EVALUATING
ACADEMIC READINESS
FOR APPRENTICESHIP TRAINING
Revised for
ACCESS TO APPRENTICESHIP

COMMUNICATIONS SKILLS
RESTATEMENT AND PARAPHRASING

AN ACADEMIC SKILLS MANUAL
for
The Motive Power Service Trades

This trade group includes the following trades:
Heavy Duty Equipment Mechanic, Motive Power Technician,
Motive Power Parts Person, Transmission Mechanic,
Truck & Coach Technician, and Truck & Trailer Service Technician

Workplace Support Services Branch
Ontario Ministry of Training, Colleges and Universities

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In preparing these Academic Skill Manuals, we have used passages, diagrams and questions
similar to those an apprentice might find in a text, guide or
trade manual.

**The information in them is not intended to instruct
you in your trade. Trade related material is used only to
demonstrate how understanding an academic skill will help
you find and use the information you need.**

COMMUNICATIONS SKILLS
RESTATEMENT AND PARAPHRASING

An academic skill required for the study of the Motive Power Service Trades

INTRODUCTION

Restatement, or paraphrasing, *means saying something in your own words*. We do this to be sure that we get the correct meaning from information. This important skill allows you to apply and integrate information found in textbooks, technical manuals and diagrams to understand and explain systems. You will be better able to communicate ideas clearly about a service job, parts order, or safety features to co-workers, other tradespersons and customers.

Technical writing activities related to *paraphrasing or restatement* include writing brief reports, writing e-mails or notes on web forums and technical support sites about unusual or difficult repairs, submitting job proposals and estimates, reporting potential worksite hazards, and completing work-related documentation.

In this skills manual, we will look at some examples of restatement. We will do this to:

- Understand and explain technical information,
- Restate information in graphic and written material, and,
- Recognize signals that indicate restatement.

PART I
UNDERSTAND AND EXPLAIN TECHNICAL INFORMATION

Try to explain an idea – ***in your own words*** and ***out loud***. You will discover what you know and what you don't know. When you use your own words, you find out where you can repeat ideas clearly and where you stumble because you can't find the right words.

Let me get this right
When you paraphrase an idea or written instruction, you are forced to be clear about what you have read or heard. If you have difficulty expressing an idea ***out loud***, you know something is unclear. Stop. Reread the sections that made you stumble, then try again. This can be a slow process, but if you can restate the idea aloud, you probably understand it.

We will use information from your trade to show you what we mean. Read **Passage 1** below to understand the information. Proceed methodically and read with attention. Try the following suggestions:

- read slowly,
- read out loud,
- ask questions,
- look up unfamiliar words or terms, and,
- take notes, ***using your own words***.

When you have finished, test your understanding. Could you explain this to someone who knows nothing about the idea? Would they understand it after you gave your explanation?

Read Passage 1 and answer the questions. Answers are at the end of the skills manual.

Passage 1

High-Tensile-Strength Steel
Because of heat treatment, high-tensile-strength steel (HSS) is stronger than low-carbon or mild steel. Most new vehicles contain HSS in body structural components. Conventional heating and welding methods will not adversely affect the strength level of HSS.

As this material is deformed during a collision, it will experience an increase in stress, exceeding the yield strength. When heat is applied to an HSS component to straighten it, the stresses that resulted from the collision are decreased; thus, the strength to a lower or normal level is restored. If the collision stresses exceed the tensile strength, the material will tear or fracture.

Oxyacetylene can be used to assist the restoration of the component; heating a part being straightened is an example. However, extreme caution must be exercised when using oxyacetylene. The areas to be heated with an oxyacetylene torch should have thermal crayons or paint applied around them. This will restrict these temperatures to 1, 200 degrees Fahrenheit (649 degrees Celsius).

