User's Guide for the

Stormscope®

Series II Weather Mapping Sensor

Model WX-500

communications

Stormscope® System Advantages

Welcome

L-3 Avionics Systems, one of the world's most experienced companies in airborne thunderstorm avoidance instruments, is pleased to welcome you to the family of tens of thousands of pilots who are enjoying the benefits of safer flight with a *Stormscope*® weather mapping system.

The Original

Don't be fooled by *Stormscope* system look-alikes. There is only one *Stormscope* system, and only one company that makes the *Stormscope* line of weather mapping systems. The *Stormscope* system, the original, most accurate weather mapping system is manufactured by L-3 Avionics Systems.

Fly with Greater Confidence

You now own one of the leading instruments in the world for airborne detection and mapping of thunderstorms. Unlike any other product, your new *Stormscope* sensor will enable you to make better informed thunderstorm avoidance decisions so you can fly more safely and with greater confidence than ever before.

Convenient Features

The advanced, patented technology in your new *Stormscope* sensor was developed over many years and is so unique, so revolutionary, it surpasses all others. Here are some of its features:

- Precisely maps electrical discharges up to 200 nmi away
- Provides for a 120° forward view and a 360° view of the surrounding airspace
- Outputs both cell and strike data

User's Guide
for the

Stormscope®

Series II Weather Mapping Sensor

Model WX-500

Designed and manufactured in the United States of America by

L-3 communications

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Safety Summary

These warnings and cautions appear later in this guide and are repeated here for emphasis:

WARNING

page 4-1

Never use your Stormscope system to attempt to penetrate a thunderstorm. The FAA Advisory Circular, Subject: Thunderstorms, and the Airman's Information Manual (AIM) recommend that you "avoid by at least 20 miles any thunderstorm identified as severe or giving an intense radar echo."

CAUTION

page 4-1

There are several atmospheric phenomena other than nearby thunderstorms which can cause isolated discharge points in the strike display mode. Clusters of two or more discharge points in the strike display mode however do indicate thunderstorm activity when they reappear after clearing the screen. Avoid the clusters and you'll avoid the thunderstorms. In the cell display mode, even a single discharge point may represent thunderstorm activity and should be avoided.

Important Notice

All *Stormscope*® WX-500 functions are controlled through various Multi-Function Displays (MFDs). The many capabilities of the WX-500 allow MFD manufacturers to create screens compatible with the various functions of their display. The display screens illustrated in this guide are intended to be characteristic of a group of MFDs that are configured to work with the WX-500. The examples are intended to assist the pilot in interpreting lightning data output by the WX-500. Each MFD shows the information consistent with the capabilities of that particular display.

Revision Highlights

This revision C of the user'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.
- Increases typeface size and adds more white space.
- Edits text for improved readability.

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Chapter 1

System Description

General Description

The *Stormscope*® Series II Weather Mapping Sensor, model WX-500 (figure 1-1) detects electrical discharges from thunderstorms within a 200 nmi radius of the aircraft. This information is then sent to an external Multi-Function Display (MFD) that plots the location of the thunderstorms.

The WX-500 is a passive sensor that listens for electromagnetic signals with a receiving antenna. There's no transmitter and no harmful transmissions. The WX-500 works as well on the ground as it does in the air, thereby giving the pilot important planning information before takeoff.

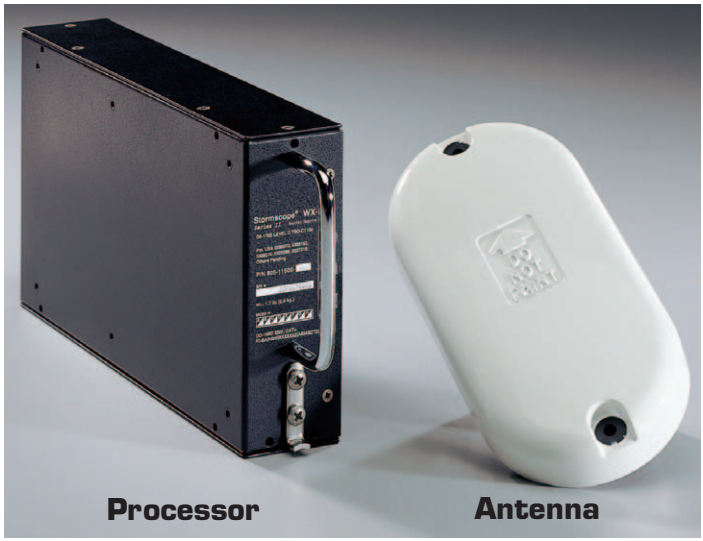

Figure 1-1. WX-500 Major Components

Processor

This compact, tray-mounted computer processor receives electrical discharge information from the antenna, processes it to determine range and azimuth, processes the heading input, then forwards the information for presentation on the MFD. The processor may be installed almost anywhere in the aircraft.

Antenna

This combined crossed-loop and sense antenna is sealed in an aerodynamic flat-pack and mounted on the outside of the aircraft where it detects electrical discharges associated with thunderstorms. *Stormscope* thunderstorm detection systems can correlate the electric and magnetic signatures of lightning strikes better than other systems due to their patented sense channel technology. The antenna is designed to help filter out pulsed noise from sources other than atmospheric electrical discharges.

Functional Description

Figure 1-2 and the following paragraphs describe how the major components of the WX-500 connect to each other and to other aircraft systems.

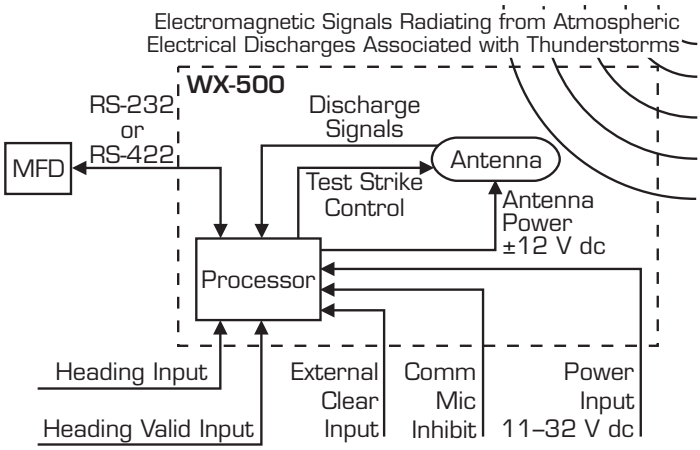

Figure 1-2. WX-500 Functional Diagram

The antenna detects the electric and magnetic fields generated by intra-cloud, inter-cloud, or cloud-to-ground electrical discharges that occur within a 200 nmi radius of the aircraft and sends the resulting "discharge signals" to the processor. The processor digitizes, analyzes, and converts the discharge signals into range and bearing data then stores the data in memory. The processor then sends this information to the MFD as cells and strikes. The WX-500 updates the MFD every 2 seconds.

