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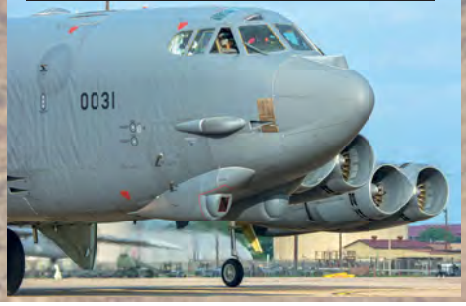

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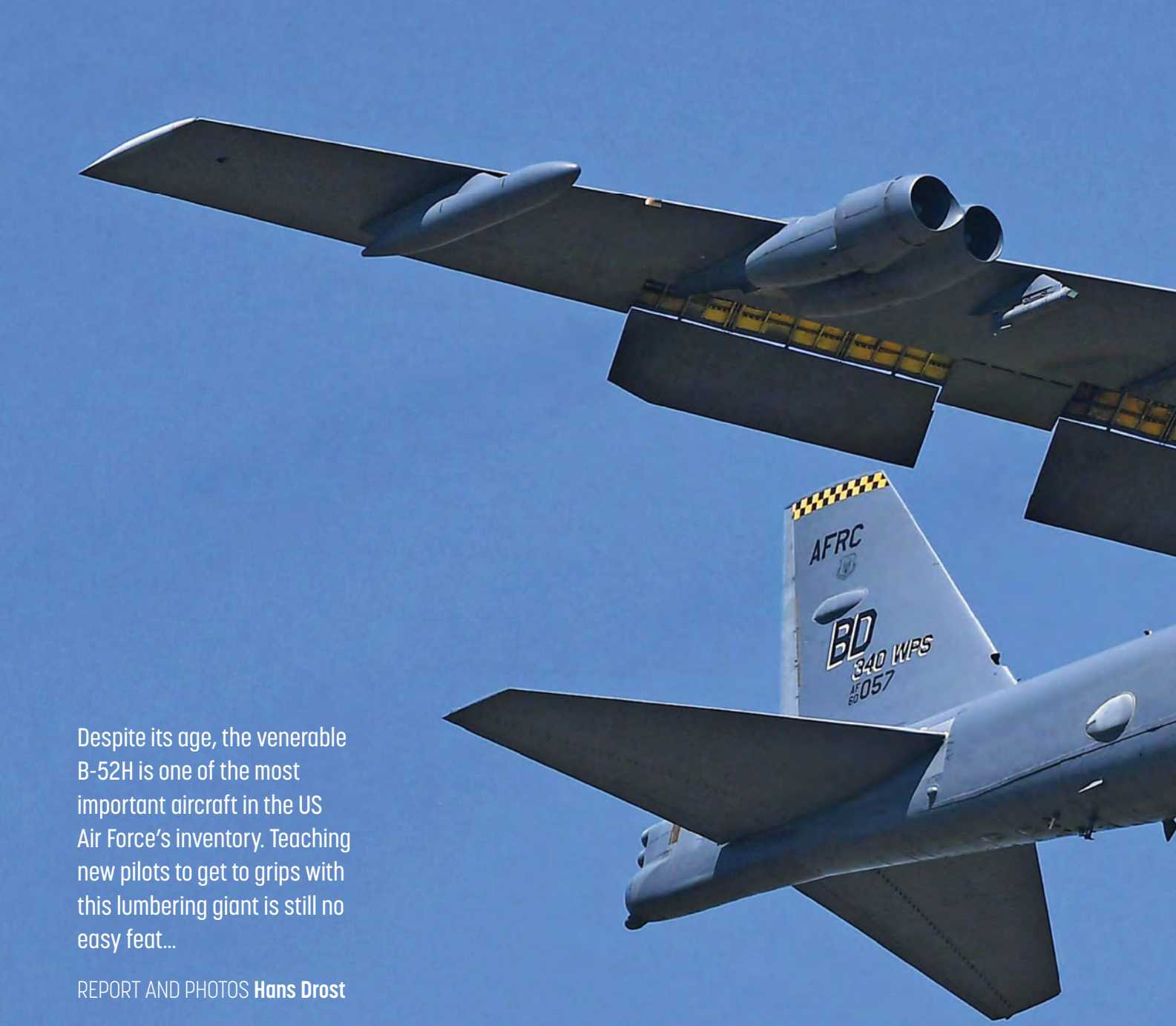


Despite its age, the venerable B-52H is one of the most important aircraft in the US Air Force's inventory. Teaching new pilots to get to grips with this lumbering giant is still no easy feat...

REPORT AND PHOTOS **Hans Drost**

FEW AIRCRAFT HIGHLIGHT the evolution of military aviation better than the Boeing B-52H Stratofortress. Many of the US Air Force's B-52Hs are already approaching 60 years old, and they are likely to fly until at least 2040 — equivalent to a warplane of the 1930s still being in service today. These 'Chevy trucks' not only represent exceptional value thanks to their longevity, but they also remain credible and capable despite their years.

B-52Hs are flown by nine USAF operational and test squadrons and a single Air Force Reserve Command (AFRC) squadron, which is tasked as the Formal Training Unit (FTU). Keeping up the manning levels of four operational squadrons is no mean feat, and this falls solely to the reservists of the 307th Bomb Wing (BW) at Barksdale AFB, Louisiana. In seven months, students straight out of flight school are taught to fly and operate the B-52 in both the conventional and nuclear missions.

