

DOCKET NO. SA - 510

EXHIBIT NO. 13X - S

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

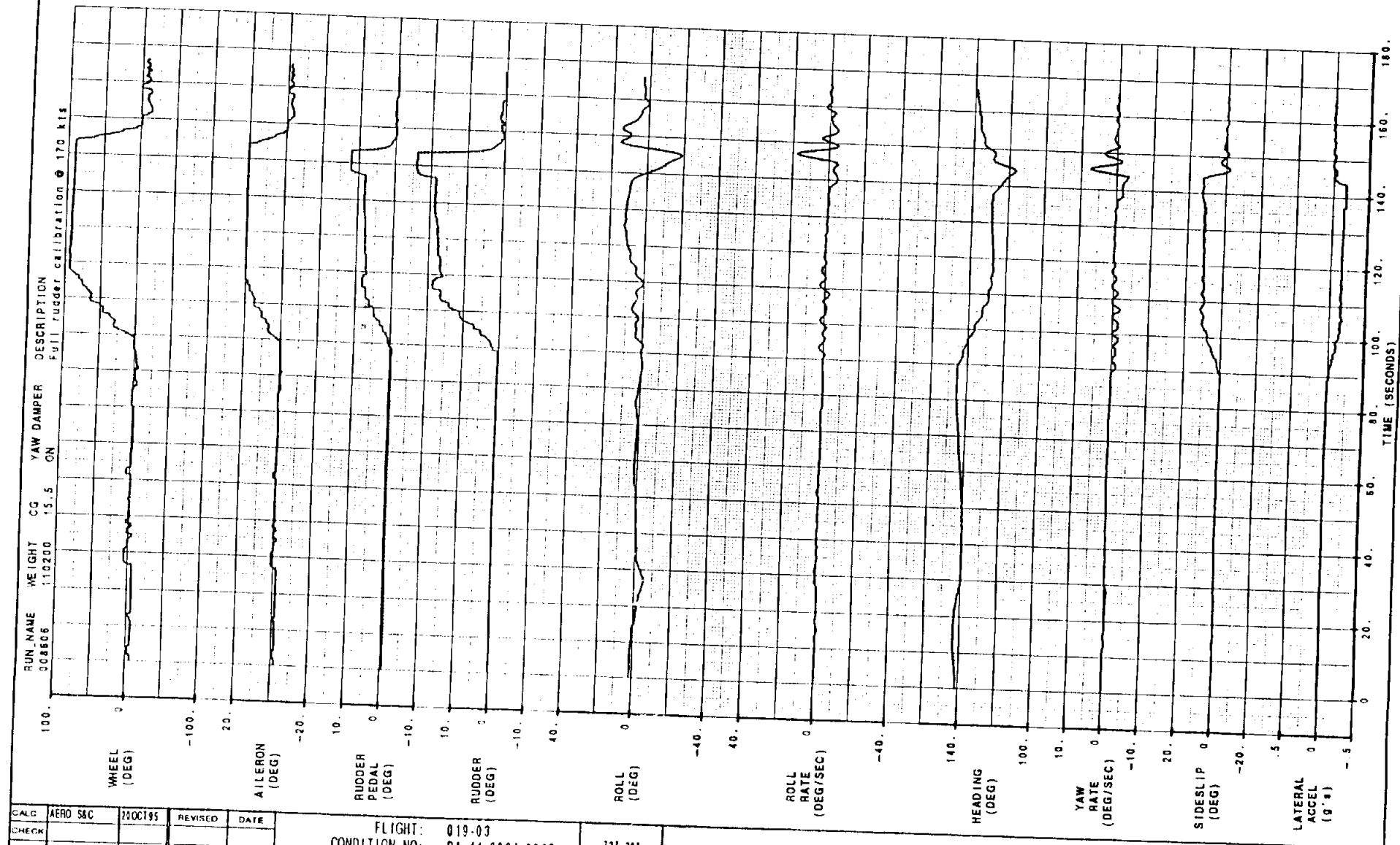
Simulator Calibration Flight Test Plots  
for Simulator Proof-of-Match

```

//ra40/disk4/waketest/11_database/
111_19_03_combined.ash
#008605A - data_plots/waketest plb

```





|       |          |         |         |      |
|-------|----------|---------|---------|------|
| CALC  | AERO S&C | 220C195 | REVISED | DATE |
| CHECK |          |         |         |      |
| APR   |          |         |         |      |
| APR   |          |         |         |      |

FLIGHT: 019-03  
 CONDITION NO: B1.41.0081 002C  
 TEST DATE: 09/20/95

THE BOEING COMPANY

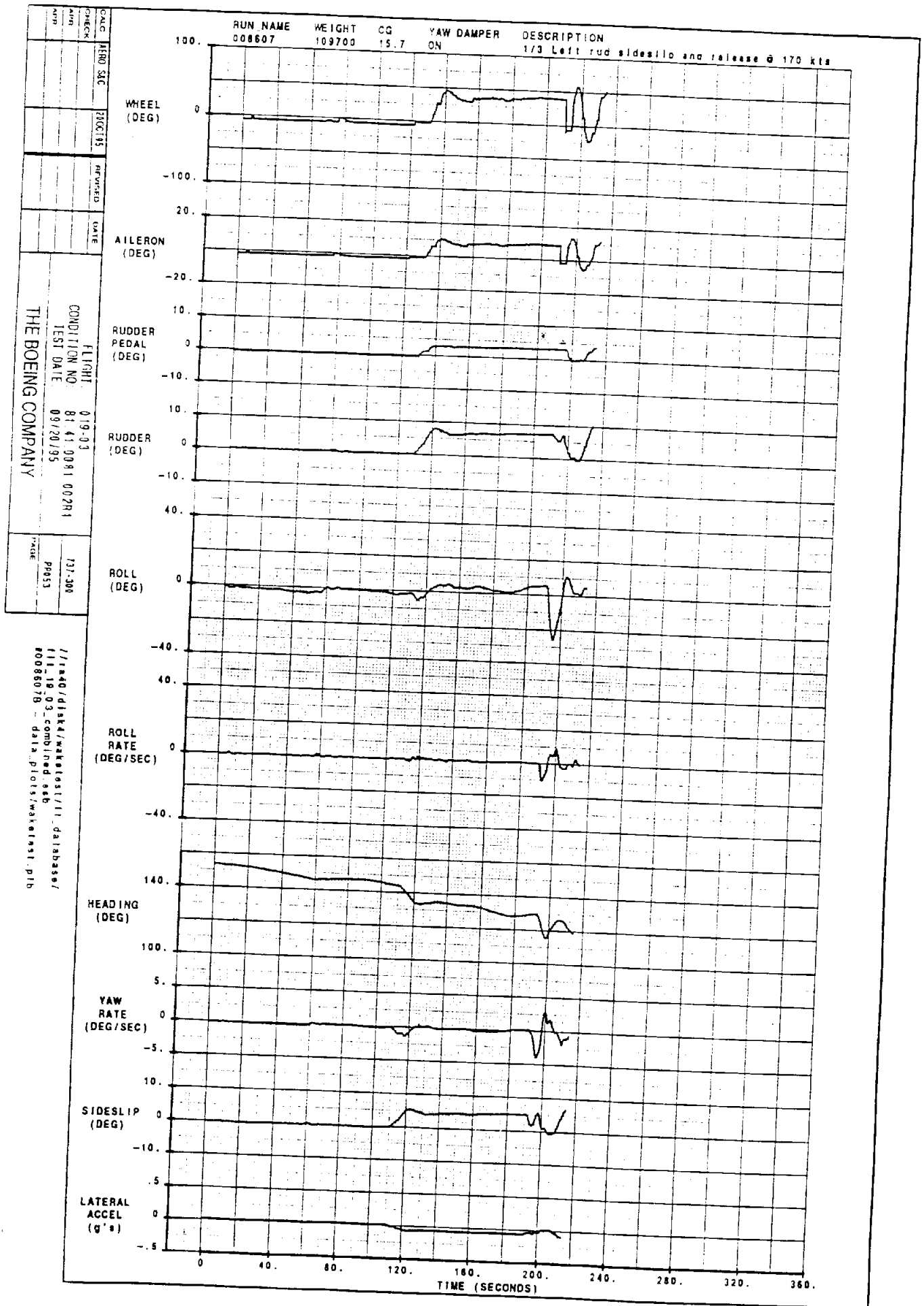
737-300

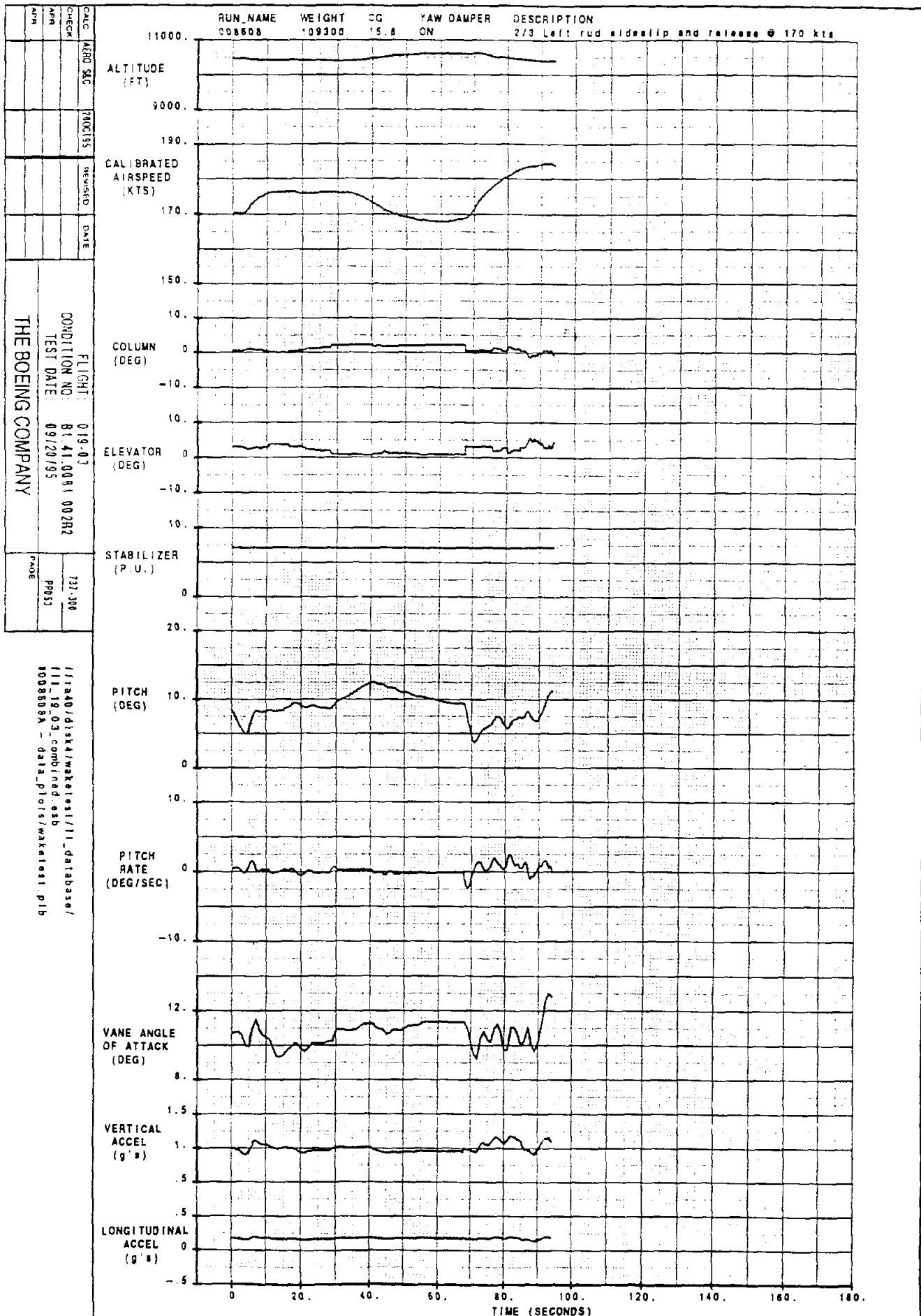
PP053

PAGE

//ra40/disk4/waketest/11\_database/  
 11t\_19\_03\_combined.esb  
 #008606B - data\_plots/waketest.plb

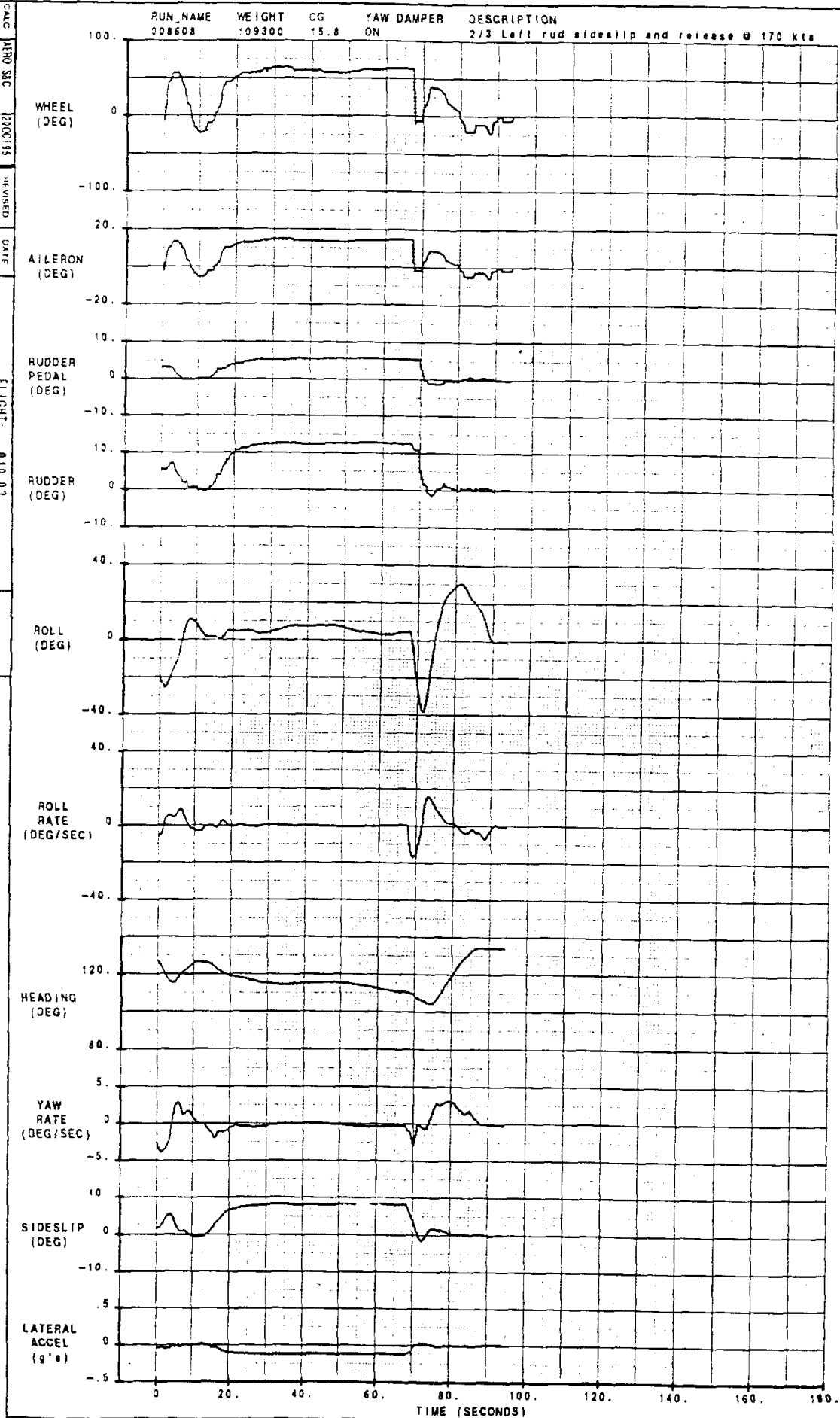


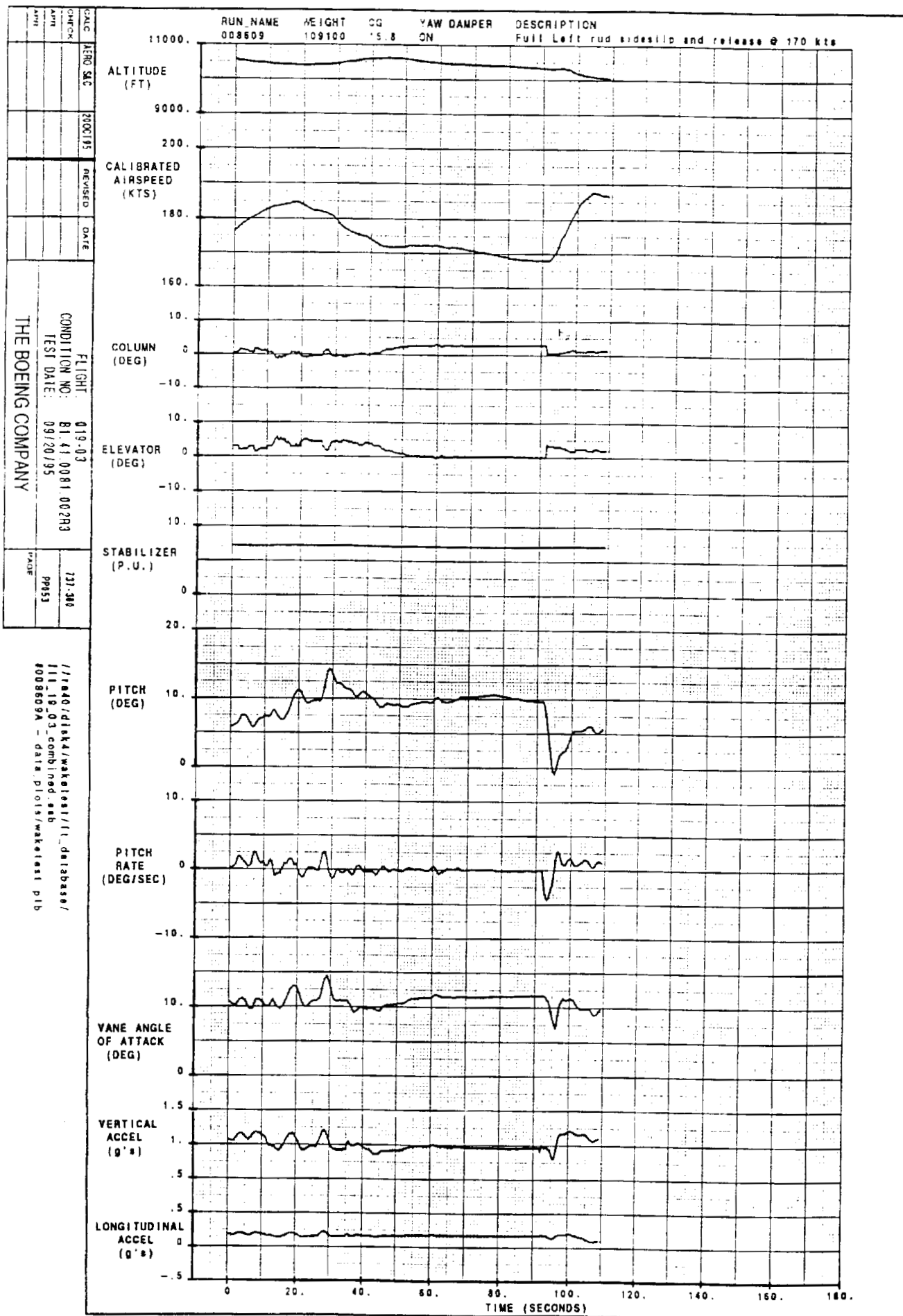




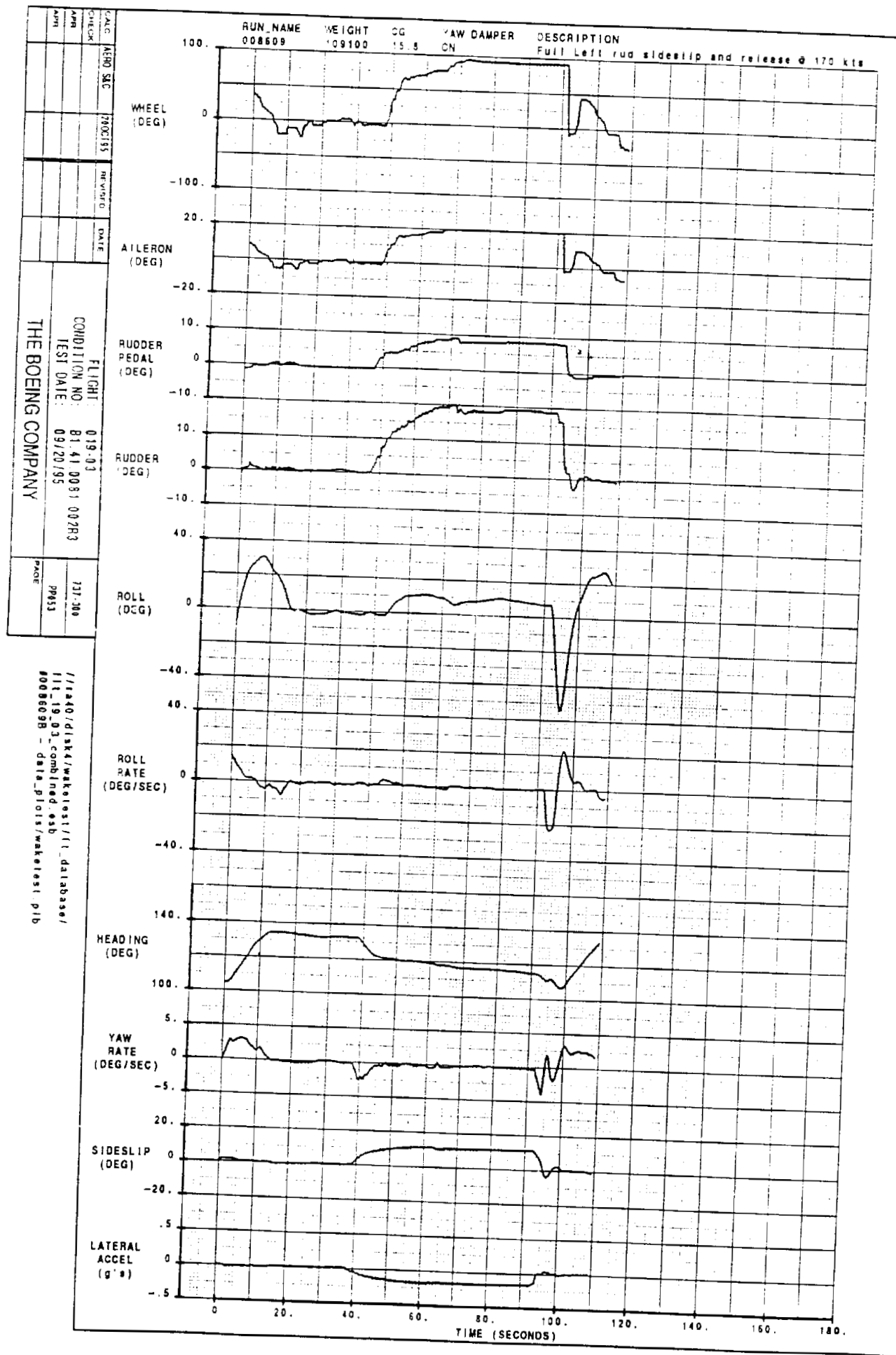
|                                                                                                               |         |         |         |      |
|---------------------------------------------------------------------------------------------------------------|---------|---------|---------|------|
| CALC                                                                                                          | NR0 SIC | 2200195 | REVISED | DATE |
| CHECK                                                                                                         |         |         |         |      |
| APP                                                                                                           |         |         |         |      |
| FLIGHT: 019-03<br>CONDITION NO: B141.0081.00282<br>TEST DATE: 09/20/95<br>THE BOEING COMPANY<br>PPS13<br>PAGE |         |         |         |      |

