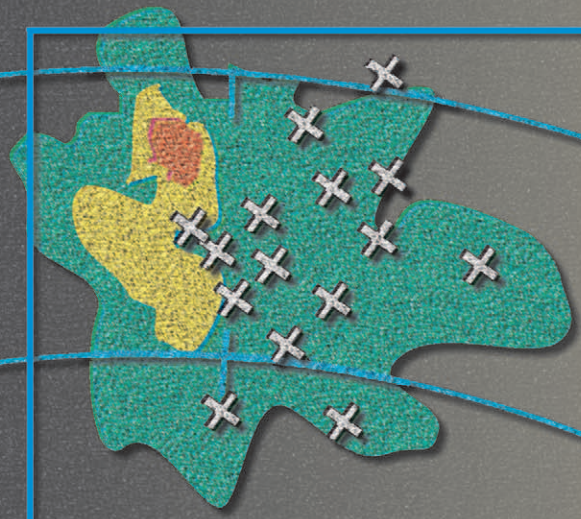
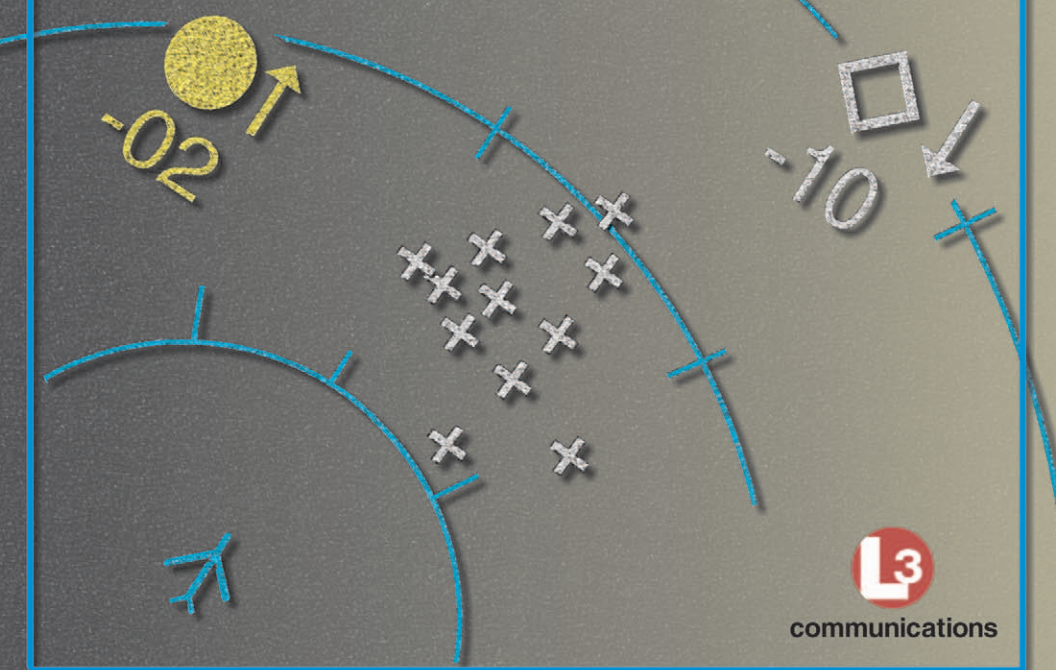
$12.00 U.S.

Pilot's Guide
for the
Radar Graphics Computer
Model RGC350





L3
communications

Quick Start Instructions

This page explains how to turn on the RGC350 and switch between screens. Refer to *Selecting Menu Items* at the bottom of the page as needed. Lightning, traffic, or terrain information may not be available in your configuration.

NOTE *If a traffic advisory (TA) occurs in WX mode (steps 6, 8, 9, and 10), the RGC350 displays a yellow "TRAFFIC" annunciator even though no other traffic information is displayed in that mode.*

1. Move the RGC350 power switch up to the ON position.
2. Select the TCAS791 OPER, SKY497 OPER, or SKY899 OPER menu item to switch out of T[C]AS standby and to begin tracking traffic.
3. To display **weather, traffic, & lightning**, select the DISP MD WX-T[C]AS and SECTOR LX ON menu items, then press ⚡ until in sector view.
4. To display just **weather & traffic**, select the DISP MD WX-T[C]AS and SECTOR LX OFF menu items, then press ⚡ until in sector view.
5. To display just **terrain & traffic**, select the DISP MD WX-T[C]AS menu item, then press the RGC350's remote terrain display button.
6. To display just **weather & lightning**, select the DISP MD WX and SECTOR LX ON menu items, then press ⚡ until in sector view.
7. To display just **traffic & lightning**, select the DISP MD WX-T[C]AS menu item, then press ⚡ until in 360° view.
8. To display just **lightning**, select the DISP MD WX menu item, then press ⚡ until in 360° view.
9. To display just **weather**, select the DISP MD WX and SECTOR LX OFF menu items, then press ⚡ until in sector view.
10. To display just **terrain**, select the DISP MD WX menu item, then press the RGC350's remote terrain display button.
11. To display just **traffic**, press ✝.

Selecting Menu Items

1. Press MNU to display the menu.
2. Press ◁ or ▷ to move the selection box to the desired menu item.
3. Press MNU to scroll through the options available for the menu item.
4. When the option you want is displayed below the menu item, press ENT CLR to activate the option.

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Designed and manufactured in the United States of America by

L-3 communications

L-3 Communications Avionics Systems, Inc.
5353 52nd Street, S.E.
Grand Rapids, MI 49512 USA
(800)253-9525 or (616)949-6600
Fax (616)285-4224
www.L-3com.com/as

All the Stuff You've Wanted to Watch, Together on One Screen!

Welcome

Congratulations on your purchase of the L-3 Radar Graphics Computer model RGC350. We are pleased to welcome you to the L-3 family of high quality avionics products that allows pilots to fly more safely and with greater confidence. Compact and lightweight, the RGC350 is the solution for adding the latest safety innovations from L-3 into today's already overcrowded cockpit panels.

Now Showing…Together on One Screen

Storm cells, lightning strikes, intruding aircraft, and terrain – any threat worth watching deserves a place on your radar screen. And now, with your purchase of the Radar Graphics Computer from L-3, you can see it all on one integrated, multifunction weather, traffic, and terrain display. What's more, you don't have to replace your existing radar indicator to add traffic, lightning, and terrain to your weather avoidance picture.

Interfacing with the most popular Bendix/King, Rockwell/Collins, and Sperry/Honeywell/RCA radar systems, the RGC350 lets you combine your L-3 SKYWATCH®, SKYWATCH®HP, or TCAS I traffic avoidance information with your L-3 *Stormscope*® WX-1000E 429 EFIS, or WX-500 lightning detection data and your L-3 LandMark™ Terrain Awareness and Warning System (TAWS) data – on the same display. That way, you don't have to crowd your panel with separate traffic, lightning, and terrain displays to get the most complete picture ever assembled of flight situations you're seriously looking to avoid.

