

Avref^(R) + ***MCRL***

AIRCRAFT PARTS CROSS REFERENCE &
PRICING DATABASE

INSTALLATION AND USERS GUIDE

Version AVMCRL 1.9

For Windows 98/2000/NT/XP/VISTA^(R)

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!! IMPORTANT !!

This is the single-user version of Avref. This product can be installed on one hard drive only!

Please be sure to install to the drive that you will be using to access the Avref program.

Should you need to MOVE this Avref program to another computer or to another hard drive, it must first be removed from the existing computer. Please contact us for instructions on accomplishing this.

If you desire to run the Avref program on more than one computer or a network, please contact us to purchase the Avref network version.

Avref +MCRL Installation (Windows 98/2000/NT/XP)

You will need 5 gigabytes of free drive space to install this product.

- 1) ***To install Avref +MCRL for the first time:*** Place disk #1 in your cd-rom drive. The installation will auto-run and present you with a menu. Click on the 'New Avref Installation (step 1)' button to begin the installation. We suggest that you take the default folder (c:\avrefwin) for the installation, but you may select any drive and folder you desire. A program group labeled 'Avref' will be added to the Program Manager and a shortcut will be placed on your Windows desktop. Next, from the auto-run menu, select 'New Avref Installation (step 2)'. Run this installation to the same location as you did in step 1 above. As the installation proceeds, you will be prompted to install disk #2. Place disk #2 in the drive and click on 'ok'. When the installation has finished, exit the auto-run menu and remove the disk. (If you purchased the network version, please refer to the page labeled "NETWORK NOTES" for additional information.)
- 2) ***To upgrade to the network version of Avref +MCRL:*** Click on the 'Network Version Upgrade' button. Note the system ID number on the registration screen & contact us for a password to unlock the network upgrade files. Once you receive & enter this password, install the network upgrade to the same location as you did in step (1) above.
- 3) ***Start the Avref program by using the Avref shortcut on your Windows desktop. You will be presented with a registration screen that will allow you to run the Avref program for 5 days prior to obtaining a password, or enter a password to permanently activate the program. To permanently activate the program, contact us with the System ID number shown in the dialog box so we can issue a password. **The password will work on this computer only!** Once you have activated the program by entering your password, you will no longer see the registration screen. (Please note that unless you have purchased the network version, you can install the Avref program **on one computer only**. If you need multiple computer access, please call for information on the network version.)***

Setting Program System Preferences:

Once in the program, you have the option of setting certain program operating preferences. These settings are *defaulted to standard US settings* of currency, date format, etc. To see or change these options, select 'File/System Preferences' from the menu bar at the top of the screen. You will see a dialog box in which you can make changes to the currency type, exchange rate, date format, and default report paper size. You may also select 'bell on' or 'bell off'. Turning the bell 'on' will produce a tone through the speaker at various times such as when trying to enter a part number without first opening the search window. The 'Alert If Part Data Is Aged' section controls the function that highlights the 'File Updated' field and controls the 'check date' message that is displayed below the price field on the main data screen when a given part number's 'Record Updated' date exceeds a preset number of months (shown in the 'Age Breakpoint' window). This function is included to bring attention to any record having a date that exceeds the number of months shown in the 'Age Breakpoint' window. You also have the ability to suppress the MCRL records contained in the database. Selecting 'Display Avref Records Only' sets the system to display only AVREF (manufacturer) source records. Any changes you make in the 'System Preferences' window will be saved and used throughout the program.

Using The Program

- 1) Use the *AVREF* shortcut to start the program. Select the 'forward' button at the lower right corner of the screen to advance to the main data screen.

