

8:15 A.M.: Columbia fires its braking rockets.

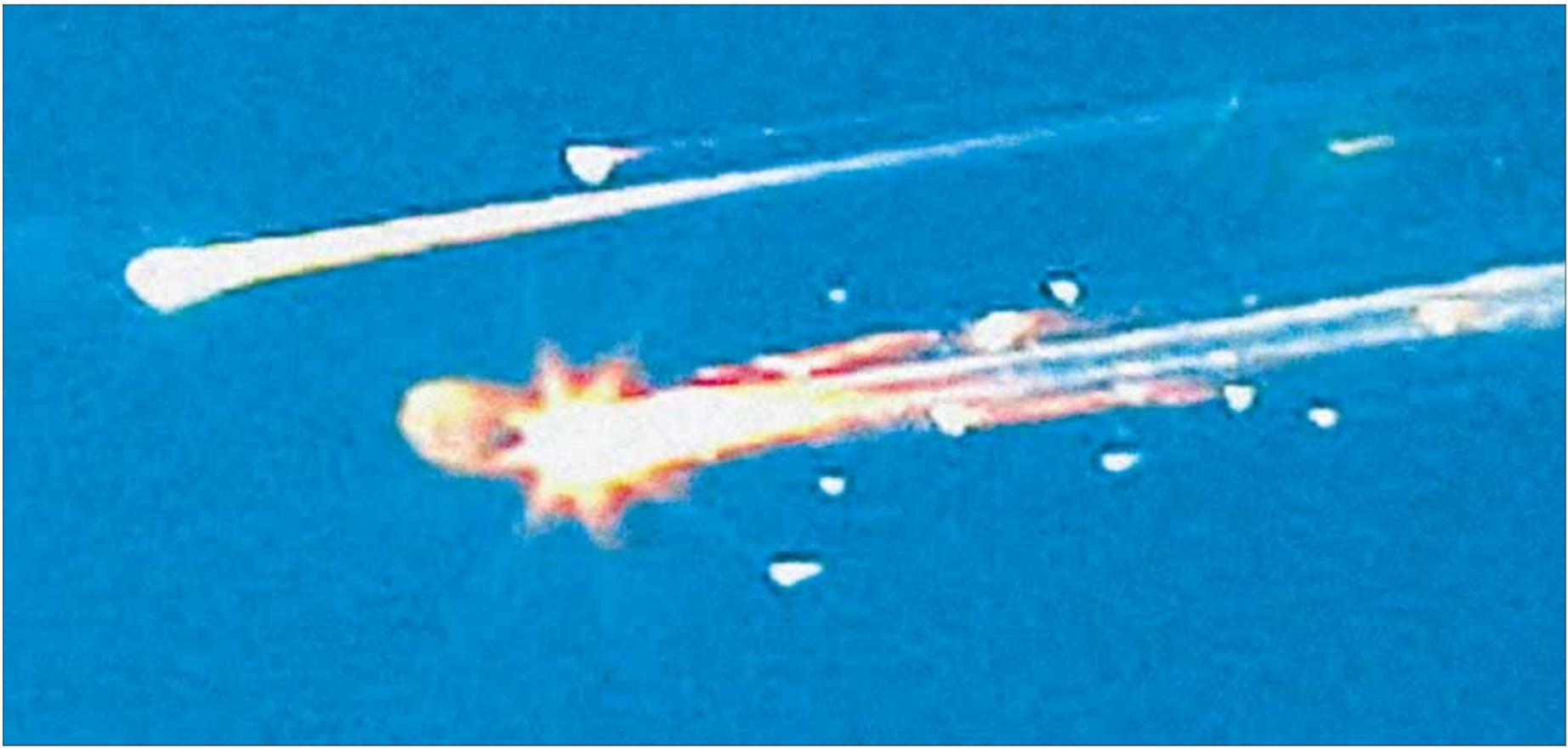
8:53 A.M.: NASA loses temperature measurements for left hydraulic system.

8:59 A.M.: Final transmission. Mission Control radios: "Columbia, Houston, we see your tire pressure messages and we did not copy your last." Columbia replies: "Roger, uh, ..."

9 A.M.: NASA loses contact with Columbia at 207,135 feet; People in Texas, Arkansas and Louisiana hear "a big bang" and see flames in the sky.

9:29 A.M.: NASA declares an emergency 13 minutes after shuttle's scheduled landing time

2:05 P.M.: President Bush states: "Columbia is lost; there are no survivors."



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DEBRIS FROM the space shuttle Columbia streaks across the sky over Tyler, Texas, Saturday morning. Amateur photographer Scott Lieberman shot a series of photos from his backyard, showing the break-up of the craft. Columbia, the original space shuttle, which had flown since April 1981, broke apart in flames more than 39 miles above Texas, killing all seven astronauts just minutes before they were to glide to a landing in Florida.

