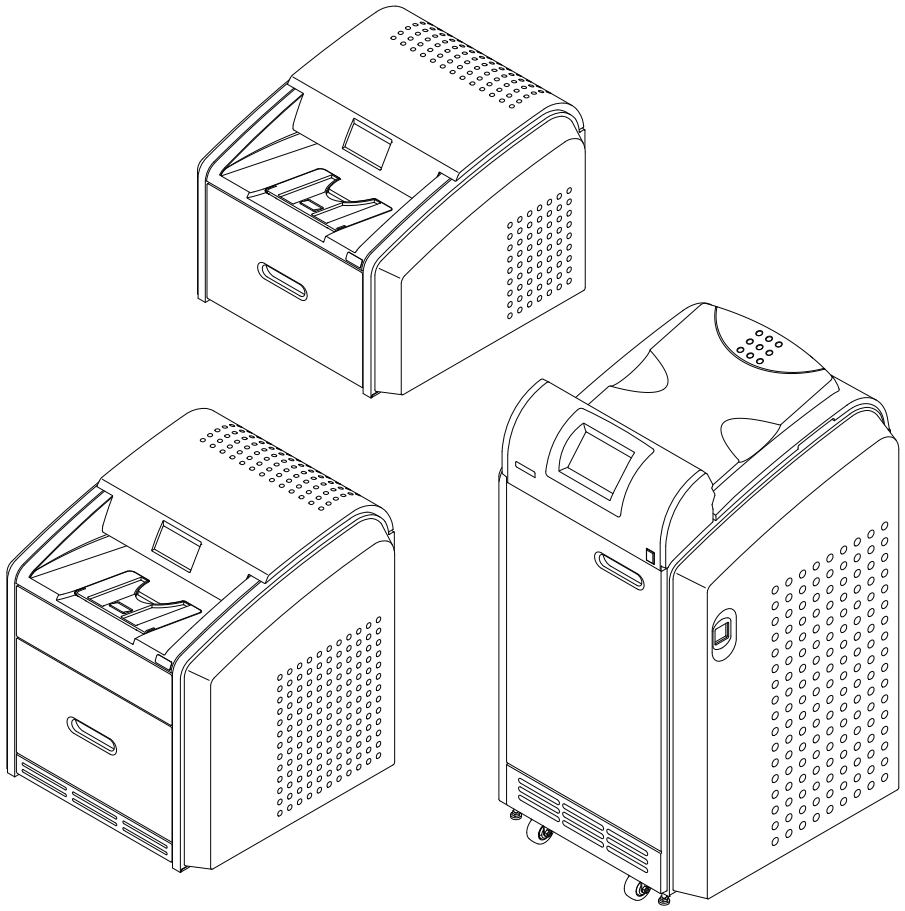
Site Readiness & Preparation for Installation of TRIMAX TX40 Laser Imager, TRIMAX TX55 Laser Imager, TRIMAX TX65 Laser Imager



H241_0099

Publication No. AN9406
2024-03-06

All rights reserved. No part of this manual may be reproduced or copied in any form by any means—graphic, electronic, or mechanical, including photocopying, typing, or information retrieval systems—without written permission.

Contents

Checklist **2**

Installation Skills Required **5**

Installation Tools **6**

Equipment Specifications **7**
TRIMAX TX65 Laser Imager 7
TRIMAX TX55 Laser Imager 9
TRIMAX TX40 Laser Imager 10

Location Requirements **11**

Power Requirements **12**

Network Requirements **13**

Modalities **15**

Smart Link and Remote Management Services (RMS) **1**

Checklist

Introduction

The TRIMAX Laser Imager is a continuous-tone laser imager with an internal photothermographic film processor. Heat, rather than photo chemicals, is used to develop the film. This easy-to-use and reliable imager provides high-quality prints.

The system receives and prints from qualified image sources such as medical equipment (modalities) and workstations over the network. You can send print jobs simultaneously from multiple image sources. The open design lets you connect to modalities of all types and vendors.

Purpose:

Use this checklist to ensure that all guidelines and site specifications for installation of your TRIMAX Laser Imager have been fulfilled. Preparation for installation is your responsibility; however, Carestream has resources available to help you if needed. Review the requirements contained in this document and, if you have questions, please contact your Authorized Carestream Service Provider.