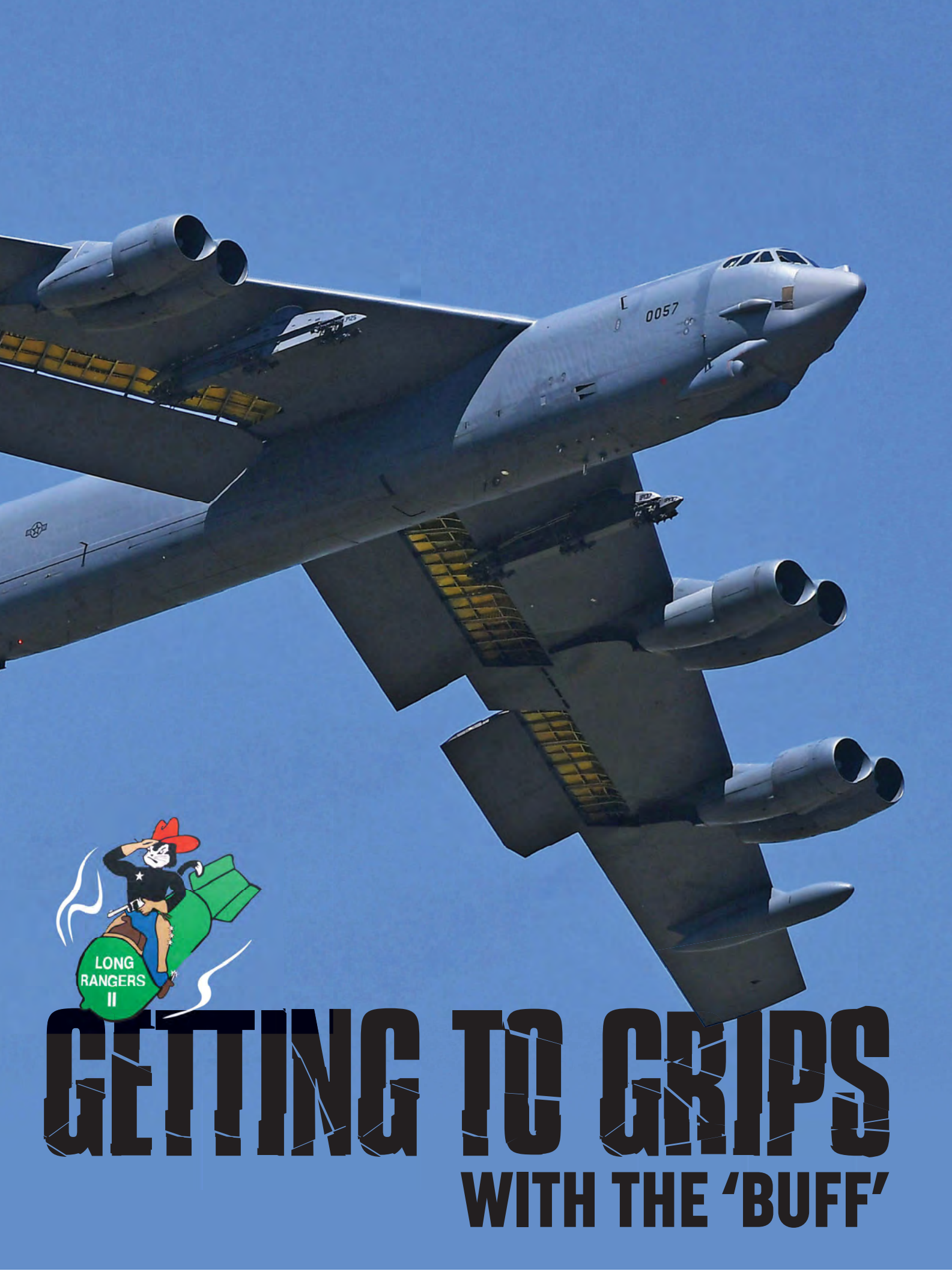
Barksdale is located in the north-eastern corner of Louisiana and Bossier City is the hometown of the base. The historic Georgian-style buildings here include many that are on the National Register of Historic Places. The resident 'BUFFs' — 'Big Ugly Fat Fellas' — could make a claim for similar status before long. Although the B-52 made its maiden flight in prototype form in 1954, the type remains the backbone of the USAF heavy bomber community within Air Force Global Strike Command (AFGSC). It has been a near-constant participant in campaigns from Vietnam to Syria.

Today, the USAF retains some 76 operational B-52s, a tiny proportion of the 744 that were built between 1952 and 1962. While Northrop Grumman's B-21 Raider is now in full-scale development and will ultimately replace the mighty 'BUFF', many years of flying still lay ahead for this ultimate symbol of US air power.

Integrated 'BUFF'

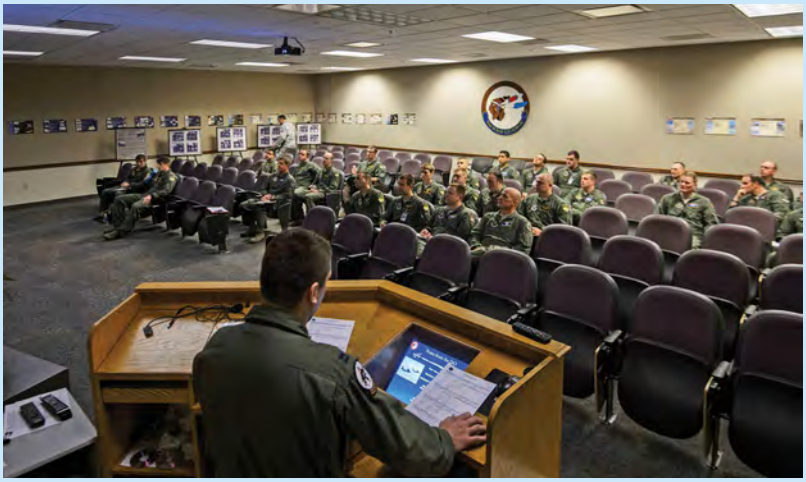
The 307th Operations Group is commanded by Col Robert Burgess, who started flying the B-52G back in 1990. 'Every student that has come to the B-52 since 2009 went through the 307th Bomb Wing for their initial training,' he tells *Combat Aircraft*. 'The primary mission of the 307th [BW] is training all B-52 students, which is incorporated in our 93rd Bomb Squadron. We are

The 93rd Bomb Squadron works hand-in-hand with the 11th BS to train brand-new B-52H crews at Barksdale AFB.



GETTING TO GRIPS

WITH THE 'BUFF'



associated with the 2nd BW, who are our partners down the street here at Barksdale. We also have a combat-coded squadron, the 343rd Bomb Squadron [which works alongside the active-duty 2nd BW]. They are both nuclear and conventional-qualified.'

In addition, the 307th BW has an active-duty association with the B-1B Lancers of the 7th BW stationed at Dyess AFB, Texas, in the shape of the 489th Bomb Group. 'It's unique in the reserves for a unit to have two weapon systems in the same wing,' says Burgess. 'We don't own the B-1s, so we are not responsible for the aircraft, but we are responsible for our people and their administration. We call it Total Force Enterprise (TFE).'

A decade ago the active-duty force and the reserves very much worked in their own stovepipes, until times of conflict. With fewer assets and reduced funding, the air force brought the communities much closer together under TFE. While the air transport communities had worked in this manner for quite some time, it's still relatively new for the bomber world. 'The same goes for our 343rd Bomb Squadron: even though they fly B-52s, we don't own them. The active-duty owns the aircraft, but our crews fly them,' Burgess explains, although the 93rd BS owns 18 jets for the training mission.

