

SEE ADDITIONAL COMMENTS

LOG # **RF33X**

TARGET # 2  
 COORD: LAT ?  
 LONG ?

REFER FIRE AND EXPLOSION GROUP NOTES FOR FIRE DAMAGE

GREEN ?

DEBRIS FIELD Green  
 Pg. 10 of 12

RF 33 A c2237

This section of fuselage skin measures approx 2' x 4' and encompasses frame stations 1760 thru 1780 and stringer locations S41R thru S35R. All frame members missing, also S36R is missing. Fuselage skin is irregular in shape and all edges jagged, remaining stringers are fractured and crushed. ~~NO EVIDENCE FIRE OR SMOKE DAMAGE~~ (SOOTING ON OUTSIDE SURFACE)

REFER FIRE AND EXPLOSION GROUP NOTES FOR FIRE DAMAGE

RF 33 B c2238

This section measures approx 3' x 1' and encompasses frame stations 1720 thru 1760 (NO FRAMES ARE ATTACHED), AND STRINGERS S40R AND S41R. STRINGER S41R AND FUSELAGE SKIN ARE CUT THRU (MIDWAY) TO S40R. FUSELAGE SKIN IS ROLLED OVER ON TO ITSELF. ALL EDGES ARE JAGGED. NO EVIDENCE FIRE OR SMOKE DAMAGE IN INSIDE BUT LIGHT SOOTING ON OUTSIDE.

RF 33 C c2239

This section of fuselage measures approx 1 1/2' x 2' and encompasses frame stations 1740 AND 1760 (NO FRAMES ATTACHED) AND STRINGERS S42R, S43R + S44R. (WHICH ARE FRACTURED AND CRUSHED). FUSELAGE SKIN IS TORN FROM S42R TO EDGE. SKIN IS IRREGULAR IN SHAPE, AND ALL EDGES JAGGED. NO EVIDENCE FIRE OR SMOKE DAMAGE INSIDE BUT SOOTING ON OUTSIDE

Tom Todman  
 FATA 10-21-96

Jim Powers  
 1-11-96  
 Boeing

Dennis Santiago IAM  
 10/14/96

A-THR-K Brandon JWA 2  
 10/11/96

RF33X

RF 33D <sup>c2240</sup>

CONTINUED

PO 2 OF 812

THIS SECTION OF FUSELAGE MEASURES APPROX 3 1/2' X 3 1/2' AND ENCOMPASSES FRAME STATIONS 1680 THRU 1720 (NO FRAMES ATTACHED) AND STRINGERS S36R T S41R. FUSELAGE SKIN AND STRINGER 37R MISSING FROM STA. 1700 & 1720. PORTIONS OF FUSELAGE SKIN AND STRINGER S41R MISSING 6" FORE AND 6" AFT OF STA 1700 (DOWN TO S40R). REMAINING STRINGERS AND FUSELAGE SKIN FRACTURED, JAGGERED, AND BEAT, NO EVIDENCE FIRE OR SMOKE DAMAGE ON INSIDE BUT SOOTING ON OUTSIDE

RF 33E <sup>c2245</sup>

THIS SECTION MEASURES APPROX 5' X 4' (IRREGULAR IN SHAPE) AND ENCOMPASSES STATION LOCATION 1620 THRU 1680, AND STRINGERS S36R THRU S42R. FUSELAGE SKIN IS TORN, AND STRINGERS:

S36R MISSING BETWEEN STA. 1620 THRU 1660

S37R " " " 1620 " 1640

S39R, S40R S42R MISSING, ALSO SKIN AT THESE STRINGERS MISSING AFT OF STA 1660 -> TO -> 1680

NO EVIDENCE OF FIRE OR SMOKE DAMAGE

RF 33F <sup>c2241</sup>

THIS SECTION MEASURES APPROX 4' X 2', IS IRREGULAR IN SHAPE, AND FUSELAGE SKIN IS SHEARED, BEAT, AND ALL EDGES JAGGERED. SECTION ENCOMPASSES FRAME LOCATIONS 1660-1700 AND STRINGERS S40R THRU S43R.

a) PORTION S41R CRUSHED & FRACTURED BETWEEN STA 1660 & 1680

b) " S42R " " " 1660 & 1720

STRINGERS S40R AND S43R MISSING

NO EVIDENCE FIRE OR SMOKE DAMAGE, ON INSIDE BUT SIGHT SOOTING ON OUTSIDE.

