

Customer (requesting repair work)  
 Vehicle (needing work)  
 Work Order (attached)  
 Work Order Checklist (attached)

## PROCEDURE:

### Steps

1. Upon request for repair work by the customer, accurately fill in the vehicle identification section and the customer identification section on the work order.
2. After carefully listening to the customer explain the problem, write the work required under the Repair Job section. NOTE: It also helps to put down the customer's description of any irregular noise or sensations that he may have noticed in the car. This will help the repairman to diagnose the problem and save time.
3. Record in the Parts Section all parts and items that are needed.
4. Record the full LAP title and number at the top of the work order which applies to the specific LAP that the repair work applies to.
5. Post the work order on the windshield beneath the wiper blade while vehicle is in the shop. Also record any parts or additional labor and time of each job as the work progresses.
6. Refer to the parts manual to obtain an approximate price of each part used.  
 Total prices of all parts.

Principal Author(s): J. Anderson  
 C. Schramm  
 W. Osland

PROCEDURE: (continued)

7. Upon completion of work, fill in the date, mileage and comments about the vehicle such as needed future repair items, or cause of malfunctions, etc.
8. When the work order is fully completed with all the required information, have the instructor evaluate and sign it as "approved".
9. Split the copies and deliver them to each of their proper places as specified on the work order.
10. Fill in the name of the repairman, date of repair, and amount of repair time.
11. Refer to the flat rate manual and record the rated amount of time needed to complete the required work.
12. List in the Comments section any future work needed; special notices, and problems that may be of interest to the customer.
13. When completed, show the work order to the instructor for evaluation.
14. Take and score the LAP test.

## WORK ORDER CHECKLIST

	Accurate	Inaccurate
1. Make of car	—	—
2. Year	—	—
3. Type of engine	—	—
4. Model	—	—
5. Color	—	—
6. Name	—	—
7. Address	—	—
8. Home phone	—	—
9. Business phone	—	—
10. Date	—	—
11. Repair Job	—	—
12. Parts needed	—	—
13. Flat rate time	—	—
14. Repair time	—	—
15. Repairman	—	—
16. Date of repair	—	—

NOTE: 100% accuracy is required.

# Mountain-Plains Education & Economic Development Program, Inc.

POST OFFICE BOX 3078 · GLASGOW, MONTANA 59231 · TEL: (406) 524-6221

## WORK ORDER REQUEST FORM AUTOMOTIVE TRAINING SHOP

Vehicle _____ Year _____	Name _____
Engine _____ Model _____	Address _____
Color _____ License No. _____	Home Phone _____ Business Phone _____
	Date _____

All work to be done is for instructional purposes only. Some request work may need to be filed for a later date when it can be properly assigned as needed. You will be called when your request work is removed from the file and can be utilized.

	Labor Repair Work	Hourly Rate			Parts			
		Repair Time	Flat Rate	Dollar Amount	Qty.	Description	Part Number	D Amt
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
	Totals							Total

**Mechanics Report**

Repairman \_\_\_\_\_ Repair Date \_\_\_\_\_ Mileage \_\_\_\_\_

Comments \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

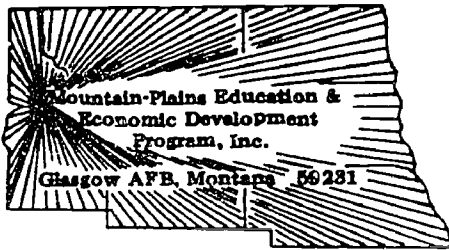
All work will be done by MPEEDP participants. The work is not guaranteed, but will be closely supervised to produce only high quality workmanship. MPEEDP will not be responsible for fire, theft, or any damage to auto.