Above left: 93rd Bomb Squadron students and instructors take in a morning briefing during initial qualification training. **USAF/ SSgt Jonathan Snyder**

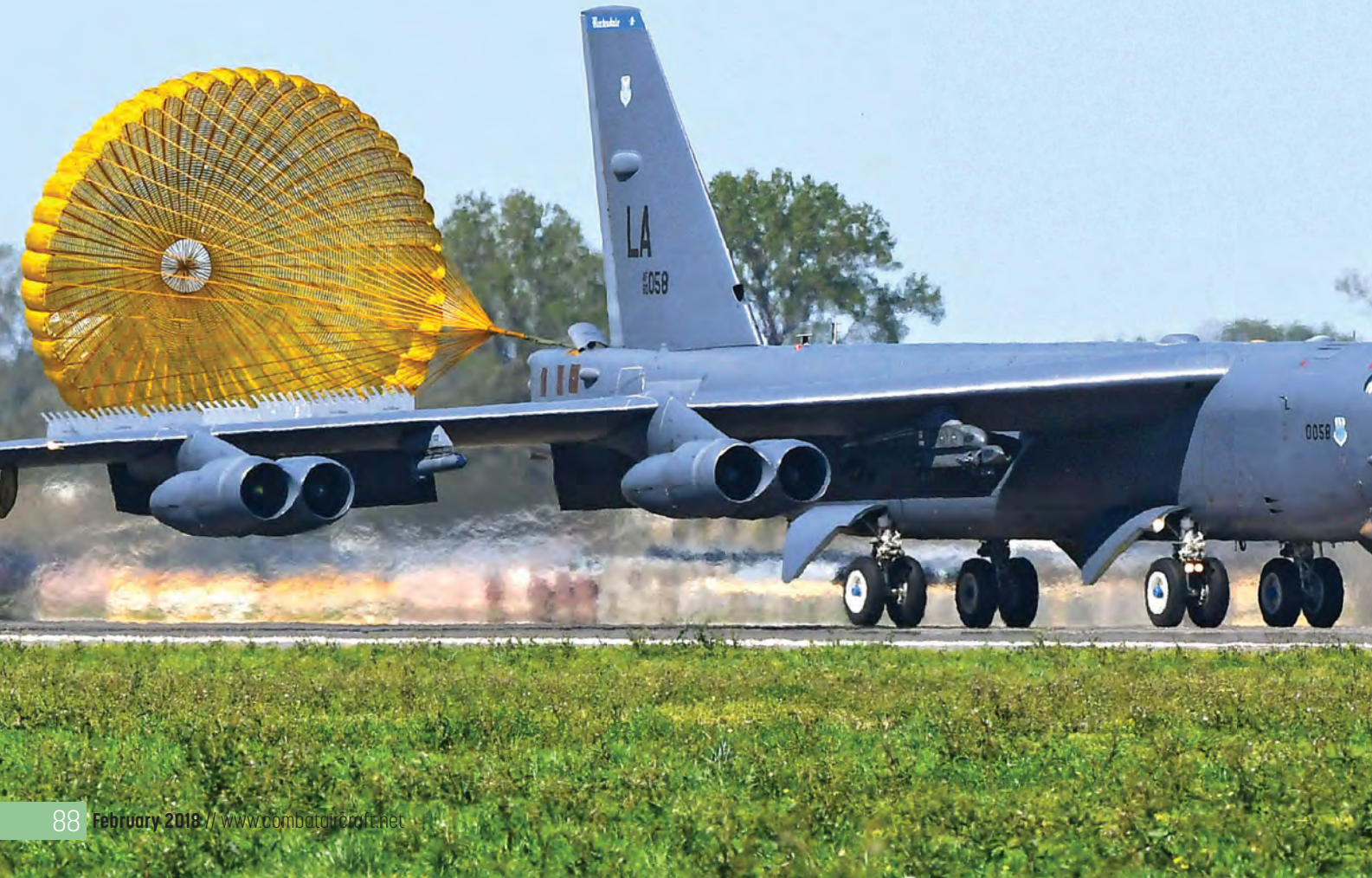
Below: With drag 'chute billowing, a B-52H comes to a halt on the long single runway at Barksdale.

Burgess says that there are some 1,600 people working for the 307th BW. 'About half of them are part-timers. As a reserve unit, we can keep our personnel longer than the active-duty can. During a drill weekend the 307th might have 1,200 people here on base, but our B-52 part-timers don't just come in for one drill weekend a month. We see them at least five days a month: that's the minimum for them to retain their qualifications. When we need manpower for an exercise or an overseas assignment, our part-timers will always do anything within their possibilities to be sure we have enough for those missions. But of course the mission to train the students happens every single day, so we also have active-duty people from the 11th Bomb Squadron who assist us with that.'

Training team

The 93rd BS 'Indian Outlaws' has 18 B-52s on its books for the training mission. An additional two aircraft are owned by the resident 49th Test and Evaluation Squadron (TES), which debuts new upgrades for the 'BUFF'.

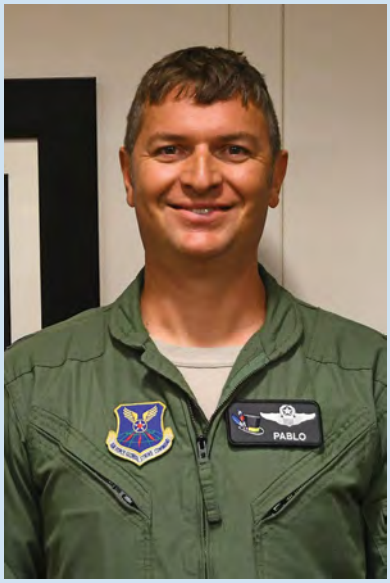
Maj 'Pablo' is the director of operations (DO) at the 11th BS, which provides an active-duty component to the 93rd's training commitment. 'Most of our trainees are young lieutenants



who come to us fresh from the undergraduate pilot training. We also welcome those with experience that were assigned as first assignment instructor pilots [FAIPs] after their UPT and pilots of remotely piloted aircraft.'

A full class typically consists of 30 students — 12 pilots, 12 weapons systems officers (WSOs) and six electronic warfare officers (EWOs) for a full seven months. This all starts in the typical style of classroom academics. 'Just get into the books and learn, learn, learn,' says 'Pablo'. 'As soon as the academic part of the training is finished, the students move over to the actual flying portion'. The current syllabus consists of 13 sorties: 11 training missions, a pre-check ride and one check ride. 'Of course we also work with simulators, and although they are very useful we cannot train all aspects, such as aerial refueling. It's hard to simulate that fog and friction that you get in the air, talking to air traffic controllers, dodging weather and dealing with other things that help you build up air sense.'

The flying training is diverted into three blocks. It kicks off with 'bomber fundamentals', teaching the student pilot how to handle the mighty B-52, which 'Pablo' describes as, 'a hard machine to fly.'



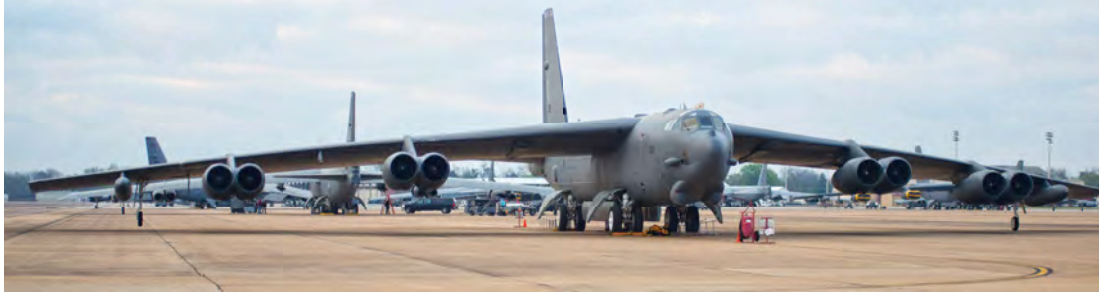
Right: Maj 'Pablo' is the DO of the 11th BS.