Use the following checklist to ensure that you have accomplished all the tasks required prior to installation of the TRIMAX Laser Imager.

✔	Item	Responsibility	Description	See Section
	Unpacking	Customer, Biomedical Engineers, Carestream Field Engineer or Carestream Service Provider	Plan the route from the unpacking location to the installation location. A minimum clearance of 3 m (10 ft) from the front of the crate is required to unpack the equipment. Door widths must be a minimum of 71 cm (28 in.). An elevator of adequate size and capacity must be accessible where needed.	
	Installation	Carestream Field Engineer or Carestream Service Provider	Installation and setup the Imager. Installation of TRIMAX Laser Imager by customer biomedical engineers is supported by some Carestream countries. Contact your Carestream Sales Representative for details.	Installation Skills Required
	InstallationTools	Carestream Field Engineer or Carestream Service Provider	Tools needed to install TRIMAX Laser Imagers	Installation Tools
	Environmental Requirements Air Conditioning and Ventilation	Customer, Biomedical Engineers	Ensure that the proper operating environment is provided (temperature, humidity, altitude, floor vibration, and floor levelness).	Location Requirements
	Power Requirements	Customer, Biomedical Engineers	Provide a dedicated, single-phase, 15 A power source within 2.5 m (8 ft) of the left rear corner of the TRIMAX Laser Imager.	Power Requirements

✔	Item	Responsibility	Description	See Section
	Ethernet Network	Customer, Biomedical Engineers, IT personnel	Install, test, and certify an Ethernet network prior to installation. Network access or network drop must be located within 8 m (26 ft) of the lower corner at the left rear of the Imager. The network must conform to 10/100 BaseT (RJ45/Cat5) specifications.	Network Requirements
	Network Configuration	Customer, Biomedical Engineers, IT personnel	Provide network (host) name, DICOM port number, IP address, subnet mask, and default gateway.	Network Requirements
	Modality Configuration	Carestream Field Engineer or Carestream Service Provider, Biomedical Engineers	Provide the following information for each modality:manufacturer, modality type (MR, CR, CT, DR, etc.), model name, software type, and a customer-assigned modality name for use on the Imager Local Panel.	Modalities
	Remote Management Services	Customer, Biomedical Engineers, IT personnel	Provide the following information for sites with Remote Management Services: customer name, customer department, region, country, location, proxy server address1, proxy server port1, authentication type1, proxy server username1, proxy server password. Required if used at location.	Network Requirements
	Film	Customer, Biomedical Engineers	Before installation, order TRIMAX Laser Imaging Film from your Authorized Carestream Dealer or Distributor.	

Installation Skills Required

Important:
ONLY Authorized Carestream Service Providers can install Carestream equipment!

Installer Education and Experience

Installation of the TRIMAX Laser Imagers by customer Biomedical Engineers, is supported by Carestream in some countries. Please contact your Carestream Sales Representative for details. The following education and experience levels are required for those who install TRIMAX Laser Imagers:

- Experience in network setup and product-configuration
- Education or experience servicing Medical Imaging equipment.
- Experience in Medical Imaging to achieve the best image quality

Installation Tools

A new feature for LINUX OS systems is the ability to use various web browsers including

CHROME, FIREFOX, or INTERNET EXPLORER to access TRIMAX Laser Imager WebLink pages. The following versions are tested as compatible to access WebLink pages, although other browsers may also work:

- MICROSOFT EDGE
- GOOGLE CHROME, 76.0.3809.100 (or higher)
- MOZILLA FIREFOX, 64.0.2 (or higher)

For the "basic install" the latest Secure Link and WebLink versions are not required, however for advanced troubleshooting/set up it is required to install on your service laptop Secure Link Client version 3.2.4.02 or higher. Please refer to Carestream Service Assets web page for further information.

