

Technical Communication:

Instructions & Manuals

Objectives

- To develop “audience/user awareness”
- To understand basic principles of instructional writing
- To develop an instructional document

1. Writing *instructions*

The definition of *instructions*

- Instructions are **process descriptions** written to help **readers** perform **a specific task**.



e.g. installing a water heater in a house
installing a bar code scanner.

1.1 Understanding your Readers/users

- Users don't read.
 - Users don't scroll.
 - Users are easily lost.
 - Users are easily frustrated.
 - Users are strangely persistent.
 - Users are different.
-
- The best instruction is no instruction (invisible & intuitive).
 - Intuitive design.



1.2. Writing technical **descriptions**

- **definitions**
- **descriptions**

The definition of *definition*



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Please be aware that....

- For long documents, create a ***glossary*** (a list of definitions).
- Use ***simplified English*** and easily recognizable terms in definitions.
- Pay close attention to ***key terms***.
- Use ***graphics*** to help readers to understand a term or concept.

SYMBOLS GLOSSARY

SYMBOL	SYMBOL TITLE	DESCRIPTION	STANDARD TITLE & DESIGNATION NUMBER	REFERENCE NUMBER
	Date of Manufacture	Indicates the date when the medical device was manufactured.	ISO & ANSI/AAM/ISO 15223-1 Medical devices—Symbols to be used with medical device labels—General requirements.	5.1.3
	Manufacturer	Indicates the medical device manufacturer, as defined in EU Directives 90/385/EEC, 93/42/EEC and 98/79/EC.	ISO & ANSI/AAM/ISO 15223-1 Medical devices—Symbols to be used with medical device labels—General requirements.	5.1.1
	Authorized representative in the European community	Indicates the Authorized Representative in the European Community.	ISO & ANSI/AAM/ISO 15223-1 Medical devices—Symbols to be used with medical device labels—General requirements.	5.1.2
	Conformité Européenne (European Conformity)	CE Marking on a product is a manufacturer's declaration that the product complies with the essential requirements of the relevant European health, safety and environmental protection legislation.	Directive 93/68/EEC.	N/A
	Reorder Number	Indicates the manufacturer's catalogue number so that the medical device can be identified.	ISO & ANSI/AAM/ISO 15223-1 Medical devices—Symbols to be used with medical device labels—General requirements.	5.1.6
	Serial Number	Indicates the manufacturer's serial number so that a specific medical device can be identified.	ISO & ANSI/AAM/ISO 15223-1 Medical devices—Symbols to be used with medical device labels—General requirements.	5.1.7
	Batch Code	Indicates the manufacturer's batch code so that the batch or lot can be identified.	ISO & ANSI/AAM/ISO 15223-1 Medical devices—Symbols to be used with medical device labels—General requirements.	5.1.5
	Refer to instruction manual/booklet	To signify that the instruction manual/booklet must be read.	ISO 7010—Graphical Symbols—Safety Colors and Safety Signs—Registered Safety Signs	ISO 7010-M002
	Consult Instructions for Use	Indicates the need for the user to consult the Instructions for Use.	ISO & ANSI/AAM/ISO 15223-1 Medical devices—Symbols to be used with medical device labels—General requirements.	5.4.3
	General mandatory action sign	To signify a mandatory action	ISO 7010—Graphical Symbols—Safety Colors and Safety Signs—Registered Safety Signs	ISO 7010-M001

Simplified English

- Original Version

Before filling the gas tank, it is necessary to turn off the propane line to the refrigerator. Failure to do so significantly increases the risk of explosion.

- Simplified English Version

Before you pump gasoline into the gas tank, turn off the propane line to the refrigerator. If you do not turn off the propane line, it could explode.

Each version of Simplified English is made for a specific discipline.
For more on Simplified English, see ASD (2010).

The use of graphics

- 2D barcode.

A **2D** barcode is a graphical image that stores information both horizontally—as one-dimensional **bar codes** do—and vertically.

As a result of that construction, **2D codes** can store up to 7,089 characters, significantly greater storage than is possible with the 20-character capacity of a unidimensional barcode



THREE types of definitions

Not meant to be
comprehensive.
A quick and convenient
way of introducing terms.

1. Parenthetical definitions

- The computers were infected by a *Trojan horse* (a destructive program that appears to be benign).
- Before the metal is plated, it is immersed in the pickle: an acid bath that removes scales and oxides from the surface.

THREE types of definitions

2. Sentence definitions

It usually includes
a graphic.

ITEM	=	CATEGORY	+	DISTINGUISHING CHARACTERISTICS
Cripple ware	is	shareware		in which some features of the program are disabled until the user buys a license to use the program.
Hypnoanalysis	is	a psychoanalytical technique		in which hypnosis is used to elicit information from a patient's unconscious mind.

