

# **PACCAR Style Guide**



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## Chapter

# 1

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## PACCAR Writing Style Guide

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### Topics:

- *Introduction*
  - *Manual Type Applicability*
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## Introduction

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How to use this manual:

The intention of this manual is to maintain a standard of the the writing style for every documentation created and to remain consistent through the whole document. Complying of this manual should result in writing consistency.

The PACCAR style guide does not cover all the terms or all the content issues specific to various PACCAR products. Individual product groups maintain their own project style sheets to deal with style issues that are not covered in this manual.

The PACCAR style guide targets people who write and edit product documentation for “end users.” With the move to digital online documentation, the scope of the PACCAR style guide broadens considerably.

Topics provide information ranging from a simple note on the correct spelling of a term to a thorough review of what to do, why, what to avoid, and what to do instead, with frequent correct and incorrect examples. Subentries to index keywords frequently jump to subsections of longer topics so that you can more easily find the information you want. You can also scroll through longer topics to avoid subentries jumps.

## Manual Type Applicability

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### Operators manual

This is a document that describes in detail the processes and systems that the company uses for explaining the interface to the operator/user.

### Service Manual

This is a document with instructions on how to keep the components, machinery, software, etc. working properly in different moments of its lifetime.

### Programming Guides

This is a document that contains the parameters for every function and procedure which can be changed or modified according to the requirements.

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# Chapter

# 2

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## Punctuation

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### Topics:

- *Commas*
  - *Colons and Semicolons*
  - *Dashes*
  - *Hyphens*
  - *Exclamation Marks*
  - *Parentheses and Brackets*
  - *Quotation Marks*
-

## Commas

Use a comma in the following situations:

- After all elements in a list, that is, before the and/or.

Correct	Incorrect
Represented at the show were Kenworth, Peterbilt, Volvo, Ford, and Boeing.	Represented at the show were Kenworth, Peterbilt, Volvo, Ford and Boeing.

**Note:** This style guide promotes the use of the **Oxford comma**, sometimes called the **serial comma**, after the penultimate term in a list of three or more items. This usage clearly distinguishes listed items.

- Between independent clauses.
- After the adverb when the adverb modifies the entire sentence.
- Following an introductory phrase.
- Preceding “etc.”.

Correct	Incorrect
nuts, bolts, washers, etc.	nuts, bolts, washers etc.

- Between a list of two or more adjectives describing the same noun.
  - Use commas to separate coordinate adjectives. Coordinate adjectives modify the same noun independent of each other. They hold equal weight.
  - Do not use commas to separate cumulative adjectives. Cumulative adjectives describe, not only the noun, but the combination of the next adjective and the noun. Cumulative adjectives build upon one another to modify a noun.

Correct	Incorrect
“Place a thin, opaque film over...”	“Place a thin opaque film over...”

- Before “which”.
- With a conjunction, such as "and", "or", "but" or "so".
- After "i.e." and "e.g.”.

Correct	Incorrect
i.e., the lesser of the two...	i.e. the lesser of the two...

Do not use commas in the following situations:

- To join independent clauses when you do not use a conjunction. (Use a semicolon instead)
- In numbers less than 10,000, unless for alignment in a table that also contains numbers 10,000 and greater. (Also see [Numbers](#) on page 23)

Correct	Incorrect
1000	1,000
10,000	10000

## Colons and Semicolons

### Colon

Use a colon in the following situations:

- Connecting two complete sentences, as long as the first one introduces the second.
- For an introductory or annunciatory statement/word.

- For numerical ratios and proportions.

**Note:** Only use colons within in-line lists when absolutely necessary. In most instances, you can substitute an ordered or unordered list for an in-line list with a colon. In-line lists are appropriate when the listed items have a natural antecedent in the sentence and do not require a colon. For example, "My favorite animals are dogs, cats, birds, and snakes."

### Semicolon

A semicolon between two independent clauses indicates less of a pause than a period. If the clauses are not joined by a conjunction, use a semicolon. Otherwise, use a comma before the conjunction. Semicolons are useful in joining two contrasting statements.

In general, you should not capitalize the first word after a semi-colon unless that word is a proper noun.

Use a semicolon in the following situations:

- To connect two sentences that are highly related.
- To clarify the punctuation of a list of items that includes their own internal commas.
- To indicate a pause between two related clauses when a conjunction (and, but, nor, ...) is not appropriate, nor are two separate sentences.
- Before a conjunctive adverb (however, therefore, namely, in addition...) when separating two independent clauses.

## Dashes

Also see [Hyphens](#) on page 8.

The em dash (—), based on the width of an uppercase M, is used primarily to set off sentence elements. Use code Alt + 0151 to insert.

**Note:** Do not use word spacing on either side of an em dash. If your style sheet and your publishing process support it, insert a 1/4 en space on each side of an em dash.

Use an em dash in the following situations:

- To set off within a sentence a parenthetical phrase that deserves more emphasis than parentheses imply. Use one em dash on each side of the phrase.

Correct	Incorrect
The information in your spreadsheet—numbers, formulas, and text—is stored in cells.	The information in your spreadsheet, numbers, formulas, and text, is stored in cells.

- To set off a phrase or clause at the end of a sentence for emphasis.

Correct	Incorrect
Set key names in all caps—for example, CTRL or ALT.	Set key names in all caps, for example, CTRL or ALT.

- Do not use an em dash in place of a bullet or other typographic symbol to set off items in a list.
- Do not use an em dash to indicate an empty cell in a table.
- When an independent clause follows an em dash, do not capitalize the first word unless it is a proper noun.

The en dash (–) is based on the width of an uppercase N. It is slightly longer than a hyphen, half the length of an em dash. En dashes are used primarily as connecting elements, especially with numbers. Do not use spaces on either side of an en dash. Use code Alt + 0150 to insert.

Use an en dash in the following situations:

- To indicate a minus sign.
- Use "through" instead of an en dash to refer to a range of steps.

Correct	Incorrect
Steps 1 through 4.	Steps 1-4

**Note:** When a shortened term is common in the industry and the full-length term has already appeared within the topic, then a dash may be substituted for "to." For example, "A-B comparison" can be used as a shortened form of "A to B comparison."

- Do not use an en dash to indicate an empty cell in a table.

## Hyphens

Also see [Dashes](#) on page 7.

Hyphens can be used to join certain words, especially when used to create complex adjectives before a noun. .

In general, when a prefix results in a double vowel and each vowel is pronounced, the word is not hyphenated. Avoid coining words by adding prefixes to existing words. Such words can be difficult to translate, especially into languages that are not based on Latin.

For more information, see the individual entries in the usage section of this guide for specific prefixes, the American Heritage Dictionary, the Oxford Advanced American Dictionary, or The Chicago Manual of Style.

Use hyphens in the following situations:

- When the term is used as a compound adjective. For example, "Aerodynamic loads based on 90-mph, 42°-yaw wind case."
- When two or more adjectives precede a noun and work together to modify the noun. In these situations add a hyphen between each adjective or modifier (for example, "cloud-based solutions," "right-side lever," and "up-to-date message"). In other words, use a hyphen between adjectives when they are acting as a single modifier
- When adding a prefix to a strictly uppercase stem. For example, "un-American."
- When the second word ends in "ed" it usually needs a hyphen. For example, "design-based."
- When units are being used as adjectives. For example, "450-lb gorilla."
- When a term is used as a compound modifier. i.e., worst-case, high-pressure.
- Any use of "based" is hyphenated. For example, "water-based."
- When pertaining to specific locations. For example, "left-hand."
- When writing acronyms in a statement. For example, "finite-element-(FE-)based analysis."
- With certain prefixes, such as "ex-," "quasi-," and "self-."
- When the prefix ends with a vowel and the root word begins with a vowel. The context in which the term is used is crucial. For example, "anti-ice," "co-owner," and "co-organizer."

Do not use hyphens in the following situations:

- Between a prefix and a stem word unless a confusing word would result or if the stem word begins with a capital letter. For example, "Systematic," "Ecosystem."
- When the first word ends in "ly". For example, "newly designed part."
- When each adjective independently modifies the noun.
- When the adjective modifies a commonly accepted phrasal noun. For example, in "approved safety message," "approved" is modifying the phrasal noun "safety message."

When using hyphens for numbers use the following considerations:

- Spell out and hyphenate proper fractions. For example, "one-third."
- Retain numerical form for mixed numbers, and hyphenate fractions. For example, "10-1/2."
- Omit the hyphen between the numerator and denominator when the hyphen appears in either. For example, "one twenty-sixth."



## Exclamation Marks

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Avoid using exclamation marks to stress importance of statements. This should be done by utilizing appropriate wording, paragraph formatting, and adjuncts (note, caution, warning). For example:

### Correct:



**Warning:** Do not touch, hot surface.

### Incorrect:

Do not touch, HOT SURFACE!

## Parentheses and Brackets

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Limit the use of parentheses and brackets in the text to reference other sources and information, examples, etc. Use the following considerations as they apply:

- Literal use:
  - Place parentheses and brackets in the following order if both must be used. i.e., (... [ ... ] ...)
  - Use brackets immediately following parentheses rather than a second set of parentheses, as follows: ( ... ) [ ... ]
- Mathematical use:
  - For references only when mathematically applied in equations, reverse the order, as follows: {... [ ... ( ... )... ]... }

### Parentheses

Use parentheses in the following situations:

- Introducing tables or figures.
- Converted Units.
- After writing out an acronym.

If a phrase within parentheses forms a complete sentence, the punctuation goes inside the parentheses. For example: (See Figure XY.)

### Brackets

Use brackets in the following situations:

- For unavoidable parenthesis within parenthesis (inside).

## Quotation Marks

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Use these quotation mark considerations for the following situations:

- If referring to a word or phrase that appears in the uppercase when shown in a notification, then copy the displayed capitalization and punctuation, without quotations. For example, BRAKE!, STOP!, and PARK.
- Limit the use of quotation marks in technical documentation. When appropriate to use, use straight quotes versus curlyquotes.
- Do not use quotation marks for measurement. Use approved abbreviations.

Correct	Incorrect
3 in.	3"

- Do not use quotations to highlight part names or switch positions.

Correct	Incorrect
Turn the ignition switch to ON.	Turn the ignition switch to "ON".

