

INSTALLATION MANUAL
RDR-1400C COLORVISION WEATHER RADAR SYSTEM

8. Flight Check

NOTE: Vertical gyro precession may be experienced during take-off or during prolonged aircraft maneuvers. Antenna stabilization may therefore suffer a 3° to 5° error for as long as five minutes after the maneuver.

A. Check Test Pattern

Rotate the function switch to TEST. Set the range to 80 miles. Adjust the brightness (BRT) control as necessary to evaluate the test pattern (see figure 1-2 in PART 1). Basically, check that update is occurring and that the five colored bands are correct.

B. Check and Adjust Antenna Stabilization.

NOTE: The pitch and roll output levels from the vertical gyro are governed by the 115 volt, 400 Hz excitation, the linearity of the gyro, plus the ability of the gyro to follow the motion of the aircraft. The accuracy contributed by the antenna is its ability to respond to the gyro outputs. As a result of these factors, the stabilization system accuracy can vary up to +10% of the pitch or roll angle of the aircraft. This accuracy can be tested in flight by performing the following procedure.

- (1) Fly to a convenient altitude above 10,000 feet.
- (2) Set range on radar indicator to 80 miles or 40-mile range for 12-inch antennas. Set the mode to SRCH 3.
- (3) Rotate the function switch to STAB OFF position on radar indicator to remove antenna stabilization.
- (4) While flying level (0° pitch, 0° roll), adjust the TILT control on the radar indicator to obtain the video pattern shown in figure 1-2, then note TILT control setting. The terrain band should be displayed about the third range mark.

If the inner ring of video is not parallel to the range mark, the error is caused by mechanical displacement of the antenna about the roll axis of the aircraft. Use TILT control to determine exact error. Correction on the ground, if necessary, must be performed prior to further in-flight calibration.

- (5) Rotate the function switch to the ON position to restore stabilization.
- (6) The pattern observed in step (4) should not change. If the pattern shifts as in figure 1-3 or figure 1-4, it will be necessary to ground-check leveling of the gyro and accuracy of the horizon indicator. Use TILT control to find exact error.

8.B.

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- (7) Roll the aircraft 20° right. For perfect stabilization, the terrain band shown in figure 1-2 should not shift.
- (8) In step (7), if the terrain band shifts as shown in figure 1-3, increase the tilt angle, by means of the TILT control on the radar indicator, until the pattern is similar to figure 1-2. Note the new position of the TILT control. It should not be more than two degrees above that noted in step (4).
- (9) In step (7), if the terrain band shifts as shown in figure 1-4, decrease the tilt angle (using the TILT control) until the pattern is similar to figure 1-2. Note the new position of the TILT control. It should not be more than two degrees below that noted in step (4).
- (10) If the differences between steps (8) and (4) or steps (9) and (4) are greater than two degrees, recalibrate the roll stabilization circuitry to the gyro using the following procedure:
 - (a) Reset the TILT control under the flight conditions of step (4) with stab on. Then roll the aircraft 20° right.
 - (b) If the pattern shifts per figure 1-3, slowly adjust the ROLL TRIM potentiometer until the terrain band display is as shown in figure 1-2. Usually a clockwise adjustment is required.
 - (c) If the pattern shifts per figure 1-4, slowly adjust the ROLL TRIM potentiometer until the terrain band display is as shown in figure 1-2. Usually a counterclockwise adjustment is required.
- (11) If the pattern shifts per figure 1-5, there is no roll stabilization and the system should be ground-checked per the post-installation tests of this manual, paragraph 6.D. "Antenna Stabilization Check".

C. Check Weather Alert Mode

- (1) With the indicator turned ON, adjust the TILT control to obtain a strong red level ground return.
- (2) Select the WxA mode.
- (3) Observe that the red area flashes on and off approximately once per second.
- (4) Return the tilt control to the normal position.