Nation Mourns Again As NASA Seeks Answers

LAST MOMENTS: A Somersault In Space And A Blizzard Of Checklist Entries

By RINKER BUCK
COURANT STAFF WRITER

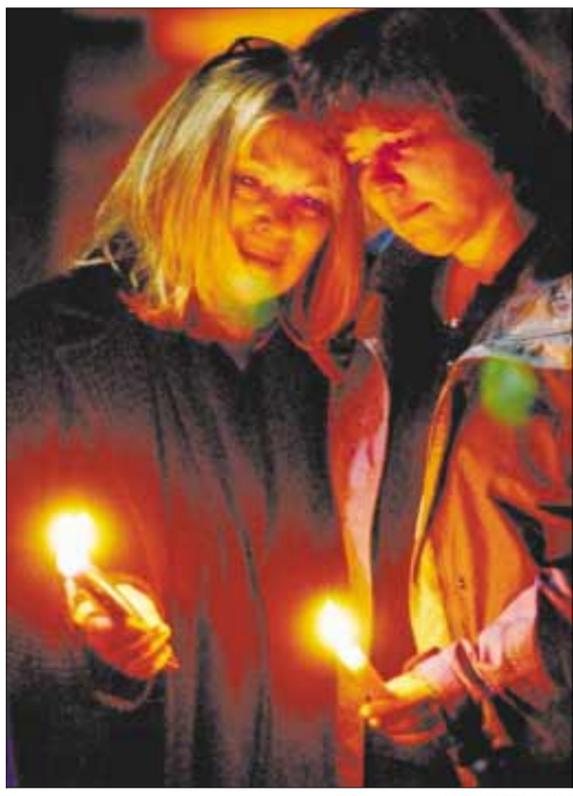
It was, in the parlance of pilots, a perfect CA-VU day — ceilings and visibility unlimited, across the 2,400-mile patch of Earth that the Shuttle Columbia would be following to its landing in Florida.

In their pilots' seats in the recently refurbished cockpit of the Columbia, Cmdr. Rick Husband and pilot William McCool, although probably tense and alert, had indicated that nothing was awry.

But they were very, very busy in their 90-ton ship. In the minutes before 8 a.m. Saturday, Husband and McCool were halfway through a complex regimen of maneuvers, corrections, engine bursts and checklist reads that severely taxed the design envelopes of both their craft and human ingenuity. The crucial re-entry phase of the shuttle — during which the hybrid design converts, in just 18 minutes, from an orbiter hurtling through space at more than 15,000 mph to a conventional plane approaching to land at 300 mph — is regarded as one of the most remarkable feats of applied engineering in modern times.

Just behind the cockpit, at McCool's right shoulder, was Laurel Clark, a physician. And behind both the pilot and commander in the "mid-deck" was astronaut Kalpana Chawla. In a tight compartment below the cockpit were

PLEASE SEE **FINAL**, PAGE A12



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IN MEMORY

SUSAN KROYER, left, and Karen Johnson take part in an impromptu prayer service in Racine, Wis., Saturday night, honoring the seven astronauts who died in the space shuttle Columbia disaster. Mission Specialist Laurel Clark, a Racine resident, was among the dead.

SHUTTLE: Crew Of Seven Lost; Wing Damage Suspected

Combined Wire Services

WASHINGTON — Early signs suggest that a heat problem enveloped the left wing and side of the shuttle Columbia Saturday as it entered the most stressful part of its re-entry to Earth, experts said. The spacecraft disintegrated 39 miles above north central Texas, killing all seven of its astronauts.

At the time, the Columbia was taking a banked turn at 12,500 mph and heating up to 3,000 degrees from atmospheric friction — factors that are probably closely related to the explosion. NASA officials, though, emphasized that no cause has been determined and that the investigation is likely to take days or weeks.

Early speculation focused on the possibility that the shuttle's heat protection system was damaged during launch when a piece of foam broke from the fuel tank and struck the wing. But other possible explanations included a breakdown of the heat protection tiles, a malfunction or fire inside the wing, a failure of the wing structure, or a computer problem that threw the shuttle off the precise angle for a safe entry into the atmosphere.

The crew of six Americans and one Israeli perished in the last 16 minutes of the 16-day mission as the Columbia, the oldest shuttle in the U.S. fleet, glided in for a scheduled landing in Florida.

In its horror and in its backdrop of a crystal blue sky, the explosion echoed one 17 years before, when the shuttle Challenger exploded. But in another sense the setting this time was far different: the nation is still in pain after the losses of Sept. 11, 2001, and the catastrophe comes as the country is preparing for a pos-

PLEASE SEE **WHAT**, PAGE A9

What Went Wrong?

- ▶ Damage to the protective tiles could have allowed the heat of re-entry to burn a hole in the shuttle and explode a fuel component.
- ▶ A hole also could allow heat that would then trigger structural damage, such as a wing's breaking off.
- ▶ A structural defect could have caused an explosion on board.
- ▶ A computer problem could have thrown the shuttle off the precise angle for re-entry.

Inside

- ▶ As NASA's budget shrank, critics warned of a disaster. **Page A8**
- ▶ In Christa McAuliffe's home town, a sorrowful reminder. **Page A11**
- ▶ Israel's first astronaut was a national hero. **Page A13**

Online

At www.ctnow.com/shuttle, find video, audio and interactive updates on this story.

UCONN 77 DUKE 65

WOMEN NO. 1 AGAIN

The numbers: The UConn women extend their record winning streak to 59, improve their season record to 20 wins without a loss and make a convincing case that they're the number one women's team in the country.

All of that is the result of Saturday night's UConn-Duke game, on Duke's

home court in Durham, N.C. Duke had some impressive numbers, too, going into the game. Their 20-0 record earned them the number one ranking in the country.

It was well into the second half before it happened, but the Blue Devils showed how they earned the top ranking. After trailing by 28 points,

they came within 6, only to fade in the game's final 45 seconds.

Men lose to Boston College:

It was a startling outcome at Storrs, as the UConn men lost 95-71. The game marked Boston College's first win at Connecticut since 1987. Sports, **Page E1**



Sunday Business	D1	Crossword	K10	Lottery	A3	Obituaries	B4
Classified	K1	Commentary	C1	Movies	G7	Public Notices	K14
Connecticut	B1	Arts	G1	Real Estate	J1	Sports	E1