RF 33 G <sup>C2242</sup>

CONTINUED

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This SECTION OF FUSELAGE MEASURES APPROX 5' x 6 1/2' AND ENCOMPASSES FRAME STATION 1640 THRU 1740, AND STRINGERS S43R THRU S51R ON THRU  $\text{\textcircled{C}}$  AND ON TO LEFT SIDE FUSELAGE (WHICH INCLUDES S51L, S50L, + S49L). FUSELAGE SKIN IS TORN IN MANY PLACES, ALL EDGES ARE JAGGERED, AND IS IRREGULAR IN SHAPE.

- 1) FUSELAGE SKIN IS MISSING AFT OF STA 1680, BETWEEN S43R + S44R
- 2) " " " " AFT " " 1700 FROM STRINGERS S44R, S50R, S51R
- 3) " " " " FWD OF " 1760 FROM " S51R,  $\text{\textcircled{C}}$ , AND S51L
- 4) " " " " " " " 1700 FROM " S51L, S50L, + S49L

ALL STRINGERS FRACTURED OR MISSING AS NOTED.

- 1) STRINGER S40R MISSING
- 2) " S41R " AFT STA 1680
- 3) " S42R " " STA "
- 4) " S43R MISSING COMPLETELY
- 5) " S44R " "
- 6) " S47R " AFT STA 1700
- 7) " S48R " " " "
- 8) " S51L " FWD " 1680

FUSELAGE SKIN ROLLED OVER AT STATION 1700, NO EVIDENCE FIRE OR SMOKE DAMAGE ON INSIDE BUT SOOTING ON OUTSIDE.

RF 33 H <sup>C2244</sup>

See Additional Comments

~~THIS SECTION MEASURES APPROX 9' x 1 1/2' AND ENCOMPASSES STA 1720 THRU 1820, AND STRINGERS: ~~S49L~~, S51R,  $\text{\textcircled{C}}$  S51L, + S50L. FUSELAGE SKIN SHEARED AND JAGGERED OUTBOARD OF S51R, + S51L. FUSELAGE SKIN BETWEEN STRINGERS S51R + S51L FROM STA 1740 TO 1820 RUPTURED AND CURLED INWARD AND OUTWARD ALONG ENTIRE LENGTH, STRINGERS ~~S50R~~ + ~~S50L~~ MISSING, STRINGERS S51R AND S51L FRACTURED, AND PORTIONS MISSING FORWARD STA. 1740. NO EVIDENCE FIRE OR SMOKE DAMAGE.~~

4

THIS SECTION OF FUSELAGE MEASURES APPROXIMATELY 5' x 4' AND TRANSITIONS FROM LOWER LEFT SIDE OF SIDE AIRCRAFT THRU & AND UP RIGHT SIDE TO MATCH SECTION RF 33 G. THIS SECTION ENCOMPASSES STATION LOCATIONS 1620 THRU 1680, AND STRINGERS S51R THRU & THRU FROM S51L THRU S45L. NO FRAMES SECURED TO THIS SECTION. STRINGERS S51L, + S45L MISSING COMPLETELY

FUSELAGE SKIN AND STRINGERS S50L, S49L, S48L, S47L, + S46L MISSING FORWARD STATION 1640

FUSELAGE SKIN AND STRINGERS S50L, S49L, S48L, S47L, + S46L MISSING AFT OF STATION 1660

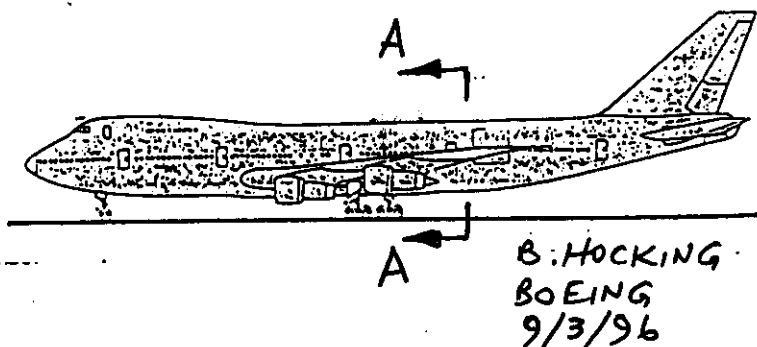
ENTIRE LENGTH OF REMAINING FUSELAGE SKIN CURLED INTO "U" SHAPE AT STATION 1660. ALL EDGES ARE TORN + JAGGED. NO EVIDENCE OF FIRE OR SMOKE DAMAGE ~~OR A HOLE, BUT LIGHT SOOTING ON OUTSIDE.~~

