

UPPER SKIN PANEL - WING CENTER TANK

CW-102
C-224
GREEN

This is a portion of skin panel, with stringers, and floor beams that extends from RBL 78 to LBL 45 and from SWB1 to S-22. It also has large section of mid spar (CW-801) and a part of SWB2 (CW-702) still attached. The skin panel has multiple smaller fractures and has multiple bends of varying radii in several directions, but is generally bowed up at the inb'd and outb'd ends. The fracture edge at LBL45 has a local curl down. Only a portion of the floor beams at RBL 76, 57.5, 34, 11.3, LBL 11.3 and LBL 34 remain attached to the upper surface. Generally, the web of the floor beams has been burnt away. Some lower and upper chord and vertical stiffeners remain. The tension fitting common to SWB1, MS and SWB2 remained attached and intact. The skin splice at the MS is partially failed from RBL 11 to RBL 76. The fwd edge of the panel at SWB2 is bent upwards at a 35 degree angle and there is a fracture in the panel aft of SWB2. Just fwd of SWB2 there is a 3" X 1" vertical puncture in the skin.

The majority of the stringer at S-22 remains attached. The stringer at SWB2 remains partially attached. Only a portion of the skin flange of the stringer remains for S-15, S-18 and S-19. The MS remained attached from LBL 20 to RBL 18, and only the skin flange of the MS stringer remained attached to the right. A large portion of S-12 and S-13 remained partially attached. The vent stringer at S-10/11 remained partially intact from LBL 35 to RBL 75 but is partially detached from the panel and has fractures thru the fwd web flange of the stringer to the right of RBL 34. The stringer at S-9 is not attached. The tension fitting on the lower side of the skin at SWB1 is the only portion of SWB1 that remained attached.

At LBL 30 just aft of the MS there is a semi-circular 6" X 8" area of mid thickness spalling (delamination) on the skin on the lower side that is bent down approx 4" from the inner surface of the panel. It remains attached on the inb'd edge.

Small metal particles were found imbedded in the sealant in the undersurface of this panel. See attached diagram and description in this section for its locations.

There is evidence of heavy fire damage. See Fire and Explosion

Group notes for further documentation.