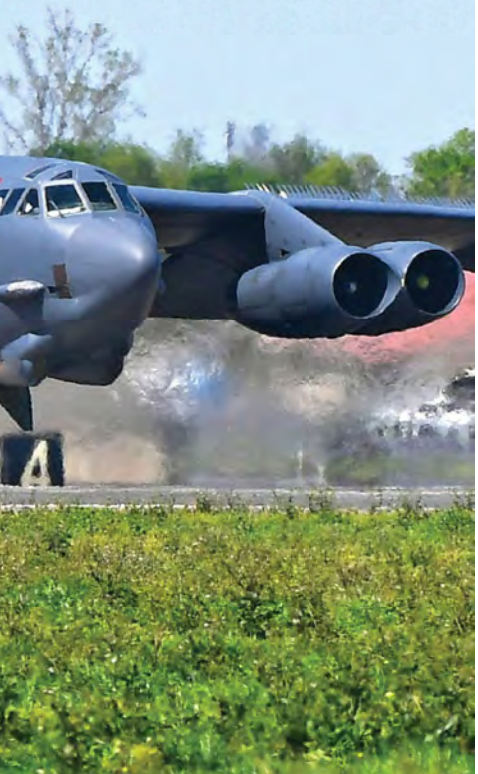
Below: The busy ramp at Barksdale with a mix of active-duty and AFRC 'BUFFs'.

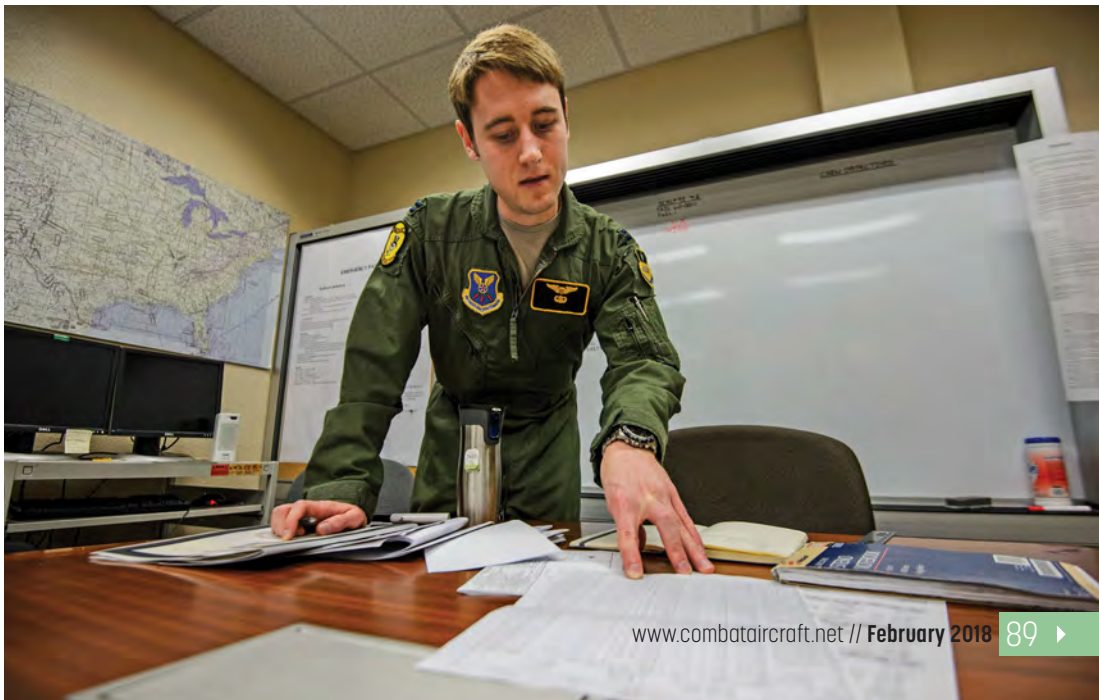
Bottom: A 93rd Bomb Squadron student goes through mission planning during the initial qualification training course. **USAF/SSgt Jonathan Snyder**

'The difference coming from a T-38 training jet is enormous. In fact, all blocks in the training involve stick and rudder skills. You have to remember that the B-52 is not a fly-by-wire type of aircraft. Flying it can be tough, exhausting and it can tire you out. It takes a while to build up the muscles to fly the B-52. It also doesn't fly like a normal airliner. Boeing built it to have a level bomb bay at 40,000ft. To achieve that they put a very specific camber on the wings and they underslung the engines. That was really important in the 1950s and '60s, but not nowadays with the smart weapons we can use. That is why the B-52 takes off with the nose low and the tail is going up. When we do touch-and-gos we always make sure our young students are not wheelbarrowing down the runway. We tell them to pull back on the yoke a little bit and push up the throttles. Another thing to realize is that the B-52 doesn't have ailerons, it has spoilers. So you turn the yoke, wait for a few seconds, and then the machine begins to turn. It's not the airflow that is moving the wing, but it's the spoiler that comes up, spoils the lift and the wing kind of falls down. It is a very different aircraft to fly!'

The students fly approximately 70 hours during the training program. 'One training sortie is usually a 72-hour event,' explains 'Pablo'. On day one we plan the sortie. On day two we fly a shortened version of the mission in the simulator. Afterwards we debrief to see what went well and what wasn't that good. Those things have to be fixed before going in the jet the day after. On the third day we fly the actual mission. It's usually a 5.5 to 6.5-hour-long mission, depending on where we are in the syllabus and the number of pilots aboard. Normally during a mission we try to hook up with a tanker and we spend an hour or so practising patterns, touch-and-goes and landings. We also fly into a training





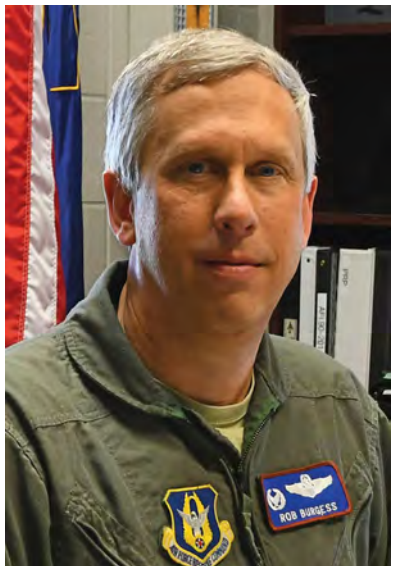


area that will allow us to train the jet's systems to employ munitions, although we do not actually release them. Our pilots also have to learn to fly in both seats. The pilot uses his right hand for the throttle and his left hand for the yoke; the co-pilot has his left hand on the throttle and his right on the yoke. Pilots have to learn to be familiar in both seats.'