Questions:

1. What does "*will not adversely affect"* mean?

2. You can reduce stresses caused by a collision if you heat a high-tensile-strength steel panel to straighten it.

T **F**

3. Heating a part being straightened with oxyacetylene helps bring it back to its former condition.

T **F**

4. The temperature around these areas will be restricted to 1, 200 degrees Fahrenheit means that the temperatures:

a) will not be higher than 1 200°F.
b) will be higher than 1 200°F.
c) will be approximately 1 200°F.

Paraphrasing Step-By-Step

As you read and figure out what each step of **Passage 1** means, mentally check it off; or use a pencil to do so. If you don't understand any part of the directions or don't see how it fits with the others, reread, and try again. As you recognize how each piece fits into the job, you begin to develop a sense of the whole picture

Paragraph one

In paragraph one, you may have had a few questions about sentence three:

- What is *conventional heating*? If you aren't sure or have forgotten, look it up.
- What does *adversely* mean? The dictionary gives *unfavourably* or *in a harmful way* as the definition.

These definitions give you the meaning of the words, but more importantly, when you put these meanings for the terms back into the sentences, you can understand more clearly what is being said about conventional heating and the strength level of HSS.

> **Example:** You can restate a confusing sentence.
> *Conventional heating and welding methods will not affect the strength level of HSS in a harmful way.*
>
> It means:
> *Normal heating and welding won't hurt the strength of HSS.*

Paragraph two

Experiment with different words to restate what you are reading. You could break paragraph two into points with slightly different wording. You might come up with something like this:

If high-tensile-strength steel is deformed in a collision,

- there is an increase in stress that is greater than the yield strength.

When you use heat on an HSS component, to help straighten it, this is what happens:

- the stresses that the collision caused are reduced, and
- this brings back the strength to a lower or *normal* level.

If the collision stresses are greater than the tensile strength:

- the material will either tear or fracture.

Note: *You will learn the definitions of trade term, as you move through your training. Knowing those terms will help you restate ideas clearly.*

Paragraph three

Paraphrase paragraph three, one step at a time. Make sure you understand and can explain exactly what this information means, ***in your own words***. Think of how you would explain paragraph three to a new employee. You would have to know and describe:

- When can oxyacetylene be used?
- Why *exactly* is extreme caution necessary?
- What is the danger?
- How do thermal crayons and paint restrict temperatures?
- Why should temperatures be restricted?
- What happens if they are not?
- What does *restricted* mean?
- How would you explain paragraph three to a new employee?

I still don't get it

When you read something and say, "I don't get it", you need to solve a problem. What *exactly* don't you get? It is critical to move beyond feeling that you do not understand the material. Usually there's something that you do understand so, which parts do you get?

Separate what you know from what you don't know, and then find explanations for the confusing parts. It's important to *ask yourself questions and find answers* to all aspects of the information. When you change written ideas into your own words, it will help you to develop a mental picture of the ideas and an understanding of the meaning

When you can restate what you've read – in your own words – and can write it out, you know that you have understood the material. Using your own words will help you remember information. If you can explain it clearly to someone else, you have got it.

Examples of Restatement

You will find two samples of restatement below, in **Passage 2** and **Passage 3**. The passages were written by different people to explain a concept. Read them to compare the details.

First, read each passage following these directions:

- read slowly,
- ask yourself questions,
- look up unfamiliar words or terms, and,
- take notes, or explain to yourself what the passage says *using your own words.*

Second, **compare** the information in the two passages. Look for similarities and differences.

Passage 2

Every material is composed of minute particles called *molecules*. In any magnetic material, each molecule is a magnet with a north and south pole.

Passage 3

The molecular theory of magnetism states basically that all substances are made up of an infinite number of molecular magnets.

When you read **Passage 3** to compare it with **Passage 2**, did you see that each covers the theory of magnetism? Each uses different expression, different types of sentences, and different vocabulary, but *the information is essentially the same*. Below you can see examples from the passages where the same ideas are expressed differently:

Passage 2		**Passage 3**
every material	=	all substances
is composed of	=	are made up of
each molecule is a magnet with a north and south pole	=	molecular magnets

You may find that one passage or one group of words is clearer or easier than the other passage. The important point is that they each express the same theory.