Stephen F. Klapan H SR
FAA 12-05-96
R. Giacchetti TAM 12-05-96

Wam Slegant 12/5/96 BOEING
A. K. [unclear] 12-6-96 TWA

SD GREEN 12-6-96 ALPA

SECTION 11

CW-102

PARTIAL BEAMS STILL ATTACHED TO UPPER SKIN. FULLY BURNED

LONGITUDINAL FLOOR BEAMS

HEAT DAMAGE CABIN SIDE OF SKIN ONLY

ATTACHED

STR 8

UPPER SKIN EXTENSIVE HEAT DAMAGE

UPPER SKIN PLANK

MID SPAR

STR 21

SB 2

RIGHT

LEFT

1

LBL. 0

AK

FORWARD

LBL. 127.50

STA. 1000

FRONT SPAR

SPANWISE BEAM

SPANWISE BEAM

STA. 1102

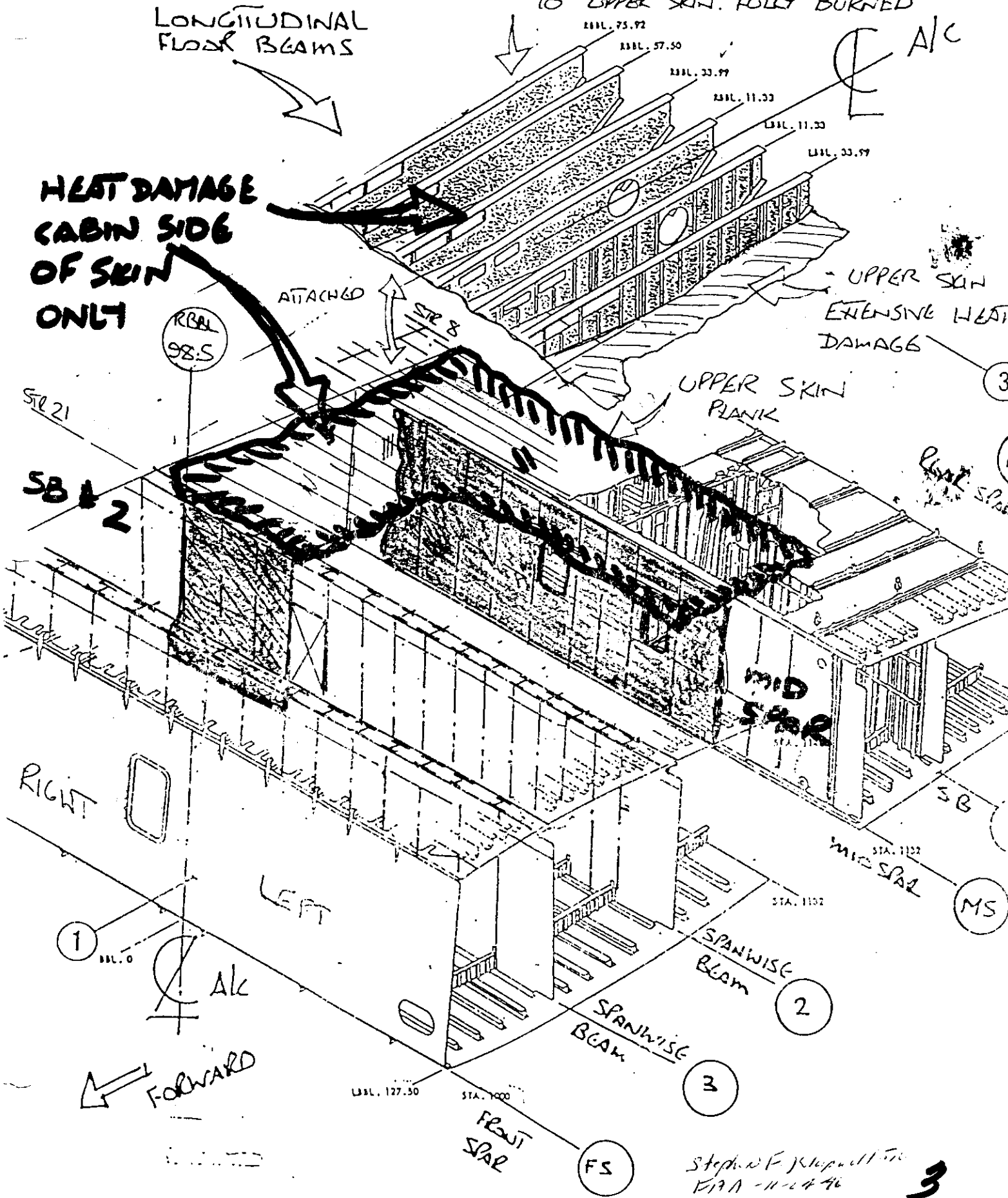
STA. 1102 MID SPAR

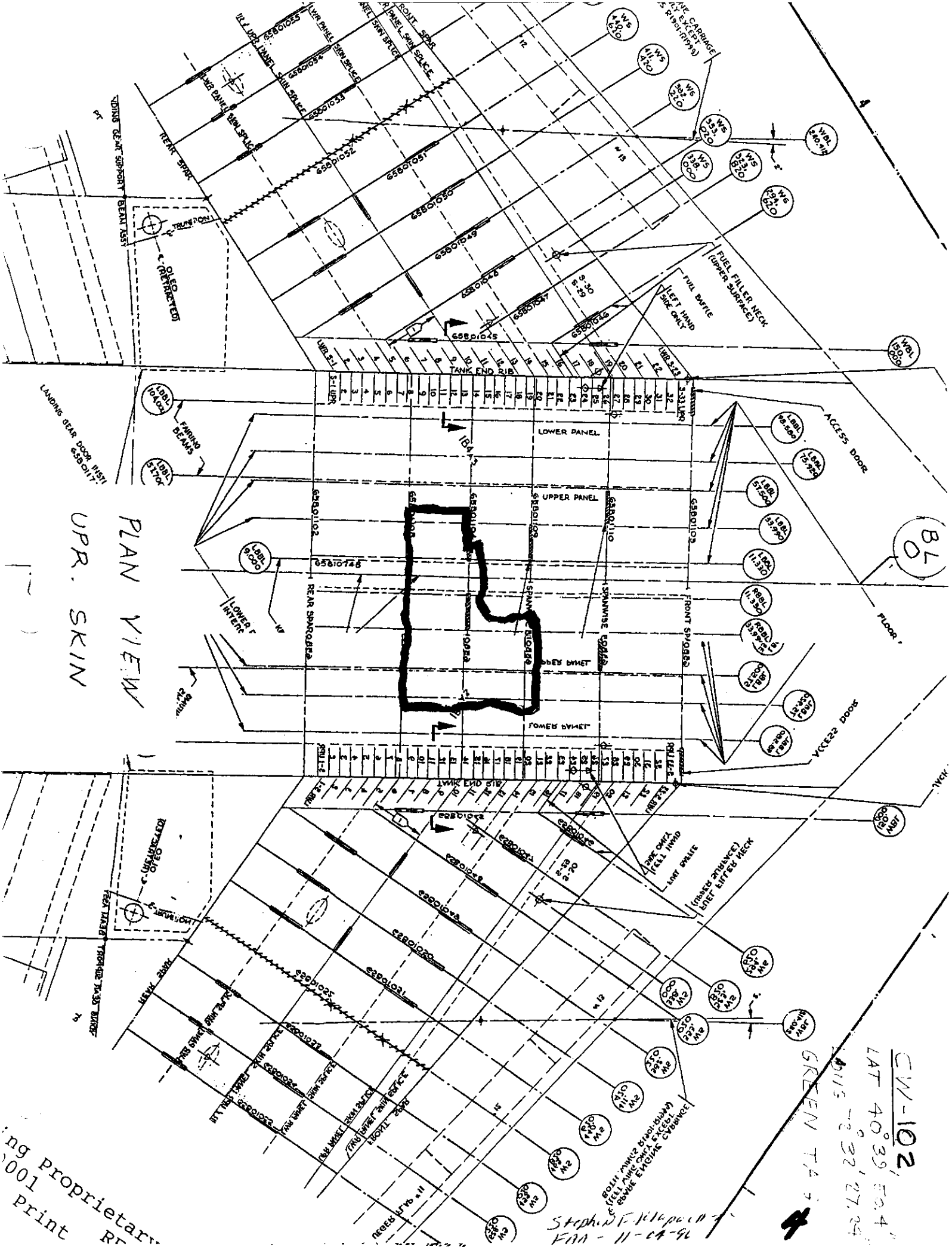
MS

FS

Stephen F. J. ...
FPA - 11-24-46

3





PLAN VIEW
UPR. SKIN

B/L

CW-102
LAT 40°39' 50.4"
LNG 119°32' 27.24"
GREEN T.A.S.

STEPHEN T. KILPATRICK
FMA-11-CA-96

ing Proprietary
001 Print R

METAL PARTICLE LOCATIONS