Owner's Signature \_\_\_\_\_  
 Date \_\_\_\_\_

Work Evaluator \_\_\_\_\_

Comments:

Copies	1. Shop Permanent Records	□
	2. Repairman's File	□
	3. Customer	□



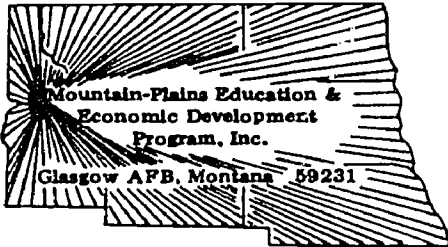
## LAP TEST: FUNDAMENTALS OF WORK ORDERS

1. Why is it beneficial to the repairman to listen to the customer's description of any irregular noise, etc.?
  - a. To help him diagnose the problem.
  - b. To be courteous.
  - c. To promote good will for the shop.
  - d. To make the customer feel as if the mechanic is taking an interest.
  
2. One of the things that make up a work order is:
  - a. when the car was last tuned-up.
  - b. at what altitude the customer lives.
  - c. what kind of gas the customer uses.
  - d. the type of engine.
  
3. To obtain the approximate cost of the parts needed, the mechanic can:
  - a. ask the customer.
  - b. look in the repair book.
  - c. look in the parts and labor manual.
  - d. call a shop and ask for the price.
  
4. When you fill out a work order, where do you put it?
  - a. On the seat of the car.
  - b. Under the wiper of the car.
  - c. In your tool box.
  - d. In the instructor's desk.
  
5. After the work is done and the work order is completed, what do you do with it?
  - a. Throw it away; it is of no further use.
  - b. Give it to the customer.
  - c. Keep it for your records to see how much work you have done.
  - d. Have the instructor evaluate it.

6. When you split the copies of the work order, where does the white copy go?
- To the shop who sold the car.
  - In the wastepaper basket; only one copy is needed.
  - To the manufacturer of the car.
  - In the permanent shop files.
7. How many different copies of the work order are there?
- 4
  - 2
  - 3
  - 5
8. What is meant by "model" designation on a work order?
- Body style.
  - The person who brought it in.
  - Seating capacity.
  - The weight of the car.
- 9.
10. The second or yellow copy of the work order goes to the:
- shop who sold the car to the customer.
  - shop's records.
  - customer.
  - repairman's file.

LAP TEST ANSWER KEY: FUNDAMENTALS OF WORK ORDERS

1. a
2. d
3. c
4. b
5. d
6. d
7. c
8. a
  
10. a or c



## UNIT POST TEST: CLEANING PARTS AND WORK AREA (A)

37.03.03.01

1.

2.

3. The correct procedure for starting a steam cleaner is to first turn on:

- a. the heating coils.
- b. the water source.
- c. the water pump.
- d. the valve to mix the solvent with water.

4. In a high pressure spray cleaner the pressure at the nozzle runs up to:

- a. 500 psi.
- b. 100 psi.
- c. 300 psi.
- d. 800 psi.

5.



37.03.03.02

- 6.
7. To wash a stall floor, you put water down first, then the cleaning soap, and:
- scrub with a broom or brush.
  - squeegee.
  - wipe with a mop.
  - use a steam cleaner.
8. After rinsing a floor, you remove the excess water with:
- a squeegee.
  - a broom.
  - an air hose.
  - a mop.
9. What is usually put on an oil spill on a garage floor?
- floor-dry solution
  - sawdust
  - used rags
  - soap and water
10. If gasoline spills in a closed garage, you:
- clean it up.
  - let it evaporate by itself.
  - pour water into it so as to dilute it.
  - sweep it into a can because it can still be used in a car.

37.03.03.03

11. The gasket construction of a water pump is:
- asbestos and steel wire.
  - asbestos.
  - chemically treated, fibrous paper.
  - thin steel.

37.03.03.03 (continued)

12. What is usually written on a head gasket?
- The word, "bottom".
  - The type of sealer to use.
  - The word, "top".
  - The amount of torque the gasket can withstand.
13. Loss of moisture can cause cork gasket to:
- curl up.
  - expand.
  - rot.
  - shrink.
14. A rubber gasket should be installed:
- without a sealant.
  - the same as a cork gasket.
  - with a small amount of sealant.
  - with an extra amount of sealant.
15. Gaskets can be held in place while being installed, by using:
- water.
  - string.
  - graphite.
  - light oil.