- The period and the comma always go inside the quotation marks.
- The semicolon, colon, dash, question mark, and exclamation mark go outside the quotation marks. Unless the quoted text has internal punctuation, but if the period or comma are not part of the quotation, they go outside the closing quotation mark.
- If a closing punctuation mark is part of the quotation and ends the containing sentence, then do not insert an additional punctuation mark after closing the quote.
- Question marks or exclamation points stay inside, if part of your quotation; but if the question mark or exclamation point are not part of the quotation, they go outside the closing quotation mark.
- Use double quotation marks in nearly all cases, and single quotation marks if placing a quotation within another quotation.
- For ironical component descriptions or locations. This consideration is mainly used for slang commonly known. i.e., The transmission "nose" is manufactured by...

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# Chapter

# 3

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## Grammar

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### Topics:

- *Tone*
  - *Verb Forms*
  - *Contractions*
  - *Articles*
-

## Tone

Tone defines the relationship between the writer and the reader. Because our writing represents PACCAR, it is important that we adopt a consistent tone. Certain aspects of writing can vary according to the audience and situation; our tone should be respectful, reassuring, professional, and friendly.

PACCAR tone should convey these values:

- **Empathy.** We understand our customers' needs, and we see meeting their needs as being in both our interests. We are more focused on solving problems than on describing product features. We strive to make content usable and useful with a minimum of effort on the reader's part. Doing so can be as simple as spelling out common phrases instead of reducing them to an acronym that only initiated readers are really comfortable with.
- **Responsibility.** PACCAR is an industry leader, and as such we have responsibilities beyond being a producer of great software and a tough competitor. We think through how our comments will be perceived; we do not dictate.

## Verb Forms

Technical content should be as clear and unambiguous as possible. As such, there are general rules that govern the usage of verb forms. Verbs in technical writing are typically written in active voice, rather than the passive. Another general rule is to use the second person imperative mood for operational procedures or steps to indicate mandatory or directive actions. In some instances, descriptive or informative data may be conveyed using the third person imperative.

Incorrect	Correct
The technician should consider to...	Consider...
Operators should be cautioned that...	Use caution when...

When writing a manual is necessary to consider the following guidelines:

- Avoid the use of first person.
- Avoid the use of passive voice. Use passive voice only when necessary. When writing with passive voice, comply with the following considerations:
  - Accuracy is paramount. Sometimes subjects really do receive the action of the verb, and to imply otherwise would be inaccurate.
  - Consider the reader. Technical writing favors the active voice, but passive voice can be used if accuracy in the message is not important.

Example
We have produced over 20 different models in the past two years. (active voice)
Over 20 different models have been produced in the past two years. (passive voice)

- Offer sentence variety. While active voice sentences tend to be more engaging, they can also become tedious unless a few passive voice sentences are peppered in.
- Use your judgment. When accuracy is not an issue, make an attempt to use active voice.
- Avoid modal verbs, which are words that create passive voice. Use them only when necessary. Examples of modal verbs include: can, should, shall, may, would.
- Avoid optative and subjunctive moods by minimizing the use of words that express potentialities or possibilities, such as "may," "should," or wish."
- Avoid using the future tense ("will"), unless the present tense creates confusion or ambiguity. The end user interacts with the system in real time.
- Avoid past participles. In general, rewrite sentences with past participles using the simple past tense.
- Third person can only be used with certain conditionals in procedures. Avoid the use of third person in general writing.

- Prefix "re" becomes "red-" before Latin roots beginning with vowels. It is hyphenated when paired with English roots if the resultant spelling would be the same as an existing word; it may also be hyphenated before English roots beginning vowels, especially e-, but this is often up to the discretion of the writer and is not usually done in American English. Avoid using words with the prefix "re", if so, comply with the following definitions for the prefix:
  - Once more; again (in the same manner, direction, etc.). For example: rearrange, reaffirm, reboot, recognize, recover, redesign, restart.
  - Once more; again (with the aim of improving, fixing, or substituting). For example: reapply, relabel, relocate, reseal, recalculate, retry, reschedule.
  - Something new; restored to the original place, condition, etc. For example: reacquire, readjust, realign, rebuild, replace, restore.
  - Against; back or in reverse; opposite; in response to. For example: react, rebuff, recoil, redeem, refer, reject, remove, return.

## Contractions

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Contractions must not be used at any time.

Correct	Incorrect
Do not	Don't
Are not	Aren't

## Articles

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The incorrect use of articles can entirely change the intended meaning of a sentence. Articles are not always necessary. Articles are generally not used when referring to an entire category.

1. When writing content for steps, eliminate articles when necessary. Steps must be as concise as possible.

Correct	Incorrect
Set the AC on the LH to ON position	Set AC on LH to the ON position



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# Chapter

# 4

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## Style

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### Topics:

- *Language Style and Voice*
- *Spelling*
- *PACCAR Standardized Language*
- *PACCAR Powertrain Components*
- *Trademarked Names and Processes*
- *Acronyms*
- *Abbreviations*
- *Units of Measurement*
- *Capitalization*
- *Numbers*
- *Symbology*
- *Sentence Structure*
- *Pluralization*

## Language Style and Voice

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As you explore the manual, you will notice some primary audiences mentioned by name:

- Vehicle operators.
- Dealers.
- Service technicians.

Unless a section specifically addresses one or more of these audiences, it applies to all of them.

### Voice:

Voice refers to the relationship between the grammatical subject of a sentence and the verb. In active voice, the person or thing performing the action of the verb is the grammatical subject. In passive voice, the receiver of the action is the grammatical subject.

In general, active voice should predominate. Passive voice is not a grammatical error, but it has the greatest impact when you use it sparingly.

Passive voice can be a problem for localization. Some languages use passive voice rarely, if at all, so the translation can end up sounding stilted or unnatural.

Passive voice is acceptable in the following situations:

- To avoid a wordy or awkward construction.
- When the subject is unknown or the emphasis is on the receiver of the action.
- When framing the user as the subject may be perceived as condescending or assigning blame. The potential for this perception is especially a concern when authoring error messages or troubleshooting topics.

### Style:

Write in a clear and concise style, paying attention to each of the following:

- Use precise, simple, and short words, terms, and phrases that will convey the intended meaning.
- Use consistency in terminology.
- Use consistency in organization of material.
- Present information in the most logical sequence.
- Cover only one item per sentence.
- Minimize the use of registered, trademarked, or proprietary names that apply exclusively to the product of one company.

## Spelling

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- All spelling shall be in accordance with PACCAR Standardized Language. For terms that have no PACCAR entry, refer to the Oxford Advanced American Dictionary.
- North American English is the PACCAR preferred language. Avoid British spellings, except when used for established or branded proper nouns.

Correct	Incorrect
meter	metre

## PACCAR Standardized Language

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PACCAR promotes standardized language terminology rules to achieve uniformity and clarity in its documentation.

A database of preferred terms may be accessed using Acrolinx. When there are multiple industry-accepted terms, and neither is included in Acrolinx, choose one term and use it consistently. Terminology suggestions should be sent to the appropriate divisional admin.



Commonly used preferred terms include the following examples:

#### **Horns:**

- Air Horn - Louder horn used by pulling on a cord located either above the driver's side window or next to the interior cab dome light.
- City Horn - Quieter electric horn used by pressing on the center of the steering wheel.

#### **Safety Restraints:**

- Safety Restraints - All safety belts (seat, bunk, etc.).
- Seat Belt - Driver and passenger seat belts.
  - Lap Belt - Portion of seat belt that goes over one's lap.
  - Shoulder Belt - Portion of seat belt that goes over one's body/shoulder.
- Sleeper Bunk Restraint - Safety restraints in the sleeper.

#### **Digital Display**

- Views - Various screens presented to the operator. Engineering refers to these as "cards" on the 7 in. display, but avoid using this term in both operator's and service manuals.
- **Back/Cancel** - The **Back/Cancel** button is located on the left-hand switch pod. Sometimes the term "Back/Dismiss," or "Back" is indicated in engineering documentation. Always refer to both terms, even if only one is implied, and use only **Back/Cancel**. Surround **Back/Cancel** with the <uicontrol> tag (as it is a switch or switch position).
- Notification - A notification communicates information from the vehicle's computer, sourced from the vehicle's various sensors. Notifications used to be called "popups." Do not use the term "popup."

**Note:** When using "display" as a noun, such as in "digital display," do not use the same term in its verbal form.

To author concise and unambiguous content, consider the following language guidelines:

- Avoid words that create redundancy, such as "actually," "really," and "very."
- Unless space is limited, avoid the Latin-based abbreviations "e.g." and "i.e." in favor of English alternatives, such as "for example" and "in other words."
- If a phrasal verb has a one-word equivalent, use the one-word equivalent. For example, use "omit" rather than "leave out."
- Although agnostic authoring can facilitate reuse, make sure not to omit words that would otherwise clarify the meaning of the sentence.
- Do not invent words (neologisms) by creating nouns from verbs, verbs from nouns, or adjectives from verbs or nouns. The only exceptions to this rule are commonly accepted neologisms, especially those found in the Oxford Advanced American Dictionary.

## **PACCAR Powertrain Components**

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When referring to a PACCAR Powertrain component in the context of a non-PACCAR Powertrain direct equivalent, always mention the PACCAR Powertrain component first.

When writing content that relates to both, the PACCAR TX-12 and PACCAR TX-18 transmissions, the references may be written together as "PACCAR TX-12/TX-18".

## **Trademarked Names and Processes**

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Avoid the use of registered (®) corporate and product trade names(™) in documentation (e.g., TKS® [Use IPS instead], Hi-Loc®, Loctite®) whenever possible. When it is essential to use them, identify them by the appropriate symbols the first time they appear in a document. Use the following rules:

1. First occurrence of each trademark in heading (if present).
2. First occurrence of each trademark in body.

3. This does not include names which have passed into the public domain (e.g., rayon, nylon).
4. Generic terms which are exceptionally complex (e.g. polytetrafluoroethylene) usually have accepted abbreviations (e.g., PTFE) which can be used in place of the trade name (e.g., Teflon®).

## Acronyms

The PACCAR style guide does not cover all the terms or all the content specific to various PACCAR products.

### Definition

An acronym or initialism is a word usually formed from the first letter of each word of a compound term or phrase.

### Customer Document Specific Acronyms

See **PACCAR Acronym Library (PAL)** for PACCAR-specific acronyms. If new acronyms appear within documents, they must be added and updated to the library. Contact PACCAR Technical Center to add new acronyms to the library.