[PARTICLES ADHERING TO SEALANT
IN MOST CASES]

CW-102
10/26/96
J. TREIL

- 0 - SWB 2 @ RBL 38 FRAGMENT TRAPPED IN CRACK [CW-752]
- 1 - STGR 5-19 AFT OF SWB 2 @ RBL 55
[NTSB # 3]*
- 2 - STGR 5-19 @ RBL 60
3mm x 3mm
- 3 - STGR 5-19 @ RBL 70
[NTSB # 5]*
- 4 - MIDSPAR E ATTACH
- 5 - MIDSPAR @ RBL 8.94 SHEAR TIE
- 6 - MIDSPAR @ RBL 17.27 SHEAR TIE
- 7 - MIDSPAR @ RBL 31-32 [NTSB # 1]* UPPER CHORD
- 8 - MIDSPAR @ RBL 36 UPPER CHORD
- 9 - MIDSPAR @ RBL 37 UPPER CHORD [NTSB # 2]*
- 10 - MIDSPAR VERT. FLANGE @ RBL 58 TRAPPED FRAGMENT IN CRACK
[CW801]
- 11 - MIDSPAR @ RBL 79 UPPER CHORD [NTSB # 4]*
- 12 - STGR 13 @ RBL 1, 1.5, AND 3 SHEAR TIE
- 13 - STGR 13 @ RBL 22/23 [NTSB # 7]*
- 14 - CW102 @ RBL 18 AFT OF STGR 12 ABOUT 2.25 INCHES
- 15 - STGR 12 @ RBL 41/42 [NTSB # 6]*
- 16 - STGR 9 @ RBL 6/7

