

PAINTING



THE LINE

In June, the largest firefighting jet in America experienced a near-disastrous accident in the parched forests of Southern California. During its first week back on duty, *Private Air* was there.

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PHOTOGRAPHS BY JAMES WEIR



OUTSIDE OF A DOGFIGHT,

it's some of the most dangerous flying in the world. It starts with a DC-10, a jumbo jetliner designed to cruise at 30,000 feet and 600 miles per hour, and a 65-foot-long aluminum tank bolted under the jet's fuselage sloshing with 12,000 gallons of blood-orange colored fire retardant. This payload is then lowered to an altitude of 200 feet, and at 165 miles per hour — just 1.3 times the stall speed — the crew angles it straight into the blinding black smoke of a raging wildfire. And pushes the button.

Inside the cockpit of Tanker 910 — the only such DC-10 in existence — pilots Jack Maxey, Roger Hughes and button-pusher Brad Pace are on their third run of this June day fighting a blaze in a parched valley near Tehachapi, 100 miles north of Los Angeles. The fire, which started a day earlier, is on its way to burning 12,400 acres, its temperatures so hot it has reduced 150-foot trees to carbonized nubs. Tanker 910's first few runs managed to clamp off several edges of the blaze, but other portions are still spreading out of control. In the distance, framed by the windshield, the crew can see the wall of smoke rising against the blue sky. About a mile in front of them, and a couple hundred feet below, a tiny King Air lead plane shows them their approach, the radio crackling with the dry chatter between the crews. *"Twelve miles . . . Roger . . . Air speed 180 knots . . . Roger . . . Seven miles . . . Roger . . . 500 feet . . . Roger."*

Maxey grips the yoke and muscles the giant airliner down through the thick, hot air. A ridgeline leaps up to greet them, the tops of pines zooming into focus. *"Three-hundred feet . . . Roger."* With the fire just on the next ridgeline, smoke fills the horizon. Maxey tries to hold the plane steady, but it suddenly seems to hit some sort of downdraft or turbulence — and takes an unexpected drop. Treetops zip past the windows.

"What the . . . ?"

Before anyone can even utter an f-bomb, Maxey pulls back hard on the yoke and banks the enormous jet sharply up to the left, the engines groaning with thousands of pounds of added thrust. At this point, the Tanker 910 crew doesn't know what happened, only that in the next few minutes the firefighters on the next ridge will grow increasingly desperate searching the sky for their lifeline of red rain. That and that they're still alive — and that the world's most dangerous type of flying almost had a really bad day.

U.S. AGAINST THE WORLD

Fast-forward five weeks — now they know what happened. The clues come from some blurry Zapruder-like footage shot by a fireman and sit tagged and shelved in a hangar at the Southern California Logistics Airport, home to the California Department of Forestry & Fire Protection (Cal Fire) and Tanker 910. In the video, the DC-10 comes in low toward the ridge and disappears momentarily behind the trees before clawing up again from the backside of the hill. At the accident site, investigators find debris and splintered trees, chunks of wood that are a close match to the dents in the sections of damaged wingspan now sitting as crumpled as beer cans in the hangar. That the DC-10 could rip through 13 pine trees and still keep flying is a testament to sturdiness of the craft, and to the good fortune of its crew. Everyone associated with

Tanker 910 knows that, and is doing his best to maintain an appropriately grave tone.

"As you know, we recently launched our tree-cutting service," announces Mike Padilla, Cal Fire's chief of aviation, as he sits down before the morning briefing. "Too bad about the spotted owls," says someone beside him, and the room erupts in laughter.

You can forgive the crew for its irreverence. The past five weeks have seen a media frenzy that's been like one long holding pattern for the veteran pilots and engineers employed by 10 Tanker Air Carrier, the private Cal Fire contractor that owns the DC-10. In its story on the incident, *USA Today* noted that the U.S. is the only country in the world desperate enough about its wildfire problem to use planes this big and powerful to fight them. (It was wrong: Russia is another one.) Also cited were two crashes in 2002 — an aging C-130 near Yosemite and a PB4Y tanker in Colorado — that left five dead. At least two federal officials have been quoted disparaging Tanker 910's relatively advanced age (31 years, more than 67,000 flight hours).