You will now see the following fields on the data screen:

- a) **Part Number**
- b) **NSN** (national stock number)
- c) **Description**
- d) **Mfg/Supplier** (Name of the manufacturer or vendor associated with this part number.)
- e) **Record Updated** (The effective date of this record)
- f) **Record Source** (Origin of the data for this record. Avref (manufacturer supplied) or MCRL (gov't supplied))
- g) **Avref Mfg Code** (A unique manufacturer catalog identifier that identifies the source of the record displayed)
- h) **CAGE Code** (The code assigned to this mfg/vendor by the U.S. gov't)
- i) **CAGE Status** (Active, debarred, obsolete, etc. See file/help for code translation)
- j) **Model** (Possible aircraft model usage when available) *PLEASE NOTE:* Model usage shown for Cessna part numbers actually reflects which service facility agreement type has the ability to purchase this particular part and does not necessarily represent true model usage. See File/Help for code translation.
- k) **Comment** (Additional information as presented by the manufacturer.)
- l) **Condition** (Part condition such as new, overhauled, etc when available.)
- m) **Unit of Measure**
- n) **Pkg Size** (Minimum order quantity)
- o) **Mfg Price** (The manufacturers list price)
- p) **Disc** (Manufacturers discount code)
- q) **SSCD** (The Cessna or Raytheon superseding code. See File/Help for code translation)
- r) **Dep** (The deposit or core charge, if applicable)
- s) **ALT-N For Notes** (This box will be x'd and highlighted if there are notes stored for this part number. These notes are user editable. To access or enter new notes, select ALT-N.)
- t) **ALT-A For Details** (This box will be x'd and highlighted if there additional details stored for this part number. These additional details are not user editable.)
- u) **Part Number** table (This is a list of all part numbers in the database.)
- v) **Supersedure/Alternate** table (A list of supersedure/alternate numbers available for the selected number.)
- w) **Sources** table (Sources (usually manufacturer) you can contact for information)

Selecting 'File/Help', you will give you access to information on condition codes, unit of measure codes, CAGE code status, FSG listings, and Cessna supersedures.

2) Select '**Find**' from the bottom menu bar to bring up the search window. Specify which search category you desire (part number, nsn, mfg, or CAGE). Enter the part number, national stock number, mfg/vendor name, or CAGE code you wish find and click '**Search**'. This window will stay active until you select the '**Close**' button on the search window (or use the 'esc' key). This will allow you to check numerous numbers without having to call up the search window each time. When searching stock numbers, mfg/vendor, or CAGE you can select 'next' to proceed to the next record that meets your search criteria. To scroll the main part table, select '**Close**' to clear the search window (or use the 'esc' key). **Note that you can choose to search part numbers with or without dashes (-) included (default is with dashes).**

3) If the part number you entered is contained in the database, it will appear in the part number field at the top left of the screen. If it is not in the database, the next numeric part number will appear. *If you see several occurrences of your selected part number in the 'Main Part Table' on the left of the screen, close the search window by clicking on the 'Close' button in the search window (or hit the 'esc' key). This will allow you to scroll the 'Main Part Number' list with your up-down arrow keys to see additional vendor information and additional alternates.*

Pay close attention to the 'Record Source' field in the top right corner of the data screen to determine whether the information displayed is manufacturer supplied or gov't supplied!!

4) You may now see one or more supersedures or alternate numbers in the **Supersedure/Alternates** table. To access information on these supersedures or alternates, **click on the desired choice** in this table to bring up the information on this selection.

5) The supersedure or alternate you selected will now be displayed along with the related information on that part. To select a different supersedure or alternate or to return to the original part number, **click on the desired choice** in the Supersedure/Alternates table.

6) To see or add notes to the part number selected, click on the '**ALT-N for Notes**' box. Type in your notes and select the 'Close' to save them. The notes box on the main screen will now be x'd and highlighted to indicate you have stored notes for this part number. (Note: This function is active for AVREF source records only...you cannot save notes for MCRL source records).

7) To check for additional details on a given part number or vendor, click on the '**ALT-A for Details**' box (this box will be x'd and highlighted if there are any additional details available). If there are any additional details such as address, fax numbers, etc, they will be displayed in this window. These notes *cannot be edited by the user*. Use the ALT+N feature described above to create & store your own notes.