* [] REMOVED BY NTSB MB 10-16-96
FOR ANALYSIS

Stephen F. Klupac
FAA 11-07-96

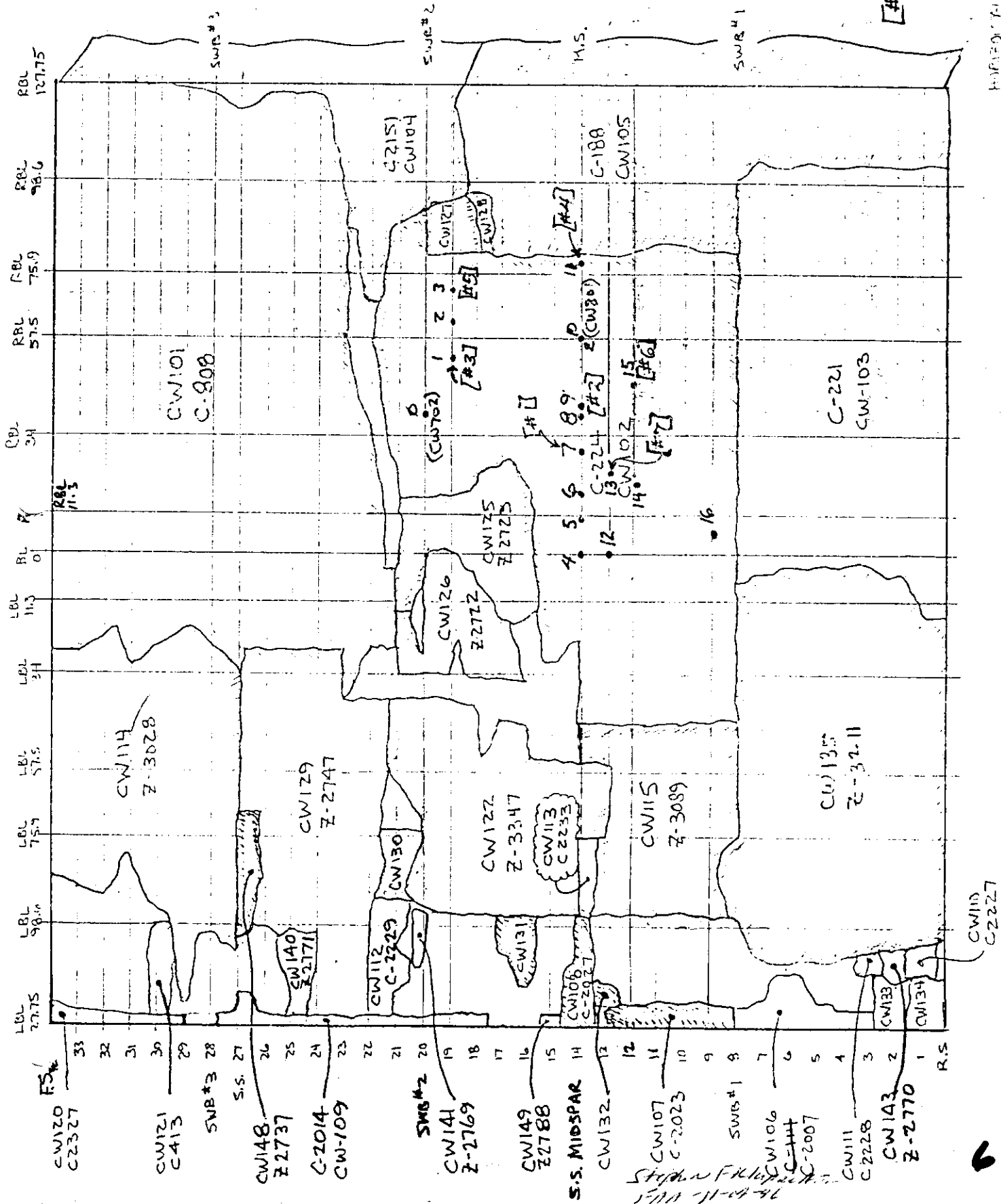
UPPER WING CENTER SECTION
SKIN PANEL

W. Stuyant

CW-102
10/26/96
H. ZRZIL

SUMMARY METAL PARTICLE LOCATIONS

[] - NTSB SAMPLE NO.