Cell Data

The WX-500 uses a clustering algorithm to locate storm cells. Cell data is most useful during periods of heavy electrical discharge activity. Displaying cell data during these periods allows the pilot to quickly see where the cells are without having to sift through and analyze a screen full of discharge points.

Strike Data

Strike data is most useful during periods of light electrical activity because strike data may show the initial discharges associated with a building thunderstorm sooner than cell data would. The WX-500 plots strike discharge points in relation to where the discharges are actually detected instead of plotting them close to an associated group of discharge points as is done with cell data.

Strike Rate

Pilots may use the strike rate (approximate number of strikes per minute) to determine if storm cells are building or decaying. The MFD calculates the strike rate for the current range and view.

Features

- Detects and plots intra-cloud, inter-cloud, and cloud-to-ground electrical discharges
- Operates passively requiring no transmitter
- Allows total control through the MFD
- Detects discharges up to 200 nmi away
- Outputs cell and strike data to the MFD
- Repositions discharge points automatically on the display relative to the latest aircraft heading (heading stabilization) when connected to a compatible heading system
- Performs three types of self test: power-up, continuous, and operator-initiated
- Allows the pilot to clear discharge points using a remotely-mounted "clear screen" button (not supplied)
- Inhibits thunderstorm processing when the communications transmitter is keyed to prevent the processing of corrupted data (some installations need to use this mic inhibit feature, others don't)

Chapter 2

Storm Mapping Principles

Anatomy of a Thunderstorm

The WX-500 is intended to help pilots avoid the dangers associated with thunderstorms (convective wind shear, lightning, icing, tornadoes, etc.). The WX-500 locates thunderstorms by detecting the electrical discharges that thunderstorms always generate. Figure 2-1 shows how thunderstorms create electrical discharges and radiate electromagnetic signals.

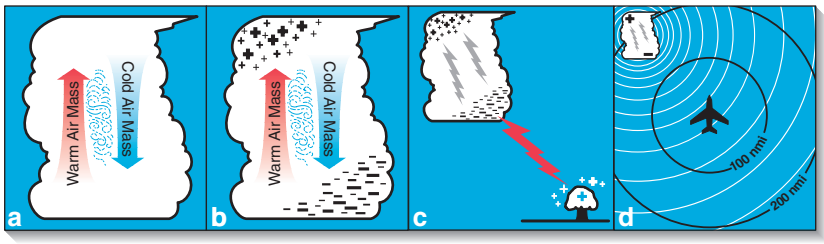

Figure 2-1. Electrical Discharges in Thunderstorms

a. The convective flow of air currents (warm air going up and cold air going down) leads to friction between the opposing air currents and wind shear in the space between the opposing air currents. The closer together the opposing air currents are, the greater the shearing force of the air currents.

b. The friction between the opposing air currents causes electrical charges in the area to separate. As positive (+) and negative (–) electrical charges are separated, they accumulate in masses of similar charges (positive charges near the top of the cloud and negative charges near the bottom).

c. Electrical discharges occur as the accumulated masses of separated positive and negative charges attempt to rejoin. These discharges continue to occur repetitively as long as the convective wind shear persists. A few of the discharges are visible as lightning, but most electrical discharges occur within a cloud or between clouds and are hidden by those clouds. Only a small percentage of discharges occurs between the clouds and the ground. Cloud to ground lightning occurs when the negatively charged lower part of a cloud induces a positive charge on an object on the ground. The immense charge separation finally breaks down the insulating air and a discharge occurs dumping negative charge from the cloud onto the object and the surrounding ground.

d. All electrical discharges radiate electromagnetic signals in all directions close to the speed of light. The electromagnetic signals have unique characteristics and varying rates of recurrence and signal strength.

Figure 2-2 shows that the rate of electrical discharges detected in an area is directly related to the amount of convec-

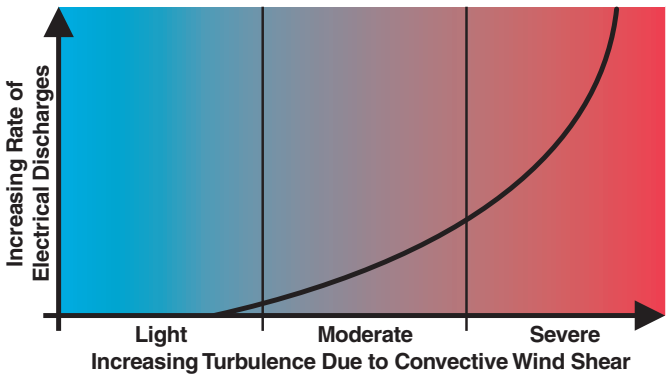

Figure 2-2. Discharge Rate a Function of Wind Shear

tive wind shear turbulence present. In fact, as convective wind shear increases, the rate of electrical discharges increases at an increasing rate. This relationship means that if you find the electrical discharges, you've found the wind shear.

Stages of a Thunderstorm

All thunderstorms begin as cumulus clouds, build to an intense mature stage, and finally dissipate. Each of these stages in the life of a thunderstorm present a different set of dangers to aircraft. The WX-500 maps all stages in the life of a thunderstorm so that you won't be caught unaware by a thunderstorm that can build, mature, and dissipate in as little as 20 minutes.

Cumulus Stage

The cumulus or beginning stage of a thunderstorm is usually precipitation free. In this stage, the risks to an aircraft and its occupants include strong vertical winds, severe turbulence, icing, and convective wind shear.

Mature Stage

In the mature and most intense stage of a thunderstorm, the water droplets within the cloud collide and combine to form rain and hail and, at cooler temperatures, sleet and snow. This stage poses many hazards to aircraft including heavy precipitation, high winds, convective wind shear, severe turbulence, downbursts, hail, icing, tornadoes, and lightning.