Activities

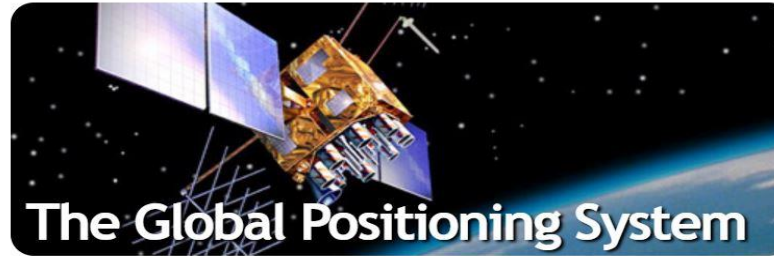
1. Twenty Questions (Page 49)

2. Write a sentence definition on your own

THREE types of definitions 3

3. An extended definition

A more detailed explanation of an object, process, or idea. Usually one or more paragraphs.



What is GPS?

The Global Positioning System (GPS) is a U.S.-owned utility that provides users with positioning, navigation, and timing (PNT) services. This system consists of three segments: the space segment, the control segment, and the user segment. The U.S. Air Force develops, maintains, and operates the space and control segments.



Space Segment

The space segment consists of a nominal constellation of 24 operating satellites that transmit one-way signals that give the current GPS satellite position and time. [LEARN MORE ➡](#)



Control Segment

The control segment consists of worldwide monitor and control stations that maintain the satellites in their proper orbits through occasional command maneuvers, and adjust the satellite clocks. It tracks the GPS satellites, uploads updated navigational data, and maintains health and status of the satellite constellation. [LEARN MORE ➡](#)



User Segment

The user segment consists of the GPS receiver equipment, which receives the signals from the GPS satellites and uses the transmitted information to calculate the user's three-dimensional position and time. [LEARN HOW GPS IS USED ➡](#)

1.2. Writing technical **descriptions**

- definitions
- **descriptions**

The definition of *description*

Effective instructions are based on writing good descriptions:

-- ***Verbal and visual representations*** of the physical or operational features of **objects, mechanisms, and process.**

Guidelines for writing descriptions 1

For **object** and **mechanism** descriptions

➤ Choose an appropriate **organizational principle**.

Functional: How the item works or is used.

Spatial: based on the physical structure of the item

(e.g. from top to bottom, inside to outside, east to west, and so on)

➤ Use **graphics**.

Photographs to show external surfaces

Drawings to emphasize particular items on the surface

Cutaways and exploded diagrams to show details beneath the surface.