MARKED WITH

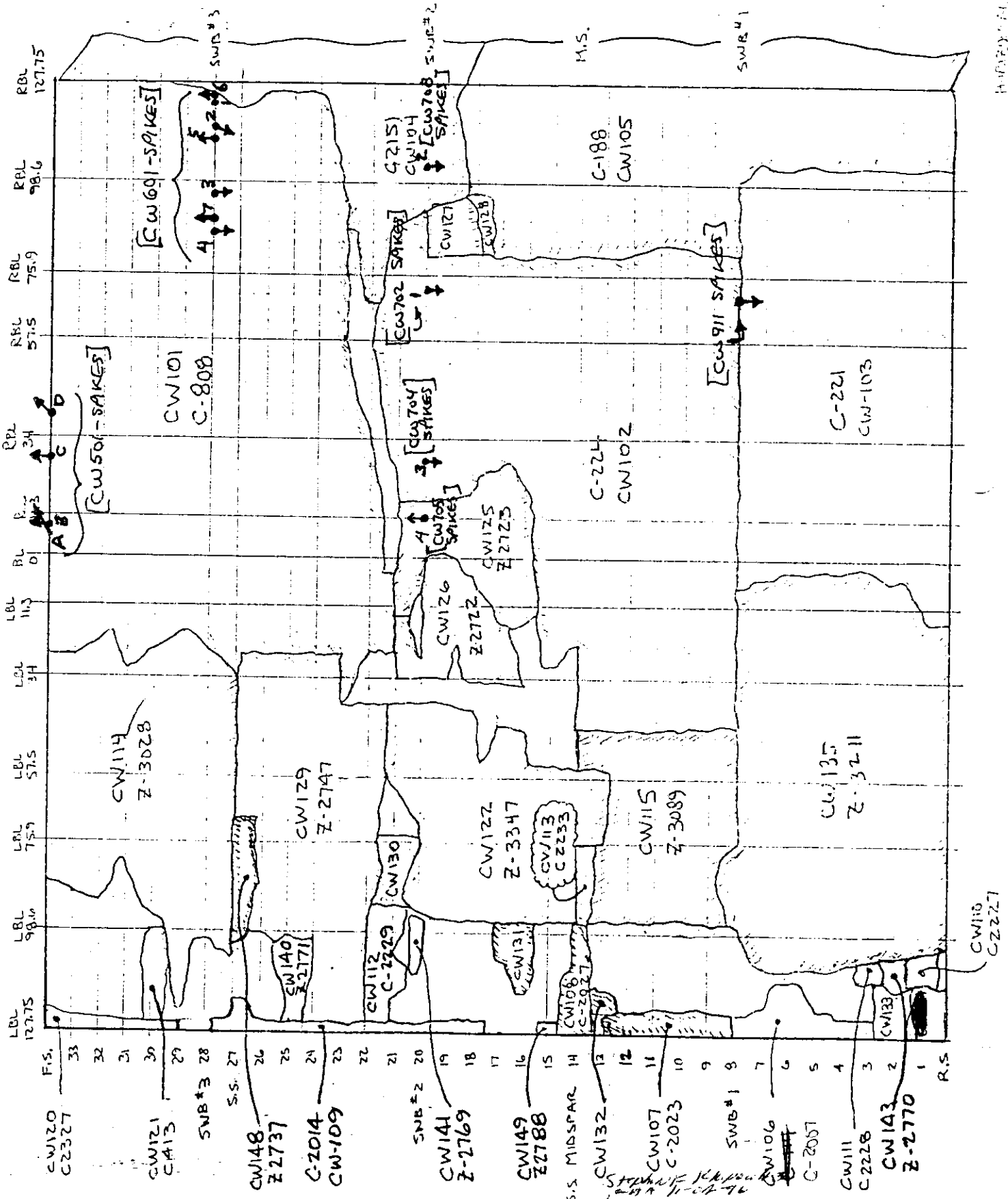
6

UPPER WING CENTER SECTION
SKIN PANEL

CW-102
10/26/96
J. TRZCI

W. Stewart

↑ FWD
SUMMARY VIEW DOWN ON LOCATION
OF SPIKES IN CWT



STA 1140.5

Wing Center Section

CW-102

Midspars Bulkhead Web, REF

Entire upper surface of skin is heavily scoted. Longitudinal floorbeams (not shown) are severely burned.

LBL 33.99

Curled Up

BL Ø

RBL 33.99

RBL 75.92

Spanwise Beam No. 1 loc'n (Beam not attached)

Midspars Splice loc'n

Spanwise Beam No. 2 loc'n

PLAN VIEW OF CENTER SECTION UPPER SKIN

Stephen F. Klepner
ENR 11-04-96

S. Chisholm
8/8/96
7

