# APPENDIX J

## Baseline Elevator Control System Test Data

# 767-300 ELEVATOR SYSTEM BASELINE / INSTRUMENTATION CHECK - GT

| | | | | | |
|---|---|---|---|---|---|
| Prep | Analysis Engineer<br>Tom Alberts | Date<br>[redacted] | Conc | Lead Test Operations Engineer<br>R. J. Johnson | Date<br>[redacted] |
| App | Lead Analysis Engineer<br>Jim Swanson | Date<br>[redacted] | App | Analysis Supervisor<br>Tracy Biegler | Date<br>[redacted] |

## PURPOSE OF TEST

To check the instrumentation set up and column forces on VR259 in a production configuration. This test is to support the demonstration for the NTSB of the elevator system with cable and PCA failure scenarios, (TIP sheet B1.39.1385).

## RISK ASSESSMENT

All Test Conditions in the TIP Sheet are considered to be LOW Risk.

## REFERENCES

(a) Engineering Work Authorization (EWA) V2251-009, "767 Elevator System Failure Ground Test - August 2001"

## CONFIGURATION

1) The test aircraft is a Model 767-300 Freighter (Airplane VR259) in production configuration.

## SPECIAL TEST REQUIREMENTS

(a) Three hydraulic ground carts and airplane external power for rigging, functional test, and instrumentation checks. A pneumatic ground cart or air source to apply air pressure to the hydraulic reservoirs.

(b) SAFT van to provide Pitot and Static pressures to Captain's, First Officer's, Auxiliary 1 and Auxiliary 2 systems.

(c) Production "Control Wheel Test Fixtures, 700-1393" for both the Captain's and First Officer's column.

(d) Two aircraft stands or scissors lifts, ladders, flashlights, and radios for communications from cockpit to tail.

(e) Rig pins, tape measure, inspection mirror, steel machinist scale.

(f) Portable Autopilot Servo Controller, inclinometer and push/pull force gauge (0-100 lbs.) – to be supplied by staff engineering.

# 767-300 ELEVATOR SYSTEM BASELINE / INSTRUMENTATION CHECK - GT

## DATA REQUIRED

Data Tapes - ON and RECORDING prior to start of test

Manual Data - Test Director: Observe and take notes of test conditions, correlate events with IRIG time.

Analysis: Operate ADAMS system, record test conditions, correlate events with IRIG time.

## TEST CONDITIONS

# INSTRUMENTATION CHECK

### *B1.39.1383 ELEVATOR BASELINE/INSTRUMENTATION CHECK - GT – Column & Elevator Positions*

- ☐ Flaps - UP
- ☐ Hydraulics - ON
- ☐ Stabilizer - 3 Units ( Activate the stabilizer cutout switches)

### *Procedure*

1) Lightly shake down the column around neutral to ensure the column is in the neutral position.
2) Record and compare flight test instrumentation and manual measurements for Captain's and First Office's column and left & right elevator positions.
3) With an inclinometer on the column to verify displacement, pull the specified control to the aft stop. Record and compare flight test data to measured values.
4) With an inclinometer on the column to verify displacement, push the specified control to the forward stop. Record and compare flight test data to measured values.

### *B1.39.1383 - ELEVATOR BASELINE / INSTRUMENTATION CHECK - GT – Column & Elevator Positions*

| Risk | Cond No | Control Column Position |
|---|---|---|
| L | .001 | Captain's Column - Neutral |
| L | .002 | Captain's Column- Full Aft |
| L | .003 | Captain's Column- Full Forward |

## 767-300 ELEVATOR SYSTEM BASELINE / INSTRUMENTATION CHECK - GT

### TEST CONDITIONS (Cont'd)

### B1.39.1383 - *BASELINE / INSTRUMENTATION ELEVATOR CHECK - GT – Column & Elevator Positions (Cond't)*

| Risk | Cond No | Control Column Position |
|---|---|---|
| L | .004 | First Officer's Column - Neutral |
| L | .005 | First Officer's Column - Full Aft |
| L | .006 | First Officer's Column - Full Forward |

### *B1.39.1383 - ELEVATOR BASELINE / INSTRUMENTATION CHECK- GT - Column Force*

#### *Initial Setup*

- ☐ Flaps - UP
- ☐ Hydraulics - ON
- ☐ Stabilizer - 3 Units ( Activate the stabilizer cutout switches)
- ☐ SAFT Van connected to pitot/static system.

#### *Procedure*

1) Attach "Control Wheel Test Fixtures, 700-1393" to the Captain and First Officer's control columns.
2) SAFT Van – Increase the elevator feel pressure to 800 psi (approximately 431 KCAS).
3) Lightly shake down the Captain's column around neutral to ensure the column is in the neutral position.
4) Use a force gauge and pull the Captain's column at the finger reference point, pausing at 10 pound increments, up to 100 pounds. Compare force gauge values with instrumentation system force measurements. Return column to neutral.
5) Use a force gauge and push the Captain's column at the finger reference point, pausing at 10 pound increments, up to 100 pounds. Compare force gauge values with instrumentation system force measurements. Return column to neutral.
6) Repeat steps 3) through 5) pulling and pushing on the First Officer's column.

## 767-300 ELEVATOR SYSTEM BASELINE / INSTRUMENTATION CHECK - GT

### TEST CONDITIONS (Cont'd)

***B1.39.1383 - ELEVATOR BASELINE / INSTRUMENTATION CHECK- GT - Column Force***

| Risk | Cond No | Control Column Force |
|---|---|---|
| L | .010 | Captain's at neutral. |
| L | .011 | Captain's, Pull - 0 to 100 Lbs. in 10 Lb. increments. |
| L | .012 | Captain's, Push - 0 to 100 Lbs. in 10 Lb. increments. |
| L | .013 | First Officer's at neutral. |
| L | .014 | First Officer's, Pull - 0 to 100 Lbs. in 10 Lb. increments. |
| L | .015 | First Officer's, Push - 0 to 100 Lbs. 0 to 100 Lbs. in 10 Lb. increments. |

## 767-300 ELEVATOR SYSTEM BASELINE / INSTRUMENTATION CHECK - GT

### TEST CONDITIONS (Cont'd)

# SWEEPS

### *B1.39.1383 - ELEVATOR BASELINE / INSTRUMENTATION CHECK - GT – SWEEPS*

***Initial Setup***

- ☐ Hydraulics - ON
- ☐ Stabilizer - 3 Units ( Activate the stabilizer cutout switches)
- ☐ SAFT Van connected to pitot/static system.

***Procedure***

1) Verify that the SAFT Van is connected to pitot/static system and is providing pressure to the Elevator Feel unit. Set Elevator Feel pressures as specified for each of the following conditions.

2) Perform three column sweeps at different speeds as required for each condition. Each sweep starts at neutral then to full forward, to neutral, to full aft and then back to neutral. Perform a total of three sweeps for each condition.

3) Perform six autopilot sweeps, conditions .026 and .033. The input signal to drive the sweep will be generated by a portable Autopilot Servo Controller provided by engineering.

### *B1.39.1383 - ELEVATOR BASELINE / INSTRUMENTATION CHECK - GT – SWEEPS*

| Risk | Cond No | Elevator Feel Pressure | Airspeed (KCAS) | Procedure |
|---|---|---|---|---|
| L | .020 | BASE (162 psi) | 0 | Three slow (approx. 40 sec.) Captain's control column sweeps. |
| L | .021 | BASE (162 psi) | 0 | Three medium (approx. 10 sec.) Captain's control column sweeps. |

## 767-300 ELEVATOR SYSTEM BASELINE / INSTRUMENTATION CHECK - GT

### TEST CONDITIONS (Cont'd)

***B1.39.1383 - ELEVATOR BASELINE / INSTRUMENTATION CHECK - GT – SWEEPS***

| Risk | Cond No | Elevator Feel Pressure | Airspeed (KCAS) | Procedure |
|---|---|---|---|---|
| L | .022 | BASE (162 psi) | 0 | Three fast (approx. 4 sec.) Captain's control column sweeps. |
| L | .023 | BASE (162 psi) | 0 | Three slow (approx. 40 sec.) First Officer's control column sweeps. |
| L | .024 | BASE (162 psi) | 0 | Three medium (approx. 10 sec.) First Officer's control column sweeps. |
| L | .025 | BASE (162 psi) | 0 | Three fast (approx. 4 sec.) First Officer's control column sweeps. |
| L | .026 | BASE (162 psi) | 0 | Six Autopilot sweeps (cycles). |
| L | .027 | 620 psi | 284 | Three slow (approx. 40 sec.) Captain's control column sweeps. |
| L | .028 | 620 psi | 284 | Three medium (approx. 10 sec.) Captain's control column sweeps. |
| L | .029 | 620 psi | 284 | Three fast (approx. 4 sec.) Captain's control column sweeps. |
| L | .030 | 620 psi | 284 | Three slow (approx. 40 sec.) First Officer's control column sweeps. |

# 767-300 ELEVATOR SYSTEM BASELINE / INSTRUMENTATION CHECK - GT

## TEST CONDITIONS (Cont'd)

### *B1.39.1383 - ELEVATOR BASELINE / INSTRUMENTATION CHECK - GT – SWEEPS*

| Risk | Cond No | Elevator Feel Pressure | Airspeed (KCAS) | Procedure |
|---|---|---|---|---|
| L | .031 | 620 psi | 284 | Three medium (approx. 10 sec.) First Officer's control column sweeps. |
| L | .032 | 620 psi | 284 | Three fast (approx. 4 sec.) First Officer's control column sweeps. |
| L | .033 | 620 psi | 284 | Six Autopilot sweeps (cycles). |

# 767-300 ELEVATOR SYSTEM BASELINE / INSTRUMENTATION CHECK - GT

## TIP SHEET SAFETY/RISK REVIEW

To: Chief Pilot ☐ 737 ☐ 747 ☐ 757 ☒ 767 ☐ 777

Maximum Risk Level in TIP Sheet: ☒ LOW ☐ MEDIUM ☐ HIGH

From: **Tom Alberts** [redacted] TI: **B1.39.1383** Rev _____
Name Phone #

A/P #: [redacted] Lead OPS Eng.: **M. Van Nortwick**

Date submitted for pilot review: _____ Return to FTEA as soon as possible.

Estimated test date: _____ (Use ORANGE form if within 5 working days)

## PILOT REVIEW OF TEST AND RISK ASSESSMENT/ALLEVIATION

☐ RISK ASSESSMENT/ALLEVIATION IS OK AS WRITTEN

☐ TIP SHEET IS OK AS WRITTEN

☐ REVISE AS MARKED

☐ DISCUSSION REQUIRED

☐ PROJECT PILOT REQUIRED ☐ For all conditions ☐ For conditions specified in comments section

☐ Call me at _____ AM/PM

☐ Meet me at _____ AM/PM ☐ Your desk ☐ My desk ☐ _____

ADDITIONAL COMMENTS:

Pilot initials: _____ (Please Print) Chief Test Pilot initials*: _____
John Cashman

Date returned to FTEA: _____

* Required if HIGH Risk Conditions Exist

☒ GROUND TEST - PILOT REVIEW NOT REQUIRED

Reviewed by Analysis Lead (Initials) _____ Date: _____

FTEA: Retain this form with your group's TIP sheet file.

| | | | | | |
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BOEING

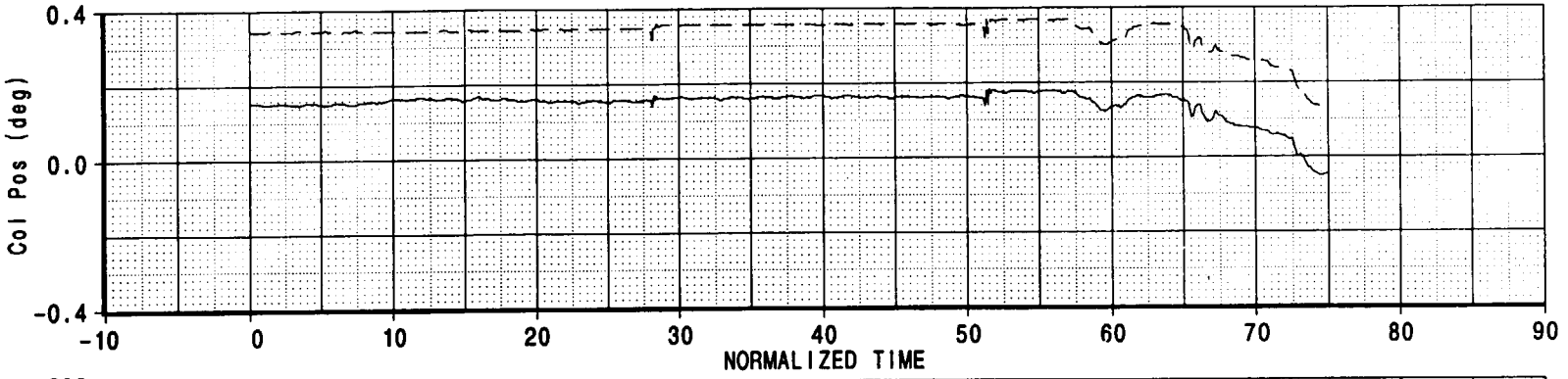
EgyptAir 990 Investigation
Baseline Ground Test
Condition .001

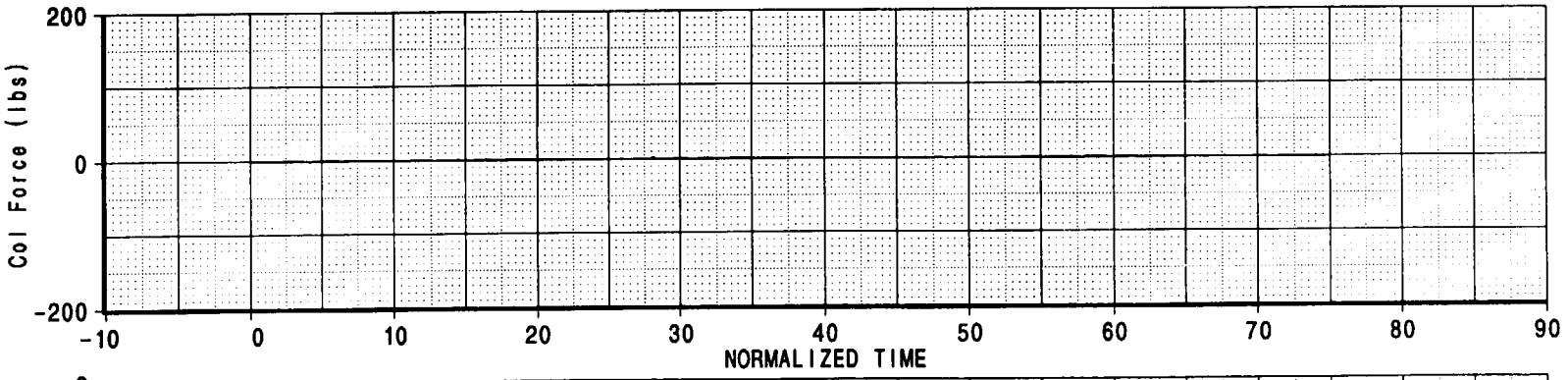
Airplane: VR259
Test Date: 16-AUG-01
PAGE