Object Description

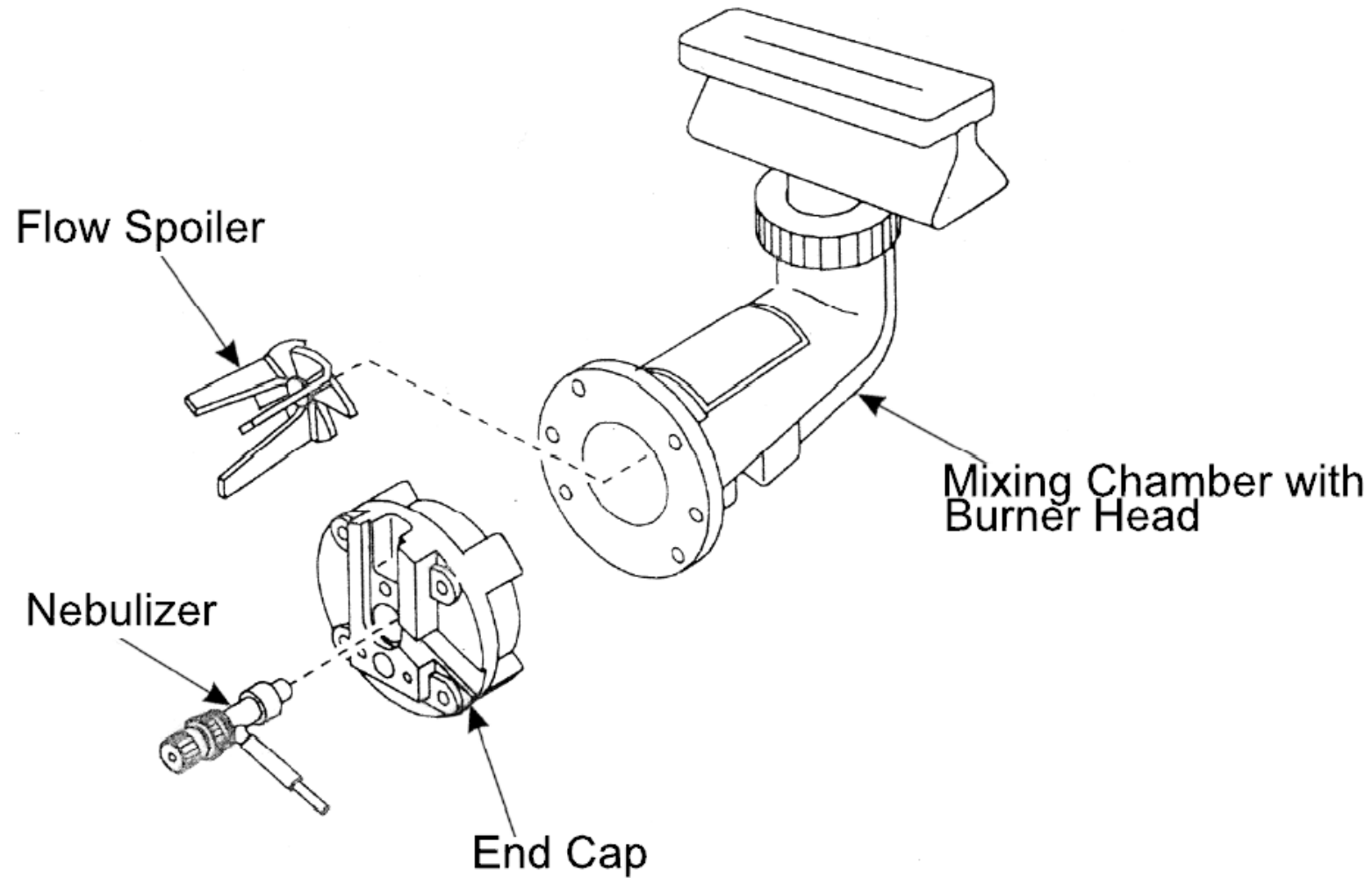
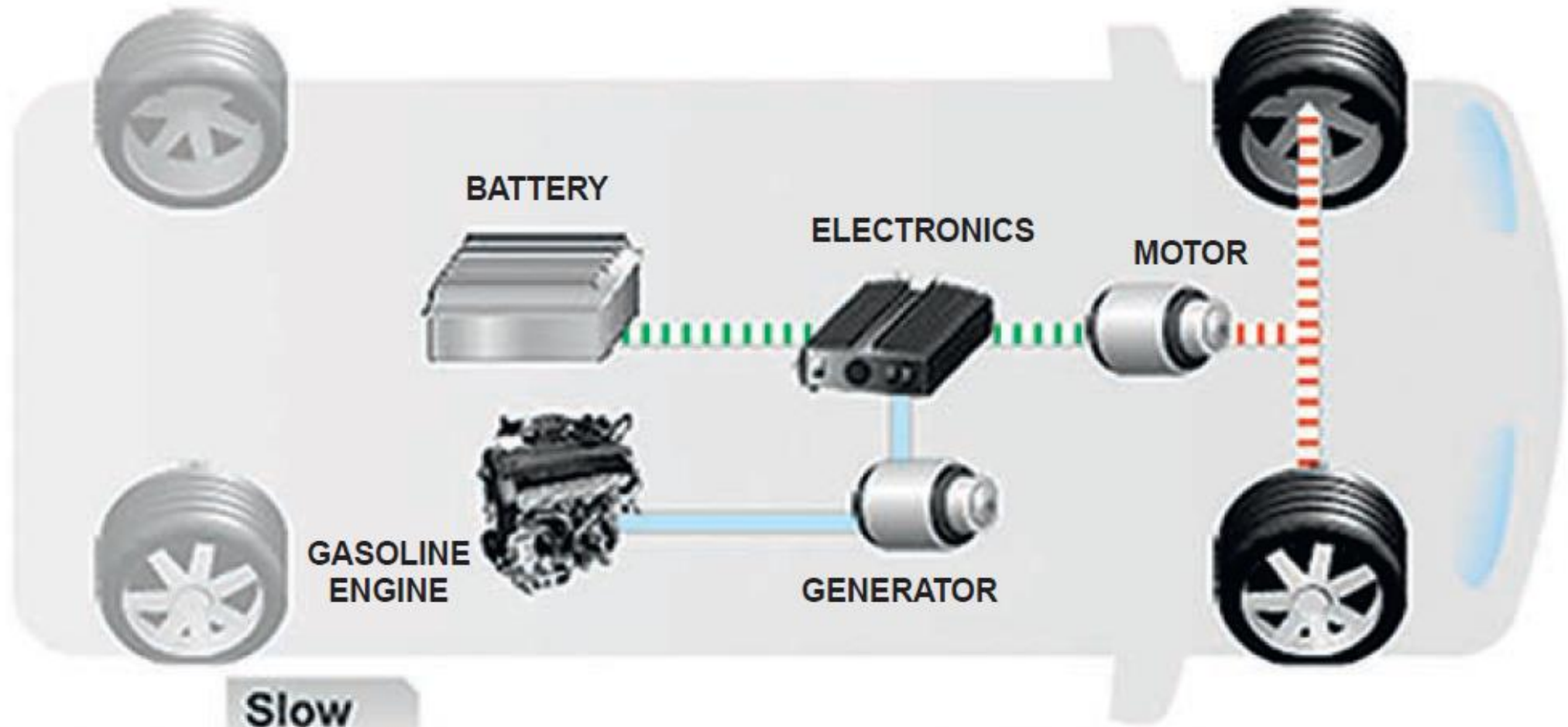


FIGURE 16.1 Diagram of dual-option burner system

Mechanism Description for a hybrid vehicle

(混动汽车动力系统作用的描述)



While driving at slow speeds, the Electronics simply draw power from the Battery to drive the Electric Motor, operating as a fully electric car.