Weapons work

Once the student pilots have got to grips with the tricky 'BUFF', the block 2 and 3 phases of the course kick off and it's time for weapons work. Block 2 involves stand-off weapons such as cruise missiles, whereas block 3 relates to direct-attack stores such as Joint Direct Attack Munitions (JDAMs) and laser-guided bombs (LGBs). 'The calculation of our weapons' parameters is computer work, but it can't be done without the WSOs. They have to do the actual navigation, programming and targeting. During training we don't practise with live ammunition, but the program does include two sorties in which 500lb concrete shapes are released with JDAM or LGB tail kits. The release perspective is the same when using live ammo, there's just no explosion. It really adds to the feeling of, 'wow, we are really dropping off something so we'd better not screw up'. The B-52 is such a heavy aircraft that you really don't feel the bombs being dropped. You do, however, feel the suspension system, which is used to push the weapons away from the jet after being released.'

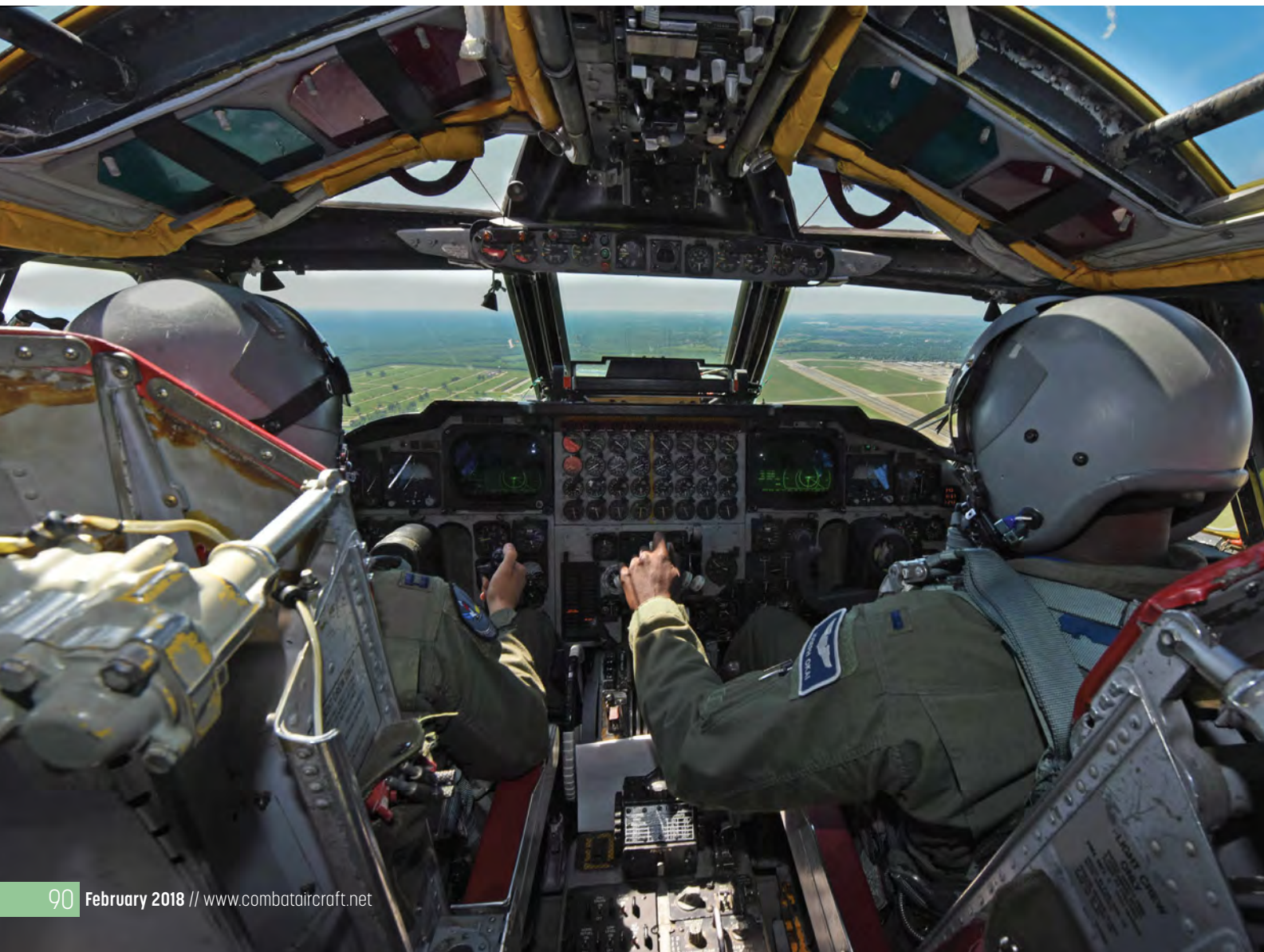
In block 3, the students also learn how to use the targeting pod. 'One of the biggest changes in the weapons [syllabus] is the introduction of the Lockheed Martin Sniper Advanced Targeting Pod,' Burgess says. 'Learning to use the Sniper pod is one of the biggest challenges for

