



**Richardson
Electronics**

Engineered Solutions

Avionics Components & Equipment Guide



About Richardson

Richardson Electronics continues to support the avionics industry with our vast inventory of high quality avionics components used in equipment manufactured by Allied Signal/Honeywell, Rockwell Collins, and several other OEMs.

Richardson Electronics' distribution centers in the U.S. and Europe are ISO 9002 registered and are committed to providing the highest standard of quality and service to its customers. The Company has a presence in 50 countries through more than 70 sales offices and 36 stocking locations. Furthermore, AOG requirements are fulfilled by offering 24-hour emergency service.



Richardson Electronics' Corporate Headquarters in LaFox, Illinois.

TSOA & PMA Certification

(TSOA) Technical Standard Order Authorization & (PMA) Parts Manufacturers' Approval

Richardson Electronics is able to meet FAA and foreign government regulations by supplying documentation requirements on TSOA and PMA certified parts for traceability. Additionally, as the exclusive distributor of Litton airborne weather magnetrons, we can supply TSOA certification for all Litton airborne weather magnetrons.

The TSOA documents provide a matrix outlining traceability for weather radar magnetrons to the Original Equipment Manufacturers (OEM) weather radar system. TSOA certification conforms to the Federal Aviation Regulations (FAR) Part 21. Subpart O; Technical Standard Order Authorization (TSOA) and is in accordance with (FAR) Technical Standard Order TSO-C63C, Airborne Weather and Ground Mapping Pulsed Radar.

PMA documents also trace components to the (OEM) systems. PMA certification conforms to the Federal Aviation Regulations (FAR) Part 21.303 for Parts Manufacturing Approval. It is also in accordance with (FAR) Part 45.15, Replacement and Modification Parts.

Tubes, Power Tetrodes

Richardson supplies a wide range of tetrodes used in communication equipment and flight simulators for commercial and military applications.

Part Number	OEM Number or Fed. Stocking No.	Part Number	OEM Number or Fed. Stocking No.	Part Number	OEM Number or Fed. Stocking No.
4657	65-83999G01	4CX250FG/8621	256-0169-010 254-0981-000 256-0147-000	8560AS	65-83382D02 65-83382D03
8121	256-0145-000	4CX350A/8321	374-0102-000 256-0148-010	8930/DX393A	—
4CX1500B/8660	7164415P66 V12-0002-000 600023-423-001 10257042	4CX350AC	—	8930-JAN	—
4CX1500BM/Y757	256-0193-010	4PR65A/8187	—	Y152	—
4CX250BM	—	6884-JAN	254-0983-000 256-0118-000	Y584	256-0185-011

The products listed above only represent a portion of the products available from Richardson Electronics. Call with your requirements.

Magnetrons

Richardson stocks the widest selection of commercial replacement weather radar magnetrons in the world. These magnetrons can be used in airborne, weather, ground or military radar applications. They are available in X , S , C and Ku band. All Litton airborne weather magnetrons are TSOA approved.



Part Number	OEM Number or Fed. Stocking No.
2J42H/QKH1806	1712169-1
5586	5960-00-166-7692
5657	5960-00-166-7693
5795	—
6510	4J52A 5960-00-669-6807 5960-99-000-5018 5960-00-206-3386 5960-99-037-5146
6517	5960-00-061-0484
7006	5960-00-889-4077
7008	5960-00-583-0872 5940-00-892-0609 F1103A
7208	5960-00-882-4424
4J52A-JAN	5960-00-669-6807
5J26	5960-21-862-3471
6027H	5960-99-714-5244
6344A/QK235	—
6521A	1717613-1
6M70	—
7156A	QK662A
DX276	5960-00-763-6751
ET120	5960-00-905-2718
ET128	5960-99-118-8791
ET128A/M5052	5960-99-118-8791
ET128B/M5051	5960-99-118-0159
ET130	QKH1709
ET131D	5960-01-113-4309 SFD354H
L3106/L3106A	—
L3431A	1710028-4