The following tools are required to complete installation of the TRIMAX Laser Imagers:

- WINDOWS 10 Laptop
- PHILLIPS Screwdriver - for unpacking
- Side-Cutting Pliers - for unpacking
- Voltmeter - for checking source AC power
- Latest Secure Link and WebLink versions

Film Availability

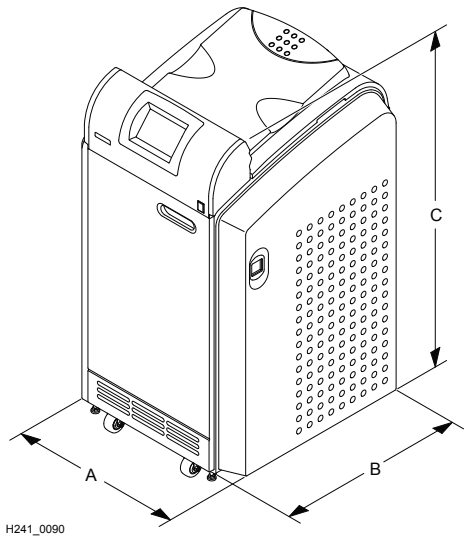
Important:
Prior to installation, you must order and have available the appropriate film. The TRIMAX Laser Imager may support the following film sizes (support can vary by location and imager configuration):

- 20 x 25 cm (8 x 10 in.)
- 25 x 30 cm (10 x 12 in.)
- 28 x 35 cm (11 x 14 in.)
- 35 x 43 cm (14 x 17 in.)
- General radiography and mammography film types are available. Contact your Carestream Authorzed Distributor or Dealer to order TRIMAX Laser Imaging Film.

Equipment Specifications

TRIMAX TX65 Laser Imager

TRIMAX TX65 Laser Imager <u>without</u> sorter

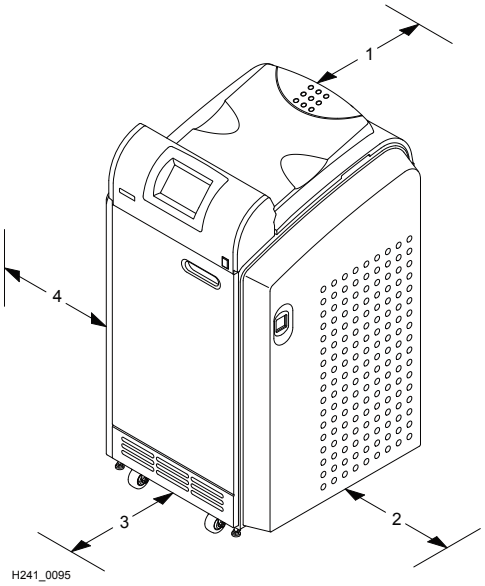


(A) Width: 62.6 cm (24.7 in.)

(B) Depth: 68.6 cm (27.0 in.)

(C) Height: 115.0 cm (45.3 in.)

Weight: 147 kg (325 lb)



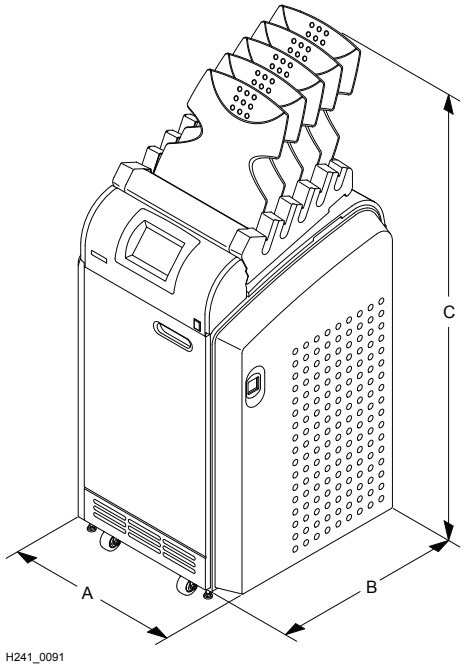
(1) Distance from Wall: 31 cm (12 in.)

(2) Clearance for Right Side: 31 cm (12 in.)

(3) Clearance for Front: 61 cm (24 in.)

(4) Clearance for Left Side: 31 cm (12 in.)

TRIMAX TX65 Laser Imager with sorter



(A) Width: 62.6 cm (24.7 in.)

(B) Depth: 68.6 cm (27.0 in.)

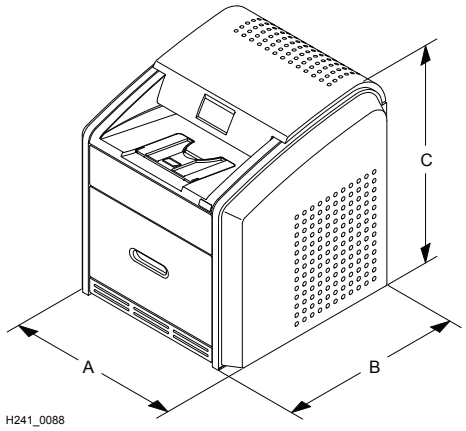
(C) Height: 159.0 cm (62.6 in.)

