

STS-107 POST LAUNCH FILM REVIEW
KSC Photo/Video Analysis Team
18 January 2003

ANOMALIES

1. At approximately 81-82 seconds after T-0, debris originating from the area near the ET -Y bipod strut attach point is observed striking the underside of the LH wing of the Orbiter. The impact site appears to be near the leading edge of the wing. Two distinct pieces of debris can be seen on Film item E-212 before impact with the wing (see Photo 1.) The best view of the event is on tracking video ET-208 (attached with report). Damage assessment on the Orbiter is difficult due to poor resolution. Analysis will continue on this event.

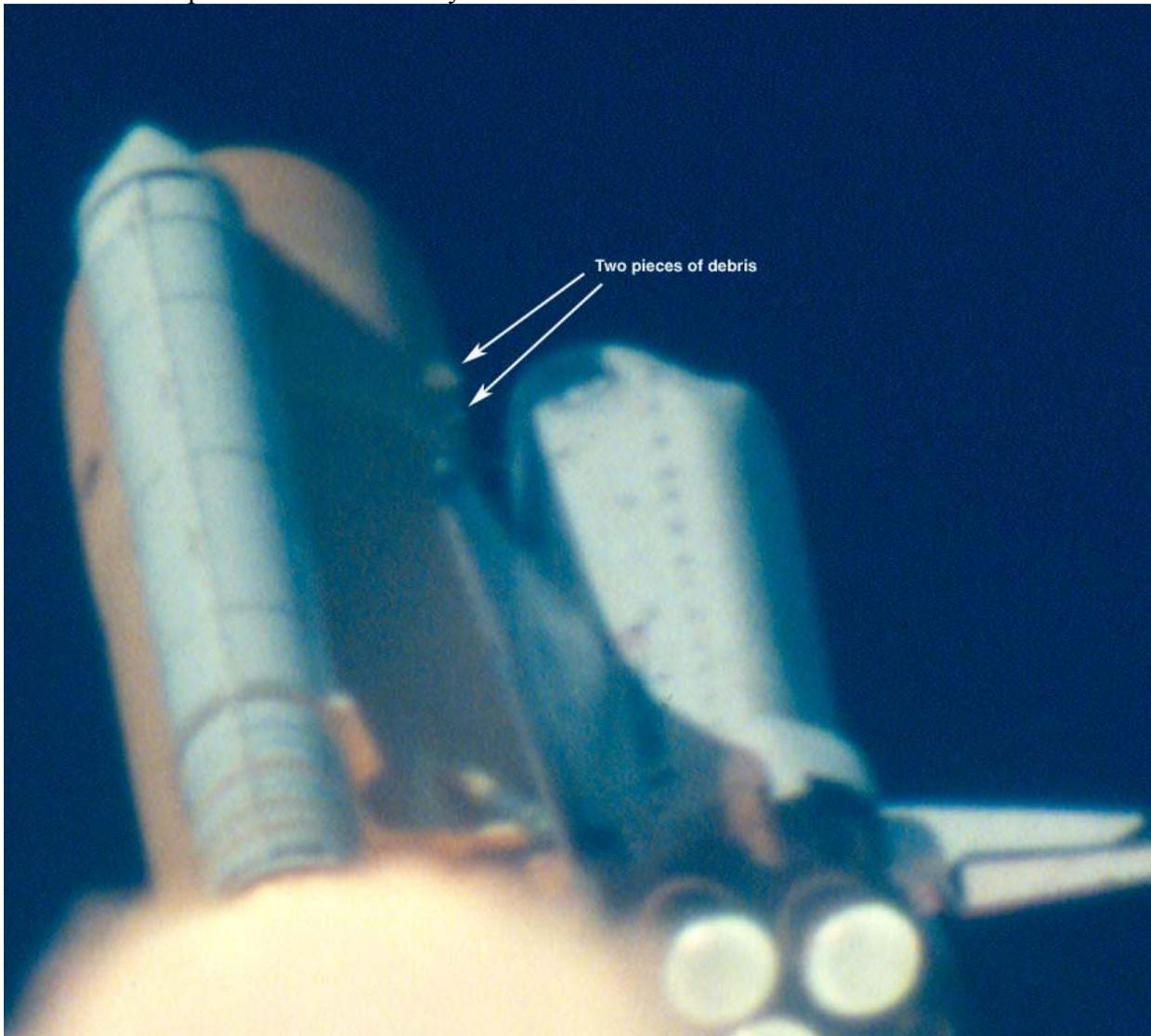


Photo 1. Film E-212

2. Approximately 33 seconds after T-0 several particles are observed falling away from the -Z portion of the LH SRB ETA ring. Particles are probably pieces of the instafoam closeout on the ETA ring. (E-220, E-222, E-223, E-224)

OBSERVATIONS

Several pieces of ice from LO2 feedline bellows fell outboard of the ET vertical strut. (E-6) No contact with Orbiter. (E-5, E-6)

All four SRB holddown post blast covers closed nominally.

Small debris particle ejected from behind DCS from HDP #1 at T-0. (E-9)

GH2 vent line retraction appeared normal. (E-41, E-42)

No OMS pod flexing observed. (E-17, E-18)

Several tile surface chips were noted from base heat shield. This is a common occurrence due to SSME ignition acoustics.

Several ice particles fell from ET/ORB umbilicals during SSME ignition.

Vapors on ET aft dome and SRB stiffener rings were observed after T-0.

Ice particles fell from LH2 / LO2 TSM T-0 disconnects.

Slight rebound of LH2 TSM door was observed. (E-2, E-19)

Loose tape observed hanging off of LH2 TSM opening prior to T-0. (E-18)

Small pieces of deck debris were blown across MLP deck during SSME and SRB ignition.

Several small pieces of facility debris enter field of view after vehicle clears tower. (E-41, E-42)

Deluge water pipe leaking near HDP #7 and #8. (E-11, E-14, E-15)

Large amount of smoke emanating from RH SRB HPU exhaust is visible prior to T-0. (E-1, E-13, E-15, E-60)

Debris emanating from north-side access platform of the LO2 TSM falls during SSME ignition and after T-0. (E-5, E-6, E-17)

Throat plug material ejected from SRB exhaust hole after T-0. No contact with vehicle.

Long, flexible debris comes out of LH2 TSM after door closes. (E-19)



Photo 2. Film E-19. Debris from LH2 TSM.

NOTES

All high-speed film items have been reviewed. Analysis of debris particles striking the orbiter will continue.

Armando Oliu
NASA – KSC