//ra40/disk/wakeinst/11\_database/  
 111\_19\_03\_combined.stb  
 #0086088 - data.plots/wakeinst.plb





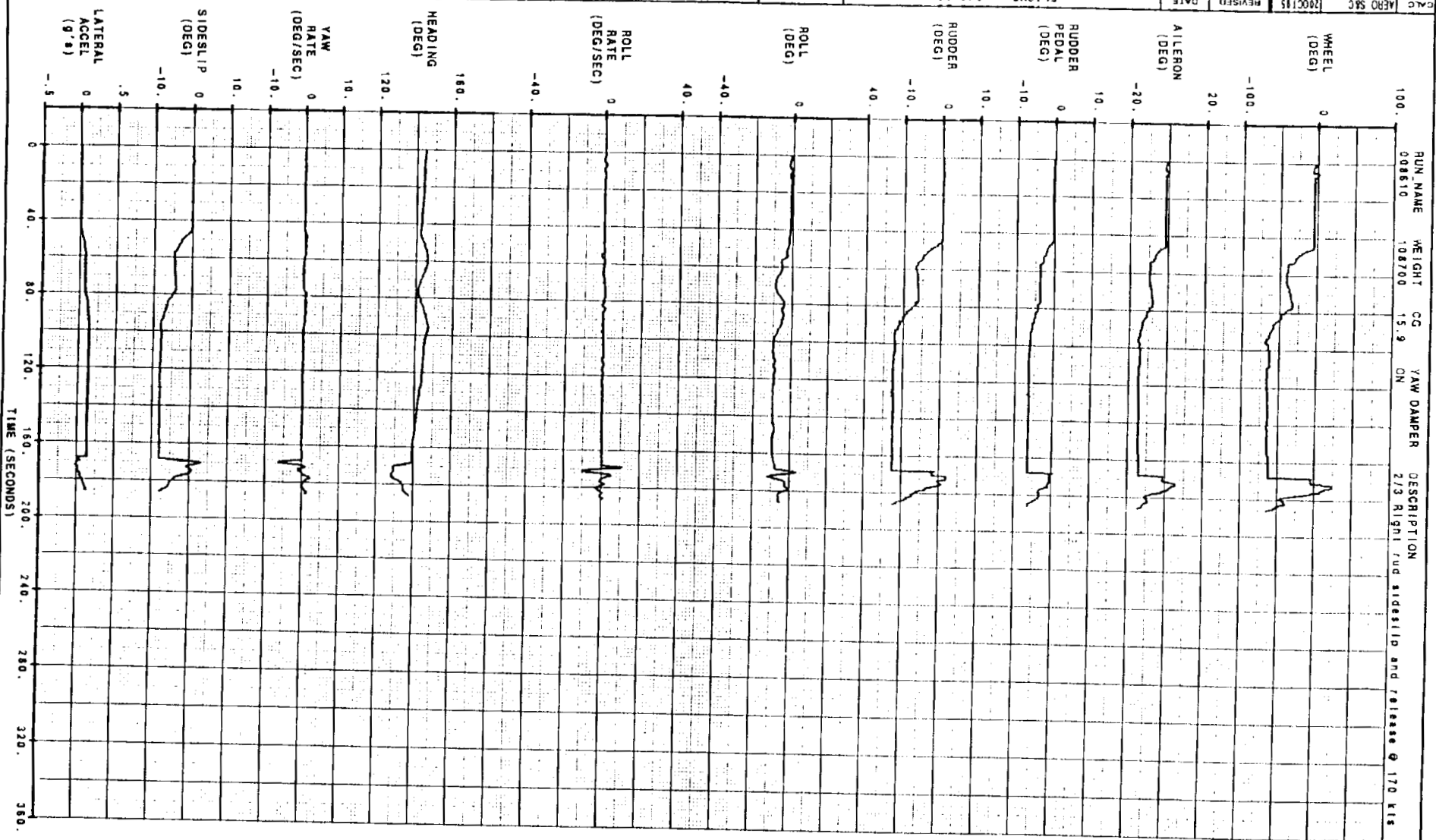






|                                                                                               |          |         |         |      |
|-----------------------------------------------------------------------------------------------|----------|---------|---------|------|
| CALC                                                                                          | APRO SAC | 200C115 | REVISID | DATE |
| APR                                                                                           | APR      |         |         |      |
| FLIGHT: 019-03<br>CONDITION NO: B1 41 0081.007R1<br>TEST DATE: 09/20/95<br>THE BOEING COMPANY |          |         |         |      |
| PAGE                                                                                          |          |         |         |      |
| 737-380                                                                                       |          |         |         |      |
| PP853                                                                                         |          |         |         |      |

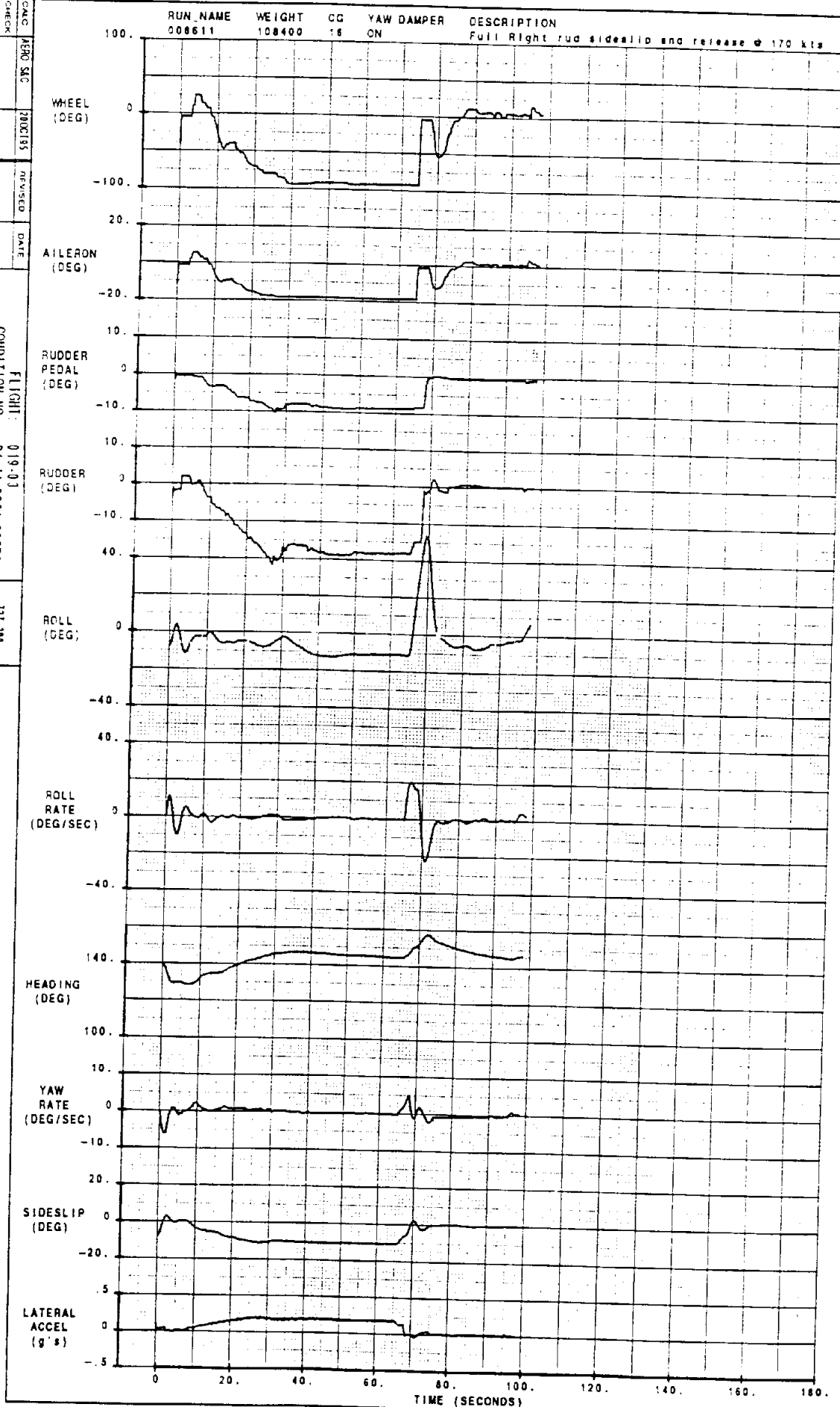
//na40/disk4/wakelest/11\_database/  
 111\_19\_03\_combined.ssb  
 #0086108 - data.plots/wakelest.plb



[illegible]

|                    |         |               |                  |
|--------------------|---------|---------------|------------------|
| CALC               | 2003195 | DATE          | 019-03           |
| CHECK              |         | TEST DATE     | 09/20/95         |
| APR                |         | CONDITION NO. | BT 41 0081 007H2 |
| APR                |         | TEST DATE     | 09/20/95         |
| THE BOEING COMPANY |         | 737-300       | PP53             |
|                    |         | 737-300       | PP53             |

//ind0/disk4/wakeles/11 - database/  
111 - 19.03 combined asb  
1008611B - data plots/wakeles1.plt



| CALC | CHECK | APPROX   | REVISED | DATE |
|------|-------|----------|---------|------|
|      |       | 09/20/95 |         |      |

| RUN NAME | WEIGHT | CG   | YAW DAMPER | DESCRIPTION                       |
|----------|--------|------|------------|-----------------------------------|
| 008616   | 106900 | 15.5 | ON         | Full rudder calibration @ 190 kts |

FLIGHT: 019-03  
CONDITION NO: B1 41 0081 003C  
TEST DATE: 09/20/95

THE BOEING COMPANY

PAGE 737-300 P053

//rad0/disk4/wakestest/11\_database/  
11\_19\_03\_combined.asb  
#008616A - data\_pilot/wakestest.plb

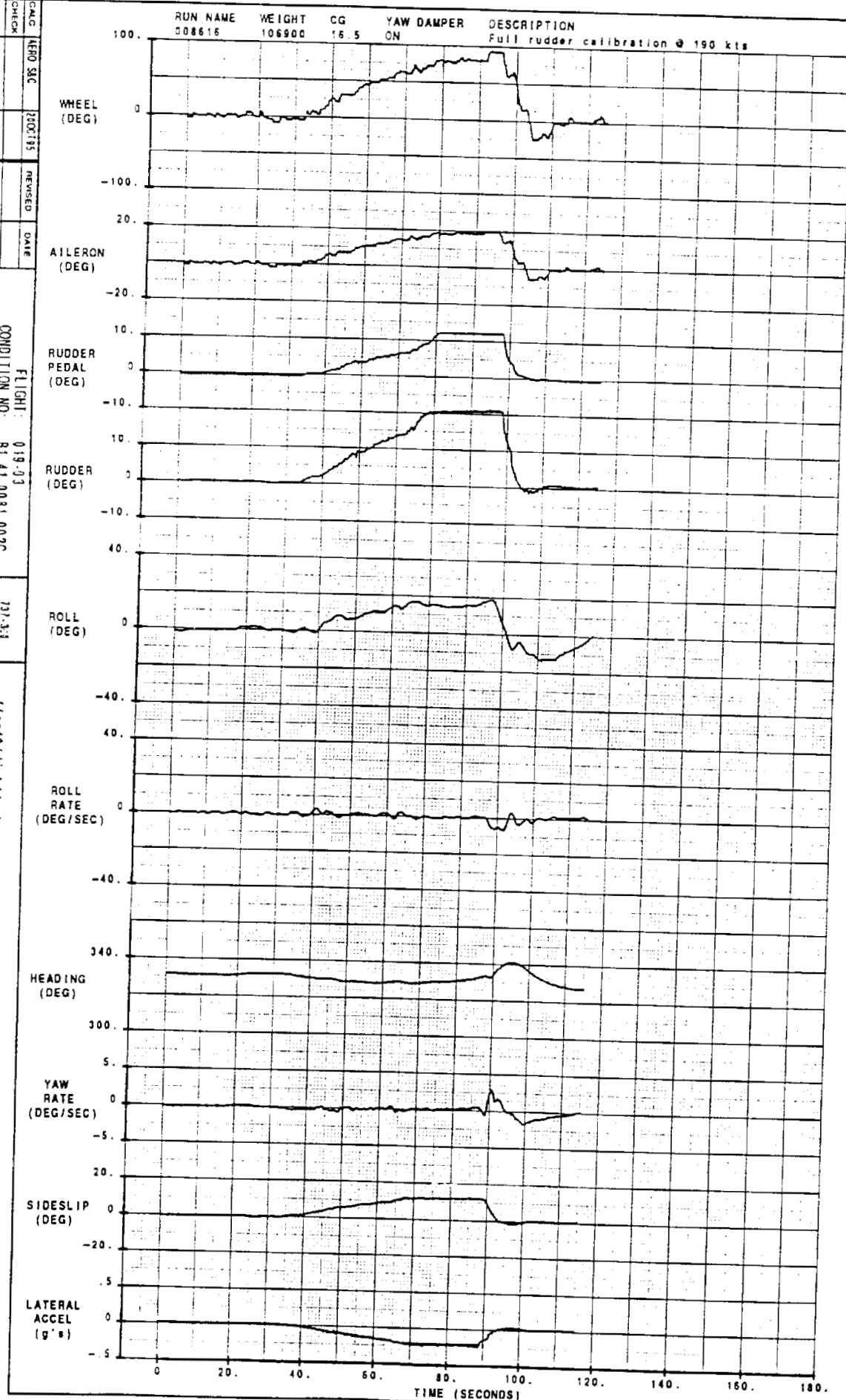
|       |         |         |         |      |
|-------|---------|---------|---------|------|
| CALC  | 480 SEC | 200.195 | REVISED | DATE |
| CHECK |         |         |         |      |
| APR   |         |         |         |      |
| APR   |         |         |         |      |

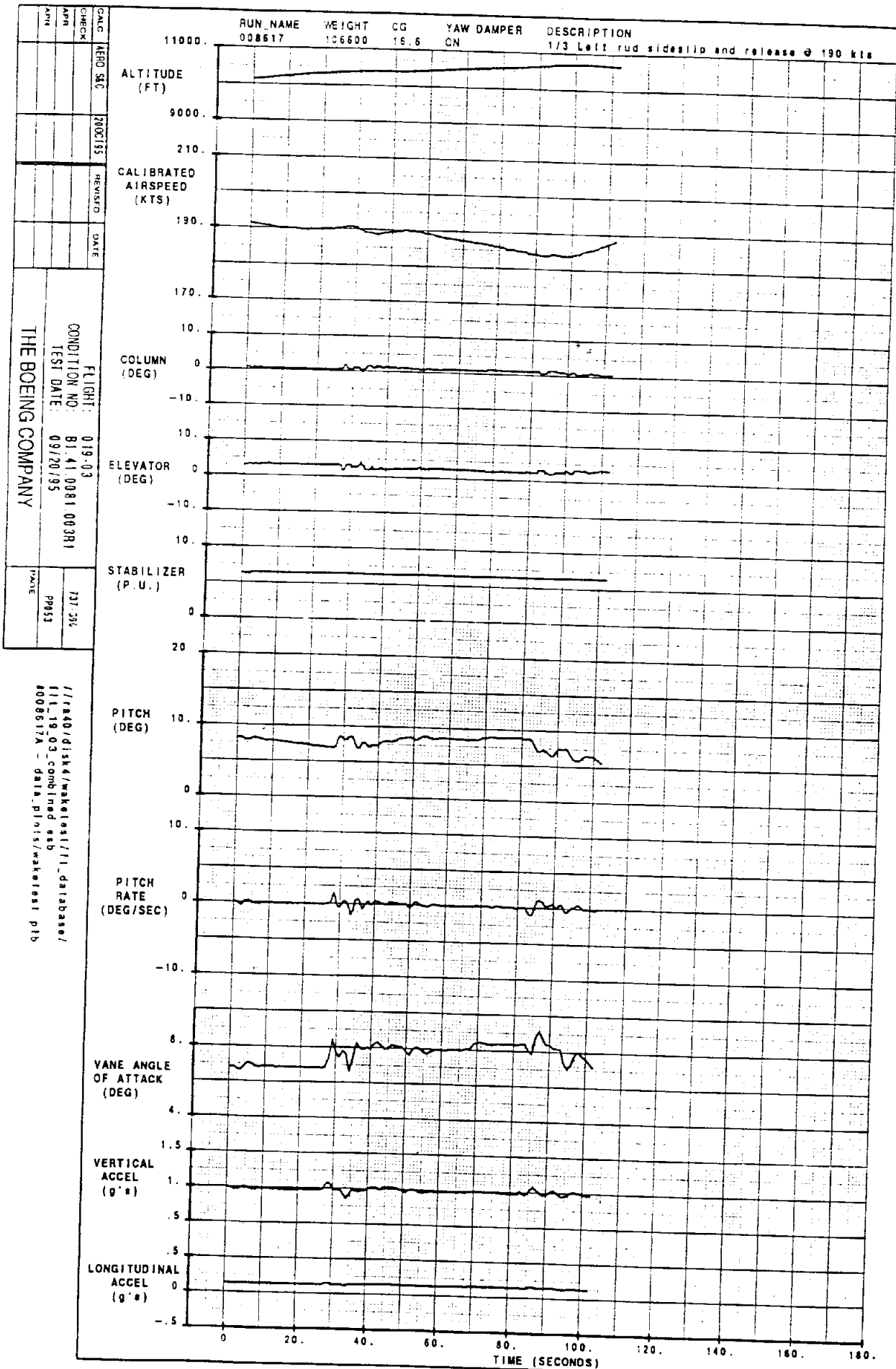
FLIGHT: 019-03  
 CONDITION NO: 81-41-0081-003C  
 TEST DATE: 09/20/95

THE BOEING COMPANY

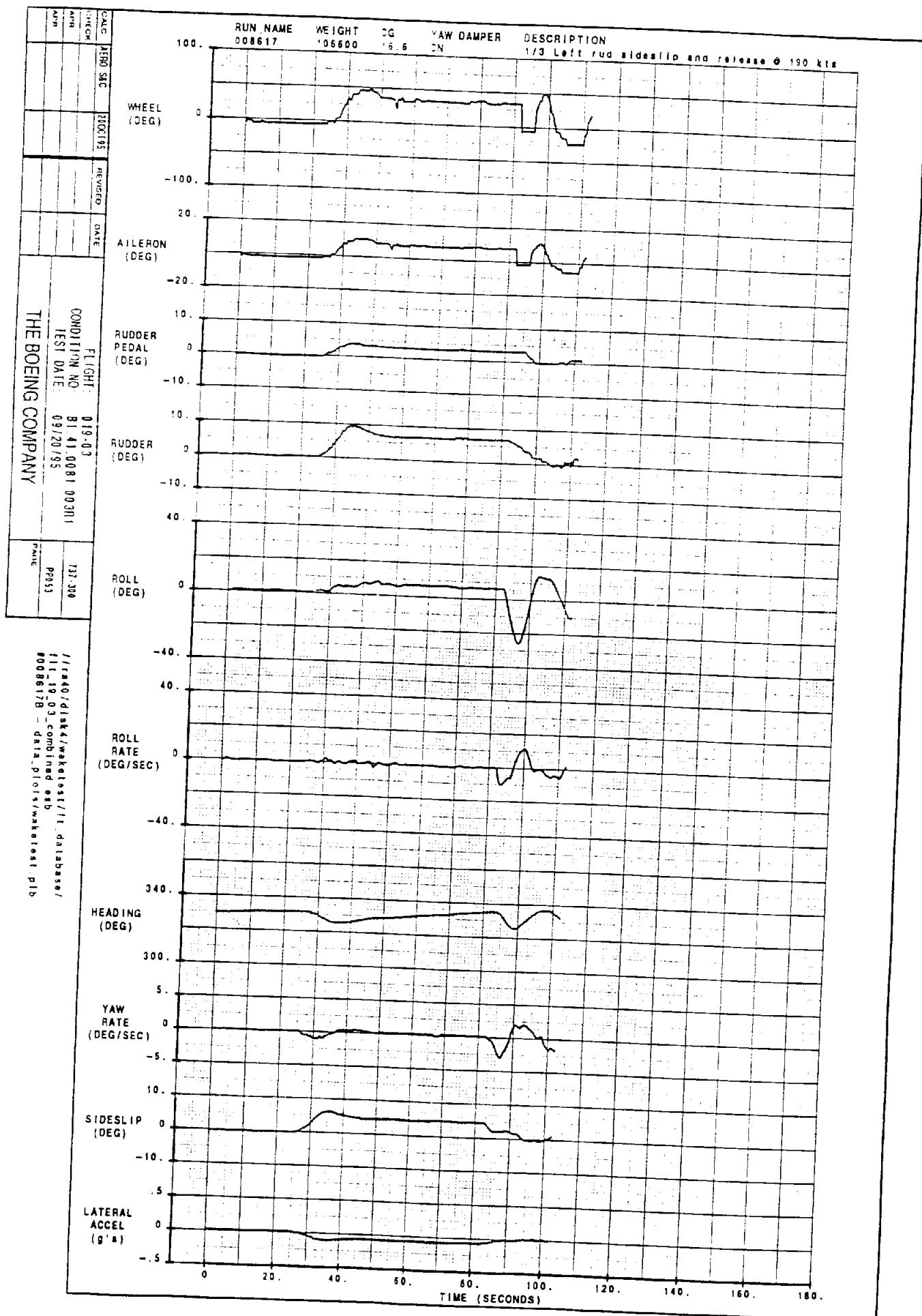
737-300  
 PP831

//ra40/disk/wakefest/11\_database/  
 11-19-03-combined.oab  
 00086168 - data\_plots/wakefest.plb









| CALC | CHECK | APR | APR | RUN_NAME | WEIGHT | CG   | YAW DAMPER | DESCRIPTION                                 |
|------|-------|-----|-----|----------|--------|------|------------|---------------------------------------------|
|      |       |     |     | 008618   | 106400 | 16.7 | ON         | 2/3 Left rtd sideslip and release @ 190 kts |

| MEMO SEC | PROCES | REVISED | DATE |
|----------|--------|---------|------|
|          |        |         |      |

| FLIGHT             | CONDITION NO | TEST DATE | 019-03 | 0141-0081 | 00302 |
|--------------------|--------------|-----------|--------|-----------|-------|
| THE BOEING COMPANY |              | 09/20/95  |        |           |       |

| PAGE | 737-310 |
|------|---------|
| PP53 |         |

//ra40/disk4/wakeles/11\_database/  
11-19-03\_combined.gsb  
008618A - data.plots/wakeles1.plb

ALTITUDE (FT)

CALIBRATED AIRSPEED (KTS)

COLUMN (DEG)

ELEVATOR (DEG)

STABILIZER (P.U.)