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D. Check Target Alert

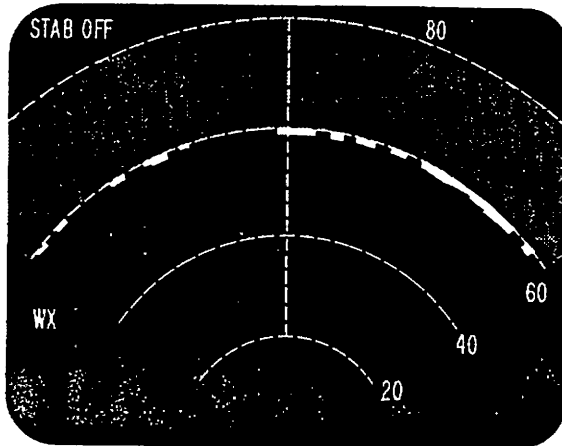
- (1) Set the indicator to the WxA mode.
- (2) Locate a distant red level storm or adjust the TILT control down until a red level ground return appears near the outer edge.
- (3) Reduce the range until the red level return is off the screen, but not more than 25 miles beyond the selected range.
- (4) Observe that the word TGT ALRT flashes in the upper left corner of the display.
- (5) Return the TILT control to the normal position.

E. This completes the in-flight checkout procedures; however, refer to the Pilot's Familiarization Handbook for additional details relating to operation of the RDR-1400C Colorvision Weather Radar System.

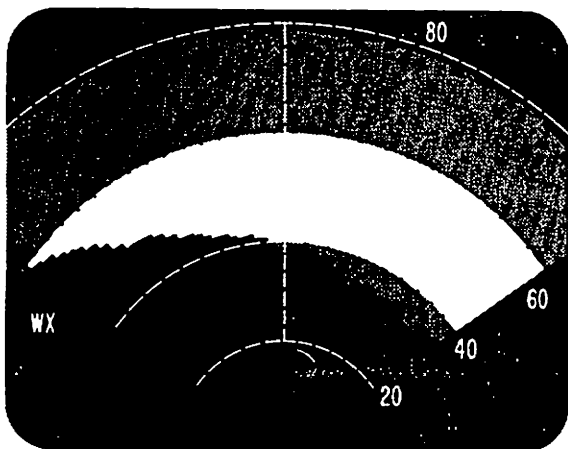
8.E.

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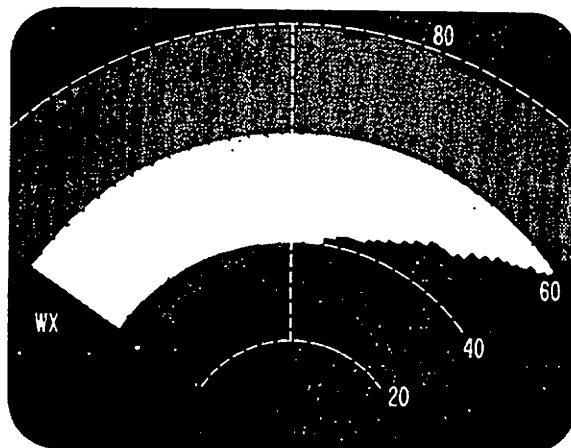
NOTE:
DRAWING FOR SHOWING
DISPLACEMENT ONLY.
ACTUAL COLORS MAY OR
MAY NOT CORRESPOND
TO GRAY BANDS



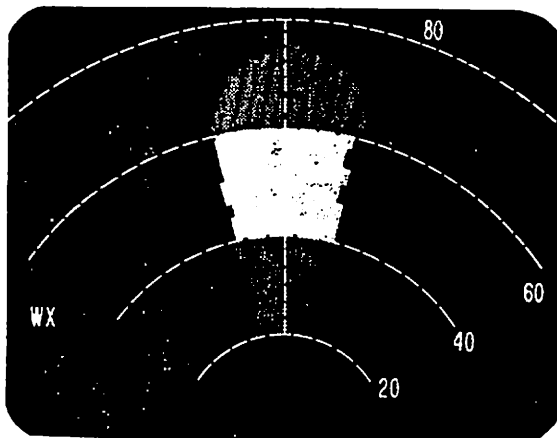
Video Pattern, Level Flight,
Antenna Mounting Reference and Stab Satisfactory
Figure 1-2



Video Pattern, With Stab Error
Figure 1-3



Video Pattern, With Stab Error
Figure 1-4



Video Pattern, No Stabilization
Figure 1-5