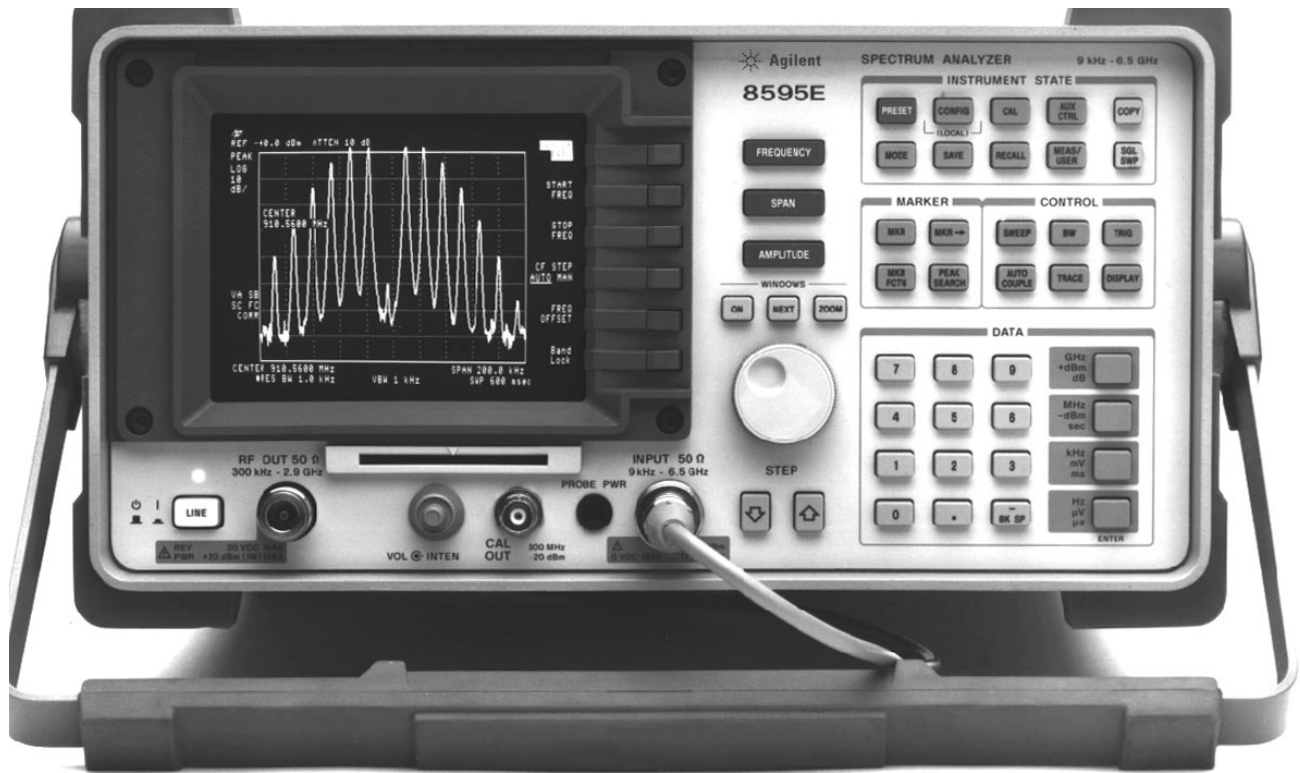




Agilent 8590 C/E/L/Q and EM Series

Spectrum Analyzers and Accessories

Configuration Guide



- 8591C Cable TV Analyzer (1 MHz to 1.8 GHz)
- 8591E RF Spectrum Analyzer (9 kHz to 1.8 GHz)
- 8593E Microwave Spectrum Analyzer (9 kHz to 22 GHz)
- 8594E RF Spectrum Analyzer (9 kHz to 2.9 GHz)
- 8595E RF Spectrum Analyzer (9 kHz to 6.5 GHz)
- 8596E Microwave Spectrum Analyzer (9 kHz to 12.8 GHz)
- 8590L Spectrum Analyzer (9 kHz to 1.8 GHz)
- 8592L Microwave Spectrum Analyzer (9 kHz to 22 GHz)

