

## **BASIC DIGITAL FLIGHT INSTRUMENT, KIT FLIGHT MANUAL SUPPLEMENT MODELS: BELL 212**

Sections 1, 2, 3 & 4 of this document comprise the Approved Flight Manual Supplement. Compliance with Section 1, Limitations is mandatory. Section 5 is Unapproved and is provided for information only.

The information within this document supplements or supersedes the approved Basic Flight Manual for the Bell 212 Helicopter in the areas specified herein. For limitations, procedures and performance not contained in this document refer to the Approved Flight Manual and other applicable Approved Flight Manual Supplements.

This document shall be attached to the approved Basic Flight Manual with subject design change incorporated in accordance with Alpine Aerotech LP Master Data List AAL-280-044-001, Revision NI or later approved revisions.

	Transport Canada	Transports Canada
AIRCRAFT CERTIFICATION DIVISION		
<b>APPROVED</b>		
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## Table of Contents

<u>DESCRIPTION</u>	<u>PAGE</u>
General	3
Section 1, Limitations	4
Section 2, Normal Procedures	4
Section 3, Emergency & Malfunction Procedures	4
Section 4, Performance	4
Section 5, System Information	5
Heading Indicator	5
Attitude Indicator	7

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## **GENERAL**

The AAL Basic Digital Flight Instrument, Kit is allows for the replacement of the OEM manufacturer's attitude and heading instruments with standalone digital instruments. Three different configurations are available: pilot (RHS) only instrumentation, co-pilot (LHS) only instrumentation and combined pilot and co-pilot instrumentation.

## **Notes**

1. If changes to this document are required, Alpine Aerotech LP shall revise all pages and reissue the entire document.
2. Alpine Aerotech LP shall make any subsequent revisions of this document available upon request.

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## **SECTION 1    LIMITATIONS**

### Types of Operation

1. Limited to day and night VFR use.

## **SECTION 2    NORMAL PROCEDURES**

1. No change to the approved Basic Flight Manual.

<b>CAUTION</b>
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**Do not press and hold both “DIM” buttons simultaneously for 10 seconds as this will put the heading indicator into Magnetic Calibration Mode. Reference Section 5.**

## **SECTION 3    EMERGENCY & MALFUNCTION PROCEDURES**

1. If any of the instruments displays a prominent red “X” across the screen for any reason and it does not re-set itself within 3 minutes then consider the instrument unserviceable.
2. In a low voltage situation the instruments will display a “Low Voltage” warning notice near the bottom of the display. This warning will appear when voltage drops below 11 volts. At 8.5 volts a red “X” will appear across the screen indicating that the instrument is unserviceable.

## **SECTION 4    PERFORMANCE**

1. No change to the approved Basic Flight Manual.

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## **SECTION 5    SYSTEM INFORMATION**

### **Heading Indicator**

#### 1. START UP

On power-up, heading indicator will display a blue self-test, screen followed by a prominent red “X” across the face of the display. Once the “X” has disappeared the instrument has completed its startup procedure. The red “X” should not be displayed for more than three minutes.

#### 2. DIMMER

The heading indicator has brightness adjustments that can be adjusted in flight. On start-up, the instrument defaults to maximum brightness. The brightness controls are located at the top of the instrument and have an “up” (▲) arrow next to the button that increases brightness and a “down” (▼) arrow next to the button that reduces brightness. Reference Figure 1. Quickly pressing both buttons simultaneously will return the display to its maximum brightness.

**CAUTION**

**Pressing and holding both “DIM” buttons simultaneously for 10 seconds will put the heading indicator into Magnetic Calibration Mode. Reference paragraph 4, “Magnetic Calibration”.**

#### 3. MAG MODE / NO GPS MODE

On the heading instrument, the “MAG MODE” and “NO GPS MODE” indicators will be lit on start-up. The “MAG MODE” indicator signifies that the instrument does not have a GPS signal and is operating as a magnetic heading indicator. The “MAG MODE” indicator will stay lit until the instrument is able to acquire a GPS signal and/or the aircraft reaches a speed exceeding ten knots at which time the GPS input will become active. In the event the heading indicator loses GPS signal in flight, the “NO GPS” indicator will illuminate. The instrument will continue to work as a magnetic heading instrument and no special intervention is required on the part of the flight crew.