"They had him using 'nimble,'" scoffs one Tanker 910 crewmember about a colleague's quotation in one of the stories. "That's not even in his everyday *vocabulary*."

It's not that the Tanker 910 guys are taking the incident lightly; they're just skeptical that anyone who has never been on the ground in a major wildfire or at the stick of a jumbo jetliner will ever understand where they're coming from. Of course, the other big factor contributing to today's mood is that after five weeks of repairs and an investigation that still has yet to issue its assessment, they finally got word: They're free to head back up.

RETARDANT-ONBOARD EFFECT

Firefighting pilots fly low and slow not because they're daredevils, but out of fealty to physics: Formulas dictate how low, and at what speed, a plane needs to fly to effectively disperse its load of water or retardant. Fly too high, and the liquid will scatter long before it reaches the ground; fly too fast, and it will spread too thin. But as any pilot can tell you, flying lower and slower introduces several variables into the cockpit. The quick reaction time required means all altitude calculations are subject to the vagaries of the human eye. Visually judging altitude is one of the most difficult things a pilot can do, especially under the sway of adrenaline. ("There's normal 150 feet, and then there's 'I've got retardant onboard' 150 feet," one pilot explains.) Add in smoke and uneven terrain, and occasionally risk becomes disaster.

But it used to be worse. Much worse. The modern era of aerial firefighting traces its roots to the first years after World War II, when the military saw an opportunity to repurpose its mothballed aircraft. It seemed a natural fit — planes such as the Tigercat and C-119 transport could carry massive amounts of weight and endure airframe stress that would have destroyed previous craft. The only problem was that much of the water these planes carried in makeshift tanks often dispersed before it ever touched the fire. To compensate, pilots flew even lower above the treetops. Sometimes they misjudged, giving aerial firefighting its first wave of bad reviews.

The situation changed in 1956, when chemists from the U.S. Forest Service mixed water with sodium calcium borate and created a liquid that held together better, and aviation began to make its

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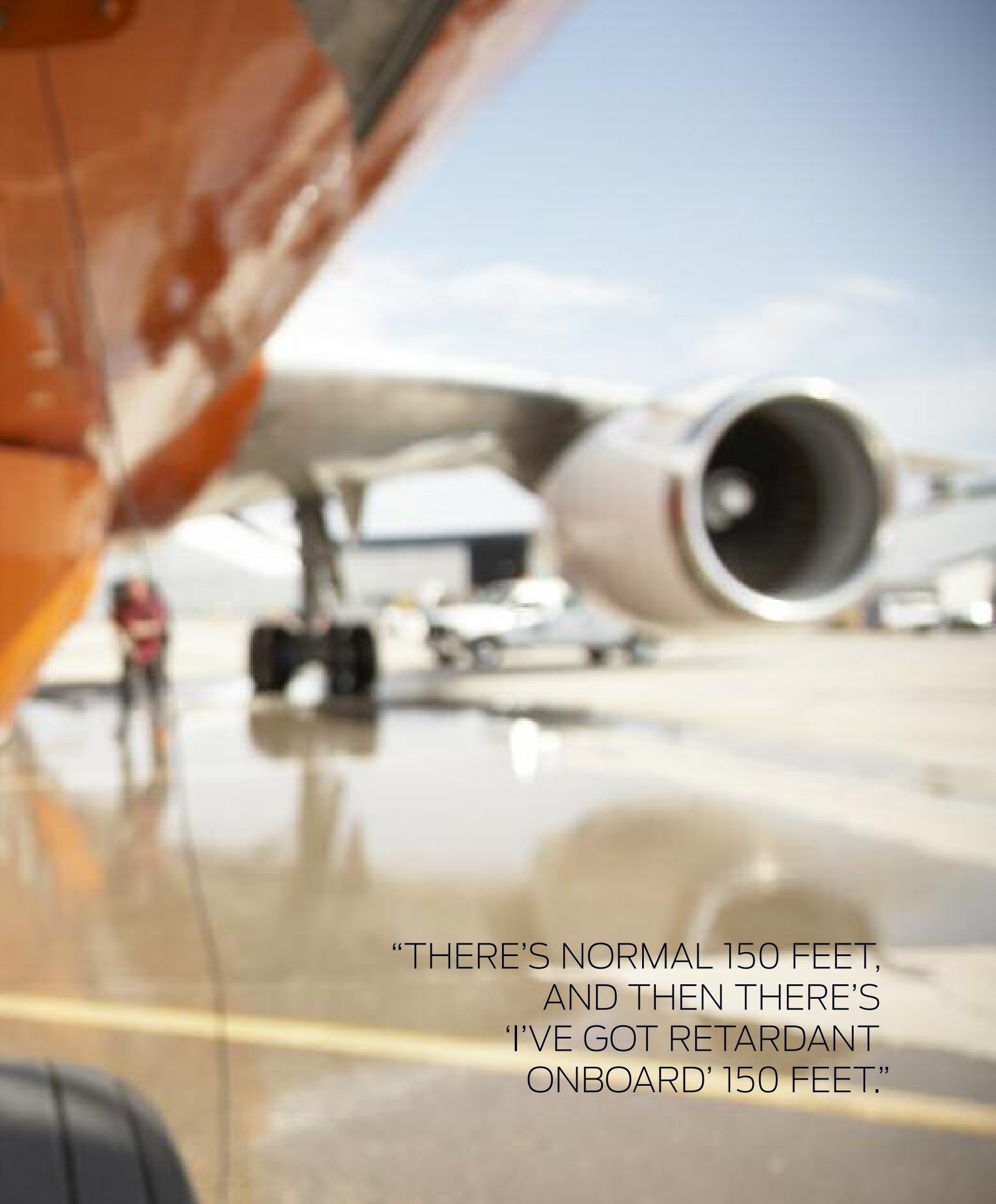
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“THERE’S NORMAL 150 FEET,
AND THEN THERE’S
‘I’VE GOT RETARDANT
ONBOARD’ 150 FEET.”