8) To print the information on the active screen, select '**Report**' from the bottom menu bar or click on the printer icon located on the search window. This will send all the information on the screen to your printer including stored notes and the computed cost if you have entered discount percentages in the discount table (see next page). To change printer selection, select 'Printer Set-Up' from the 'File' menu pop up at the top of the screen.

9) To use the **Batch Search** mode, select either '**P/N Batch Search**' or '**NSN Batch Search**' from the bottom menu bar. This brings up a search screen that allows you to enter an unlimited number of part numbers or national stock numbers to be searched. Simply click on the 'add' button to create or add to your search list. Enter your part number or nsn and any other options such as vendor code or exact match (if desired) and press '**Close**'. You may edit or delete numbers from your list at any time. If you enter a part number and leave the vendor code field empty, the search will look for ALL part numbers that match the criteria you entered in the part number field including the 'fuzzy' part numbers. If you enter a part number AND a vendor code, only those records that meet both criteria will be presented. Specifying an 'Exact' match will further limit the search to the exact part number you entered. A list of vendor codes can be found at the back of this guide. After creating your search list, click on the 'search' button. A window showing the results will now be presented. You now have the choice of reviewing the results on the screen, printing the results to your printer, or saving the results to a delimited ASCII file.

10) To exit the Avref program, select '**Exit**' from the bottom menu bar, or click on the '**X**' at the top right corner of the Avref screen.

Selecting 'File/Help', you will give you access to information on condition codes, unit of measure codes, CAGE code status, FSG listings, and Cessna supersedures.

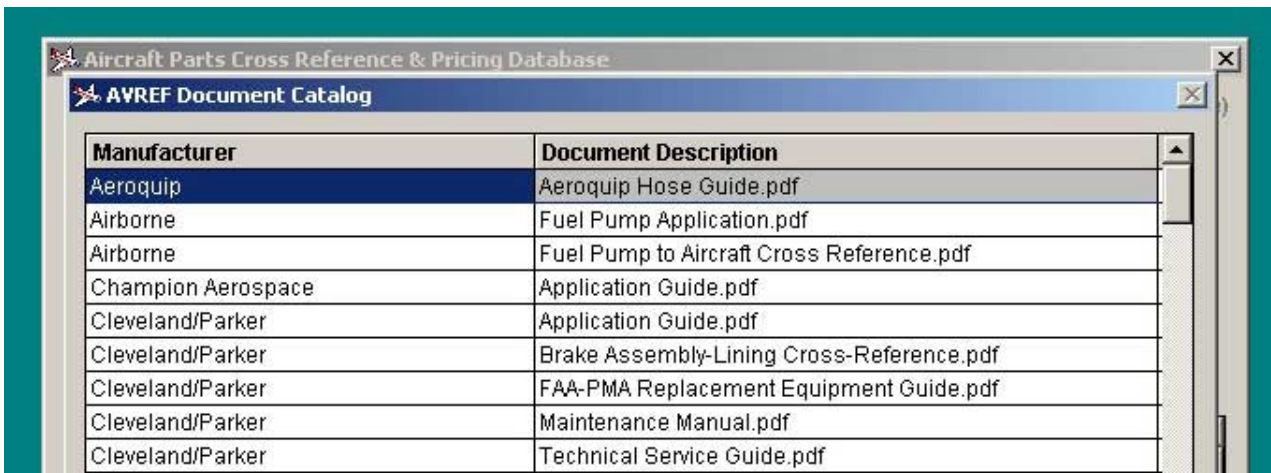
Using The Manufacturer Application Guides and Parts Breakdowns

The Avref program contains many manufacturer supplied application charts and illustrated parts breakdowns in Adobe PDF format. There are two basic ways to gain access to these:

- 1) When a part number you select has an application chart or parts breakdown associated with the manufacturer or vendor who supplied that record information, a 'PDF' icon will appear on the main data screen near the 'Record Updated' field when you close the search window. If there is only one .PDF file associated with the manufacturer/vendor, clicking on the PDF icon will open it. If there are more than one .PDF files associated with this manufacturer/vendor, a list of available .PDF files will appear. You can then choose the document you wish to view. **You will not see the PDF icon on the main data screen until you close the search window.**



- 2) Alternatively, you can access a complete list of all available documents by clicking on 'File/Document Catalog' from the main menu bar at the top of the Avref screen. The documents are arranged alphabetically by manufacturer name. Simply click on the document that you wish to see, and then click on the 'View' button.