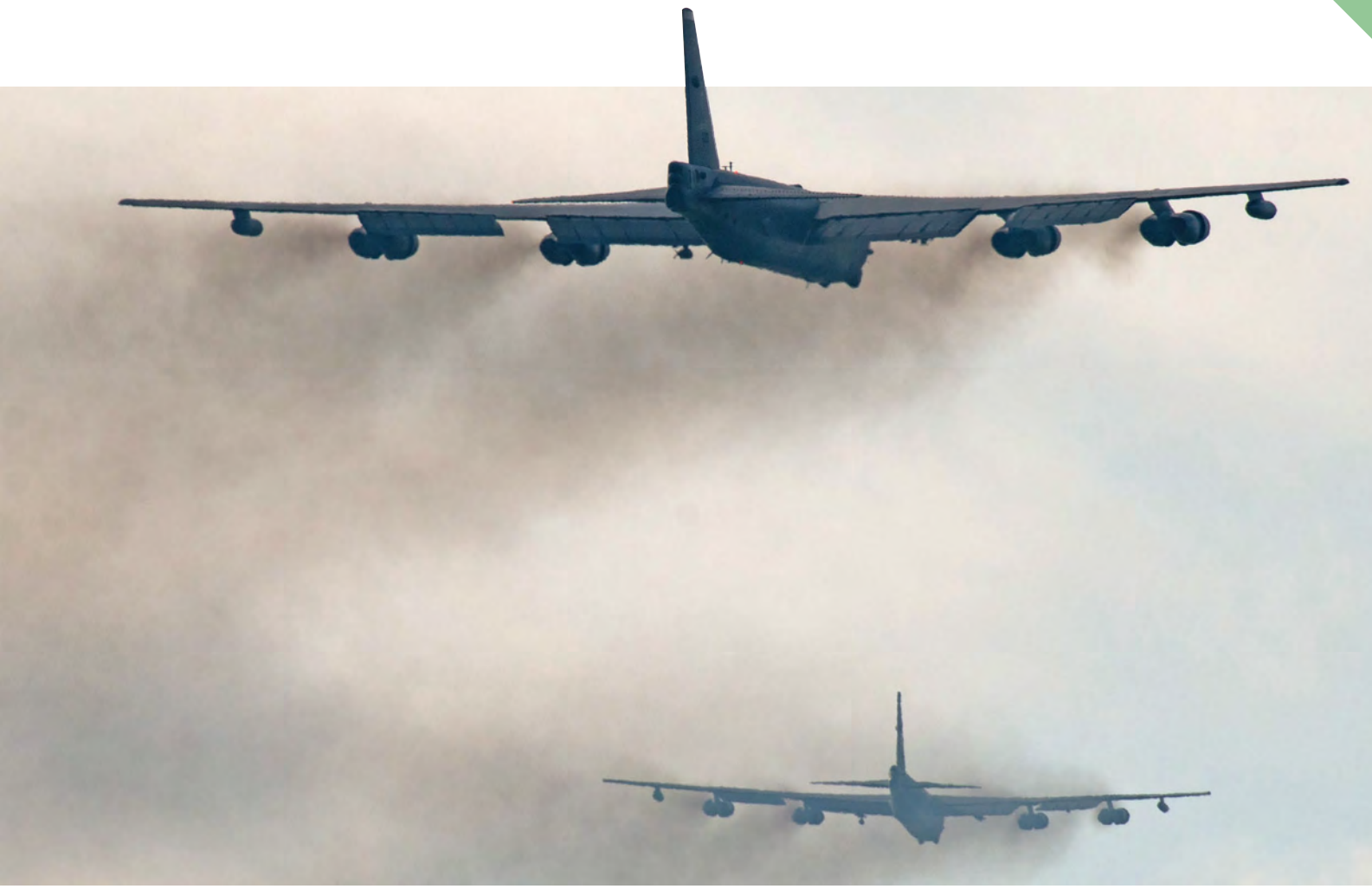


Right: Col Robert Burgess, the 307th Operations Group commander.

Below: A young B-52H student pilot in the right-hand seat comes up initials at Barksdale. **USAF/A1C Stuart Bright**

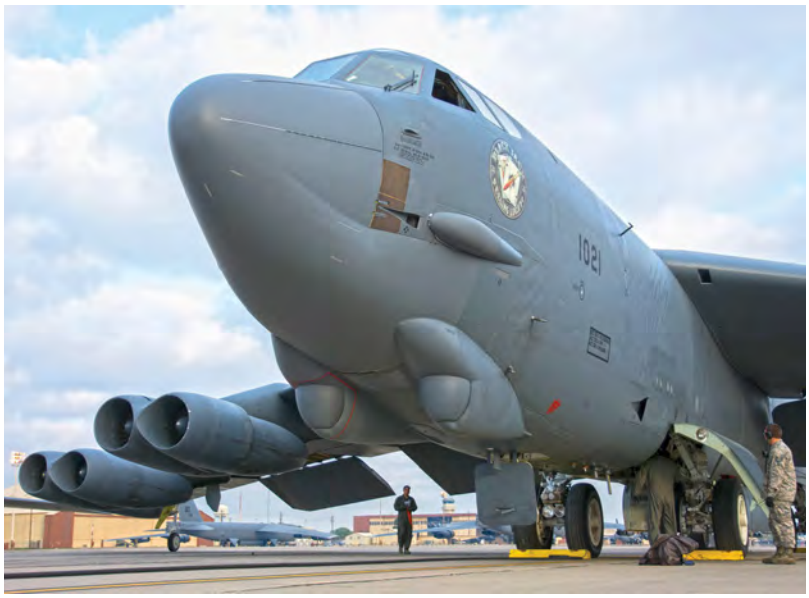
> "Although the training changed a lot over the last decades, the basics remain the same. If you were here 30 years ago and came in today, it would all look the same to you
>
> **Col Robert Burgess**



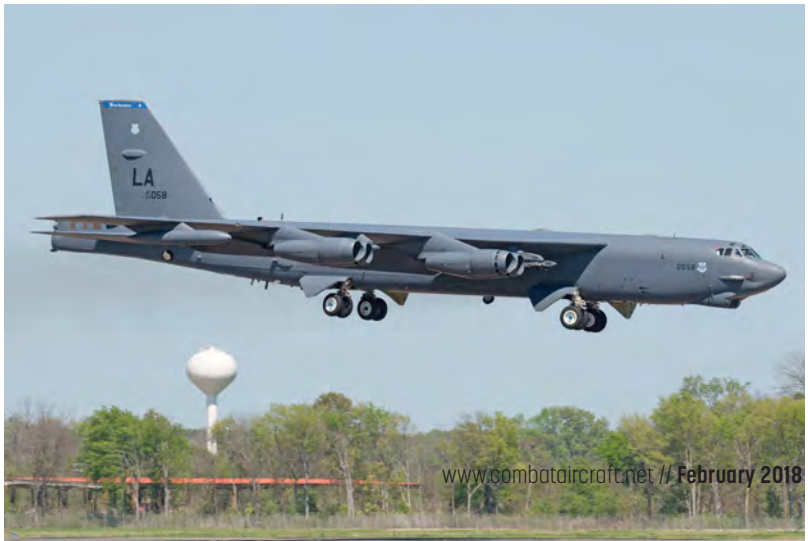


our students. Preparing for the weapon release is a very dynamic situation. You have got to understand what is happening on the ground. You have to look at the target, find out if it is the right target: is it a valid target, an authorized target or is it a hospital, a school or a church? You have to do a lot more thinking than in the past. In those days you might not even see the target — you were flying above the weather, you just bombed at a certain point and returned home. But now I need to see the target, have a visual on it with the pod. If we use the Sniper it is really to give us exact co-ordinates. Our system that drops the bombs still needs co-ordinates. If we have smart weapons that can guide themselves that helps, but ultimately we need co-ordinates.'

The B-52 has a wide range of weapons and configurations that can be called upon. They enable it to meet a range of mission sets, from nuclear strike to close air support (CAS). 'When we fly a certain mission type, we will launch under a specific scenario,' outlines Maj 'Renfroe', a pilot with the 343rd BS. 'Normally you don't jump in and out of mission sets. You fly the jet under the rules and regulations of that specific mission. But the systems allow us to operate dynamically. If needed, and when we are configured for it and



Above: Two 'BUFFs' make a traditional smoky departure from Barksdale.



Right top to bottom: B-52H *Black Jack* on the flight line as its trainee crew conducts external pre-flight checks.

The distinctive nose-down approach angle of the B-52 is a challenge for new pilots, who need to avoid 'wheelbarrowing' down the runway.

if we can support it, we can jump into another mission type. That's one of the good things about this aircraft. We call the B-52 the 'Chevy truck' of the Air Force. It is a flexible aircraft that has already flown lots of different mission types. Although it's an older airframe, they just keep adding to it.' 'Renfroe' describes that as an, 'interesting blend of an old airframe and modern combat capability.'

'The crew of a B-52 normally consists of the aircraft commander, a co-pilot, two WSOs [one radar navigator — known as the bombardier — and a navigator] plus one EWO. The cockpit is divided into the defensive compartment upstairs — for flying the aircraft and defending it against enemy attacks — and the offensive compartment downstairs, which is responsible for navigation and targeting of the weapons. In total there's room for 10 crew members. An extended crew can be expected during global missions. If you understand what is required for a mission set, and you practised and rehearsed it multiple times, then you can go out and execute under various situations and not necessarily have the mission planned. You can operate dynamically.'