Part Number	OEM Number or Fed. Stocking No.
L4193A/7008	5960-01-210-8284
L4193B	—
L4193H/7008	—
L4194	—
L4495	—
L4570	167362
L4581	5960-01-046-4482 VMX1090
L4601C/MG5254	4005433-0001 3611710-0001
L4642/L4642A	4004505-0002
L4651	3601715-0001 021-00076-0000
L4652B	3718389-1
L4666	—
L4667A	3718495-1 3718495-2
L4675	—
L4681	—
L4693	3603247-0001 5960-01-112-827
L4695	257-0261-020 842-0001-010
L4697A	257-0261-010
L4698B	3718621-6
L4702	021-0057-00101
L4704	3718389-3
L4706	021-00084-0002
L4727	1006053 1717613-1 5960-01-224-7151
L4733S	—
L4798A	—

Part Number	OEM Number or Fed. Stocking No.
L4800	3718621-7
L4942/QKH2039	1712169-2
L5047	2068364-0701
L5191	1717527-1
L5274/L5274B	1718011-1
L5362B	4004505-0001
L5536A	1718640C 5960-01-070-0696
L6344A	5960-00-968-3852
L6543	—
L7156B	—
M1224BS	—
M1366A/2J42H	1712169-1
M1380	—
M1443	021-0039-00
M5064H	021-0039-00
M5083A	5960-99-782-4007
MA2822	021-0047-00
MA2823-2	257-0261-030
MA2824B	2069145-0001
MA2824H	7007740-2
MA2829	—
MA2876B	2072724-0001
MA2876HB	7007740-1
MA2841	3718621-4
MA2866	021-00057-0000
PMA2823-1	257-0261-020

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Planar Triodes/Cavities

Richardson is the world's largest distributor of planar triodes. Our selection ranges from many discontinued, hard-to-find and obsolete types to new production JAN devices. PMA documentation is available for select part numbers.



Part Number	OEM Number or Fed. Stocking No.
322	CAA322
6503	2C37
7211	—
7486	1064791
7698	1064790
7911	—
8533	378-0123-000
8536	0134612-000
8745	044-4930-040 5960-00-469-4654
8755	378-0147-000 006276 5960-00-469-4654
8933	910633-2 5960-01-026-9005 5960-00-181-0452
13971	1712267-1 5960-00-004-5819
14811	—
15371	3718327-1 021-0030-01 021-00031-0000 5960-99-118-5925
15375	021-0050-0000
16231	021-0034-00 5930-00-930-4256
16841	—
18651	—
21351	3718327-2 021-0045-0000
13971S	—
P15371AL	5960-99-118-5925 021-0031-00

Part Number	OEM Number or Fed. Stocking No.
15375AL	021-0050-0000
16231AL	021-0034-00 5930-00-930-4256
17701-1	—
17701-1CA	8030002451-5
17701-2CA	8030002451-6
17701-3	—
17701-4	MIS12970 4013100P001D
17701-5	—
17701AL	256-0176-010
17701-Y	805000729
18651-1	256-0175-010
18651-2	256-0175-020
18651-3	256-0175-010 256-0175-030
18651AL	256-0175-010 256-0175-030
2C39A	256-0114-00
6442-JAN	—
7077-JAN	254-0973-000 5960-00-688-6706
7211-JAN	—
7289/3CX100A5	374-0115-000 257-0157-000 5960-15-R71-2770
7462-JAN	5960-00-752-5462
7486AL	254-0988-000 256-0200-020
7486-JAN	A55258-436 TK9127 5960-99-644-9523