PITCH (DEG)

PITCH RATE (DEG/SEC)

YAW ANGLE OF ATTACK (DEG)

VERTICAL ACCEL (g's)

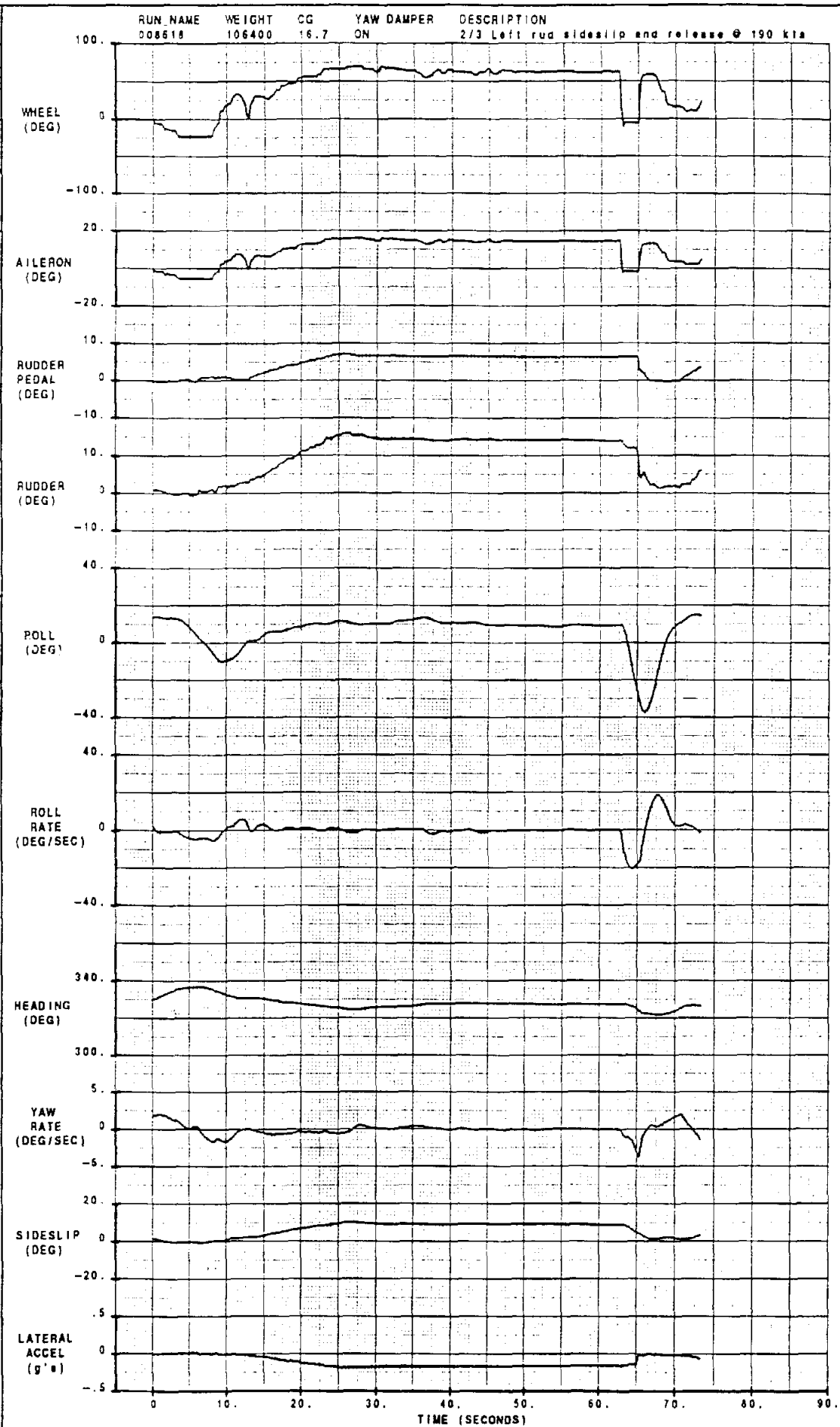
LONGITUDINAL ACCEL (g's)

TIME (SECONDS)

|       |          |        |         |      |
|-------|----------|--------|---------|------|
| CALC  | HERO SAC | 200015 | REVISED | DATE |
| CHECK |          |        |         |      |
| APP   |          |        |         |      |
| APP   |          |        |         |      |

FLIGHT: 019-03  
 CONDITION NO: 81.41.0081.00382  
 TEST DATE: 09/20/95  
 THE BOEING COMPANY  
 PAGE 737-300  
 PPS3

\\ra40\disk4\maketest\11\_database\111\_19\_03\_combined\_eab  
 8086168 - data pilot\maketest.plb

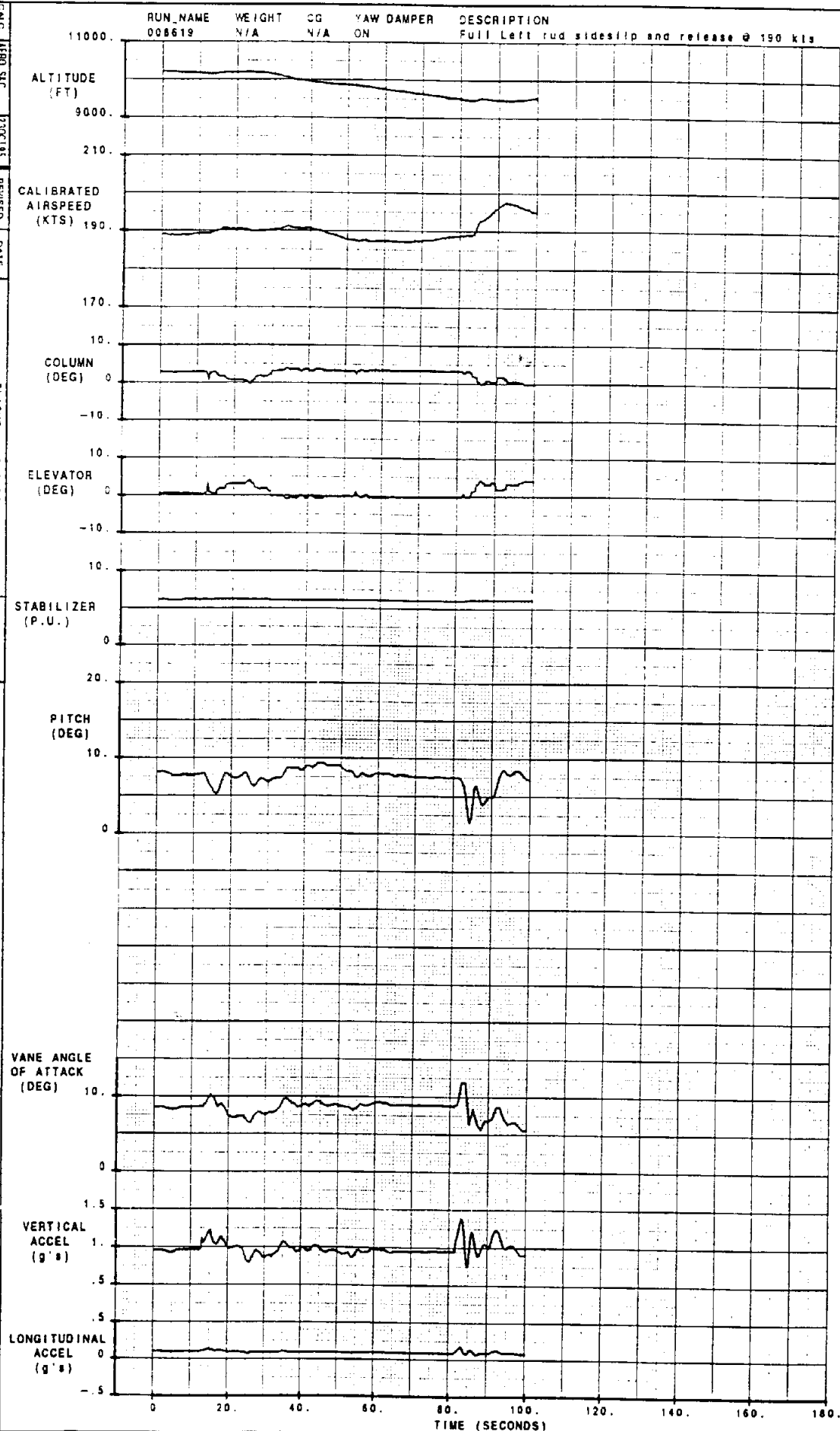


THE BOEING COMPANY

```

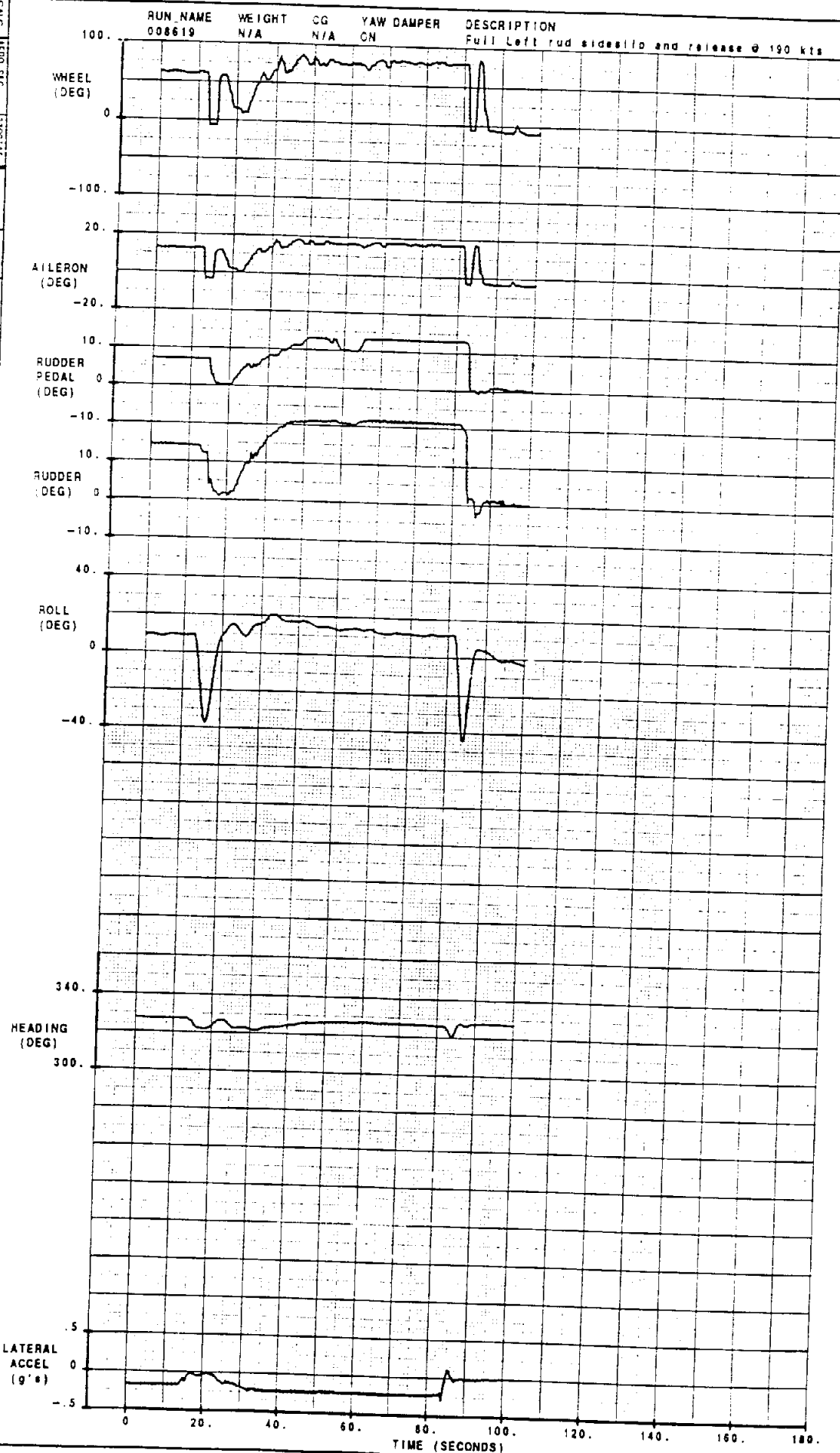
//a40/disk4/waketest/11_database/
11_19_03_combined.esb
#008619C ~ data_plots/waketest/dr_p1b

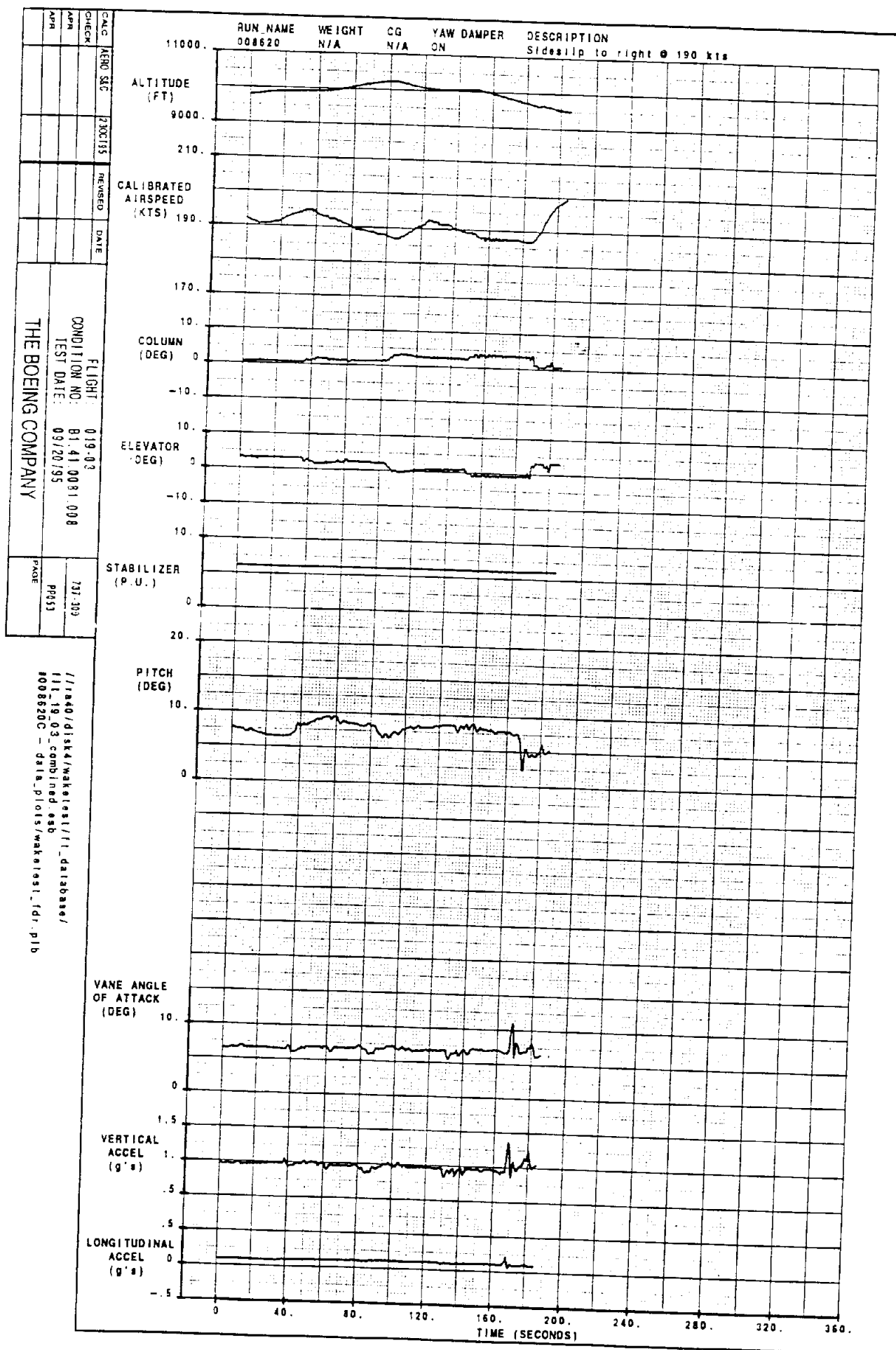
```

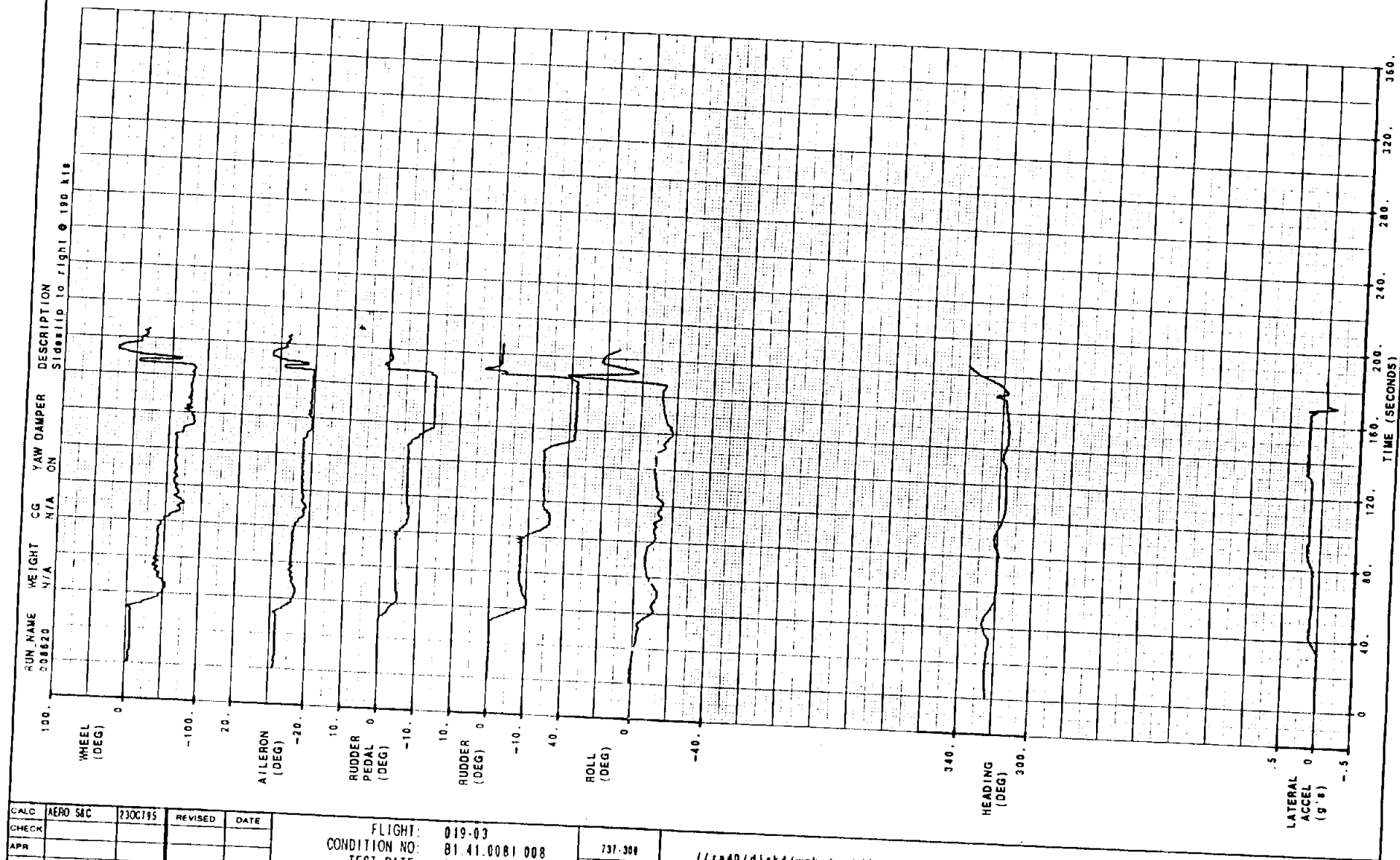


|                                |          |      |      |
|--------------------------------|----------|------|------|
| CALC                           | MEMO SAC | TIME | DATE |
| CHECK                          |          |      |      |
| APR                            |          |      |      |
| APR                            |          |      |      |
| FLIGHT: 019-03                 |          |      |      |
| CONDITION NO: B1 41 0081 00303 |          |      |      |
| TEST DATE: 03/20/95            |          |      |      |
| THE BOEING COMPANY             |          |      |      |
| 737-300                        |          |      |      |
| PMS3                           |          |      |      |

//rad0/disk4/wake/test/11\_database/  
 11\_19\_03\_combined.asb  
 10086190 - data\_plots/wake/test\_1dr.plt







|       |          |         |         |      |
|-------|----------|---------|---------|------|
| CALC  | AERO SEC | 2300195 | REVISED | DATE |
| CHECK |          |         |         |      |
| APR   |          |         |         |      |
| APR   |          |         |         |      |

FLIGHT: 019-03  
 CONDITION NO: 81.41.0081 008  
 TEST DATE: 09/20/95

THE BOEING COMPANY

737-300

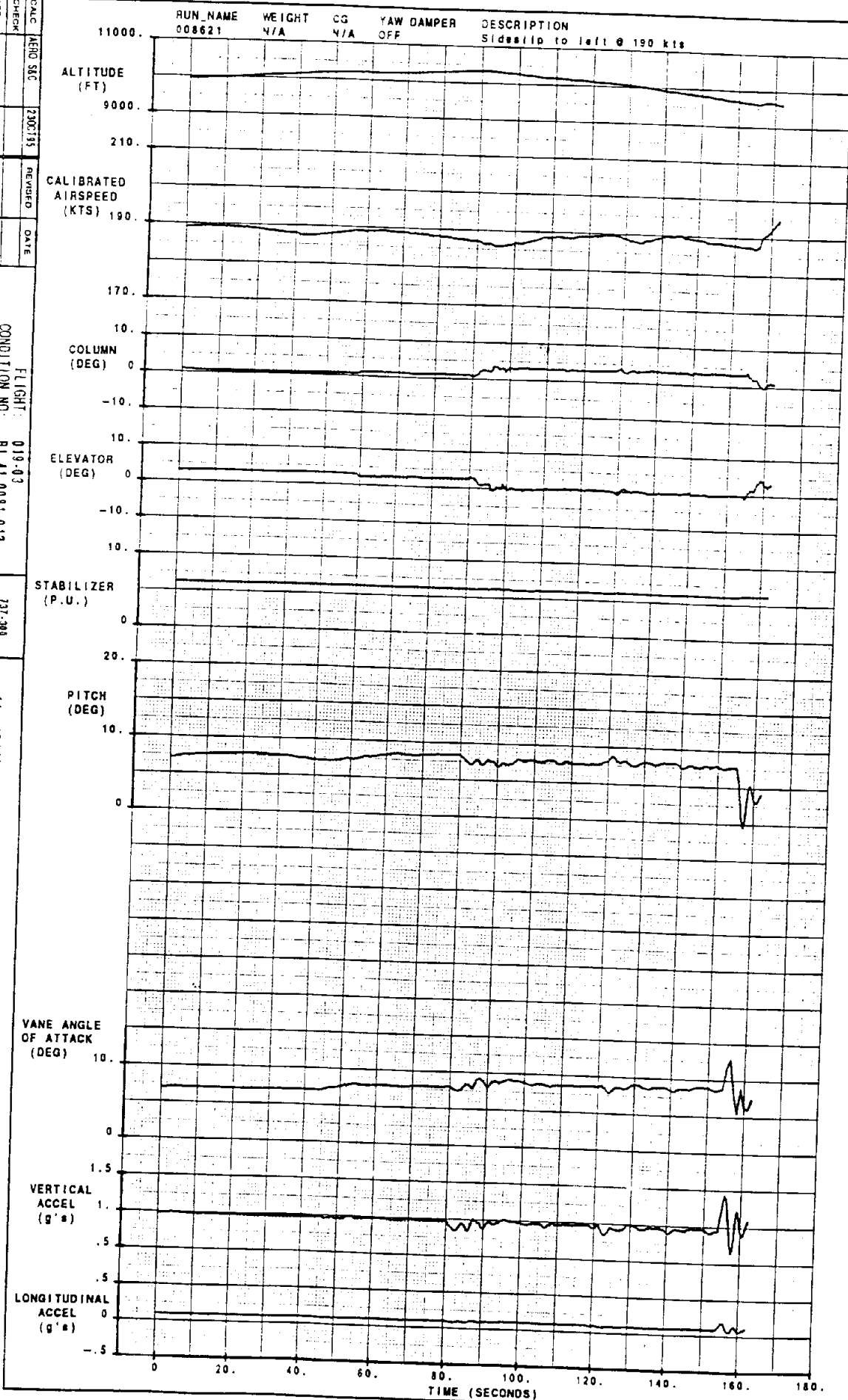
PP053

PAGE

//ra40/disk4/waketest/11\_database/  
 11t\_10\_03\_combined.eab  
 80086200 - data\_plots/waketest\_1dr.plt