2020

520 Disc

★★★★★

62 Reviews / Write a Review

\$1,679.99

Model 24000

520 is a steel touring bike made for the open road. It's the longest-running model in our lineup, and it's built to carry you and your gear on your longest journeys. Rack and fender mounts, a wide range of gearing for climbing, and a stable touring geometry make it the perfect choice for loaded multi-day trips and comfortable all-day adventures.

Color / Diablo Red

Size

Please select

Quantity

- 1 +

Add to cart

Find a retailer

TOP VIEW (1:2)

3D VIEW #1

ALIGNED SECTION A-A (1:2)

3D VIEW #2

AutoCAD 3
3D Modeling

PROJECT: Lesson 14
Practice 14_2

DRAWING TITLE: CONTROL ARM

DRAWN BY: KB
DATE: 03/08/2013
SCALE: 1:2
CLASS: CADD3
CHECKED BY: KB
DRAWING NUMBER:

M-1

A320 Cutaway

There are 207 HotSpots to chose from

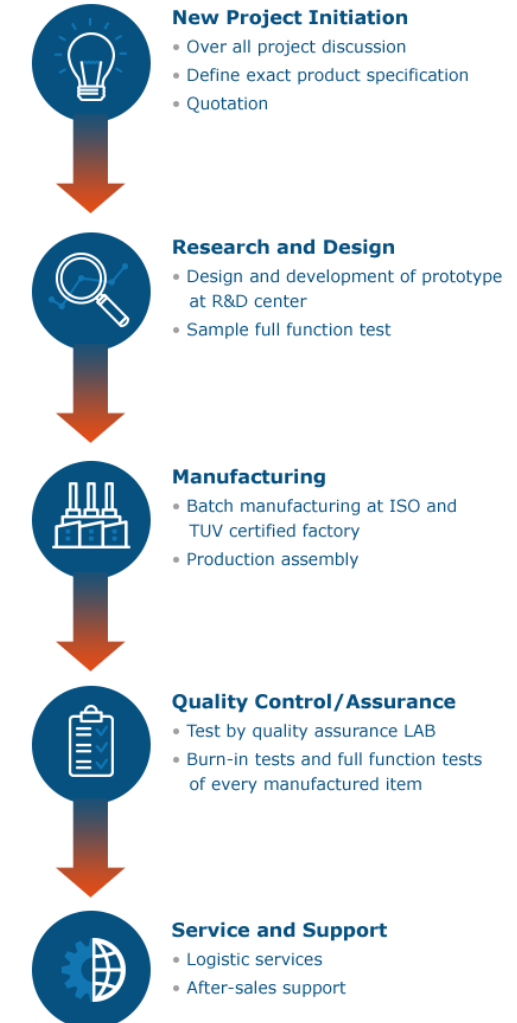
1. Rocker cover
2. Camshaft
3. Timing gear
4. Front cover
5. Oil pump
6. Piston
7. Connecting rod
8. Crankshaft
9. Oil pan
10. Flywheel
11. Thermostat
12. Cylinder block
13. Cylinder head
14. Valve mechanism

Guidelines for writing descriptions 2

For process descriptions

- Structure the **step-by-step** description **chronologically**.
- Explain **causal relationships** among steps.
Don't present the steps as if they had nothing to do with one another.
In many cases, one step causes another.
- Use the **present tense**.
- Use **graphics**.
e.g. flow chart

OEM/ODM Service Flow



Guidelines for writing descriptions 3

Design clear instruction pages

Exercise: Look at the two pictures on the next page and decide which is the better design.

Give your reasons for the choice.

Step 5. - Attach Second Side Panel and Installing Corner Blocks



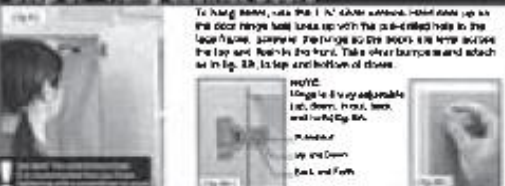
Step 6. - Attaching Cabinet Legs



Step 7. - Fasten Cabinet to Wall



Step 8. - Hang Cabinet Doors



Step 9. - Installing Optional Adjustable Shelf



Step 10. - Congratulations!



