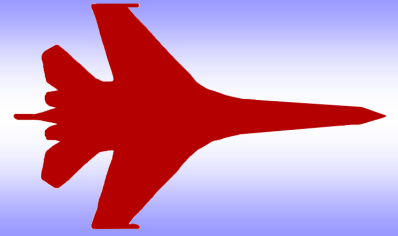


# TRAC News



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**TRACTampa.com**

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## President's Comments

### Some TRAC Do's and Don'ts

- DO** Remember to put your member card up before flying
- DON'T** Leave batteries on site. Properly dispose of them
- DO** Put trash in the trash container
- DON'T** Fuel or de-fuel on the tables under the shelter
- DO** Have a spotter for your flight
- DON'T** Fly in restricted areas
- DO** Try to attend meetings
- DON'T** Forget to properly lock the gate if you're last out
- DO** Encourage new fliers to join TRAC
- DON'T** Go into Landfill property
- DO** Have fun while at TRAC
- DON'T** Let your membership lapse
- DO** Participate in TRAC work projects
- DON'T** Get dehydrated in hot weather

### Warbird Reminder

The TRAC Warbird event is scheduled for October 14. This is normally our meeting day so the October meeting will be October 7. A food truck is set to provide food and refreshments. For further information contact Vince Cesario or Frank Knowles.

Safe Flying,

Don Riek

## Upcoming Events

**TRAC - Club Meeting at Field, Saturday August 12, at 11:00AM**

**TRAC - Club Meeting at Field, Saturday September 9, at 11:00AM**

**TRAC - Club Meeting at Field, Saturday, October 14, at 11:00AM**

**TRAC - Club Meeting at Field, Saturday, November 11, at 11:00AM**

**TRAC - Club Meeting at Field, Saturday, December 9, at 11:00AM**

## **TRAC MINUTES**

**July 8, 2023**

### Meeting Call to Order

Meeting called to order by Pres. Don Riek at 10:59 a.m. with 15 signed-in members present.

Motion to accept minutes of last meeting was made, seconded, and passed.

### Treasury Report

Tim Haas presented a detailed treasury report and break down of expenses.

Beginning Balance	\$ XXXX
Income	\$ 285.00
Expenses	\$ 488.23
Closing Balance	\$ XXXX
Runway Fund	\$ 36.39.00

Motion to accept the Treasurer's Report was made, seconded, and passed.

### New Members/New Pilots

### Safety block

With the summer heat on full blast now make sure you stay hydrated.

### Old Business

FRIAA application to the FAA is still in progress

Warbird meet set for October 14 9:00 a.m.

The October meeting will be held October 7<sup>th</sup>.

Dog situation seems to have subsided.

TRAC Guest policy recap and is posted on the home page of the website

Ray Baker still planning on removing old storage trailer

### New Business

The park rules sign says the field is open from dawn to dusk so if you start flying before 8 am no one is going to say anything

We have received Official approval for the 3<sup>rd</sup> year of ten for our use agreement with the county

### Show-and-Tell

Adjournment 11:16 am

# Supermarine Spitfire



The **Supermarine Spitfire** is a British single-seat [fighter aircraft](#) used by the [Royal Air Force](#) and other [Allied](#) countries before, during, and after [World War II](#). Many variants of the Spitfire were built, from the Mk 1 to the Rolls-Royce Griffon-engined Mk 24 using several wing configurations and guns. It was the only British fighter produced continuously throughout the war.

During the [Battle of Britain](#) (July–October 1940), the public perceived the Spitfire to be the main RAF fighter; however, the more numerous Hurricane shouldered more of the burden of resisting the [Luftwaffe](#). Nevertheless, the Spitfire was a better fighter aircraft than the Hurricane. Spitfire units had a lower attrition rate and a higher victory-to-loss ratio than those flying Hurricanes, probably because of the Spitfire's higher performance metrics. During the battle, Spitfires generally engaged Luftwaffe fighters—mainly [Messerschmitt Bf 109E-series](#) aircraft, which were a close match for them.

Much loved by its pilots, the Spitfire operated in several roles, including interceptor, photo-reconnaissance, fighter-bomber, and trainer, and it continued to do so until the 1950s. The [Seafire](#) was an aircraft carrier-based adaptation of the Spitfire, used in the [Fleet Air Arm](#) from 1942 until the mid-1950s. The original [airframe](#) was designed to be powered by a [Rolls-Royce Merlin](#) engine producing 1,030 [hp](#) (768 [kW](#)). It was strong enough and adaptable enough to use increasingly powerful Merlins, and in later marks, [Rolls-Royce Griffon](#) engines producing up to 2,340 [hp](#) (1,745 [kW](#)).

On 5 March 1936,<sup>[13][nb 1]</sup> the prototype (*K5054*), fitted with a fine-pitch propeller to give more power for takeoff, took off on its first flight from [Eastleigh Aerodrome](#) (later [Southampton Airport](#)). At the controls was [Captain Joseph "Mutt" Summers](#), chief test pilot for Vickers, who is quoted as saying, "don't touch anything" on landing.<sup>[14][nb</sup>

<sup>2]</sup> This eight-minute flight<sup>[12]</sup> came four months after the maiden flight of the contemporary Hurricane.<sup>[16]</sup>

When the last Spitfire rolled out in February 1948,<sup>[51]</sup> a total of 20,351 examples of all variants had been built, including two-seat [trainers](#), with some Spitfires remaining in service well into the 1950s.<sup>[3]</sup> The Spitfire was the only British fighter aircraft to be in continuous production before, during, and after the Second World War.<sup>[52]</sup>

In 1934, Mitchell and the design staff decided to use a semi-elliptical wing shape to solve two conflicting requirements; the wing needed to be thin to avoid creating too much [drag](#), but it had to be thick enough to house the retractable undercarriage, armament, and ammunition. An elliptical planform is the most efficient aerodynamic shape for an untwisted wing, leading to the lowest amount of [induced drag](#). The ellipse was skewed so that the centre of pressure, which occurs at the quarter-[chord](#) position, aligned with the main spar, preventing the wings from twisting. Mitchell has sometimes been accused of copying the wing shape of the [Günter brothers](#)-designed [Heinkel He 70](#),<sup>[63]</sup> which first flew in 1932, but as [Beverley Shenstone](#), the [aerodynamicist](#) on Mitchell's team, explained: "Our wing was much thinner and had quite a different section to that of the Heinkel.