11B

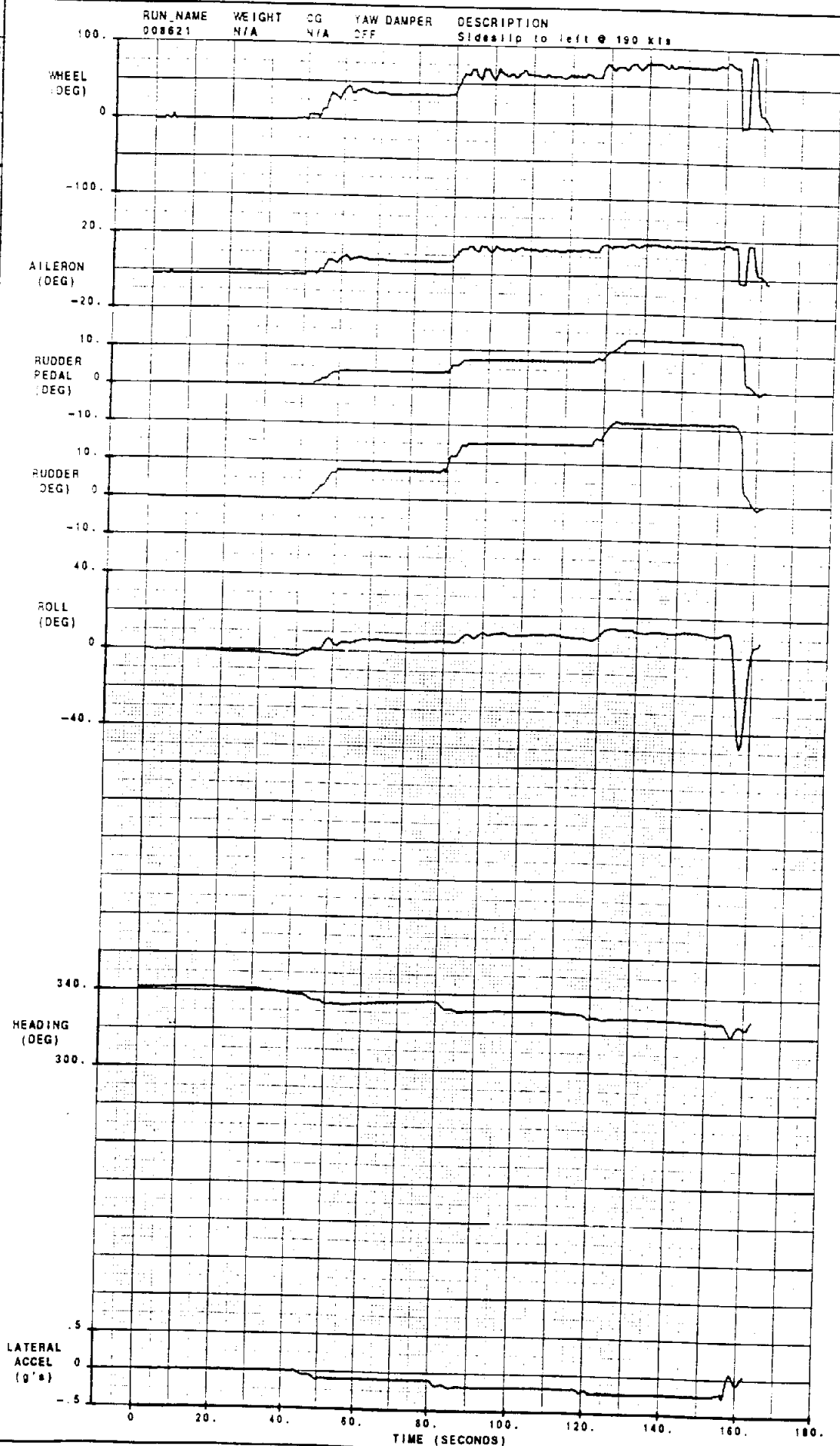
|                                                                                                                                                                                      |          |         |         |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|---------|------|
| CALC                                                                                                                                                                                 | MEMO SEC | 2003/15 | REMOVED | DATE |
| CHECK                                                                                                                                                                                |          |         |         |      |
| APP                                                                                                                                                                                  |          |         |         |      |
| APP                                                                                                                                                                                  |          |         |         |      |
| FLIGHT: 019-03<br>CONDITION NO: B1.41.0081.013<br>TEST DATE: 09/20/95<br>THE BOEING COMPANY<br>737-300<br>PPG 13<br>111-19-03-combined-08b<br>8008621C - data_pilot/wakefest_idr.pib |          |         |         |      |





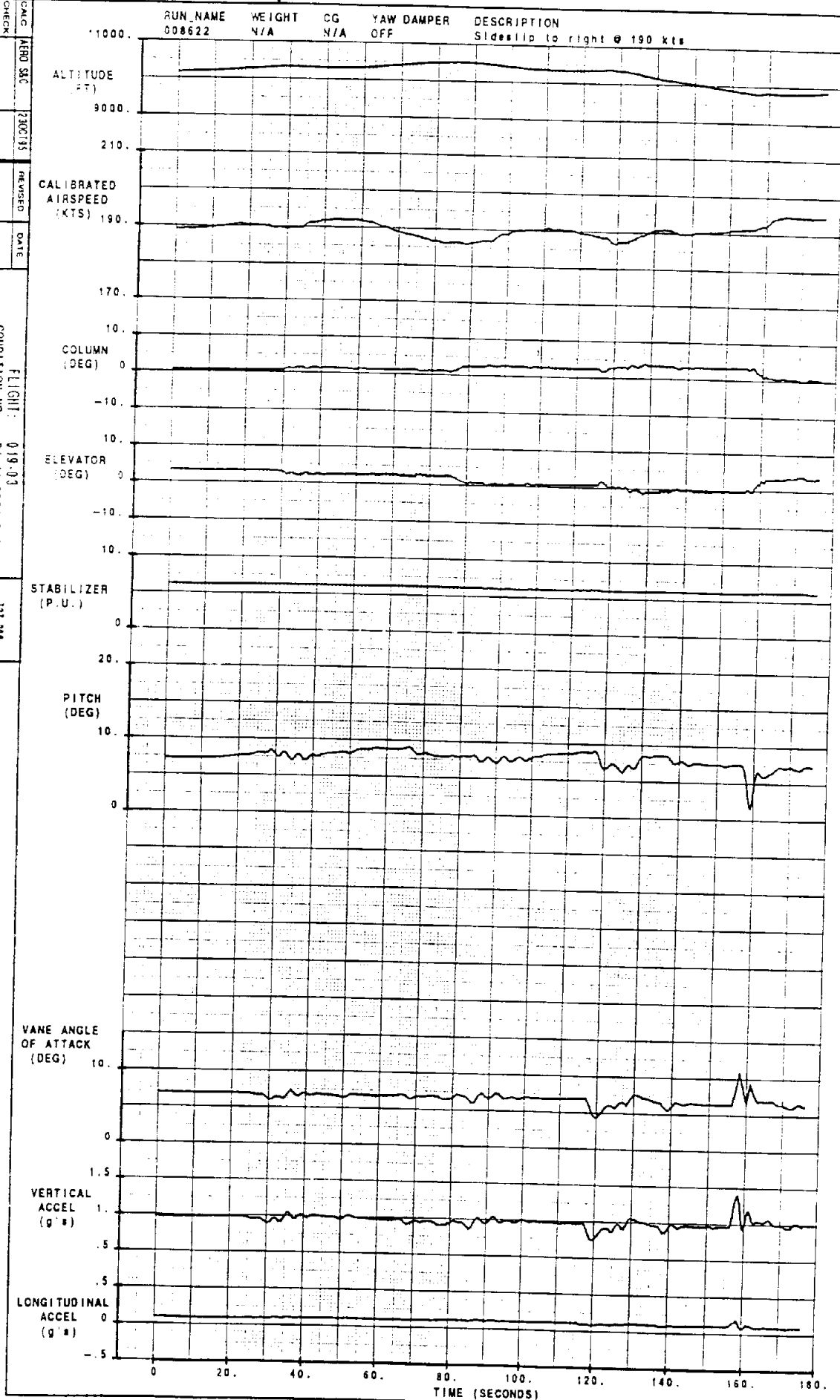
|                                                                                                                       |          |         |          |      |
|-----------------------------------------------------------------------------------------------------------------------|----------|---------|----------|------|
| CALC                                                                                                                  | MEMO SAC | 2300/95 | REVIEWED | DATE |
| CHECK                                                                                                                 |          |         |          |      |
| APR                                                                                                                   |          |         |          |      |
| APR                                                                                                                   |          |         |          |      |
| FLIGHT 019-03<br>CONDITION NO: B1.41.0081.013<br>TEST DATE: 09/20/95<br>THE BOEING COMPANY<br>737-300<br>PPS3<br>PAGE |          |         |          |      |

//ra40/dlax/wakefest/11\_database/  
 11-19-03-combined.aab  
 80086210 - data\_plots/wakefest\_idr.plt



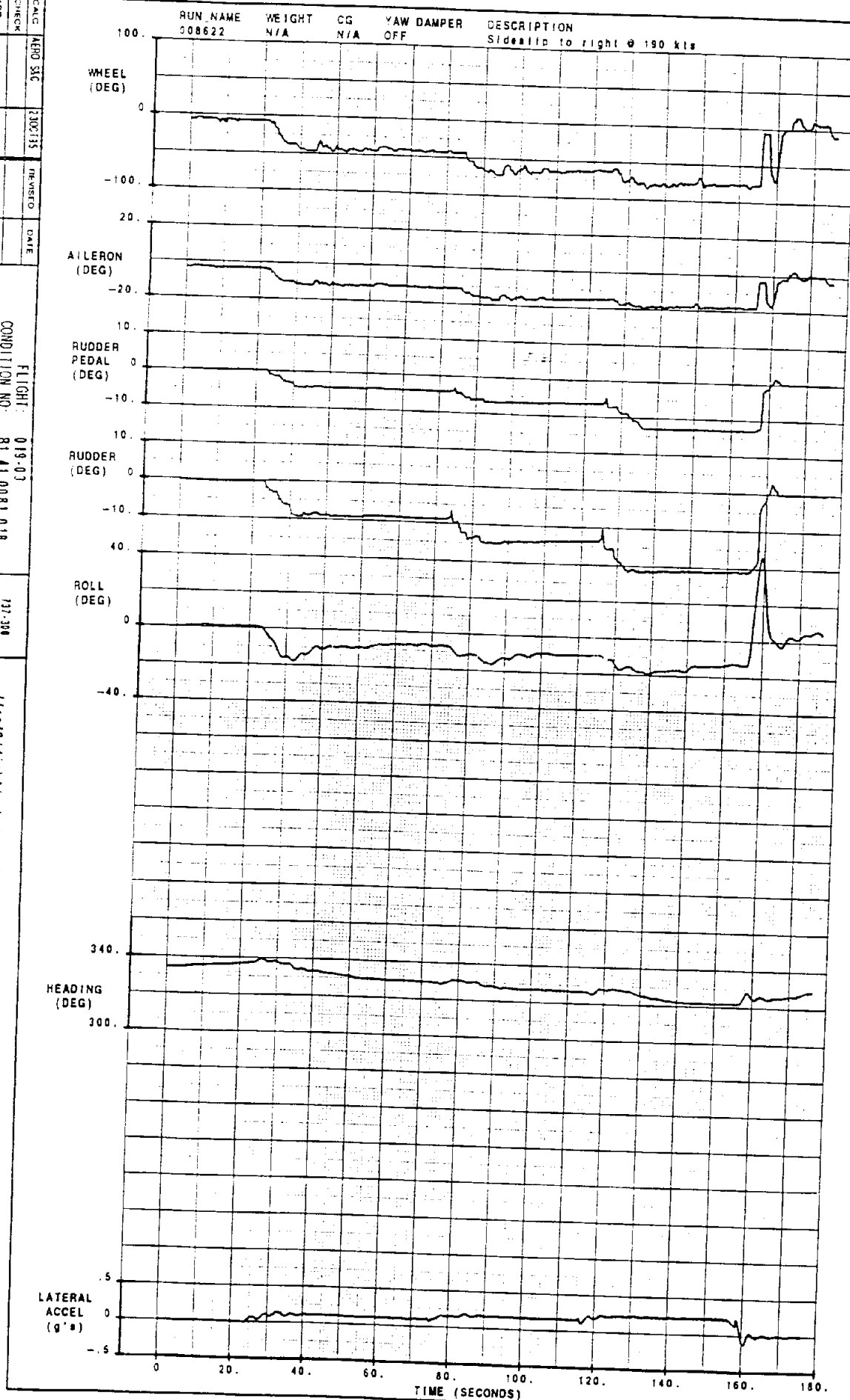
|                    |          |              |                |
|--------------------|----------|--------------|----------------|
| DATE               | 09/20/95 | TIME         | 13:00:35       |
| REVISION           |          | DATE         |                |
| FLIGHT             | 019-03   | CONDITION NO | 81 41 0081 018 |
| TEST DATE          | 09/20/95 | TEST DATE    | 09/20/95       |
| THE BOEING COMPANY |          | DATE         | 10/27/06       |
|                    |          | DATE         | PM 53          |

//rad0/disk4/makestat/11\_database/  
 11\_19\_03\_combined\_08b  
 00086220 - data\_plots/makestat\_1dr.plb



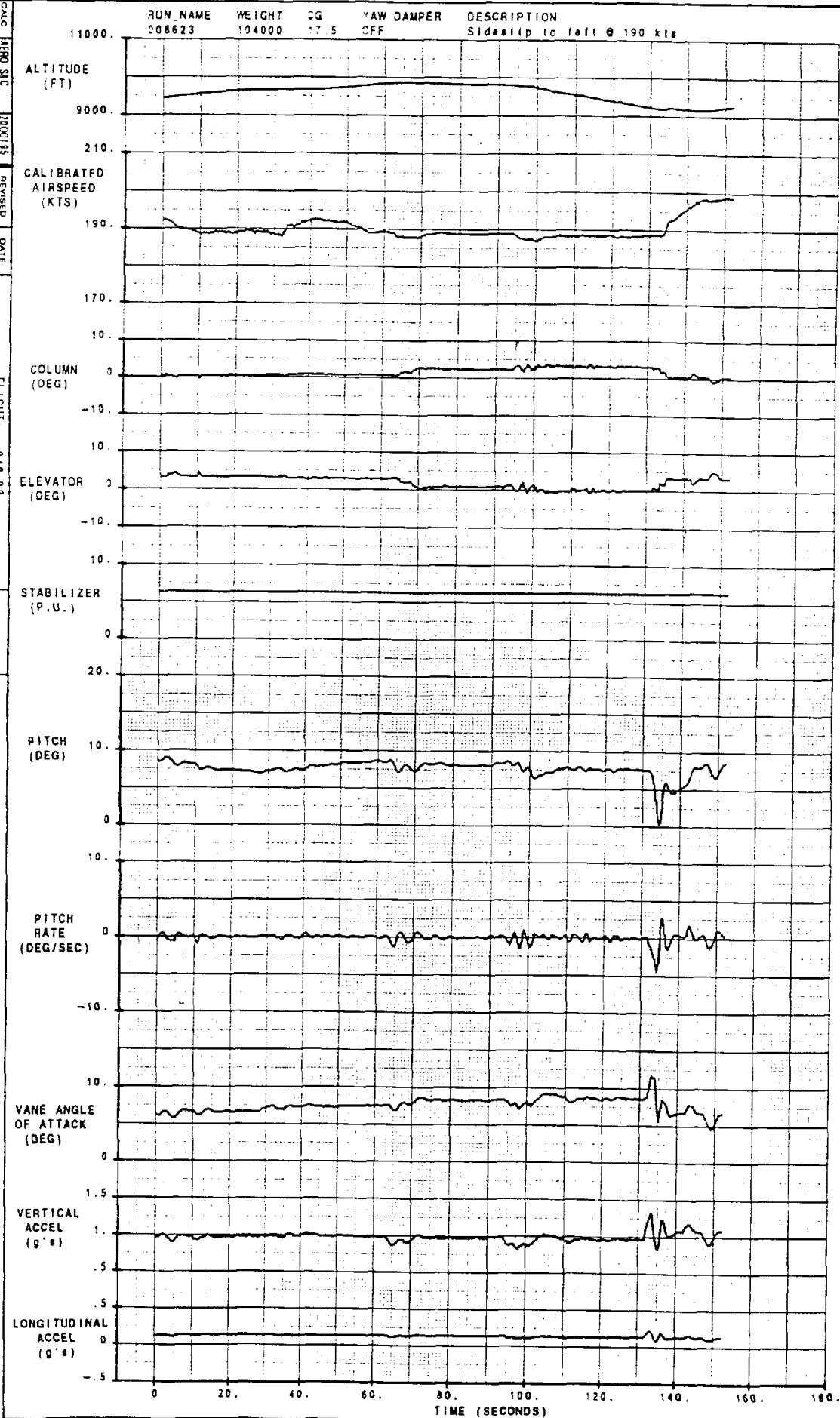
|       |           |        |         |      |                              |         |
|-------|-----------|--------|---------|------|------------------------------|---------|
| CALC  | APPRO SIG | 200135 | REVISTO | DATE | FLIGHT: 019-03               | 737-300 |
| CHECK |           |        |         |      | CONDITION NO: 81-41-0081-018 | PP53    |
| APR   |           |        |         |      | TEST DATE: 09/20/95          |         |
| APR   |           |        |         |      | THE BOEING COMPANY           | PRIDE   |

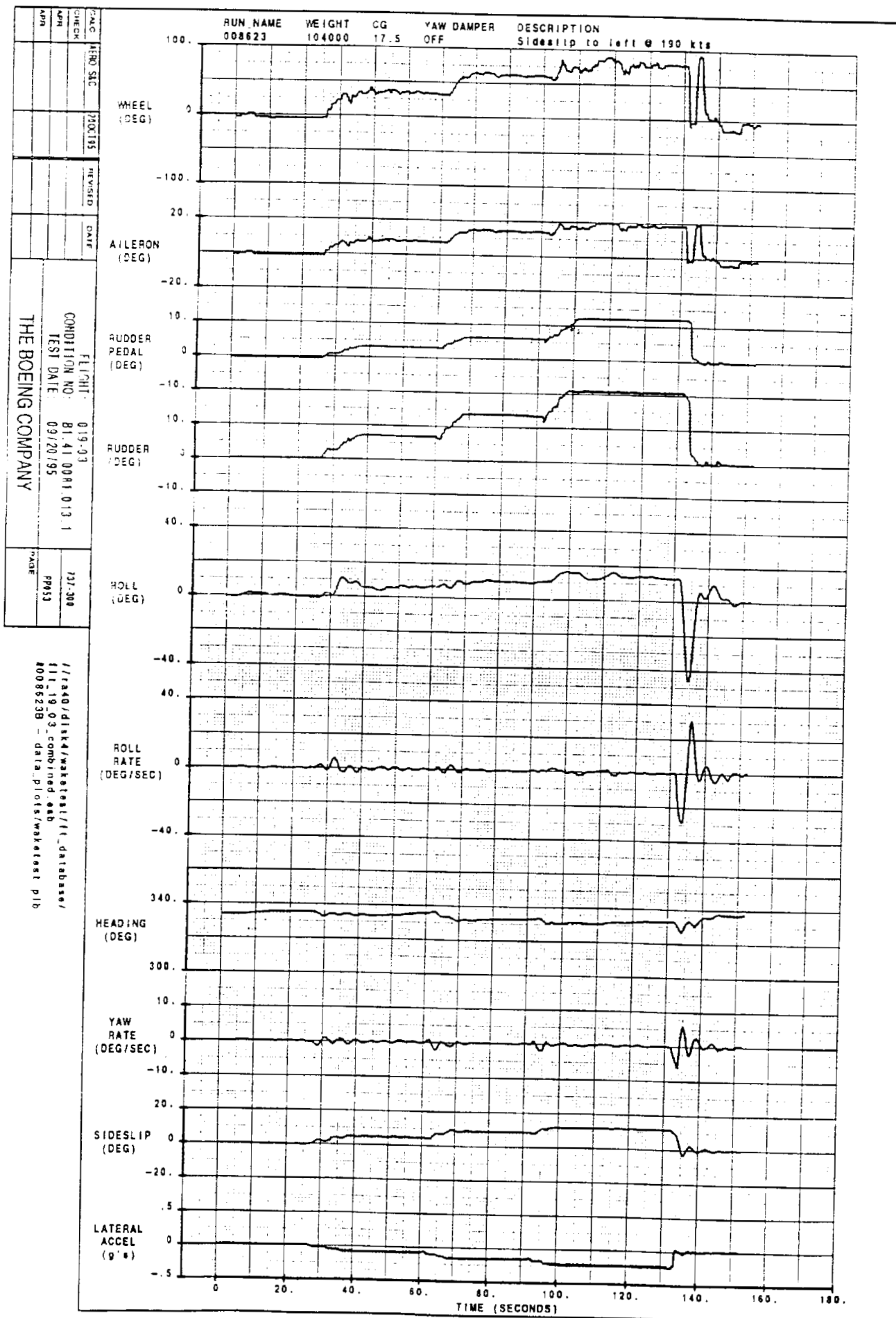
//ra40/disk/wakelest/11\_database/  
 111-19-03.combined.sab  
 80086220 - data\_plots/wakelest\_idr.plt



|                                                                                                                  |       |     |         |         |      |
|------------------------------------------------------------------------------------------------------------------|-------|-----|---------|---------|------|
| CALC                                                                                                             | APPRO | SAC | 2002/15 | REVISED | DATE |
| CHECK                                                                                                            | APR   |     |         |         |      |
| APR                                                                                                              |       |     |         |         |      |
| FLIGHT: 019-03<br>CONDITION NO: 81.41.0081.013.1<br>TEST DATE: 09/20/95<br>THE BOEING COMPANY<br>737-300<br>PWS1 |       |     |         |         |      |

//ra0/disk4/wake/11\_database/  
 11\_18\_03\_combined.ash  
 #008623A - data\_plots/wake/11 p1b