### Application

When using acronyms apply the following considerations:

- Use an acronym to avoid repeating a compound term.
- If it is a common-use acronym or is contained in the PAL, place it in parentheses, in the singular form, following the fully spelled-out term the first time it appears in the text body. If the term appears infrequently, spell it out each time.
- When using an acronym as part of a system name, use the form that appears on the preferred terms list. For example, use "AC condenser fan", rather than "ac condenser fan" or "A/C condenser fan."
- Avoid acronyms in title unless they are the official name or more commonly known than their typed-out counterparts. Instead, use the full name in the title and again in the opening paragraph. Include the acronym in parentheses immediately following the full name in the opening paragraph. Acronyms may be used within the topic thereafter.
- Do not use outdated acronyms.
- Periods are not used between the letters unless included as part of a registered trade name.
- Do not add an apostrophe before the "s" when pluralizing acronyms.

Correct	Incorrect
PDFs	PDF's

The following table establishes the correct form of possible needed acronyms within a text:

Acronym	Meaning	Acronym	Meaning
AC	Air Conditioning	I-5	Interstate 5
ACERT	Advanced Combustion Emission-Reduction Technology	ID	Internal Diameter
A/D	Analog-to-Digital	MFWD	Mechanical Front Wheel Drive
ABS	Antilock Brake System	4WD	Four Wheel Drive
AM	Ante Meridian	H2O	Hydrogen Dioxide
AWG	American Wire Gauge	HPQC	Hewlett Packard Quality Center
APADS	Air-Conditioning Protection and Diagnostic System	MSA	Measurement System Analysis
CAC	Carge-Air Cooler	PM	Post Meridian

Acronym	Meaning	Acronym	Meaning
CAE	Computer-Aided Engineering	CBOC	Clear Back Of Cab
CG	Center of Gravity	OD	Outside Diameter
CHET	Cab Harness Electrical Tester	ICC	International Color Consortium
CO2	Carbon Dioxide	KAG	Kenan Advantage Group
VQR	Vehicle Quality Record	NGP	Next Generation Product
CIE	Comission International de l'Eclairage	OEM	Original Equipment Manufacturer
COE	Cab-Over-Engine	PPAP	Production Parts Approval Process
DEF	Diesel Exhaust Fluid	PSD	Power Spectral Density
RFQ	Request for Quote	PEC	PACCAR Engine Company
DV	Design Verification	POL	Petroleum, Oil and Lubricants
DVP&R	Design Verification Plan and Report	QV	Quality Validation
DMAIC	Define, Measure, Analyze, Improve, Control	PTO	Power TakeOff
DP	Delta Pressure	PV	Product Validation
EPA	Enviromental Protection Agency	SG	Specific Gravity
EU	European Union	US	United States
FAQ	Frquently Asked Questions	VEPS	Vehicle Electronics Programming Station
FEA	Finite-Element Analysis	VIN	Vehicle Identification Number
FRACAS	Failure Reporting and Corrective Action System	PTC	PACCAR Technical Center
FEPTO	Front Engine Power TakeOff	VMRS	Vehicle Maintenance Reporting Standard
FMEA	Failure Mode and Effect Analysis	SUV	Sport-Utility Vehicle

## Upper and Lower Case Acronyms

- Proper noun acronyms use an initial capital letter if the registered trade name holder so chooses.
- Acronyms which are also initialisms are almost always written in the upper case, even when they represent a common compound noun or phrase.
- PACCAR is always capitalized. Do not abbreviate in any form.
- Kenworth and Peterbilt are always capitalized in the first letter. Do not use acronyms KW for Kenworth or PB for Peterbilt.

## Abbreviations

The PACCAR style guide does not cover all the terms or all the content specific to various PACCAR products.

## Documents

Comply to the following external documentation for consulting common abbreviations:

- SAE TSB 003
- ANSI Y1.1-1972
- ASD STE-100
- ASTM E 1049-85
- AWS Standard Welding Terms and Definitions
- Bosch Automotive Handbook, 3rd edition
- Handbook of Technical Writing

Comply to the following internal documentation for consulting PACCAR common abbreviations and acronyms:

- PACCAR Acronym Library (PAL)

If new abbreviations appear for the first time within the document they must be followed by the meaning and it must be added to the PACCAR Acronym Library (PAL).

## Application

- Use an abbreviation only when restrictions require it, such as in charts, tables, and drawings.
- Abbreviated plural part numbers should never include apostrophe. i.e.,g P/Ns.
- Avoid using 12:00 A.M. or 12:00 P.M. to refer to noon or midnight. If you are consistently using 24-hour notation, 00:00 and 12:00 are unambiguous. In any case, simply specifying noon or midnight is sufficient.

The following table establishes the correct form of possible needed abbreviations within a text:

Abbreviation	Meaning	Abbreviation	Meaning
ac	Alternating Current (Lower case)	3-D	Three-Dimensional
AC	Air Conditioning (Upper case)	dc	Direct Current
A.M.	Anti Meridiem (capitalized and use periods)	crosswind	Cubic inch
amb	Too many words	deg	degree
amp	Ampere (also A, see <i>Units of Measurement</i> on page 21)	arcmin	Arc Minute
assy	Assembly	email	Electronic Mail
avg	Average	eng	Engine
brkt	Bracket	etc.	etcetera
ID	Internal Diameter (Upper case)	RH	Right Hand (Upper case)
lab	Laboratory	N.C.	Normally Closed (Use periods)
LH	Left Hand (Upper case)	N.O.	Normally Open (Use periods)
n/m	Not Measured	pH	Hydrogen-ion concentration
No.	Number	P.M.	Post Meridiem (capitalized and use periods)
OD	Outside Diameter (Upper case)	P/N	Part Number
n/a	Not Applicable (For tables)	Pro/E.	Pro/ENGINEER
U.S.	United States (always use periods)	qty	Quantity
vs.	Versus (Use period in the end)	rh	Relative Humidity
rms	Root Mean Square	regen	Regeneration

Abbreviation	Meaning	Abbreviation	Meaning
rsvr	Reservoir	std	Standard
Ste-Thérèse	Sainte-Thérèse	Inc.	Incorporated (Use upper case in first letter and period)

## Plural Abbreviations

- Abbreviations remain unchanged regardless of whether they appear in a singular or plural context, except in the case of those which have evolved into common words. i.e., 3 memos... memorandum.
- Do not use (s).

## Use of Periods

Periods are used with abbreviations only in the following situations:

- When a corporate name is registered in that manner. i.e., Inc., Ltd., Co.
  - Always use format PACCAR, Inc. when full name is mentioned within a document.
- In titles, honorifics, and positions of rank. i.e., Dr.
- When an abbreviation can be mistaken for a complete word. i.e., in. (inches)

## Units of Measurement

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When using units of measure, take in consideration:

- Imperial System is always used, it must be followed by the conversion in parentheses using Metric System (SI) when it applies. i.e., 1 in. (2.54 cm).
- Multiples and submultiples of the System International (SI) intended for base units are expressed by adding the prefixes to the base unit name. i.e., 6MPa (6 Mega Pascals).
- Prefixes plus unit names are always spelled as one word. When the prefix and unit letter symbols are combined, no space is left between them.
- For a value less than one, include a zero before the decimal point. For example, "0.3 in."
- Add a space between numeric values and units of measurement. Do not include hyphenation, unless the measurement is being used as an adjective. For example, "3 in."
- Metric Equivalents:
  - For measurements greater than or equal to one inch, the metric equivalent shall be in centimeters. For measurements less than one inch, the metric equivalent shall be in millimeters.
  - Metric equivalents shall be indicated to the same decimal place value as the measurement they accompany.
- Spacing of quantities, symbols, and equations:
  - Place a space between the quantity and its symbol, except in the case of plane angle values in degrees, minutes, and seconds.
  - Tag the quantities and measurements to avoid being split into an end-of-line.
  - Place a space between the variable and operator symbol in equations.
- Torque Values:
  - The preferred method of quoting torque values is by placing the distance followed by the magnitude of the force. i.e., "...torque 38 to 40 ft-lb (52 to 54 N·m)".
- Voltage Values:
  - When voltages are called out, use MIL-STD-12 abbreviation form to combine the voltage symbol and current type (AC/DC). i.e., 28 VDC.
- G-Force Values:
  - When quoting g-force values, use a lowercase "g". Do not use an apostrophe or an "s" to pluralize.

Make sure all of the units of measure throughout the document are consistent. The following table establishes the correct form of possible needed units of measure within a text.

Abbreviation	Description	Abbreviation	Description
A	Ampere (no space, i.e., 20A)	Hz	Hertz
ac	Acre (always lower case)	in.	Inch (always use period)
gpl	Gram Per Liter	kg	Kilogram
bar	bar (pressure unit)	kh/ha	Kilogram per Hectare
BTU	British Thermal Unit	km	Kilometer
cc	Cubic Centimeter	kPa	KiloPascal
cca	Cold Cranking Amps	kph	Kilometer per Hour
ccw	Counter Clockwise Rotation	kW	KiloWatt
cfm	Cubic Feet per Minute	L	Liter
cid	Cubic Inch Displacement	lb	Pound
cm	Centimeter	lb/ac	Pound per Acre
cu	Cubic	lb-ft	Pound-Foot
cu ft	Cubic foot	lb-in	Pound-Inch
cu in	Cubic Inch	LPM	Liter Per Minute
cu m	Cubic Meter	LPS	Liter per Second
cw	ClockWise	m	Meter
dB	Decibel (Sound Pressure Unit)	mA	MiliAmpere
dBA	Decibel A scale	$\Omega$	Ohm
°C	Celsius Degree (no space, i.e., 5°C)	mg	Miligram
°F	Fahrenheit Degree (no space, i.e., 75°F)	mi	Mile
dia	Diameter	min	Minute
fl oz	Fluid Ounce	ml	Mililiter
ft	Foot	mm	Milimeter
gal	Gallon	MPa	MegaPascal
gpm	Gallons per Minute	mph	Mile per Hour
g	Gram	N·m	Newton Meter (Always use midpoint. Use Alt+250 to insert symbol)
GVWR	Gross Vehicle Weight Rating	oz	Ounce
ha	Hectare	Pa	Pascal
hp	Horsepower	psi	Pound Square Inch
hr	Hour	pt	Pint

Abbreviation	Description	Abbreviation	Description
V	Volt	°	Angle (no space)
W	Watt	qt	Quart
yd	Yard	rpm	Revolution per Minute
3-pt hitch	Three-Point Hitch	s	Second
cpm	Cycles per Minute	sq	Square
scfm	Standard Cubic Feet per Minute	cP	Centipoise (Viscosity)
VDC	Voltage Direct Current	VAC	Voltage Alternating Current

## Capitalization

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### GENERAL:

The following represents a combination of grammatical and industry-accepted rules:

### Group Titles

Use initial capital letters for the titles of groups, departments, etc., in an organization, but not for their functions. The words “group”, “department”, etc., are not capitalized. i.e., ...with the Information Technologies department...