CONGRATULATIONS!
You have just finished
assembling and installing
a SLIDE-LOK cabinet.

SLIDE-LOK
Storage & Storage Cabinets



Design Your Own SLIDE-LOK Storage Solution

Visit Jack's Design Center, an interactive
SLIDE-LOK Storage System design tool,
which will enable you to design your own
SLIDE-LOK Storage system online.

Jack's Design Center also offers the process
of designing your own SLIDE-LOK Storage
System.

www.slide-lok.com | 800-835-1759

Assembly Instructions

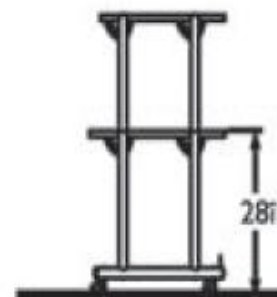
Questions? 1-800-325-3841

Step 1

Before proceeding, please review the Assembly Instructions of all Anthro Products you purchased and are planning to include in this installation.

Determine the best height for your Space Palis Large Shelf. Generally, a 28" high work surface works well for most people and equipment.

These instructions will place your Large Shelf 28" from the floor.

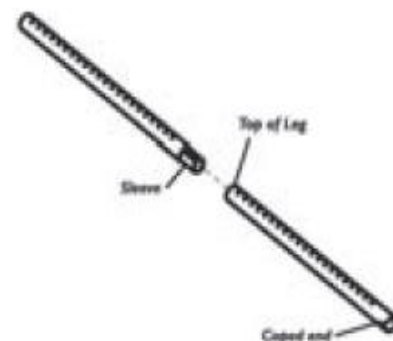


Step 2

Rub the supplied Wax Stick over the Sleeve of each Extension Tube.

Next, Rotate the Extension Tube until the holes line up with those on the Leg then insert the Sleeve into the top of one of the Legs. Repeat for the remaining four Legs.

NOTE: It may be helpful to tap the Extension Tube into the Leg with the Rubber Mallet.

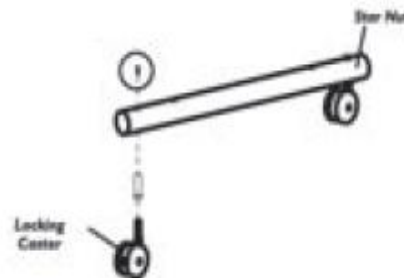


Step 3

Install two Caster Inserts into each Base Tube and secure with one Caster Screw per Insert.

Insert the Casters, (locking ones in front) into the Caster Inserts.

NOTE: Make certain the Base Tube Star Nut is located to the rear as shown.



- *This page is cluttered, containing far too much information. In addition, the page is not chunked effectively. As a result, the reader's eyes don't know where to focus. Would you look forward to using these instructions to assemble a cabinet?*

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Assembly Instructions

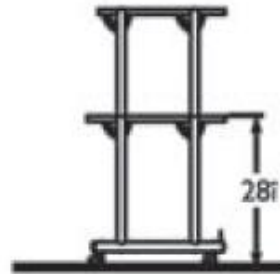
Questions? 1-800-325-3841

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Determine the best height for your Space Palis Large Shelf. Generally, a 28" high work surface works well for most people and equipment.

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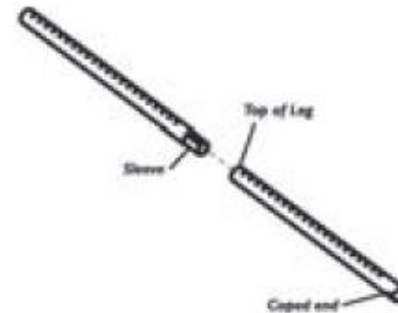


Step 2

Rub the supplied Wax Stick over the Sleeve of each Extension Tube.

Next, Rotate the Extension Tube until the holes line up with those on the Leg then insert the Sleeve into the top of one of the Legs. Repeat for the remaining four Legs.

NOTE: It may be helpful to tap the Extension Tube into the Leg with the Rubber Mallet.

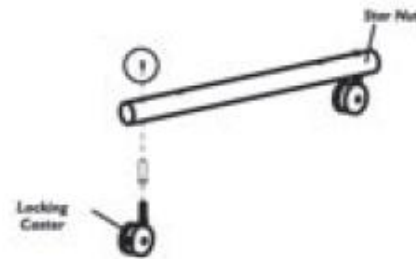


Step 3

Install two Caster Inserts into each Base Tube and secure with one Caster Screw per Insert.

Insert the Casters, (locking ones in front) into the Caster Inserts.

NOTE: Make certain the Base Tube Star Nut is located to the rear as shown.



Attractive Design

- *This page is well designed, containing an appropriate amount of information presented in a simple two-column format. Notice the effective use of white space and the horizontal rules separating the steps.*

Guidelines for Designing Clear Pages

- **Create an open, airy design.**

Do not squeeze too much information onto the page. Build in space for wide margins and effective line spacing, use large type, and chunk the information effectively.