A screenshot of a software window titled "Aircraft Parts Cross Reference & Pricing Database" with a sub-window titled "AVREF Document Catalog". The window displays a table with two columns: "Manufacturer" and "Document Description". The table lists several documents from various manufacturers.

Manufacturer	Document Description
Aeroquip	Aeroquip Hose Guide.pdf
Airborne	Fuel Pump Application.pdf
Airborne	Fuel Pump to Aircraft Cross Reference.pdf
Champion Aerospace	Application Guide.pdf
Cleveland/Parker	Application Guide.pdf
Cleveland/Parker	Brake Assembly-Lining Cross-Reference.pdf
Cleveland/Parker	FAA-PMA Replacement Equipment Guide.pdf
Cleveland/Parker	Maintenance Manual.pdf
Cleveland/Parker	Technical Service Guide.pdf

Please note:

- 1) Adobe Acrobat Reader must be present on your system (it is generally already installed on newer computers). If it is not, you will need to install the reader prior to utilizing the documents. The reader is included on the Avref disk & can be easily installed by clicking on the 'Install Adobe Reader' button on the Avref auto-run menu.
- 2) When you see the PDF icon appear on the main data screen, it *does not* mean that there is a document relating *directly* to the part number displayed. It is alerting you to the fact that there are documents available relating to the manufacturer or vendor of the part number displayed. In other words, if you have a Gables Engineering part number 110-0001 displayed on the screen and click on the PDF icon, you will see a list of all documents that are associated with Gables Engineering...whether or not they have anything to do with part number 110-0001.

DISCOUNT FUNCTION

This feature will allow you to enter a discount percentage as it pertains to a given discount code located in the "Disc:" field of the data screen. Once these discount percentages are inserted, the program will **automatically compute your cost** based on the list price and the discount code shown on the main data screen. Please follow the instructions below to set up and access this discount function.

INITIAL SET-UP

- 1) Start the Avref program and proceed to the data screen.
- 2) Select 'Edit Table' from the Discount menu selection at the top of the screen or press CTRL+E to access the initial discount set-up table.
- 3) Enter your discount percentages as they pertain to each discount code and vendor listed.
- 4) Press "Esc" when you are done editing this table.
- 5) Please note that a "--" in the discount table or in the "Disc" field indicates a "no code" situation.

USING THE DISCOUNT FUNCTION

Once you have performed the initial set up above, the program will automatically perform cost computations for you. You can access the information in this **COST** screen by selecting 'Cost' from the menu item at the bottom of the page. You will now see the vendor name, discount code, discount percentage, list price, and cost price. Select 'Cancel' or press "Esc" to exit this screen.

- 1) If you select 'Cost' on a part number that shows "NA" in the "Disc" field, nothing will happen. This is normal as there is no available discount info associated with these parts.
- 2) If you select 'Cost' on a part number that has other than "NA" showing in the discount code field, the cost computation will take place as long as you have assigned a percentage to the given code for that vendor.
- 3) If you see the message "No discount data available", it indicates that information is missing from the discount set-up table. To add the information, select 'Add' from the Discount menu item at the top of the page. You may now enter the discount percentage that is associated with the discount code showing. This information will be stored in the table and can be edited at any time if necessary.

TROUBLESHOOTING, ERROR MESSAGES & NETWORK NOTES

1) *File Access denied. (Network Version)*

If you purchased the network version of Avref, make sure you have run 'setup.exe' from the CD-ROM disk followed by 'networkupgrade.exe'. If you see this message when exiting the program, copy the files labeled 'foxuser.dbf' and 'foxuser.fpt' from the \avrefwin folder on the server to the \windows folder on the workstation.