37.03.03.04

16.

17.

37.03.03.04 (continued)

18. Name one type of a tube fitting.
- compression
  - flange
  - ream
  - burr
19. Pipe fittings use what type of thread?
- double-compression
  - sleeve
  - tapered
  - single-compression
20. As opposed to the standard nut, of a flare connection, the long nut provides better resistance to:
- flaring.
  - corrosion.
  - cross threading.
  - vibrations.

37.03.03.05

21. The most commonly used insulation used in wiring material is:
- nylon.
  - rubber.
  - plastic.
  - asbestos.
22. Stranding of primary wire is made of:
- rubber.
  - stainless steel.
  - copper.
  - aluminum.
- 23.

37.03.03.05 (continued)

24. Number sixteen (#16) wire is larger than:

- a. #10.
- b. #12.
- c. #14.
- d. #20.

25. What do you use when attaching terminals to resistance type secondary wires?

- a. contact points
- b. staples
- c. boots
- d. bullets

37.03.03.06

26. To obtain the approximate cost of the parts needed, the mechanic can:

- a. ask the customer.
- b. look in the repair book.
- c. look in the parts and labor manual.
- d. call a shop and ask for the price.

27.

28.

29.

37.03.03.06 (continued)

30.

## UNIT POST TEST ANSWER KEY: CLEANING PARTS AND WORK AREA (A)

LAP 01

- 3. b
- 4. a

LAP 02

- 7. a
- 8. a
- 9. a
- 10. a

LAP 03

- 11. c
- 12. c
- 13. d
- 14. a
- 15. b

LAP 04

- 18. a
- 19. c
- 20. d

LAP 05

- 21. c
- 22. c
- 24. d
- 25. b

LAP 06

- 26. c



## UNIT POST TEST: CLEANING PARTS AND WORK AREA(B)

37.03.03.01

1. In a high pressure spray cleaner the pressure at the nozzle runs up to:
  - a. 500 psi.
  - b. 100 psi.
  - c. 300 psi.
  - d. 800 psi.
  
2. The correct procedure for starting a steam cleaner is to first turn on:
  - a. the heating coils.
  - b. the water source.
  - c. the water pump.
  - d. the valve to mix the solvent with water.

37.03.03.02

3. If gasoline spills in a closed garage, you:
  - a. clean it up.
  - b. let it evaporate by itself.
  - c. pour water into it so as to dilute it.
  - d. sweep it into a can because it can still be used in a car.
  
4. What is usually put on an oil spill on a garage floor?
  - a. floor-dry solution
  - b. sawdust
  - c. used rags
  - d. soap and water
  
5. After rinsing a floor, you remove the excess water with:
  - a. a squeegee.
  - b. a broom.
  - c. an air hose.
  - d. a mop.
  
6. To wash a stall floor, you put water down first, then the cleaning soap, and:
  - a. scrub with a broom or brush.
  - b. squeegee.
  - c. wipe with a mop.
  - d. use a steam cleaner.

37.03.03.03

7. Gaskets can be held in place while being installed, by using:
  - a. water.
  - b. string.
  - c. graphite.
  - d. light oil.
  
8. A rubber gasket should be installed:
  - a. without a sealant.
  - b. the same as a cork gasket.
  - c. with a small amount of sealant.
  - d. with an extra amount of sealant.
  
9. Loss of moisture can cause cork gasket to:
  - a. curl up.
  - b. expand.
  - c. rot.
  - d. shrink.
  
10. What is usually written on a head gasket?
  - a. The word, "bottom".
  - b. The type of sealer to use.
  - c. The word, "top".
  - d. The amount of torque the gasket can withstand.
  
11. The gasket construction of a water pump is:
  - a. asbestos and steel wire.
  - b. asbestos.
  - c. chemically treated, fibrous paper.
  - d. thin steel.