A History of Leading Edge Innovation

In addition to the RGC350, L-3 Avionics Systems also develops and manufactures the GH-3000 electronic standby instrument system, *Stormscope* weather mapping systems, SKYWATCH traffic advisory systems, TCAS I collision avoidance systems, electromechanical standby attitude indicators, and power conversion products. L-3 also maintains a global support network at a number of factory-authorized service centers worldwide. L-3 Avionics Systems is a division of L-3 Communications Corporation of New York City, New York.

Important Notices

L-3 Avionics System does not design or manufacture the radars, radar indicators, or other graphics computers mentioned in this guide.

Figures in this guide that depict radar indicator displays are as accurate as possible at the time of publication, but may not exactly match the display on your indicator.

Figures in this guide that depict radar indicator displays are representative of the displays that appear on compatible equipment, but do not reflect all possible options for the radars, radar indicators, or other graphics computers.

Refer to your aircraft flight manual and flight manual supplement for information specific to your aircraft. If there is conflicting information between those manuals and this pilot's guide, your aircraft flight manual and flight manual supplement take precedence over this pilot's guide.

Revision Highlights

This revision B of the pilot's guide makes the following changes:

- Changes occurences of "Goodrich Avionics Systems" to "L-3 Communications Avionics Systems, Inc." or just "L-3 Avionics Systems" and makes related company contact information changes. (On March 28, 2003, Goodrich Corporation sold its Avionics Systems division to L-3 Communications Corporation.)
- Eliminates the Warranty Information chapter. Warranty information is now provided on a separate warranty card.

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Abbreviations & Acronyms

ABV	Above
ANT	Antenna
AUTOW	Auto Window
AUTW	Auto Window (on menu bar)
BLW	Below
CLR	Clear
DISABL	Disable
DISP	Display
ENT	Enter
FAA	Federal Aviation Administration
FLG	Flag
HDG	Heading
LED	Light Emitting Diode
LX	Lightning
MIC	Microphone
MNU	Menu
Mod	Modification
Nav	Navigation
nm	Nautical Miles (on the display)
NM	Nautical Miles (on the display)
nmi	Nautical Miles (in the text)
NRM	Normal
OPR	Operate
RGC	Radar Graphics Computer
RI	Radar Indicator
RNG	Range
RTCA	Requirements & Technical Concepts for Aviation
STB	Heading Stabilization
STBY	Standby
STRK	Strike
TA	Traffic Advisory
TAS	Traffic Advisory System
TAWS	Terrain Awareness & Warning System
TCAS	Traffic Alert & Collision Avoidance System
TSO	Technical Standard Order
UNR	Unrestricted
WX	Weather

Chapter 1

System Description

General Description

Figure 1-1 shows the Radar Graphics Computer model RGC350 from L-3 Avionics Systems. The RGC350 lets you display lightning, traffic, and terrain information from other L-3 systems in addition to precipitation on your compatible weather radar indicator (figures 1-2 and 1-3). The RGC350 also lets you simultaneously display information from another graphics computer.

The 1.5-inch-high, console- or panel-mounted RGC350 eliminates the need for dedicated traffic, lightning, and terrain displays in your cockpit. Using the RGC's illuminated push-buttons and its on-screen menu, you can control how traffic, lightning, and terrain are displayed on the radar indicator.

Figure 1-1. Radar Graphics Computer, Model RGC350

Figure 1-2. Typical Weather, Traffic, & Lightning Display

Figure 1-3. Typical Terrain & Traffic Display

Interfacing Equipment

This guide assumes you are familiar with the operation of the systems attached to the RGC350 and does not repeat information already available in the associated pilot's guides and user's guides. Refer to those guides for explanations of standard symbols, modes, tests, graphics, etc. that are generated and defined by those systems.

This guide also assumes that the RGC350 is connected to traffic, lightning, and terrain awareness systems. Ignore references to any of those systems that are not installed on your aircraft.

In this guide, T[C]AS means TCAS if a TCAS791, SKY899A, or a SKY899 (configured as a TCAS) is connected to the RGC350. T[C]AS means TAS if a SKY497 or a SKY899 (configured as a TAS) is connected to the RGC350.

The RGC350 can simultaneously interface with one model from each of the following equipment categories as illustrated in figure 1-4. L-3 Avionics Systems periodically adds to this list of compatible equipment, so check with your dealer for a current list of compatible equipment and for detailed compatibility information. (The RGC350 interfaces with the *indicators* used with the listed weather radars, not directly with the weather radars.)

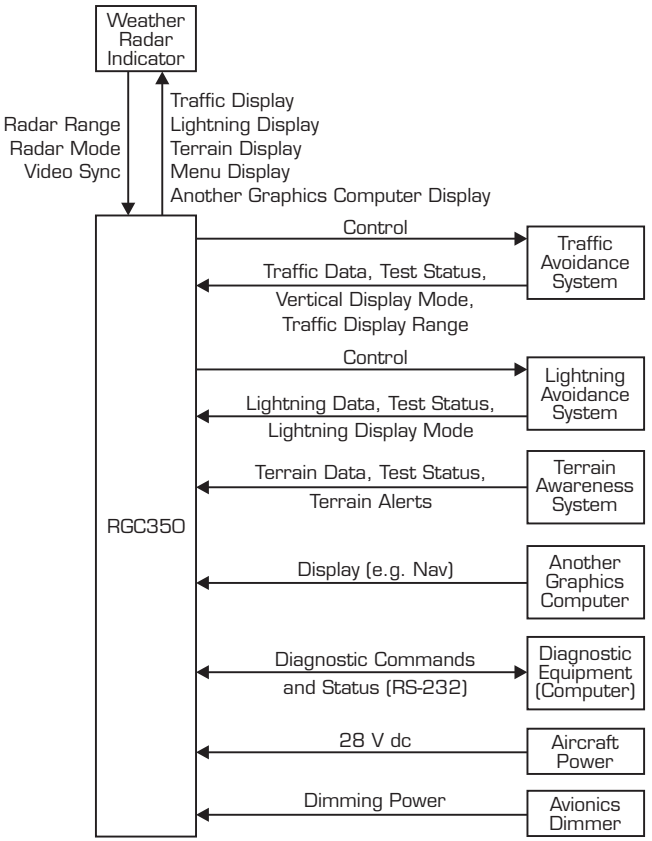


Figure 1-4. RGC350 Simplified Functional Diagram

Weather Radars

Honeywell/Sperry/RCA: *PRIMUS*® 200, 300SL, 400, 400SL, 500, 660, 800

Rockwell/Collins: WXR 220, 270, 270A, 300

Bendix/King: RDS 81, 82, 82VP, 84, 84VP, 86, 86VP, RDR2000

Other Graphics Computers*

Honeywell/Sperry/RCA: *DATA NAV*™ III

Rockwell/Collins: RNS300

Bendix/King: GC360A

** When using the Honeywell 660 (Honeywell type IV) weather radar, no other graphics computers may be connected and used with the RGC350.*