Didn't I just read this?
If information sometimes seems familiar to you, it may be because you've read it before. But, what you've read before didn't use the exact wording of what you're reading now. Continue to read and compare **Passages 2 and 3** for examples of restatement.

Passage 2
In non-magnetized material, molecules lie in a haphazard manner. When a material has been magnetized, the molecules lie in an orderly fashion.

Passage 3
Molecular magnets can be arranged in two ways: *organized or disorganized*. If the molecular magnets are *disorganized*, the material is considered to be unmagnetized. When the molecular magnets are *organized*, the material is considered to be magnetized.

How do they compare? Look at examples of vocabulary from these passages which restate the same information:

Passage 2		**Passage 3**
nonmagnetized	=	unmagnetized
haphazard manner	=	disorganized
orderly fashion	=	organized

These two passages are restatements of each other. Each passage gives you accurate information but in a different way. In your reading, you might prefer one textbook or manual to another because the way it expresses ideas is easier for you to understand.

PART II
GRAPHICS AND TEXT

In Part II, we will look at how *graphics* and *text* are used together as examples of restatement.

Graphics
When we use the term ***graphics***, we mean the types of illustrations that you find in manuals and textbooks: diagrams, graphs, photographs and charts. They present a restatement in a visual way.

Using graphics
Graphics relay information you need for your trade. To use graphics effectively, you need to convert the information into actions – either the mental action of understanding information or the physical action of following directions. To do either, restate the information so that you understand it. If you find terms or symbols that are not clear, stop and find out what they mean.

Text

When we use the term ***text***, we mean everything that is in print form. This includes writing that goes with a diagram, graph, photograph or chart. The text uses words to describe or explain something while a graphic uses a picture.

What am I looking at?

If you know the purpose of a diagram, it may change the way you look at it. You may study each part of the diagram and mentally convert the items pictured in the diagram to descriptions in the text. Going back and forth between the diagram and the text increases your ability to picture the whole process or concept.

You should move between the text and graphic:

- to understand each on its own,
- to understand them together,
- to remember the information, and/or
- to get answers for things you are not sure about.

We will use the text and figure below (**Figure 1**) to look at restatement.

Passage 4
Levers

A simple machine magnifies the effects of an applied force. Using one makes work easier and more efficient. When the machine does this, we say that a *mechanical advantage* (MA) has been gained. Moreover, when the work is done with little loss of energy, we say that the machine's *efficiency* is high.

Levers are the simplest of the basic machines. Figure 1 shows the use of a lever to move a large object.

The point at which the lever (bar or rod) pivots is called the *fulcrum* of the lever. The length of the effort arm and the resistance arm of the lever are measured from the *fulcrum* (pivot point). The effort arm is measured from the point where the *effort* (applied force) is applied to the fulcrum; the resistance arm is measured from the *resistance* (or load) to the fulcrum.

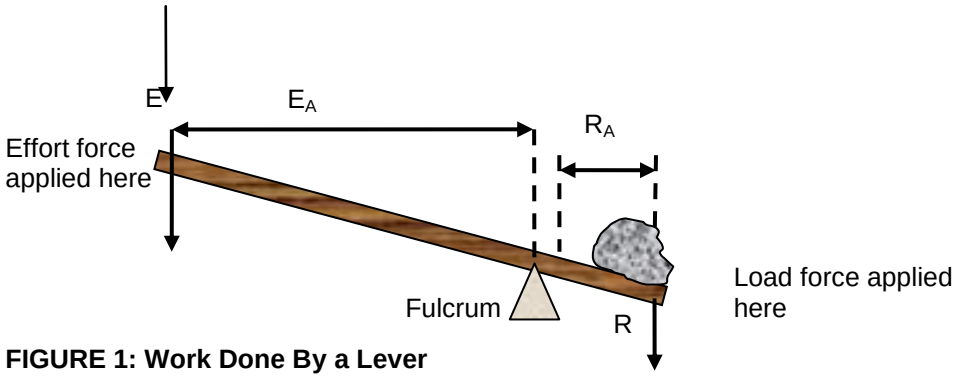

FIGURE 1: Work Done By a Lever

A large load is placed a short distance from the fulcrum (R_A) on one end of the lever. It can be moved by a weaker force on the other end of the lever if the effort force is a longer distance (E_A) from the fulcrum.