- 8594L RF Spectrum Analyzer (9 kHz to 2.9 GHz)
- 8594Q QAM Analyzer (9 kHz to 2.9 GHz)
- 8591EM EMC Analyzer (9 kHz to 1.8 GHz)
- 8593EM EMC Analyzer (9 kHz to 22 GHz)
- 8594EM EMC Analyzer (9 kHz to 2.9 GHz)
- 8595EM EMC Analyzer (9 kHz to 6.5 GHz)
- 8596EM EMC Analyzer (9 kHz to 12.8 GHz)



Agilent Technologies

Innovating the HP Way

Agilent 8590 C/E/L/Q and EM Series Retrofit Kits¹⁰

(for option installation after analyzer purchase)

Option	Description	Opt Card Slots Req'd (4 max)	✓ = compatible										8590EM Series				
			8591C	8591E	8593E	8594E	8595E	8596E	8590L	8592L	8594L	8594Q					
<input type="checkbox"/> R01	Fast time-domain sweeps and analog + display	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R02	AM/FM demodulator with speaker and TV sync trigger circuitry ⁵	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R03	Memory card reader	0	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std
<input type="checkbox"/> R04	Precision frequency reference	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R05	CT2 demodulator ^{6,24}	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R06	DECT demodulator ²⁴	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R07/R17	TV receiver/video tester ¹	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R10	Built-in tracking generator, 50 Ohm (100 kHz to 1.8 GHz)	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> K10	Built-in tracking generator, 50 Ohm (9 kHz to 2.9 GHz) ¹⁷	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R11	Built-in tracking generator, 75 Ohm (100 kHz to 1.8 GHz)	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R15	Time-gated spectrum analysis	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R16	Protective soft yellow operating/carrying case	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R19	Noise figure ⁷	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R21	GPiB interface ^{4,22,27}	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R23	RS-232 interface ^{4,22,27}	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R24	Parallel printer interface ^{22,27}	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R25	Protective soft tan operating/carrying case	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R30	Narrow resolution bandwidths	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R41	GPiB interface and parallel printer interface ^{4,22,26}	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R43	RS-232 interface and parallel printer interface ^{4,22,26}	0	Std	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R50	Improved amplitude accuracy for NADC-TDMA/PCS bands	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R51	Improved amplitude accuracy for PDC bands	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R52	Improved amplitude accuracy for PHS band	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R53	Improved amplitude accuracy for CDMA/PCS cellular bands	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R60	PDC, PHS, NADC, and CDMA firmware for Option 151 ³⁵	0	✓	✓ ²⁵	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R63	GSM900/DCS1800 firmware for Option 151 ³⁵	0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R70	PDC/PHS/NADC/CDMA FW+Opt 151 retro. kit ³⁵	2	✓	✓ ²⁵	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R73	DSP, fast ADC, and digital demodulator with GSM900/DCS1800 firmware ³⁵	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R80	TV picture on screen (NTSC, PAL, and SECAM)	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> R95	R-S and true BER and PID statistics data measurements	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> 11768A	Group delay retrofit kit	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> 11946A	Quasi-peak detector and AM/FM demod retrofit kit	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Agilent 8590 C/E/L/Q and EM Series Measurement Personalities¹³