- **Clearly relate the graphics to the text.**

In the step-by-step portion of a set of instructions, you will want to present graphics to accompany every step or almost every step. Create a design that makes it clear which graphics go with each text passage. One easy way to do this is to use a table, with the graphics in one column and the text in the other. A horizontal rule or extra line spacing separates the text and graphics for one step from the text and graphics for the next step.

1.3 Examples of instructions

CHAPTER 1 GETTING STARTED

Introduction

The DS4308 and DS4308P combine superior 1D and 2D omnidirectional bar code scanning and transfer with a light-weight, hands-free/hand-held design. The digital scanner's gooseneck Intellistand seamlessly accommodates both countertop and hand-held use. Whether in hands-free (presentation) or hand-held mode, the digital scanner ensures comfort and ease of use for extended periods of time.

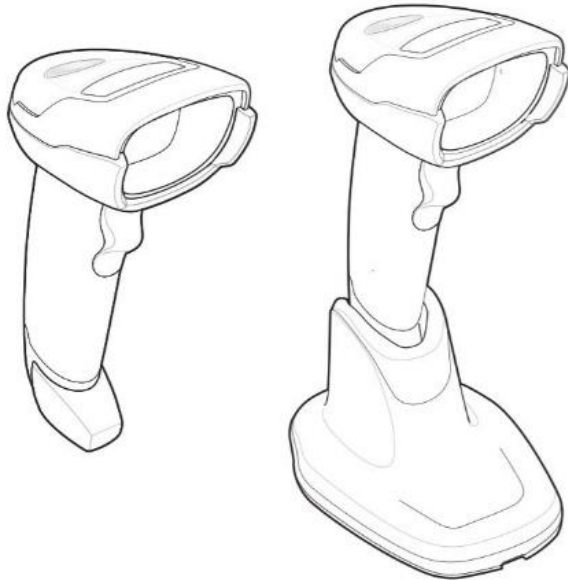


Figure 1-1 DS4308 and DS4308P Digital Scanner

Interfaces

The DS4308 digital scanner supports:

- USB connection to a host. The digital scanner autodetects a USB host and defaults to the HID keyboard interface type. Select other USB interface types by scanning programming bar code menus. This interface supports the following international keyboards (for Windows® environment): North America, German, French, French Canadian, Spanish, Italian, Swedish, UK English, Portuguese-Brazilian, and Japanese.
- Standard RS-232 connection to a host. Scan bar code menus to set up communication of the digital scanner with the host.
- Connection to IBM 468X/469X hosts. Scan bar code menus to set up communication of the digital scanner with the IBM terminal.
- Keyboard Wedge connection to a host. The host interprets scanned data as keystrokes. Scan bar code menus to set up communication of the digital scanner with the host. This interface supports the following international keyboards (for Windows® environment): North America, German, French International, French Canadian, French Belgian, Spanish, Italian, Swedish, UK English, Brazilian-Portuguese and Japanese.
- Configuration via 123Scan².

✓ **NOTE** For a list of supported scanner functionality by communication protocol, see [Appendix I, Communication Protocol Functionality](#).

Unpacking

Remove the digital scanner from its packing and inspect it for damage. If the scanner was damaged in transit, contact support. See [page xx](#) for information. **KEEP THE PACKING.** It is the approved shipping container; use this to return the equipment for servicing.

Setting Up the Digital Scanner

Installing the Interface Cable

1. Insert the interface cable modular connector into the interface cable port on the rear of the digital scanner until you hear a click. For the DS4308P, tip the scanner forward in its base to best access the port. Low/medium/high beeps sound, indicating the scanner is operational.

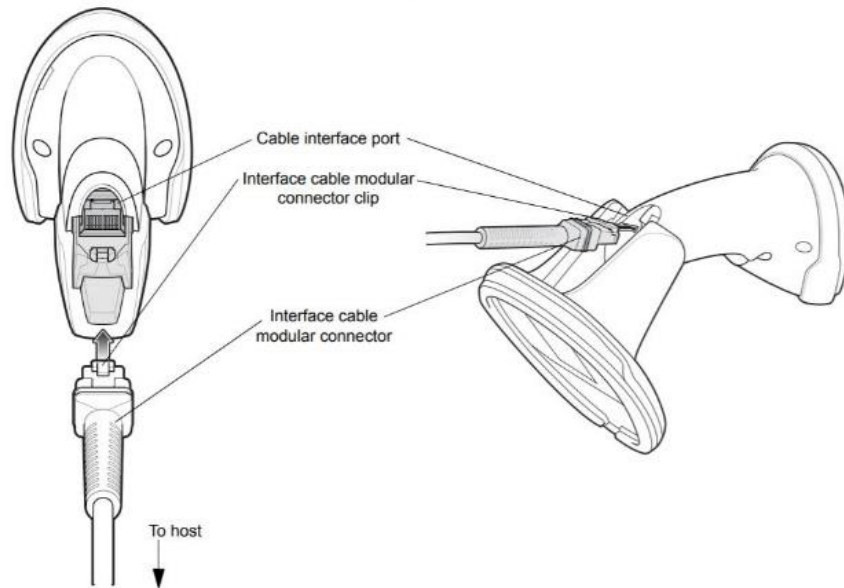


Figure 1-2 Installing the Cable - DS4308 and DS4308P



IMPORTANT Insert the cable into the cable interface port until a click sounds.