Dissipating Stage

In the dissipating stage, the updraft weakens and at the same time, the convective wind shear and other hazardous conditions begin to subside. There may be high rainfall rates in this stage, but the severe dangers are diminishing.

The WX-500 & Weather Radar

The storm mapping technology used in the WX-500 is fundamentally different than the technology used in weather radar. Weather radar operates by transmitting UHF radio waves in the direction of interest and then receiving echoes from water droplets, whereas the WX-500 operates by receiving signals already present in the atmosphere due to electrical discharges. The WX-500 processor analyzes the unique characteristics of these signals, their signal strength, and their varying rates of recurrence to determine the location and intensity of the thunderstorms that generated the discharges. The WX-500 can receive radiated electromagnetic signals from electrical discharges up to 200 nmi away.

One disadvantage of weather radar is that the cumulus stage of a thunderstorm (usually precipitation free) is unlikely to appear on weather radar; however, it generally does contain electrical discharges which *will* be detected by the WX-500 as a light but increasing cluster of discharge points.

Another disadvantage of weather radar is that due to attenuation, it may not see the "storm behind the storm" or may understate its intensity. The WX-500 is not subject to attenuation. With the WX-500, electrical discharges are mapped throughout the storm area. The size of the cluster of discharge points detected by your WX-500 indicates the size of the storm area. The speed with which the discharge points appear indicate the intensity of the storm regardless of the size of the cluster. The more intense the storm, the faster the discharge points reappear.

Chapter 3
Operation

Introduction

The MFD controls the WX-500 functions. Refer to your Aircraft Flight Manual Supplement (AFMS) and the documentation supplied with the MFD for detailed operating instructions. This chapter provides supplemental information. The user should already be familiar with their AFMS and MFD.

Power-Up

At power-up, the WX-500 performs a power-up self test. The self test takes about 25 seconds to ensure that all major WX-500 functions, including antenna reception, memory, and microprocessor functions, are operating properly. An error message is displayed if a fault is detected. Refer to the Error Messages section later in this chapter for more information.

Continuous & Operator-Initiated Self Test

The WX-500 performs a continuous self test of antenna operation, microprocessor functions, memory, and heading inputs among others several times a minute. The WX-500 also provides for an operator-initiated self test through the MFD.

Clear All Discharge Points

Clearing the discharge points periodically while you're monitoring thunderstorms is a good way to determine if the storm is building or dissipating. Discharge points in a building storm will reappear faster and in larger numbers. Discharge points in a dissipating storm will appear slower and in smaller numbers. The WX-500 allows for the clearing of discharge points through the MFD or an optional Remote Clear button.

If you have the standard heading stabilization feature connected and turned on, you do not have to clear discharge points after every heading change to ensure that the discharge points are positioned correctly with respect to the current heading.

Heading Stabilization

The heading stabilization feature automatically adjusts the position of the discharge points on the display when your aircraft changes heading. Normally, if the WX-500 is installed to use the heading stabilization feature, you should never have to turn heading stabilization off; however, a situation may occur in which the heading input appears to be invalid but no heading flag is displayed. In this case, you should turn heading stabilization off until the heading input is corrected. If you are flying with heading stabilization turned off, or do not have a compatible heading system, you can clear all discharge points after each heading change to display new discharge points in the proper location relative to the nose of the aircraft.

Error Messages

The WX-500 detects most common faults and sends error messages to the MFD indicating the nature of the faults and which functions may be inoperative. These error messages enable your authorized *Stormscope* dealer or L-3 Avionics Systems factory service personnel to quickly diagnose and correct the fault. Table 3-1 lists all the possible error messages, the probable causes, and the recommended actions.

Table 3-1. Error Messages

Error	Fault Source	Type*	Recommended Action
Error 01 Processor Fault	Main processor	F	Turn off the unit and see your dealer for service.
Errors 05 thru 08 Processor Fault	Main processor memory	F	Turn off the unit and see your dealer for service.
Errors 09 thru 12 Processor Fault	DSP memory	F	Turn off the unit and see your dealer for service.
Errors 14 and 15 Processor Fault	DSP	F	Turn off the unit and see your dealer for service.
Error 16 Antenna Fault	Antenna is not able to receive or forward the necessary thunderstorm data or it could be a faulty connection	NF/R	Continue without weather mapping functions. See your dealer for service.
Error 17 Processor Fault	No test strikes**	NF/R	Continue without weather mapping functions. See your dealer for service if this error occurs frequently.
Error 18 Processor Fault	Invalid test strikes	NF/R	Continue without weather mapping functions. See your dealer for service if this error occurs frequently.
Error 19 Processor Fault	Main Processor data overload	NF/R	Continue without weather mapping functions. See your dealer for service if this error occurs frequently.
Error 20 Configuration Changed	Antenna jumper configuration changed since last time power was applied to the system	NF/R	Select antenna location via MFD. If selection matches processor configuration jumpers, normal operation returns. If not correctable, continue without weather mapping functions and see your dealer for service.
Error 21 Processor Fault	Main processor	F	Turn off the unit and see your dealer for service.
Error 22 Invalid Synchro Signals	Invalid XYZ input (gyro may still be spinning up)	NF/R	Continue without heading stabilization. See your dealer for service.

*F=Fatal, NF=Nonfatal, R=Recoverable, NR=Nonrecoverable (Description follows table.)

**Flying within 5 nmi of a certain Government antenna near Annapolis Maryland can also cause this error to appear. The recommended action in this case is to do nothing.