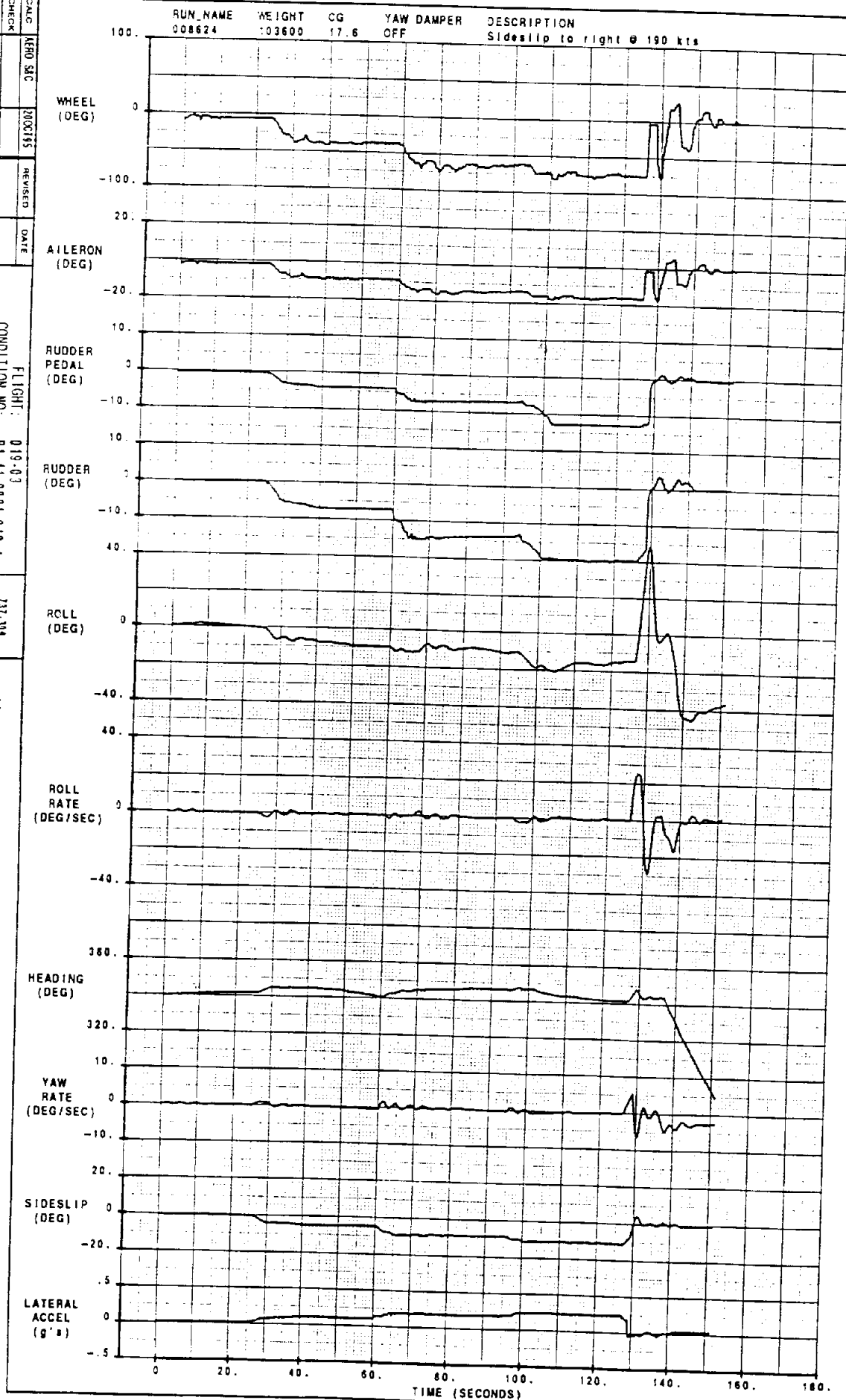






|                                                                                                                       |          |         |         |      |
|-----------------------------------------------------------------------------------------------------------------------|----------|---------|---------|------|
| CALC                                                                                                                  | MEMO SAC | 2000/95 | REVISED | DATE |
| CHECK                                                                                                                 |          |         |         |      |
| APP                                                                                                                   |          |         |         |      |
| APP                                                                                                                   |          |         |         |      |
| FLIGHT: 019-03<br>CONDITION NO: B1.41.0081 018.1<br>TEST DATE: 09/20/95<br>THE BOEING COMPANY<br>PAGE 737-309<br>P153 |          |         |         |      |

//rad0/disk4/wake/test/11\_database/  
 11\_19\_03\_combined.sab  
 #008624B - data\_plots/wake/test.plb



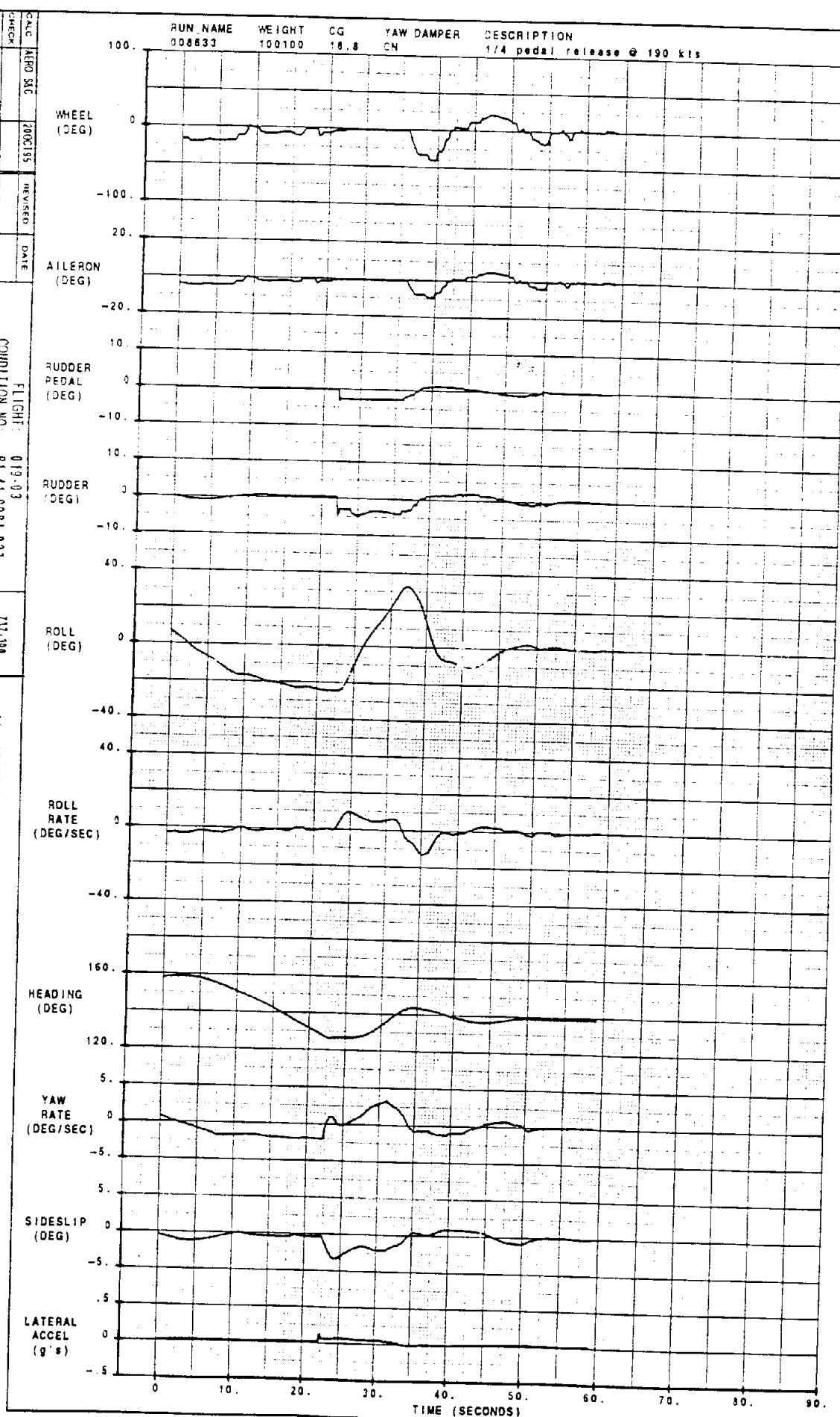


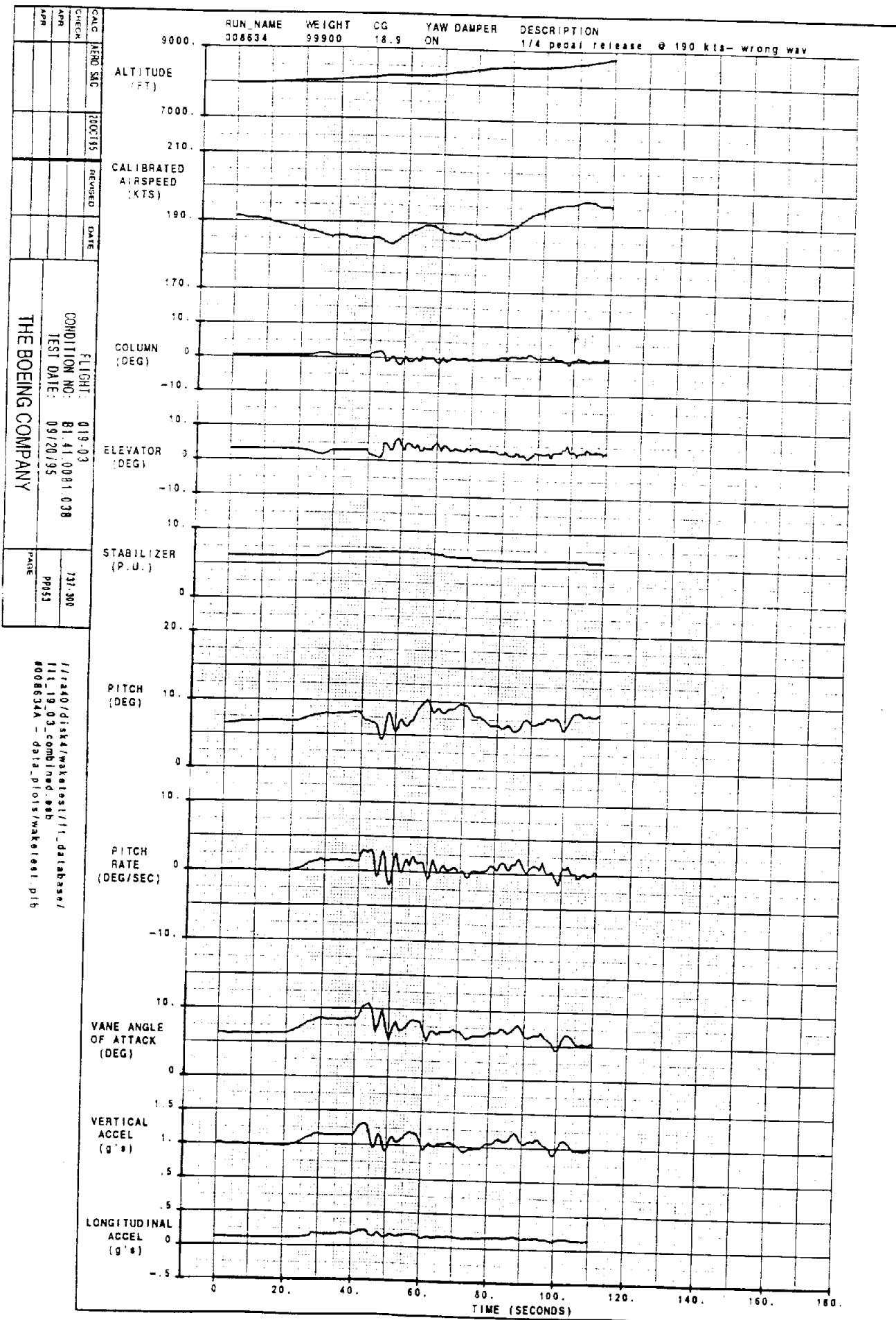


```

//ra40/disk4/wakeos1/11_databases/
11_19_03_combined.esb
#0086338 - data_plots/wakeos1.plb

```





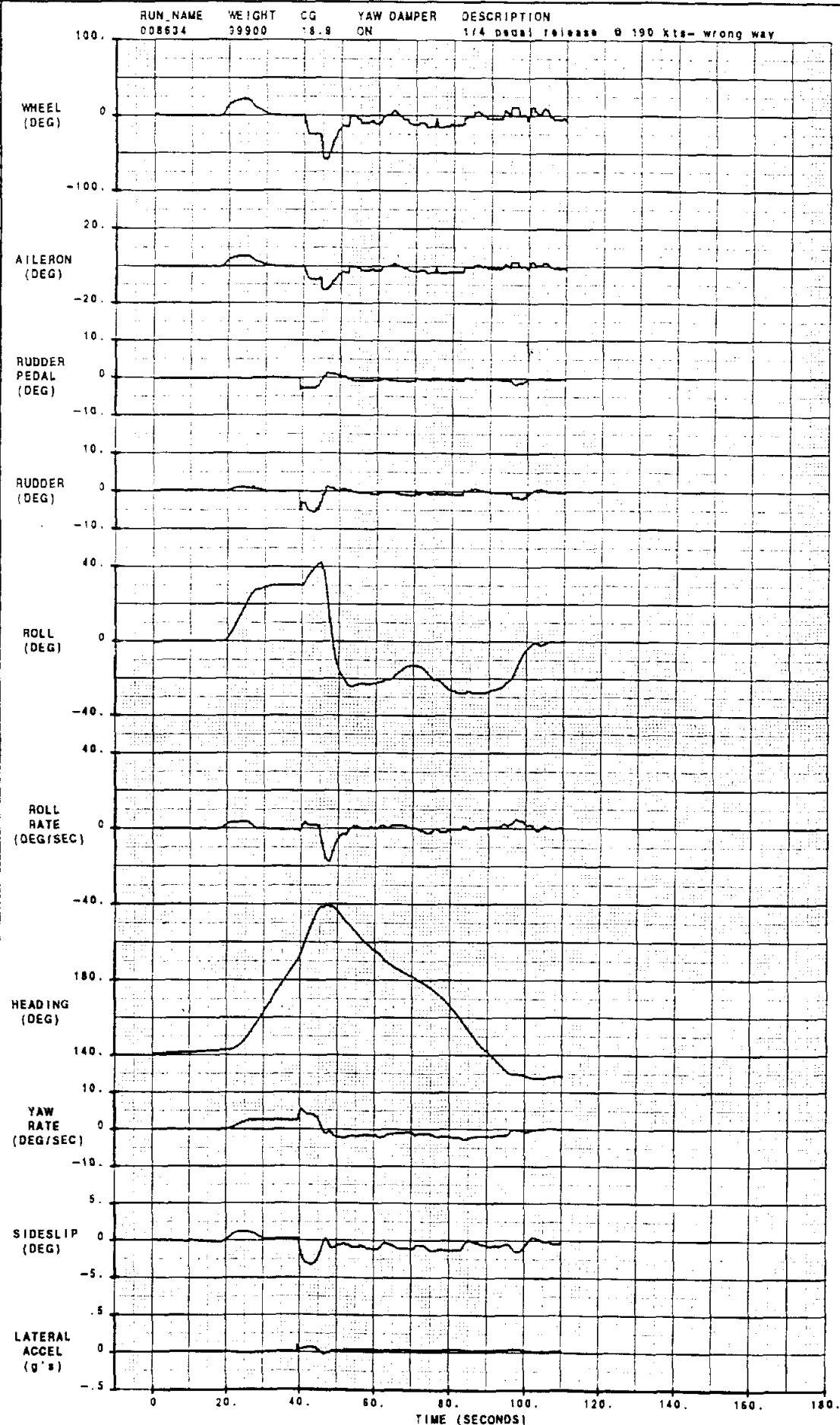
|       |           |         |         |      |
|-------|-----------|---------|---------|------|
| CHG   | APPRO SEC | 2100195 | REMOVED | DATE |
| CHECK |           |         |         |      |
| APR   |           |         |         |      |
| APR   |           |         |         |      |

FLIGHT: 019-03  
 CONDITION NO: 81.41 0081.038  
 TEST DATE: 09/20/95

THE BOEING COMPANY

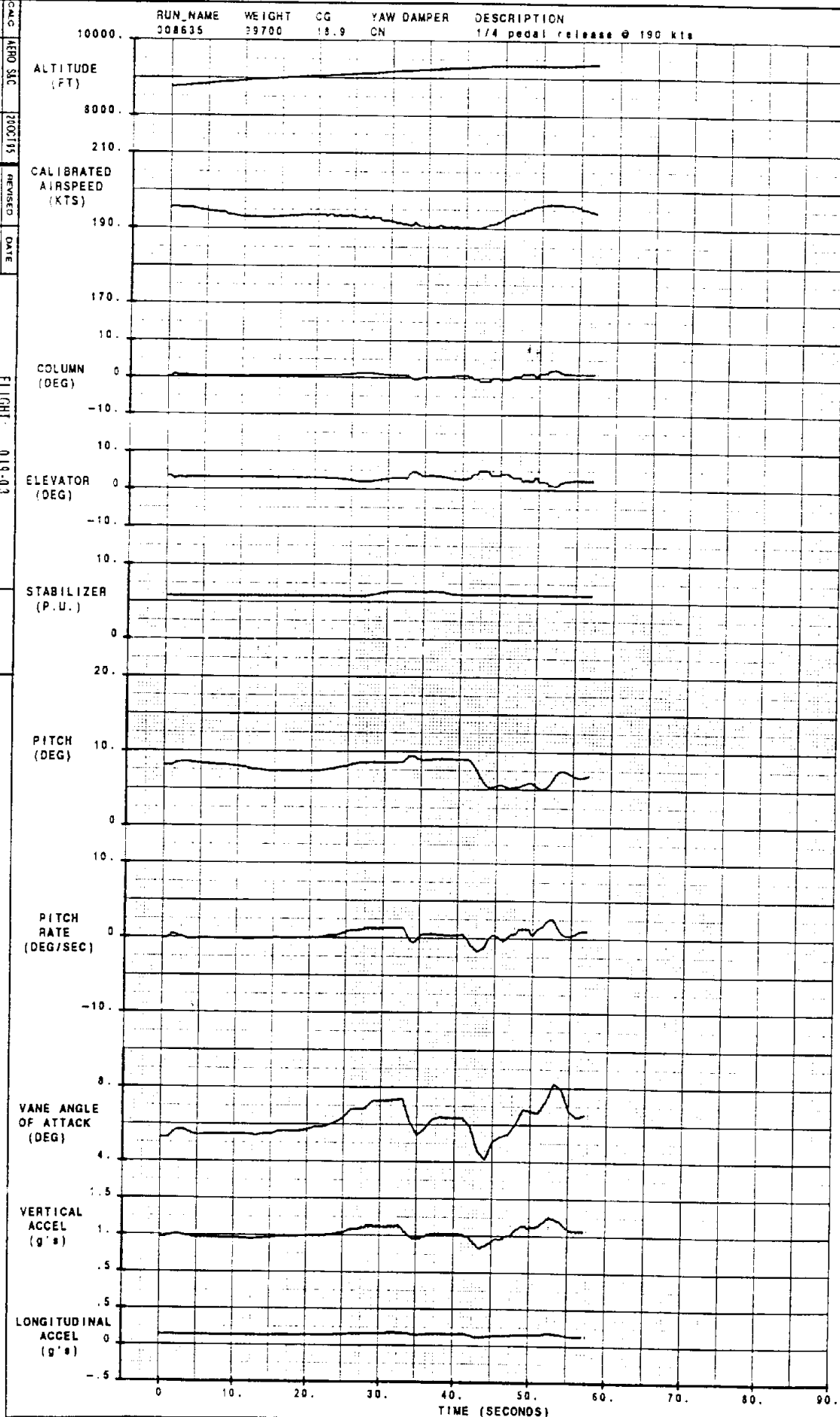
137-30  
 PPS3

//m40/disk4/wakeinst/11\_database/  
 11\_19\_03\_combined.asb  
 808634B - data\_plots/wakeinst.plt



|       |        |          |       |      |                                |         |
|-------|--------|----------|-------|------|--------------------------------|---------|
| CALC  | APPROX | 2000/195 | REVIS | DATE | FLIGHT: 015-03                 | 727-300 |
| CHECK |        |          |       |      | CONDITION NO: BL 41 0081 038.1 |         |
| APR   |        |          |       |      | TEST DATE: 09/20/95            | PM53    |
| APR   |        |          |       |      | THE BOEING COMPANY             |         |
|       |        |          |       |      |                                | PADE    |

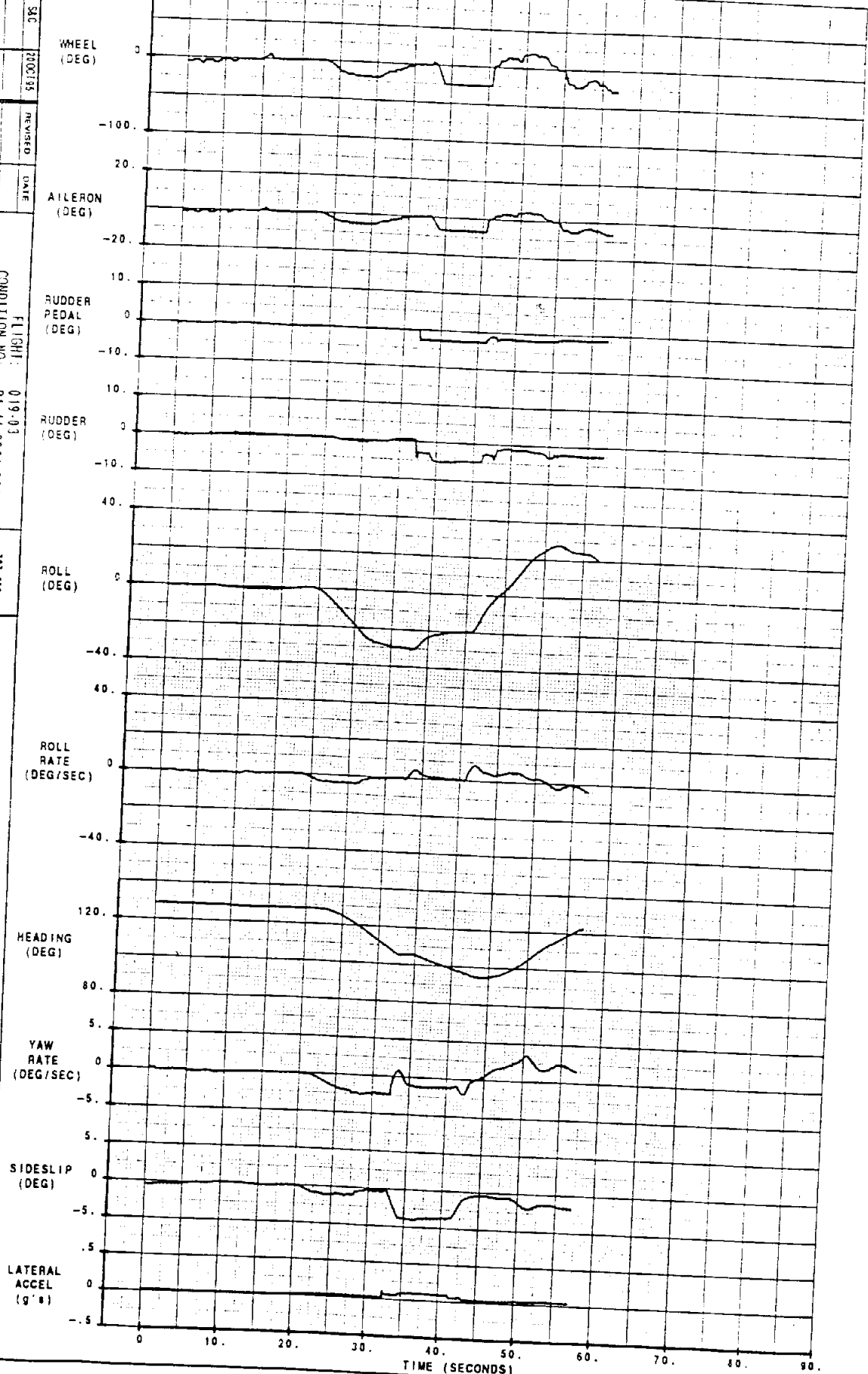
//ra40/d/ak4/wakeatst/11\_database/  
 111\_19\_03\_combined.asb  
 4008635A - data\_plots/wakeatst.plt



|                     |                              |
|---------------------|------------------------------|
| NAME                | ALDO SAC                     |
| CHECK               | 2200/15                      |
| DATE                | REVISIO                      |
| FLIGHT: 019-03      | CONDITION NO: 81410081 008 1 |
| TEST DATE: 09/20/95 | THE BOEING COMPANY           |
| 737-300             | PROG                         |

//ra40/disk4/wakelet/11\_database/  
 11\_19\_03\_combined.abb  
 #008635B - data.plots/wakelet.plb

RUN NAME: 008635    WEIGHT: 99700    CG: 18.9    YAW DAMPER: ON    DESCRIPTION: 1/4 pedal release @ 190 kts