*Stephen*  
FAA

8/19/96

Tom Todaro  
FAA 10-10-96

*Jim Powers*  
Boeing  
11-11-96



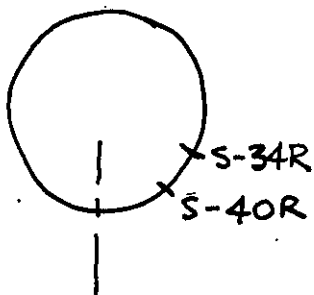
LOG # RF33J P950F12

TARGET # C1207 GREEN

COORD: LAT \_\_\_\_\_

LONG \_\_\_\_\_

DEBRIS FIELD \_\_\_\_\_



VIEW A-A

SKIN SEGMENT, STA 1780 TO STA 1800,  
STRINGER 34R TO 40R.

SKIN:

- 1) BETWEEN STRINGERS, PANEL EXHIBITS INWARD DEFORMATIONS DUE TO AN EXTERNALLY APPLIED PRESSURE.
- 2) ~~THE LONGITUDINAL SKIN SPLICE AT S-40R HAS THE WIDTH OF PANEL SUPPORT~~
- 2) THE LOWER EDGE OF THE PANEL (ABOUT 1 1/2"; THE PORTION NORMALLY ATTACHED BY THE LOWER TWO ROWS OF SPLICE FASTENERS) IS BENT OUTBOARD AND UP ALONG THE UPPER ROW OF FASTENERS. THE BOTTOM TWO FASTENER ROWS WERE EVIDENTLY PULLED THRU THEIR HOLES AS EVIDENCED BY HOLE DIMPLING.

STIFFENERS:

- 1) STG'S 35R THROUGH 39R REMAIN ATTACHED TO THE PANEL.
- 2) STG 38R EXHIBITS INBOARD BENDING OF THE CENTER WITH RESPECT TO ITS ENDS. THE OTHER FOUR STRINGERS HAVE DAMAGED ENDS (FLATTENED, TORN, BENT ~~IN~~ OUTBOARD)



SHEAR TIES & OTHER ITEMS

- 1) REMNANTS OF FRAME-TO-SKIN SHEAR TIES CAN BE FOUND AT THE FOLLOWING LOCATIONS: STA 1780, S-39R TO S-38R, S-38R TO S-37R, S-37R TO S-36R, S-35R TO S-34R. ALSO AT STA 1800, S-40R TO S-39R, S-38R TO S-37R,
- 2) THE MAIN CARGO DOOR CONTROL BOX IS STILL ATTACHED BETWEEN S-36R & S-35R. THE CONTROL SWITCHES ARE PRESENT BUT DAMAGED. THE ~~FRONT~~ BOX INBOARD SURFACE IS DEFORMED OUTBOARD AS THOUGH AN OUTBOARD-ACTING PRESSURE ~~WAS~~ HAD BEEN APPLIED TO IT. WIRES RANGING IN LENGTH BETWEEN 6 INCHES TO 6 FEET REMAIN ATTACHED.

(CONTINUED)

LOG # RF33J (CONT.)

B. HOCKING  
BOEING  
9/3/96

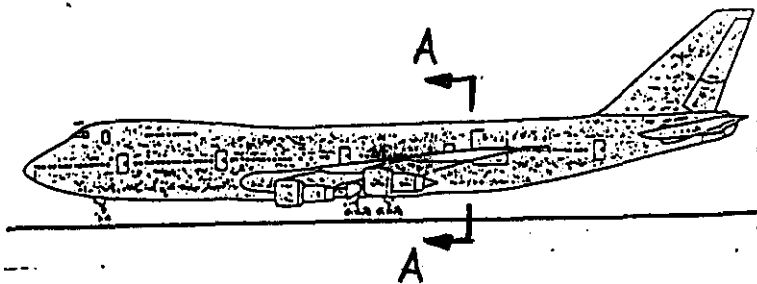
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SKIN SEGMENT, STA 1780 TO STA 1800, STG 34R TO 40R

OTHER ITEMS

- 3) LIGHT SOOTING EXISTS ON THE OUTBOARD SURFACE MAINLY IN THE REGION FROM S-40R TO S-39R.
- 4) FRACTURE SURFACES APPEAR TO BE DUCTILE FAILURE.

