Weight and Balance Change
and
Equipment List Revision

A/C Registration Number: N149UD
A/C Serial Number: 17281185
A/C Make: Cessna
A/C Model: 172R
A/C Year: 2003
WB Date: 17-Apr-07

Previous data taken from document dated: 21-Jan-04

Description of work: W/B updated to utilize max ramp weight in lieu of max take off weight.

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>ARM</th>
<th>MOMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous data: 21-Jan-04</td>
<td>1691.00</td>
<td>40.91</td>
</tr>
<tr>
<td>Items removed:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Items installed:</td>
<td>1691.00</td>
<td></td>
</tr>
</tbody>
</table>

Aircraft gross weight: 2457.0 Maximum Ramp Weight (Max take off weight 2450.0)
New A/C empty weight: 1691.00
New A/C empty weight CG: 40.91
New A/C useful load: 766.00

AP: James S. Jenkins AP3015266
Weight And Balance Change
and
Equipment List Revision

DATE: 1 / 21 / 2004

A/C Make: Cessna
Year: 2003
Model: 172R
Serial No.: 17281185
Registration: N149UD
Revises W & B Dated: 11/25/2003

OWNER: University of Dubuque

DESCRIPTION OF WORK: Installed Tanis Heater

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>ARM</th>
<th>MOMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1689.9</td>
<td>40.946</td>
<td>69194.645</td>
</tr>
</tbody>
</table>

Previous A/C Empty Weight

ITEMS REMOVED

ITEMS INSTALLED
Tanis Heater Kit P/N TSA-100-02

<table>
<thead>
<tr>
<th>ITEM INSTALLED</th>
<th>WEIGHT</th>
<th>ARM</th>
<th>MOMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanis Heater Kit P/N TSA-100-02</td>
<td>1.1</td>
<td>-18.6</td>
<td>-20.46</td>
</tr>
</tbody>
</table>

1691

<table>
<thead>
<tr>
<th>AIRCRAFT GROSS WGT.</th>
<th>Max Ramp WT 2457.0</th>
<th>Max T/O WT 2450.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW A/C EMPTY WGT.</td>
<td>1691</td>
<td></td>
</tr>
<tr>
<td>NEW A/C E.W.C.G.</td>
<td>40.907</td>
<td></td>
</tr>
<tr>
<td>NEW A/C USEFUL LOAD.</td>
<td>759</td>
<td></td>
</tr>
</tbody>
</table>

FAA REPAIR STATION: #D2FR184J
INSPECTOR: [Signature]
W/O NUMBER: [Blank]
# Weight And Balance Change and Equipment List Revision

**DATE:** 11 / 25 / 2003  
**A/C Make:** Cessna  
**Year:** 2003  
**Model:** 172R  
**Serial No.:** 17281185  
**Registration:** N149UD  
**Revises W & B Dated:** 7/24/2003

**DESCRIPTION OF WORK:** Installed Winterization Kit

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>ARM</th>
<th>MOMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1689.1</td>
<td>40.964</td>
<td>69193</td>
</tr>
</tbody>
</table>

**Previous A/C Empty Weight**

**ITEMS REMOVED**

**ITEMS INSTALLED**

- Winterization Kit PN AK 172-16N  
  - Weight: .8  
  - ARM: -22.7  
  - Moment: -18.16

**AIRCRAFT GROSS WGT.:** Max Ramp WT 2457.0 Max T/O Wt 2450.0

**NEW A/C EMPTY WGT.:** 1689.9

**NEW A/C E.W.C.G.:** 40.946

**NEW A/C USEFUL LOAD.:** 767.1

**FAA REPAIR STATION:** D2FR184J  
**INSPECTOR:**  
**W/O NUMBER:** 69738
## WEIGHT & BALANCE AND INSTALLED EQUIPMENT DATA

**CESSNA AIRCRAFT COMPANY**  
**SINGLE ENGINE DIVISION**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>SERIAL &amp; REGISTRATION</th>
<th>WEIGHT</th>
<th>ARM</th>
<th>MOMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>172R</td>
<td>17281185 N125SH</td>
<td>1,858.7</td>
<td>40.555</td>
<td>67,187</td>
</tr>
</tbody>
</table>