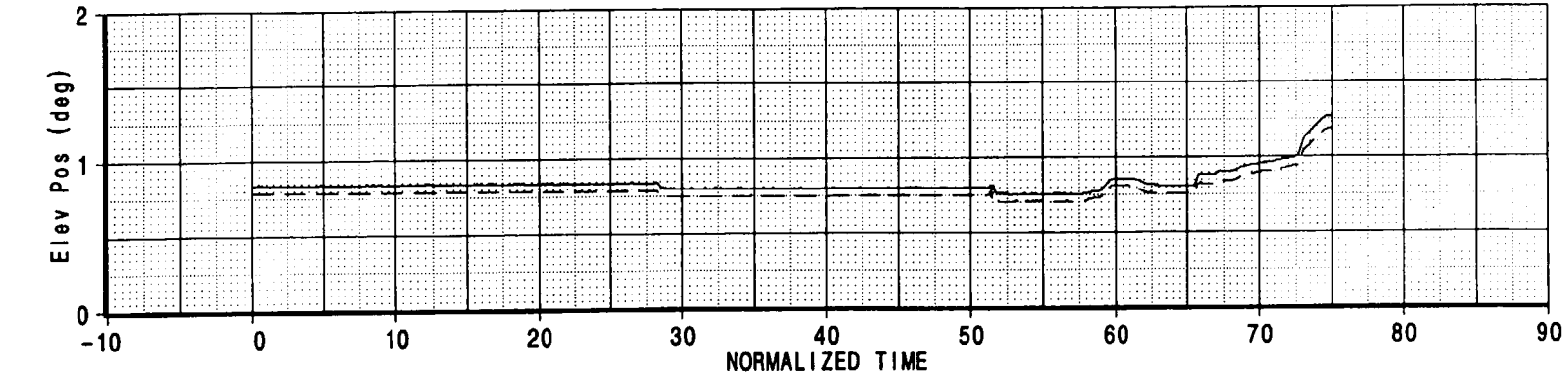
08/16/01 10:40:20.0000-10:41:35.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

Captain
First Officer

Differential Elevator Feel Pressure = 162 psi
Calibrated Airspeed = 0 kts

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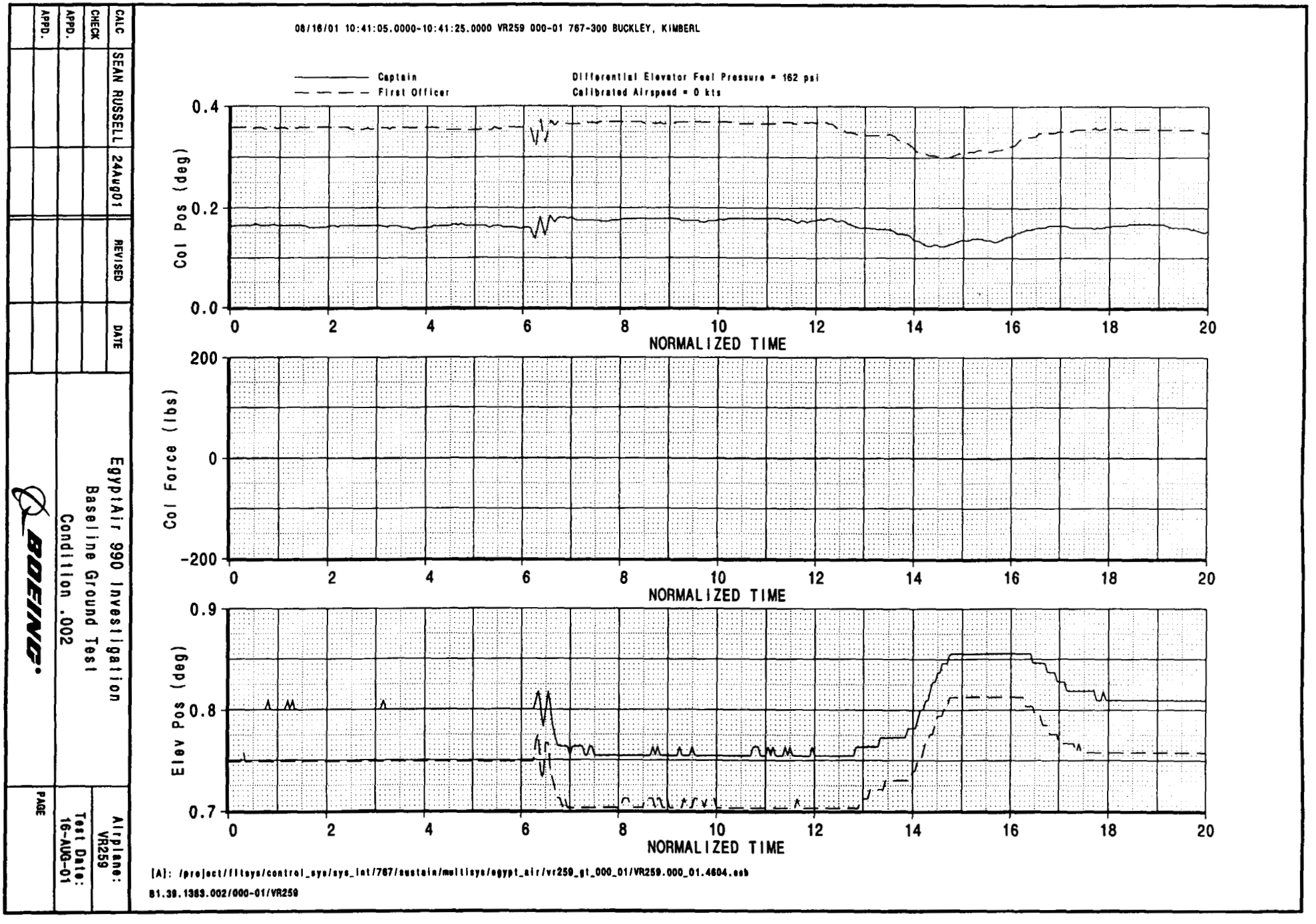
08/16/01 10:41:05.0000-10:41:25.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL
Captain
First Officer
Differential Elevator Feel Pressure = 162 psi
Calibrated Airspeed = 0 kts
Col Pos (deg)
0.4
0.2
0.0
0
2
4
6
8
10
12
14
16
18
20
NORMALIZED TIME
Col Force (lbs)
200
0
-200
NORMALIZED TIME
Elev Pos (deg)
0.9
0.8
0.7
NORMALIZED TIME
[A]: /project/fltsys/control_sys/sys_ist/767/sustain/multisys/egypt_air/vr259_gt_000_01/VR259.000_01.4604.esb
B1.39.1383.002/000-01/VR259
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EgyptAir 990 Investigation
Baseline Ground Test
Condition .002
Airplane: VR259
Test Date: 16-AUG-01
PAGE

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BOEING

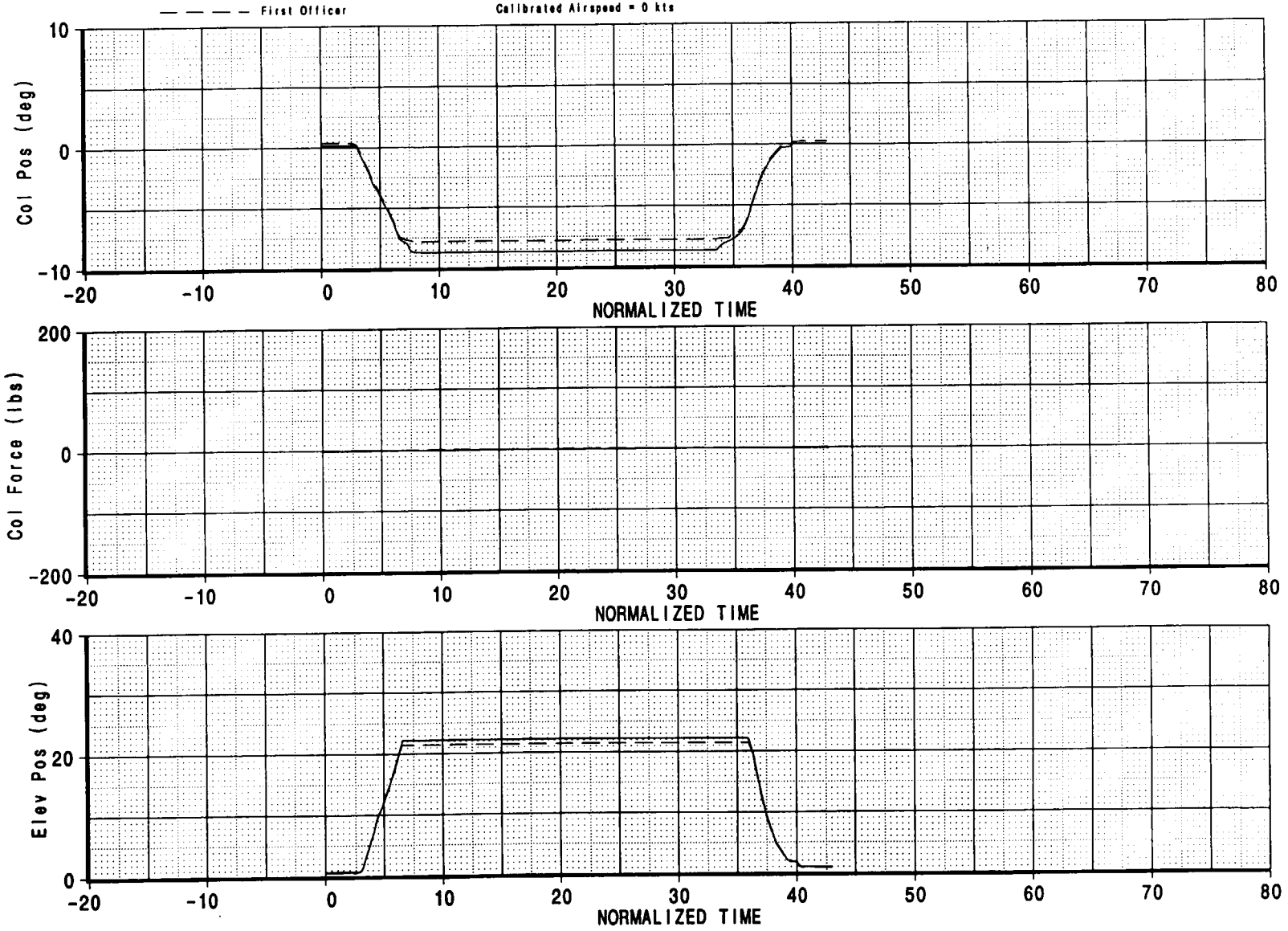
EgyptAir 990 Investigation
Baseline Ground Test
Condition .003

Airplane: VR259
Test Date: 16-AUG-01
PAGE

08/16/01 10:42:42.0000-10:43:25.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

Captain
First Officer

Differential Elevator Feel Pressure = 162 psi
Calibrated Airspeed = 0 kts

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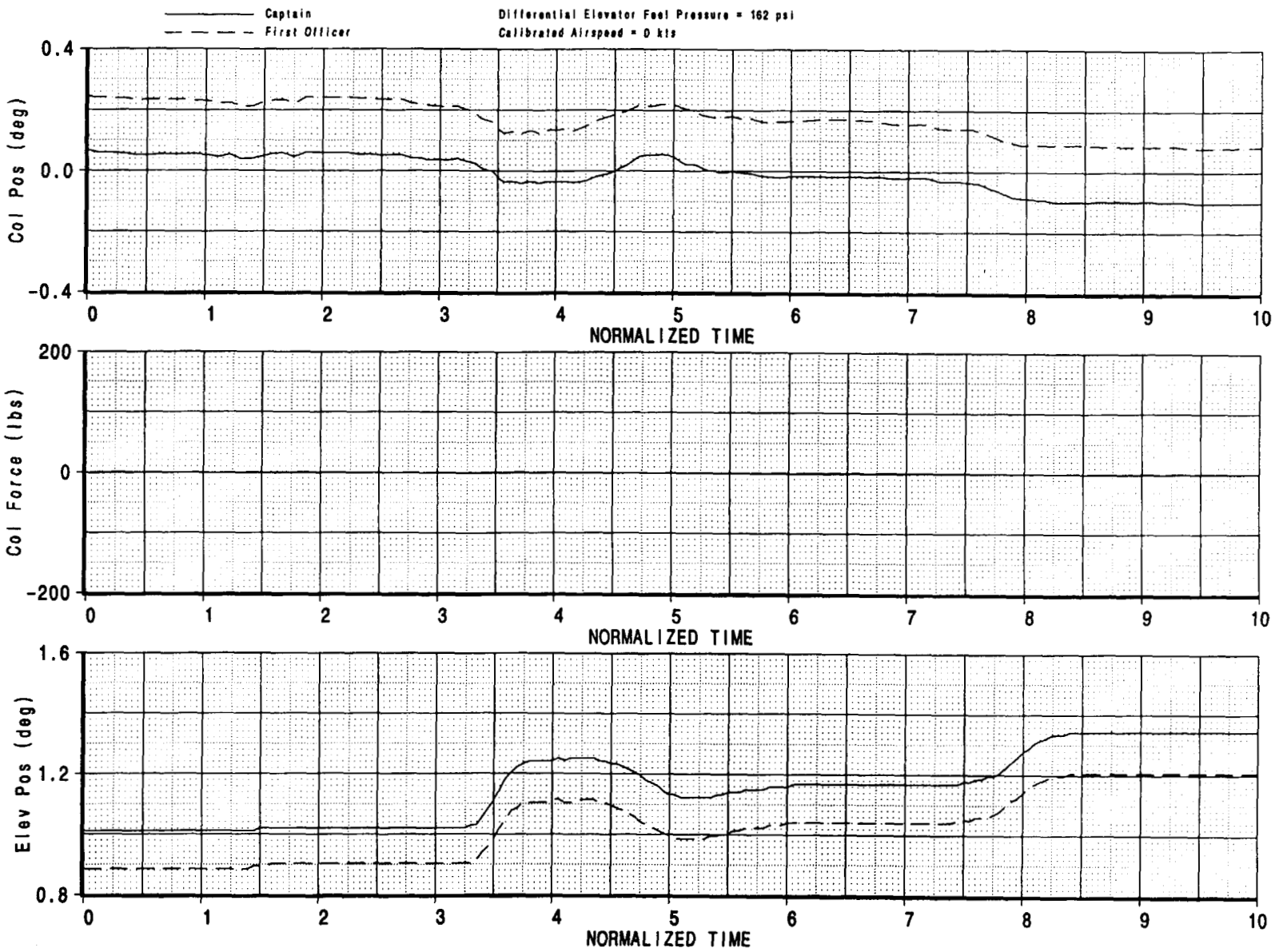
81.39.1383.003/000-01/VR259

08/16/01 10:43:35.0000-10:43:45.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