37.03.03.04

12. As opposed to the standard nut, of a flare connection, the long nut provides better resistance to:
  - a. flaring.
  - b. corrosion.
  - c. cross threading.
  - d. vibrations.
  
13. Pipe fittings use what type of thread?
  - a. double-compression
  - b. sleeve
  - c. tapered
  - d. single-compression



37.03.03.04 (continued)

14. Name one type of a tube fitting.

- a. compression
- b. flange
- c. ream
- d. burr

37.03.03.05

15. What do you use when attaching terminals to resistance type secondary wires?

- a. contract points
- b. staples
- c. boots
- d. bullets

16. Number sixteen (#16) wire is larger than:

- a. #10
- b. #12
- c. #14
- d. #20

17. Stranding of primary wire is made of:

- a. rubber
- b. stainless steel
- c. copper
- d. aluminum

18. The most commonly used insulation used in wiring material is:

- a. nylon.
- b. rubber.
- c. plastic.
- d. asbestos.

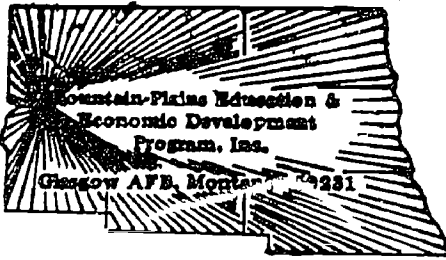
37.03.03.06

19. To obtain the approximate cost of the parts needed, the mechanic can:

- a. ask the customer.
- b. look in the repair book.
- c. look in the parts and labor manual.
- d. call a shop and ask for the price.

## UNIT POST TEST ANSWER KEY: CLEANING PARTS &amp; WORK AREA (B)

1. A
2. B
3. A
4. A
5. A
6. A
7. B
8. A
9. D
10. C
11. C
12. D
13. C
14. A
15. B
16. D
17. C
18. C
19. C



## UNIT POST TEST: CLEANING PARTS AND WORK AREA (C)

37.03.03.01

1. In a high pressure spray cleaner the pressure at the nozzle runs up to:
  - a. 500 psi.
  - b. 100 psi.
  - c. 300 psi.
  - d. 800 psi.
  
2. The correct procedure for starting a steam cleaner is to first turn on:
  - a. the heating coils.
  - b. the water source.
  - c. the water pump.
  - d. the valve to mix the solvent with water.

37.03.03.02

3. What is usually put on an oil spill on a garage floor?
  - a. floor-dry solution.
  - b. sawdust.
  - c. used rags.
  - d. soap and water.
  
4. After rinsing a floor, you remove the excess water with:
  - a. a squeegee.
  - b. a broom.
  - c. an air hose.
  - d. a mop.
  
5. If gasoline spills in a closed garage, you:
  - a. clean it up.
  - b. let it evaporate by itself.
  - c. pour water into it so as to dilute it.
  - d. sweep it into a can because it can still be used in a car.
  
6. To wash a stall floor, you put water down first, then the cleaning soap, and:
  - a. scrub with a broom or brush.
  - b. squeegee.
  - c. wipe with a mop.
  - d. use a steam cleaner.

37.03.03.03

7. Loss of moisture can cause cork gaskets to:
  - a. curl up.
  - b. expand.
  - c. rot.
  - d. shrink.
  
8. A rubber gasket should be installed:
  - a. without a sealant.
  - b. the same as a cork gasket.
  - c. with a small amount of sealant.
  - d. with an extra amount of sealant.
  
9. Gaskets can be held in place while being installed, by using:
  - a. water.
  - b. string.
  - c. graphite.
  - d. light oil.
  
10. What is usually written on a head gasket?
  - a. the word, "bottom".
  - b. the type of sealer to use.
  - c. the word, "top".
  - d. the amount of torque the gasket can withstand.
  
11. The gasket construction of a water pump is:
  - a. asbestos and steel wire.
  - b. asbestos.
  - c. chemically treated, fibrous paper.
  - d. thin steel.