**INSTALLATION EQUIPMENT**

<table>
<thead>
<tr>
<th>Item</th>
<th>Change (lbs)</th>
<th>Change (in)</th>
<th>Change (lb-in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALTIMETER WITH 20 FT MARKING, DUAL WINDOW, 20000 FT</td>
<td>0.0</td>
<td>0.000</td>
<td>0</td>
</tr>
<tr>
<td>BASIC AVIONICS ITEMS, USED W/1ST NAV/COM</td>
<td>0.0</td>
<td>0.000</td>
<td>0</td>
</tr>
<tr>
<td>C/B PNL EXCHANGE</td>
<td>0.2</td>
<td>16.500</td>
<td>3</td>
</tr>
<tr>
<td>DIRECTIONAL GYRO EXCHANGE</td>
<td>0.5</td>
<td>14.000</td>
<td>7</td>
</tr>
<tr>
<td>DUAL AXIS AUTOPILOT</td>
<td>19.7</td>
<td>91.200</td>
<td>1,797</td>
</tr>
<tr>
<td>DUAL PUMP, ENGINE DRIVEN VACUUM SYSTEM</td>
<td>0.0</td>
<td>0.000</td>
<td>0</td>
</tr>
<tr>
<td>EMERGENCY LOCATOR TRANSMITTER INSTL</td>
<td>0.0</td>
<td>0.000</td>
<td>0</td>
</tr>
<tr>
<td>ENGINE, LYCOMING IO-360-L2A</td>
<td>0.0</td>
<td>0.000</td>
<td>0</td>
</tr>
<tr>
<td>GYRO INSTALLATION</td>
<td>0.0</td>
<td>0.000</td>
<td>0</td>
</tr>
<tr>
<td>KLN 94 GPS INSTALLATION</td>
<td>6.8</td>
<td>15.000</td>
<td>72</td>
</tr>
<tr>
<td>KMA 28 AUDIO/INTERCOM/MARKER BEACON INSTL</td>
<td>0.0</td>
<td>0.000</td>
<td>0</td>
</tr>
<tr>
<td>KT 76C MODE C TRANSPONDER INSTL</td>
<td>0.0</td>
<td>0.000</td>
<td>0</td>
</tr>
<tr>
<td>KX 155A NAV/COM #1 INSTALLATION - NO G.S</td>
<td>0.0</td>
<td>0.000</td>
<td>0</td>
</tr>
<tr>
<td>KX 155A NAV/COM #2 INSTALLATION W/G.S.</td>
<td>6.8</td>
<td>17.300</td>
<td>-118</td>
</tr>
<tr>
<td>MD41-231 GPS/NAV SELECTOR</td>
<td>0.2</td>
<td>16.500</td>
<td>3</td>
</tr>
<tr>
<td>PILOT CONTROL WHEEL EXCHANGE</td>
<td>0.2</td>
<td>26.000</td>
<td>5</td>
</tr>
<tr>
<td>PROPELLER ASSY, MCCAULEY, FIXED PITCH, 1C235/LFA7570</td>
<td>0.0</td>
<td>0.000</td>
<td>0</td>
</tr>
<tr>
<td>VINYL/FABRIC SEATS</td>
<td>0.0</td>
<td>0.000</td>
<td>0</td>
</tr>
</tbody>
</table>

The weight and balance data shown in this report are computed on the basis of Federal Aviation Administration approved procedures for establishing fleet weight averages. [Far 21.327(f)(2)]

| BASIC EMPTY WEIGHT       | 1,689.1      | 40.964      | 69,193       |
| USEFUL LOAD              | 767.9        |             |              |
| MAXIMUM RAMP WEIGHT      | 2,457.0      |             |              |
| MAXIMUM TAKE-OFF WEIGHT  | 2,450.0      |             |              |

Revised 26 Feb. 2001

This list contains all installed optional equipment and avionics. All weights and arms are the installed difference from a standard equipped aircraft. For a detailed list of aircraft equipment weight and balance data, please refer to the comprehensive equipment list in the pilots operating handbook.

Numerical values shown may be rounded from actual values. Therefore, the product of weight times arm may not equal the listed moment.
<table>
<thead>
<tr>
<th>Unit Number</th>
<th>Part Number</th>
<th>Description</th>
<th>Qty</th>
<th>Serial Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>KC 0140</td>
<td>065-00176-7904</td>
<td>FLT CMPTR-2 AX W/ALTPRE/MSG RS</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>KCM0100</td>
<td>071-00073-5000</td>
<td>CONFIGURATION MODULE</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>KLN0094</td>
<td>069-01034-0102</td>
<td>KLN94 COLOR GPS ROLL STEERING</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>KLN0094</td>
<td>071-00163-0103</td>
<td>KLN94 AMERICAS DATABASE CARD</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>KMA0028</td>
<td>066-01176-0101</td>
<td>AUDIO MRK/INTERCOM/STEREO/SPLIT</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>KT 0076C</td>
<td>066-01156-0101</td>
<td>XPDR ATCRBS DIGITAL SC PLUS</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>KX 0155A</td>
<td>069-01032-0101</td>
<td>NAV/COM 25KHZ 28V GS</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>KX 0155A</td>
<td>069-01032-0201</td>
<td>NAV/COM 25KHZ 28V (NO G/S)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Received by

Date ___________________________  Time ______________
PURPOSE:
To provide pre-installation functional testing.