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EgyptAir 990 Investigation
Baseline Ground Test
Cond .004 - F/O neutral

| PAGE | Test Date: 16-AUG-01 | Airplane: VR259 |
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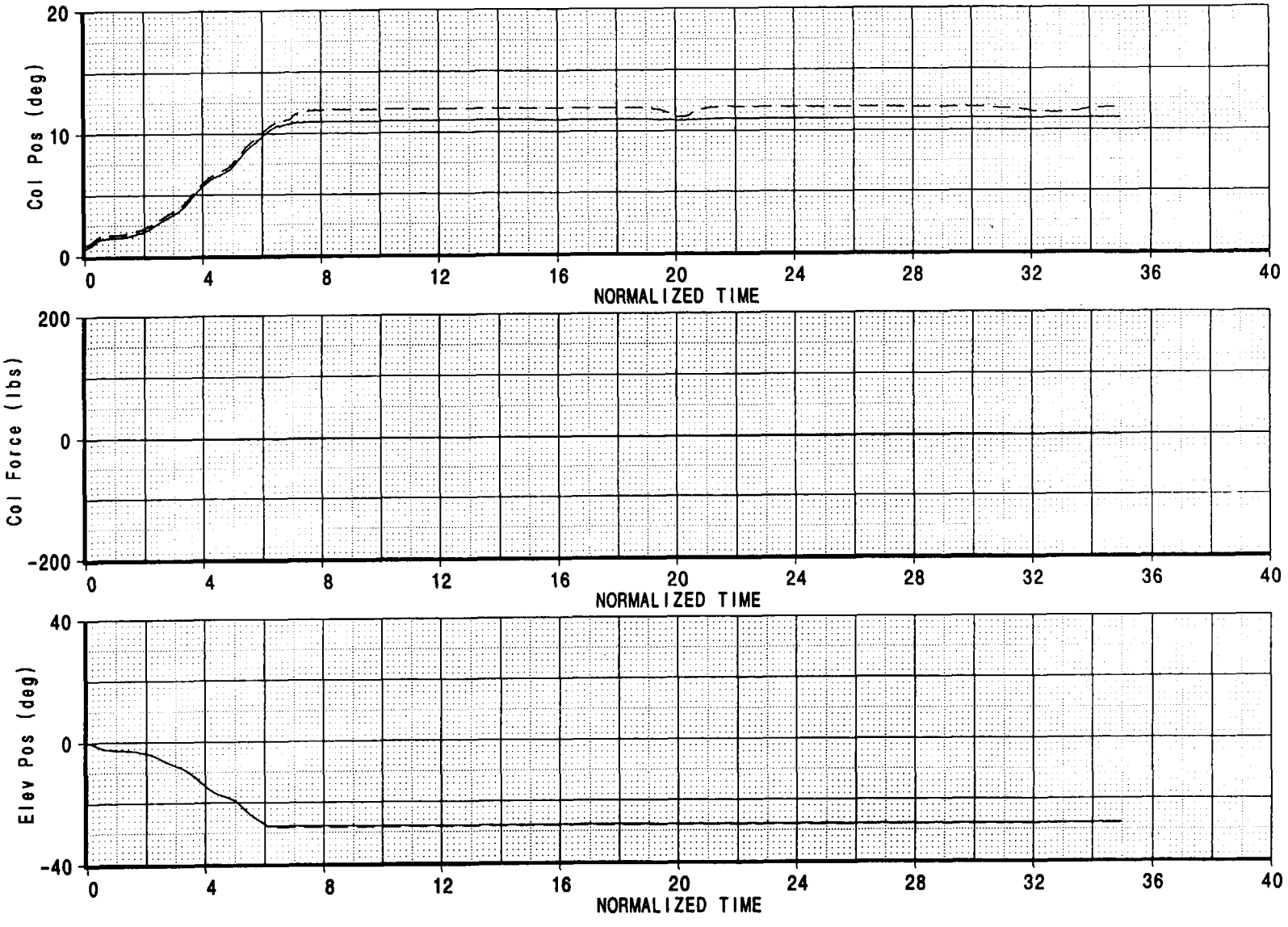
08/16/01 10:43:55.0000-10:44:30.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

Captain
First Officer

Differential Elevator Feel Pressure = 162 psi
Calibrated Airspeed = 0 kts

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BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .005 - F/O full aft

PAGE

Test Date: 16-AUG-01

Airplane: VR259

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BOEING

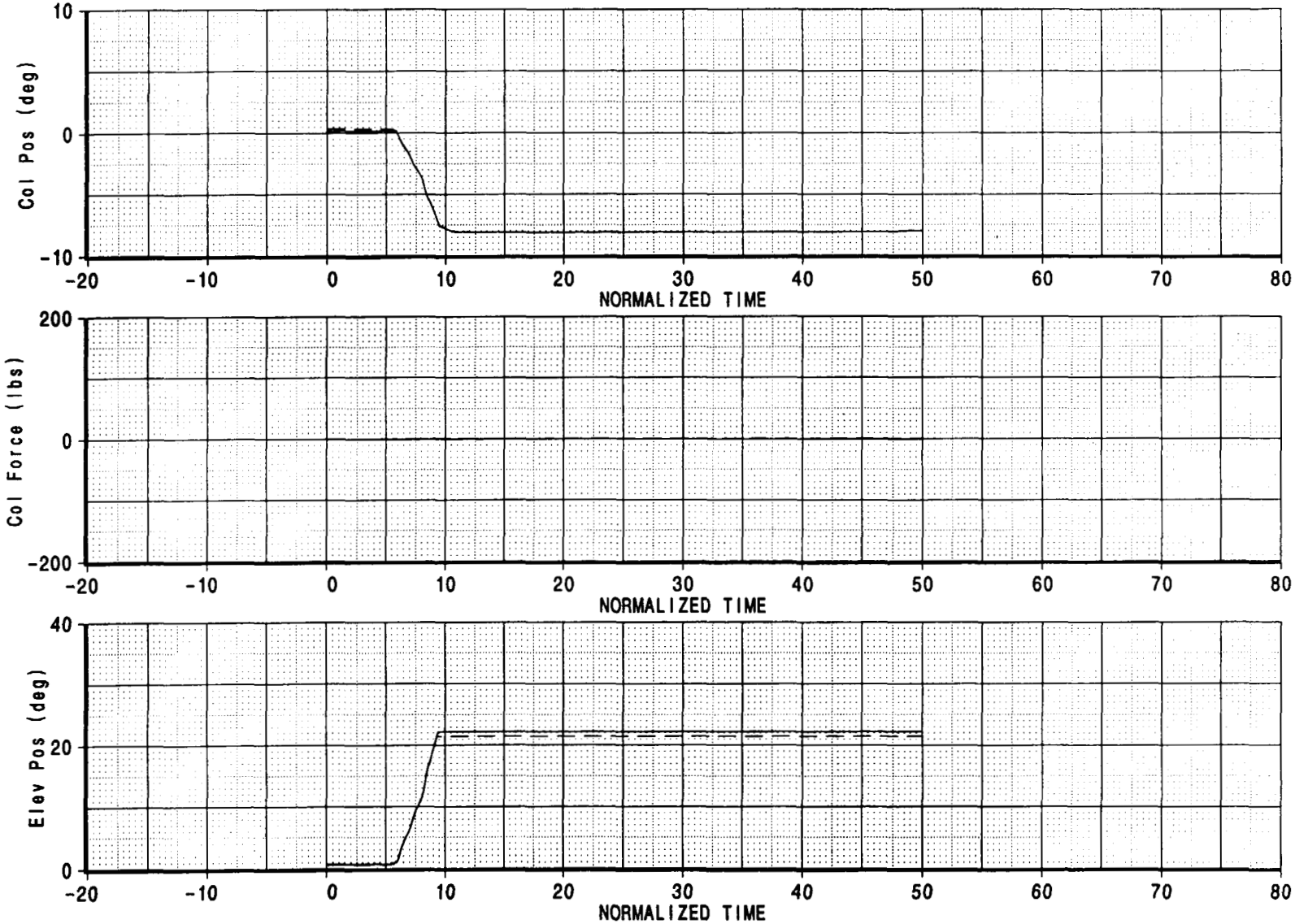
EgyptAir 990 Investigation
Baseline Ground Test
Cond .006 - F/O full forward

Airplane: VR259
Test Date: 16-AUG-01
PAGE

08/16/01 10:45:10.0000-10:46:00.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

Captain
First Officer

Differential Elevator Feel Pressure = 162 psi
Calibrated Airspeed = 0 kts

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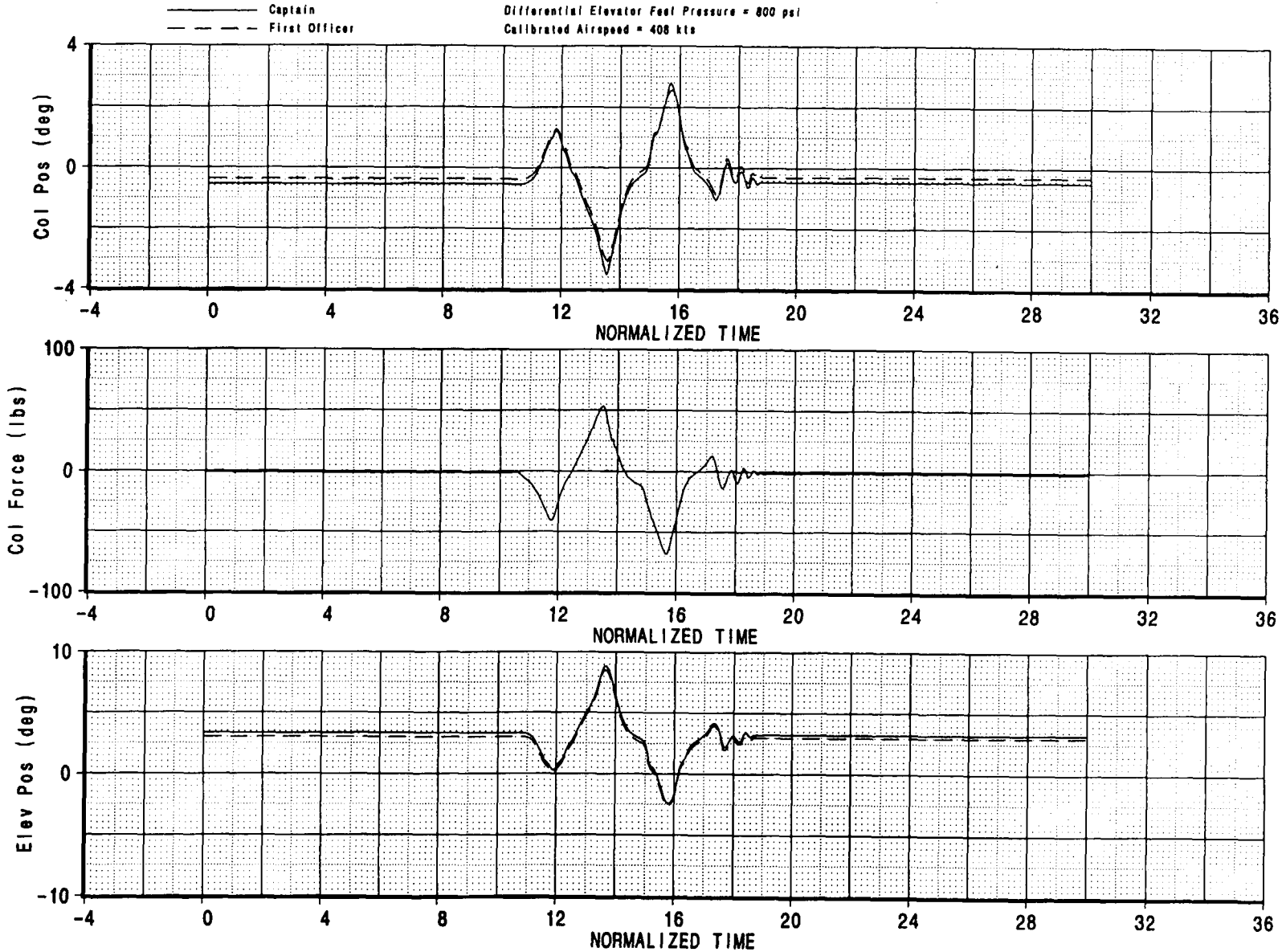
BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .010 - capt neutral

Airplane: VR259
Test Date: 16-AUG-01
PAGE

08/16/01 11:04:55.0000-11:05:25.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

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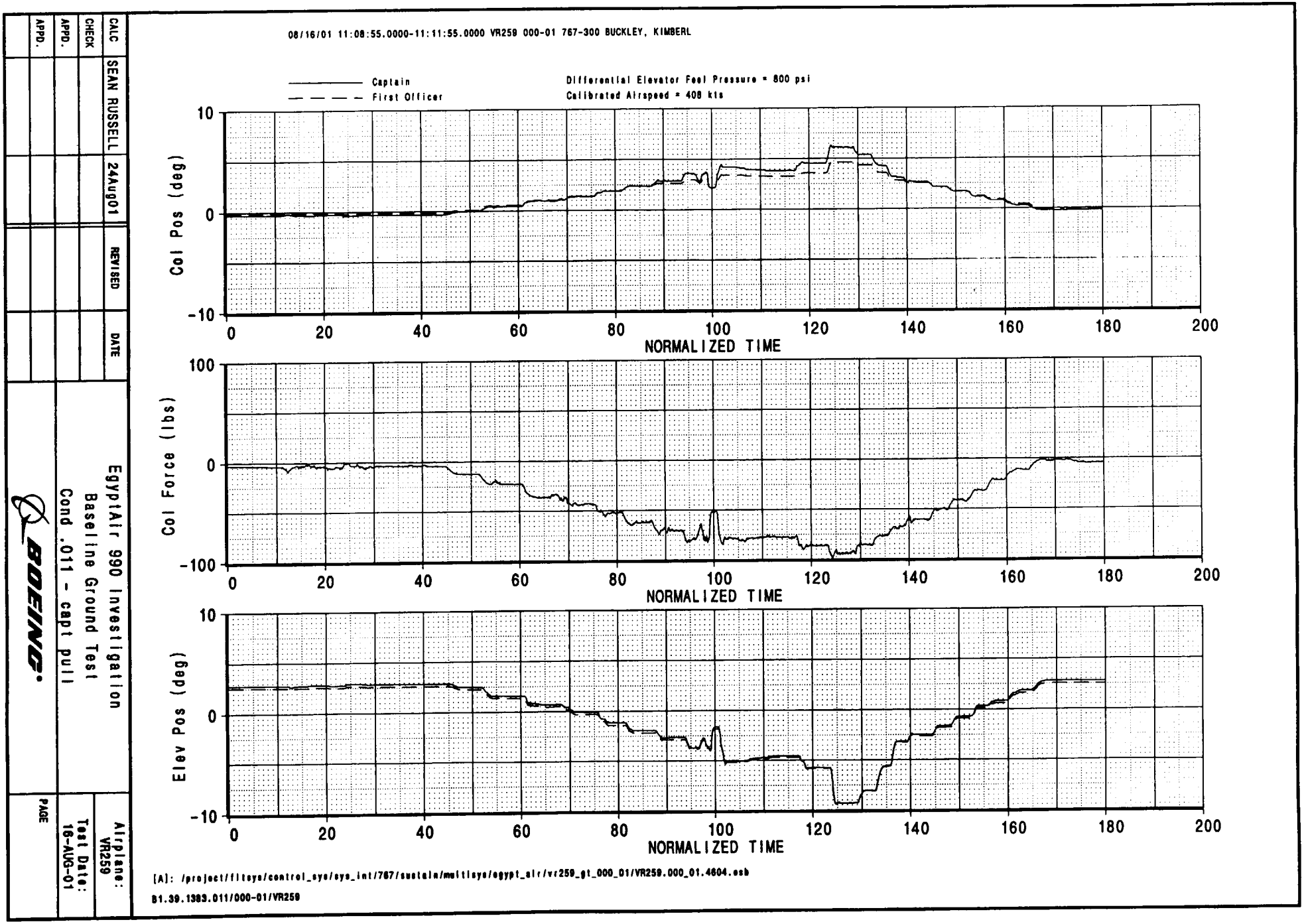
81.39.1383.010/000-01/VR259


08/16/01 11:08:55.0000-11:11:55.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL
Captain
First Officer
Differential Elevator Feel Pressure = 800 psi
Calibrated Airspeed = 408 kts
Col Pos (deg)
10
0
-10
0 20 40 60 80 100 120 140 160 180 200
NORMALIZED TIME
Col Force (lbs)
100
0
-100
0 20 40 60 80 100 120 140 160 180 200
NORMALIZED TIME
Elev Pos (deg)
10
0
-10
0 20 40 60 80 100 120 140 160 180 200
NORMALIZED TIME
[A]: /project/flteye/control_sys/sys_int/767/sustain/multisys/egypt_air/vr259_gt_000_01/VR259.000_01.4604.esb
B1.39.1383.011/000-01/VR259
BOEING
EgyptAir 990 Investigation
Baseline Ground Test
Cond .011 - capt pull
Airplane: VR259
Test Date: 16-AUG-01
PAGE
CALC SEAN RUSSELL 24Aug01
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| CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE |
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BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .012 - capt push