Table 3-1. Error Messages (Continued)

Error	Fault Source	Type*	Recommended Action
Error 23 Invalid Synchro Ref	No 400 Hz reference	NF/R	Continue without heading stabilization. See your dealer for service.
Error 24 Mic Key Stuck	Mic key (inhibit line) stuck. The microphone key has been depressed for more than 1 minute	NF/R	Check your microphone key to correct the problem. If not correctable, continue without weather mapping functions and see your dealer for service.
Errors 25 thru 34 Software Error	Main processor	F	Turn off the unit and see your dealer for service.
Errors 35 and 36 Processor Fault	DSP or main processor	NF/R	Continue without weather mapping functions. See your dealer for service.
Error 40 Processor Fault	Main processor	NF/R	See your dealer for service if this error occurs frequently.
Error 41 Processor Fault	DSP or main processor	F	Turn off the unit and see your dealer for service.
Error 42 Processor Fault	Main processor	F	Turn off the unit and see your dealer for service.
Error 43 Invalid Request	MFD	NF/R	See your dealer for service if this error occurs frequently.
Error 44 thru 49 Serial Communications	MFD	NF/R	See your dealer for service if this error occurs frequently.
Error 50 Illegal Heading Value	MFD	NF/R	See your dealer for service if this error occurs frequently.
Error 51 Invalid Message	MFD	NF/R	See your dealer for service if this error occurs frequently.
Error 52 Invalid Antenna Change Request	MFD	NF/R	See your dealer for service if this error occurs frequently.
Error 53 thru 54 Communications Buffer Overload	MFD	NF/R	See your dealer for service if this error occurs frequently.

*F=Fatal, NF=Nonfatal, R=Recoverable, NR=Nonrecoverable (Description follows table.)

Nonfatal Faults

If a nonfatal fault occurs, all functions not directly affected by the fault continue to operate. See your authorized *Stormscope* dealer as soon as possible to correct the fault.

Recoverable Faults

A recoverable fault is one that allows the affected functions to automatically resume proper operation after the fault goes away.

A messaging error (errors 43 through 51, 53 and 54) is an example of a recoverable fault. Messaging errors are likely caused by excessive noise on the communication lines, or an MFD communications problem. These messages automatically clear after the message is processed and therefore may appear only briefly on the MFD.

Nonrecoverable Faults

A nonrecoverable fault allows continued operation, but without the function affected by the fault. The affected function will not resume proper operation until the system is turned off and repaired.

Fatal Faults

If a fatal fault occurs, all functions will cease to operate. In this case, turn off the WX-500 and see your authorized *Stormscope* dealer for service.

Chapter 4

Weather Display Interpretation

WARNING *Never use your Stormscope system to attempt to penetrate a thunderstorm. The FAA Advisory Circular, Subject: Thunderstorms, and the Airman's Information Manual (AIM) recommend that you "avoid by at least 20 miles any thunderstorm identified as severe or giving an intense radar echo."*

CAUTION *There are several atmospheric phenomena other than nearby thunderstorms which can cause isolated discharge points in the strike display mode. Clusters of two or more discharge points in the strike display mode however do indicate thunderstorm activity when they reappear after clearing the screen. Avoid the clusters and you'll avoid the thunderstorms. In the cell display mode, even a single discharge point may represent thunderstorm activity and should be avoided.*

Introduction

The examples in this chapter are designed to help you relate the cell or strike patterns shown on your MFD to the size and location of thunderstorms that may be near your aircraft.

A blue and white grid in the examples represents the airspace around your aircraft. (See figure 4-1.) Each

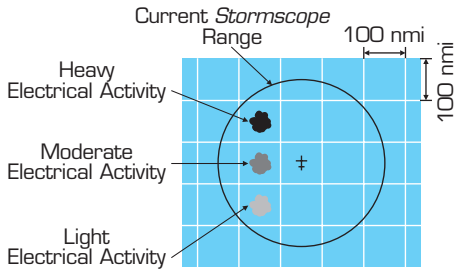

Figure 4-1. Airspace Diagram

square in the grid represents a 100 by 100 nmi area. A circle represents the area monitored by your WX-500. Areas of gray or black indicate thunderstorms. The darker the area, the greater the rate of electrical discharge activity.

The WX-500 detects electrical discharges and sends the processed information to the MFD which may display the discharges as cells or independent strikes. The examples in this chapter include screen patterns to represent both cell and strike displays.

Radial Spread

In the strike display mode, it is common for a triangular-shaped stream of discharge points to appear between the aircraft symbol and a cluster of discharge points within the range of the WX-500. A similar stream of discharge points may appear radiating away from the aircraft symbol in the direction of possible thunderstorm activity beyond the range of the WX-500. These phenomena are examples of radial spread. Discharge points in radial spread do not necessarily indicate the exact location of atmospheric electrical discharges. To counteract radial spread, L-3 Avionics Systems applied its extensive research in lightning detection to develop enhanced lightning positioning algorithms. These algorithms (used only in the cell display mode) greatly reduce radial spread and improve the depiction of thunderstorms on the display.

Typical Patterns

Three Clusters within 200 nmi

Figure 4-2 shows the 360° weather view at the 200 nmi range. Using this knowledge, the three clusters of discharge points on the left-hand screen (cell display mode) can be interpreted as representing three thunderstorm cells at the following azimuth and range:

Cluster	Azimuth (clock position)	Range
1	11:00	180 nmi
2	4:00	75 nmi
3	4:00	180 nmi

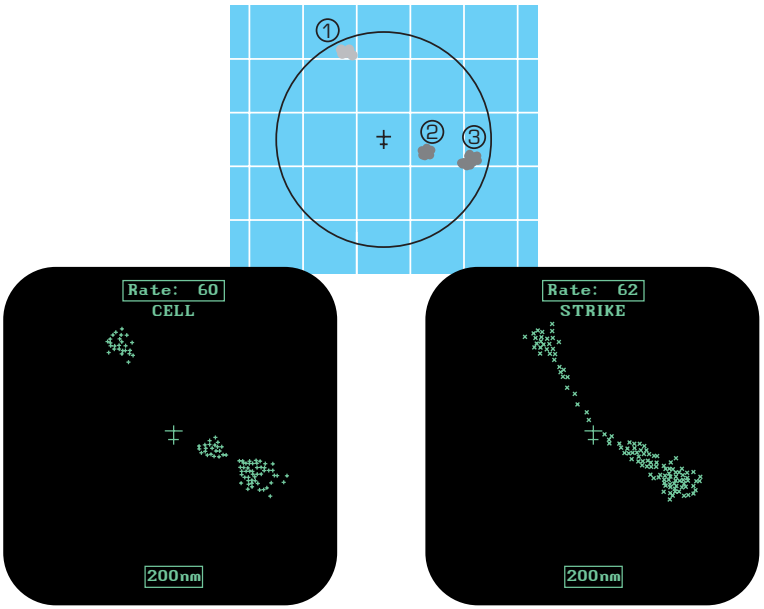

Figure 4-2. Three Clusters Within 200 nmi

Analysis of the right-hand screen (strike display mode) yields a similar, but less certain interpretation due to radial spread.