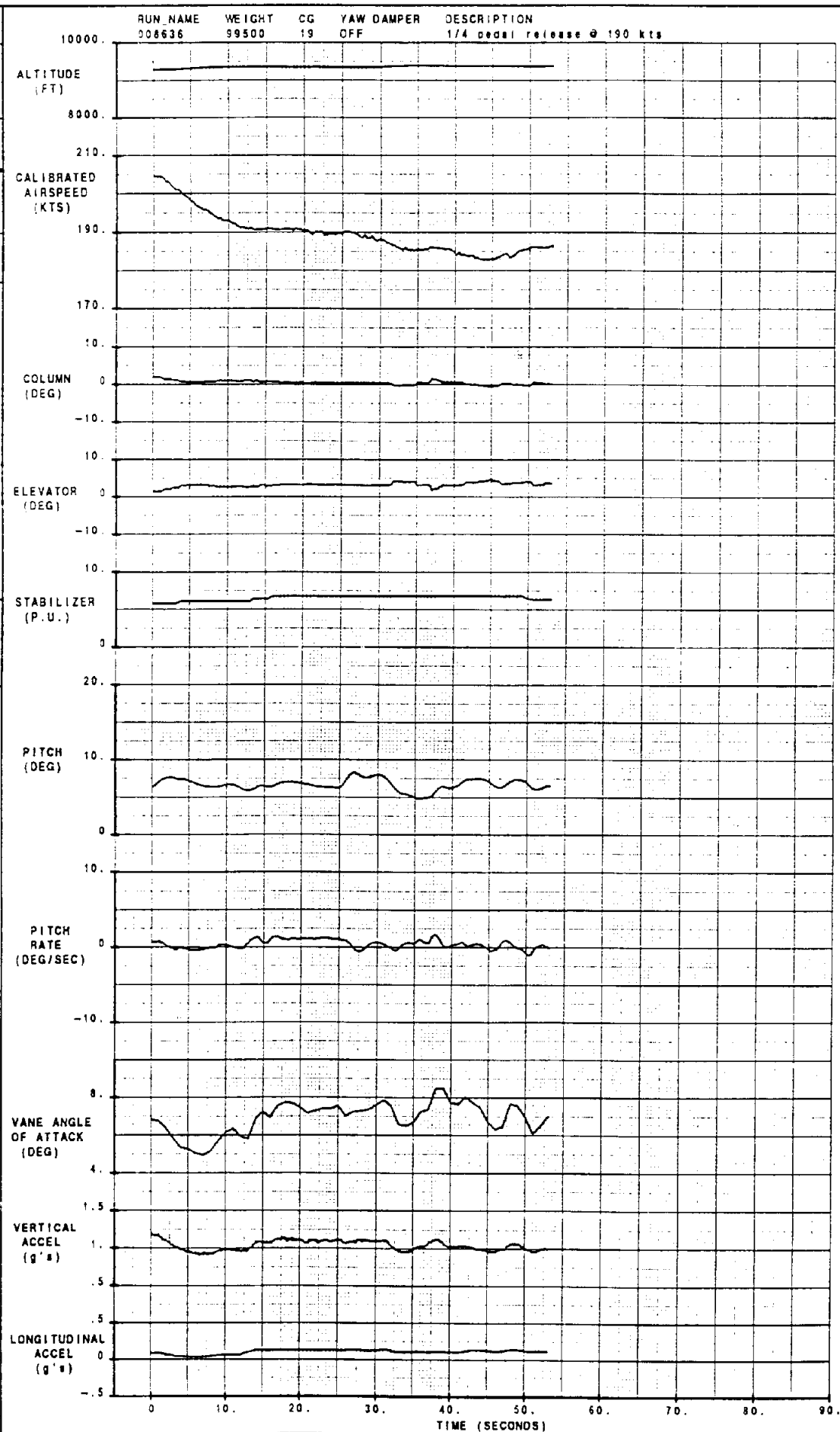
|       |           |         |         |      |
|-------|-----------|---------|---------|------|
| CALC  | APPRO SEC | 2000/35 | REMOVED | DATE |
| CHECK |           |         |         |      |
| APP   |           |         |         |      |
| APP   |           |         |         |      |

FLIGHT: 019-03  
 CONDITION NO: 8141 0081 043  
 TEST DATE: 09/20/95

THE BOEING COMPANY

737-300  
 P053

//ra40/disk4/makeest/11\_database/  
 11\_19\_03-combined.asb  
 0008636A - data\_plots/makeest.plb



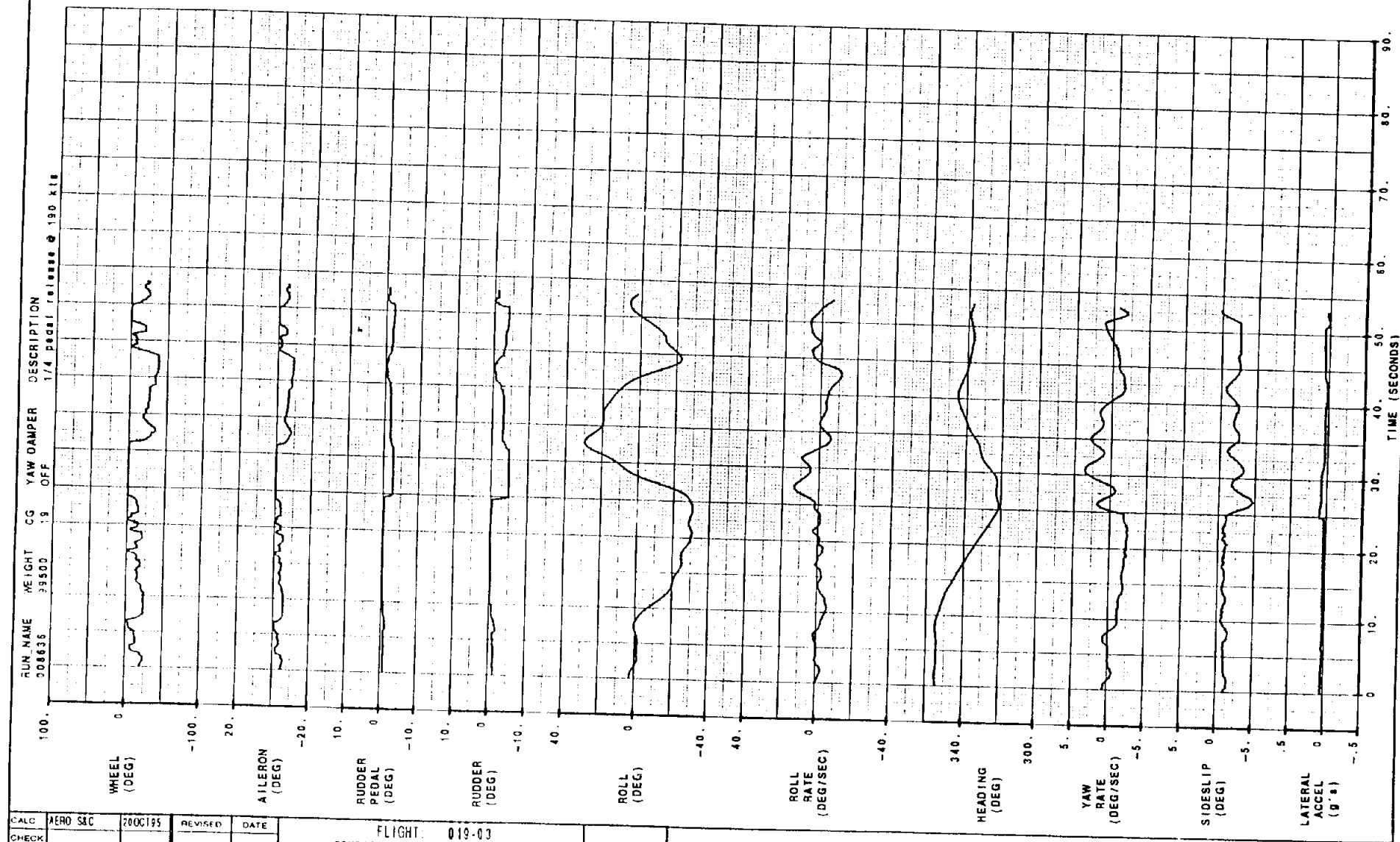
|       |          |         |         |      |
|-------|----------|---------|---------|------|
| CALC  | AERO SEC | 200C195 | REVISED | DATE |
| CHECK |          |         |         |      |
| APR   |          |         |         |      |
| APR   |          |         |         |      |

FLIGHT: 019-03  
CONDITION NO: B1 41.0081.043  
TEST DATE: 09/20/95

THE BOEING COMPANY

737-300  
PP053  
PAGE

//ra40/disk4/waketest/lt\_database/  
lt\_19\_03\_combined.esb  
#008636B - data\_plots/waketest.plb



|       |          |         |         |      |
|-------|----------|---------|---------|------|
| CALC  | AERO SAC | 200C195 | REVISED | DATE |
| CHECK |          |         |         |      |
| APR   |          |         |         |      |
| APR   |          |         |         |      |

FLIGHT: 019-03  
CONDITION NO: B1.41.0081.041  
TEST DATE: 09/20/95

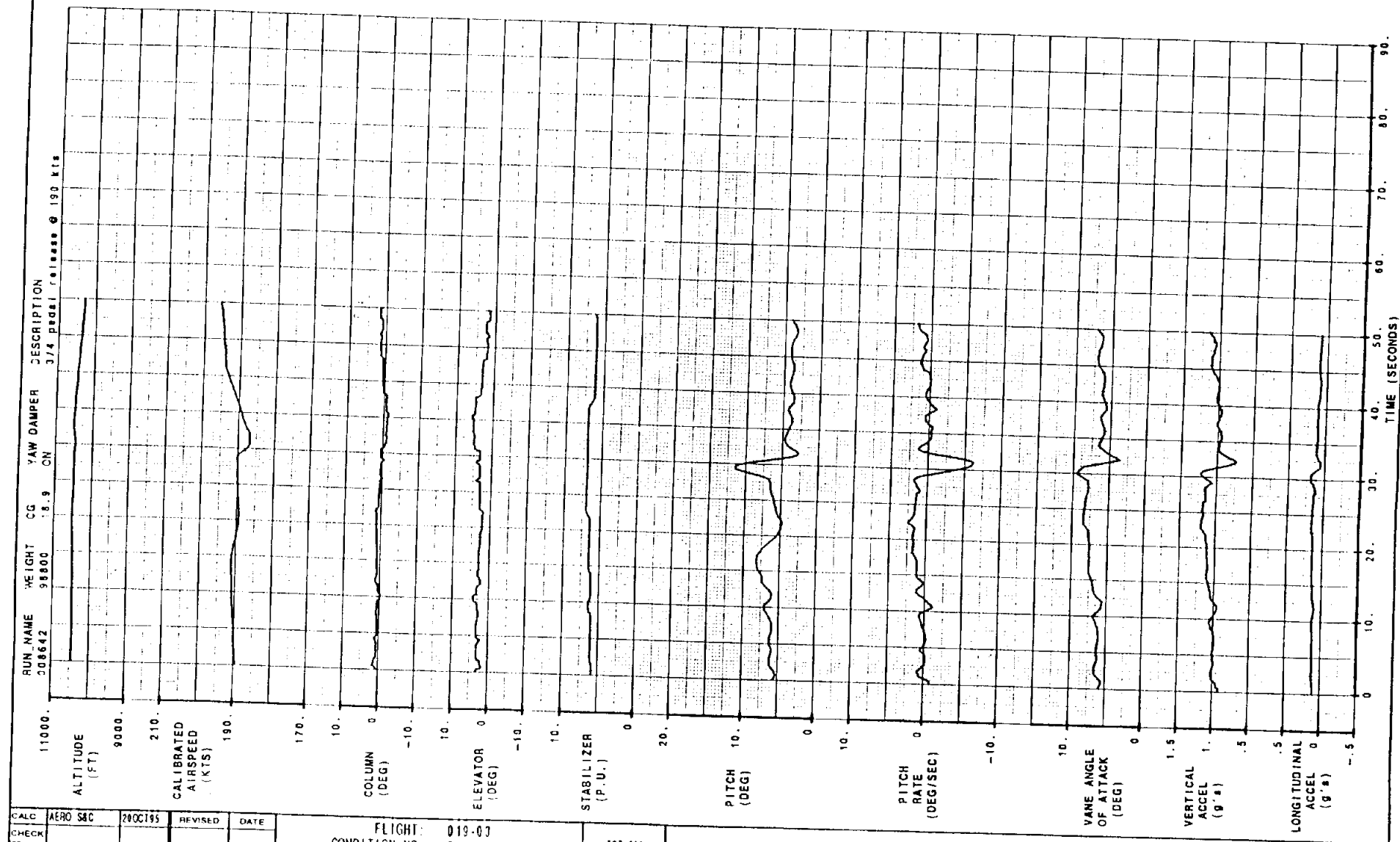
THE BOEING COMPANY

737-300

PP053

PAGE

//ra40/disk4/waketest//t\_database/  
t1\_19\_03\_combined.esb  
#008642A - data\_plots/waketest.plb





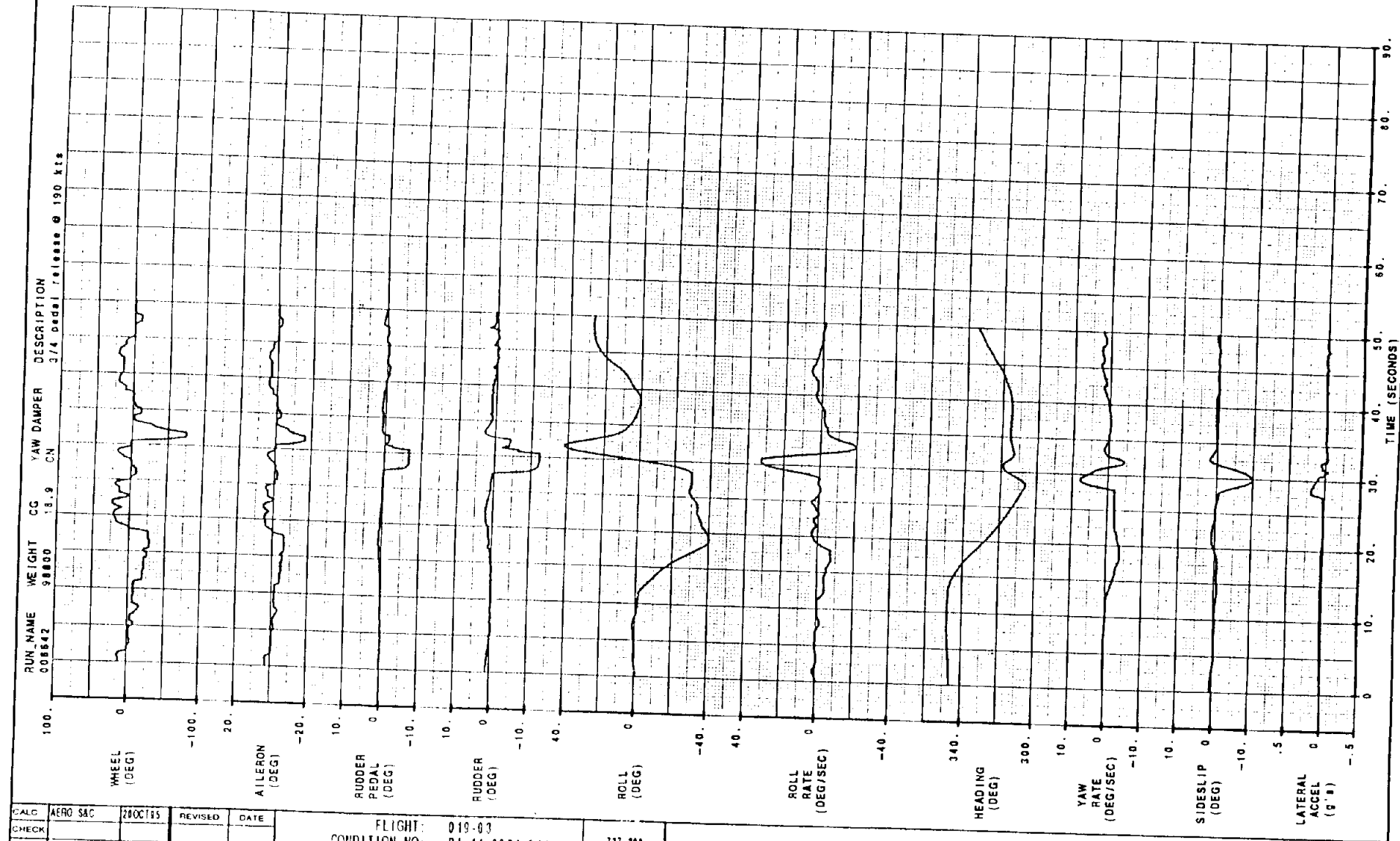
|       |          |         |         |      |
|-------|----------|---------|---------|------|
| CALC  | AERO SAC | 20OCT85 | REVISED | DATE |
| CHECK |          |         |         |      |
| APR   |          |         |         |      |
| APR   |          |         |         |      |

FLIGHT: 019-03  
CONDITION NO: BI 41.0081 041  
TEST DATE: 09/20/95

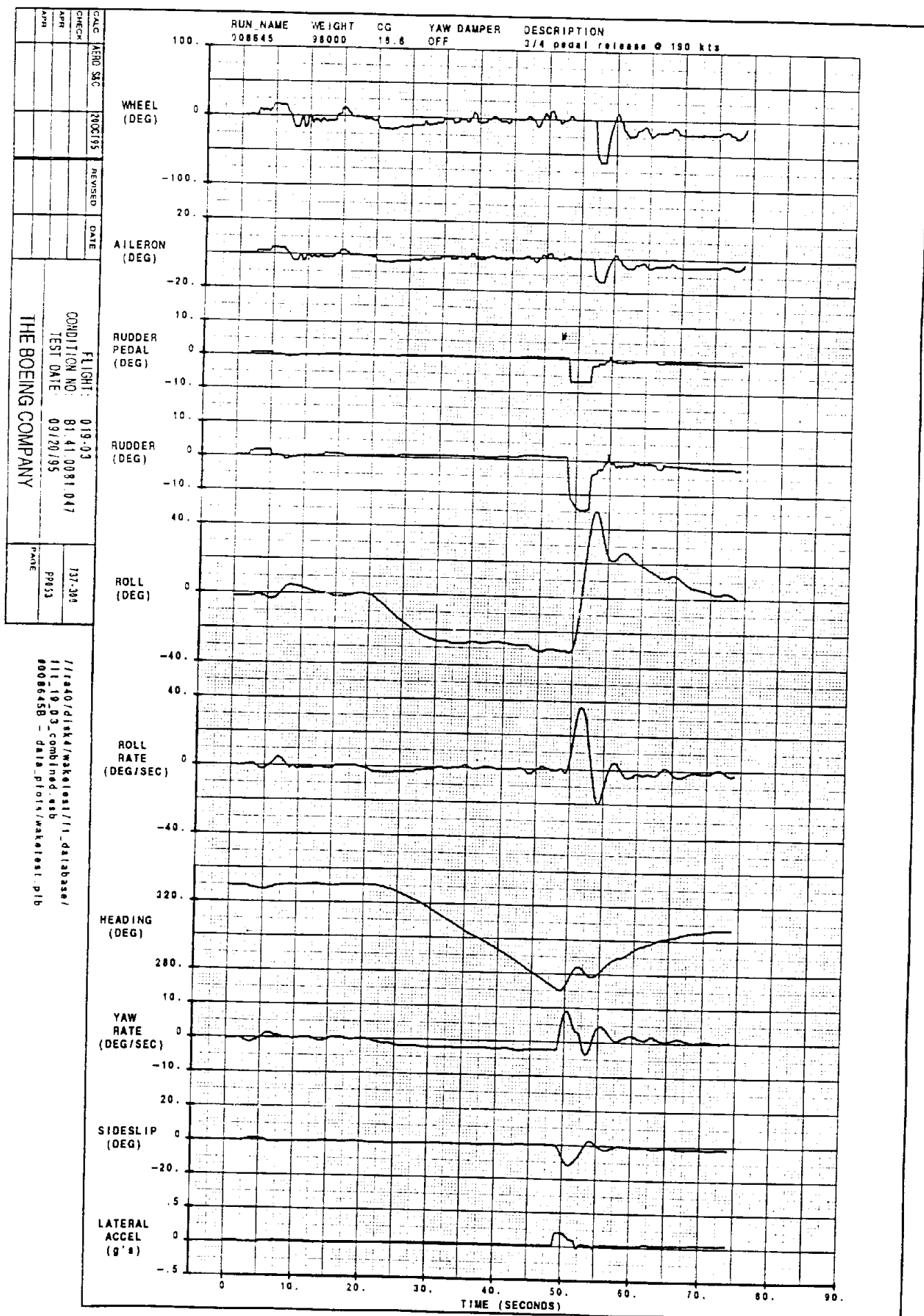
THE BOEING COMPANY

737-300  
PP053  
PAGE

//ra40/disk4/waketest/lt\_database/  
ltl\_19\_03\_combined.esb  
#008642B - data\_plots/waketest.plb







|       |          |         |         |      |
|-------|----------|---------|---------|------|
| CALC  | AERO S&C | 20OCT85 | REVISED | DATE |
| CHECK |          |         |         |      |
| APR   |          |         |         |      |
| APR   |          |         |         |      |

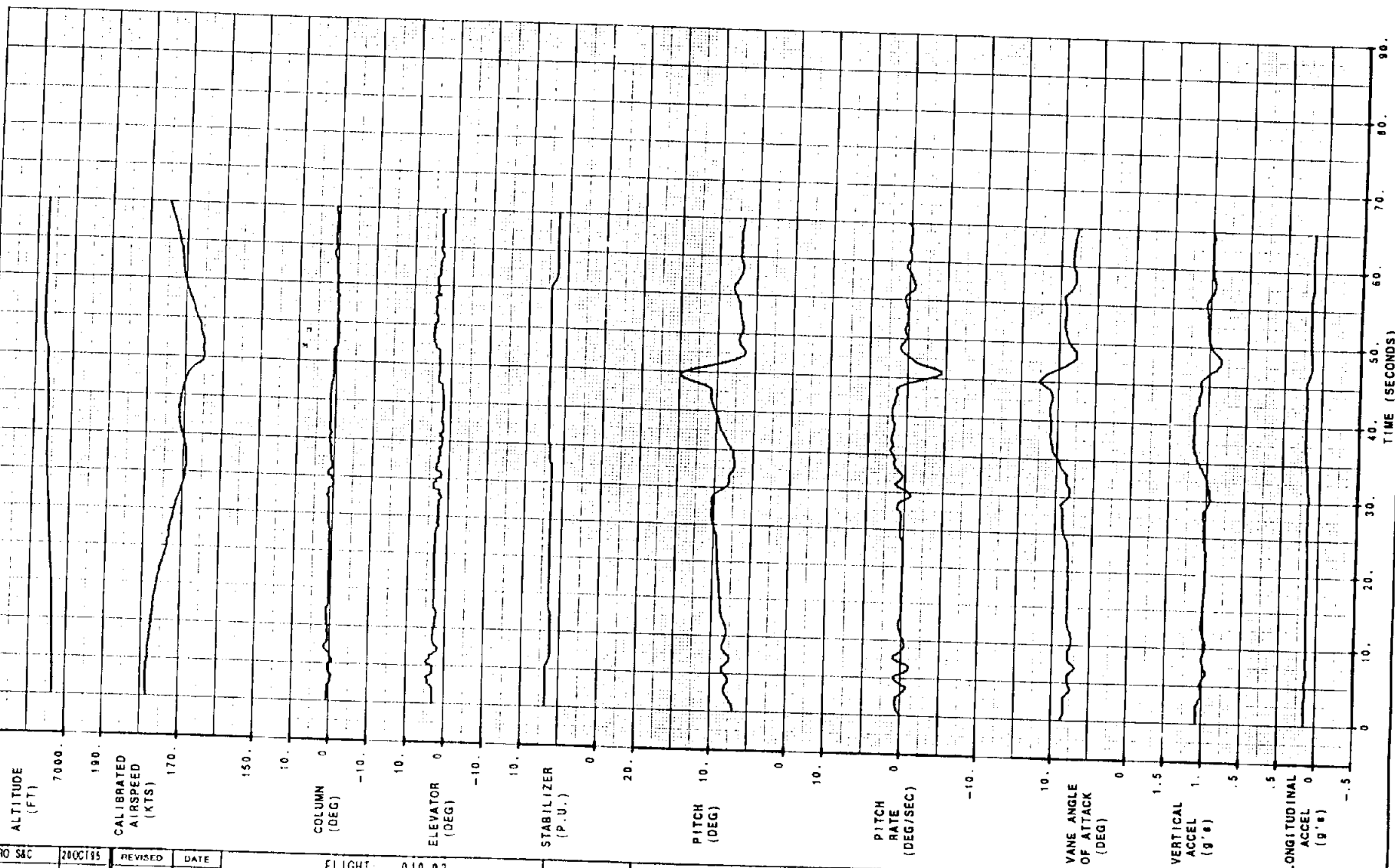
FLIGHT: 019-03  
CONDITION NO: 81.41.0081.053  
TEST DATE: 09/20/95