✓ = compatible

Option	Description	8591C	8591E	8593E	8594E	8595E	8596E	8590L	8592L	8594L	8594Q	8590EM Series
<input type="checkbox"/> 85700A	32 Kbyte blank memory card (RAM) ¹¹	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> 85702A	128 Kbyte blank memory card (RAM) ¹¹	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> 85704A	256 Kbyte blank memory card (RAM) ¹¹	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> 85705A	512 Kbyte blank memory card (RAM) ¹¹	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<input type="checkbox"/> 11770A	Link measurements personality ³⁰				✓	✓	✓					
<input type="checkbox"/> 85712D	EMC measurements personality ¹²		✓		✓	✓	✓					
<input type="checkbox"/> 85713A	Digital radio measurements personality ¹¹			✓	✓	✓	✓		✓			
<input type="checkbox"/> 85714A	Scalar measurements personality ¹¹	✓	✓	✓	✓	✓	✓	✓				
<input type="checkbox"/> 85715B	GSM900 measurements personality with modulation accuracy ¹⁹		✓	✓	✓	✓	✓					
<input type="checkbox"/> 85717A	CT2-CAI measurements personality		✓	✓	✓	✓	✓					
<input type="checkbox"/> 85718B	NADC/PCS - TDMA measurements personality ¹⁹		✓	✓	✓	✓	✓					
<input type="checkbox"/> 85719A	Noise figure measurements personality	✓	✓	✓	✓	✓	✓					
<input type="checkbox"/> 85720BC	PDC measurements personality upgrade kit: B to C		✓	✓	✓	✓	✓					
<input type="checkbox"/> 85720C	PDC measurements personality with modulation accuracy ¹⁹		✓	✓	✓	✓	✓					
<input type="checkbox"/> 85721A	Cable TV measurements personality with video tests ^{13,14,15}	Std	✓	✓	✓	✓	✓	✓	✓		✓	
<input type="checkbox"/> 85722B	DCS1800 measurements personality with modulation accuracy		✓	✓	✓	✓	✓					
<input type="checkbox"/> 85723A	DECT measurements personality			✓	✓	✓	✓					
<input type="checkbox"/> 85724A	Broadcast measurements personality	✓	✓	✓	✓	✓	✓					
<input type="checkbox"/> 85725C	CDMA measurements personality		✓	✓	✓	✓	✓					
<input type="checkbox"/> 85725CU	CDMA measurements personality upgrade kit: B to C		✓	✓	✓	✓	✓					
<input type="checkbox"/> 85726AB	PHS measurements personality upgrade kit: A to B		✓	✓	✓	✓	✓					
<input type="checkbox"/> 85726B	PHS measurements personality with modulation accuracy		✓	✓	✓	✓	✓					
<input type="checkbox"/> 85727A	GSM Multi-band measurement personality		✓	✓	✓	✓	✓					
<input type="checkbox"/> 85727AU	GSM Multi-band upgrade		✓	✓	✓	✓	✓					
PC Software												
<input type="checkbox"/> 85921B	Cable TV data management S/W for FCC ³¹	✓	✓ ³⁰	✓ ³³	✓ ³⁰	✓ ³³	✓ ³³	✓ ³³	✓ ³³	✓ ³³	✓ ³³	✓ ³³
<input type="checkbox"/> E4444A	Benchmark spectrum analyzer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Agilent 8590 C/E/L/Q and EM Series Accessories

For Scalar Measurements

- **85630A** Scalar 50 Ohm transmission/reflection test set
- **86205A** 50 Ohm RF bridge (type-N(f), 300 kHz to 6 GHz, 1.5 dB +0.1 dB/GHz insertion loss)
- **86207A** 75 Ohm RF bridge (type-N(f), 300 kHz to 3 GHz, 1.5 dB +0.1 dB/GHz insertion loss)

For EMC Measurements

- **11945A** Close field probe set (9 kHz to 1 GHz) (with Option E51)¹⁶
- **11947A** Transient limiter (BNC(f) to type-N(m), 9 kHz to 200 MHz, 10 dB insertion loss)

Printers and Accessories

Most Hewlett-Packard DeskJet and LaserJet (PCL 3 compatible) printers are compatible with 8590 series spectrum analyzers. Printer compatibility chart is on the internet web site at www.agilent.com/find/pcg/