2) *File Access denied. (Single User Version)*

Check your taskbar to make sure that the Avref program is not already running on your computer. Also, if you are running the single user version of Avref on a network, **make sure** that the program is not already running on another workstation.

3) *Invalid path or filename or Field name is a duplicate or invalid.*

Usually indicates that the Avref program is having trouble locating the data files. Check the Avref shortcut to make sure that all three parameters in the 'target' line are correct.

4) *Must specify additional parameters.*

Check the shortcut 'target' line for the proper syntax. Make sure that each of the three parameters is enclosed in quotations (") if the folder name contains a space. For example, if the Avref program was installed to the 'program files\avrefwin' folder, the target line should read:

```
"c:\program files\avrefwin\av.exe" "c:\program files\avrefwin" "c:\program files\avrefwin"
```

5) *The Avref program cannot locate the data files.*

Right-click on the Avref shortcut (icon). Select 'Properties' then 'Shortcut'. The very end of the 'target' line should reflect a path to the data files on the hard drive (i.e. c:\avrefwin or f:\avrefwin, etc). Now open 'My Computer' & double-click on the drive letter that was shown at the end of the 'target' line. Double-click on the folder specified at the end of the 'target' line & verify that data files labeled 'parts.dbf, parts.fpt, parts.cdx, resource.dbf, and resource.cdx exist within the folder. If these files are not in the folder, the data files have not been installed (or have been installed to an incorrect location).

6) *The Avref program opens, but the data screen is empty.*

One of two things has happened. Either the data files were not installed or the shortcut is not pointing to the correct location. To determine the problem, right-click on the Avref shortcut. Select 'Properties' then 'Shortcut'. The very end of the 'target' line should reflect a path to the data files on the hard drive (i.e. c:\avrefwin or f:\avrefwin, etc). Now open 'My Computer' & double-click on the drive letter that was shown at the end of the 'target' line (i.e. c or f, etc). Open the folder specified at the end of the 'target' line & verify that a file labeled 'avlocate.dbf' exists within this folder. If this file is not in the folder, the data files have not been installed (or have been installed to an incorrect location). Re-install the data files by clicking on the 'Update Existing Avref Data Files' button on the Avref auto-run menu (or run the file 'cd_data.exe' from the disk). Make sure that the specified installation folder matches what you found at the end of the shortcut 'target' line.

7) *The following file is in use & cannot be updated.*

If you see a message stating 'The following file is in use & cannot be updated' the Avref program is open somewhere (most likely on a workstation in the network). Close Avref on all workstations & click on 'Retry' to continue the installation. If you click on 'Cancel' when seeing this message, temporary files will be installed on the hard drive & the original files will be replaced with the new files when the system is rebooted.

8) *The date on the first part number shown in Avref does not reflect the same date as on the CD-ROM disk.*

The date on the first part number that appears on the main Avref data screen should reflect the same date as shown on the CD-ROM disk. If the data file update appears to have been successful, but you do not see a current date (the same date as on the CD-ROM disk) on the first part number, follow the instructions in (6) above.

10) *When attempting to run the installation, you receive an error message 'You must have at least 2MB free space on your temp drive'.*

Right-click on 'My Computer' and select 'Properties'. Now click on the 'Advanced' tab and select 'Environment Variables'. Double-click on the TEMP user variable and change the *variable value* to another directory such as 'c:\temp' or c:\winnt\temp'. Click on ok and close the window. Run the installation from the auto-run menu.

11) *When attempting to run the installation, you receive an error message 'A decompression error has been detected'.*

This can occur if the cd-rom drive is having a problem reading the disk. Restart the computer and try the installation again. If restarting the computer does not correct the problem, try installing the program from another cd-rom drive. If you have no other cd-rom drive available, contact RDS for assistance.