### Document Titles

1. Use initial capital letters in the titles of documents (specifications, reports, drawings, practices, procedures, directives, etc.)
2. Do not capitalize:
  - Articles: a, an, the. (Unless appearing as the first word in a title.)
  - Prepositions: at, but, for in, of, on, to, up. (Unless appearing as the first word in a title.)
  - Conjunctions: and, as, but, if, or, nor. (Unless appearing as the first word in a title.)
3. Do not capitalize the words: from, into, upon, with.
4. Use sentence-style capitalization in most titles and headings: capitalize the first word and lowercase the rest.

### Parts of a Document

- Use initial capital letters for the major parts of a document, and when referring to a formally identified major segment, but not when using the same word in a generic manner. (i.e., Volume 5, Book 3, Chapter 2, Section 3, Figure 9, etc.)
- Do not capitalize minor subdivisions. (i.e., paragraph, page, line, etc.)
- Do not capitalize and, but, or, nor, yet, or so unless it is the first word or the last word.

### Icons, Systems, and Product Names

Do not capitalize terms that refer to general icons or systems, such as “gauge,” “indicator,” or “system,” unless that word is a part of a branded product name. Phrases such as “fuel gauge” should also be lower case. Exceptions to this rule include words that are visually displayed anywhere in the truck and are capitalized in their display—capitalize these words when referencing their displayed form.

## Numbers

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## Numbers in Text

When numbers are used in text, comply with the following rules:

- Spell out numbers less than 10, except when they represent units of measurement, time, or money.
- If numbers refer to a step, task, table, figure, etc. use numbers. i.e., ...refer to figure 5...
- When numbers refer to a quantity of materials, components, etc. use written numbers. i.e., Install two bolts to ensure position...
- Rearrange a sentence if numbers occur as the first word, rearrange also if:
  - The sentence contains a series of measurements and numbers at first.
  - The paragraph is devoted to measurements and figures.
  - There is a long number at first.
- When use of a number at the beginning of a sentence is unavoidable, spell out the number in its entirety.
- Do not use ordinal numbers abbreviations. Instead write the complete ordinal number. The only exception is for gears.

Correct	Incorrect
First	1 <sup>st</sup>
Second	2 <sup>nd</sup>
3 <sup>rd</sup> gear	third gear

- When numbers quantify one another, spell out only the first.

Correct	Incorrect
Four 6-part...	Four six-part...

## Range of Numbers

When indicating a range of values use the following variations for hyphens:

- When using  $\pm$  tolerances, subtract/add the tolerance and write the complete range. i.e.,  $5\pm 2$  in. then 3 to 7 in.
- Use “from” ... “to” where a value could be “up to” and “including” the largest value in the range. i.e., ...from 1.0 to 5.0...
- Use “between”...”and” where a value is higher than the lowest number in the range but, lower than the highest number in the range. i.e., ...between 1.0 and 5.0...
- When referring to page numbers:
  - If the range includes only two pages, separate the numbers with “and”.
  - If the range includes more than two pages, separate the first and last numbers with “through”.
- When referring to steps, tables, figures, etc. use “through” instead of dash.

## Ratios

Use ratios with the following considerations:

- Use a colon to indicate a ratio. e.g., “2:1”. Do not use “to” or “/”.
- For percentages or numbers less than one, place a zero in front of the decimal point to eliminate any uncertainty as to the correct value.

Correct	Incorrect
0.3%	.3

## Date Format

When writing dates, use the following considerations:



**Table 1: Date Format**

Context	Format
Paragraphs	...March 05, 2018... (First letter capitalized)
Tables	MM/DD/YYYY (Month and day are 2 digits)
Footer	MM/YYYY (Month is 2 digits)
Bulletins	MM/DD/YYYY (Month and day are 2 digits)

- Do not change format or localize the date as it is locally used. i.e., 06/12/2003. This example could be read in different parts of the world as June 12, 2003 or as December 6, 2003. Date must remain consistent through the whole document. Follow the table above.
- Do not place spacings between slashes and numbers.

## Symbology

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### Symbols

In general, avoid the use of symbols in the text. Instead, use equations, or tables, or both. In situations where symbols are appropriate, use them in accordance with the following suggestions:

Symbol	Use
Single Apostrophe (')	Do not use as a symbol for foot or feet. The abbreviation ft is preferred. Also see quotation marks.
Quotation Marks (")	Do not use as a symbol for inch or inches. The abbreviation in. is preferred. Also see quotation marks.
Number (#)	Do not use this symbol to refer to "number", "pound", or "lb".
Ampersand (&)	Do not use as a symbol for "and" except in trademarked titles, book titles, or products.
Each (@)	Do not use as a symbol for "at" except in e-mail addresses.
Aproximately (~)	Do not use as a symbol for approximately.
Percentage (%)	Only use the “%” symbol in tables and illustrations.









Symbol	Use
Oblique or forward slash (/)	<p>Always type the oblique or forward slash with no space on either side, except as noted, and apply it as follows:</p> <ul style="list-style-type: none"> <li>• When used for "per", it shall be used with units of measure symbols only, and once only. "Per" is the latin for "each".</li> <li>• For certain commonly-used traditional abbreviations and acronyms. i.e., A/C. Air Conditioning.</li> <li>• For common fractions when decimal fractions are not appropriate. i.e., 1/4-20 (screw threads).</li> <li>• To indicate alternatives. In text, proper writing limits this practice, but it may be used where space is limited, for example, footnotes, tables, etc. i.e., YES/NO, ON/OFF.</li> <li>• For joint models. i.e., XXX/YYYY.</li> </ul>
Dollar (\$)	Use it preceding the number. Do not spell the word "dollar".
Degree (°)	Use for angles and temperatures. Always use this symbol, both in tables and text.
Greater than or Equal to ( $\geq$ )	For algebraic expressions. Use Alt+242 to insert symbol.
Less than or Equal to ( $\leq$ )	For algebraic expressions. Use Alt+243 to insert symbol.
Plus-Minus Tolerances ( $\pm$ )	Do not use $\pm$ symbol, instead, subtract/add the tolerance, write the complete range and separate them with "to". i.e., 15 $\pm$ 3 in.; 12 to 18 in.
Plus (+)	When modifying specific speeds, the plus should appear in the normal script, not the subscript. i.e., VREF+10.
Minus (-)	When modifying specific speeds, the minus should appear in the normal script, not the subscript. i.e., VREF-10.
Multiplication ( $\times$ )	Use the correct symbol ( $\times$ ). Use Alt+0215 to insert symbol. Do not use upper case "X" or lowercase "x".

## Symbols on Images

Symbols on images must comply with the format from [Symbols](#) on page 25. Do not use plural for symbols. Do not use abbreviations for symbols. Every symbol not previously mentioned in the document must be followed by a short description of the symbol.

## Removal Process

Use the color removal format for removal procedures. Comply with the table below for a removal process.

Color	Description
	Blue - Target or primary component to be removed/installed (or disassembled/assembled).
	Green - Components that need to be removed prior to or installed after the target/primary.
	Pink - Fasteners being removed or installed.
	Yellow - Components to be set aside for access, but not removed. Also highlighted areas to inspect or adjust.
	Magenta - Electrical connectors and fasteners such as clamps or clips to be detached, attached, loosened, removed, or installed.
	Pale Blue - Special tools, general equipment, or common tools used in an uncommon way.
	Cyan - Indicates where sealant is applied.
	Orange - High voltage electrical connectors and harnesses to be removed/installed.

Alternately removal procedures can be number-listed and components can be pointed by a line with a callout reference in the end of the line.

## Sentence Structure

To facilitate clear and unambiguous authoring, consider the following sentence structure guidelines:

- Use subject-verb-object (SVO) sentence structure, unless doing so would create ambiguity. Consistently using this structure makes content easier to read.
- Always separate complete sentences or join them using the appropriate coordinating conjunction. Using only a comma to separate complete sentences results in run-on sentences.
- Though infrequent in technical communication, a semi-colon (;) may be used to separate complete sentences. When using a semicolon in this manner, adhere to proper sentence structure for both clauses (for example, SVO and pronoun-antecedent agreement).
- Ensure that antecedents precede pronouns (for example, "he," "she," "it"). In general, avoid using multiple pronouns within a single sentence if doing so would make the subject-verb agreement ambiguous.
- Always follow demonstrative pronouns (for example, "this," "that," "these," and "those") with a noun. For example, "this switch" or "these switches."
- Use "whether," rather than "if," to express a choice between two options. When using whether and one of the two options is the possibility of something not happening, leave out the phrase "or not."
- When introducing listed content with "the following," or similar constructions, include the noun after "following." This practice promotes thoughtful grouping of list items, which reduces ambiguity and confusion.
- Use "option 1, option 2, or both" instead of "and/or," when the possibility of choosing two options is a legitimate possibility. In all other cases, use the coordinating conjunction that is most applicable.
- Avoid sentences longer than 26 words.
- Avoid ending sentences with prepositions.

- Avoid double negatives.

## Pluralization

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- In general, do not use "-(s)" to indicate potential or parenthetical plurals. If something can be either singular or plural, use the option that best suits the context. If both singular and plural would apply, then default to plural.
- For a plural, collective, or proper noun ending in -s, insert the possessive apostrophes after the final -s. Do not add an additional -'s to these nouns.

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# Chapter

# 5

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## Content Formatting and Layout

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### Topics:

- *Formatting*
  - *Art (Illustrations)*
  - *Book Format*
  - *Tables*
-

## Formatting

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### Title

The <title> element contains a heading or label for the main parts of a topic: the topic as a whole, sections, examples, and labelled content such as figures and tables. The element also can be used to provide a title for a map or a relationship table; when used in a relationship table, the title typically is used as an authoring convenience and is not rendered for display to an end user.

Make titles as concise as possible, limiting them to one line. Choose descriptive titles that best identify the main subject expressed by the text, table, or illustration.