- **10833A** GPIB cable (1 meter)
- **24542U** RS-232 cable 3 meter (9 pin F to 9 pin F) Option 043 only (for RS-232 9 pin PC connection to analyzer)
- **24542G** RS-232 cable 3 meter (25 pin M to 9 pin F) Option 043 only (for RS-232 25 pin PC or printer connection to analyzer)
- **24542M** RS-232 cable 3 meter (25 pin M to 9 pin F) Option 043 only (for RS-232 25 pin modem connection to analyzer)
- **C2932A** RS-232 cable 3 meter (9 pin M to 9 pin F) Option 043 only (for serial 9 pin LaserJet 4P/4Plus connection to analyzer)
- **13242G** RS-232 cable (5 meter) (for Option 023 only)
- **C2950A** Parallel printer cable (2 meter)
- **ITEL-45CHVUB** GPIB/Parallel converter (North America, Japan, Korea, and Taiwan)
- **ITEL-45CHVEB** GPIB/Parallel converter (Continental Europe, U.K., Australia, and South Africa) (requires F1011A AC adapter)

Amplifiers and Preamplifiers

- **8447D** Preamplifier (100 kHz to 1.3 GHz, >25 dB gain)
- **8449B** Preamplifier (1 GHz to 26.5 GHz, 30 dB gain)
- **10855A** Broadband preamplifier (2 MHz to 1300 MHz, 22 dB gain)
- **85905A** 75 Ohm preamplifier (45 MHz to 1GHz, 20 dB gain)
- **87405A** Amplifier (10 MHz to 3 GHz, 22 dB gain)
- **87415A** Amplifier (2 GHz to 8 GHz, 25 dB gain)

Other Accessories

- **D4950A** Keyboard
- **346B** Noise source (BNC(f) to APC 3.5(m), 10 MHz to 18 GHz)
- **11693A** Limiter (type-N(f) to type-N(m), 0.1 GHz to 12.4 GHz, <2.0 dB insertion loss)
- **11694A** 75/50 Ohm matching transformer (BNC(f) to BNC(m), 3 MHz-500 MHz, <.75 dB insertion loss)
- **0955-1020** 50 to 75 Ohm adapter. Same as Opt. 711
- **11742A** High frequency blocking capacitor (3.5mm(f) to m)), 10 MHz to 26.5 GHz, .35 dB IL <12.4 GHz, .7 dB IL <26.5 GHz)
- **11852B** Order with Option C04, 75/50 Ohm min. loss pad (type-N(f) to type-N(m), DC to 2 GHz, 5.7 dB insertion loss)

- **11867A** RF Limiter (type-N(f) to type-N(m), DC to 1.8 GHz, <.75 dB insertion loss)
- **11930B** Power limiter (5 MHz to 6 GHz)
- **41800A** Active probe (5 Hz to 500 MHz)
- **85024A** High frequency probe (300 kHz to 3 GHz)
- **85901A** Portable AC power source
- **85902A** Burst carrier trigger
- **1420-0383** Memory card battery (CR 2016)
- **1494-0060** Rack slide for rack mount
- **08590-60369** RS-232/parallel connector assembly to convert Opt. 041 (GPIB) to Opt. 043 (RS-232)
- **08590-60368** GPIB/parallel connector assembly to convert Opt. 043 (RS-232) to Opt. 041 (GPIB)
- **9211-5604** Transit case
- **5062-4841** Rack mount without handles²⁰ (centers instrument in rack)
- **5062-4840** Rack mount with handles²⁰ (centers instrument in rack)
- **5062-8240** Rack mount with handles²⁰ (mounts instrument left of center)
- **5062-8241** Rack mount without handles²⁰ (mounts instrument left of center)
- **5180-9055** CRT viewing hood (sun shield)
- **5063-0654** Frequency accuracy retrofit kit for 8590B and 8590D