The calculations for all levers are derived from mathematical ratios as follows:

$M_A = R \div E$
$E_A \div R_A = R \div E$
$E \times E_A = R \times R_A$

Where: M_A = mechanical advantage
E_A = length of the effort arm
R_A = length of the resistance arm
R = resistance force
E = effort force

The text provides definitions of terms: *simple machines* and *levers*. It then focuses on what a lever is, the names of its parts and the formula for making calculations of a lever's mechanical advantage. The text also tells us to look at the diagram.

The diagram lets us see what has been described in the text. It shows and labels the parts of the lever. Because we see the arrow where the effort force is applied, we understand what applied force means. We understand resistance force when we see the rock. The diagram restates what is in the text so that we understand how a lever works.

The text and diagram give you important information in different formats. **Together,** they provide a more complete picture than each would alone.

What am I looking at?
If you know the purpose of a diagram, it may change the way you look at it. You may glance over a diagram to get a general idea of what it illustrates.

Example: Figure 1 shows us what each part of a lever is, and how it works.

You can study each part of the diagram and mentally convert the items pictured in the diagram to the stages described in the text. Going back and forth between the diagram and the text increases your ability to picture the whole process or concept. You move between the text and graphic:

- to understand each on its own,
- to understand them together,
- to remember the information, and/or
- to get answers to questions that you may have.

Examine everything

1. The text will direct you to a graphic: the number of the graphic may be in parentheses like this (*Figure 2-10).* When the text directs you to look at the graphic, it may also tell you what it will show you.

   Example: *Figure 2 shows the use of a lever to move a large object.*.

2. When you come to a diagram, stop. Read the title or heading and the description at the bottom. *The title and description tell you what the diagram contains*. Some diagrams contain directions or details not found in the text.

3. Next, see how it restates the text. Then look for information that is not in the text.

Passage 5 is about *dynamic balance in tires*. Read the text and study the diagram to understand how they work together to explain the concept. Think of each as a restatement of the other. Notice how they complement each other. Think of how each could help you explain or describe something to someone else – your boss or a client.

Passage 5
Dynamic Balance and Imbalance

Improperly balanced wheels and tires can result in severe forces being generated at the front axle and steering wheel. This results in the suffering of the axle and suspension system components. Figure 2 illustrates a dynamically balanced and unbalanced tire.

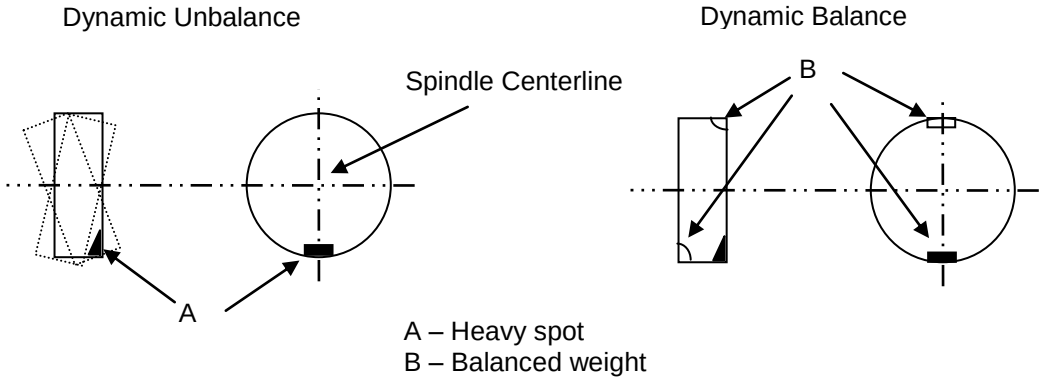

FIGURE 2; Dynamic Wheel Balancing Concept
Dynamic unbalance showing heavy spot and use of wheel-rim-balance- weights to correct the unbalanced condition

Dynamic balance occurs when the weight of the wheel and tire is evenly distributed on each side of the centerline. In this state, the wheel will stand in one position when it free wheels to a stop. Dynamically unbalanced wheels will cause a side-to-side movement called wheel shimmy that will result in uneven tire wear.