CATCHING FIRE:
 (Clockwise from top left) Flight engineer Brad Pace shows off the interior of Tanker 910; the plane dumps its retardant load; on the runway with the King Air lead plane.



JOES VERSUS THE INFERNO:
 (From left) Tanker 910 pilot Kevin Hopf between flights; Mike Padilla, Cal Fire chief of aviation, has battled blazes for years; the cartoon that sums up the mission



PHOTOGRAPH COURTESY OF DAVID MCNEW/GETTY IMAGES (AERIAL SHOT)

first significant inroads in battling Western firestorms.

The problem with aerial firefighting today is that some of those same postwar planes are still in operation. But the intervening decades have seen important refinements. The retardant used by Cal Fire is something called D75-F — a mix of water and nitrates that has an impressively low evaporation rate, allowing it to stay on the ground for days. As the size and frequency of wildfires in the West have grown, so also has the size of the craft and tanks enlisted to fight them. “It’s always something bigger on something bigger,” Padilla says.

In some ways, proponents of the jumbo tankers would argue, a bigger plane is *safer* than a single-engine plane or helicopter. The same turbulence or downdraft that can pinwheel a smaller craft heading into a major blaze will often barely jostle a craft like the DC-10. “It flies just like when it was a regular passenger jet,” says Kevin Hopf, one of Tanker 910’s pilots.

The earliest tests on the DC-10 were done on a simulator: 10 Tanker Air Carrier cofounder Rick Hatton and some colleagues were merely hoping to determine whether the jet could handle the weight shift at the slow speeds required for a drop. Later tests focused on accuracy. Hatton’s crew set up a grid 800 yards long near an old weapons range at the edge of Southern Cal Logistics Airport, marked off into 10-by-10-foot squares with a jumbo-sized measuring cup in the center of each. The DC-10 flew overhead, dumped its retardant and planted six gallons on every square.

Even now, Cal Fire is still exploring how to best use its new toy. The usual strategy is to lay down retardant in a 50-foot-wide swath alongside the inferno to create a firebreak — “painting the line,” as it’s known — but they’re still playing with the speed, altitude and types of topography that lend themselves to the most effective drops. In 2006, its inaugural year, the DC-10 made 26 runs on nine fires, most of them in California, some stretching over 100,000 acres. This year, before the June collision, it had made an additional nine runs on two fires.