The screen can also tell us about the relative amount of electrical discharge activity in thunderstorm cells. Clusters 2 and 3 have more discharge points than cluster 1 indicating greater electrical discharge activity. All three clusters however must be avoided because you can't necessarily deter-

mine the severity of thunderstorms based strictly on the number of discharge points. For example, in the western United States, a severe thunderstorm may only have a few electrical discharges.

When the range is changed to 100 nmi (figure 4-3), only cluster 2 remains visible. Clusters 1 and 3 are beyond the 100 nmi range and therefore no longer appear on the screen. (Clusters 1 and 3 would again be visible if the range were returned to 200 nmi.) Cluster 2 is now more defined and the discharge points are larger. The interpretation of cluster 2 remains the same: a moderately active thunderstorm at azimuth 4:00, range 75 nmi. Notice on the right-hand screen (strike display mode) that there is less radial spread than on the 200 nmi range. In general, radial spread is reduced on the shorter ranges.

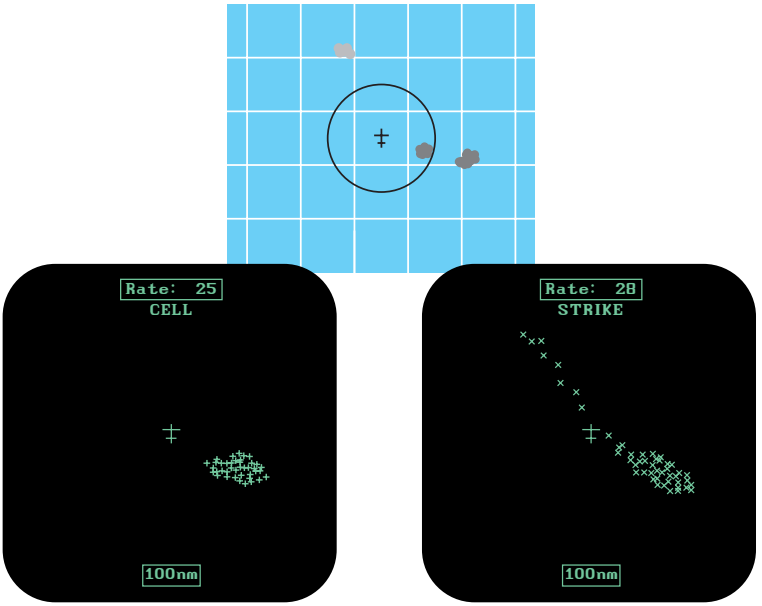

Figure 4-3. Range Changed to 100 nmi

Two Clusters within 200 nmi

Figure 4-4 illustrates the 360° weather view at the 200 nmi range. Using this knowledge, the two clusters of discharge points on the screen can be interpreted as one thunderstorm cell at 5:30, about 150 nmi from the aircraft, and another cell at 1:00, about 100 nmi from the aircraft. The cluster at 1:00 has less radial spread (in the strike display mode) and fewer discharge points than the cluster at 5:30, indicating a lower rate of electrical activity. Both clusters must be avoided.

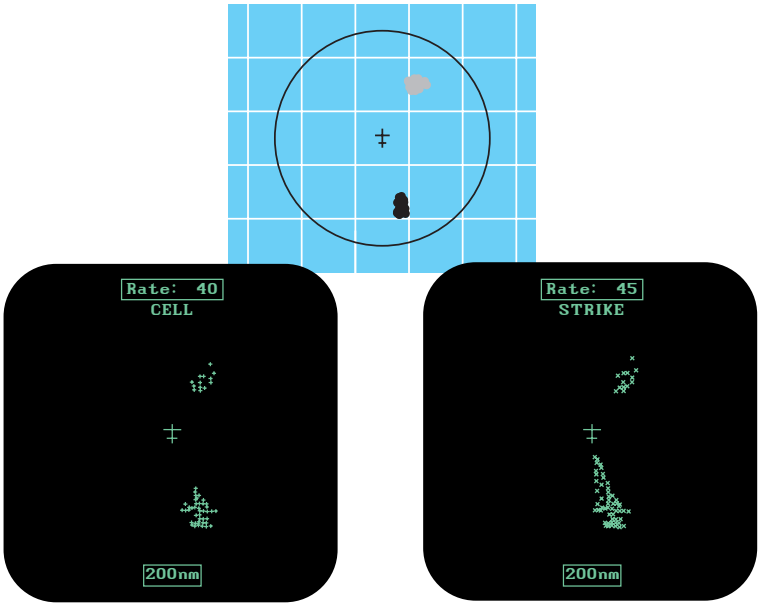

Figure 4-4. Two Clusters Within 200 nmi

Mapping Headings Past Thunderstorms

Figures 4-5 through 4-8 and the following paragraphs show the progression of an aircraft past several thunderstorms.

Range Set at 200 nmi

Figure 4-5 shows the 360° weather view at the 200 nmi range. Two thunderstorms appear almost as one cluster of discharge points off the nose of the aircraft, centered 180 nmi away. A second cluster at 9:30 indicates a storm system containing three thunderstorms.

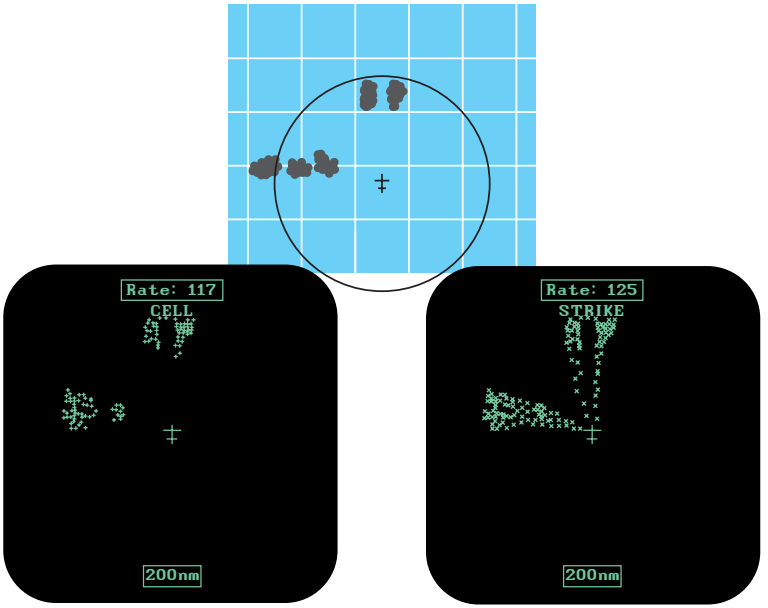

Figure 4-5. Range Set at 200 nmi

Aircraft Progresses 100 nmi

Figure 4-6 shows that the aircraft has maintained its heading and progressed 100 nmi. The two thunderstorms off the nose of the aircraft appear to have expanded horizontally on the screen. This effect is normal anytime you get close to a storm. The line of thunderstorms previously at 9:30 now appears at 8:30.