EQUIPMENT:
- 28 ±1.0 VDC power supply (ref. 1.0 Amp or greater) with regulated and filtered output.
- Rate table capable of controlled rotation about a vertical axis 0° to 480° per minute minimum.
- Vertical mounting bracket for standard 3-1/8 inch panel mount instrument.
- Inclinometer Roll Tester T-128.
- Inclinometer Tilt Fixture T-128-1.
- Voltmeter accurate to within 0.8%, suggest Fluke 87 or equivalent.
- Wiring hookup cables with 100K ohm load resistor across pins C & D and connectors as required.

PROCEDURES:
Visually inspect the appearance of the glass and case, giving special attention to the clearance between the pointer and dial, and the condition and color of the dial paint. All tests shall be made at normal room temperature. Before performing Null, Damping and Turn Tests, mount the unit in the normal flight position, level with the top mounting screw holes, face vertical. During all tests, the unit may be subjected to moderate vibration per CES-1210K to minimize friction.

1. POWER FLAG: Switches from RED to BLACK within 2 minutes of startup and returns to RED within 10 seconds after power is removed.

2. INSTRUMENT LIGHTING: Apply 28 ±1.0 Volt to light tray connector contacts. Check that both bulbs are lighted.

3. TACH OUTPUT: After red flag is out of view, tachometer output on pin E is positive with respect to pin B (+9.0 VDC minimum).

4. INCLINOMETER TEST:
   A) Tilt the unit suddenly from 12° bank through level to 12° opposite bank using Tilt Fixture T-128-1. The inclinometer ball should roll from one end to the other in not less than 0.2 seconds.
   B) Roll the unit at a rate of 135° to 145° per minute to cause the inclinometer ball to roll from one end to the other, using Inclinometer Roll Tester T-128. There shall be no evidence of the inclinometer ball sticking.

5. NULL TEST:
   A) Let gyro run for 3 to 5 minutes. Check that electrical output on pins C and D is less than ±0.050 VDC.
   B) Difference of null from testing (CW, CCW) must not exceed 0.040 VDC.

6. DAMPING: From maximum pointer deflection, after crossing 180°/min. indice, pointer moves halfway back to 0° indice in 1.5 to 3 seconds.

7. TURN TESTS: Test clockwise and counterclockwise. Right turn (clockwise) indicates a positive voltage. Left turn (counterclockwise) indicates a negative voltage.

<table>
<thead>
<tr>
<th>Turn Table (Deg./Min.)</th>
<th>Pointer Deflection (Left &amp; Right)</th>
<th>Output Voltages</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°</td>
<td>Within zero marks</td>
<td>±0.050 Max</td>
</tr>
<tr>
<td>90°</td>
<td>Halfway to 180°</td>
<td>±0.40 to 0.70 VDC</td>
</tr>
<tr>
<td>180°</td>
<td>Within 180° marks</td>
<td>±0.90 to 1.30 VDC</td>
</tr>
<tr>
<td>480° minimum</td>
<td>Beyond 180° marks</td>
<td>±1.6 VDC Min</td>
</tr>
</tbody>
</table>

This instrument has been tested and has been found to conform to applicable specifications.