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#### 4. MAGNETIC CALIBRATION

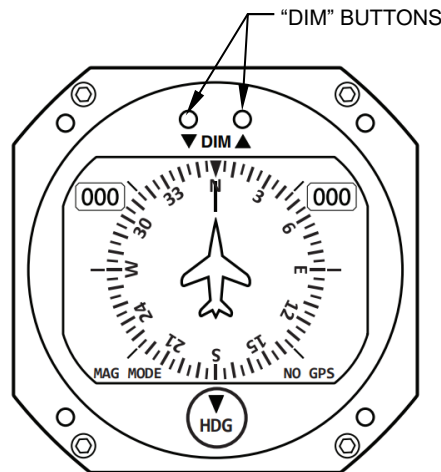
Magnetic calibration is a maintenance function and should not be performed by the flight crew. Inadvertently putting the Heading Indicator into magnetic calibration mode will render the instrument temporarily unserviceable, take the following steps to restore function:

- i. Immediately cycle power to the affected Heading Indicator by means of the circuit breaker located on the overhead breaker panel.
- ii. Allow the instrument to restart and transition through its startup procedure. The instrument will revert back to its prior saved magnetic data.

#### 5. EXTREME MANEUVERS

Extreme control inputs may cause the heading and attitude indicators to become temporarily disabled. This is indicated by a prominent red “X” displayed across the screens and an “Exceed Acc (acceleration) Limit” warning notice on the heading indicator and an “Exceed Bank Angle” warning notice on the attitude indicator. The instruments should automatically reset their respective displays in three to ten seconds after conclusion of the hard maneuver. This information is provided for reference only as the ability of the instruments to respond to extreme maneuvers is beyond the abilities of the aircraft as described in the Basic Flight Manual. The instruments will operate in a full 360° pitch & roll, and 360° of turn.

In the unlikely event that the instruments do not reset themselves after displaying “Exceed Acc (acceleration) Limit” or “Exceed Bank Angle” warnings, reset them manually by cycling power to the instruments via the circuit breakers located on the overhead breaker panel. This will cause the instruments to reboot and go through the standard start-up routine. You do not need to be in level flight while the instruments re-start. If the instruments fail to re-start, land the aircraft using visual reference at the first safe opportunity.



**Figure 1**  
 Heading Indicator shown

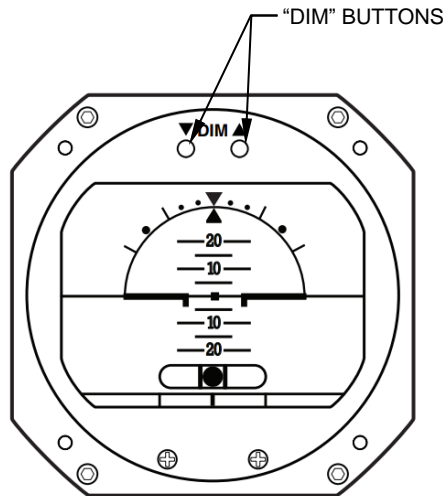
**Attitude Indicator**

1. START UP

On power-up, the attitude indicator will display a blue self-test, screen followed by a prominent red “X” across the face of the display. Once the “X” has disappeared the instrument has completed its startup procedure. The red “X” should not be displayed for more than three minutes.

2. DIMMER

The attitude indicator has brightness adjustments that can be adjusted in flight. On start-up, the instrument defaults to maximum brightness. The brightness controls are located at the top of the instrument and have an “up” (▲) arrow next to the button that increases brightness and a “down” (▼) arrow next to the button that reduces brightness. Reference Figure 2. Pressing both buttons simultaneously will return the display to its maximum brightness.



**Figure 2**  
Attitude Indicator shown