Airplane: VR259
Test Date: 16-AUG-01

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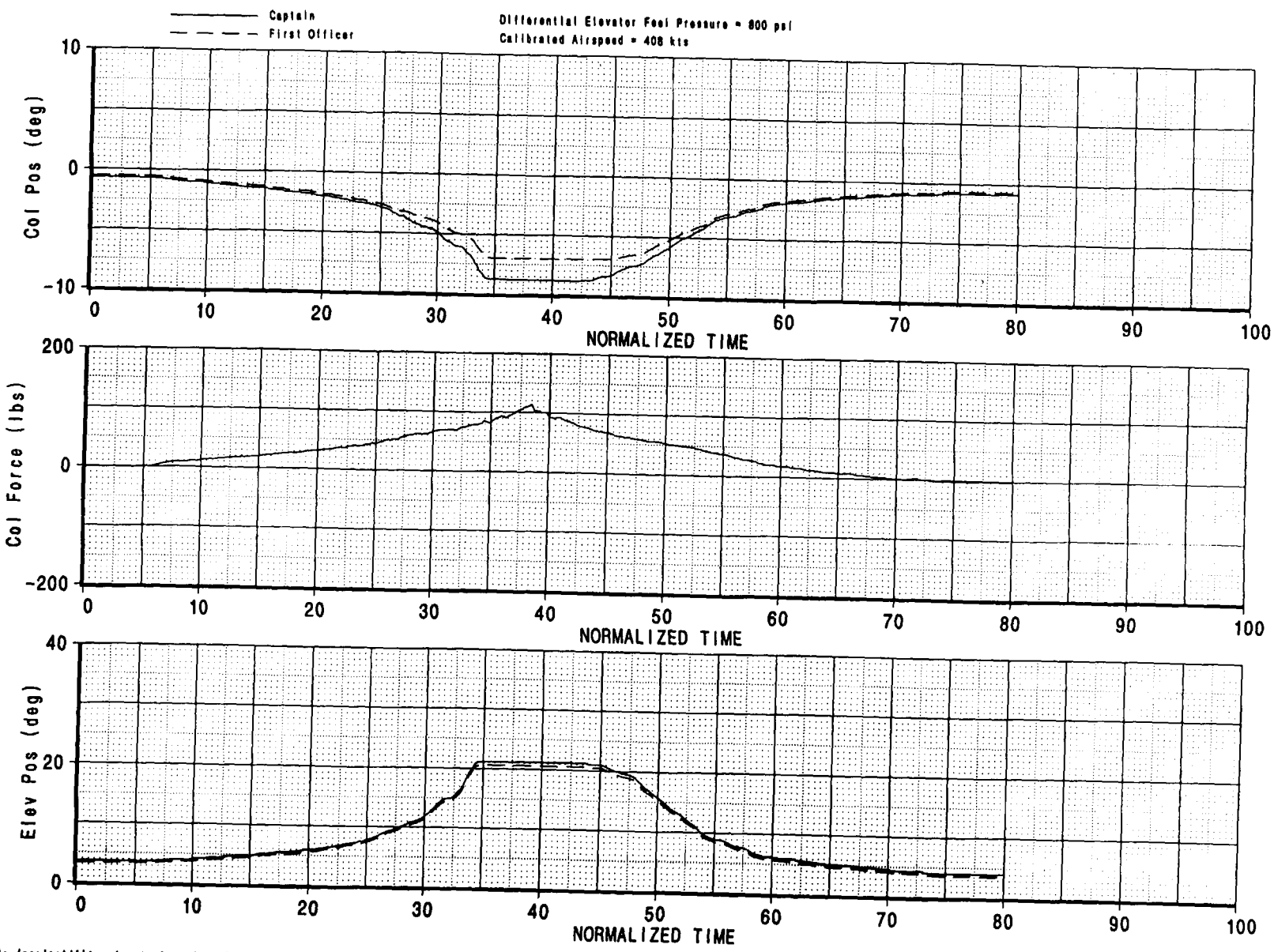
08/16/01 12:16:25.0000-12:17:45.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

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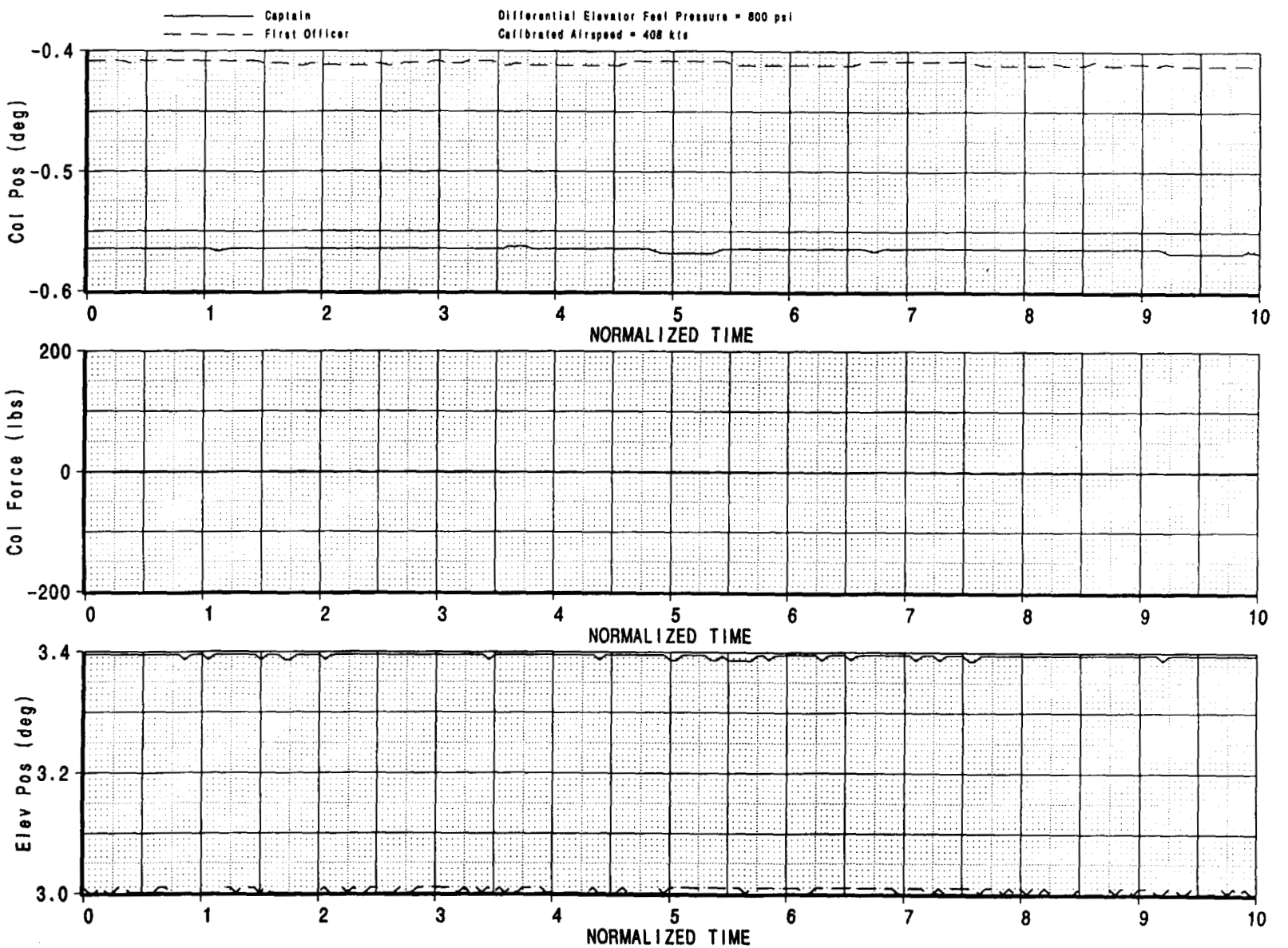


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81.39.1383.013/000-01/VR259

| | CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE |
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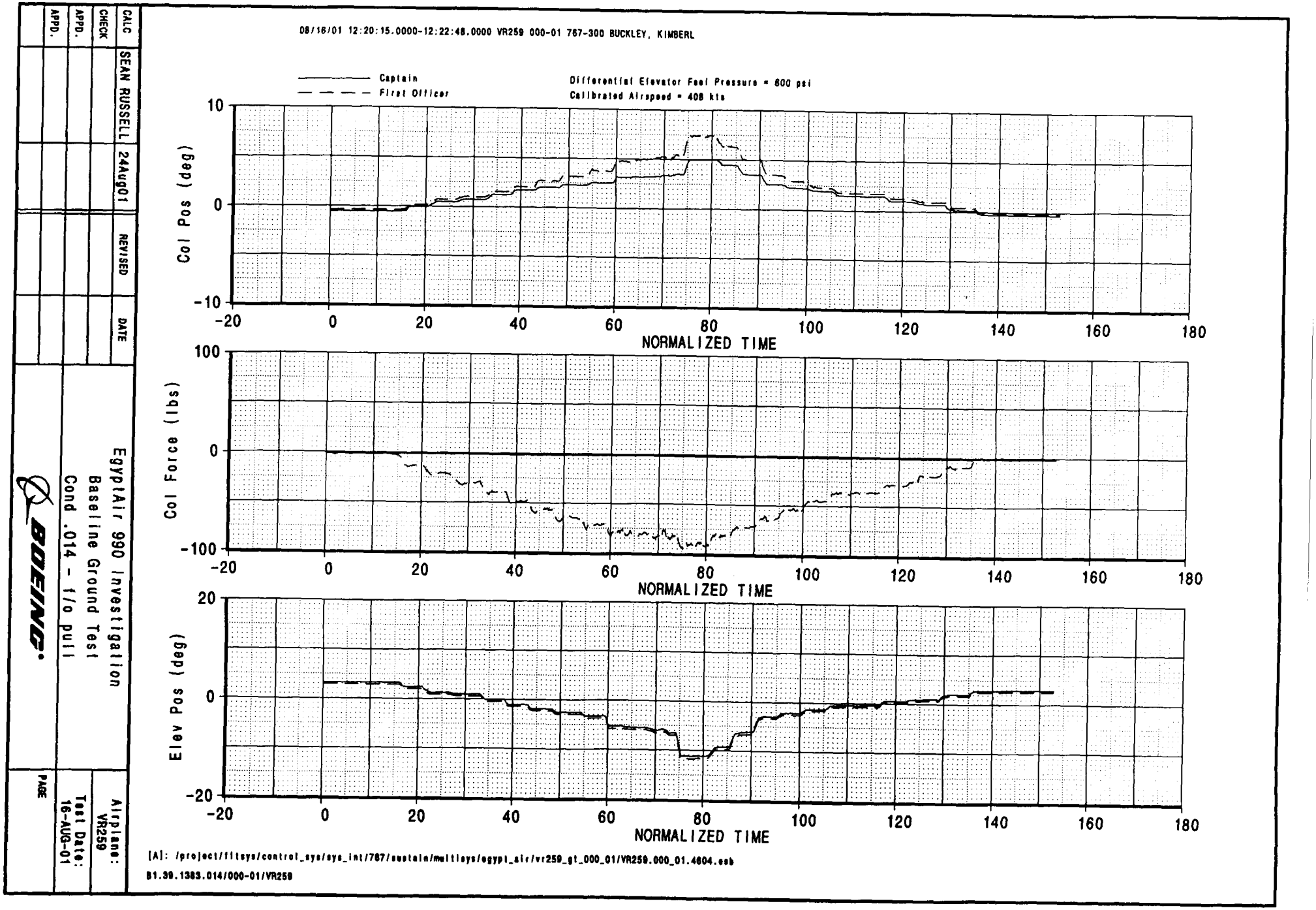
BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .013 - f/o neutral

Airplane: VR259
Test Date: 16-AUG-01
PAGE


08/16/01 12:20:15.0000-12:22:48.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL
Captain
First Officer
Differential Elevator Feel Pressure = 800 psi
Calibrated Airspeed = 408 kts
Col Pos (deg)
Col Force (lbs)
Elev Pos (deg)
NORMALIZED TIME
[A]: /project/fltsys/control_sys/sys_int/767/sustain/multisys/egypt_air/vr259_gt_000_01/VR259.000_01.4604.esb
B1.39.1383.014/000-01/VR259
CALC
CHECK
APPD.
SEAN RUSSELL
24Aug01
REVISED
DATE
BOEING
EgyptAir 990 Investigation
Baseline Ground Test
Cond .014 - f/o pull
Airplane: VR259
Test Date: 16-AUG-01
PAGE

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|---|---|---|---|---|
| | SEAN RUSSELL | | | |
| | 24Aug01 | | | |
| | REVISED | | | |
| | DATE | | | |

BOEING

EgyptAir 990 Investigation

Baseline Ground Test

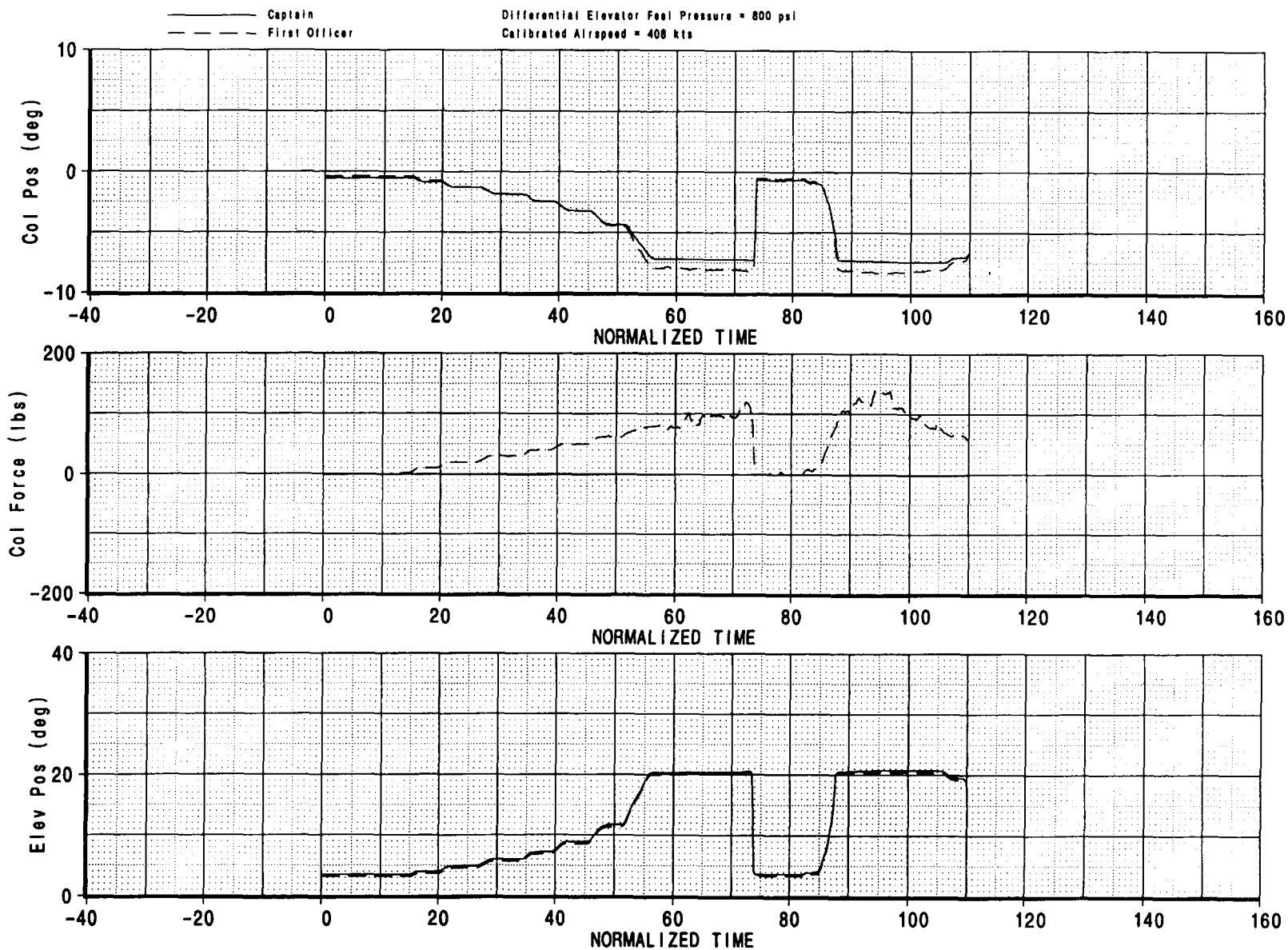
Cond .015 - f/o push

Airplane: VR259

Test Date: 16-AUG-01

PAGE

08/16/01 12:26:15.0000-12:28:05.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