Network Notes (revised 9/22/05)

- 1) All workstations must have read/write/create permissions on the server where the Avref program files are installed.
- 2) Place the #1 Avref CD-ROM disk in your drive. The installation should 'auto-run' and present you with a menu. Click on the 'New Avref Installation (step 1)' button to begin the installation to the server. When this installation has completed select the 'Network Version Upgrade' button to install the network files. These network files MUST be placed in the same location on the server as the original install above. A registration screen will appear when you run the 'Network Version Upgrade'. Make a note the system ID number on the registration screen & contact RDS for a password. Enter the password & continue the installation. (If your system does not 'auto-run', simply access the files on the disk and run the file labeled 'cd_combo.exe' followed by 'networkupgrade.exe'.) Next, install the data files by selecting 'New Avref Installation (step 2)'. The data files should be installed in the same location as the original installation above.
- 3) To create a shortcut on the workstations select the button labeled 'Create an Avref Shortcut For Networking' button. Run this at each of the workstations. When asked for the drive & path information, change the default drive & path to reflect where the Avref files were installed on the server. You can either manually enter the drive & path information or click on the 'Change' button next to the folder line & 'browse' over to the folder on the server where the Avref files are located. For example, if the server drive is mapped as the F: drive from this workstation, you will change the drive & path info to F:\avrefwin (provided that you did not change the default directory from \avrefwin when you did the original Avref installation). If you are running Avref in a thin client environment, simply copy the Avref shortcut that was created on the server during the original installation to a 'common' point on the server that all of the clients can access.
- 4) If, after creating your shortcuts, you receive an error message of '*The Avref Program Cannot Locate The Data Files, Invalid path or filename, or Field name is a duplicate or invalid*', you need to check the last parameter of the shortcut properties target line. The last parameter (there are three parameters in the target line separated by a space) must point to the location where the data files are located. For example, if your server is designated as your F: drive and you installed Avref to F:\avrefwin, the shortcut 'target' line should read as: F:\avrefwin\av.exe F:\avrefwin F:\avrefwin.
- 5) If you see a message stating 'The following file is in use & cannot be updated', the Avref program is open somewhere (most likely on a workstation in the network). Close Avref on all workstations & click on 'Retry' to continue the installation. If you click on 'Cancel' when seeing this message, temporary files will be installed on the hard drive & the original files will be replaced with the new files when the system is rebooted.
- 6) If the Avref program opens, but the data screen is empty, one of two things has happened. Either the data files were not installed or the shortcut is not pointing to the correct location. To determine the problem right-click on the Avref shortcut. Select 'Properties' then 'Shortcut'. There are three parameters in the target line. The very end of the 'target' line should reflect a path to the data files on the hard drive (i.e. c:\avrefwin or f:\avrefwin, etc). Now open 'My Computer' & double-click on the drive letter that was shown at the end of the 'target' line (i.e. c or f, etc). Open the folder that is specified at the end of the 'target' line and verify that a file labeled 'avlocate.dbf' exists within this folder. If this file is not in the folder, the data files have not been installed (or have been installed to an incorrect location). Re-install the data files by clicking on the 'Update Existing Avref Data Files' button on the Avref auto-run menu (or run the file 'cd_data.exe' from the disk). Make sure that the specified installation folder matches what you found at the end of the shortcut 'target' line.

If you have any questions, please contact us at: Phone (407) 323-3282, Fax (954) 252-3725, email: rpeters@avref.com

Avref Vendor Code Listing 01/01/2005)