2

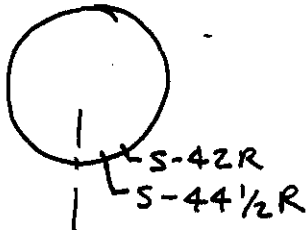


LOG # RF33K Pg 7 of 8

TARGET # C692

COORD: LAT \_\_\_\_\_  
LONG \_\_\_\_\_

DEBRIS FIELD \_\_\_\_\_



SKIN PANEL SEGMENT, STA 1680 TO STA 1700, STG 42R TO 44 1/2 R.

SKIN: THE PORTION OF THE PANEL BETWEEN STG 43R AND 44R HAS AN INWARD BULGE WHICH WOULD APPEAR TO INDICATE THAT AN EXTERIOR PRESSURE ACTING INWARD WAS EXERTED ON THE PANEL, THE SKIN GAGE IN THIS REGION APPEARS TO BE ABOUT 0.10 INCH THICK,

STRINGERS:

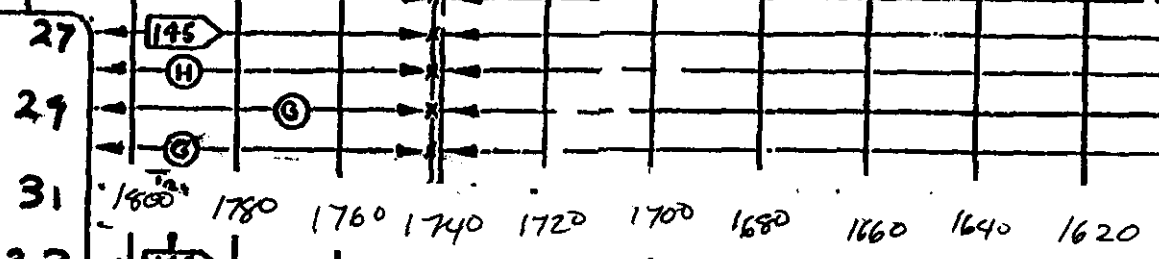
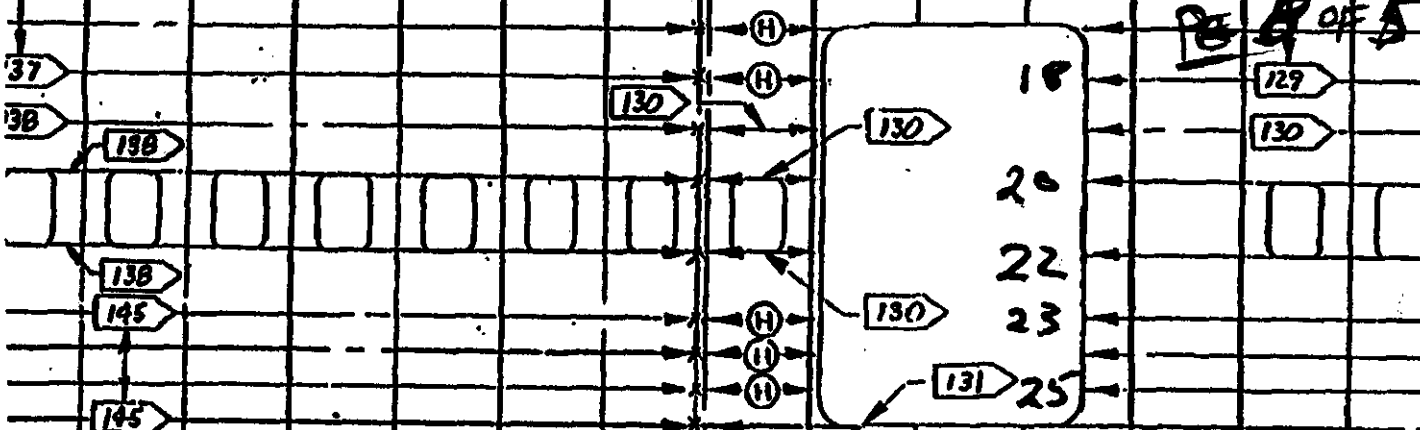
- 1) STRINGERS 43R AND 44R REMAIN ATTACHED TO THE PANEL
- 2) THE STRINGER ENDS AT STA 1680 AND 1700 ARE TORN. WITH PIECES EXTENDING AS FAR FORWARD AS STA 1673 AND AS FAR AFT AS 1717.