Traffic Avoidance Systems

L-3: SKYWATCH® model SKY497
SKYWATCH®HP model SKY899
SKYWATCH®HP model SKY899A
TCAS I model TCAS791
(TCAS791 includes a TRC791 or a TRC791A)

Lightning Avoidance Systems

L-3: *Stormscope*® model WX-500
Stormscope® model WX-1000E(429 EFIS)

Terrain Awareness & Warning Systems

L-3: LandMark™ model TAWS8000

Features

- Conserves panel space by using your existing weather radar indicator to display traffic, lightning, and terrain in addition to precipitation
- Press one button to display the dedicated traffic screen.
- Press one button to display the terrain screen
- Press one button to switch between the sector view screen and the 360° view lightning screen.
- Superimposes traffic, lightning, and precipitation in some modes
- Superimposes traffic and terrain in some modes
- Easy to switch between display modes
- Displays traffic advisories (TA's) as soon as they occur (unless there's a terrain warning alert or a terrain caution alert), no matter what display mode is active (displays TA's as symbols or text, depending on the current traffic display mode, view, and range)
- Displays terrain warning alerts and terrain caution alerts as soon as they occur, no matter what display mode is active
- Fault-tolerant pass-through circuitry for other graphics computers
- RS-232 serial interface for installation checkout
- Future upgrade capability
- Built-in power-on and continuous self tests
- Clear button to remove all lightning symbols
- Compact, all-in-one, console- or panel-mounted unit
- Includes connections for remote yoke-mount switches

Chapter 2

Controls & Indicators

Introduction

This chapter describes the RGC350's controls and indicators including buttons, menu items, traffic and lightning symbols, and messages.

Lights & Switches

Figure 2-1 and the following paragraphs describe the controls and indicators for the RGC350. The RGC350 also provides connections for remote yoke-mount switches that can duplicate or replace the following buttons: traffic, 360-view lightning, ABV/BLW, and ENT/CLR.

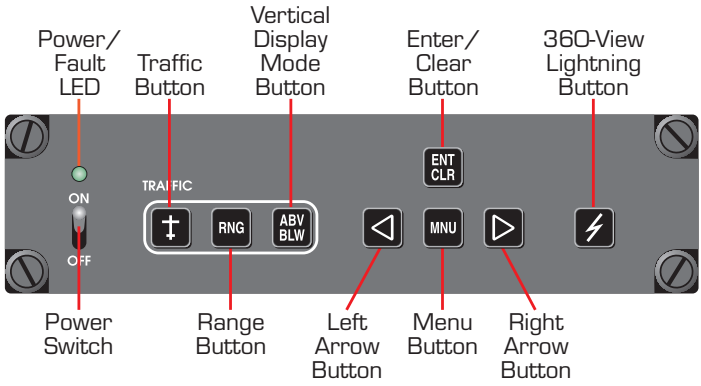


Figure 2-1. RGC350 Controls & Indicators

Power/Fault LED The power/fault LED (light emitting diode) glows green when the power is on and no fatal faults are detected. The LED glows red or flashes red

when the power is on and a fatal fault is detected; in this case, the RGC350 is inoperable. The LED is dark when the power is off.

Power Switch The power switch controls power to the RGC350.

Traffic Button Pressing the traffic button changes the display to the dedicated traffic screen. If the dedicated traffic screen is already displayed, pressing the traffic button switches the display to the 360° view lightning screen or the sector view screen. If the RGC350 is in TA AUTO mode and a TA causes the dedicated traffic screen to appear, pressing the traffic button while the TA is displayed has no effect. Pressing the traffic button with the traffic avoidance system in standby yields a standby message. Pressing the traffic button with no traffic avoidance system connected yields the error message, "TRAFFIC SYS NOT INSTALLED." Pressing the traffic button when there is a terrain alert has no effect.

Range Button Pressing the range button when the dedicated traffic screen is displayed toggles the display through one of the six sets of traffic display ranges listed in table 2-1.

If the dedicated traffic screen is not displayed, pressing the range button does not affect the display of traffic symbols or the traffic annunciator, but it does toggle the dedicated traffic screen range value that's displayed on several screens.

Table 2-1. Traffic Display Ranges

Connected Traffic System	Traffic Display Ranges (nmi)
SKY497	2, 6
TCAS791	6, 12, 24
	6, 12, 20
	5, 10, 20
SKY899/899A	2, 6, 15
	6, 12, 20
	5, 10, 20
	6, 12, 24
	2, 6, 12, 24

If the traffic avoidance system is in standby, pressing the button has no effect. Pressing the button with no traffic avoidance system connected yields the error message, "TRAFFIC SYS NOT INSTALLED."

Vertical Display Mode Button Pressing the vertical display mode button when the RGC350 is in WX-T[C]AS mode or when the dedicated traffic screen or the small traffic window is displayed toggles the vertical display mode of the traffic symbols through the ABV, BLW, NRM, and UNR vertical display modes. (UNR appears only if the connected T[C]AS supports the UNR mode.) In all other cases, pressing this button does not affect the display other than toggling the vertical display mode label that's displayed on several screens.

If the traffic avoidance system is in standby, pressing the button has no effect. Pressing the button with no traffic avoidance system connected yields the error message, "TRAFFIC SYS NOT INSTALLED."

Menu Button Pressing the menu button displays the RGC350 menu unless a TA or a terrain alert exists or the dedicated traffic screen is displayed; in those cases, the menu is not displayed because TA's and terrain alerts are given priority. If the menu is already displayed, pressing the button scrolls through the options for the selected menu item. If the selected menu item has only one option, pressing the button has no effect. Pressing the menu button with only a LandMark TAWS system connected (no traffic or lightning systems connected) has no effect, i.e. the menu is not displayed because there are no TAWS-related menu items.

Left & Right Arrow Buttons Pressing an arrow button selects the menu item to the left or right of the currently selected menu item. Outward pointing arrows below the bottom left and right corners of the menu box indicate that there is one or more menu items off-screen that you can select by pressing an arrow button. If there's no menu on the screen, pressing an arrow button has no effect.

Enter/Clear Button Pressing this button with the RGC350 menu displayed executes or activates the selected menu option. If the menu remains on the screen after you press the button, pressing the button again clears the menu from the screen. If no menu is displayed and a lightning avoidance system is connected, pressing the button clears the lightning symbols or the "LIGHTNING" annunciation from the screen. If no menu is displayed and no lightning avoidance system is connected, or if the dedicated traffic screen or the terrain screen is displayed, pressing the button has no effect.

360-View Lightning Button Pressing the 360-view lightning button ( ) when the terrain screen is not being displayed toggles the display between the sector view screen and the 360° view lightning screen. Pressing with no lightning avoidance system connected yields the error message, "LIGHTNING SYS NOT INSTALLED." If the dedicated traffic screen is displayed, pressing has no effect.

Pressing when the terrain screen is being displayed switches the display to the 360° view lightning screen. Pressing again displays the sector view screen. To resume displaying terrain, you must press the RGC350's remote terrain display button.