When the first letter of a hyphenated term, name, or phrase is capitalized in the context of a title, uppercase any letters that appear after the hyphen.

Tables, figures and subtopics must use the <title> tag. References will be linked to the title, not to the topic. Do not use <title> tags in the following situations:

- When the topic title describes the content of a table. In this case, any reference must be linked to the topic title.
- When the topic title describes a figure content. In this case, any reference must be linked to the topic title.
- When a topic content is less than two paragraphs.

### Italics/Bold

The <i> element is typically used to apply italic highlighting to the content of the element. This element is part of the highlighting domain. They can be used to refer to words used as terms. Use this element only when a more semantically appropriate element is not available. For example, for specific items such as citations, use the <cite> element.

**Note:** Style sheets can be used to format the <i> element differently, just like any other element can be restyled. Thus, it is not the case that content in <i> elements will necessarily be italicized.

Use italics text in the following situations:

- Do not use italic text for note element.
- Italics can be used to refer to specific terms.

The <b> element is typically used to apply bold highlighting to the content of the element. This element is part of the highlighting domain. Use this element only when a more semantically appropriate element is not available.

Use bold text in the following situations:

- Do not use bold text for emphasis, or to highlight exceptions. Also see [Quotation Marks](#) on page 9.
- Bold text for headers and safety messages is determined by the style sheet.
- Bold text can be used in UI references such as <uicontrol> tags.

### All Caps

Some words and sentences should be authored in all caps:

- Safety signal words when referring to the signal word (not when being used generally).
  - WARNING, CAUTION, and NOTE, vs "Take note of the component position." or "Use caution when disconnecting the cable."
- "DO NOT" when used in a safety message.
  - DO NOT let go of the hood while it closes.
- Words or sentences that are in all caps when printed on the vehicle (dash, stickers, exterior).
  - OFF, ON, STOP, KEEP OUT OF REACH OF CHILDREN, CERTIFIED CLEAN IDLE.
- Words or sentences that are in all caps when shown on the display.

- BRAKE!, STOP!, PARK, etc..
- Proper names that are normally in all caps:
  - PACCAR, EATON, JOST, etc..
- Acronyms and initialisms.
  - ACC, LDW, ESC, HVAC, etc..
- Vehicle application
  - VOCATIONAL, ON HIGHWAY, CITY DELIVERY, etc..
- Some legal jargon in the Warranty section.

Some of these examples will also require the `<ui>` tag set, which will bold the word or sentence.

## Paragraph

The `<p>` element is a single paragraph containing a single main idea. Paragraphs must remain consistent through the whole document. Use the default format for paragraphs. Do not change the format. Avoid `<p>` tags in elements that do not require them, this will be determined by the style sheet. Do not use `<p>` tags within a table for paragraph breaks, this may cause format alterations and tables to auto-adjust.

**Note:** If a paragraph break is needed within a table, a ticket to the style sheet team must be issued to fix this problem.

## Underline

Do not underline sentences except for links.

## Overrides

Applying a paragraph style does not remove any existing character formatting or character styles applied to part of a paragraph, although you have the option of removing existing formatting when you apply a style. Additional formatting is called an override. Avoid overrides in paragraph design, character design, and page breaks.

## Telephone Numbers

Use the following format when writing telephone numbers:

- 111-222-3333

## Safety Messages (Warnings and Cautions) and Notes


### Construction

Safety messages (warnings and cautions) should identify the hazards, indicate how to avoid them and advise of the probable consequences of not avoiding the hazards. For the content of the safety messages, comply with the following authoring construction. Safety Messages (Warnings and Cautions) should

- Be concise (usually less than four sentences).
- Use basic vocabulary (language below the 8th-grade reading level).
- Avoid non-traditional punctuation (mainly the semicolon).

Additionally, safety messages **must** define the:

- Evasive or avoidance actions to be taken – this can often be an initial "call to action" statement.
- Type of hazard – this often describes the "why" of the safety message, that justifies the "call to action" sentence.
- Potential consequences of the hazard – this will always be the boilerplate, final sentence.

Safety Message Breakdown	
	<b>Warning:</b> Before attempting any procedure in the engine compartment, stop the engine and let it cool down. Hot fluids and components can burn skin on contact. Failure to comply may result in death, personal injury, equipment damage, or property damage.
Action	Before attempting any procedure in the engine compartment, <b>stop the engine and let it cool down.</b>
Justification	Hot fluids and components can burn skin on contact.
Consequence	Failure to comply may result in death, personal injury, equipment damage, or property damage.

The “boilerplate” consequence sentence should be the same for every safety message that shares the same signal word: Warning or Caution. There can be some variability in the consequence sentence if some of the consequences **could not** realistically result from the statement's hazard, or if the type of hazard and the hazard consequences can be clearly and easily combined in one sentence; however, this is not the rule.

Signal Word	Consequence Sentence
<b>CAUTION</b>	Failure to comply may result in equipment or property damage.
<b>WARNING</b>	Failure to comply may result in death, personal injury, equipment damage, or property damage.
Consequence Sentence Exceptions	
<p><b>CAUTION</b> — DO NOT operate the transmission at an operating angle greater than 12°(approximately 21% road grade). The operating angle is the transmission mounting angle plus the road grade expressed as an angle. Failure to comply will result in improper transmission lubrication and may result in equipment or property damage.</p> <p><b>The author for this message was able to reduce sentence count by incorporating some information into the consequence sentence.</b></p> <p><b>CAUTION</b> — Use appropriate recovery equipment when charging and discharging liquid refrigerant systems. Federal law requires capturing and recycling refrigerant to prevent the release of refrigerant into the environment. Failure to comply may result in environmental damage.</p> <p><b>In this Caution, the damage is specifically to the environment and not a concern for “equipment or property.”</b></p>	

These exceptions are representative, citing only a few exceptions that exist in PACCAR's authoring. Again, instances such as these are exceptions and not the rule. Deviating from the standard safety message structure should only be considered when the consequences are not all realistically applicable, or if the safety message is overly lengthy and would benefit from sentence reduction.

## Placement

When including safety messages and Notes into your authoring, comply with the following placement standards. Safety messages and Notes shall:

- Use the same paragraph tag level as the step to which it applies.
- Apply when they are relevant to the topic, step, table, or figure, if they apply to the same element.
- Occur in the following order when multiple messages are present
  1. Warnings
  2. Cautions
  3. Notes
- Always be listed before the step to which it applies.



- If several indications of the same type (e.g., two Notes) apply to the same step, they shall not be indicated individually.

*Grouped Safety Messages* - Safety messages that apply "generally" to the entire manual may be listed in a grouped safety message topic, located at the manual's front. Currently these exist in all PACCAR manuals and are primarily concerned with driver conduct and general maintenance practices.

*Concept and Reference topics* - When a safety message is placed in a Concept or Reference topic, it should be placed before, and as close to, the information for which it applies. The message should reside within the paragraph element <p> without breaking the flow of the paragraph.

*Task topics* - When a safety message is required in a Task topic, ask yourself the question "Does it apply to the entire procedure generally, or just to one step?"

- If it applies "generally," to the entire procedure, then it should be placed at the front of the topic within the <context> element. Safety messages should follow any graphics used in the Context.
- If it applies only to a specific step or steps, then it should be placed in an <info> tag and inserted directly into the <step> element.

*Tables* - safety messages can be inserted directly into a table cell. Be aware, however, that this will take up a great deal of space which may not be appropriate for a three-column operator's manual.

## Coding

Until a new safety message is approved, author safety messages directly into the topic for which it applies. This is done by adding the <note> element into the topic and assigning the **type** attribute with the value appropriate for the message hazard – either Warning, Caution, or Note. The signal word symbol, font, and styling is handled by the <note> element and by our style sheet.

Do not enclose safety message content in a paragraph <p>, phrase <ph>, or other text element tag set. Author the content directly into the <note> element. Try to avoid using bulleted lists within safety messages, though sometimes good authoring makes this unavoidable.

Once a safety message or Note has been approved, it should be placed into an referable content (RC) topic to facilitate findability and reuse. This must be coordinated as it may pull many topics and maps out of Done, and should only be initiated by an experienced PACCAR author or the information architect (IA).

## Standardized Naming for Documents

Naming for operator's and service manuals must be standardized and remain consistent when creating a new document or updating a new document revision. Comply to the following considerations:

- File name: Machines use sequential, discreet, and numeric labels that point at a location or attribute (like directory address or ID number), while human users use names which describe the content of the file. A file naming template is to reconcile these two different demands in one compact formulation. For naming files, start with the machine label and then append it with some sort of content description. An underscore can be used as a character that tells the user where the machine label ends and the content description begins. i.e., 786-ABC-VI\_Voltage-Regulator-Guide.pdf.
- Document title:
  - Service manual titles shall conform to the following syntax:
    - As applicable, list the following in this order:
      - truck cab size (ex: 2.1m or 1.9m) or truck model (ex: 520);
      - truck class (ex: Heavy Duty or Medium Duty)
      - truck architecture (ex: VMUX, EMUX, etc.)
      - subject of the service manual (ex: Exterior Lighting, Door and Mirror, HVAC, etc.)
    - Division shall be omitted from the title;
    - Year shall be omitted from the title;
    - The words "Service Manual" shall be omitted from the title;

- Do not terminate titles with a period.
- Book cover: Book covers are determined by the style sheet. Covers must remain consistent, and must contain the following elements:

## Lists

### List Types

A list is composed of the following elements: ordered (<ol>) or unordered/bulleted (<ul>). The <li> element defines a single item in either the ordered or unordered list.

- Bulleted List: The <ul> element is a list of items in which the order of list items is not significant. List items are typically styled on output with a "bullet" character, depending on nesting level. Bulleted lists appear in all topic types.
- Numbered List: Use numbers to show rank or when items must/should be performed in sequence. The <ol> element includes a list of items sorted by sequence or order of importance. Ordered lists normally appear in Task topics.