OTHER ITEMS:

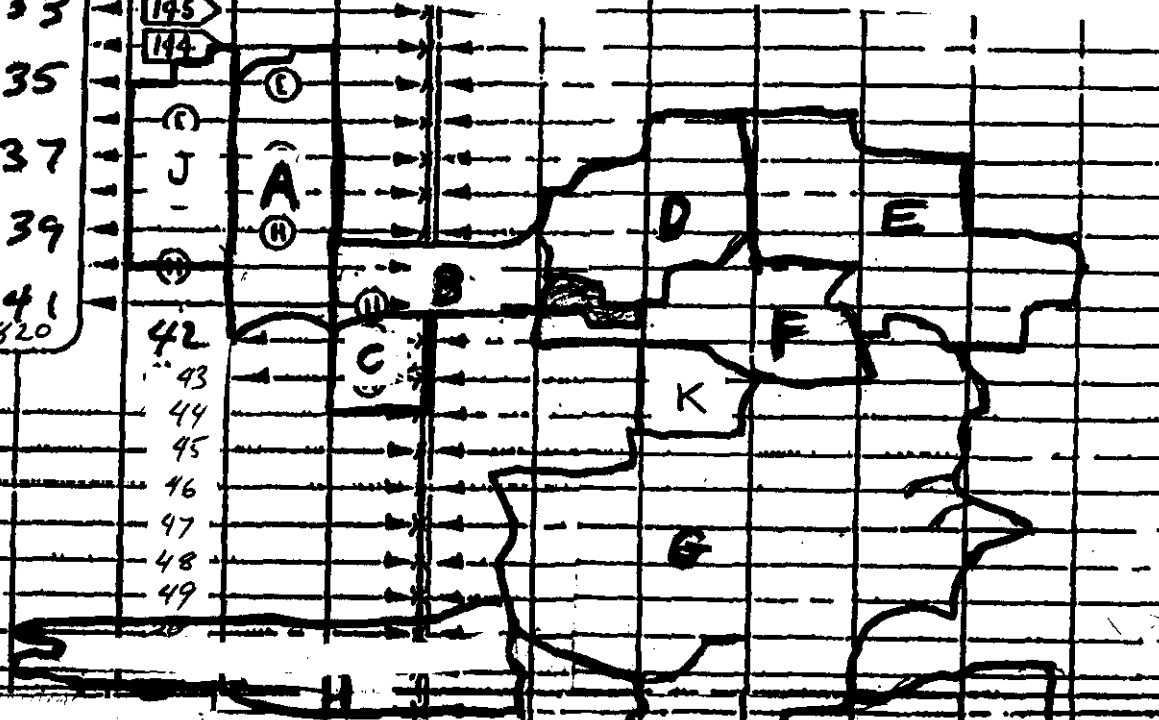
- 1) THE PANEL POSSESSES THREE NUTPLATES ATTACHED TO THE SKIN INNER SURFACE WHICH ARE USED FOR OUTSIDE FAIRING PANEL INSTALLATION. THEY ARE LOCATED AT STA 1690, STG 42 1/2 R; STA 1688, STG 43R (IN OPEN CENTER OF STRINGER) AND AT STA 1684, STG 43 1/2 R.
- 2) A FRAME-TO-SKIN SHEAR TIE SEGMENT IS ATTACHED TO THE PANEL AT STA 1700, STG 44R TO 45R.
- 3) A PIECE OF A STRINGER CLIP REMAINS ATTACHED TO THE STG 44R SIDE WALL AT STA 1700.
- 4) A SMALL (1 1/2" X 6") PIECE OF FAIRING PANEL REMAINS ATTACHED ON THE OUTER SURFACE.
- 5) THE PANEL HAS MODERATE SOOTING OF THE OUTER SURFACE OVER THAT REGION ~~NOT ONE~~ THAT WAS NOT ORIGINALLY COVERED BY FAIRING PANEL. THE INNER SURFACE HAS LIGHT SOOTING.
- 6) THE FRACTURE SURFACES APPEAR TO HAVE LIGHT SOOTING AND APPEAR TO BE DUCTILE FAILURE.