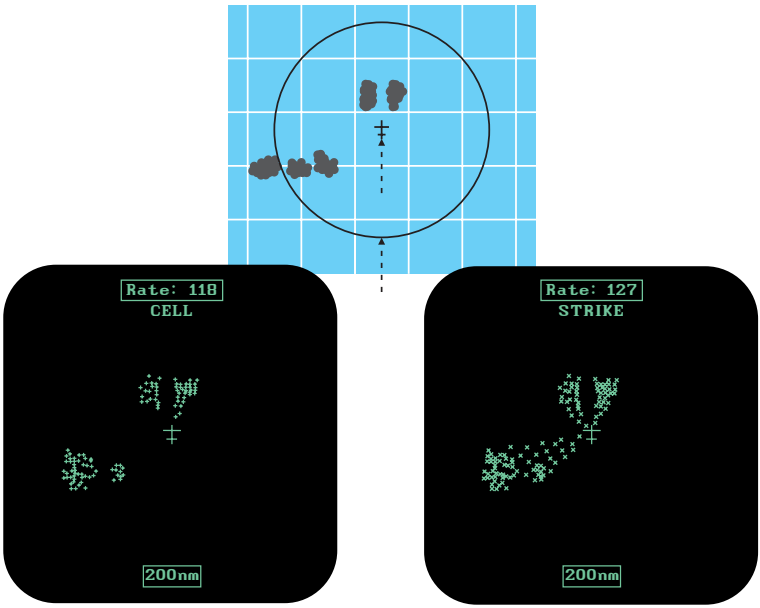

Figure 4-6. Aircraft Progresses 100 nmi

Range Changes to 100 nmi

Figure 4-7 shows the screen a short time later in the 120° weather view at the 100 nmi range. The thunderstorms at 8:30 are not visible in this view but the thunderstorms off the nose of the aircraft appear in greater detail as two separate thunderstorms (at 11:30 and 12:15 centered 90 nmi from the aircraft).

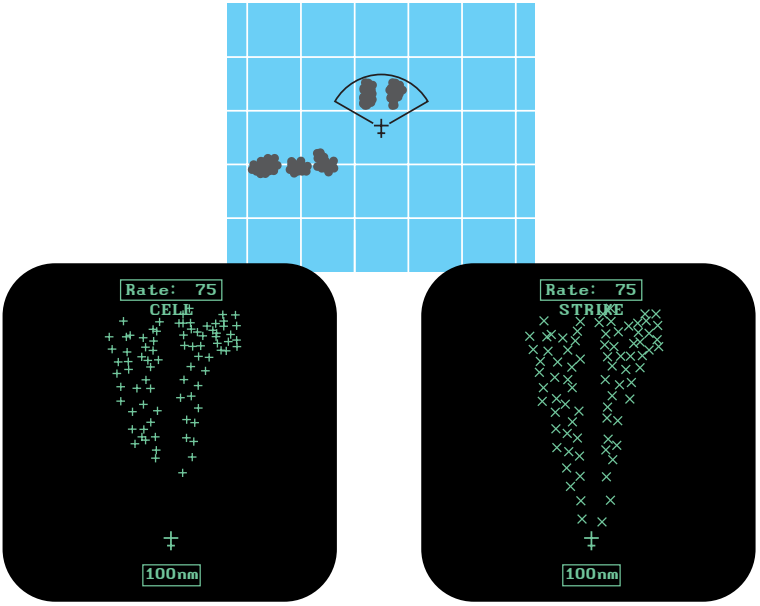

Figure 4-7. Range Changes to 100 nmi

Aircraft Turns to Avoid Thunderstorms

Figure 4-8 shows the screen a short time later after the aircraft has turned to the right to avoid the thunderstorms. When connected to a compatible heading system, the WX-500 automatically rotates new discharge points to their correct position relative to the new heading.

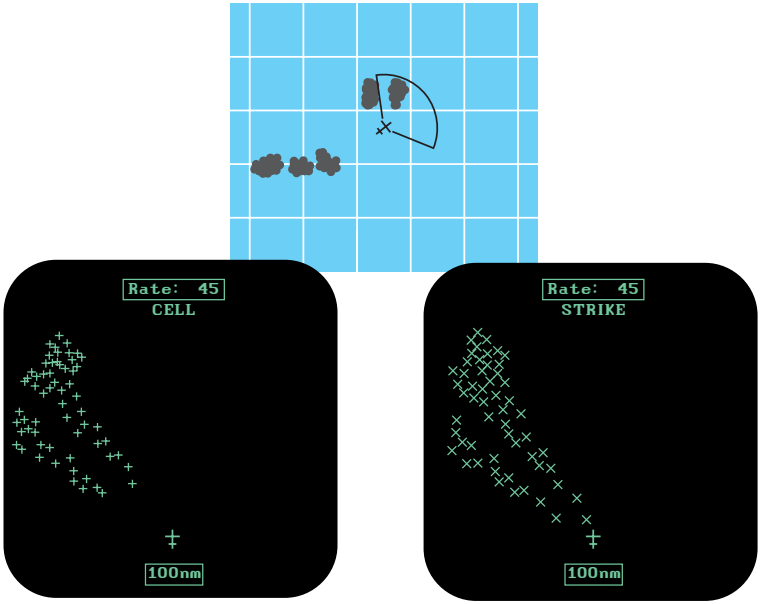

Figure 4-8. Aircraft Turns to Avoid Thunderstorms

Special Patterns

Randomly Scattered Discharge Points

Atmospheric instability associated with cumulus clouds, or developing or dissipating thunderstorms could cause randomly scattered discharge points as shown in figure 4-9. Random discharge points are more likely to appear in the strike display mode than in the cell display mode due to the cell display mode's clustering algorithm. If you observe random discharge points, continue to monitor the screen for developing clusters which indicate thunderstorm activity.