When connecting the DS4308 using a USB cable, a shielded connector cable is required (e.g., p/n CBA-U21-S07ZAR). If upgrading an LS2208 or LS4208 to a DS4308, use the shielded connector cable.

2. Gently tug the cable to ensure the connector is secure.
3. Connect the other end of the interface cable to the host (see the specific host chapter for information on host connections).

Removing the Interface Cable

1. Press the cable's modular connector clip through the access slot in the digital scanner's base. For the DS4308P, tip the scanner forward in its base to best access the slot.

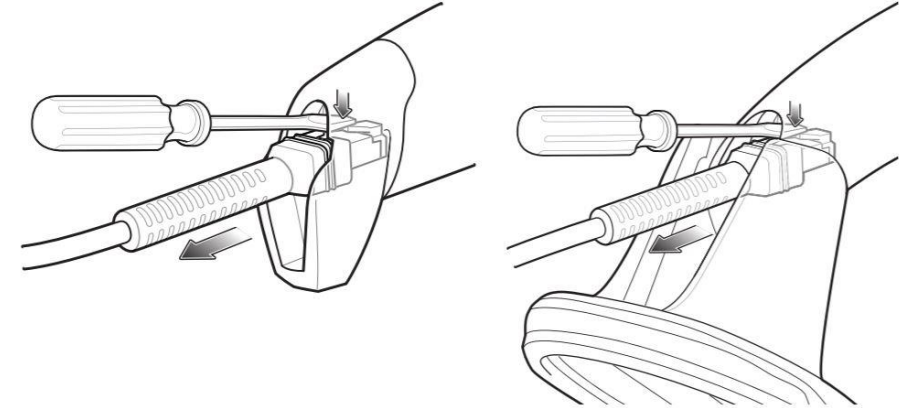


Figure 1-3 Removing the Cable - DS4308 and DS4308P

2. Carefully slide out the cable.
3. Follow the steps for [Installing the Interface Cable](#) to connect a new cable.

Connecting Power (if required)

If the host does not provide power to the digital scanner, connect an external power supply.

1. Plug the power supply into the power jack on the interface cable.
2. Plug the other end of the power supply into an AC outlet.

Configuring the Digital Scanner

To configure the digital scanner use the bar codes included in this manual, or use the 123Scan² configuration program. See [Chapter 4, User Preferences & Miscellaneous Options](#), and [Chapter 11, Symbolologies](#) for information about programming the digital scanner using bar code menus. See [Chapter 15, 123Scan and Software Tools](#) for information on using this configuration program. Also see each host-specific chapter to set up connection to a specific host type.

Instructional graphics/video

- Video is particularly useful communicating about physical tasks that call for subtle physical movements or that involve both sight and sound.



Video is in the same folder.