### General List Guidelines

When creating an ordered or unordered list, consider the following guidelines:

- Use a complete lead-in sentence to introduce all ordered or unordered lists, except those that stand on their own due to formatting or structural expectations. A complete lead-in sentence generally ends with "the following," a noun, and a colon. This practice reduces ambiguity, especially in translation.
- If a unordered list of tips immediately follows a descriptive title, then a colon or introductory sentence is not necessary. However, if safety messages stand between the descriptive title and the list, then include an introductory sentence.
- When multiple lists appear within the same topic, each should have a separate introductory statement.
- Render single-step processes as a paragraph, rather than a list. Use ordered lists to render multi-step processes. If all the contained steps are simple (that is, they have no more than a <cmd> element), then the list should default to compact.
- Only use colons within in-line lists when absolutely necessary. In most instances, you can substitute an ordered or unordered list for an in-line list with a colon. In-line lists are appropriate when the listed items have a natural antecedent in the sentence and do not require a colon. For example, "My favorite animals are dogs, cats, birds, and snakes." For punctuation information, See [Colons and Semicolons](#) on page 6.
- Optional **steps** in ordered and unordered lists should be preceded by "Optional:". Optional **features** in lists should be followed by "(optional)" in the lowercase. When an optional feature is included in a section header, it should be written according to the capitalization rules for the header. Do not bold an optional step. The <step> tag set has an attribute that can be toggled on to indicate that a step is "optional." The styling for that word is determined in the stylesheet.

**Note:** Do not use a list to isolate a term and definition within a topic. If you need to define terms in a topic, then use a table with a term column (titled "Term") and a definition column (titled "Definition").

**Table 2: Example Terms Table**

Term	Definition
Term One	Term one definition
Term Two	Term two definition
Term Three	Term three definition

### Ordered Lists Considerations

- An ordered list should have an introduction that indicates the process outcome. This introduction should not be the first step of the process.
- If an ordered list is more than 15 steps, consider dividing the process into multiple processes.

- Write steps in ordered procedures as complete sentences.
- When referring to a specific step, capitalize "Step" and include the numerical value (even if the value is less than 10). For example, "Repeat Step 9 through Step 11 until the engine starts."
- Each step in a ordered list should contain one action. This rule does not apply to closely related actions that are processed as a single step (for example, "lift security cover and toggle switch"), nor to in-line steps that may be used to describe interface interactions (for example, "open the menu and select GO").
- If it is necessary to incorporate the results of an individual action in a list, then include the results in the step defining the action. Do not create an additional step to define a result. For example, "Press Start. The Start button illuminates green and the engine starts."

### Unordered List Considerations

- Each item in a unordered should contain a single piece of information.
- When all of the items in the unordered list are complete sentences, use consistent sentence structure—start with an uppercase letter and include an ending period.
- Unordered lists should not describe process actions and results.
- Do not use a comma, semicolon, or dash to end items in an unordered list. If an unordered list is comprised of complete sentences, then use an ending period after each bulleted item. Otherwise, do not include ending punctuation.

## Art (Illustrations)

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Illustrations generally describe and explain information to a non-technical audience. Therefore, visuals should be accurate in terms of proportions, and provide accurate impression of the described object. Images are placed in topic content using the image element. The image element can stand alone, or can be contained within a figure (fig) element. Figures in DITA are container elements typically comprising a title element, an image element, and a desc element.

Although images can be placed in a DITA topic as image elements without a surrounding figure element, figures are generally the best way to structure graphics and other illustrations. The exception is for simple inline images (that is, images that are part of the flow of the text), where an independent image element should be used.

Most commonly, images are stored in separate files external to DITA, but it is possible to embed XML-based image formats, such as SVG, within the DITA topic XML.

## Graphics Locations and Size

When using graphics, comply with the following specifications:

- Location:
  - When possible, graphics appearing directly below topic titles should be sized appropriately to appear on the same page as their title, caption, and explanatory text.
  - All graphics in a document are figures, diagrams, or tables. Refer to drawings, images, graphs, graphic icons (indicators) and indications as figures and refer to tables and diagrams separately from figures. Name all figures, diagrams and tables using headers (<title> tag) at the top of the graphic, and reference their location in the text using Arabic numerals (that is, 1, 2, 3) or graphic header.
  - Precede figures in attachments by the attachment number (Figures 3-1 and 3-2) and their page location (this is determined by the style sheet).
  - Do not link-in graphics, figures, tables or diagrams from non-CMS external files within a topic. All graphics need to be in the CMS database, PACCAR does not include external linking in our documentation.
  - The only acceptable file formats for figures are .eps, .svg, and .png.
- Dimension:
  - Maintain consistency in figures dimension.
  - Keep illustrations within page borders.

## Graphics Format

Formats available for graphics must comply according to the usage of the illustration that is inserted. Use the following formats:

### **.svg (High resolution)**

It is a Scalable Vector Graphics file. If a conversion is needed, use any convertor available on the web.

- Adobe Illustrator as the source.

**Note:** .svg files are preferred for printed material. This format is the default by CMS.

### **.eps (Source format)**

Encapsulated PostScript (EPS) is a vector file format for large scalable images. If necessary, use Adobe Illustrator to convert files.

- EPS as the source image.

### **.png (Low resolution)**

It is a file format used for lossless image compression. It compresses digital images at a larger file size. If a conversion is needed, use any convertor available on the web.

- For web.
- Adobe Illustrator as the source.

## Diagram Standards

Diagrams must comply to [Art \(Illustrations\)](#) on page 35. Diagrams must use <fig> tags. Do not use the <title> tag when the topic <title> tag describes the diagram content. When possible, link-in every figure, label, or symbol contained in the diagram.

## Illustration Properties

Use the following properties for inserting illustrations:

### 1. Caption:

- Captions should have a uniform font, style, and size.
- Captions should describe graphics or their purpose.
- Auto numbered: all illustrations have a numbered caption at the top of illustrations/graphics. i.e., Figure [#]. If a document is part of a larger manual, use section numbers separated by a hyphen in the figure number. i.e., Figure [#-#].
- Use appropriate <title> tags as a caption for figures, tables and diagrams. Avoid using <p> tags for captions or headers.
- The figure title must always be on the top of the figures/tables/diagrams. Also see [Title](#) on page 30.

### 2. Shading:

- Use shading to highlight an area of illustrations which require attention by the reader.
- Black and white shading must comply with the Black/White Illustration Criteria table below.

### 3. Resolution:

- Print: minimum 200, maximum 600 dpi.
- Web: 72 dpi.
- Refer to [Graphics Format](#) on page 36.

### 4. Exploded lines (Only for exploded views):

- Thickness of line must be 1 pt. with a dash-gap pattern.

### 5. Callouts:

- Callouts must be in their own layer, separate from line art. Font must be Arial, 9 pt.
- In graphics with callouts, the the first callout should start at the 1 o'clock position. Numbering should proceed clockwise around the graphic.
- When referring to graphic callouts, write each callout value in parentheses. For example, "activate switches (1), (2), and (5)."

6. Border:




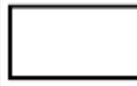
- Leave approximately 10% border around the artboard.

7. Line thickness:

- For illustrations, zoom in and view lines thickness must be 1 pt.
- For callouts and leader lines thickness must be 2 pt.
- If for any reason these sizes can not be used, always consider a ratio of thickness 1:2 as mentioned before.

The following Black/White Illustration Criteria table applies only to Operator's manuals due to its printed format. The rest of the illustrations must comply to the properties listed above.

**Table 3: Black/White Illustration Criteria**

Name	RGB Code	Figure	Criteria
Dark Grey	97, 97, 97		Target or primary component to be accentuated in the graphic.
Grey	153, 153, 153		Component to be stacked near and distinguished from target or primary component.
Light Grey	221, 221, 221		Additional shading. Do not use on components unless it is absolutely necessary.
White	255, 255, 255		Background assemblies to show location and provide perspective.

## Links to Illustrations

Links referencing to illustrations must remain consistent through the whole document. A cross-reference is used in DITA to link or associate one piece of content with another. The cross-reference (xref) element is the primary mechanism for cross-referencing, but other elements also have cross-referencing functions.

In DITA, cross-referencing is more than simple hyperlinking, or references to page numbers or section titles. Topics, paragraphs, sections, steps, figures, tables and many other DITA elements can be cross-referenced, along with resources external to the DITA content such as Web addresses, network files, and e-mail addresses.

Cross-references are implemented primarily through the <xref> element and its <href> attribute. Also key to cross-referencing in DITA is the id attribute: only elements with an id attribute can be cross-referenced.

When referencing to an illustration with no header/title element, reference directly to the topic <title> element.

## Book Format

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### Bookmap

The bookmap specialization of DITA's standard DITA map allows you to organize your DITA topics into a collection that can be printed as a book or other paged layout.

Bookmap allows you to produce DITA topics as the content of a "formally defined" book. A formally defined book means one with covers, formal notices, front matter (notices, acknowledgments, dedications, preface, etc), chapters, sections, parts, and back matter (notices, lists, etc). Bookmap is needed because the standard ditamap doesn't have structures for these book components.

A bookmap has the following major structures:

- Title or booktitle: The <booktitle> element contains the title information for a book, including the library title, main title, subtitle, and other titles (as required).
  - Service manual titles shall conform to the following syntax:
    - As applicable, list the following in this order:
      - truck cab size (ex: 2.1m or 1.9m) or truck model (ex: 520);
      - truck class (ex: Heavy Duty or Medium Duty)
      - truck architecture (ex: VMUX, EMUX, etc.)
      - subject of the service manual (ex: Exterior Lighting, Door and Mirror, HVAC, etc.)
    - Division shall be omitted from the title;
    - Year shall be omitted from the title;
    - The words "Service Manual" shall be omitted from the title;
- Bookmeta (owners, authors, publishing data, etc): The <bookmeta> element contains information about the book that is not considered book content, such as copyright information, author information, and any classifications.
- Front matter: The <frontmatter> element contains the material that precedes the main body of a document. It might include items such as an abstract, a preface, and various types of book lists such as a <toc>, <tablelist>, or <figurelist>.
- Any number of chapters or parts (which can contain chapters).
- Any number of appendix topics.
- Back matter: The <backmatter> element contains the material that follows the main body of a document and any appendices. It might include items such as a colophon, legal notices, and various types of book lists such as a glossary or an index.
- Relationship tables: The <reltable> element is a relationship table that specifies relationships among topics, based on the familiar table model of rows (<relrow>), columns (<relheader>), and cells (<relcell>).

## Ditamap

A ditamap is a specification for a published document, or for part of a document (if nested or modular ditamaps are being used). As such, the ditamap itself contains no content.

Avoid cross-references to ditamaps DITA does not have a clear method for cross-referencing a ditamap, and the logic of linking to metadata is not strong.. If required, references to external ditamaps can be described as follows: Refer to "XXYY" located in the ServiceNet for more information. This kind of referencing can only be made for Service Manuals which are in electronic formats. For Operator's manuals the information contained in the DITAmapping must be accurate and complete to avoid external references, this is because Operator's manuals are in printed format.