B. HOCKING  
BOEING  
9/3/96





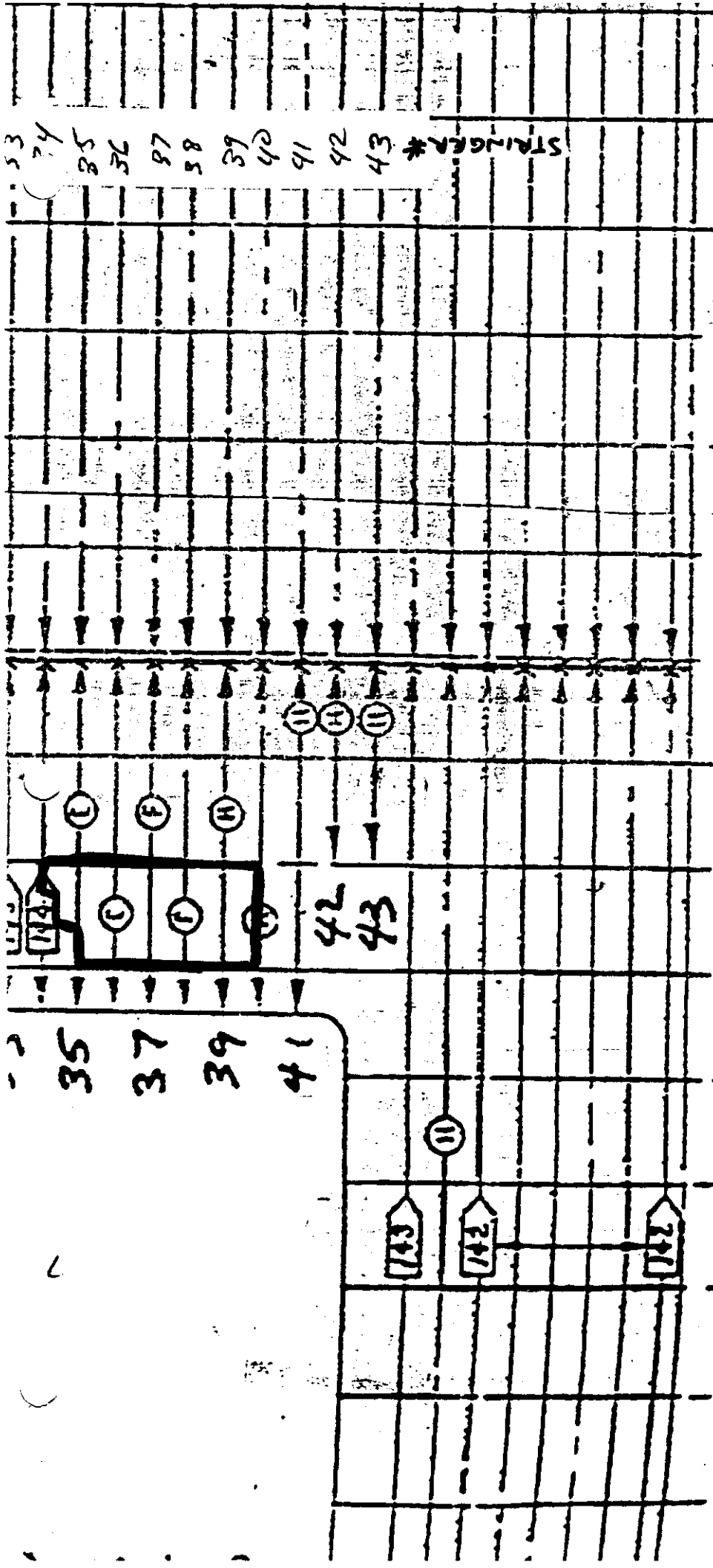
1800 1780 1760 1740 1720 1700 1680 1660 1640 1620