Acceptance Stamp [M 5] Date 6/10/2003 S/N 2207-31

Note 1: Measurements such as dimension, temperature, voltage, time, etc. are to be accurate within ±5% unless otherwise specified.
Note 2: This document may not be revised without approval from Cessna Engineering.
Bill To:
82385 CESSNA AIRCRAFT CO. (KS)
ACCOUNTS PAYABLE/DEPT 824
P.O. BOX 12917
WICHITA, KS 67277

SUPPLIER CITY
C/O CORNERSTONE WAREHOUSING
2147 ENTERPRISE DRIVE
INDEPENDENCE, KS 67301

CS NEW MANUFACTURE

Payment Terms
NET 30 DAYS

Sales Rep # 1
Cust PO
SE137289

<table>
<thead>
<tr>
<th>Line</th>
<th>Qty.</th>
<th>U/M</th>
<th>Part Number</th>
<th>Description</th>
<th>Scheduled Qty.</th>
<th>Ship Date</th>
<th>Shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>59</td>
<td>19</td>
<td>EA</td>
<td>10262-042-2</td>
<td>DIRECTIONAL Gyro A/P LTD</td>
<td>04/30/03</td>
<td>04/30/03</td>
<td>19</td>
</tr>
</tbody>
</table>

T66886G, T66887G, T66888G, T66889G, T66890G,
T66891G, T66892G, T66893G, T66894G

CESSNA P/N: S3330-2
(DATE FUNCTIONALLY TESTED: 04/29/03)

CERTIFICATE OF CONFORMANCE

"I hereby certify that the supplies or services listed herein were shipped as shown above in quantities and the quality called for in the above cited contract and were in all respects in accordance with applicable specifications."

Unless otherwise stated herein, the items listed are new and are manufactured by Sigma Tek, Inc.

[Signature]
Quality Assurance Manager

SHIPPED
APR 30 2003

CUSTOMER
<table>
<thead>
<tr>
<th>Line</th>
<th>Qty. U/M</th>
<th>Part Number</th>
<th>Description</th>
<th>Supplier City</th>
<th>C/O</th>
<th>Cornerstone Warehousing</th>
<th>Date Functionally Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>10</td>
<td>EA5175-17TTL-CHS</td>
<td>Airspeed</td>
<td>Independence, KS</td>
<td>2147 Enterprise Drive, IN</td>
<td>04/27/03</td>
<td></td>
</tr>
</tbody>
</table>

**Bill of Lading**

- **Number**: 04/23/03
- **Ship To**: Cessna Aircraft Co. (KS)
- **P.O. Box**: 12917
- **City**: Wichita, KS 67277
- **F.O.B.**: P.O. Box 12917

**Payment Terms**

- **Terms**: Net 30 Days

**Certificate of Conformance**

"I hereby certify that the supplies or services listed herein are shipped as shown above in quantities and the quality were in all respects in accordance with applicable specifications. Unless otherwise stated herein, the items listed are new and are manufactured by"
UNIVERSITY OF DUBUQUE
2000 UNIVERSITY AVE
DUBUQUE IA 52001-5050

To: UNIVERSITY OF DUBUQUE
2000 UNIVERSITY AVE
DUBUQUE IA 52001-5050

This certificate must be in the aircraft when operated.

This certificate is issued for registration purposes only and is not a certificate of title. The Federal Aviation Administration does not determine the rights of ownership or interest between private parties.

Issued for registration purposes only and is not a certificate of title. The Federal Aviation Administration does not determine the rights of ownership or interest between private parties.

U.S. Department of Transportation
Federal Aviation Administration

AC Form 8050-3(10/2003) Superseded previous editions

Date of Issue October 15, 2003

[Signature]

[Name]

[Title]

[Administrator]
**STANDARD AIRWORTHINESS CERTIFICATE**

<table>
<thead>
<tr>
<th>1 NATIONALITY AND REGISTRATION MARKS</th>
<th>2 MANUFACTURER AND MODEL</th>
<th>3 AIRCRAFT SERIAL NUMBER</th>
<th>4 CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>N149UD</td>
<td>CESSNA 172R</td>
<td>17281185</td>
<td>NORMAL/UTILITY</td>
</tr>
</tbody>
</table>

**AUTHORITY AND BASIS FOR ISSUANCE**

This airworthiness certificate is issued pursuant to the Federal Aviation Act of 1958 and certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to conform to the type certificate therefor, to be in condition for safe operation, and has been shown to meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 6 to the Convention on International Civil Aviation, except as noted herein.

Exceptions:

NONE

**TERMS AND CONDITIONS**

Unless sooner surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator, this airworthiness certificate is effective as long as the maintenance, preventative maintenance, and alterations are performed in accordance with Parts 21, 43, and 91 of the Federal Aviation Regulations, as appropriate, and the aircraft is registered in the United States.

**DATE OF ISSUANCE**

R-8/21/2003

**FAA REPRESENTATIVE**

THOMAS E. WEAVERMAN

**DESIGNATION NUMBER**

CE-01

Any alteration, reproduction, or misuse of this certificate may be punishable by a fine not exceeding $1,000, or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.