RGC350's Remote Terrain Display Button Pressing this customer-supplied button displays the terrain screen except when the dedicated traffic screen has been automatically displayed as a result of a TA occuring while in TA AUTO mode. While the TA is being displayed, the only way the display will switch to the terrain screen is if there is a terrain alert. (The button appearance as shown here is only an example.)

Remote Off/Fail Light This customer-supplied indicator light turns on when the RGC350 is turned off and when the RGC350's power/fault LED glows red or flashes red.

Menu Items & Options

Figures 2-2 and 2-3 and the following paragraphs describe all the RGC350 menu items and options. (See chapter 4 for instructions on using the menu.) The menu disappears if a TA or a terrain alert occurs.

NOTE *Only menu items that apply to your configuration will appear on your menu.*

Figure 2-2. Radar Indicator Screen with the RGC350 Menu

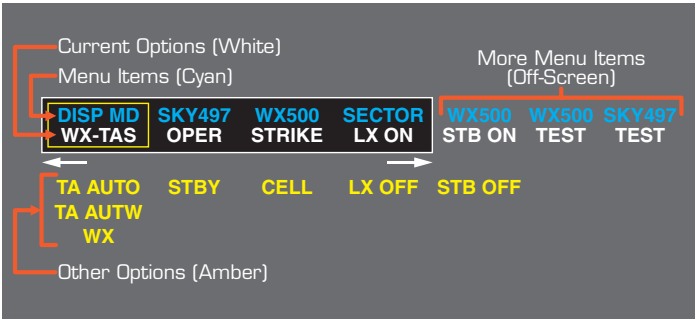
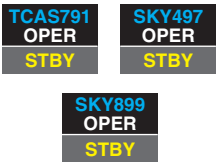


Figure 2-3. Typical Menu (SKY497/WX-500)

Traffic Display Mode Use this menu item to choose one of the four traffic display modes for the RGC350. See page 3-6 for a description of the modes.



Traffic System Mode Use this menu item to place the connected traffic avoidance system into standby or into operating mode. If you're airborne, you will only be able to switch into standby if you have a SKY497 or a SKY899/899A and you do not have a squat switch.

Sector Lightning Display Mode Use this menu item to enable or disable the display of lightning symbols, the LIGHTNING annunciator, and all lightning messages on the sector view screen. Choosing LX OFF does not prevent the display of lightning on the 360° view lightning screen.

WX-500 Display Mode Use this menu item to switch between strike and cell lightning display modes on the connected WX-500.

WX-500 Heading Stabilization Use this menu item to turn heading stabilization on or off on the connected WX-500.

WX-500 Self Test Use this menu item to run the self test on the connected WX-500.

Traffic System Self Test Use this menu item to run the self test on the connected traffic avoidance system. The self test can only be performed when the traffic avoidance system is in standby.

Traffic Symbols

If a TCAS791 is connected to the RGC350, the RGC350 displays standard TCAS traffic symbols. If a SKY497 or SKY899/899A is connected, the RGC350 displays standard SKY497/899/899A traffic symbols except that the TA's are amber and the *other traffic* symbols are white. In addition, the SKY899/899A displays solid white diamond proximity advisories.

Lightning Symbols

If a WX-500 is connected to the RGC350, the RGC350 displays detected lightning as white plus (+) symbols. If a WX-1000E(429

EFIS) is connected, the RGC350 displays areas of detected lightning (not individual electrical discharges) as one of the following three symbols depending on the intensity of the electrical activity:

 Light activity (up to 8 strikes/min)

 Moderate activity (9-25 strikes/min)

 Heavy activity (26 or more strikes/min)

Messages

Note that none of the "LX" or lightning messages are displayed on the terrain screen or on the dedicated traffic screen.

LIGHTNING If the RGC350 is displaying the sector view screen and the radar range is set closer than 20 nmi, the RGC350 displays the word "LIGHTNING" instead of lightning symbols to indicate lightning detected within the displayed sector.

LIGHTNING SYS NOT INSTALLED This message appears if you press  with no lightning avoidance system connected.

LX ANT FAIL This message is one of the two detailed WX-1000E(429 EFIS) failure messages (MIC STUCK is the other) that appear on the 360° view lightning screen in conjunction with the LX FAIL message. This message indicates that the WX-1000E(429 EFIS) antenna may have failed. The message remains on the display as long as the condition exists. No new lightning strikes are displayed when this message is present.

LX CELL/STRK *nnn* This is the normal LX message. The LX in this message indicates that lightning display is enabled on the current screen. If a WX-500 is connected to the RGC350, "CELL" or "STRK" is displayed to the right of, or below, the LX to indicate cell or strike lightning display mode. On the 360° view lightning screen, the current strike rate, *nnn* (0 to 999), is displayed to the right of CELL or STRK. The strike rate represents the approximate number of strikes per minute detected within the current range.

LX DATA FAIL This message indicates that the incoming strike information is lost, corrupted, or otherwise unusable. This message overwrites the normal LX message and remains on

the display as long as the condition exists. No new lightning strikes are displayed when this message is present.

LX Err *nn: description* This message appears on the 360° view lightning screen if the RGC350 receives one or more error messages from the WX-500. The error code for one of the errors is followed by a description of that error; for example, "LX Err 16: Antenna error."

LX FAIL This message indicates that the lightning detection system has failed a self-test or that an error has been detected in the lightning detection system. In most cases, more detailed information on the failure is displayed on the 360° view lightning screen. This message overwrites the normal LX message and disappears when a successive test passes or when the error corrects itself. Depending on the type of failure, lightning strikes may still be displayed while this message is present.

LX HDG FLG This message indicates that the heading source of the lightning detection system has failed. This message overwrites the normal LX message. Lightning strikes are still displayed while this message is present.

LX TEST This message indicates that the WX-500 is performing a self-test. The message disappears when the test is complete. This message overwrites the normal LX message. Lightning strikes are still displayed while this message is present.

MIC STUCK This message is one of the two detailed WX-1000E(429 EFIS) failure messages (LX ANT FAIL is the other) that appear on 360° view lightning screen in conjunction with the LX FAIL message. This message indicates that the microphone key is stuck, thereby inhibiting the display of lightning. The message remains on the display as long as the condition exists. No new lightning strikes are displayed when this message is present. This message is not displayed on the dedicated traffic screen or the terrain screen.

TCAS *nn* ABV, TA AUTO *nn* BLW, TA AUTOW *nn* NRM, TAS *nn* nm UNR, etc. The TCAS, TA AUTO, TA AUTOW, or TAS part of these messages indicate the selected traffic display mode. The *nn* or *nn* nm in these messages indicates the selected range of the dedicated traffic screen. The ABV, BLW, NRM, or UNR indicate the selected vertical display mode. These messages do not appear in WX mode. UNR only appears if the connected T[C]AS supports the UNR mode.

RI RNG FAIL This message indicates that the range of the radar indicator as received by the RGC350 is invalid. When this message is displayed, no lightning information is displayed and only the dedicated traffic screen and the terrain screen will display traffic information.