RF33-X

- 50L
- 49L
- 48L
- 47L
- 46L
- 45L
- 44L





1880 1860 184 1820 1800 1780  
STATION

1760 1741 1720 1700 1680 1660 1640 1620

TAG# C1207

LOG# RF33J

GREEN

→ FWD

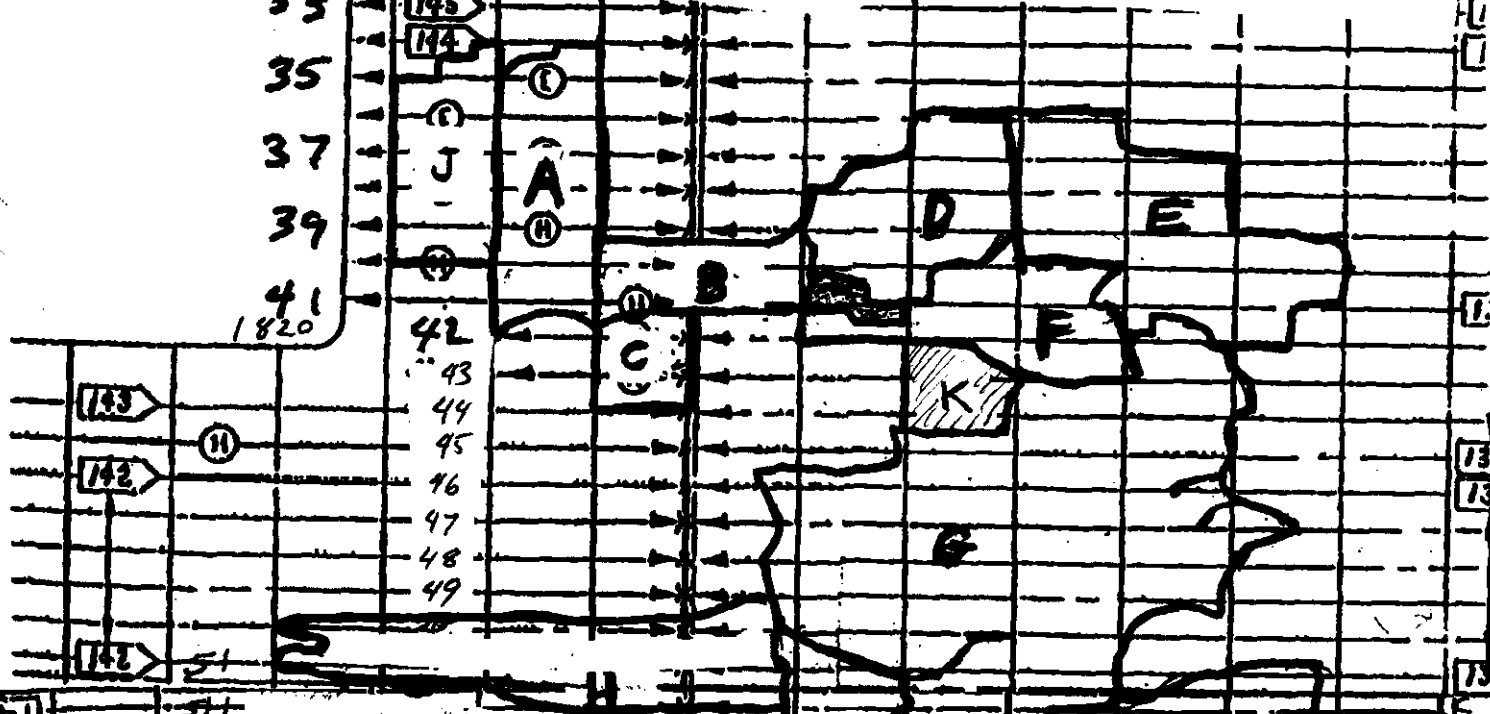
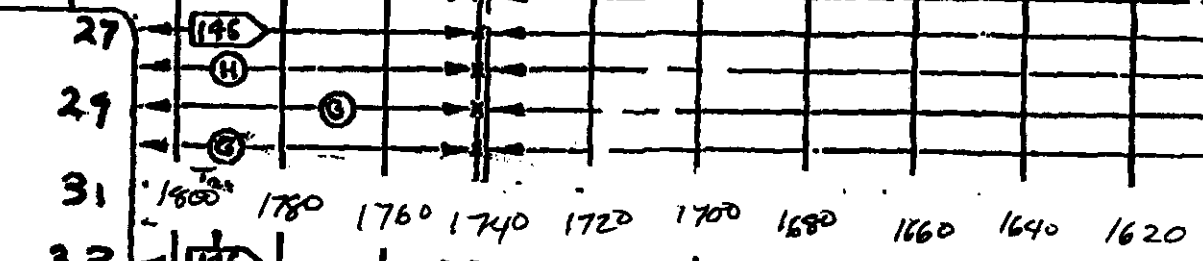
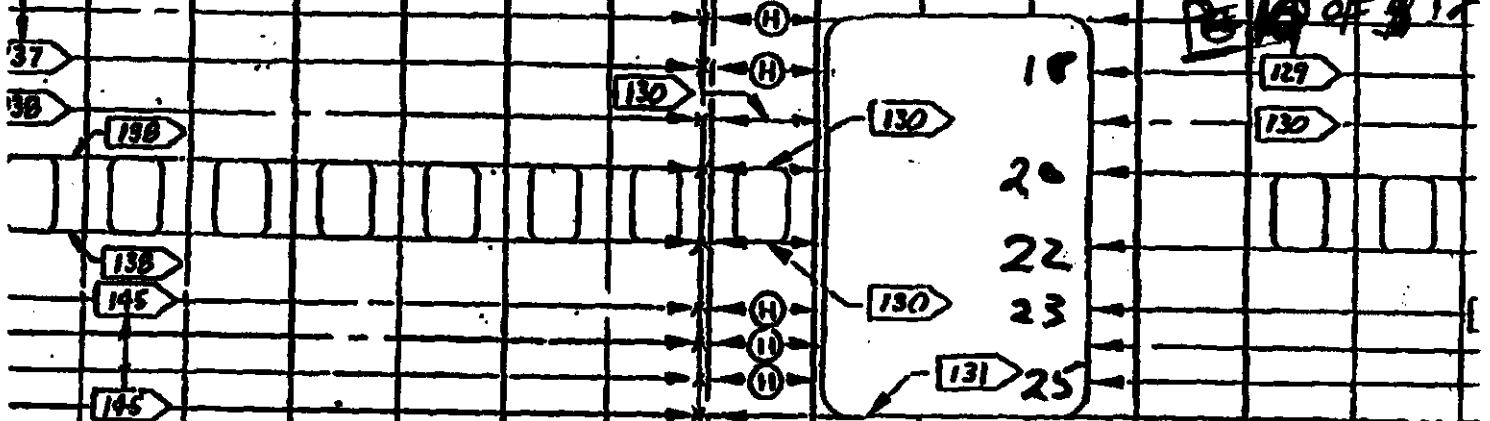
10