## Topic

A topic is a discrete piece of content that is about a specific subject, has an identifiable purpose, and does not require external context to understand. The purpose of the topic should be defined within the first few sentences using clear, easily identifiable language. Topics are categorised by information type. DITA's topic-based architecture enables the same topic to be used in different publications.

DITA is designed around a topic-based information architecture; topics are the building blocks of DITA documents (A publication is created by assembling topics into a hierarchical structure and "publishing" the collection of topics to a reading format.)

The <topicref> element identifies a topic (such as a concept, task, or reference) or other resource. A <topicref> can contain other <topicref> elements, allowing you to express navigation or table-of-contents hierarchies, as well as implying relationships between a containing (parent) <topicref> and its children. You can set the collection type of a

parent `<topicref>` to determine how its children are related to each other. You can also express relationships among `<topicref>` elements by using group and table structures (such as `<topicgroup>` and `<reltable>`). Relationships are expressed as links in the output; by default, each participant in a relationship has links to the other participants in that relationship.

- Topic titles listing two or more terms connected by a comma, such as “expand, collapse,” reflect correct usage for two similar terms. Topic titles listing terms connected by vs., such as “active vs. current” or “who vs. that,” show that the two similar terms have different meanings in some contexts. Each term appears separately in the index with a link to the topic that discusses both of them.

When working with topics, it is important to use the appropriate element to maintain consistency and accuracy in the format, comply to the following topic element features:

- **Concept element:** Concepts provide background that helps readers understand essential information about a product, interface, or task. Often, a concept is an extended definition of a major abstraction such as a process or function. Conceptual information may explain a product and how it fits into its category of products. Conceptual information helps users to map their existing knowledge to tasks and other essential information about a product or system. The `<concept>` element is the top-level element for a DITA concept topic. Every concept contains a `<title>` and a `<conbody>` and optional `<titlealts>`, `<shortdesc>`, `<prolog>`, and `<related-links>`. The `<conbody>` element is the main body-level element for a concept. Like the body element of a general topic, `<conbody>` allows paragraphs, lists, and other elements as well as sections and examples. But `<conbody>` has a constraint that a section or an example can be followed only by other sections or examples.
- **Task element:** Tasks are the essential building blocks for providing procedure information. A task topic answers the “How do I?” question by providing precise step-by-step instructions detailing what to do and the order in which to do it. The task topic includes sections for describing the context, prerequisites, expected results, and other aspects of a task. The `<task>` element is the top-level element for a task topic. Every task topic contains a `<title>` and a `<taskbody>` and optional `<titlealts>`, `<shortdesc>`, `<prolog>`, and `<related-links>`. The `<taskbody>` element is the main body-level element inside a task topic. A task body has a very specific structure, with the following elements in this order: `<prereq>`, `<context>`, `<steps>`, `<result>`, `<example>` and `<postreq>`. Each of the body sections is optional.
- **Reference element:** In technical information, reference topics are often used to cover subjects such as the commands in a programming language. Reference topics can hold anything that has regular content, such as ingredients for food recipes, bibliographic lists, catalogues, and the like. Reference topics provide quick access to facts. Information needed for deeper understanding of a reference topic or to perform related procedures should be provided in a concept or task topic. The `<reference>` element defines a top-level container for a reference topic. Reference topics have the same high-level structure as the other core DITA topic types, with a title, short description, and body. Within the body, reference topics organize content into one or more sections, property lists, or tables. The `<refbody>` element holds the main content of the reference topic. Reference topics limit the body structure to tables (both simple and standard), property lists, syntax sections, and generic sections and examples. All of the elements of `<refbody>` are optional and may appear in any sequence and number.

## TopicHead

The `<topichead>` element provides a title-only entry in a navigation map, which should appear as a heading when the map is rendered as a table of contents. In print contexts it should also appear as a heading in the rendered content. You should avoid using `topichead` elements for your final ditamap. However, you might find them useful when drafting or planning your collection structure.

There are two main reasons why `topichead` elements should be avoided:

The first is that it conflicts with the notion of the separation of content and form, and the separation of data and metadata. All content (data) in a document should reside in the topics, not in the map. The ditamap should only contain metadata. If you use `topichead` as an alternative to a title-only topic, you are effectively placing non-reusable content, or data, in the ditamap.

The second reason is more practical. If you are transforming a ditamap to a hypertext output format with a TOC, such as to Eclipse Help, the `topichead` elements will be transformed to unlinked parent nodes in the TOC. When the user clicks on such a node, the content pane will not display an associated topic, as it will for other nodes in the TOC. This

inconsistency appears to the user to be an error. The unlinked node in the TOC will also cause inconsistencies or malfunctions in the way breadcrumbs function, and the way sequences (previous and next topic links) function.

## Chapter

The <chapter> element references a topic or map as a chapter within a book. A <chapter> element references a single <topicref> element rather than a map.

## Tables

### GENERAL:

When applying tables, use the following considerations:

- A table is not typically assigned a number when it is only referenced in the location in which it appears, it has no unique title, or it is preceded by content that is essential to the use of the table, and any reference from another location points to that content rather than the table.
- Capitalize when referring to a specific table.
- Add captions to DTC and Unannounced Fault tables.
- Add captions to any table presenting data/information.
- Do not number tables. Reference to topics instead of tables.
- Optimize space for rows/columns in tables. Avoid leaving blank spaces in tables unless it is necessary.
- Format in tables must remain consistent through the whole document.
- Every table should have a title that describes the contents of the table and a header row that defines the information contained in each column. An exception to this rule is when using <table> tagging for elements other than formal tables, such as lists or illustrations.
- Footnotes may be used when a specific consideration applies for the whole table or the majority of the information contained in the table. Footnotes formatting is done in the style sheet. Footnotes in tables are preferred to have the following formatting:
  - Left justified.
  - Smaller font than the main document font.
- Title must be clear about the application of the table.

## Troubleshooting Tables

Troubleshooting may have 2 formats to describe an issue:

- DTC Troubleshooting Table: This table is for registered DTCs which are detected by DAVIE4 diagnostics. This table has 2 columns titled DTC and Description.

**Table 4: Example of DTC Troubleshooting Table**

DTC	Description
3981-2	Panel Mode Actuator - Data erratic, intermittent, or incorrect
3984-2	Fresh/Recirculation Actuator - Data erratic, intermittent, or incorrect

- Unannounced Fault Troubleshooting Table: This table is for unregistered issues which may not be recognized by the DAVIE4 diagnostics. This table has 2 columns titled Symptom and Description.

**Table 5: Example of Unannounced Fault Troubleshooting Table**

Symptom	Description
Stuck button/knob	Temperature Control Dial - Mechanical Malfunction
Loose button/knob	Fan Control Dial - Mechanical Malfunction



For DTC/Unannounced Fault tables use the following troubleshooting format (The following Troubleshooting serves for example purposes only):

### Check for DTCs

Use DAVIE4 diagnostics to perform a Vehicle Check for current DTC.

Is the 168 DTC – Battery Potential Power Input still active?

Option	Description
Yes	Refer to <a href="#">Investigate the Fault</a>
No	No further troubleshooting necessary.

### Investigate the Fault

1. Refer to the proper electrical schematic in order to locate the HVAC control head fuse for battery and ACC power.
2. Turn the ignition switch to ACC position.
3. Measure the voltage between battery feed and ground.
4. Measure the voltage between the switched battery feed and ground.

Are the readings 9 to 16 V?

Option	Description
Yes	Possible communication problem. Refer to Electrical Service Manual.
No	Inspect for harness issues. Refer to <a href="#">Harness Visual Inspection</a>

### Harness Visual Inspection

Visually inspect the associated component connections and wiring for any of the following:

- Damaged or loose connectors
- Bent, broken, corroded, or loose connector pins
- Pushed back or expanded pins
- Moisture or dirt in the connections
- Damaged connector shell or seals
- Damage to the wire harness or insulation
- The correct parts are not installed
- Connections damaged or disconnected
- Batteries not fully charged or contacts not tight
- Concerning component damage or installed incorrectly
- Blown fuses

Is there evidence of any of the above?

Option	Description
Yes	Repair and replace as necessary. No further troubleshooting necessary.
No	Possible communication problem. Refer to Electrical Service Manual.

## Icon Description Tables

Icon Description tables are used to describe the use and actions for a specific icon displayed.

Icon description tables have three columns titled: Figure, Name, and Description. Any extra columns can be added if necessary. For icon description tables use the following considerations:

- Title must be clear about the application of the table.

- Maintain icon size uniformity through the whole table.

## Area Description Tables

For Area Description tables use the following considerations:

- Use lines to point the area desired.
- Lines must be followed by a number or a code instead of the whole area label. The description will be noted in the description field in the table.

## Control Description Tables

Control Description tables may vary in structure according to the contained information. They refer to the control parameters of a specific component, system, gauge, tool, measuring method, etc. The table title must be referenced and linked when is used as reusable content or named in a different document. When using Control Description tables use the following considerations:

- When using units they must be correctly noted and if a conversion exists, it will be placed in parentheses beside.
- When using measure ranges, they must be written with a dash separating the two numbers containing the range.
- Descriptions must be as concise as possible avoiding redundant or unnecessary information for the control in matter.
- Footnotes may be used when a specific consideration applies for the whole table or the majority of the parameters contained in the table.
- Title must be clear about the application of the table.
- Use only the necessary headers for the control in matter.

## Links to Tables

When referencing a new table to the document it must be linked to the table header, title, or subtitle. If a table is reusable content it must be available and drawn from the original table reference. Sections containing tables can be referenced instead of tables.

## Footnotes

Footnotes can be added in the document to make reference to any consideration, parameter, table, etc. that may apply to the whole section, topic, or table. If possible, rearrange the sentence to avoid using footnotes in the middle of a paragraph, unless it is necessary.

Table footnotes shall only be numerical and in superscript form. For example:

Correct	Incorrect
PLCs <sup>1</sup>	PLC's

<sup>1</sup>For example purposes only.

## Figures Containing Tables

Simple tables can be contained within figures instead of, or in addition to, images.

Figures will normally contain images or other forms of graphical illustration. However, they can also contain text-based objects such as simple tables (<simpletable> elements), definition lists (<dl> elements), code blocks (<codeblock> elements), message blocks (<msgblock> elements), and long quotations (<lq> elements).