Part Number	OEM Number or Fed. Stocking No.
7698-JAN	—
7815AL	256-0197-010
7815-JAN	254-0986-00 5960-00-082-3688
7815N	—
7815X	1712356
7815R/3CPX100A5	31292-0002 1066369 014625-003
7815R-JAN	5960-00-044-2709
7842-JAN	—
7855KAL	6014616-001 6014616-2 14614-2
8533-JAN	—
8533W	100G3124-2
8538B	152757 5960-00-529-0583
8538B-JAN	—
8538L	—
8538T	—
8741/Y640	5960-00-145-4770
8755-JAN	—
8906AL	256-0192-010 256-0192-020
8933	SM-A-586587 910633-2 5960-01-026-9005 5960-00-181-0452
8942/Y670A	77A-00-0017
8944/Y602	1005524 100G3145-1-1

The products listed above only represent a portion of the products available from Richardson Electronics. Call with your requirements.

Planar Triodes/Cavities

Part Number	OEM Number or Fed. Stocking No.	Part Number	OEM Number or Fed. Stocking No.	Part Number	OEM Number or Fed. Stocking No.
8980-JAN	2C37	NLA580-9	8030000580-9 803000580-9 5960-01-077-4551	Y690A	848099-1
A0897	A856-8018			Y724	—
CAA322	322	PC2080A/ C2080A	277-0446-030 021-0038-00 63002-0001	Y739E	—
EE160AL	—			Y739G	8829400007-1 5960-01-067-1356
EE171/Y602B	403147 5960-01-026-8933	P7815AL	256-0152-00	Y749	—
ML7815	—	Y2177	—	Y779	1815525
ML7815AL	256-0197-020 6014625-1	Y-602B	EE171/Y602B	Y822-1	8008-1551-1 5960-01-167-8796
ML7855	—	Y2211	—	Y825	256-0190-020
ML7855KAL	—	Y483	C10611-1 288779801 2887798-1 MLEE116	Y828	090-001890
ML8533	—	Y513	—	Y840	—
ML8533R2	MCL27B1196 MCL10461-C	Y519	—	YC234	—
ML8533R2S	—	Y540	090-00-001770 090-01770 265010P001	YD1047	—
ML8533S	—	Y540A	10177373 5960-01-043-3206	YD1048	—
ML8536	60134612-000 B159250-0000 134612-0000 5960-00-391-6493	Y543	—	YD1102	—
ML8538	910633-2	Y599A	—	YU122	—
ML8538B	—	Y602A	619674-1	YU132	—
ML8538T	—	Y634	373078-1 26510P002	YU133	—
ML8741	134613-0000 159251-000000 B159251-0000 2699374 60134613-000 5960-00-145-4770	Y641	—	YU141	—
ML8906AL	256-0192-030	Y641-1	—	YU147	5960-01-071-5342
MLEE58L/Y503	256-0190-010	Y641-2	—	YU152A	MLEE173 50-0004 5960-01-065-0271
MLEE64Y	FF64Y 265010P1 7528272P2 41111-703-00-9	Y654	700735-01	YU160	—
NLA580-10	8030000580-10 5960-01-077-4551	Y673	—	YU163	—
NLA580-11	8030000580-11 5960-01-078-2149	Y678W	A856-5018-1	YU175	—
		Y688	090-001818 265011P001	YU176A	—
		Y688B	P265011P1 5960-01-079-9849	YU189	—
		Y690	—	YU214	—

The products listed above only represent a portion of the products available from Richardson Electronics. Call with your requirements.

Visit our on-line catalog at catalog.rell.com. Place your orders conveniently from one of the industry's most comprehensive electronic component catalogs.

Lamps



Richardson now offers the following types of aircraft lamps: aircraft reflector lamps, quartz/halogen lamps, miniature and subminiature incandescent lamps, light emitting diodes, LED displays, based LED lamps, solid state panel mount indicators, solid state backlight panels for signage and value added assemble services. Below is a list of FAA-PMA approved lamps for aircraft.