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B-HOCKING  
BOEING  
9/1/96

53  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
STAIRS #

RF33

REAR OF STA



RF33-X

- 50L
- 49L
- 48L
- 47L
- 46L
- 45L
- 44L

//

Additional Comments

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of 12

Revision to RF 33

Skin segments A thru D have light sooting on the exterior surface of skin outside of the fairing.

Jim Powers 11-11-96 Boeing

Tom Todman 12-4-96

Neil Scoville - TWA 12-4-96

Dennis Santiago IAM 12-4-96

Rob Hanover - TBC 12/4/96

16

12

ADDITIONAL COMMENTS

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of 12

RF 33H

THE RF33H PART EXTENDS FROM STA 1722 TO 1826,  
AND IS APPROXIMATELY  $1\frac{1}{2}$  FEET WIDE. THIS PART  
INCLUDES STRINGERS 51R AND 50R. THE SKIN  
EXTENDS FROM SLIGHTLY LEFT OF THE AIRPLANE  
CENTERLINE TO 49R AT ITS MAXIMUM WIDTH.

THIS PART MATES WITH PART LF 53

THE SKIN BETWEEN STR 51L & 51R, AND 51R & 50R  
IS MANGLED. THE MAJORITY OF SKIN WAS PUSHED  
INB'D RELATIVE TO THE STRINGERS.

Rob Hancock - TBC  
12/4/96

Neil Scoville - TWA  
12-4-96

Dennis Santiago IAM  
12-4-96

Tom Todaro  
FAA 12-4-96