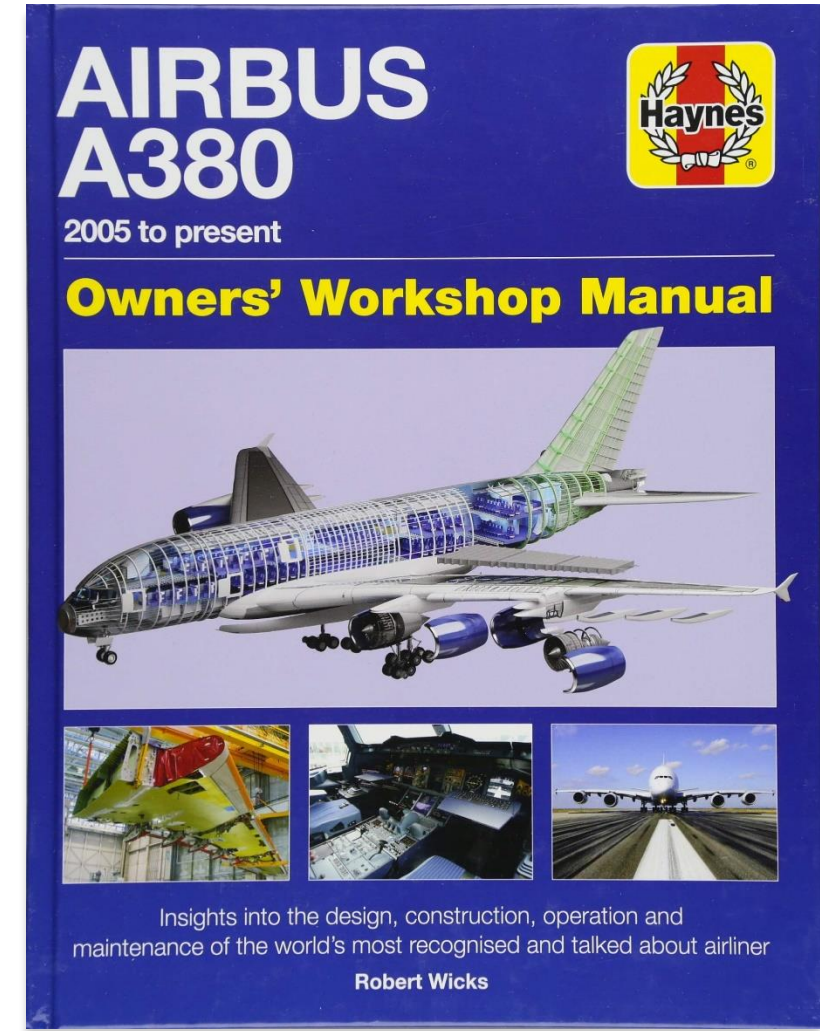
2. Writing manuals

The definition of *manual*

- There is no absolute distinction between a set of instructions and a manual.
- Typically, the two share a main purpose: to explain how to carry out a task safely, effectively, and efficiently.

A set of instructions: 1~20 pages; for easier and simpler tasks, e.g. how to use a bar code scanner.

A manual: much longer and complex; for more complicated tasks or products, e.g., Airbus A380 Owners' Workshop Manual



3. Ethics Note

3.1 Document and cite sources properly

Major documentation styles include:

- APA: for citing sources within the field of behavioral and social sciences.
- MLA: for writing and documentation of research in the humanities
- The IEEE citation style for engineering: <https://pitt.libguides.com/citationhelp/ieee>
- The CSE style for biology: www.councilscoemceedotpr.org
- The ACS style for Chemistry: www.acs.org
- The AP style book for Journalism: www.apstylebook.com
- The bluebook that prescribes the most widely used legal citation system in the United States:: www.legalbluebook.com
- The AMA citation format for medicine: www.ama-assn.org

3.2 Use simple language

When you write safety information, be clear and concise. Avoid complicated sentences.

COMPLICATED It is required that safety glasses be worn when inside this laboratory.




SIMPLE



SIMPLE



3.3 Use SIGNALS

Signal Word	Explanation	Example
<i>Danger</i> 	<i>Danger</i> is used to alert readers about an immediate and serious hazard that will likely be fatal. Writers often use all-uppercase letters for danger statements.	DANGER: EXTREMELY HIGH VOLTAGE. STAND BACK.
<i>Warning</i> 	<i>Warning</i> is used to alert readers about the potential for serious injury or death or serious damage to equipment. Writers often use all-uppercase letters for warning statements.	WARNING: TO PREVENT SERIOUS INJURY TO YOUR ARMS AND HANDS, YOU MUST MAKE SURE THE ARM RESTRAINTS ARE IN PLACE BEFORE OPERATING THIS MACHINE.
<i>Caution</i> 	<i>Caution</i> is used to alert readers about the potential for anything from moderate injury to serious equipment damage or destruction.	Caution: Do not use nonrechargeable batteries in this charging unit; they could damage the charging unit.
<i>Note</i>	<i>Note</i> is used for a tip or suggestion to help readers carry out the procedure successfully.	Note: Two kinds of washers are provided—regular washers and locking washers. Be sure to use the locking washers here.

4. Useful resources (FREE or free trial available)

- Online logo generator

<https://www.wix.com/logo/maker>

<https://logomakr.com/>

- Online flow chart creator

<https://www.xmind.net>

<https://www.gliffy.com/examples/flowcharts>

- Online infographic website

<https://piktochart.com/formats/infographics/>

5. Exercise (or Homework)

Group work.

Topics you may choose:

1. How to feed stray cats properly?
2. How to get to SEU campus?
3. Design a game of your own (e.g. Tarot)

Process

1. Discuss: who will be using your instruction?
2. Plan your document: key terms and definitions;
3. Develop your document and test its usability.

Questions for review

- Are the instructions designed effectively, with adequate white space and a clear relationship between the graphics and the accompanying text?
- Do the instructions have a clear title?
- Does the introduction to the set of instructions state the purpose of the task? Does it describe safety measures or other concerns that readers should understand? Does it list necessary tools and materials?
- Are the step-by-step instructions numbered? Are they simple and direct?
- Are appropriate graphics included?
- Does the conclusion include any necessary follow-up advice? Or if appropriate, a troubleshooting guide?

Thank you!

**Good luck with your
writing project.**