37.03.03.04

12. As opposed to the standard nut, of a flare connection, the long nut provides better resistance to:
  - a. flaring.
  - b. corrosion.
  - c. cross threading.
  - d. vibrations.
  
13. Pipe fittings use what type of thread?
  - a. double-compression
  - b. sleeve
  - c. tapered
  - d. single-compression

37.03.03.04 (continued)

14. Name one type of a tube fitting.

- a. compression
- b. flange
- c. ream
- d. burr

37.03.03.05

15. Number sixteen (#16) wire is larger than:

- a. #10
- b. #12
- c. #14
- d. #20

16. What do you use when attaching terminals to resistance type secondary wires?

- a. contract points
- b. staples
- c. boots
- d. bullets

17. The most commonly used insulation used in wiring material is:

- a. nylon
- b. rubber
- c. plastic
- d. asbestos

18. Stranding of primary wire is made of:

- a. rubber
- b. stainless steel
- c. copper
- d. aluminum

37.03.03.06

19. To obtain the approximate cost of the parts needed, the mechanic can:

- a. ask the customer.
- b. look in the repair book.
- c. look in the parts and labor manual.
- d. call a shop and ask for the price.

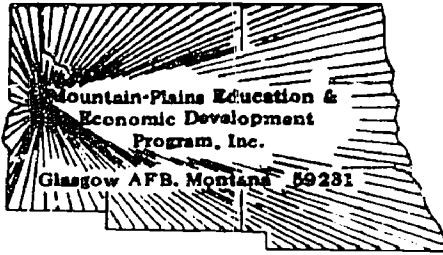
UNIT POST TEST ANSWER KEY: CLEANING PARTS & WORK AREA (C)

1. A
2. B
3. A
4. A
5. A
6. A
7. D
8. A
9. B
10. C
11. C
12. D
13. C
14. A
15. D
16. B
17. C
18. C
19. C

Student: \_\_\_\_\_ File Code: 37.03.03.00.B1-5

Date: \_\_\_\_\_ Date Published: 3/4/76

Family Pay Number: \_\_\_\_\_ Sex: M F (Circle 1)



UNIT PERFORMANCE TEST: CLEANING PARTS AND WORK AREA

OBJECTIVE:

Clean parts and work area.

TASK:

The student will be assigned a work area and parts to clean. He must clean the parts and then clean his work area.

ASSIGNMENT:

CONDITIONS:

The student may use only those materials provided for the test and perform the test in the auto shop.

RESOURCES:

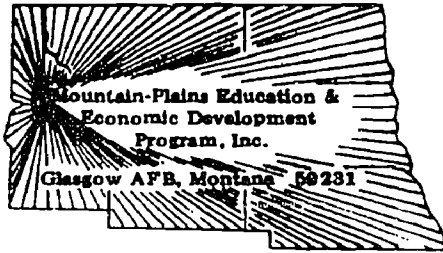
Parts to be cleaned  
Work area  
Cleaning tank  
Carbon scraper  
Wire brush  
Gasket scraper  
Broom  
Dust pan  
Rags

Student: \_\_\_\_\_

File Code: 37.03.03.00.B1-5

Date: \_\_\_\_\_

Date Published: 3/4/76



Family Pay Number: \_\_\_\_\_

Sex: M F (Circle 1)

PERFORMANCE CHECKLIST:

OVERALL PERFORMANCE: Satisfactory \_\_\_\_\_ Unsatisfactory \_\_\_\_\_

	CRITERION	
	Met	Not Met
Objective:		
1. Scrap excessive dirt before cleaning in solution vat.		
Criterion: No excessive dirt.		
2. Clean in solution vat.		
Criterion: Parts clean when finished.		
3. Clean work area.		
Criterion: Clean when done.		
4. Complete test in reasonable time.		
Criterion: <del>Must meet time</del> limit as per assignment.		
Student must satisfactorily complete all of the above line items to pass test.		