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81.39.1383.015/000-01/VR259

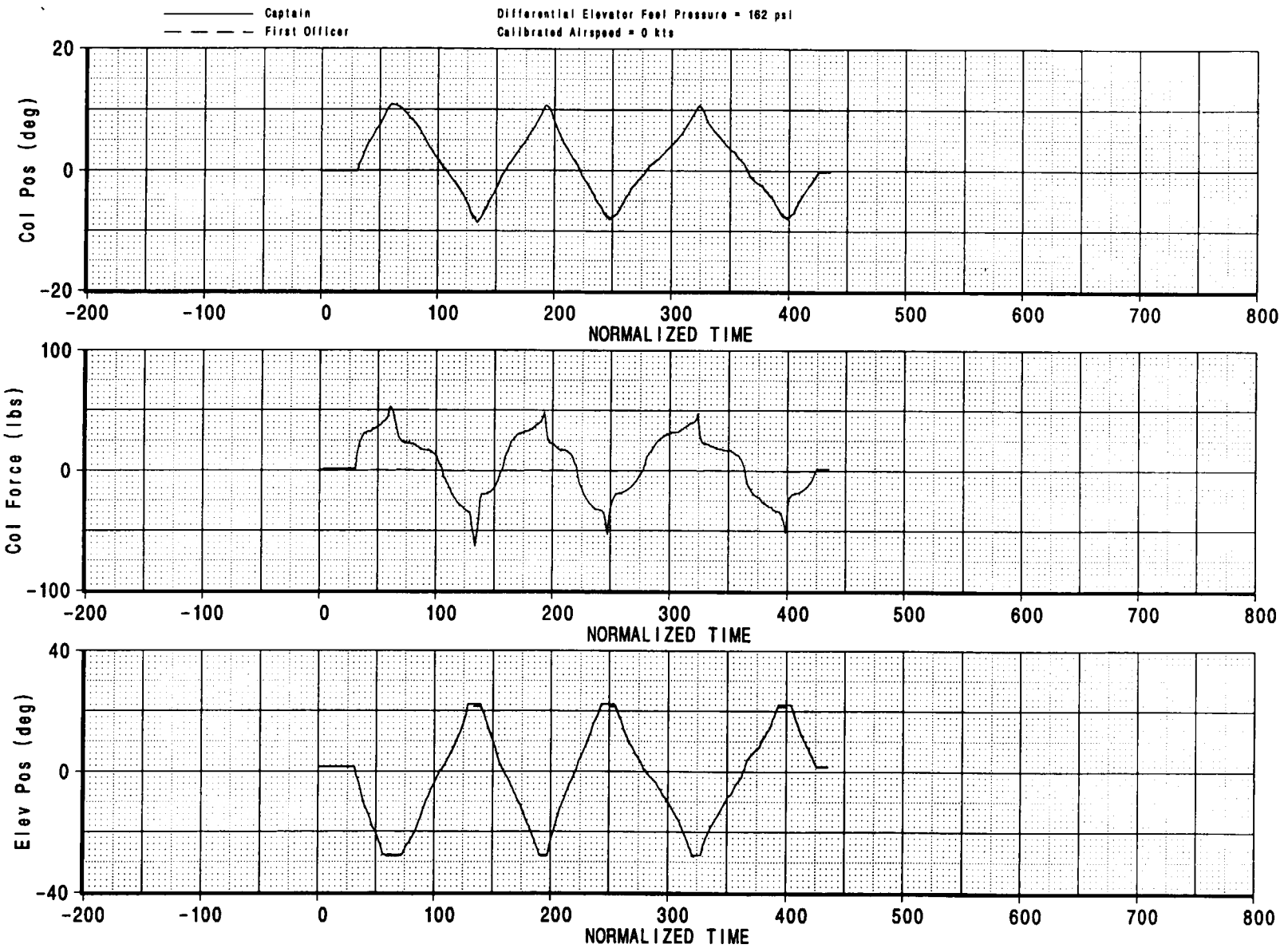
| | | | | |
|---|---|---|---|---|
| CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE |
| CHECK | | | | |
| APPD. | | | | |
| APPD. | | | | |

BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .020 - Capt slow sweeps

Airplane: VR259
Test Date: 16-AUG-01
PAGE

08/16/01 12:34:30.0000-12:41:46.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

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81.39.1383.020/000-01/VR259

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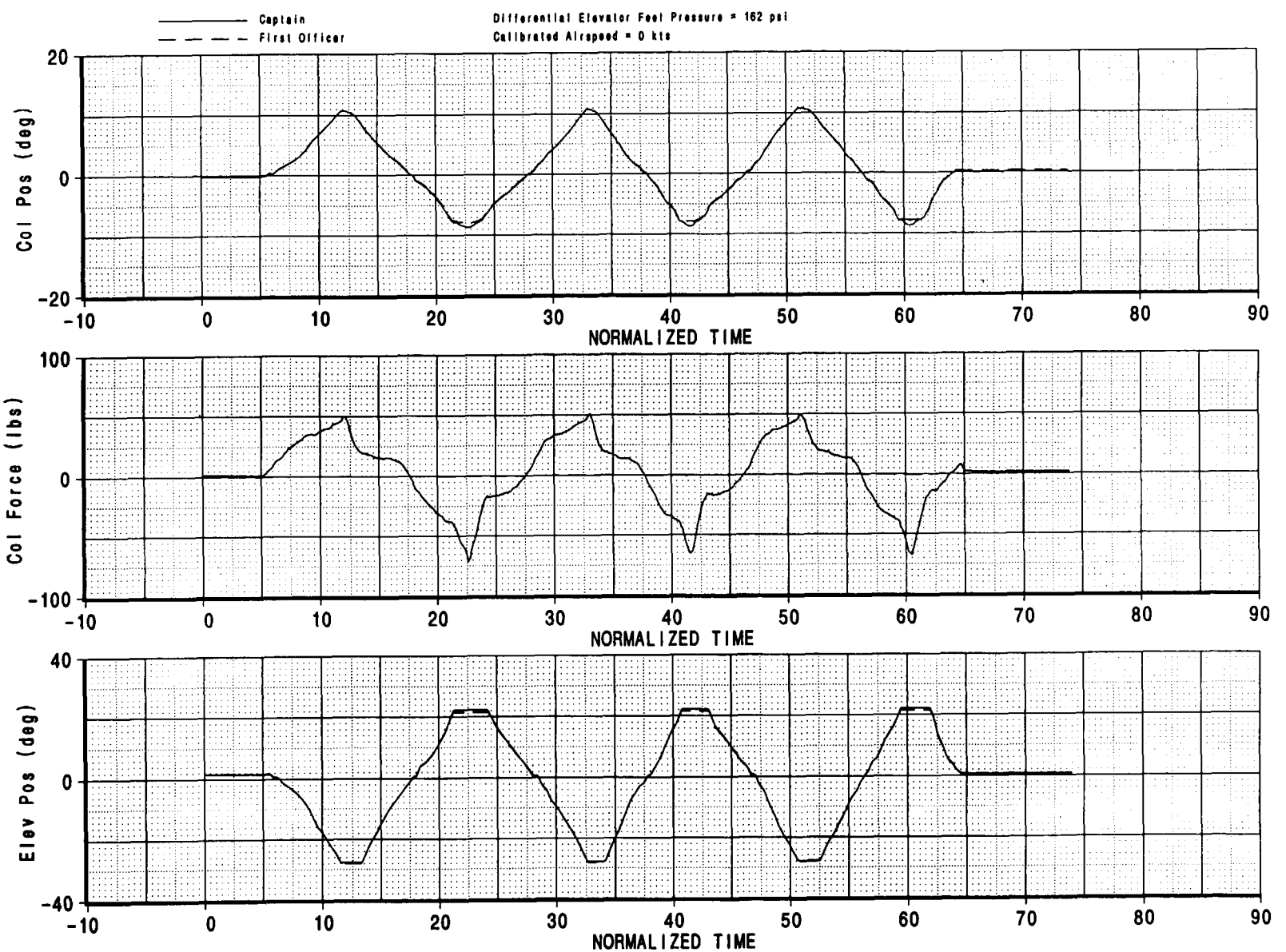


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81.39.1363.021/000-01/VR259

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| CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE | |
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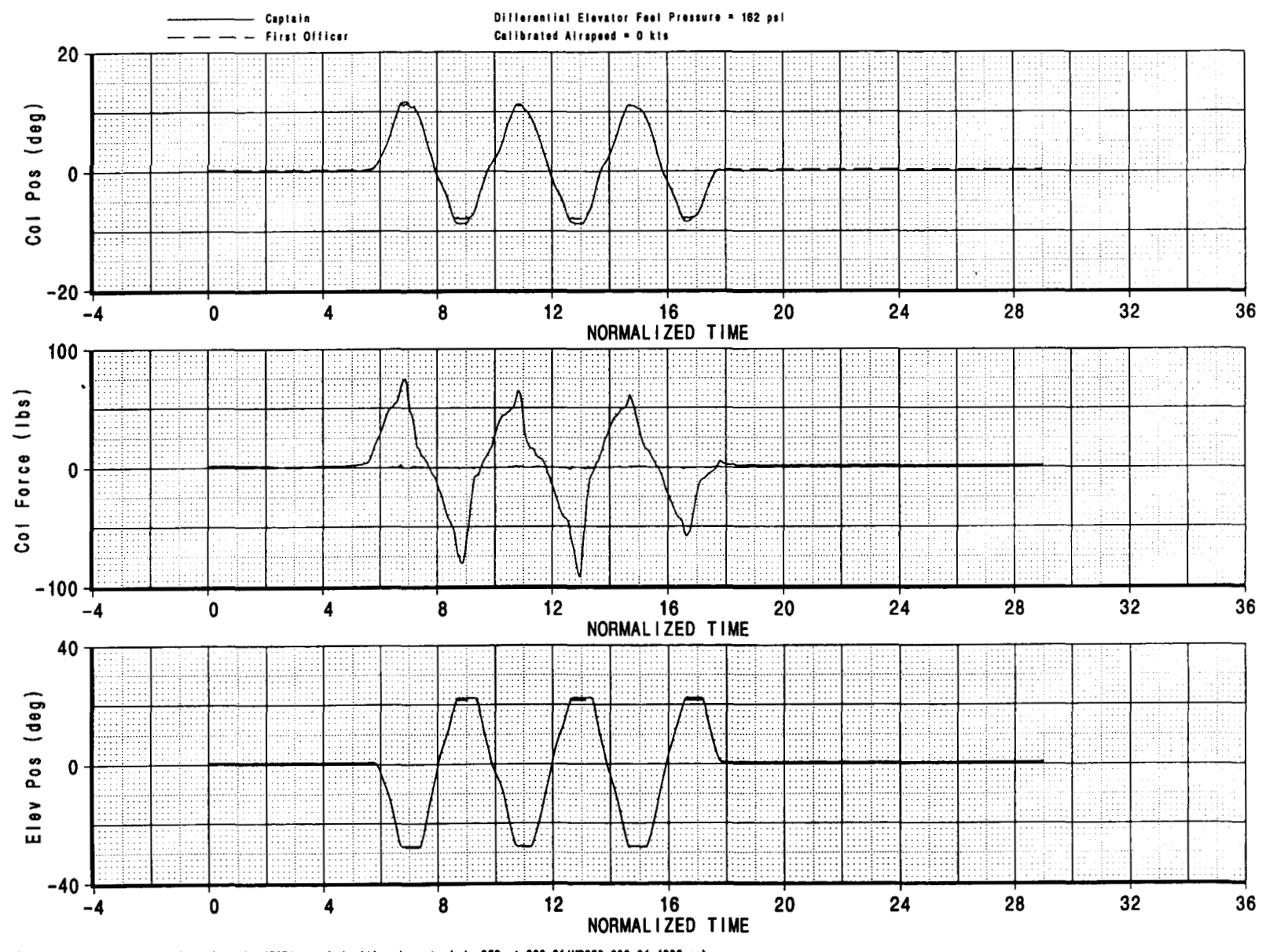
BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .021 - Capt med sweeps

Airplane: VR259
Test Date: 16-AUG-01
PAGE

08/16/01 12:44:10.0000-12:44:39.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

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B1.39.1383.022/000-01/VR259

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| CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE | |
| CHECK | | | | | |
| APPD. | | | | | |

BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .022 - Capt fast sweeps

Airplane: VR259
Test Date: 16-AUG-01
PAGE

| | CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE |
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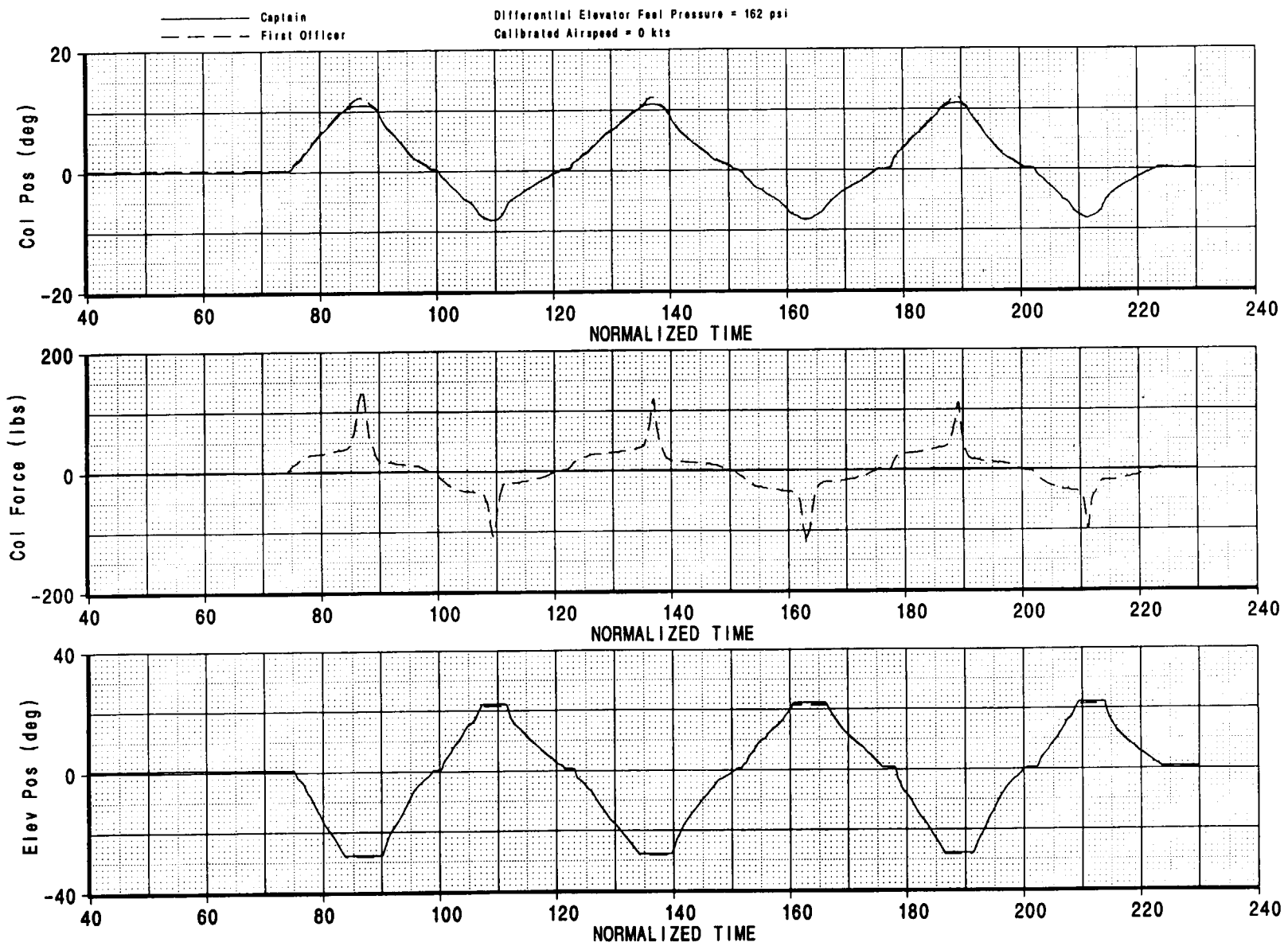
| APPD. | CHECK | | | | |
| APPD. | | | | | |