What does it say?

The text explains the concept in a clear, detailed way and prepares you to apply it on the job.

The graphic relays the same information in a picture form. It clearly labels the centreline, the heavy spot and the balance weight. The figure shows you the angles of an unbalanced and a balanced tire and how the weights are placed to achieve balance. The diagram explains the words.

You can see more by using the graphic with the text. This can help you put the concepts of *dynamic balance* into your own words. You can also draw a simple diagram. You can explain to a customer, "*This is what dynamic balance is, and I'll show you how it works."*

Graphics restate the text

We've looked at the text and the diagram to see what each adds to the whole picture, and how each restates the other. Graphics and text combine to complete the information required.

Graphics can peel back the layers so you can see it all. They are related directly to the writing.

- They are labelled clearly and usually placed beside the text.
  - The text and **Figures 1 and 2** are typical examples of this.
- It is important that you understand what you read and see as you proceed through the trade material.
  - Be sure to match the text with the graphic and read the information that goes with it.

The text tells you when to go to the diagram and what to look for. Find the information and understand what it is saying. *The diagram and text work with each other to make information clearer or to explain a procedure or a principle*.

Remember to test your understanding by restating the information to someone who hasn't read the text or seen the graphics. You may need to try an explanation more than once to get the right words in the right order. If you understand what you have read and what you have seen, though, you'll get it right.

Tables
You will use tables for a variety of purposes.

Example:

TABLE 1: DECIMAL AND METRIC EQUIVALENTS OF FRACTIONS

Fractions	Decimal (in.)	Metric (mm)
1/64	.015625	.397
1/32	.03125	.794
3/64	.046875	1.191
1/16	.0625	1.588
etc.		

Tables like this one will show you such things as measurements, maximum spans, and depths of holes. Like other examples of restatement, tables convert information so that you get the right understanding and results.

PART III
SIGNALS OF RESTATEMENT

In Part III, we will look at examples of words and symbols that act as signals to indicate when a text is using restatement or paraphrasing. Successful readers pay attention to these signals.

***Note**: The words and symbols in this section do not always signal restatement. Make sure you know what they are signaling.*

Signals Indicating Restatements

Technical writing contains new vocabulary and new and complicated concepts. Explanations that restate information are built right into the text, often as examples or definitions.

There are many written clues that signal that a similar word or a definition is going to follow. Here are a few to watch for.

Some word and phrase signals

1. ***That is,*** is a word combination that can be used in several ways to let you know that something will be rephrased. These include:

   a) a colon followed by *that is,* (… : that is, …)

   Welding strength can be assured by lengthening the current flow time: that is, letting low current flow for a long time.

   b) a pair of commas around *that is* (… , *that is*, …).

   The flashpoint of gasoline, that is, the temperature at which oil will flash and burn, is low.

   In order to convert a semi trailer into a full trailer, a converter dolly is used, that is, an axle, frame, drawbar and fifth wheel arrangement.

2. ***In other words*** is a signal that what you have just read will be explained in another way. Compare the two ways of saying the same thing; make sure you understand both.

   A high tip pressure causes a small spot weld and a reduced mechanical bond of the weld. In other words, the high tip pressure forces the tip into the softened area thinning and weakening the weld.

3 ***Or*** ... sometimes tells you that there are two ways of saying the same thing. The words on each side of the "or" mean the same thing.

   A vernier caliper is a precision measuring instrument that consists of a main frame or beam and a moveable jaw.

   Density is the compactness or relative mass of matter in a given volume.

   Oil starvation is a condition of inadequate oil flow or supply.