Training then and now

Burgess started his B-52 training in 1990. He recalls, 'When I got here, I couldn't believe my eyes. There were only two B-52s parked on the flight line. All the other aircraft were participating in Operation 'Desert Storm'. Comparing the training then and now, Burgess says, 'Although the training changed a lot over the last decades, the basics remain the same. There aren't many changes in the cockpit as far as the pilot is concerned — maybe a new panel here or there, but not much. If you were here 30 years ago and came in today, it would all look the same to you. We used to fly a lot of low-level, flying 500ft or lower, but we don't do that mission any more. It is now all mid-to-high altitude. We can still do [low-level], but we don't train for it and the weapons have become a lot more modern. Instead of carpet-bombing in the past, throwing a lot of bombs on one target, we are now dropping individual bombs on a bunch of different targets.'

'Students nowadays are very computer smart and pick up easily on software and the systems on the airplanes,' Burgess adds. 'On the other hand, you have to tell them exactly what to do because they are usually so busy with their phones and on social media. Believe me, every generation thinks the younger generation doesn't really know what's going on, but eventually we all end up well.'

The instructors at Barksdale are a mix of pilots, WSOs and EWOs — 80 per cent come from the 11th BS and 20 per cent from the 93rd. 'They first work a few years in a line squadron to go through mission qualification training and learn the mission. If they are up to it and if their commander recognizes their abilities, their commanding officer can send them to the combat flight instructor course. This is 10 days of academics, some simulator missions and four actual sorties. After the fourth sortie they will be recommended [or not] for instructor duties at their own line squadron.'

Another potential career path is to become a B-52 squadron weapons officer, going to the 340th Weapon Squadron, which is assigned to the USAF Weapons School. They can also potentially move from a line squadron to the operations support squadron that does the majority of mission planning.

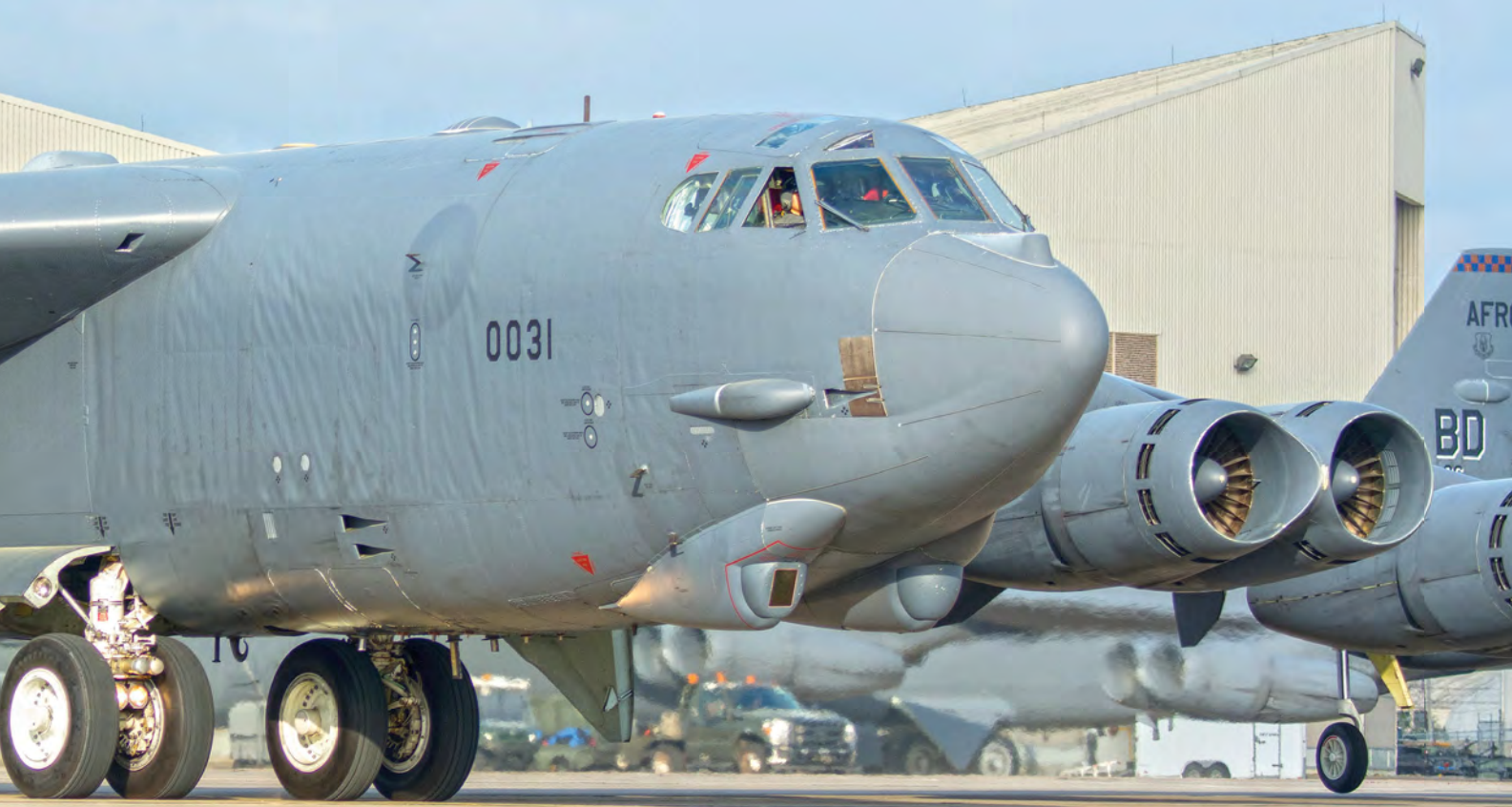
'There is very little wash-out in the training', says 'Pablo', endorsing the selection process through which new students reach the B-52 training schoolhouse. 'Over the last few years there have been a few academic wash-outs and one student who was removed during the flying phase due to medical reasons. There are no wash-outs for being unable to perform with the jet. Our instructors are willing to bend over backwards to be sure the students succeed. The instructors put in lots of extra time if needed.' At a time when the USAF is crying out for