Weight: 177 kg (390 lb)

Note:

The approximate weight of a 35 x 43 cm (14 x 17 in.) film cartridge is 3.5 kg (7.7 lb.).

TRIMAX TX55 Laser Imager

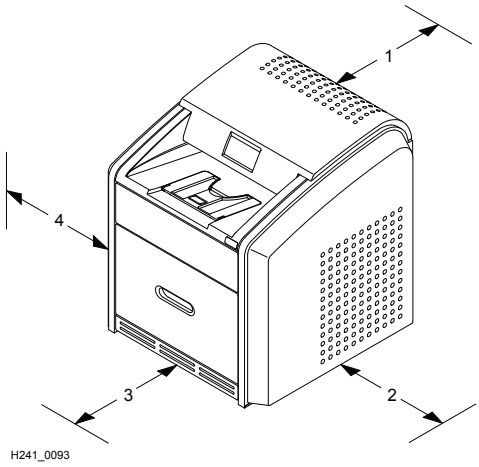


(A) Width: 65 cm (25 in.)

(B) Depth: 65 cm (25 in.)

(C) Height: 67 cm (26 in.)

Weight: 79 kg (175 lb)



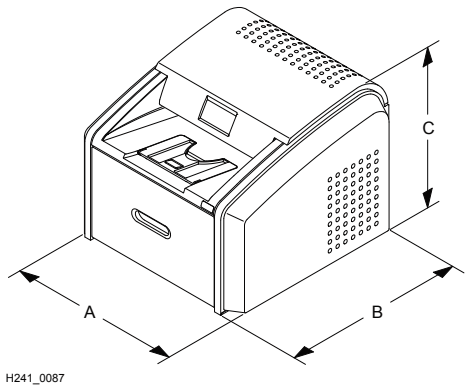
(1) Distance from Wall: 31 cm (12 in.)

(2) Clearance for Right Side: 31 cm (12 in.)

(3) Clearance for Front: 31 cm (12 in.)

(4) Clearance for Left Side: 31 cm (12 in.)

TRIMAX TX40 Laser Imager



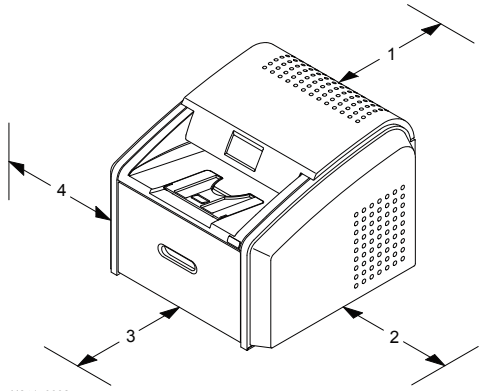
H241_0087

(A) Width: 61 cm (24 in)

(B) Depth: 66 cm (26 in.)

(C) Height: 47 cm (19 in.)

Weight: 54 kg (120 lb)



H241_0092

(1) Distance from Wall: 31 cm (12 in.)

(2) Clearance for Right Side: 31 cm (12 in.)

(3) Clearance for Front: 31 cm (12 in.)

(4) Clearance for Left Side: 31 cm (12 in.)

Location Requirements

Important:
Place the TRIMAX Laser Imager in an area with good ventilation. **A small, confined room is not recommended**.

Avoid placing the TRIMAX Laser Imager in **direct or excessive sunlight** (for example, near a large window), or in an environment with dust, dirt, or airborne chemicals.

Temperature

Recommended temperature: mid-range within the operating environment: 15–33 °C (59–91 °F).

Relative Humidity

Recommended relative humidity: mid-range within the operating environment: 20–80 % RH, non-condensing.

Operating Space Requirements

- The TRIMAX TX65 Laser Imager requires a flat, level floor space and at least 61 cm (24 in.) around the top, sides, and back.
- The TRIMAX TX55 Laser Imager and TRIMAX TX40 Laser Imager require a flat, stable surface (stand or table) that supports the dimensions and weight of the imager. The surface must extend beyond the imager dimensions by at least 31 cm (12 in.). In addition, there must be space in front of the imager to allow access in the event of a service call.
- Recommended surface height for the TRIMAX TX55 Laser Imager and TRIMAX TX40 Laser Imager is 71–76 cm (28–30 in.).