08/16/01 12:45:15.0000-12:49:05.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

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B1.39.1383.023/000-01/VR259

BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .023 - F/O slow sweeps

| PAGE | Test Date: 16-AUG-01 | Airplane: VR259 |
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| CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE |
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| CHECK | | | | |
| APPD. | | | | |
| APPD. | | | | |

BOEING

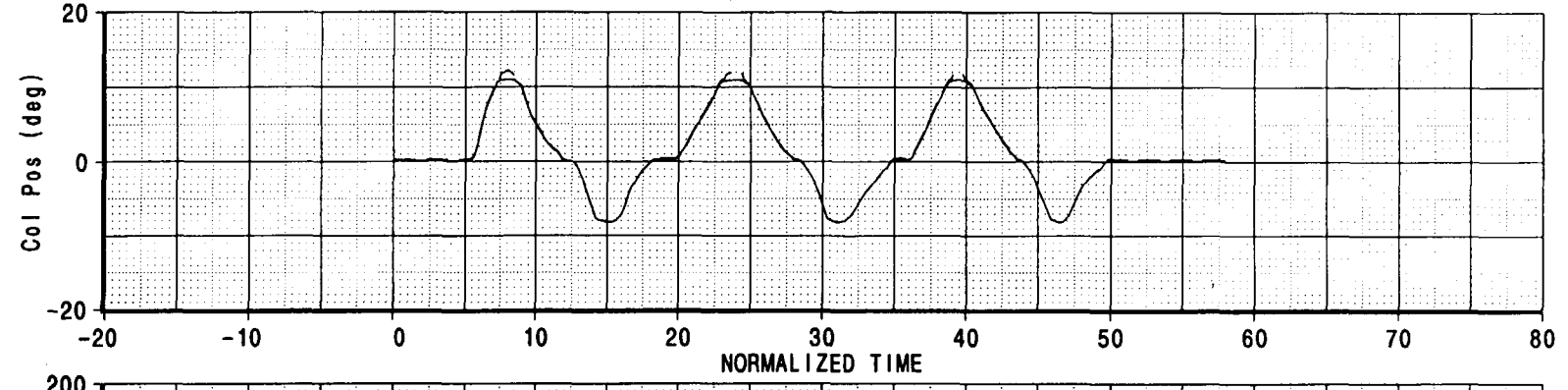
EgyptAir 990 Investigation
Baseline Ground Test
Cond .024 - F/O med sweeps

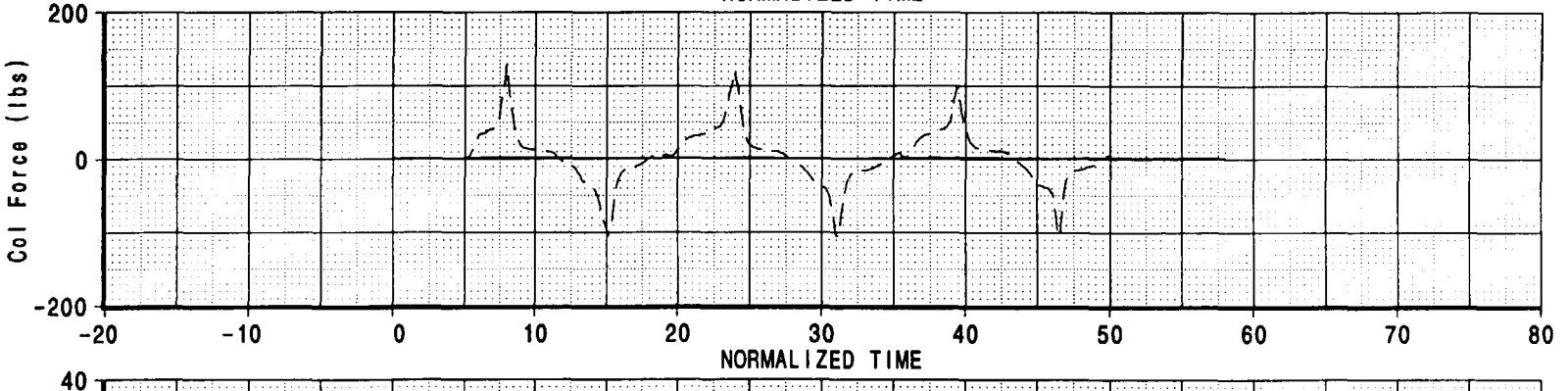
Airplane: VR259
Test Date: 16-AUG-01
PAGE

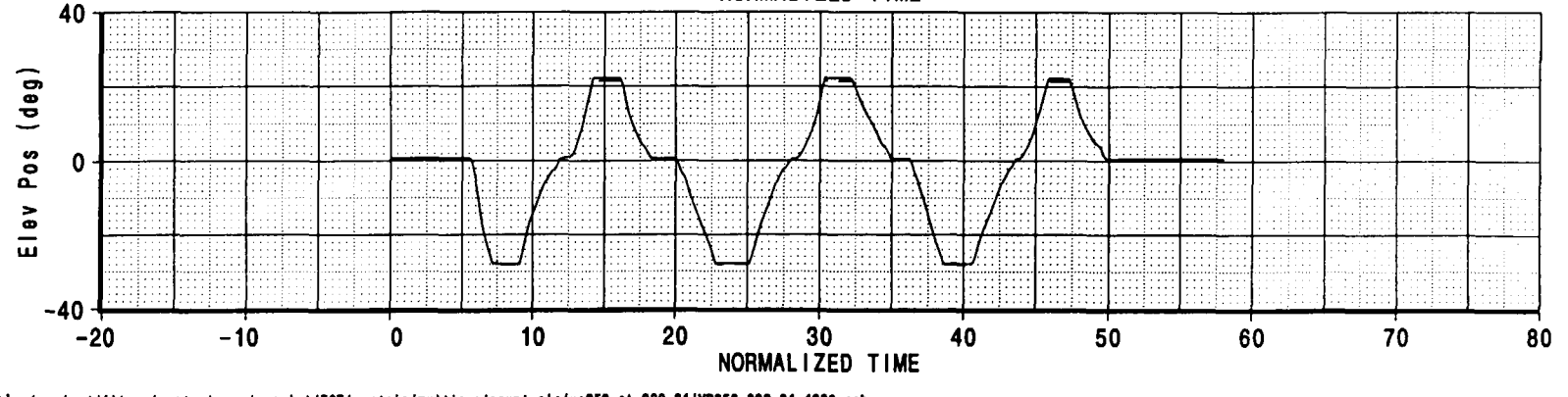
08/16/01 12:49:55.0000-12:50:53.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

Captain
First Officer

Differential Elevator Feel Pressure = 162 psi
Calibrated Airspeed = 0 kts

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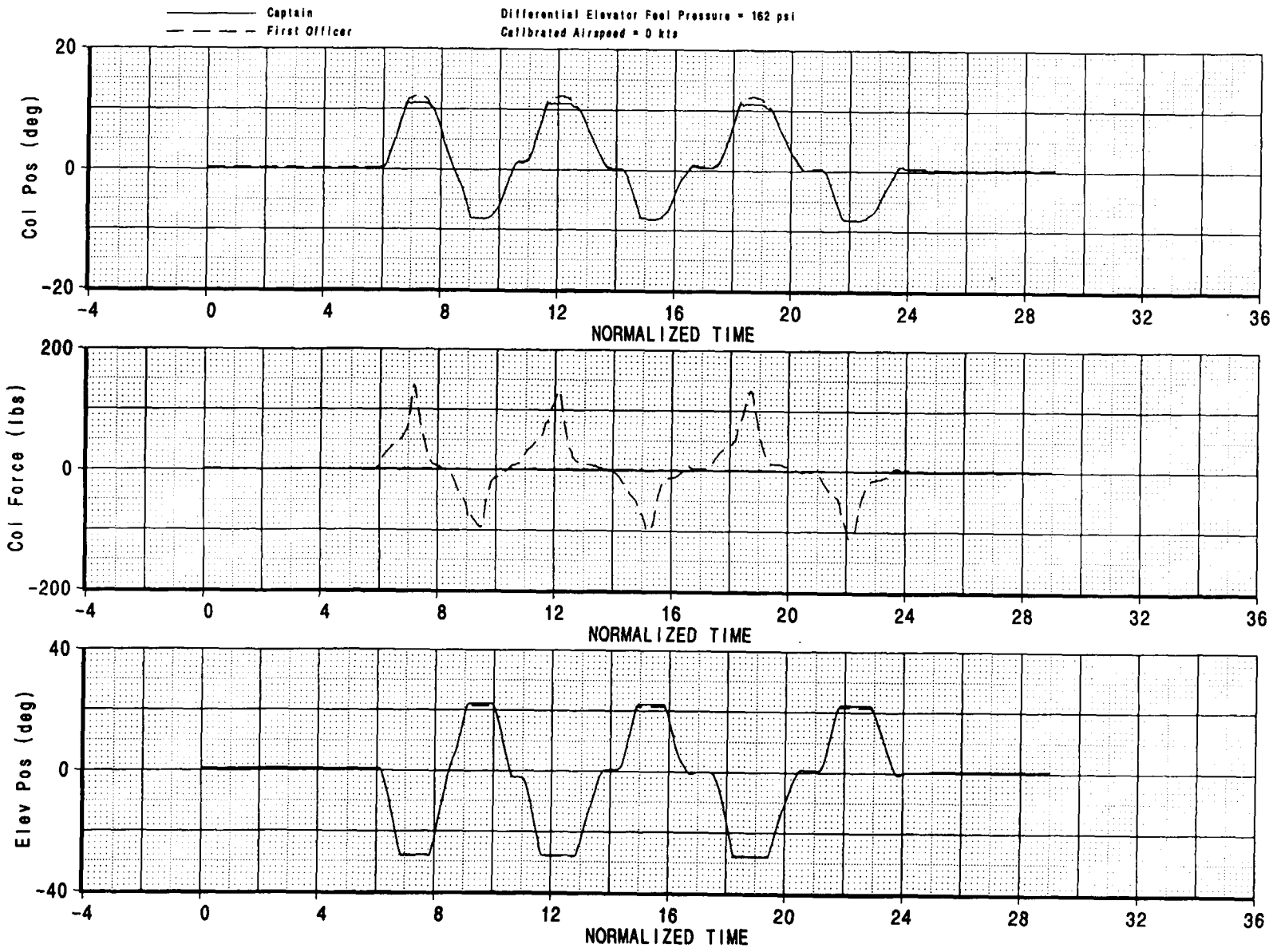
B1.39.1383.024/000-01/VR259

08/16/01 12:51:40.0000-12:52:09.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

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B1.39.1383.025/000-01/VR259

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| CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE |
| CHECK | | | | |
| APPD. | | | | |
| APPD. | | | | |

BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .025 - F/O last sweeps

| PAGE | Test Date: 16-AUG-01 | Airplane: VR259 |
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| | APPD. | CHECK | CALC |
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| | | | SEAN RUSSELL |
| | APPD. | CHECK | 24Aug01 |
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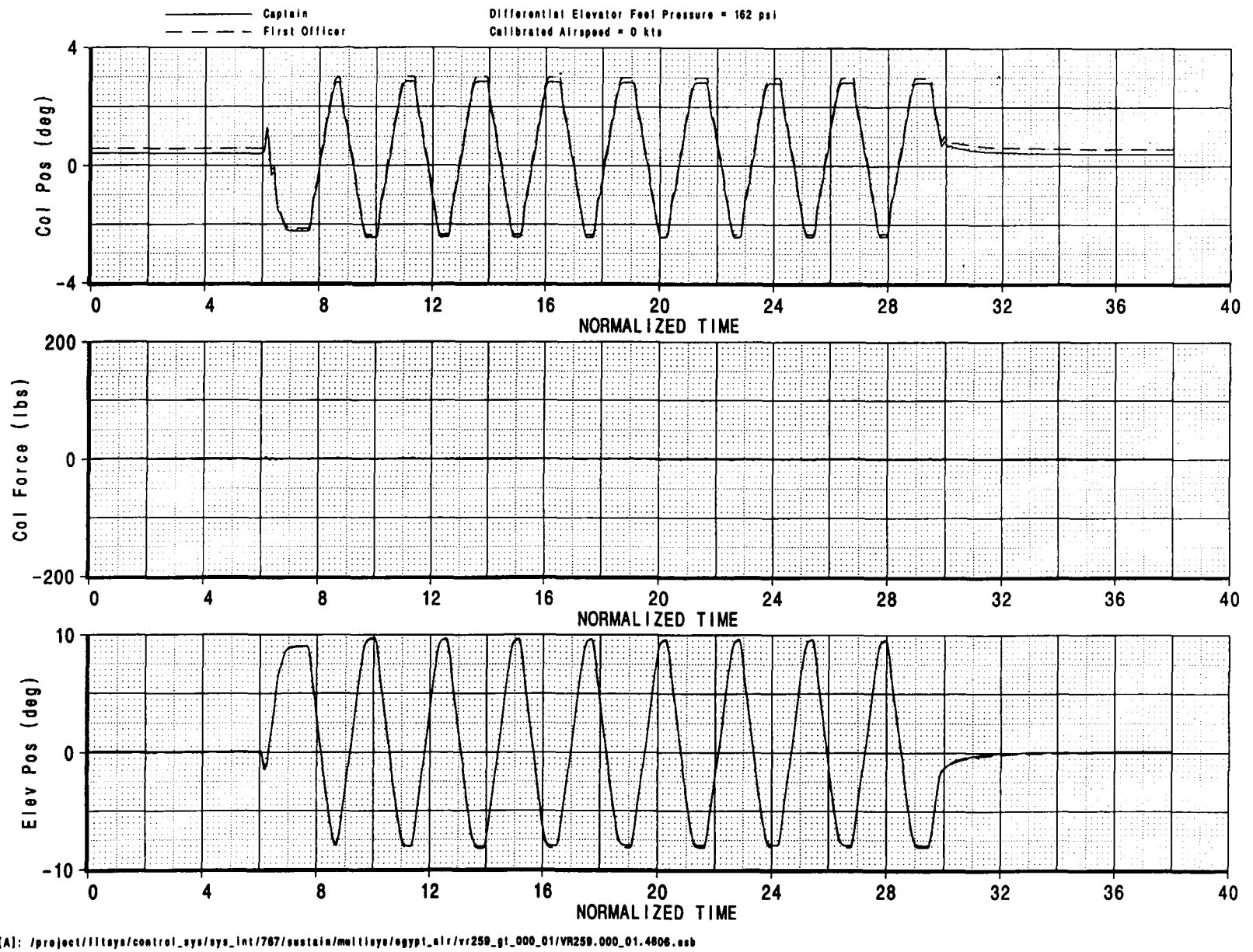
| | | | DATE |

