

ATTACHMENT 9

KI 256 Flight Command Indicator Test Data Sheets

6.2.3.3

FINAL TEST DATA SHEET

for

KI 256 units P/N 060-0017-00 and -01
 KG 258 units P/N 060-0020-01 through -12

For use with the Section 6.2.3.2 Final Test Procedure.

A. Leak Test

With vacuum of 5.0 ± 0.2 inches Hg < 0.15 CFM or < 9 CFH (OK) ✓

B. Air consumption, Settling, and Static Stability Test (Optional)

With vacuum or air pressure of 4.75 ± 0.25 inches Hg $1.25 \pm .25$ CFM or 60 to 90 CFH (OK) ✓Visual null after 3 min. of operation: Roll $\leq 1 \frac{1}{2}^\circ$ 1 Pitch $\leq 1 \frac{1}{2}^\circ$ 2After 5 min. of operation: Roll $\leq 1^\circ$ 1 Pitch $\leq 1^\circ$ 2

Roll indication after 30 minutes on Scorsby

(gyro in level position) $\leq 1/2^\circ$ of original position ✓

Pitch indication after 30 minutes on Scorsby

(gyro in level position) $\leq 1/2^\circ$ of original position ✓Roll Drift with gyro at level position $\leq 1/4^\circ$ in 2 minutes ✓ $\leq 1/2^\circ$ in 10 minutes ✓Pitch Drift with gyro at level position $\leq 1/4^\circ$ in 2 minutes ✓ $\leq 1/2^\circ$ in 10 minutes ✓

C. Verticality Test

Roll Indication Less than 1° .16Pitch Indication $2.0 \pm 1^\circ$ dive 0.40 40

D. E-I Pickoff Test

(1) Roll Pickoff (applies only to units with a roll pickoff)

Electrical Null within 1° of the visual null 1/2Visual Null $\leq 1^\circ$ 1/2AC null $\leq .100$ Vrms .157 DC null $0.0 \pm .050$ Vdc .17

ANGLE	VRMS	VDC
5° right		-1.0 to -1.2 <u>-1.21</u>
20° right		-3.9 to -4.2 <u>-4.24</u>
25° right	1.0 to 1.5 <u>1.09</u>	-4.9 to -5.1 <u>-5.20</u>
30° right		-5.5 to -5.9 <u>-6.00</u>
80° right		-6.0 to -15.0 <u>-8.85</u>

ANGLE	VRMS	VDC
5° left		+1.0 to +1.2 <u>.93</u>
20° left		+3.9 to +4.2 <u>3.84</u>
25° left	1.0 to 1.5 <u>1.01</u>	+4.9 to +5.1 <u>4.72</u>
30° left		+5.5 to +5.9 <u>5.46</u>
80° left		+6.0 to +15.0 <u>7.87</u>

Voltage Difference:

at 5°	≤.200Vdc <u>.28</u>
at 20°	≤.200Vdc <u>.20</u>
at 25°	≤.200Vrms. <u>.08</u>
at 30°	≤.200Vdc <u>.54</u>

Phase Angle and Polarity:

Condition	Output Set To	Resulting Phase and Polarity
Left Bank	.500 ±.015Vac	Phase 0° ±20° <u>5</u> Polarity: positive <u>✓</u>
Right Bank	.500 ±.015Vac	Phase 180° ±20° <u>180</u> Polarity: negative <u>✓</u>

(2) Pitch Pickoff (applies only to units with a pitch pickoff)

Electrical Null within 1° of the 90° index mark	<u>1</u>
Visual Null ≤1°	<u>30</u>
AC null <.100Vrms <u>.087</u>	DC null 0.0 ±.050Vdc <u>.11</u>

Angle	Pins C and E	Pins Roll Demod and E
5° Climb		-.85 to -1.15Vdc <u>-.74</u>
10° Climb	0.48 to 0.72Vrms <u>.421</u>	-1.95 to -2.05Vdc <u>-1.60</u>
40° Climb		-4.0 to -15.0Vdc <u>-5.402</u>

5° Dive		+85 to +1.15Vdc	<u>.92</u>
10° Dive	0.48 to 0.72Vrms	+1.75 to +2.25Vdc	<u>1.76</u>
40° Dive		+4.0 to +15.0Vdc	<u>4.91</u>

Voltage difference:

at 5°		≤.100Vdc	<u>.14</u>
at 10°	≤.110Vrms	≤.100Vdc	<u>.16</u>

Phase Angle and Polarity:

Condition	Output Set To	Resulting Phase and Polarity
Dive	.600 ±.018Vrms	Phase: 0° ±20° <u>25 15</u> Polarity: positive <u>✓</u>
Climb	.600 ±.018Vrms	Phase: 180° ±20° <u>180</u> Polarity: negative <u>✓</u>
360° roll rotation in 40° dive		<u>✓</u> (OK)

E. Command Bar System (applies to KI 256 units only)

(1) Drive Coil Voltage

Pin V	0.0 ±0.2Vdc	<u>.027</u>
Pin U	0.0 ±0.2Vdc	<u>.065</u>

(2) Pitch Command Display

Roll Command Display	0 ±1°	<u>0</u>
Pin V	+4.7 ±1.3Vdc	<u>6.68</u>
Pin U	+4.7 ±1.3Vdc	<u>6.75</u>

≤.070Vcc peak

≤.070vcc peak

(3) Scale Factor and Limits

(a) ROLL INPUT COMMAND Jack

Adjust Roll Command to -1.33 ±0.1Vdc

Roll Display 10° ±2° right

Pitch Display 0° ±2°

No Tendency to Oscillate

10
0
✓ (OK)