Note:
An optional stand is available for the TRIMAX TX55 Laser Imager and TRIMAX TX40 Laser Imager. Designed at the optimal height and size, the stand provides the proper clearance to move the imager in the event of a service call. The stand is an orderable accessory.

Contact your Caretsream Sales Representative for additional information.

Power Requirements

- A power cord is provided with this equipment. All countries must use an agency-approved power cord with a plug type suitable for the country of use. Connect the equipment to a power source that is suitable for the voltage and current ratings at your site.
- For regions where equipment power is unstable, The use of a Uninterruptible Power Supply (UPS) 1.5 KVA is highly recommended to ensure the correct current supply.
- The single-phase power source, with grounding, must be provided within 2.5 m (8.0 ft) of the TRIMAX Laser Imager.
- The wire must be insulation-rated for input voltage = 600 V (ac). A dedicated line is recommended.

Imager	Power Requirements—Input Voltage
TRIMAX TX40 Laser Imager, TRIMAX TX55 Laser Imager	90–132 V (ac), 50/60 Hz ± 3 Hz 180–264 V (ac), 50/60 Hz ± 3 Hz
TRIMAX TX65 Laser Imager	90–132 V (ac), 50/60 Hz 180–264 V (ac), 50/60 Hz

Required Information	Record Information from Customer Site
What is the voltage for this site?	
Do we need / have an UPS on site?	

Network Requirements

- The imager receives digital images from medical imaging devices (modalities) over a 10/100/1000 Base-T Ethernet network. During the installation, Carestream personnel or Biomedical Engineers (in countries where applicable), will enter the network information for the TRIMAX Laser Imager to let it communicate across the network.
- An RJ-45 network plug is required for connecting to the 10/100/1000 Base-T Ethernet network.

Contact your site's network administrator for help to gather the network information.

Required Information	Record Information from Customer Site
Host (computer) name	
IP address (xxx.xxx.xxx.xxx)	
Subnet mask (xxx.xxx.xxx.xxx)	
Default gateway (xxx.xxx.xxx.xxx)	
Primary DNS address (xxx.xxx.xxx.xxx)	
Secondary DNS address (optional)	

ONLY if Proxy Server is used.

Required Information	Record Information from Customer Site
Proxy type	
Proxy address	
Proxy port number	
Proxy username	
Proxy password	
Proxy domain	

For all sites enabling **Remote Management Services**, the TRIMAX Laser Imager will also access a secure external server. See the Smart Link and Remote Management Services (RMS) section.

Modalities

A list of the modalities that will connect to the TRIMAX Laser Imager must be available at installation. This list must include the following configuration information for each modality:

Required Information	Record Information from Customer Site
Modality Manufacturer	
Modality Type (CT, DR, MR, CR, etc.)	
Model Name Modality Name (Descriptive name assigned by the customer for use on the Local Panel)	
Modality Software Version / Platform	

Smart Link and Remote Management Services (RMS)

Background

Carestream Health has adopted IDM (Intelligent Device Management) innovative technology to provide the most effective remote service offering in the industry. The solution designed by Carestream is named **Smart Link Remote Management Services (RMS)** and it is based on PTC Internet of Thing (IoT) technology which allows Carestream to deploy remote services securely over the Internet to equipment installed behind customer firewalls. Customer does not have to modify any of their network security policies. The solution is designed for high performance and security at every level of its architecture. Refer to Smart Link White Paper, 8J4352 available on Carestream Service Assets web page.

The remote connection is established by the RMS Smart Link agent embedded into the software of Carestream equipment. **The minimum requirement is to allow the Carestream equipment local IP address to establish secure outbound communication over the Internet through the port 443 (https) and allow the agent to contact a DNS server (public or private) to resolve host names of the targeted Smart Link servers of the PTC IoT Cloud**. There is no need for any special network connections or special changes to customer Proxy Server if presents.

When the connection is established your Carestream equipment can provide performance data, alerts, and alarms to our support team, resulting in proactive, rapid service and support with advanced remote troubleshooting capabilities.