4. ***Visualization:*** In some cases, a writer asks you to *visualize* or *imagine* something. This kind of restatement asks you to convert words into a picture to understand them.

   The section shows a part of the structure as if cut by a vertical plane. Imagine that you are looking at the part after it has been sawed in half, and you are looking at the cut edge.

Some punctuation signals

Dashes – A dash may be used to give another name or short explanation of something. This first example uses several devices as well as the dash: *italics* and "such as."

> Many types of pliers are used for engine work – vice -grip, needle-nose, and diagonal size-cutting are a few. *Vice-grip pliers* are used in situations that require an increased grip such as when loosening something that is rusted.
>
> A *glow* plug – a device used to create enough resistance and heat to ignite fuel in a combustion chamber – is used in place of spark plugs on some engines.
>
> The air release – a release mechanism for a sliding fifth wheel – is operated from the cab of a tractor by actuating an air control valve.

Parentheses ( ) Words in parentheses restate or define terms and abbreviations specifically related to your trade.

> After repeated use, the heads of punches may become mushroomed (flared outward).
>
> The open-end wrench fits both square head (four-cornered) or hex head (six-cornered) nuts.
>
> If the specifications are in metric Newton-metres (N•m), one Newton-metre is equivalent to 1.36 pounds-foot.

Colon: The information that follows the colon (:) often explains a word or term.

> Gasoline is a *volatile* liquid: it will evaporate rapidly and pass off in the form of a vapour.

These examples provide you with a sampling of the kinds of signals and supports available to you to help you understand your trade material. There are many more. Restatement gives you a second chance to understand information, so watch for all of the clues.

CONCLUSION

Restatement or paraphrasing is a method used to understand, explain and remember technical information. This is an essential technical reading and writing skill to develop and refine.

It will make information clear to you – and you can make it clear to others. When you identify information presented in a new or different form, you can move between written and graphic information understanding each, on its own, and combined.

Summary

1. **Use your own words to restate or paraphrase** technical information. *Talk* yourself through the material.

2. **Find out where** you get stopped. Go back over the difficult steps to master them.

3. **Paraphrase step-by-step** to master material. *Walk* your way through complex information by dividing the steps into smaller bits.

4. **Examine and understand each piece** like pieces in a jigsaw puzzle. As you make sense of each piece, you arrive at the big picture.

5. **Use graphics as restatement** of the text and vice versa. Read the text for understand what is in the graphic: read the graphic for interpretations of the text.

6. **Convert the words and ideas** into the mental action of understanding, or the physical action of performing a task.

7. **Watch for the signals**: use the built-in guides that restate, explain, or define text or graphic material.

Answer Page
PART 1 **Passage 1, High -Tensile Steel Strength**

1. What does "*will not adversely affect"* mean?

   The word *adversely* might be an example of a word you have to look up. It means *unfavourably* or *in a harmful way*. Thus, the words above could be paraphrased (restated) as

   Conventional heating and welding methods won't hurt the strength level of HSS .

2. You can reduce stresses caused by a collision if you heat a high-tensile-strength-steel panel to straighten it.
   T

   Compare Sentence two in Paragraph two with the sentence above: *When heat is applied to an HSS component to straighten it, the stresses which resulted from the collision are decreased.*

   The order is different, some words are different (e.g. *reduce stresses = stresses ... are decreased*).

3. Heating a part being straightened with oxyacetylene helps bring it back to its former condition.
   T

   The sentence from Paragraph three is below: *Oxyacetylene can be used to assist the restoration of the component; heating a part being straightened is an example.*
   As with question 2, the order of the words is different, and some words are different: *bring back to its former condition = restoration, helps = assists.*

4. The temperature around these areas will be restricted to 1, 200 degrees Fahrenheit means:
   a) they will not be higher than 1, 200°F.

   Restricted to means *limited to* or *confined to.* It means that the temperature will not be more than 1,200 degrees Fahrenheit.

   1, 200°F is the abbreviation for 1, 200 *degrees Fahrenheit.*