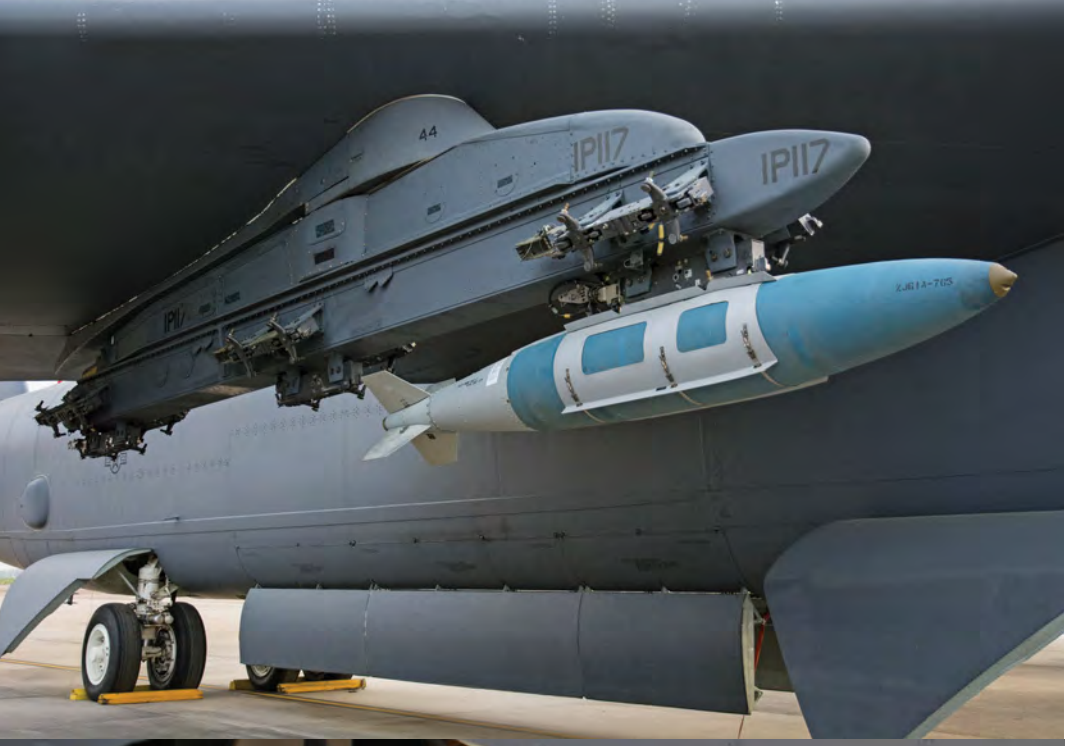
Right top to bottom: The weapons phase of the B-52 course typically sees students dropping inert blue JDAMs.

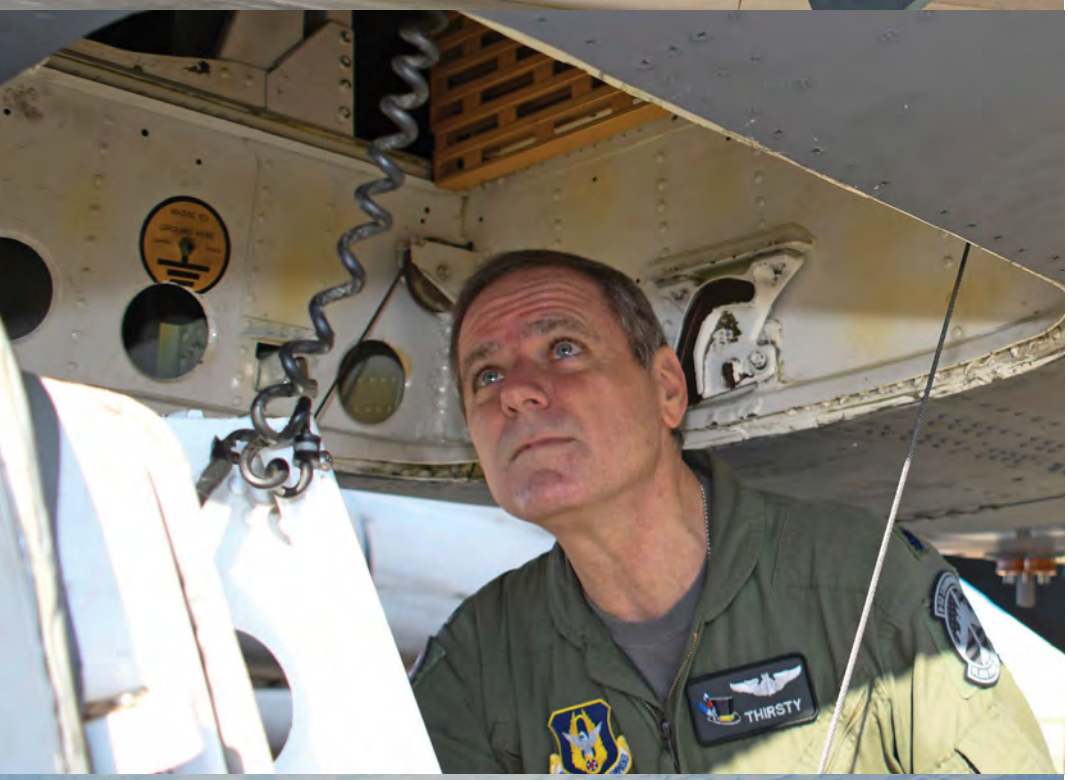
The instructor cadre at Barksdale is chock-full of experienced heads. Lt Col Steve Smith of the 93rd BS surpassed 10,000 flight hours in March 2017 and is the highest-houred B-52 pilot in the USAF. **USAF/TSgt Ted Daigle**

End game – the mission for the training squadron is to produce crews for the front-line squadrons. **USAF/SSgt Michael Battles**

Below: With its eight TF33 engines screaming, a B-52H eases out for a mission. A number of attempts to re-engine the B-52 force may now be close to success.

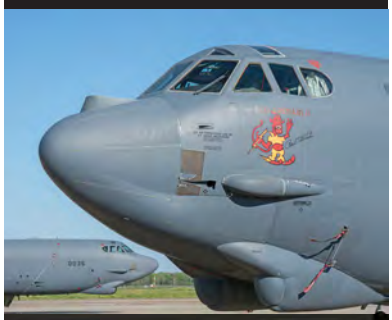






NOSE ART

Since World War Two, the aircraft of the 93rd Bombardment (now Bomb) Squadron have been adorned with a wide range of nose art. While new regulations have reigned in some of the content, some impressive and often historic designs remain. One of the most notable designs currently carried is that of *The Red Gremlin II*, on B-52H serial 60-0042. This is a tribute to the *Red Gremlin* artwork on the B-17 of Brig Gen Paul Tibbets Jr during his 25 combat missions in WW2. Tibbets also flew B-29 *Enola Gay* in August 1945 to bomb Hiroshima. His grandson, Brig Gen Paul Tibbets IV, is the deputy commander of AFGSC and is one of a select few pilots in USAF trained to fly all three bomber platforms: the B-1B, the B-2A and the B-52H.



The Red Gremlin II on the flight line at Barksdale.

pilots, it's refreshing to hear that an extra hand is offered when required to make the grade.

In order to monitor progress closely, Burgess holds an instructors' meeting every Friday to discuss progress in the initial qualification class. He says, 'it helps each instructor understand the student better and it helps me to understand the students and instructors better. That gives me the opportunity to help tailor the entire operation to make sure we succeed.'

Burgess concludes, 'we are dedicated and professional people that are committed to training the best crew members we can. We train crews that one day will be in the nuclear environment. We expect the highest standards because we have a lot of responsibilities. We are training them to be not only a crew member but also an officer. The leadership in the bomber community is very sensitive to [the fact that we are] training our next generation of nuclear bomber crew members.'