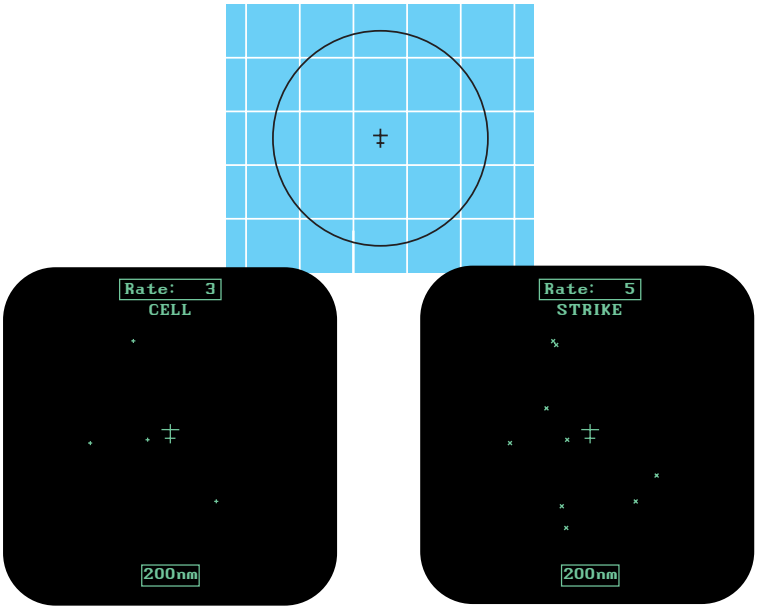

Figure 4-9. Randomly Scattered Discharge Points

Cluster & Splattering Within 25 nmi

Figure 4-10 shows the 360° weather view at the 25 nmi range. One moderately active thunderstorm appears as a cluster of discharge points at 8:30 centered 14 nmi away with a splattering of discharge points throughout the 25 nmi range. Such splattering is due to electrical discharges within 3 to 5 nmi of the aircraft and indicates that the aircraft is too close to the thunderstorm.

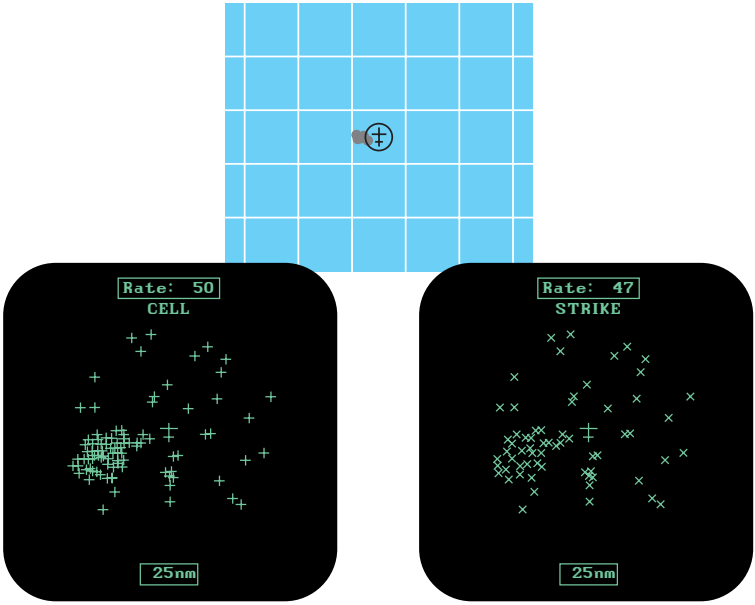

Figure 4-10. Cluster & Splattering Within 25 nmi

Continue to head away from the main cluster. While the main cluster should be your primary concern, you should also avoid any groups of discharge points within the 25 nmi range. Switch to the other ranges to ensure that there is no thunderstorm activity along your intended path.

You'll notice in figure 4-10 that the location of random, individual discharge points is about the same on both the cell and strike display modes. This is true because in the cell display mode, the WX-500 plots every electrical discharge detected within the 25 nmi range at the exact location detected unless the discharge is associated with a cluster of discharges, in which case the discharge point is clustered with the associated discharge points. You'll also notice that there are more points in the cluster of points at 8:30 in the cell display mode than there are in the strike display mode. This is due to the cell display mode's clustering algorithm "pulling in" individual discharge points associated with the cluster.

Discharge Points Off Aircraft's Nose

Figure 4-11 shows the 360° weather view at the 200 nmi range. The discharge points ahead of the aircraft could be caused by a strong thunderstorm just beyond the 200 nmi range. Another cause might be electrical discharge signals arriving via atmospheric skip from a distant thunderstorm well beyond the WX-500 range. In either case, no immediate action is required.

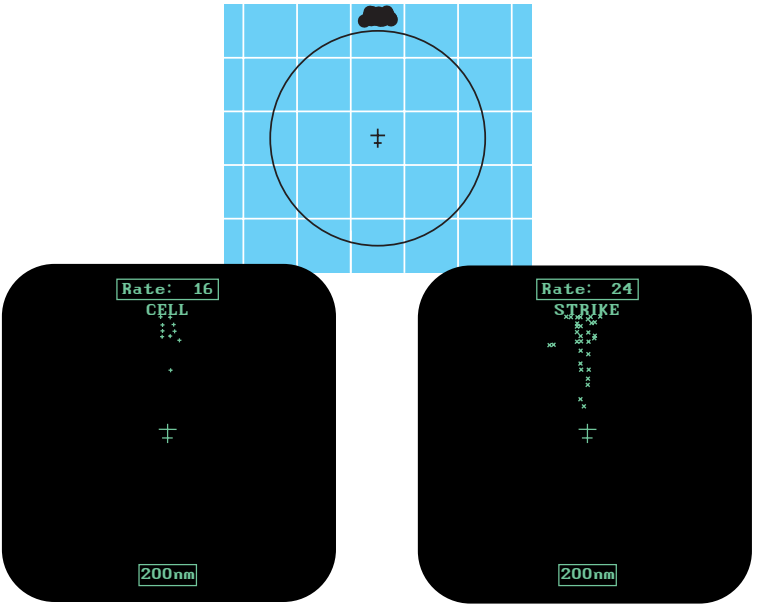

Figure 4-11. Discharge Points Off the Aircraft's Nose

Line of Discharge Points While Taxiing

Passing over a cable beneath the taxiway can cause a line of discharge points across the screen as shown in figure 4-12. Similar concentrations of discharge points across the screen may appear while taxiing due to electrical signals from nearby equipment such as arc welders or subway rails. After passing the source of the interference, clear the screen.