Customer Site Firewall Configuration to Allow Carestream Device to Connect to RMS Smart Link Server

To guarantee a successful RMS Smart Link connectivity, provide the following to the customer's IT department Some adjustments may be necessary by the customer IT.

The site IT manager must configure the firewall to let the Carestream device to communicate with the Carestream secure Smart Link servers (PTC IoT cloud). To facilitate the configuration, please provide the following information to the IT manager:

Server	Description	Host	IP Address	Time Zone Offset
Ent-Prod	**Production Enterprise server**	**carestreamhealth.axeda.com**	**40.114.92.56**	**-5:00**
Ent-Prod	**Production Enterprise server**	**carestreamhealthprod.cloud.thingworx.com**	**52.186.103.126**	**-5:00**
gas-aus2	GAS Host Australia	gas-aus2.axeda.com	54.153.206.11	+11.00
gas-aus3	GAS Host Australia	gas-aus3.axeda.com	54.66.217.58	+9.00
gas-bo3	US NorthEast Public GAS 3	gas-bo3.axeda.com	216.34.120.161	-5:00
gas-bo7	US NorthEast Public GAS 7	gas-bo7.axeda.com	216.34.120.236	-5:00
gas-de2	**Germany Public GAS2**	**gas-de2.axeda.com**	**62.209.44.220**	**+1.00**
gas-de3	**Germany Public GAS3**	**gas-de3.axeda.com**	**62.209.44.221**	**+1.00**
gas-ie1	GAS EU (Ireland) Region	gas-ie1.axeda.com	52.30.196.186	0:00
gas-ie2	GAS EU (Ireland)	gas-ie2.axeda.com	52.16.1.133	0:00
ghjap1	**GAS Japan 1**	**ghjap1axeda.com**	**52.192.51.252**	**+9:00**
ghjap2	GAS Japan 2	ghjap2axeda.com	52.192.83.87	+9:00
ghjsj1	GAS Host SJ1	ghsj1.axeda.com	52.8.82.253	-8:00
ghjsj2	GAS Host SJ2	ghsj2.axeda.com	52.8.218.72	-8:00
ghsom1	**GAS Hosting Somerville 1**	**ghsom1.axeda.com**	**209.202.157.179**	**-5:00**
ghuk3	AWS London Public GAS 3	ghuk3.axeda.com	52.56.113.192	0:00
ghuk2	Public GAS 2 - London AWS	ghuk2.axeda.com	52.56.106.12	0:00

Server	Description	Host	IP Address	Time Zone Offset
GAS02CN	**gas02.cn**	**gas02.cn-ptc.cn**	**54.223.24.201**	**+8.00**
GAS04CN	**gas04.cn**	**gas04.cn-ptc.cn**	**161.189.197.245**	**+8.00**

Note:

- TCP/IP port 53 is used to sync data between the DNS servers, while UDP port 53 is used by the Carestream device (DNS client) to resolve the URL (e.g., Production Enterprise server, see above table) via the DNS server. The DNS server on site will still need to sync data with DNS servers outside.
- Host/IP pairs above may be changed unpredictably by PTC for security reasons, so it is recommended to always use a DNS to resolve the latest updated host's IP pairs.
- Depending on the customer site's security policy, the site IT manager could configure the firewall in 3 different ways:
  - **(Recommended)** Allow the Carestream device to reach the "***.axeda.com**", "***.thingworx.com**" and "***.cn-ptc.cn**" in the domain restriction rule.
  - The "axeda.com", "thingworx.com" and "cn-ptc.cn" are IoT domains of Carestream Secure Smart Link servers (PTC IoT cloud) reserved by PTC (see Host column of above table).
  - **(Alternative 1)** Allow the Carestream device to reach all Carestream secure Smart Link servers (PTC IoT cloud) listed above, in the selected sites restriction rule. Customer needs to update the list accordingly to Carestream.
  - **(Alternative 2)** Allow the Carestream device to reach all internet sites, no restriction rule. By the way the Carestream device will always communicate only with cloud's servers which belong to **axeda.com**, **thingworx.com** and **cn-ptc.cn** domains.

Carestream Health, Inc.
150 Verona Street
Rochester, NY, USA 14608
© Carestream Health, Inc., 2024
Made in USA.
Pub. No. AN9406
Rev. A