T[C]AS When set in large type at the upper left corner of the screen, this message indicates that the RGC350 is displaying the dedicated traffic screen. The TCAS message indicates that the RGC350 is connected to a TCAS791, a SKY899A, or a SKY899 (configured as a TCAS). The TAS message indicates that the RGC-350 is connected to a SKY497 or a SKY899 (configured as a TAS).

T[C]AS DATA FAIL This message indicates that the T[C]AS ARINC 429 information is lost, corrupted, or otherwise unusable. This message remains on the display as long as the condition exists. No traffic is displayed while this message is present. On the dedicated traffic screen, the vertical display mode field and the range field are dashed out while this message is displayed.

T[C]AS FAIL This message indicates that the T[C]AS system has failed a self-test or that an error has been detected in the T[C]AS system. No traffic symbols are displayed while this message is present. This message disappears when a successive test passes or when the error corrects itself. On the dedicated traffic screen, the vertical display mode field and the range field are dashed out while this message is displayed.

T[C]AS STBY This message indicates that the T[C]AS system is in standby. No traffic is displayed while this message is present. On the dedicated traffic screen, the vertical display mode field and the range field are dashed out while this message is displayed.

T[C]AS TEST This message indicates that the T[C]AS system is performing a self-test. No traffic other than the test traffic is displayed while this message is present. The message disappears when the test is complete.

TA OFFSCALE This message, unique to the WX-T[C]AS mode, indicates that a TA is present at a relative bearing between 60 and 300 degrees inclusive (45 and 315 degrees for a 90-degree sweep radar) or within the clipped corners of the displayed sector. The normal out-of-range TA symbol ( ) represents any TA detected beyond the forward display range.

TA *range* [*tag* [*arrow*]] This no-bearing TA message only appears if a TCAS791 detects a no-bearing TA. Up to two of these messages can be displayed at one time in WX-TCAS mode, on the dedicated traffic screen, and in the small traffic window.

TRAFFIC This message can appear in WX mode and when another graphics computer connected to the RGC350 is in checklist mode. The message indicates that a TA is present. This message overwrites any other message that would normally be displayed in the same place on the screen.

TERRAIN This message indicates that the RGC350 is displaying terrain data from the LandMark TAWS8000.

TERR DATA FAIL This message on the sector view screen and on the 360° view lightning screen indicates that the RGC350 is not receiving any valid terrain data from the LandMark TAWS8000. This message flashes on and off to allow the traffic information which shares the same screen position to show through.

TAWS DATA FAIL This message on the terrain screen indicates that the RGC350 is not receiving any valid terrain data from the LandMark TAWS8000.

NO EXTERNAL SYS INSTALLED This message appears if the menu button is pressed while the system is not configured for any traffic, lightning, or terrain systems.

TRAFFIC SYS NOT INSTALLED This message appears if the traffic, range, or abv/blw button is pressed while the system is not configured with a traffic system.

STBY NOT ALLOWED This message appears if the user attempts, via the menu, to put the T[C]AS into standby and the T[C]AS responds that it cannot enter standby at this time.

T[C]AS NOT IN STBY This message appears if the user attempts, via the menu, to start a T[C]AS self-test when the T[C]AS is not in standby. (The T[C]AS self-test can only be started while in standby.)

T[C]AS SELFTEST NOT INITIATED This message appears if the user attempts (via menu operations) to start a T[C]AS self-test, but the T[C]AS responds that it did not start a self-test.

Chapter 3
Screens

Introduction

The RGC350 displays four main types of screens defined in this guide as:

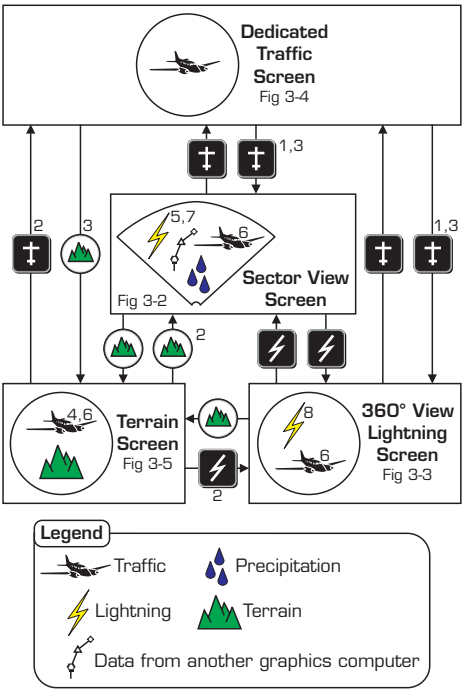
- Sector View Screen
- 360° View Lightning Screen
- Dedicated Traffic Screen
- Terrain Screen

Figure 3-1 illustrates the kinds of information displayed on the screens and identifies which buttons to push to switch from one screen to another. The following sections describe the screens in more detail.

Sector View Screen

The sector view screen (figure 3-2) displays the 90°- or 120°-forward view normally displayed on radar indicators. The following information is displayed on the sector view screen.

- **Weather Information –** i.e., precipitation graphics and information
- **Traffic Information –** to the extent specified in the chosen traffic display mode. (See page 3-6.) No traffic indication is displayed if the traffic avoidance system is in standby.
- **Lightning Information –** If the menu item SECTOR is set to LX ON and the radar range is set to 20 nmi or farther, the RGC350 displays lightning symbols to indicate lightning



Notes:

1. If you arrived at the dedicated traffic screen from the 360° view lightning screen, pressing the traffic button takes you to the the 360° view lightning screen, otherwise, pressing the traffic button takes you to the sector view screen.
2. You can't switch out of the terrain screen if there is a terrain caution alert or a terrain warning alert.
3. You can't switch out of the dedicated traffic screen in TA AUTO mode until the TA that caused the dedicated traffic screen to appear clears.
4. No traffic is displayed during a terrain caution alert or a terrain warning alert.
5. No lightning is displayed on the sector view screen if the SECTOR menu item is set to LX OFF.
6. The extent to which traffic is displayed here is determined by the selected traffic display mode. (See page 3-6.)
7. If the radar range is set closer than 20 nmi, the RGC350 displays the "LIGHTNING" annunciator instead of lightning symbols to indicate lightning detected within the displayed sector.
8. If the radar range is set closer than 20 nmi, the RGC350 displays a message prompting you to increase the range if you want to see any lightning symbols.

Figure 3-1. Four Main Screens

Figure 3-2. Sector View Screen

detected within the displayed sector. If the menu item SECTOR is set to LX ON and the radar range is set closer than 20 nmi, the RGC350 displays the "LIGHTNING" annunciator instead of lightning symbols to indicate lightning detected within the displayed sector. If the menu item SECTOR is set to LX OFF, the RGC350 does not display lightning symbols, lightning messages, or the lightning annunciator on the sector view screen.

- **Data from Another Graphics Computer –** such as flight plan waypoints. (When using the Honeywell 660 [Honeywell type IV] weather radar, no other graphics computers may be connected and used with the RGC350.)