THE BOEING COMPANY

737-300  
PP053  
PAGE

//ra40/disk4/waketest/11\_database/  
111\_19\_03\_combined.esb  
#008656A - data\_plots/waketest.plb

RUN NAME WEIGHT CG YAW DAMPER DESCRIPTION  
008656 36900 18.5 CN 3/4 pedal release @ 170 kts





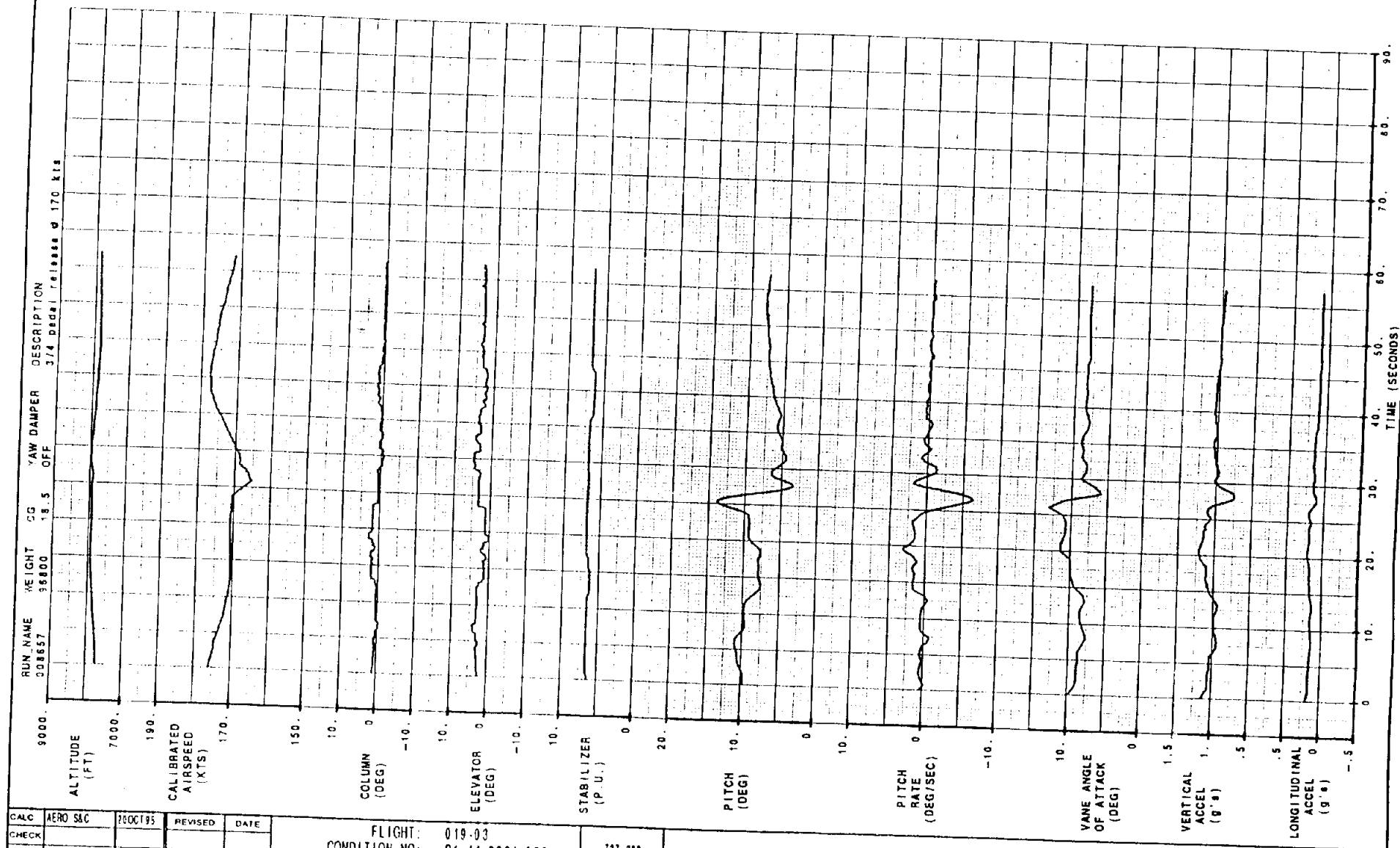
| CALC  | AERO SAC | 2800195 | REVISED | DATE |
|-------|----------|---------|---------|------|
| CHECK |          |         |         |      |
| APR   |          |         |         |      |
| APR   |          |         |         |      |

FLIGHT: 019-03  
CONDITION NO: 81.41.0081.059  
TEST DATE: 09/20/95

THE BOEING COMPANY

737-300  
PP053  
PAGE

//r40/disk4/waketest/11\_database/  
11t\_19\_03\_combined.esb  
#008657A - data\_plots/waketest.plt



|       |          |         |         |      |
|-------|----------|---------|---------|------|
| CALC  | AERO SAC | 2000195 | REVISED | DATE |
| CHECK |          |         |         |      |
| APR   |          |         |         |      |
| APR   |          |         |         |      |

FLIGHT 019-03  
CONDITION NO: 81.41.0081.059  
TEST DATE: 09/20/95

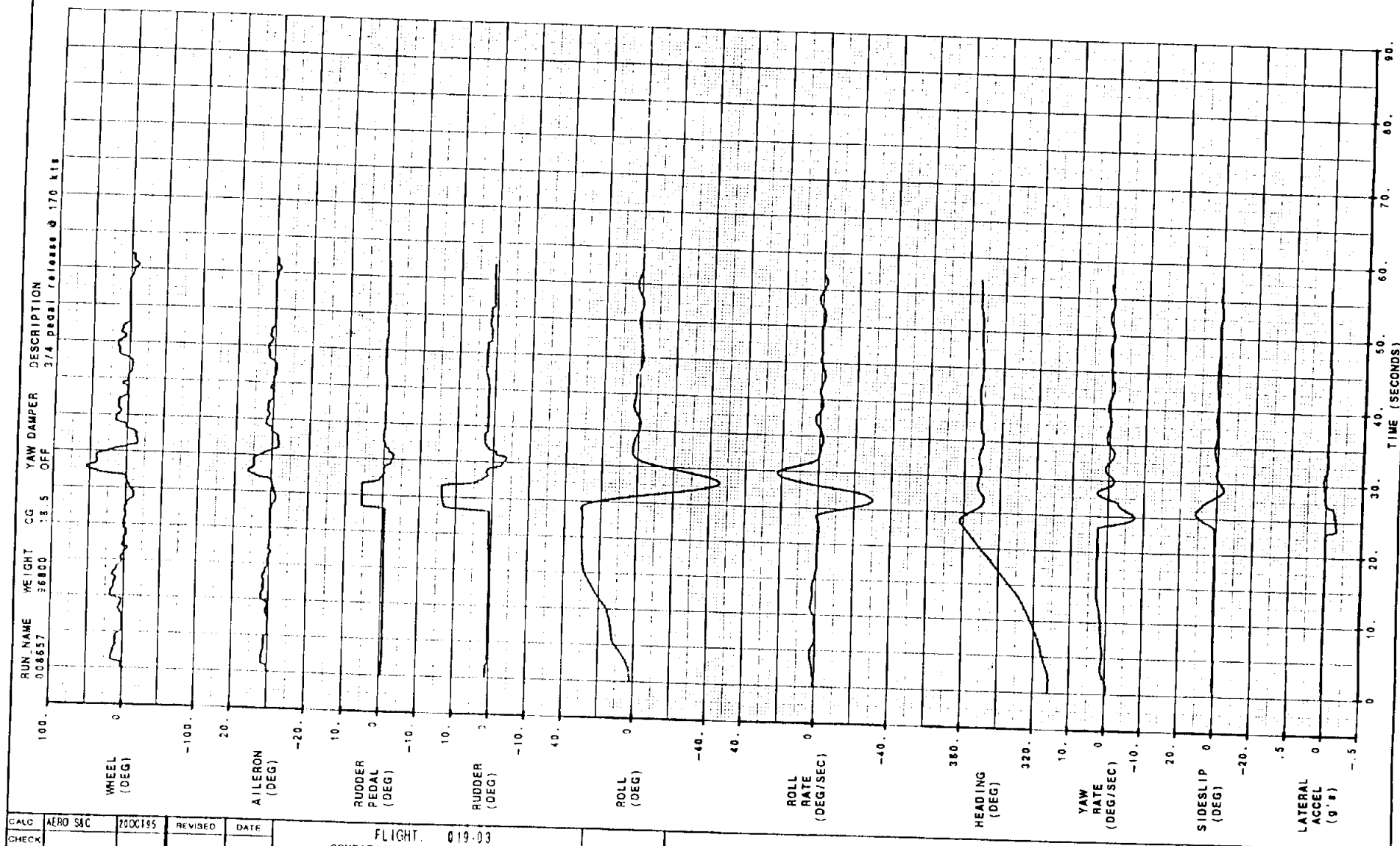
THE BOEING COMPANY

737-300

PP053

PAGE

//ra40/disk4/waketest/1t\_database/  
1t\_19\_03\_combined.esb  
#008657B - data.plots/waketest.plb





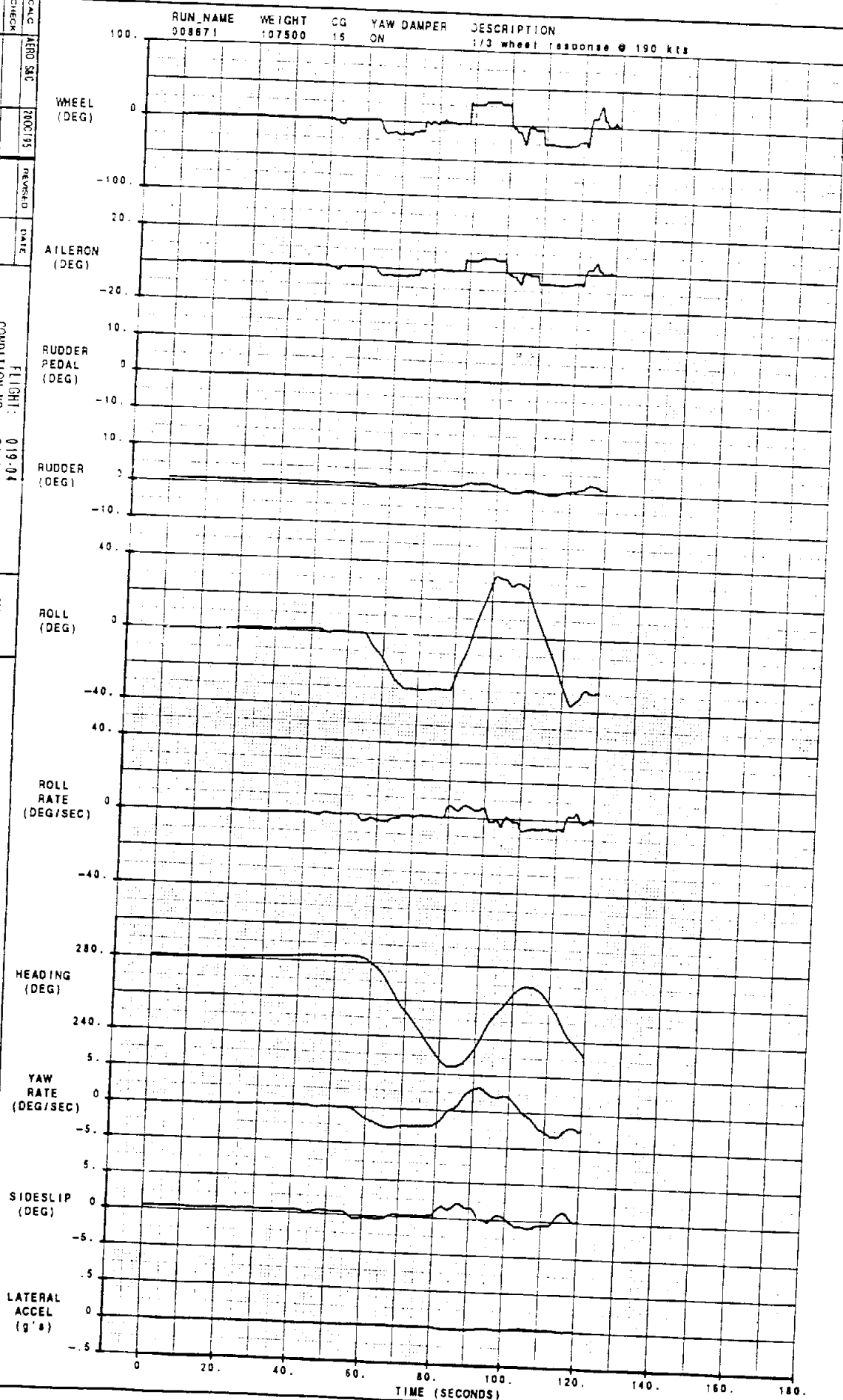


|       |          |         |         |      |
|-------|----------|---------|---------|------|
| CALC  | AERO SAC | 2000/95 | REVISED | DATE |
| CHECK |          |         |         |      |
| APP   |          |         |         |      |
| APP   |          |         |         |      |

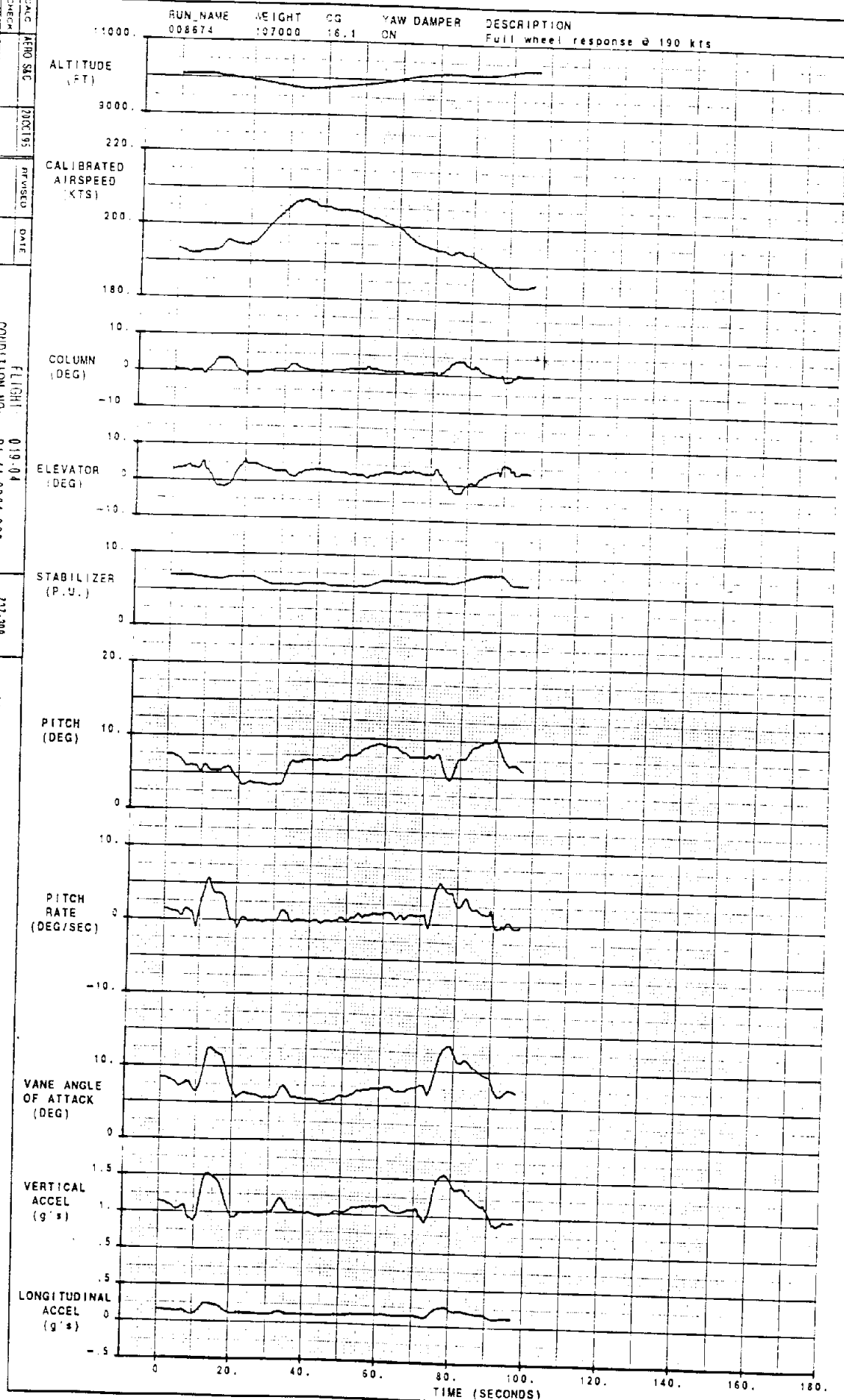
|                    |                |
|--------------------|----------------|
| FLIGHT: 019-04     |                |
| CONDITION NO:      | 81-41-0081-021 |
| TEST DATE:         | 09/21/95       |
| THE BOEING COMPANY |                |
| PROD               | 737-300        |
|                    | PP953          |

//rad0/disk4/wakeest/11\_database/  
11-19-04\_combined.asb  
8086718 - data\_plots/wakeest.plb



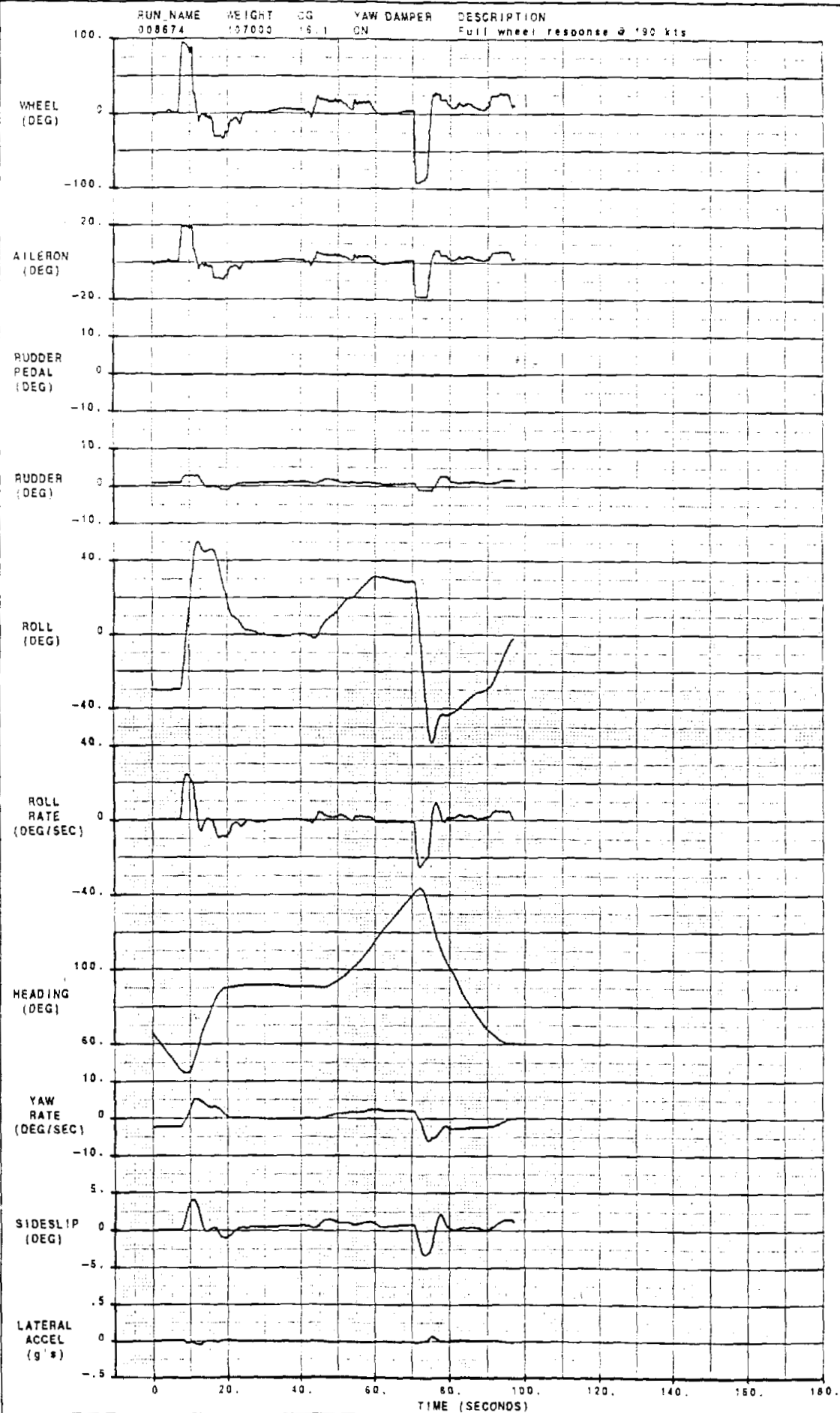
|                                                                                                                 |        |          |         |      |
|-----------------------------------------------------------------------------------------------------------------|--------|----------|---------|------|
| CALC                                                                                                            | APPROX | 2003/195 | REVISED | DATE |
| CHECK                                                                                                           |        |          |         |      |
| APPROX                                                                                                          |        |          |         |      |
| FLIGHT: 019-04<br>CONDITION NO: B1 41 0081 022<br>TEST DATE: 09/21/95<br>THE BOEING COMPANY<br>737-300<br>P0853 |        |          |         |      |