AB= Aircraft Braking Systems	JT3= Pratt & Whitney JT3
ABI= Airbus Industrie	KA= Kelly Aerospace
AGU= Agusta Helicopter	KG= Kidde-Graviner
AIR= Airborne	KOR= Korry Electronics
ALI= Allison Engine	LJ= LearJet
AMI= Goodrich Seating	LKH= Lockheed Martin
AMT=Ametek Aerospace	LPA= LP Aero Plastics
ARG= Argo-Tech	LRM= Lear Romec
AS2= Allied Signal Executive Airline Repairs	LY= Lycoming Piston Engine
AS3= Allied Signal Executive Airline Spares	LYT= Lycoming Turbine Engine
AS5= Allied Signal Regional Airline Spares	MAC= Mooney Aircraft
AS6= Allied Signal Regional Airline Repairs	MCP= McCauley Propeller
AS7= Allied Signal Commercial Airline (Non-Airline Pricing)	MAR= Marathon Battery
AS8= Allied Signal Commercial Airline (Airline Pricing)	MDD= McDonnell Douglas Aircraft
ATR= Aviones de Transport Regional	MDH= MD Helicopter
BAC= Boeing Aircraft	MEG=Messier-Goodrich
BAE Systems (Avro RJ/Bae146)	MES= Messier-Dowty
BCL= Challenger (Bombardier)	MRA= Middle River Aircraft Systems
BDK= Bendix/King Avionics	ON= Ontic
BDX= Bendix Wheel & Brake	OT2= JT Evans Aircraft
BF1= BF Goodrich Deice (Ga & Regional)	OT3= RNL
BF2= BF Goodrich Deice (Commercial)	OT5= Ra-Nav
BFA= Goodrich Avionics	OT6= Keddeg Co.
BFG= BF Goodrich Wheel & Brake	PI= Piper Aircraft
BH= Bell Helicopter	PS= Pacific Scientific
CA= Collins Avionics	PW1= Pratt & Whitney PW100
CC= Circle Seal	PW2= Pratt & Whitney PW206
CFM= CFM International	PW3= Pratt & Whitney PW305
CF6= General Electric CF6/GE90	PW6= Pratt & Whitney PT6A/JT15D
CH= Crane/Hydro-Aire	PW9= Pratt & Whitney PW901A
CIT= Cessna Citation	P53= Pratt & Whitney PW530A
CJA= CJ Aviation	P54= Pratt & Whitney PW545A
CLV= Cleveland Wheel & Brake	PWC= Pratt & Whitney Commercial Engine Spares
CO= Continental	RAA= Raytheon Airliner Group
CS= Cessna Aircraft	RAC= Raytheon Commercial Aircraft
DHC= deHavilland (Bombardier)	RAM= RAM Aircraft
DUN= Dunlop	RAP= Rapco
EMB= Embraer	RH= Robinson Helicopter
ENS= Enstrom Helicopter	RR= Rolls-Royce (RB211-535)
EUR= Eurocopter	RR2= Rolls-Royce (Spey/Tay)
EXT= Extex, Ltd	SAA= Smiths Aerospace (Electronics)
FJ= Falcon Jet	SAE= Smiths Aerospace (Actuation)
GA= Gulfstream Aerospace	SCT= Scott Aviation
GEI= Gables Engineering	SH= Schweizer Aircraft
GE1= General Electric (T700/CT7)	SIK= Sikorsky
GE2= General Electric (CJ610/CF700)	SMR= SMR Technologies
GE3= General Electric (CF34)	SOC= Socata
GR= Goodrich Aerostructures (Rohr)	TAC= Tactair Fluid Controls
GR1= Grimes Aerospace	THL= Thales Avionics
GRH= Goodrich Hella Aerospace	TRU= True Lock
HON= Honeywell (Business & Commuter Aviation)	TCA= Twin Commander Aircraft
HRT= HR Textron Helicopter Products	TR1=TRW Aeronautical (Lucas)

HS= Hamilton Sundstrand Commercial & Regional Airlines	TR2= TRW Aeronautical (Lucas) Airbus Spares
HW1= Honeywell Service Parts (List price)	TR3= TRW Aeronautical (Lucas) Cargo Systems
HW2= Honeywell Service Parts (Airline price)	TUR= Turbomeca Engine
HZP= Hartzell Propeller	UAS= Universal Avionics
IAE= Intl Aero Engines (V2500)	VAL= Valtec Aircraft Supply
INT= Intertechnique S.A.	VIC= Vickers
	WG= Woodward Governor
	WKR= Whittaker Controls (commercial)
	WW= Wencor West
	XRF= Boeing Spec Cross-reference