360° View Lightning Screen

From the sector view screen, pressing ⚡ switches the display to the 360° view lightning screen (figure 3-3). The display range you set for the radar serves as the display range for the 360° view lightning screen. The following information is displayed on the 360° view lightning screen.

- **Traffic Information –** to the extent specified in the chosen traffic display mode. No traffic indication is displayed if the traffic avoidance system is in standby.
- **Lightning Information –** If the radar range is set to 20 nmi or farther, the RGC350 displays lightning symbols to indicate lightning detected within the displayed range. If the radar range is set closer than 20 nmi, the RGC350 displays the

Figure 3-3. 360° View Lightning Screen

message "Increase Range for LX Data" prompting you to increase the range if you want to see any lightning symbols. The setting of menu item SECTOR has no effect on the display of lightning information on the 360° view lightning screen.

Dedicated Traffic Screen

The dedicated traffic screen (figure 3-4) appears when you press the traffic button and also when a TA occurs in TA AUTO mode.

No lightning information, precipitation graphics, terrain, or data from another graphics computer are displayed on the dedicated traffic screen; just traffic symbols, traffic information, and the radar mode indicated on a 360° display.

Figure 3-4. Dedicated Traffic Screen

When the dedicated traffic screen is displayed, only the RNG, ABV/BLW, traffic, and RGC350's remote terrain display buttons are operative. (The traffic button and RGC350's remote terrain display button are *not* operative if the dedicated traffic screen appears due to a TA in TA AUTO mode.)

Terrain Screen

From any other screen, pressing the RGC350's remote terrain display button displays the terrain screen (figure 3-5). (Pressing the button does not display the terrain screen from the dedicated traffic screen if the dedicated traffic screen appears due to a TA in TA AUTO mode.) Range for the terrain screen is fixed at 10 nmi forward, left, and right, and 5 nmi to the rear. The following information is displayed on the terrain screen.

- **Traffic Information –** to the extent specified in the chosen traffic display mode. No traffic indication is displayed if the traffic avoidance system is in standby. All traffic symbols are removed from the terrain screen when a terrain alert occurs.
- **Terrain Information –** terrain, obstacles, runways, etc. as described in the LandMark TAWS8000 pilot's guide

Figure 3-5. Terrain Screen

Traffic Display Modes

The RGC350 has four traffic display modes:

- WX
- WX-T[C]AS
- TA AUTO
- TA AUTOW

These traffic display modes determine the extent to which the RGC350 displays traffic information on the sector view screen, the 360° view lightning screen, and the terrain screen.

You can change the traffic display mode using the DISP MD menu item. The RGC350 saves the traffic display mode setting when you turn the power off, and then restores the setting when you turn the unit back on.

Figures 3-6 through 3-12 illustrate the four traffic display modes on a typical radar indicator. Refer to the manuals that came with your radar indicator for details on how the information looks on your specific indicator.

WX Mode

In WX mode (figure 3-6), the RGC350 doesn't display traffic symbols, but it does display the word "TRAFFIC" when a TA occurs. Once the TA is resolved, the word "TRAFFIC" disappears. Pressing the ABV/BLW button or the RNG button has no effect on the display in this mode.

Figure 3-6. WX Mode Sector View Screen With WX-500 & T[C]AS

WX-T[C]AS Mode

In WX-T[C]AS mode (figures 3-7, 3-8, and 3-9), the RGC350 displays traffic symbols to represent traffic detected within the displayed view, but only out to the maximum traffic surveillance range of the connected traffic avoidance system (11 nmi for the SKY497 and 35 nmi for the SKY899/899A and the TCAS791). The ABV/BLW button controls the vertical display mode of the detected traffic. Pressing the RNG button has no effect on the display in this mode other than to change the value displayed for dedicated traffic screen range.

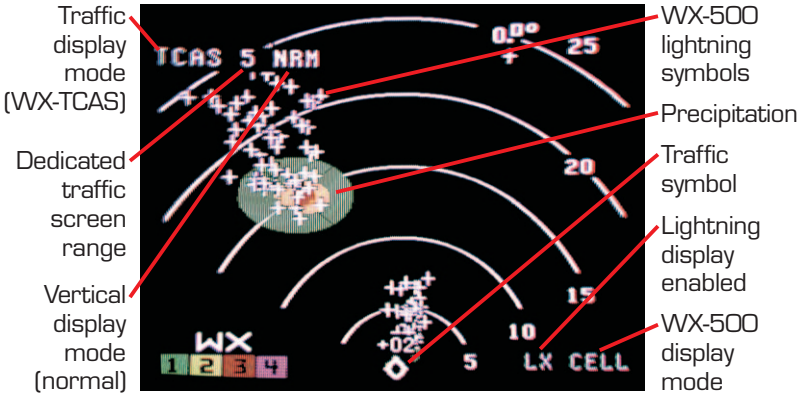


Figure 3-7. WX-TCAS Mode Sector View Screen With WX-500 & TCAS

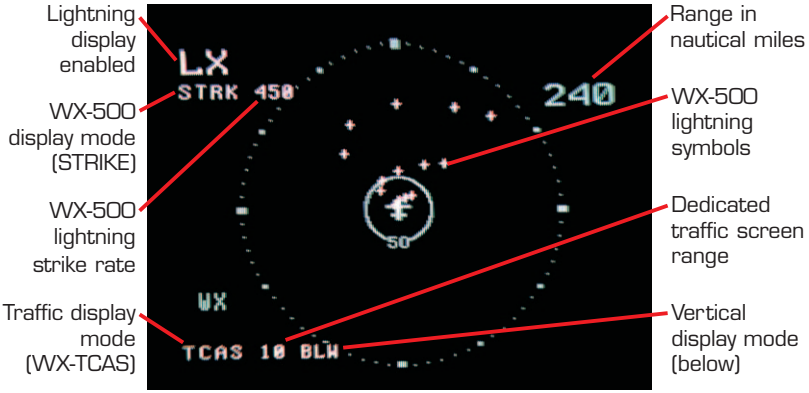


Figure 3-8. WX-TCAS Mode 360° View Lightning Screen With WX-500 & TCAS

Figure 3-9. WX-TCAS Mode Terrain Screen With SKY899 & TAWS8000

TA AUTO Mode

In TA AUTO mode (figure 3-10), the RGC350 doesn't display traffic symbols, but it does switch to the dedicated traffic screen (figure 3-4 on page 3-4) if a TA occurs. Five seconds after the last TA is resolved, the screen reverts back to the previously displayed screen with the RGC350 in TA AUTO mode. As long as the dedicated traffic screen is not displayed, pressing the ABV/BLW or RNG button does not affect elements on the screen, but they do change the vertical display mode indicator and range value displayed for the dedicated traffic screen.