08/16/01 13:56:40.0000-13:57:16.0000 VR259 000-01 767-300 BUCKLEY, KIMBERL

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B1.39.1383.026/000-01/VR259

BOEING

EgyptAir 990 Investigation

Baseline Ground Test

Cond .026 - Autopilot sweeps

| PAGE | Test Date: 16-AUG-01 | Airplane: VR259 |
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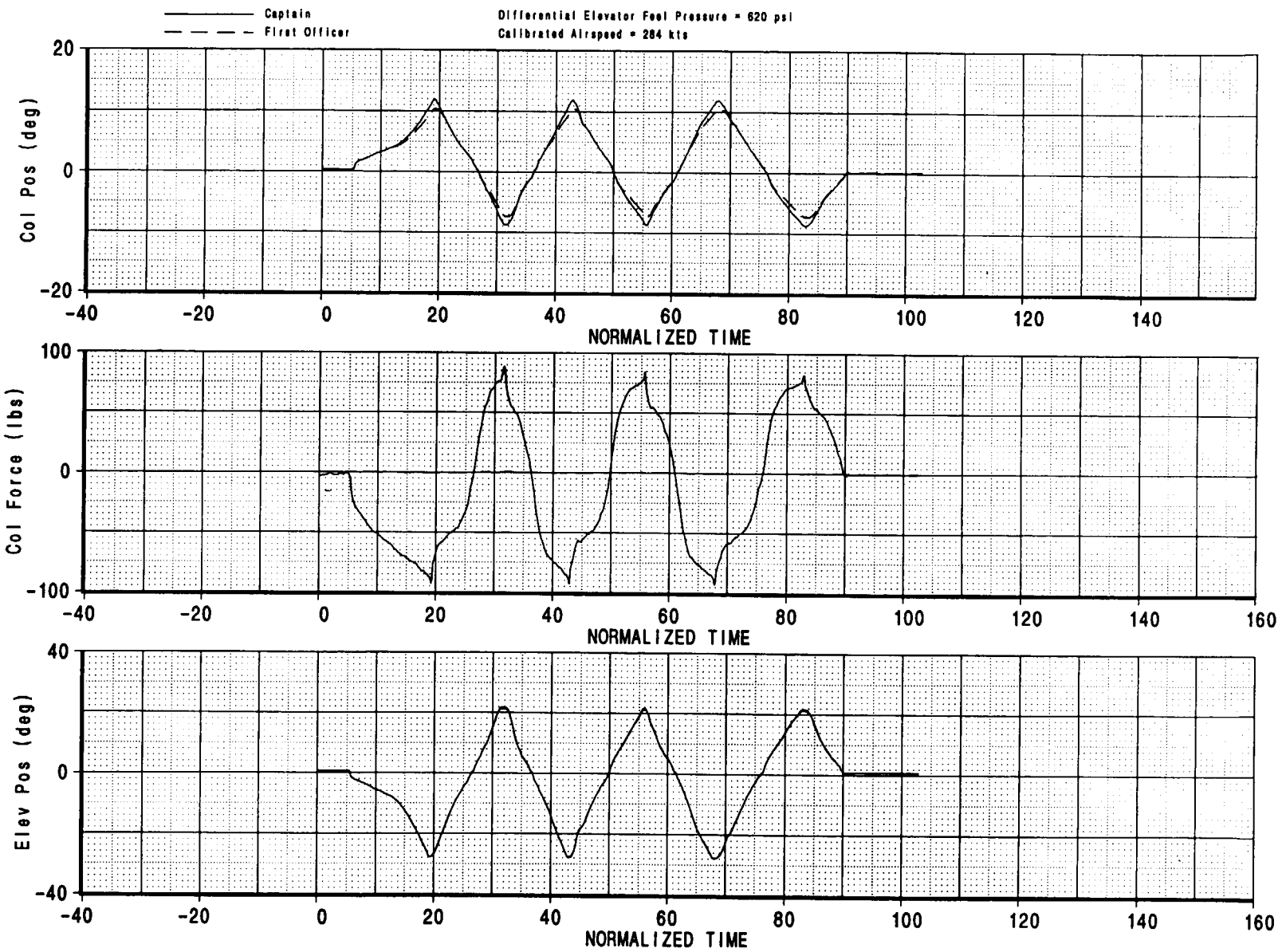
08/17/01 13:38:40.0000-13:40:23.0000 VR259 000-02 767-300 BUCKLEY, KIMBERL

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B1.39.1383.027.1/000-02/VR259

| | CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE |
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| APPD. | CHECK | | | | |
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BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .027.1 - Capt slow sweeps

| PAGE | Test Date: 17-AUG-01 | Airplane: VR259 |
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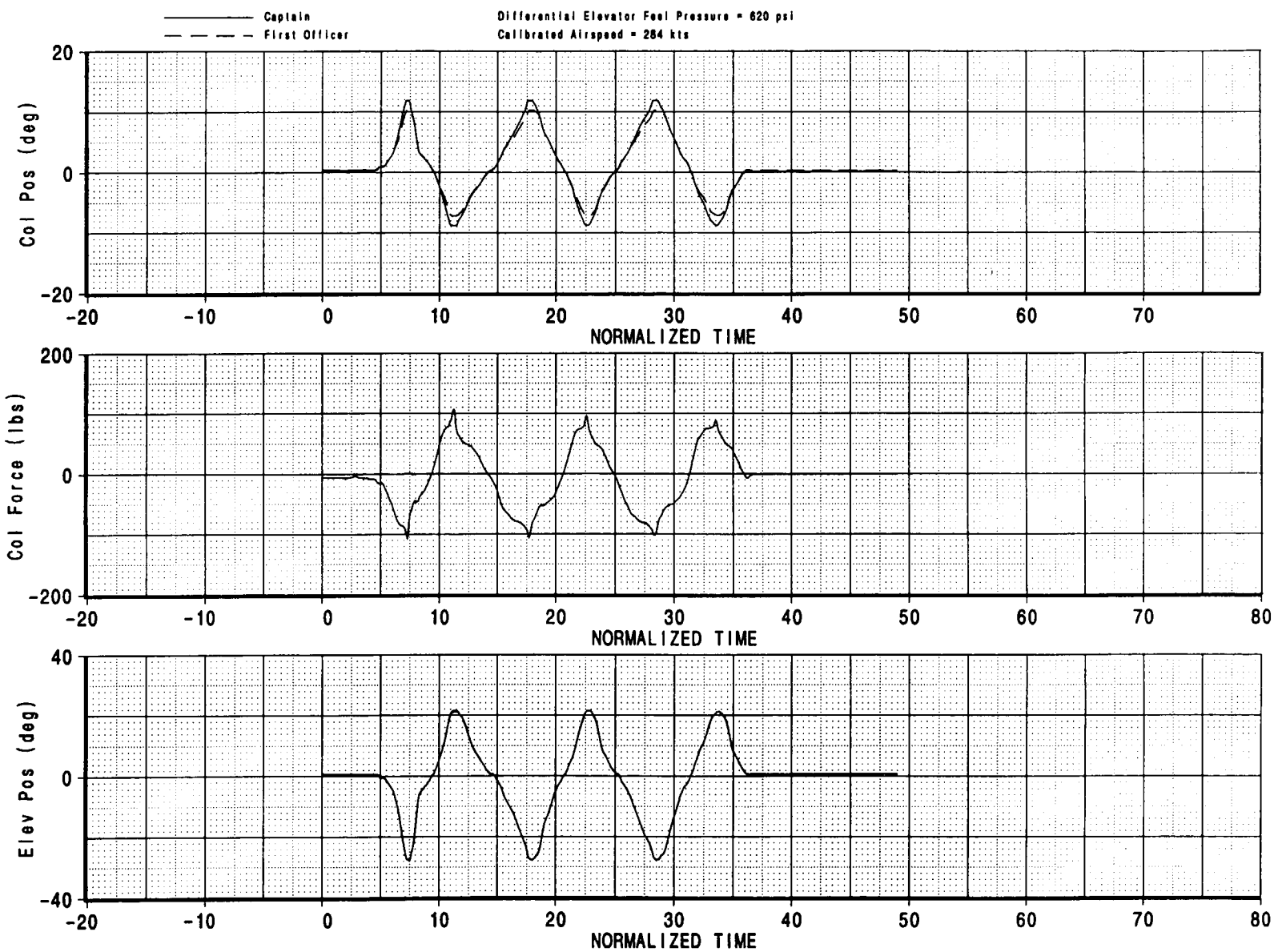
08/17/01 13:40:45.0000-13:41:34.0000 VR259 000-02 767-300 BUCKLEY, KIMBERL

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81.39.1383.028.1/000-02/VR259

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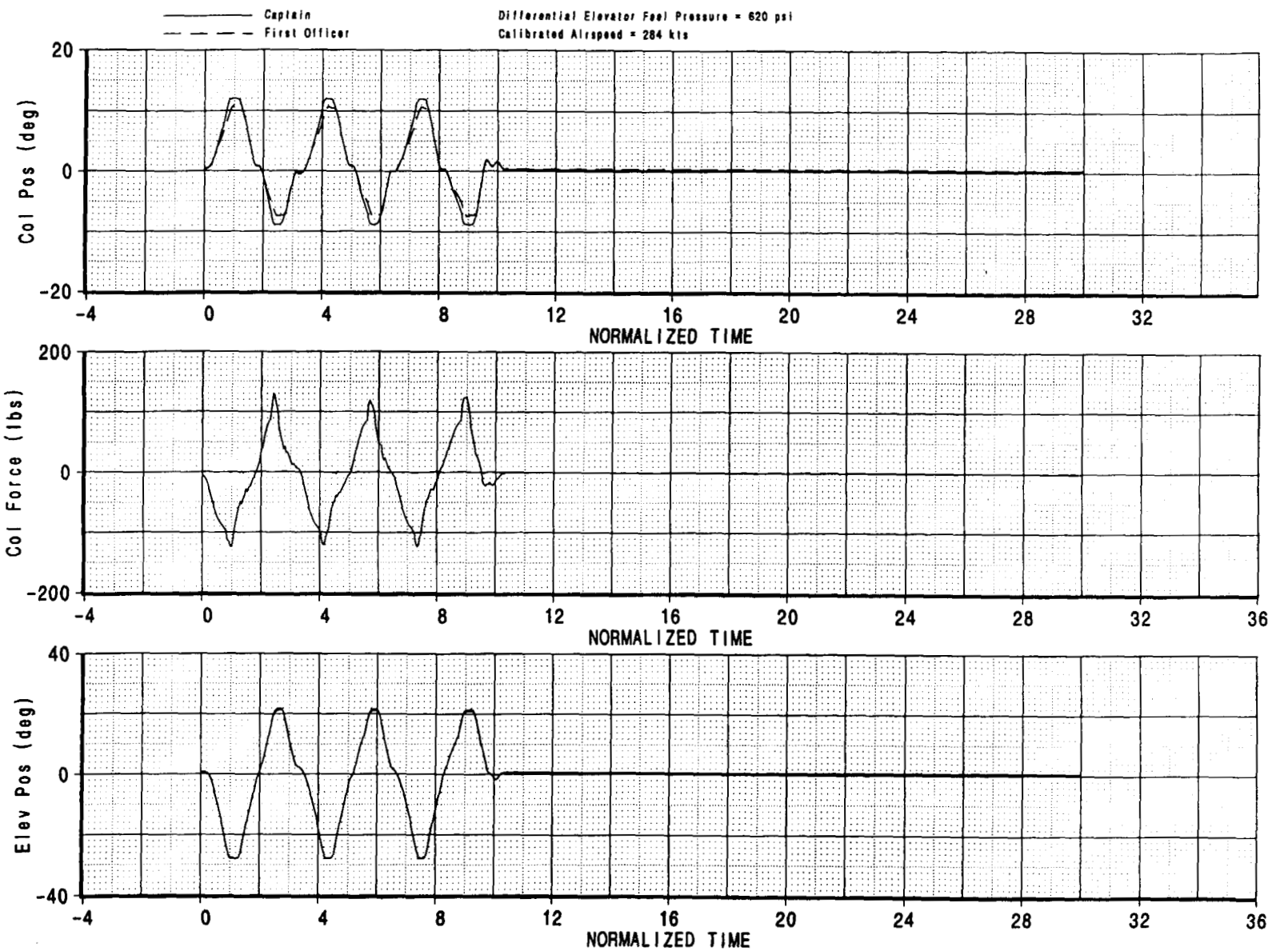
BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .028.1 - Capt med sweeps

Airplane: VR259
Test Date: 17-AUG-01

PAGE

08/17/01 13:41:45.0000-13:42:15.0000 VR259 000-02 767-300 BUCKLEY, KIMBERL

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01.39.1383.029.1/000-02/VR259

| CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE |
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BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .029.1 - Capt fast sweeps