(b) ROLL INPUT COMMAND Jack

Adjust Roll Command to $-6.00 \pm 0.1\text{Vdc}$

Roll Display $10^\circ \pm 2^\circ$ right

Pitch Display $0^\circ \pm 2^\circ$

No Tendency to Oscillate

11
0
✓ (OK)

(c) ROLL INPUT COMMAND Jack

Adjust Roll Command to $+1.33 \pm 0.1\text{Vdc}$

Roll Display $10^\circ \pm 2^\circ$ left

Pitch Display $0^\circ \pm 2^\circ$

No Tendency to Oscillate

11
~~10~~ 1
✓ (OK)

(d) ROLL INPUT COMMAND Jack

Adjust Roll Command to $+6.00 \pm 0.1\text{Vdc}$

Roll Display $10^\circ \pm 2^\circ$ left

Pitch Display $0^\circ \pm 2^\circ$

No Tendency to Oscillate

13
1.5
✓ (OK)

(e) PITCH INPUT COMMAND Jack

Adjust Pitch Command to $-3.50 \pm 0.1\text{Vdc}$

Roll Display $0^\circ \pm 1^\circ$

Pitch Display $10^\circ \pm 2^\circ$ up

No Tendency to Oscillate ✓ (OK)

0
7

(f) PITCH INPUT COMMAND Jack

Adjust Pitch Command to $-6.0 \pm 0.1\text{Vdc}$

Roll Display $0^\circ \pm 1^\circ$

Pitch Display $10^\circ \pm 2^\circ$ up

No Tendency to Oscillate ✓ (OK)

0
9

(g) PITCH INPUT COMMAND Jack

Adjust Pitch Command to $+3.5 \pm 0.1\text{Vdc}$

Roll Display $0^\circ \pm 1^\circ$

Pitch Display $10^\circ \pm 2^\circ$ degrees down

No Tendency to Oscillate ✓ (OK)

0
10

COMMAND
Bars (vibrate)
BlueR

(h) PITCH INPUT COMMAND Jack

Adjust Pitch Command to $+6.0 \pm 0.1\text{Vdc}$

Roll Display $0^\circ \pm 1^\circ$

Pitch Display $10^\circ \pm 2^\circ$ degrees down

No Tendency to Oscillate _____ (OK)

0
12

(4) Pitch damping

(a) Pitch Display

$0.0^\circ \pm 1.0^\circ$

No more than 1 overshoot

0
/ (OK)

(b) Pitch Display

$10^\circ \pm 2^\circ$ down

No more than 1 overshoot

12
/ (OK)

(c) Pitch Display

$0.0^\circ \pm 1.0^\circ$

No more than 1 overshoot

0
/ (OK)

(d) Pitch Display

$10^\circ \pm 2^\circ$ up

No more than 1 overshoot

10
/ (OK)

(5) Command Bar Freedom

(a) Roll Display

$10^\circ \pm 2^\circ$ right

Pitch Display

$10^\circ \pm 2^\circ$ up

No internal interference

No tendency to oscillate

No roughness in movement

11
9
/ (OK)
/ (OK)
/ (OK)

Below Mod 11

Above Mod 11

Pin V

$+2.7 \pm 1.0\text{Vdc}$

$3.2 \pm 1.5\text{Vdc}$

4.63

Pin U

$+8.0 \pm 1.0\text{Vdc}$

$8.5 \pm 1.5\text{Vdc}$

10.26

No command bar interference ☒ (OK)

(b) Roll Display

$10^\circ \pm 2^\circ$ right

Pitch Display

$10^\circ \pm 2^\circ$ degrees down

No internal interference

No tendency to oscillate

No roughness in movement

No command bar interference

11
10
/ (OK)
/ (OK)
/ (OK)
/ (OK)

(c) Roll Display

$10^\circ \pm 2^\circ$ left

Pitch Display

$10^\circ \pm 2^\circ$ degrees down

13
12

No internal interference ✓ (OK)
No tendency to oscillate ✓ (OK)
No roughness in movement ✓ (OK)
No command bar interference ✓ (OK)

(d) Roll Display $10^\circ \pm 2^\circ$ left

Pitch Display $10^\circ \pm 2^\circ$ up

No internal interference ✓ (OK)
No tendency to oscillate ✓ (OK)
No roughness in movement ✓ (OK)

Below Mod 11

Above Mod 11

Pin V $+8.0 \pm 1.0\text{Vdc}$

$8.5 \pm 1.5\text{Vdc}$

Pin U $+2.7 \pm 1.0\text{Vdc}$

$3.2 \pm 1.5\text{Vdc}$

No command bar interference ✓ (OK)

(e) Command Bar Off

Out of view

Against bottom of bezel

(6) Internal Lighting

(a) 14V Input

Both lamps lit

Display evenly lit

(b) 28V Input

Both lamps lit

Display evenly lit

(7) DH Lamp

(a) 28V Input

Lamp lit

(b) 14V Input

Lamp lit

(8) Dielectric Strength

$\leq 500\mu\text{A}$

No evidence of damage

(9) Shutdown Sequence

Display does not tumble

(10) Maximum Outside Dimensions

Gauge or test fixture moves freely

UNIT PART NUMBER 060- 0617-00

UNIT SERIAL NUMBER 25493

TECHNICIAN [REDACTED]

DATE 5-23-2018

Date May/04

Rev 1 Dec/04

P/N: 601-02464-0091

SA KI 256/KG 258-109

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