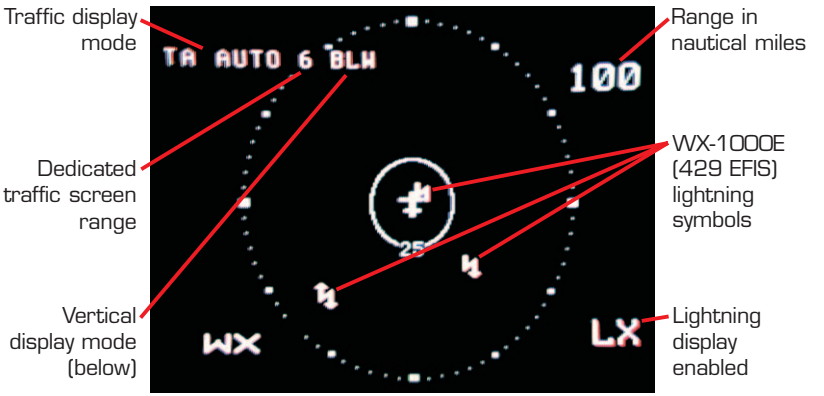


Figure 3-10. TA AUTO Mode 360° View Lightning Screen With WX-1000E(429 EFIS)

TA AUTOW Mode

In TA AUTOW mode (figures 3-11 and 3-12), the RGC350 doesn't display traffic symbols overlaid on the weather or terrain, but it does display a small traffic window on top of the upper right corner of the display when a TA occurs. The ABV/BLW button controls the vertical display mode of the window. The display range of the window is fixed at 6 nmi, so pressing the RNG button while the window is displayed has no effect other than to change the value displayed for the dedicated traffic screen range. Pressing the traffic button while the window is displayed switches the display to the dedicated traffic screen (figure 3-4 on page 3-4). Pressing the traffic button again reverts the display back to the previously displayed screen with

Figure 3-11. TA AUTOW Mode Sector View Screen With WX-500 & SKY497

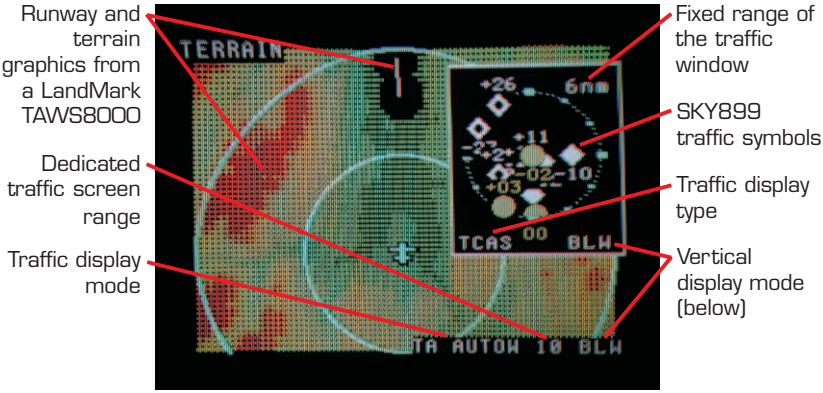


Figure 3-12. TA AUTOW Mode Terrain Screen With SKY899 & TAWS8000

the RGC350 in TA AUTOW mode. If a TA still exists, the small traffic window will still be present. Once the TA condition is resolved, press any button to remove the window or wait 5 seconds and the window will automatically disappear.

Display Priorities

The RGC350 displays higher priority information overlaying lower priority information according to the following display priority list in which 1 is the highest priority and 7 is the lowest priority. (See Special Considerations below for exceptions.)

1. Terrain alerts (removes all traffic symbols)
2. Traffic symbols, traffic messages, "TRAFFIC" annunciator, traffic window, and the dedicated traffic screen
3. LX error messages
4. Information from another graphics computer
5. Non-alert terrain information
6. Lightning symbols, LX messages (except LX error messages), and the "LIGHTNING" annunciator
7. Precipitation and all other radar-generated display items such as range rings and WX mode annunciators.

Special Considerations

Bendix/King Circle Mode

Pressing the 360 button on a connected Bendix GC360A graphics computer puts the GC360A into circle mode. The RGC350 senses the switch into circle mode and switches into a special 360° mode. In this special 360° mode, the GC360A displays the range rings, navigation information, and forward precipitation, while the RGC350 displays 360° traffic (according to the selected traffic display mode). This mode is similar to the RGC350's 360° view lightning screen with forward precipitation and *other graphics computer* information added to the display, and lightning subtracted.

Pressing  has no effect while the radar is in Bendix circle mode, but you can still display and use the RGC350 menu.

Bendix/King Vertical Profile Mode

If a Bendix radar is connected to the RGC350, the RGC350 passes through the Bendix vertical profile mode display. The only information the RGC350 displays on top of the vertical profile mode radar data is the "TRAFFIC" annunciator whenever the connected traffic avoidance system detects a TA.

Honeywell/Sperry/RCA Target Mode

If a Honeywell/Sperry/RCA Primus radar is connected to the RGC350 and the radar is in target mode, the RGC350 can not overlay any data on top of any intense (level 3) areas of precipitation on the display.

Checklists

In order to display any checklists or emergency checklists from another graphics computer, the RGC350 must be displaying the sector view screen. Regardless of the traffic display mode selected, the only item the RGC350 displays on the screen while a checklist is displayed, is a small "TRAFFIC" annunciator if a TA occurs. The RGC350 will *not* automatically switch to the dedicated traffic screen in TA-AUTO mode when a TA occurs, nor will it display a small traffic window if a TA occurs in TA-AUTOW mode. The RGC350 will however allow you to go to the dedicated traffic screen using the traffic button.

TCAS II Data

The RGC350 is not designed to display TCAS II data on radar indicators.

Chapter 4
Operating Instructions

Introduction

This section lists the tasks you can perform with the RGC350. The first eight tasks (turn-on through turn-off) are RGC350-specific tasks. The next seven tasks (*Test the T[C]AS Unit* to *Change the WX-500 Display Mode*) explain how to use the RGC350 to perform tasks that would normally be performed on the stand-alone traffic and lightning systems. For these seven tasks, refer to the corresponding *Stormscope*, SKYWATCH, SKYWATCH HP, or TCAS I pilot/user's guides for an explanation of the tasks as well as when and why they should be performed.

Turn On the RGC350

CAUTION *Turning on the RGC350 before starting your engines could damage the RGC350 due to power surges.*

1. Move the RGC350 power switch up to the ON position.

The power/fault LED glows red for a fraction of a second then glows green. If another graphics computer is connected to the RGC350, it may display a power-on message on the radar indicator.

Once the other graphics computer's power-on message disappears, an RGC350 startup screen similar to figure 4-1 or 4-2 appears on the radar indicator and stays there until the RGC350 completes its power-on self test. (The L-3 logo will replace the Goodrich logo in future versions.)

If the RGC350 passes the self test, "Self-Test: PASS" is displayed on the startup screen for 5 seconds; then the

Figure 4-1. Startup Screen With Self-Test PASS

Figure 4-2. Startup Screen With Self-Test FAIL

display switches to the sector view screen and whatever traffic display mode was active before the unit was turned off.

If the RGC350 fails the self-test, "Self-Test: FAIL" is displayed on the startup screen along with an error message and a prompt to press the ENT/CLR button to continue. If you continue, the RGC350 will still work, but operation of some of the features may be degraded, depending on the nature of the failure. Contact your authorized L-3 Avionics Systems dealer for troubleshooting help.