As a simple table can itself contain images, it is also possible to use the simpletable structure to create figures comprising multiple images and text fragments, such as a collection of images along with supporting explanatory text.

## Table Headers

All headers throughout the document must remain consistent. Do not change format. Headers in tables must be in grey scale. Also see [Title](#) on page 30.

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## Chapter

# 6

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## Indexing and Attributing

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### Topics:

- [Glossary](#)
  - [Indexing](#)
  - [Keys](#)
-

## Glossary

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Glossary is determined by the style sheet. Maintain the format provided by the style sheet. Inconsistency in the format may result in loss of information.

The `<glossentry>` element defines a single use of a glossary term. Glossary entries for different term uses can be reused independently of one another. A back-of-the-book glossary can contain the definitions of the individual uses of each term indented under the term.

The `<abbreviated-form>` element represents a reference to a term that might appear in an abbreviated form (often an acronym). The long and short forms of the term are generally defined in a `<glossentry>` topic. Processors display the referenced term when rendering an `<abbreviated-form>` element.

The following rules determine how to render an `<abbreviated-form>` element. As described, the definition of "introductory context" will vary based on the rendered format and processor.

1. If the referenced topic is not a `<glossentry>` topic (or a specialization of `<glossentry>`), the title of the topic SHOULD be displayed.
2. Otherwise, if `<abbreviated-form>` is located in an introductory context, and the referenced topic contains a non-empty `<glossSurfaceForm>` element, processors SHOULD render the contents of the `<glossSurfaceForm>` element from the referenced `<glossentry>` topic.
3. Otherwise, if `<abbreviated-form>` is located in an introductory context, processors SHOULD render the contents of the `<glossterm>` element from the referenced `<glossentry>` topic.
4. Otherwise (in non-introductory contexts), if the referenced `<glossentry>` topic contains a non-empty `<glossAcronym>` element, processors SHOULD render the abbreviated form of the term by displaying the contents of the `<glossAcronym>` element from the referenced `<glossentry>` topic.
5. Otherwise, processors SHOULD render the contents of the `<glossterm>` element from the referenced `<glossentry>` topic.

## Indexing

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The content of an `<indexterm>` element is used to produce an index entry in a generated index. You can nest `<indexterm>` elements to create multi-level indexes. The content is not output as part of the topic content, only as part of an index.

An `<indexterm>` element without the `@start` or `@end` attribute specified is interpreted as a point reference that contributes the number of the current page to an index entry; the content of the index entry is the content of the `<indexterm>` element. All `<indexterm>` elements with the same content are "merged" to form a single index entry in the resulting index, and all contributed page numbers are included in that index entry.

Indexing is determined by the style sheet. Maintain the format provided by the style sheet. Inconsistency in the format may result in loss of information.

Index range indications can occur in the `<topicmeta>` of a `<topicref>` at the map level, in the prolog of a topic, or in the body of a topic, and are interpreted as follows:

- In a map, the start range points to the start of the topic title of the topic being referenced by its containing `<topicref>`. The end range points to the end of the final child contained by the topic being referenced by its containing `<topicref>`, or to the end of the final topic referenced by the current map (whichever comes first). When a start and end range occur in the same `<topicmeta>`, the range applies to the containing `<topicref>` and its children.
- In the prolog of a topic, the start range points to the start of the containing topic's title. The range ends with a matching index range end in the same prolog, regardless of whether the end range is specified. The range applies to the containing topic and all its children including child relationships defined in a map.
- In the body of a topic, the range starts where the start `<indexterm>` occurs and ends at the matching index range end indication within the same body, or at the end of the body, whichever comes first. Such an index range does not span sub-topics of the topic.

## Keys

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For topic references, image references, and other link relationships, resources can be indirectly addressed by using the `@keyref` attribute. For content reference relationships, resources can be indirectly addressed by using the `@conkeyref` attribute. For references to topics, maps, and non-DITA resources, the value of the `@keyref` attribute is simply a key name (for example, `keyref="topic-key"`). For references to non-topic elements within topics, the value of the `@keyref` attribute is a key name, a slash ("/"), and the ID of the target element (for example, `keyref="topic-key/some-element-id"`.)



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# Chapter

# 7

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## User Interface (UI)

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### Topics:

- [\*References to user Interface \(UI\)\*](#)

## References to user Interface (UI)

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The user interface domain elements are used to describe different user interface elements —Controls, features, and states of a function — of a software program:

**<uicontrol>**: The <uicontrol> element is used to mark up user interface controls, such as names of buttons, entry fields, menu items, or other objects that allow the user to control the interface. Use the <uicontrol> element inside a <menucascade> element to identify a sequence of menu choices in a nested menu, such as **File > New**. This element is part of the DITA user interface domain, a special set of DITA elements designed to document user interface tasks, concepts and reference information. Use <uicontrol> to reference the following elements:

- Display Names.
- Commands on Menus.
- Buttons.
- Options Box.

**<menucascade>**: The <menucascade> element is used to document a series of menu choices. The <menucascade> element contains one or more user interface control (<uicontrol>) elements, for example: Start > Programs > Accessories > Notepad. If there is more than one <uicontrol> element, a formatter might show connecting characters between the menu items to represent the menu cascade. This element is part of the DITA user interface domain, a special set of DITA elements designed to document user interface tasks, concepts and reference information.

**<wintitle>**: The <wintitle> element can be used to mark up names of windows or dialogs, or other user interface elements at the same level of grouping, including wizard titles, wizard page titles, and window pane titles. This element is part of the DITA user interface domain, a special set of DITA elements designed to document user interface tasks, concepts and reference information. Use <wintitle> to reference the following elements:

- Named Lists in the UI.
- Named Tabs in the UI.
- Named Toolbars in the UI.
- Dialog Box Titles.



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# Chapter

# 8

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## References

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### Topics:

- *[Cross-References](#)*
- *[References to Manuals](#)*
- *[References to Customer Pages](#)*
- *[Referring to a Call Center or Agency](#)*
- *[Reusable Content](#)*

## Cross-References

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Use the `<xref>` element to provide an inline cross reference. It is commonly used to link to a different location within the current topic, a different topic, a specific location in another topic, or an external resource. The target of the cross-reference is specified using the `@href` or `@keyref` attributes.

When creating a cross-reference, link to the element structure, not the `<title>` element of the object. For example, to create a cross-reference to a figure, link to the `<fig>` element, not the `<title>` element within the `<fig>` element. Output processing determines whether the text of the `<title>` element is used to render the cross-reference.

There are two kinds of cross-references: See/Refer to, which includes a link to the primary topic where the information is covered, and See also/Refer also to, which points to related information. We have made an effort to minimize cross-references by often including enough information within a short topic to answer the most basic questions.

- Use cross-references to clarify the relationship of requirements within the document and avoid duplicating information.
- Add the corresponding tags each time a paragraph, figure, or related procedure is identified in the text body.
- Lead references with a preposition to explain the information in the referenced chapter. Use the phrase “see” or “refer to.”

Cross references that link to elements in other topics can employ key-based addressing by using the `@keyref` attribute. This enables the cross-reference to point to different topics in the context of different top-level maps. Cross references that employ direct URI-based addressing using the `@href` attribute create dependencies; if the topic with the cross-reference is included in a map, the target topic also might need to be included for the cross-reference to be resolvable in the context of that map. While you can use conditional processing to have different cross-references for different contexts, it is usually easier and more effective to use keys. By using keys, the cross-reference can be independent of the contexts it might be used in, because it is up to each different map to bind the key used by the cross-reference to the appropriate target.

References to URLs should appear on a single line immediately following introductory statements.

## References to Manuals

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Referenced manuals must be named with the latest revision made. If new revisions exist, they must be updated in the manuals where they apply. Phrases as “see” or “refer to” can be used to reference manuals.

## References to Customer Pages

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Customer pages must be referenced as an URL link. These won't be contained in the document and will be available on the web.

## Referring to a Call Center or Agency

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When a call center phone number is communicated, make sure to include the correct name of the answering agency. For example, when directing readers to contact the call center for roadside assistance, use either:

- PACCAR Customer Center: Kenworth customers call: 1-800-KW-Assist (1-800-592-7747)
- PACCAR Customer Center: Peterbilt customers call: 1-800-4Peterbilt (800-473-8372)

For powertrain components concerns, direct the reader to their

- PACCAR Powertrain Distributor

For non-powertrain component concerns, direct the reader to their

- Authorized PACCAR Dealer

**Note:** Make sure to include only the phone number of the appropriate division in division-specific manuals (e.g. DO NOT refer to Kenworth in a Peterbilt-specific manual).

## Reusable Content

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DITA allows you to reuse content by referencing it in another topic. DITA provides several mechanisms for including content by reference (conref, conkeyref, coderef). Check applicability of reusable content for modifications made to avoid inconsistencies in the information.

- A conref (content reference) creates a direct reference to a specific element of another topic.
- A conkeyref (content key reference) creates a reference to a key, which then points to a specific element in another topic. The advantage of using a conkeyref is that you can change the element that is included by changing the key reference. For example, since keys are defined in maps, if you include a topic in multiple maps, you can use a different key reference in each map.
- A coderef references an external file that contains literal code.



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# Chapter

# 9

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## Resources

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### Topics:

- [PTC Style Guide](#)
  - [Microsoft UI](#)
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## PTC Style Guide

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PTC Style Guide:

- <https://paccar.sharepoint.com/sites/PTC-DRM-Document-Site/Lists/StyleGuide/Collapsed.aspx?>

## Microsoft UI

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Microsoft Writing Style Guide. © 2021 Microsoft.

- URL: <https://docs.microsoft.com/en-us/style-guide/welcome/>

## Google

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Google Style Guides.

- URL: <https://google.github.io/styleguide/>

## Apple

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Apple Style Guide. June 2021.

- URL: <https://help.apple.com/applestyleguide/>

## SAE Style Guide

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SAE International Technical Paper Style Guide. Version: 3.9-October, 2016.

- URL: <http://volunteers.sae.org/authors/styleguide.pdf#:~:text=Controlling%20the%20flow%20of%20text%20around%20figures%20is,by%20applying%20the%20%5BFigure%5D%20style%20of%20the%20Template.>

## ISO Style Guide

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ISO House Style.

- URL: <https://www.iso.org/ISO-house-style.html>