Micro Lamp	Replacement For Part Number:	Reference to PMA Supplement #
ML-43	GE P/N 43	# 13
ML-44	GE P/N 44	# 13
ML-93	GE P/N 93	# 13
ML-267	GE P/N 267	# 13
ML-305	GE P/N 305	# 13
ML-305F	GE P/N 305F	# 25
ML-307	GE P/N 307	# 13, 25
ML-311*	GE P/N 311	# 16
ML-311R	GE P/N 311R	# 16
ML-313	GE P/N 313	# 13, 25
ML-327	GE P/N 327	# 12, 25
ML-328	GE P/N 328	# 15
ML-330	GE P/N 330	# 12
ML-387	GE P/N 387	# 8, 25
ML-601AV	GRIMES P/N 601	# 23
ML-601-1	GRIMES P/N 601-1	# 8
ML-626	GRIMES P/N 626	# 8, 19
ML-632	GRIMES P/N 632	# 10
ML-633	GE P/N 1777	# 10
ML-685	(GE) P/N GE-632	# 17
ML-685AS15	GE P/N 685AS15	# 17
ML-687 BASIC	GRIMES P/N 687	# 22
ML-687-1	GRIMES P/N 687-1	# 22
ML-687-3	GRIMES P/N 687-3	# 22
ML-687-5	GRIMES P/N 687-5	# 22
ML-687-7	GRIMES P/N 687-7	# 22
ML-687-13	GRIMES P/N 687-13	# 22
ML-687-15	GRIMES P/N 687-15	# 22
ML-687-17	GRIMES P/N 687-17	# 22
ML-687-19	GRIMES P/N 687-19	# 22
ML-687-21	GRIMES P/N 687-21	# 22
ML-687-23	GRIMES P/N 687-23	# 22
ML-687-25	GRIMES P/N 687-25	# 22
ML-687-27	GRIMES P/N 687-27	# 22
ML-718	GRIMES P/N 718	# 17
ML-718AS15	GE P/N 718AS15	# 17
ML-1073	GE P/N 1073	# 13
ML-1163	GRIMES P/N 11631	# 4, 5, 6, 11, 19
ML-1308*	SYLVANIA P/N 1308	# 13

Micro Lamp	Replacement For Part Number:	Reference to PMA Supplement #
ML-1512	GRIMES P/N 1512	# 8
ML-1524	GRIMES P/N 1524	# 8
ML-1665IF	GE P/N 1665AF	# 13
ML-1683	GE P/N 1683	# 13
ML-1687	GRIMES P/N 16870	# 6, 11
ML-1777	GE P/N 1777	# 13
ML-1813	GE P/N 1818	# 13
ML-1815	GE P/N 1815	# 13
ML-1816	GE P/N 1816	# 13
ML-1820	GE P/N 1820	# 13
ML-1864	GE P/N 1864	# 13, 25
ML-1962B	GE P/N GE-(1962B GRIMES P/N LP-1962B)	# 20
ML-1962DZ	GE P/N (1962DZ GRIMES P/N LP-1962DZ)	# 19
ML-1970X	GE P/N 1970X	# 8
ML-1976	GE P/N 1976	# 7
ML-1978X	GE P/N 1978X	# 8, 19
ML-2232	GE P/N 2232 (SYL P/N 2232)	# 9
ML-2232-SB	GE P/N 2232 (SB SYL P/N 2232SB)	# 9
ML-2233	GE P/N 2233	# 9
ML-2233-SB	GE P/N 2233SB	# 9
ML-3011	GE P/N 3011	# 16
ML-4009BPE	OSHINO P/N OL-4009BPE	# 21
ML-4174-12	GRIMES-A-4174-12	# 3
ML-4174-24	GRIMES P/N A-4174-24	# 2, 3, 4, # 6, 11
ML-7079-12	GRIMES P/N 7079-12	# 2
ML-7079-24	GRIMES P/N A7079B-24	# 1, 2, 3, 4, 6, 11
ML-7265-100	OSHINO P/N OL-3071BPE	# 14, 18, 20
ML-7361	OSHINO P/N OL-783BP	# 14
ML-7387	OSHINO P/N OL-387BP	# 14
ML-7512-12	GRIMES P/N A-7512-12	# 3
ML-7512-24	GRIMES P/N A7512-24	# 2, 3, 4, # 6, 11
ML-7839-100	OSHINO P/N OL-6839BPE	# 14

* To meet Aviation Standards add AD to part number. Ex. ML-311AV

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Test Equipment

Richardson carries a wide selection of test equipment for...