2. **If the LED glows red for more than a fraction of a second at turn on, or flashes red, turn the RGC350 power switch off then back on. If the LED continues to glow red or flash red,**

contact your authorized L-3 Avionics Systems dealer for troubleshooting help.

NOTE *The RGC350 has fault-tolerant pass-through circuitry so that the radar indicator and any other connected graphics computer will continue to operate even if the RGC350 is not operational.*

Use the Menu

Refer to this procedure when the other procedures in this chapter require you to use a menu item.

1. **Press the MNU button to display the menu.**

2. **Press an arrow button to move the selection box to the desired menu item.**

   If you reach the last menu item in the direction you're scrolling, pressing the arrow button again jumps the selection box back to the opposite end of the menu.

3. **If a menu item has only one option (e.g. TEST), press the ENT/CLR button to activate the option and immediately clear the menu from the screen.**

4. **If a menu item has multiple options, press the MNU button to scroll through the options.**

5. **When the option you want is displayed below the menu item, press the ENT/CLR button to activate the new option.**

   Once you activate a new menu option, the selected option title changes from yellow to white.

6. **To clear the menu from the screen, press the ENT/CLR button again, or wait 5 seconds and the menu will disappear on its own.**

Toggle Between Sector View & 360° View

Press ⚡ repeatedly to toggle between the sector view screen and the 360° view lightning screen. See page 3-2.

Enable/Disable Lightning Display in Sector View

Use the SECTOR LX ON/LX OFF menu item to enable or disable the display of lightning symbols, the LIGHTNING annunciator, and all lightning messages on the sector view screen.

Display the Dedicated Traffic Screen

Press the traffic button to display the dedicated traffic screen. Press the traffic button again to display the previous screen. See page 3-2.

Display the Terrain Screen

Press the RGC350's remote terrain display button to display the terrain screen. (See page 3-2.) Pressing the button will not display the terrain screen if the dedicated traffic screen is being displayed as a result of a TA in TA AUTO mode. The terrain screen will *automatically* appear if a terrain alert occurs.

Change the Traffic Display Mode

Use the DISP MD menu item to change to a different traffic display mode. The choices are WX, WX-T[C]AS, TA AUTO, and TA AUTW. (TA AUTW is an abbreviation for TA AUTOW.)

Turn Off the RGC350

Move the power switch down to the OFF position.

Test the T[C]AS Unit

Use the T[C]AS TEST menu item to perform a self test on the T[C]AS unit connected to the RGC350.

The T[C]AS unit must be in standby before the RGC350 will perform the test.

At the start of the test, the T[C]AS unit sends the test screen traffic information to the RGC350, which displays the traffic information according to the currently selected traffic display mode and view. The RGC350 also displays the T[C]AS TEST message until the test is complete.

When the self test is complete, the test traffic disappears from the screen and the T[C]AS STBY message replaces the T[C]AS TEST message.

If the T[C]AS unit fails the test, the T[C]AS FAIL message appears on the screen.

Test the WX-500

Use the WX500 TEST menu item to perform a self test on the WX-500 connected to the RGC350.

The RGC350 displays the LX TEST message until the test is complete.

If the WX-500 fails the test, the LX FAIL message appears on the screen. In that case, press ⚡ to go to 360° view lightning screen. The "LX Err *nn: description*" message on the 360° view lightning screen lists more information about why the WX-500 failed the self test. Look up the error code displayed on this screen in the WX-500 User's Guide for more information about the error.

Switch Between T[C]AS Standby & Operate

Use the T[C]AS OPER/STBY menu item to switch the T[C]AS unit connected to the RGC350 between standby and the normal operating mode.

In most aircraft configurations, the T[C]AS unit will not go into standby while the aircraft is airborne. For those configurations, the RGC350 displays the STBY NOT ALLOWED message if you try to switch into standby while airborne.

Change the Traffic Display Range

The radar indicator display range also serves as the traffic display range on the 360° view lightning screen and on the sector view screen when the screens are in WX-T[C]AS mode. To change the traffic display range in those cases, change the radar indicator display range. Be aware, however, that traffic is only detected and displayed out to the maximum traffic surveillance range of the connected traffic avoidance system (11 nmi for the SKY497 and 35 nmi for SKY899/899A and the TCAS791).

To change the display range on the dedicated traffic screen, press the RNG button repeatedly and the screen will toggle through the available display ranges (table 2-1, page 2-2).

The traffic display range on the terrain screen is fixed at 10 nmi forward, left, and right, and 5 nmi to the rear.

Change the Vertical Display Mode

This procedure explains how to switch between the above, below, normal, and unrestricted vertical display modes on the T[C]AS system connected to the RGC350. (UNR mode is only available if the T[C]AS supports UNR mode.) This setting affects all modes and views that display traffic symbols.

To change the vertical display mode, press the ABV/BLW button repeatedly to toggle through the vertical display modes and stop on the desired mode.

Toggle the WX-500 Heading Stabilization

Use the WX500 STB ON/OFF menu item to turn the heading stabilization feature on or off on the WX-500 connected to the RGC350.

Change the WX-500 Display Mode

Use the WX500 STRIKE/CELL menu item to change the lightning display mode of the WX-500 connected to the RGC350.

Chapter 5
Specifications

*Table 5-1. RGC350 Specifications**

Part Number Definition:
805-12400-001 – black bezel
805-12400-002 – gray bezel

Size:
1.48 in (3.76 cm) high
5.73 in (14.55 cm) wide
7.91 in (20.09 cm) deep (including the mating connector assy.)

Weight:
1.5 lb (0.68 kg)

Power Input Requirements:
18 to 32.2 V dc, 12 W (maximum)

Operating Temperature:
-20 to +55 °C (-4 to +131 °F)

Storage Temperature:
-55 to +85 °C (-67 to +185 °F)

Operating Altitude:
55,000 ft maximum

Cooling:
Internal fan

FAA Compliance:
TSO-C105

RTCA Compliance:
Environmental:
DO-160D Category:
F1XCAB[(SBM)(UFF1)]XXXXXXZ[BZ]A[BZ]A[VVR]M[XXE2]XXA
Software:
DO-178B Level D

*Specifications subject to change without notice.

Record of Important Information

Dealer Information

Name _____

Address _____

City, State, Zip _____

Telephone _____

Equipment Information

Date of Purchase _____

Installation Date _____

Model Number _____

Part Number _____

Serial Number _____

Mod Letter _____

Software Version _____

NOTE *To ensure that a new or repaired RGC350 meets the TSO, meets foreign government certification requirements, and meets L-3 Avionics Systems performance standards, your RGC350 must be installed and tested by an L-3 Avionics Systems authorized RGC350 dealer.*

communications

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L-3 Communications Avionics Systems, Inc.
5353 52nd Street, S.E.
Grand Rapids, MI 49512 USA
(800)253-9525
www.L-3com.com/as

RGC350