Agilent 8590 C/E/L/Q-Series Manuals

- 08590-90234 8590 E/L Series user's guide
- 08590-90243 8590 E/L Series quick reference guide
- 08590-90235 8590 Series programmer's guide
- 5960-6588 8590 E/L Series quick reference guide in French
- 5960-6590 8590 E/L Series quick reference guide in German
- 5960-6592 8590 E/L Series quick reference guide in Italian
- 5960-6594 8590 E/L Series quick reference guide in Spanish
- 5960-6596 8590 E/L Series quick reference guide in Japanese
- 08590-90260 8590 E/L Series user's guide for Taiwan in Chinese
- 08590-90261 8590 E/L Series user's guide for China in Chinese
- 5962-5001 8590 E/L Series user's guide in French
- 5962-5002 8590 E/L Series user's guide in German
- 08590-90286 8590 E/L Series user's guide in Italian
- 5962-5004 8590 E/L Series user's guide in Spanish
- 08590-90269 8590L calibration guide
- 08594-90183 859x C/E Series calibration guide
- 08592-90082 8592L calibration guide
- 5963-2950 8590 C/E/L/Q Series assembly level repair guide
- 5963-2951 8590 C/E/L/Q Series component level repair guide
- 08591-90129 8591C Cable TV analyzer user's guide, spectrum analyzer reference
- 08591-90176 8591C Cable TV analyzer user's guide, cable TV measurements
- 08591-90130 8591C getting started and quick reference guide

Agilent 8590 C/E/L/Q and EM Series Notes

1. For more information please contact your local Agilent sales representative.
2. 8593 EM only
3. Quasi-peak detection and AM/FM demodulator is standard on 8590 EM-series and has additional capacity compared to Option 103.
4. Programming manual included
5. Options 101 and 102 required for TV sync trigger capability. See Option 301.
6. 85717A measurement personality required
7. 85719A measurement personality required
8. ABF Quick reference and user's guides in French
ABD Quick reference and user's guides in German
ABZ Quick reference and user's guides in Italian
ABE Quick reference and user's guides in Spanish
ABJ Quick reference guide in Japanese
AB0 Quick reference guide for Taiwan in Chinese
AB2 Quick reference guide for China in Chinese
9. An incremental cost will be added to the base price of Options W30/W32/W34/W50/W52/W54 for an 859xC/E/L/Q containing Options 010, 011, or 130.
10. Parts only kits. No installation included. May require new analyzer firmware.
11. Option 003 (card reader) on the 8590L, 8592L and 8594L is required.
12. For more information on EMC products and configurations see lit. number 5964-6089E.
13. Refer to measurement personality product literature for required 8590 series option configuration.
14. Except 8591 EM
15. Video tests not supported on 8590L, 8592L or 8594L.
16. Option E51 comes with preamplifier, carrying case, cables and connectors.
17. Tracking generator retrofit requires factory installation of Option K10.
18. Cable TV measurements are formatted for local country's cable TV standards.
19. Modulation accuracy measurements not supported on 8591E.
20. Rack height is 8.75 inches.
21. Not for analyzer operation while in carrying case
22. Options 021, 023 and 024 or 041 and 043 cannot be combined.
23. Not compatible with Option 107
24. Not compatible with other demodulator options (102, 103, 110, 112, or 301).
25. Compatibility with 8591E limited to CDMA applications only
26. Compatible with serial prefixes 3523A or 3525U and higher
27. Compatible with serial prefixes lower than 3523A or 3525U
28. If Options 009 and 010 are combined on the 8593E/94E/95E/96E or 8590 EM series; only one option card slot is required.
29. Not compatible with Options 101 and 301
30. Requires Option 111. Not compatible with 8591E.
31. NTSC Cable TV analyzers only
32. Option 107 is not compatible with Option 180.
33. 85721 Cable TV measurement personality required
34. 11770A Link measurements personality required. Do not order Option 010 with Option 111.
35. Option 160 and 163 are not compatible.

Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise

"Our Promise" means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage

"Your Advantage" means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

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Printed in U.S.A. 7/00
5963-6858E



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