- ADF (Automatic Direction Finder)
- HF/VHF Com (Radio/Communications equip.)
- DME (Distance Measuring Equipment)
- NAV (Several types of navigational devices)
- Transponders / ATC
- Radar

Whether your shop is looking to establish testing capabilities or expand upon current capabilities, let Richardson Electronics be your source for test equipment.

Contact us today to learn about the thousands of items we can offer, such as:

The **ASI-502** “control wizard” emulates most major avionics control functions for testing requirements. The “control wizard” is capable of controlling ADF, HF/VHF COM, DME, NAV, Transponder, or any other system that requires ARINC 429 serial, CSDB serial, or Parallel tuning methods including BCD and 2x5 (8.33 / 25 kHz). The “control wizard” eliminates the need for having multiple control heads in the shop because it comes pre-programmed with software containing up to 40 different programs that simulate different control head functions. Each ASI-502 is also equipped with a RS-232 / program input connector that allows the customer to add additional programs to their ASI-502 by downloading them from a computer.

The **ASI Test System** is a computer aided, modular system capable of testing a large variety of avionics equipment. Equipment tested includes the **Collins Pro Line 1,2 and 4 series, King Gold Crown series,** and **ARINC** standard avionics units. The heart of the ASI Test Systems is the **ASI-2000** mainframe, which provides power, test points and computer interface capabilities. The ASI-2000 interfaces with the PC through the use of an **ASI-401-1** interface panel and a **CTC-429** PC compatible card. The **ASI-200-X** series of plug-in adapters provide interface from the ASI-2000 to the various types of UUT (unit under test) such as the **Collins VIR-30/31/32/33/432/433** series of navigation receivers. This modularity is ideal for shops that do not dedicate one technician to one type of unit under test. Shops that do operate under more dedicated conditions should inquire about “stand alone” equipment that specifically test a particular unit.



Shown Above:
ASI-2000, ASI-401-1 and the ASI-200-2B

These following panels are used in the testing and repair of Rockwell Collins Air Transport Series 700 and Series 900 avionics.

- **ASI-700-1** Indicator Discrete Function Unit (DFIU) is designed to test the Collins ARINC 700 series indicators and other Line Replacement Units (LRU).
- **ASI-700-2** ADF/GLU/ILS/MB/MLS/VOR Discrete Function Interface Unit (DFIU) is designed to test the Collins ARINC 700/900 series ADF/GLU/ILS/MB/MLS/VOR Line Replacement Units (LRU).
- **ASI-700-3** DME/LRA Discrete Function Interface Unit (DFIU) is designed to test the Collins 700/900 series DME.LRA Line Replacement Units (LRU).
- **ASI-700-4** HF/VHF Discrete Function Interface Unit (DFIU) is designed to test the Collins ARINC 700/900 series HF/VHF Line Replacement Units (LRU). The ASI-502 can be used in place of the HF/VHF control head.

** All of the above units work in conjunction with an ARINC 429 Data Bus Generator (user supplied) to provide the LRU with all voltages, discretes, control inputs and outputs required for “by the book” testing per the Collins maintenance manual.

Data sheets for the above equipment are available upon request.

Richardson offers the highest quality components used in ...

- **CCTV Equipment for DMEs**
- **Transponders**
- **TACAN**
- **IFF**
- **MLS**
- **Flight Simulators**
- **VHF and UHF Communications**
- **Ground Navigation Equipment**
- **Facility Security**



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