It’s quite a sight to see the plane painting the landscape. Once it has circled over the blaze, the King Air dips down and traces where the larger craft should deliver its load; rising back to altitude, both planes then rumble down on the blaze. The airliner stays straight and level as it sinks impossibly low, 250, 200 feet above ground level. With barely a touch of lift, the tanks open and the reddish liquid trails out from behind, the wind and speed keeping the droplets aloft just long enough to form an enormous curtain. As the DC-10 rises, the curtain drops with a muted *whoosh*.

ON THE BUS, OR OFF IT

Kevin Hopf and the DC-10 have known each other since 2003. A native of Arizona, he started to fly because he wanted to be a tanker pilot; starting in the mid-’80s, he flew P2s and a PB4Y for the Forest Service’s private contractors. Then he moved on, flying night freight in a DC-8 and passengers in a DC-10, the latter for a charter company called Omni Air International. For three years, Hopf hauled businessmen and tourists from the East Coast to points all over the world. It was solid, steady work, not without its satisfactions, all those thousands of passengers getting to their destinations, safe and reasonably on time. Yet he always felt that he and the DC-10,

were cut out for something more.

Jack Maxey and Brad Pace have similar stories. Pace also worked at Omni. Starting there before Hopf, in fact, he did equipment checks on the very same jet that would soon be taken out of service and prepared for its life as Tanker 910. “It used to be such a mess in here after passenger flights,” he says with a laugh, a BUTTONPUSHER patch prominently stitched to the breast pocket of his flight suit. Around him, the cabin, once crowded with passengers bound for L.A. and Honolulu, has been gutted of its 380 seats, its overhead bins and carpeting — nearly everything down to the insulation. Like a racing yacht or Nascar automobile, the DC-10 has been stripped down to its essential, high-performance self.

Imagine you had been trained as a racer but were working in public transit, driving a bus that you knew could ride circles around anything else on the road. Then along came a company with a new job that let both you and your bus use your full talents to save thousands of homes and lives every year. How would you feel if a bunch of strangers tried to tell you that you needed to stop doing so? Pace nods, a smile crossing his face. “Yeah, it’s fun, and you help people. You see them interviewed on TV afterward, and they’re glad we were there.”

WOO EE

Drive I-15 north out of Los Angeles, and as you climb into the hills, civilization falls away, the neighborhoods fading to sand and scrub. But signs of progress — literally — abound. Giant billboards announce new housing developments, with the associated high-class amenities. Cities get crowded, and people push into the wilderness, which burns as it always has. “It’s called the wildland-urban interface, or WUI,” says Padilla, pronouncing it *woo ee*. “It’s a major issue in the western United States, especially in California, particularly in Southern California.” An 8,000-acre fire near Lake Tahoe that destroys 253 homes, he adds, “is the nightmare WUI scenario.”

Eventually, you end up with situations such as July 2006’s Sawtooth Fire in San Bernardino County, which on its third day expanded by several thousand acres, threatening 100 people trapped in an area the firefighters dubbed Fort Apache. Helicopters equipped with 360-gallon tanks buzzed under the smoke cover, dousing houses and firefighters on the ground. Then came the DC-10 in its firefighting debut, making two runs and bringing 23,000 gallons to bear once the fire broke onto flatter ground.

The morning briefing over, a canvas hose snaking across the tarmac suddenly fattens, spits and bubbles from its fittings. Inside, in the ready room, the Cal Fire crew on duty sits half-dozing around the TV, as John Travolta screams for one of his firefighters to pry open the door of a burning building in *Ladder 49*. Hopf, Maxey and Pace gather their belongings and head out for their first test flight in five weeks.

An hour later, the enormous jumbo jet and the tiny King Air take a slow turn around the building. The King Air goes first, skittering down the bright runway. Then the heavy airliner rumbles in pursuit and then, grudgingly, gravity lets it go, and it follows its little stable pony over the brown hills. It might just be a trick of the mind, but for a moment the faint smell of acrid smoke is palpable on the air.