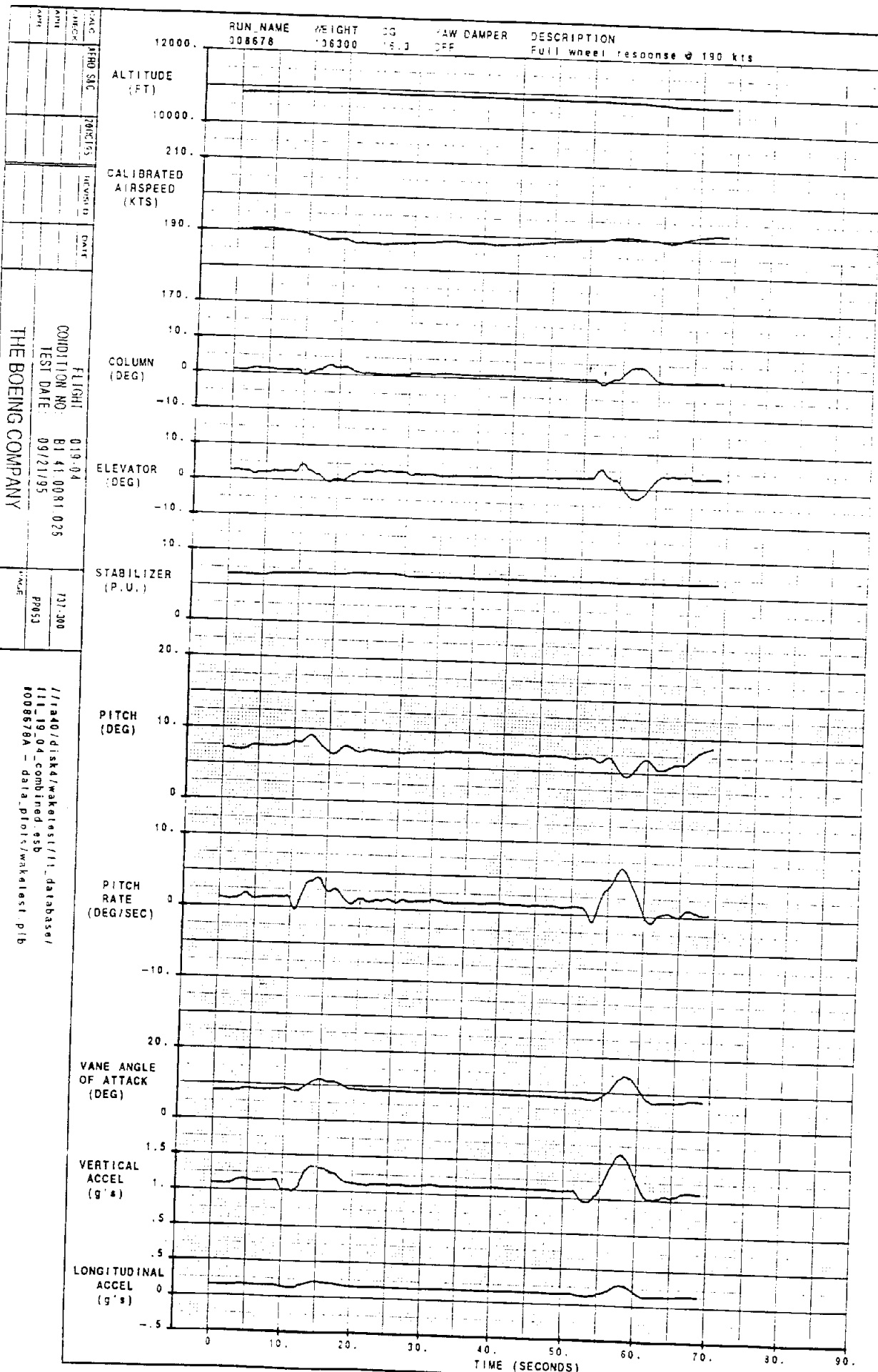
//ra0/disk/wakefest/11\_database/  
 11\_19\_04\_combined.asb  
 #008674A - data\_plots/wakefest.plt

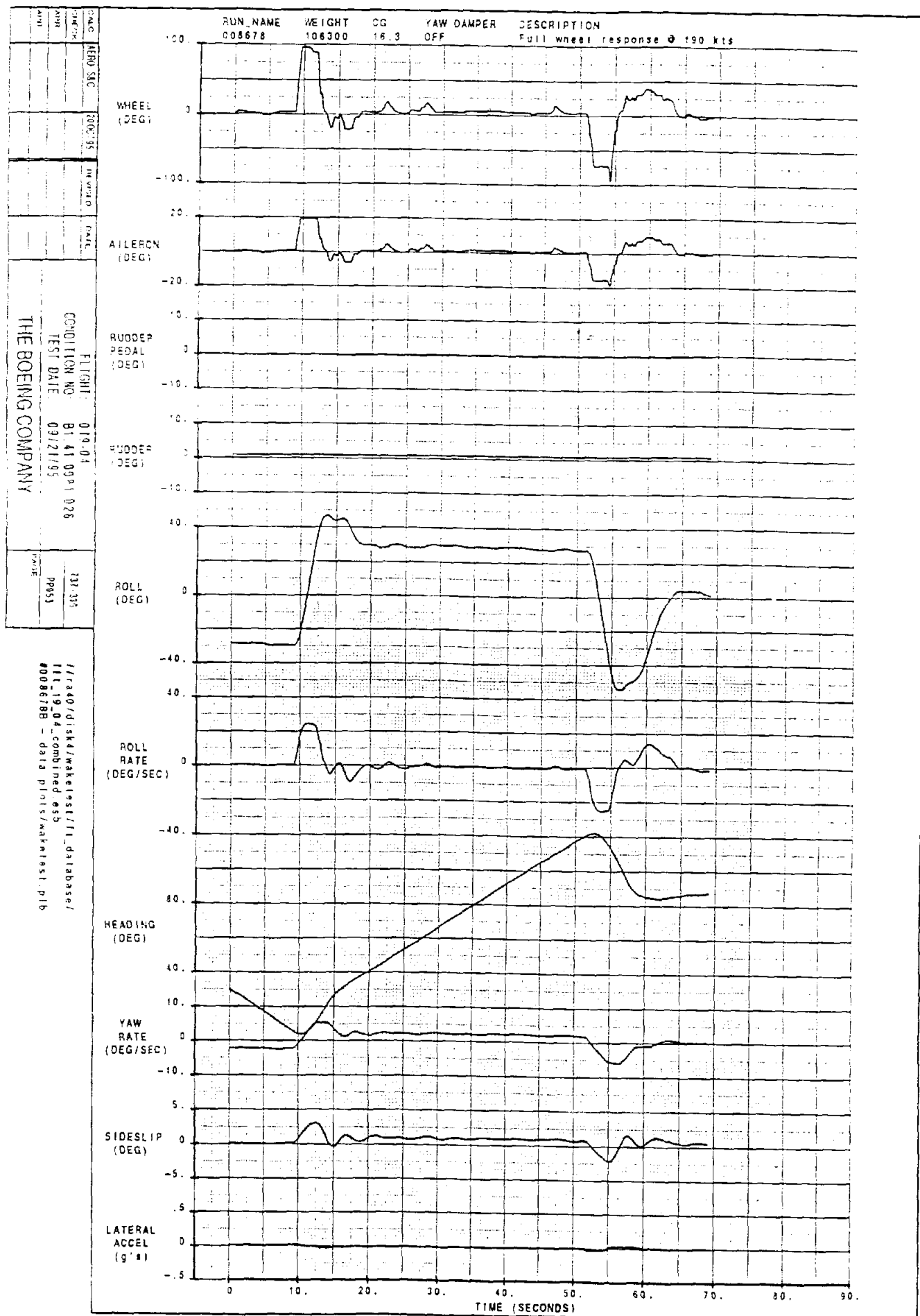


|                    |           |                |           |
|--------------------|-----------|----------------|-----------|
| NAME               | TEST DATE | FLIGHT NO.     | TEST DATE |
| HEAD SIC           | 09/21/95  | 019-04         | 09/21/95  |
| 100115             |           | BI 41 0081 022 |           |
| PILOT              |           |                |           |
| DATE               |           |                |           |
| THE BOEING COMPANY |           |                |           |
| TIME               | 7:30 PM   | 7:30 PM        |           |
| TIME               |           |                |           |

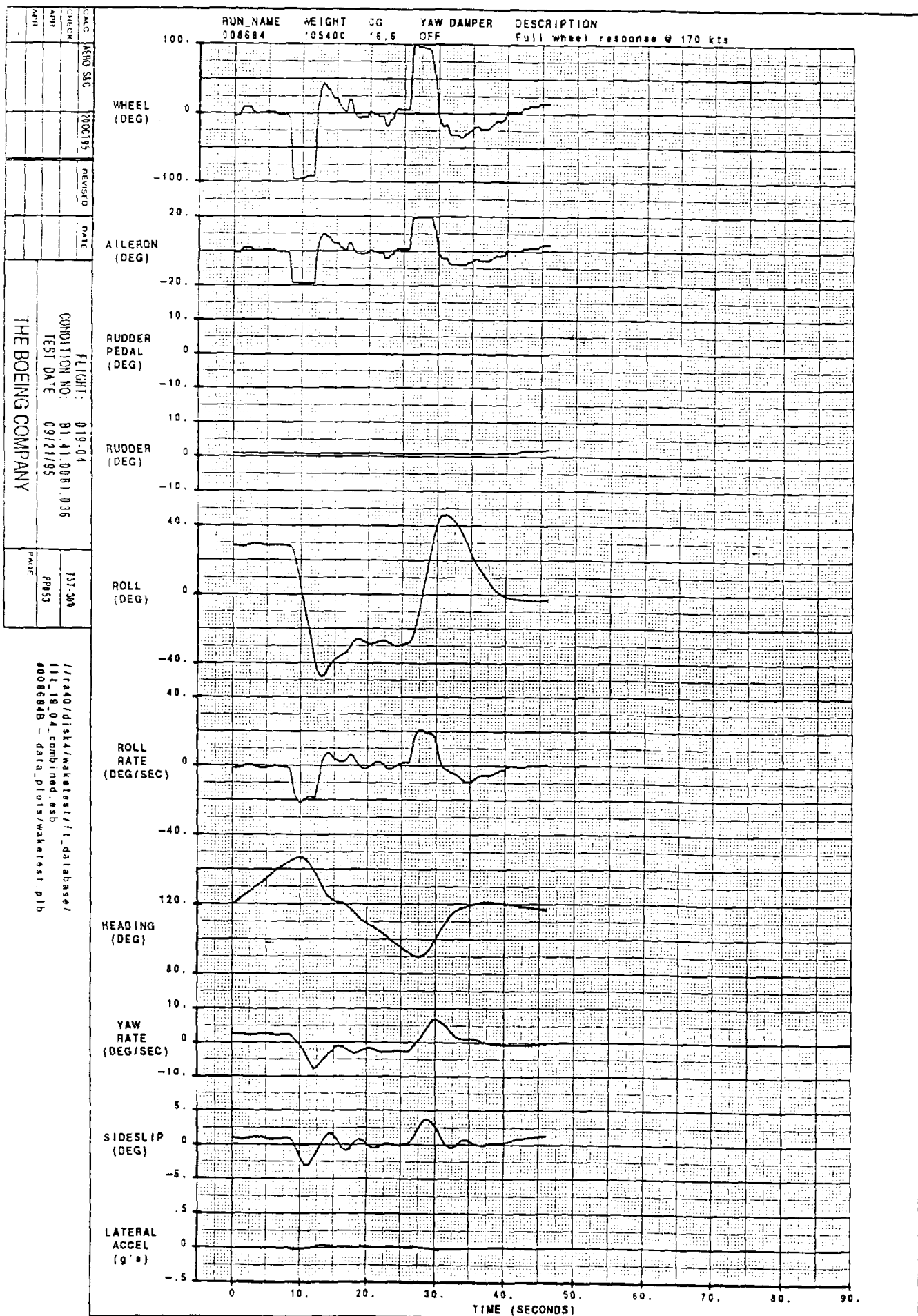
//ra40/disk4/waketest/11\_database/  
 file\_19\_04\_combined.asb  
 70086748 - data plots/waketest.plt

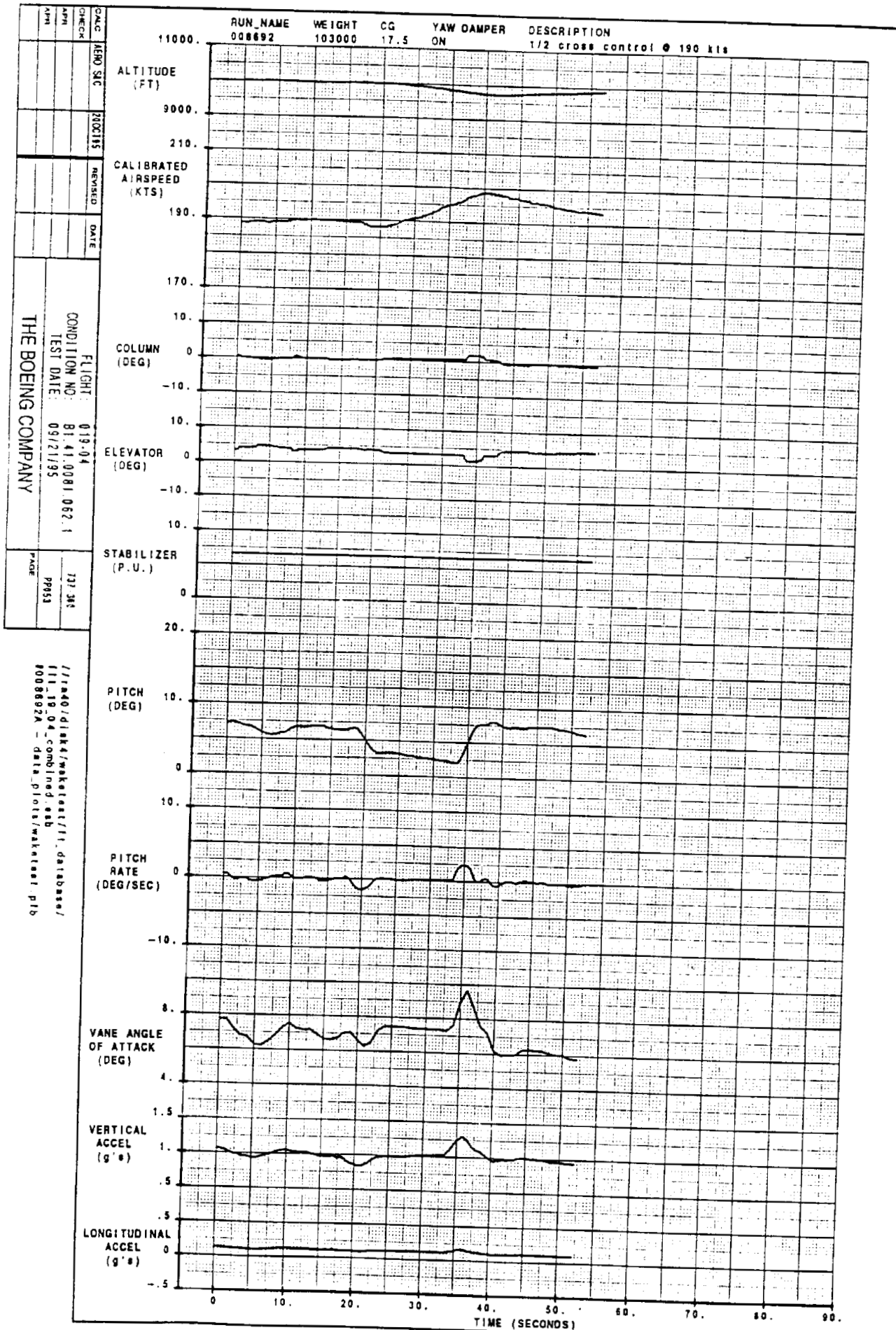














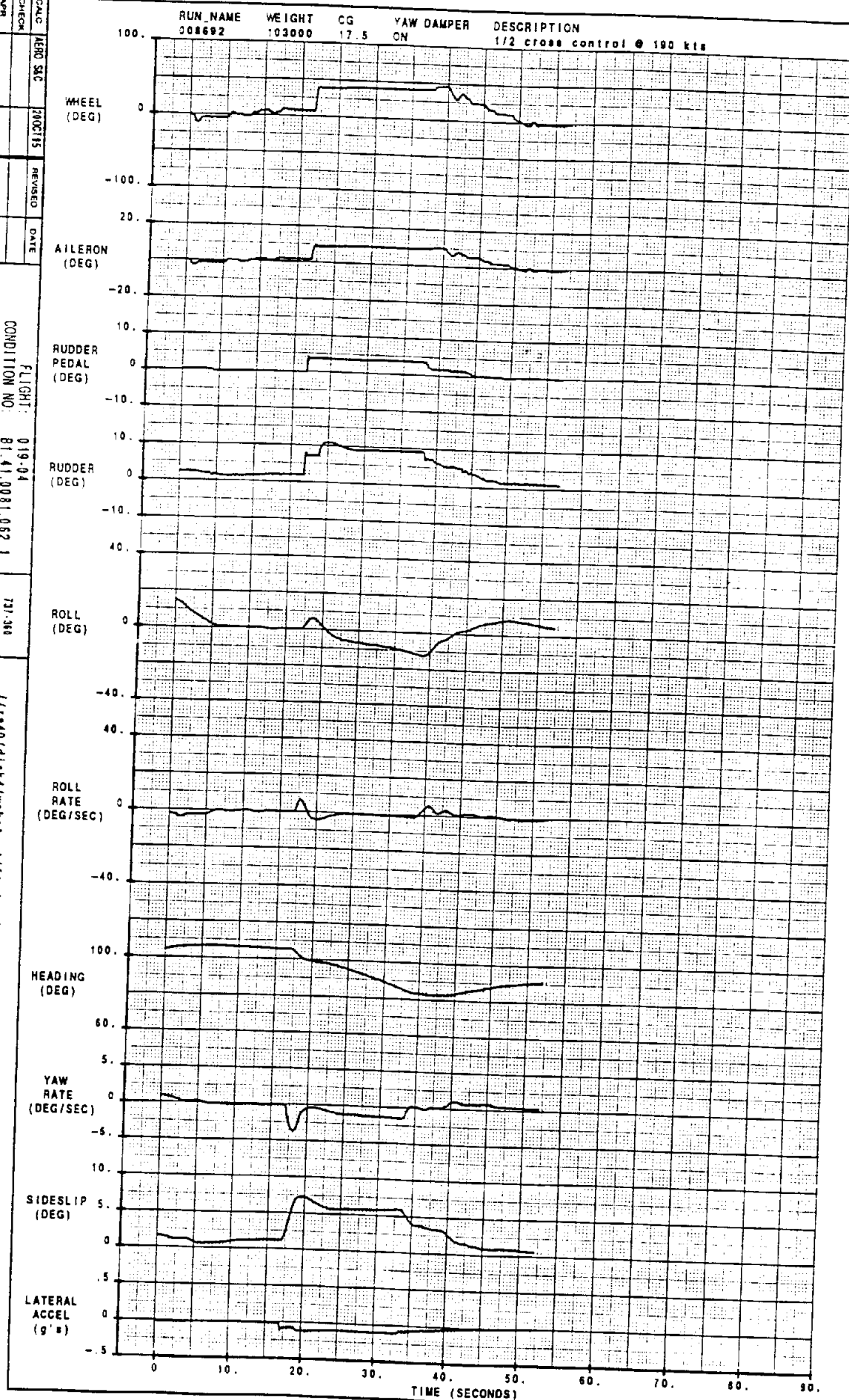
|       |        |         |         |      |
|-------|--------|---------|---------|------|
| CALC  | APPROX | 2000/15 | REVISED | DATE |
| CHECK |        |         |         |      |
| APR   |        |         |         |      |
| APR   |        |         |         |      |

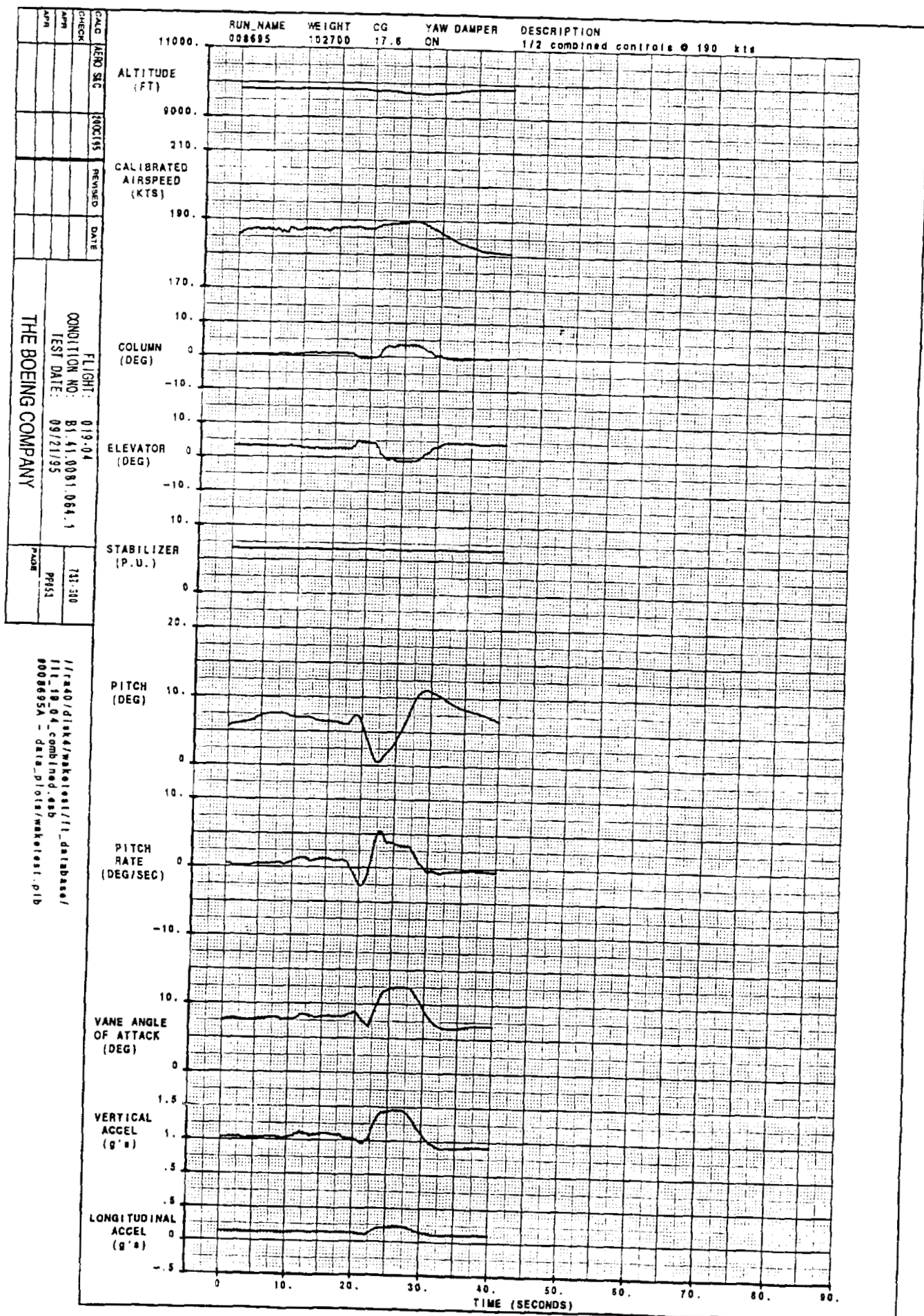
FLIGHT: 019-04  
 CONDITION NO: 81.41.0081.002.1  
 TEST DATE: 09/21/95

THE BOEING COMPANY

737-360  
 PPS1

//rad4/diak4/wakeest/11\_database/  
 111\_19\_04\_combined\_4sb  
 8086928 - data\_plots/wakeest.plb





|                                                                                                                                       |          |         |         |      |
|---------------------------------------------------------------------------------------------------------------------------------------|----------|---------|---------|------|
| CALC                                                                                                                                  | MEMO SEC | 2000 95 | REMOVED | DATE |
| CHECK                                                                                                                                 | APR      |         |         |      |
| CHECK                                                                                                                                 | APR      |         |         |      |
| FLIGHT: 019-04<br>CONDITION NO: 81.41.0081 064.1<br>TEST DATE: 09/21/95<br>THE BOEING COMPANY<br>237-346<br>77053<br>237-346<br>77053 |          |         |         |      |

//read/disk4/wakeinst/11\_database/  
 11.19.04-combined.00b  
 0000095B - data.plots/wakeinst.plb