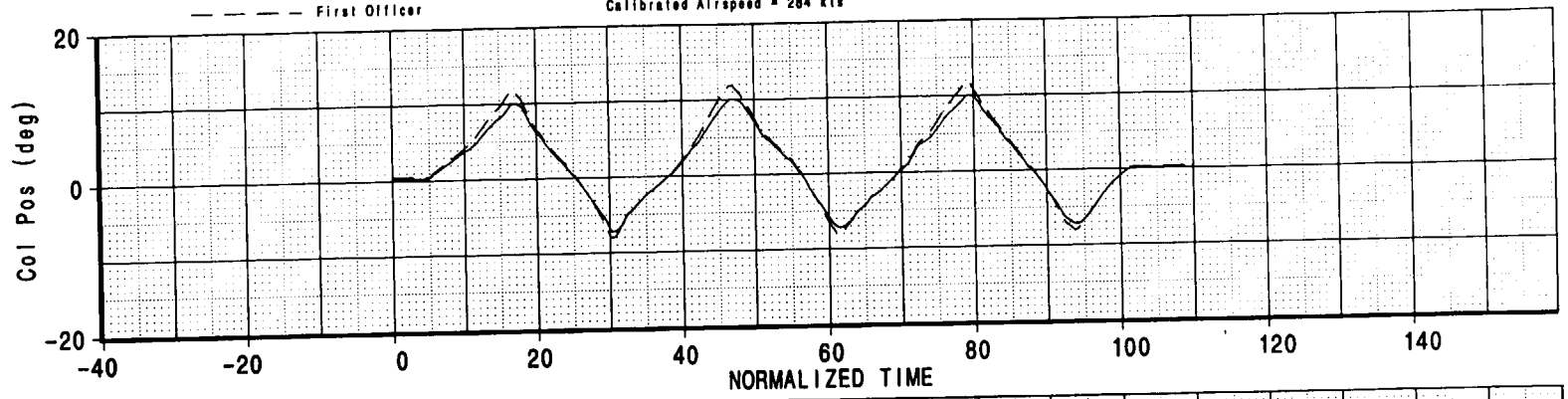
Airplane: VR259
Test Date: 17-AUG-01

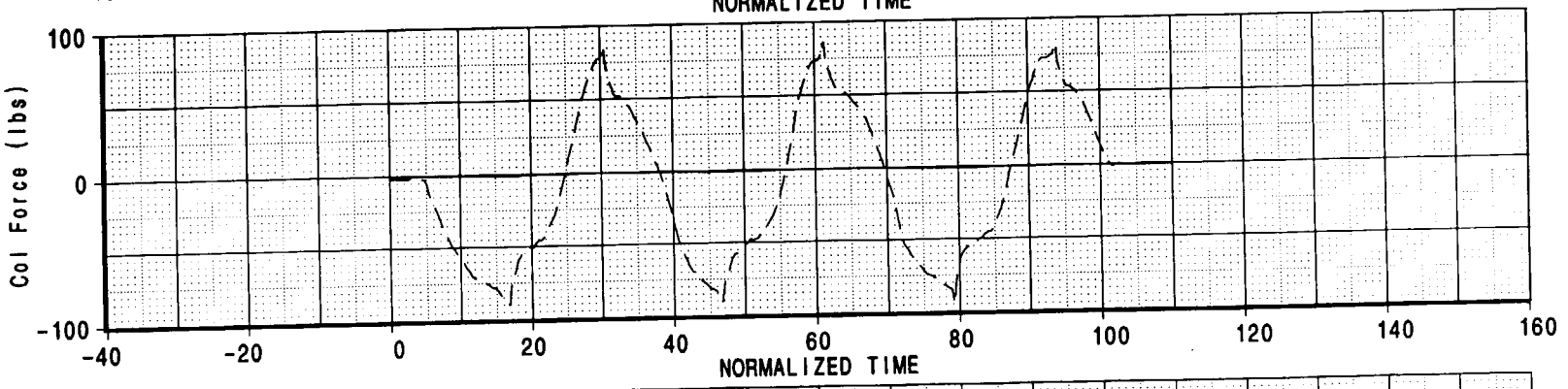
PAGE

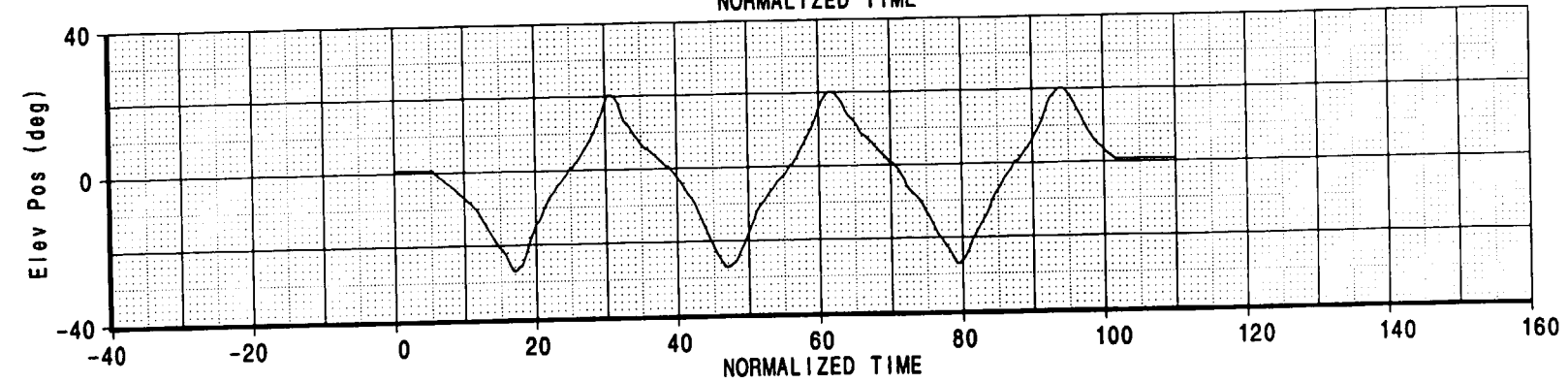
08/17/01 13:42:45.0000-13:44:35.0000 VR259 000-02 767-300 BUCKLEY, KIMBERL

Captain
First Officer

Differential Elevator Feel Pressure = 620 psi
Calibrated Airspeed = 284 kts

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B1.39.1383.030.1/000-02/VR259

| | CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE |
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| APPD. | CHECK | | | | |
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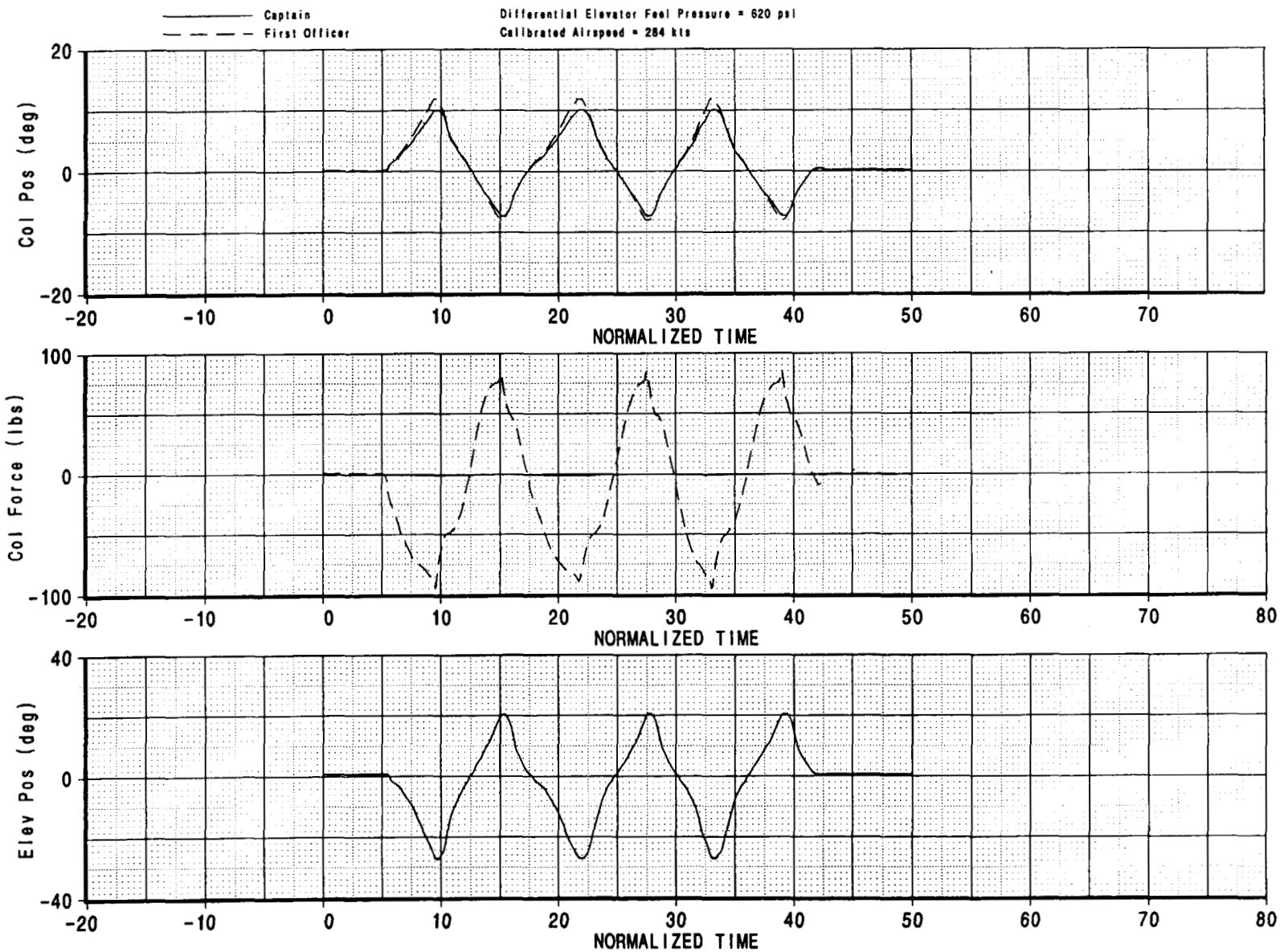
BOEING

EgyptAir 990 Investigation
Baseline Ground Test
Cond .030.1 - F/O slow sweeps

Airplane: VR259
Test Date: 17-AUG-01
PAGE

08/17/01 13:44:55.0000-13:45:45.0000 VR259 000-02 767-300 BUCKLEY, KIMBERL

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B1.39.1383.031.1/000-02/VR259

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EgyptAir 990 Investigation
Baseline Ground Test
Cond .031.1 - F/O mod sweeps

Airplane: VR259
Test Date: 17-AUG-01
PAGE

| | APPD. | CHECK | CALC |
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| | | | SEAN RUSSELL |
| | | | 24Aug01 |
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BOEING

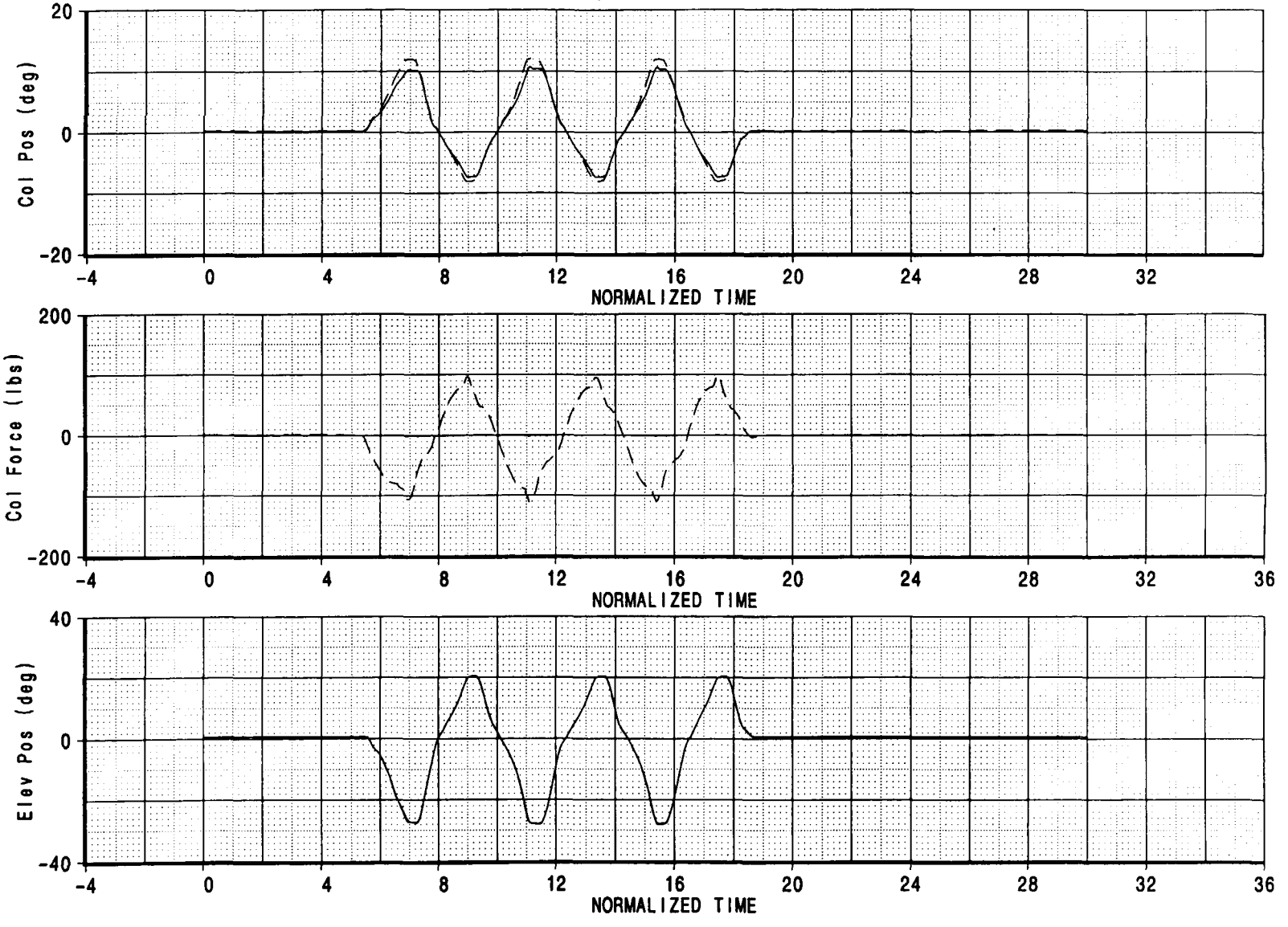
EgyptAir 990 Investigation
Baseline Ground Test
Cond .032.1 - F/O fast sweeps

Airplane: VR259
Test Date: 17-AUG-01
PAGE

08/17/01 13:46:15.0000-13:46:45.0000 VR259 000-02 767-300 BUCKLEY, KIMBERL

Captain
First Officer

Differential Elevator Feel Pressure = 620 psi
Calibrated Airspeed = 284 kts

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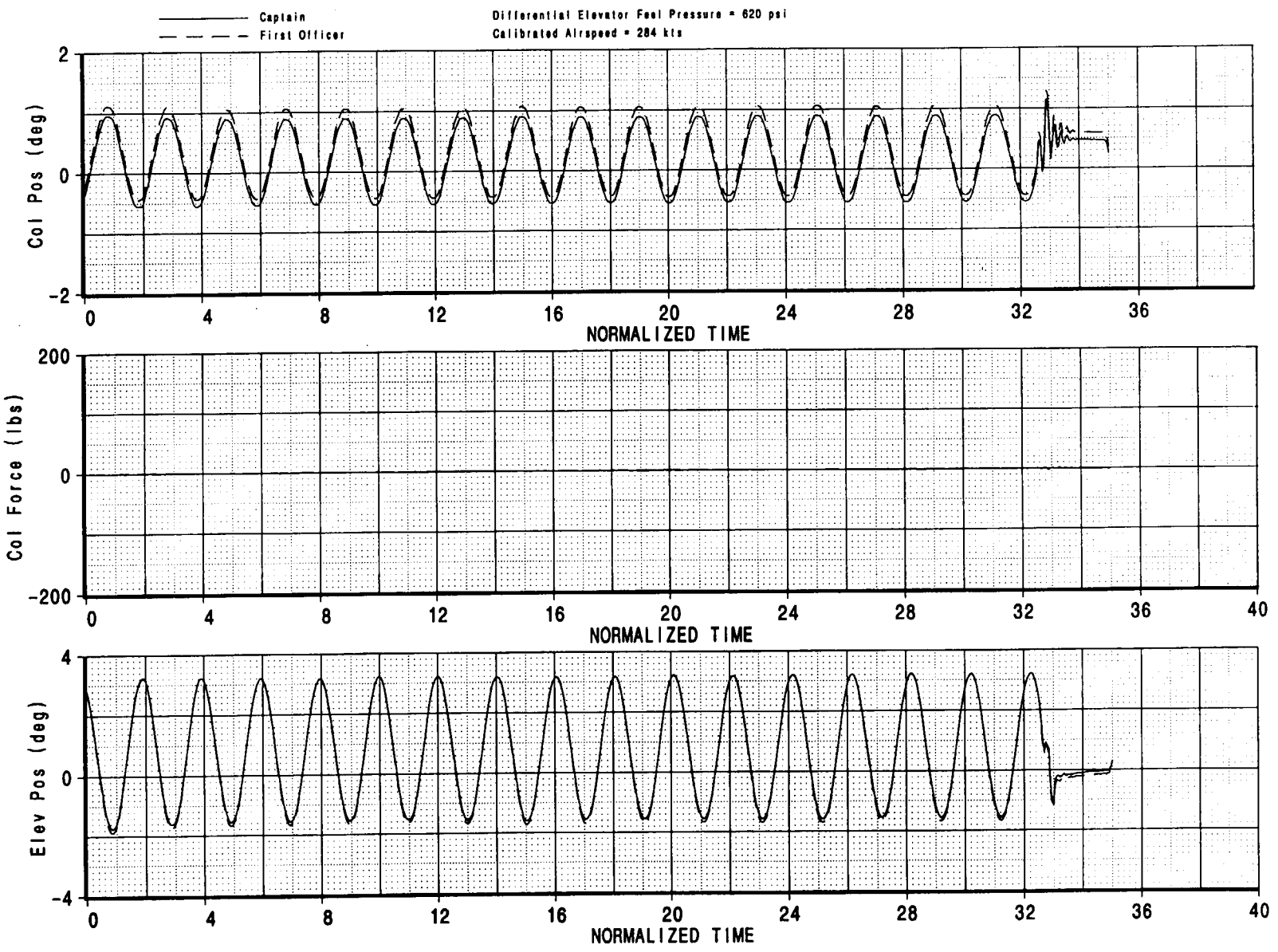


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| CALC | SEAN RUSSELL | 24Aug01 | REVISED | DATE | |
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BOEING

EgyptAir 990 Investigation

Baseline Ground Test

Cond .033.1 - Autopilot sweeps

Airplane: VR259

Test Date: 17-AUG-01

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