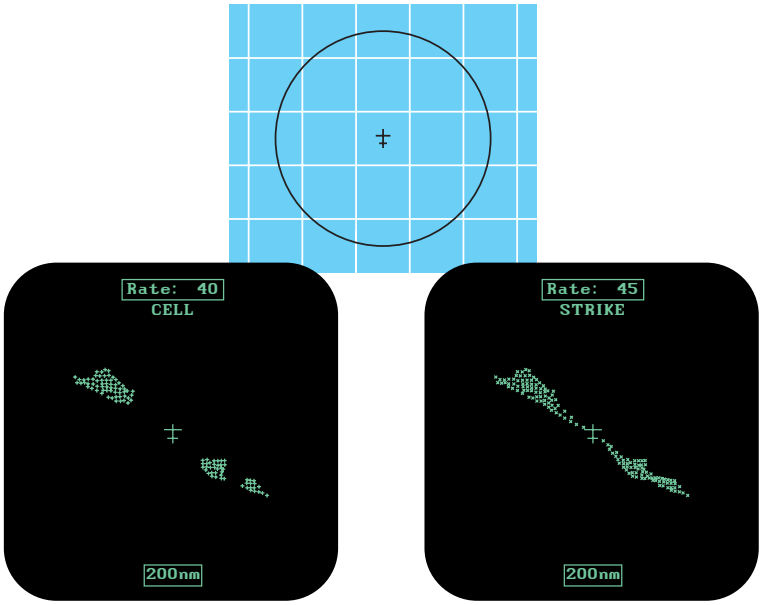

Figure 4-12. Line of Discharge Points While Taxiing

Developing Cluster Within 25 nmi

Figure 4-13 shows a developing thunderstorm 12 nmi from the aircraft. If you see a screen such as this with a developing cluster within 25 nmi, you should change course to avoid the storm and continue to monitor the *Stormscope* sensor information displayed on the MFD.

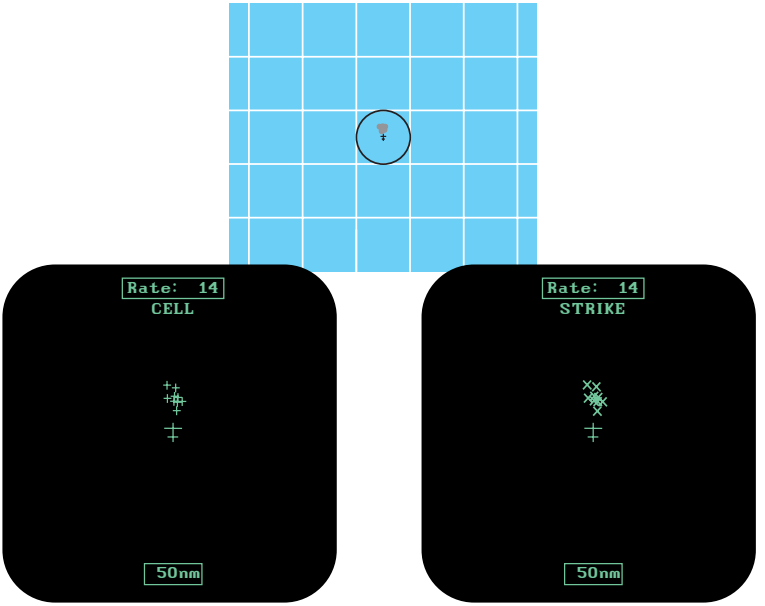

Figure 4-13. Developing Cluster Within 25 nmi

Chapter 5
Specifications

*Table 5-1. WX-500 Specifications**

Part Number Definition:

805-11500-001 – WX-500 processor
805-10930-001 – NY-163 antenna, white
805-10930-002 – NY-163 antenna, black

Features:

Cell or Strike mode
200 nmi range
Built-in self tests
Automatic heading stabilization
Microphone inhibit line
Integrity indicator

Size:

Processor (includes mounting tray and pull handle):
5.6 in (14.22 cm) high
2.2 in (5.59 cm) wide
12.0 in (20.48 cm) deep

Antenna:
1.00 in (2.54 cm) high
3.45 in (8.76 cm) wide
6.85 in (17.40 cm) long

Weight:

Processor:
2.5 lb (1.13 kg)

Antenna:
0.84 lb (0.38 kg) without doubler plate

Operating Altitude:

55,000 ft max

(Continues on next page)

*Specifications subject to change without notice.

Table 5-1. WX-500 Specifications (Continued)*

Electrical Characteristics:

Input voltage:
11 to 32 V dc
Current:
0.82 A max @ 12 V dc
0.38 A max @ 28 V dc

RTCA Compliance:

Processor Environmental:
DO-160C: F2-BA(NBM)XXXXXXZ(AB)ABZTZAZEZXX
Processor Software:
DO-178B Level D
Antenna:
DO-160C: F2-AC(YCLM)XSFXXXXXXXZXZXXE3XX

TSO Compliance:

Processor:
TSO-C110a
Antenna:
TSO-C110a & JTSO-C110a

*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 _____

Processor:

Model Number _____

Part Number _____

Serial Number _____

Mod Letter _____

Firmware Version _____

Antenna:

Model Number _____

Part Number _____

Serial Number _____

Mod Letter _____

NOTE

To ensure that a new or repaired WX-500 meets the TSO, meets foreign government certification requirements, and meets L-3 Avionics Systems performance standards, your WX-500 must be installed and tested by an L-3 Avionics Systems-authorized Stormscope dealer.

communications

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Stormscope® WX-500