The Rolls Royce engine's designers deliberately chose a carburettor for the Merlin engine: Sir [Stanley Hooker](#) explained in his autobiography that ""the Germans paid a large penalty for their fuel injection. When the fuel is fed before the supercharger, as on the Merlin, it evaporates and cools the air by 25°C. This cooling enhances the performance of the supercharger, and increases the power of the engine, with a corresponding increase in aircraft speed, particularly at high altitude."<sup>[94]</sup> However, the early Merlin engine's lack of [fuel injection](#) meant that

Spitfires and Hurricanes, unlike the Bf 109E, were unable to simply nose down into a steep dive. This meant a Luftwaffe fighter could simply "bunt" into a high-power dive to escape an attack, leaving the Spitfire behind, as its fuel was forced out of the carburettor by negative "g". RAF fighter pilots soon learned to "half-roll" their aircraft before diving to pursue their opponents.<sup>[95]</sup>

In March 1941, a metal disc with a hole was fitted in the fuel line, restricting fuel flow to the maximum the engine could consume. While it did not cure the problem of the initial fuel starvation in a dive, it did reduce the more serious problem of the carburettor being flooded with fuel by the fuel pumps under negative "g". Invented by Beatrice "Tilly" Shilling, it became known as "Miss Shilling's orifice". Further improvements were introduced throughout the Merlin series, with Bendix-manufactured pressure carburettors, designed to allow fuel to flow during all flight attitudes, introduced in 1942.<sup>[96]</sup>

Due to a shortage of Brownings, which had been selected as the new standard rifle calibre machine gun for the RAF in 1934, early Spitfires were fitted with only four guns, with the other four fitted later.<sup>[97]</sup> Early tests showed that, while the guns worked perfectly on the ground and at low altitudes, they tended to freeze at high altitude, especially the outer wing guns, because the RAF's Brownings had been modified to fire from an open bolt. While this prevented overheating of the cordite used in British ammunition, it allowed cold air to flow through the barrel unhindered.<sup>[98]</sup> Supermarine did not fix the problem until October 1938, when they added hot air ducts from the rear of the wing-mounted radiators to the guns, and bulkheads around the gunbays to trap the hot air in the wing. Red fabric patches were doped over the gun ports to protect the guns from cold, dirt, and moisture until they were fired.<sup>[99]</sup>

Well-known Spitfire pilots included "Johnnie" Johnson—34 enemy aircraft (e/a) shot down<sup>[107]</sup>—who flew the Spitfire right through his operational career from late 1940 to 1945. Douglas Bader (20 e/a) and "Bob" Tuck (27 e/a) flew Spitfires and Hurricanes during the major air battles of 1940. Both were shot down and became prisoners of war, while flying Spitfires over France in 1941 and 1942.<sup>[108]</sup> "Paddy" Finucane (28–32 e/a) scored all his successes in the fighter before disappearing over the English Channel in July 1942.<sup>[109]</sup> Some notable Commonwealth pilots were George Beurling (31½ e/a) from Canada, "Sailor" Malan (27 e/a) from South Africa,<sup>[110]</sup> New Zealanders Alan Deere (17 e/a) and C F Gray (27 e/a)<sup>[111][112]</sup> and the Australian Hugo Armstrong (12 e/a).<sup>[113]</sup>

Beginning in late 1943, high-speed diving trials were undertaken at Farnborough to investigate the handling characteristics of aircraft travelling at speeds near the sound barrier (i.e., the onset of compressibility effects). Because it had the highest limiting Mach number of any aircraft at that time, a Spitfire XI was chosen to take part in these trials. Due to the high altitudes necessary for these dives, a fully feathering Roto propeller was fitted to prevent overspeeding. During these trials, EN409, flown by Squadron Leader J. R. Tobin, reached 606 mph (975 km/h) (Mach 0.891) in a 45° dive.

In April 1944, the same aircraft suffered engine failure in another dive while being flown by Squadron Leader Anthony F. Martindale, Royal Air Force Volunteer Reserve, when the propeller and reduction gear broke off. The dive put the aircraft to Mach 0.92, the fastest ever recorded in a piston-engined aircraft, but when the propeller came off, the Spitfire, now tail-heavy, zoom-climbed back to altitude. Martindale blacked out under the 11 g loading, but when he resumed consciousness, he found the aircraft at about 40,000 feet with its (originally straight) wings now slightly swept back.<sup>[128]</sup> Martindale successfully glided the Spitfire 20 mi (32 km) back to the airfield and landed safely.<sup>[129]</sup> Martindale was awarded the Air Force Cross for his exploits.<sup>[130]</sup>

There were 24 marks of Spitfire and many sub-variants. These covered the Spitfire in development from the Merlin to Griffon engines, the high-speed photo-reconnaissance variants and the different wing configurations. More Spitfire Mk Vs were built than any other type, with 6,487 built, followed by the 5,656 Mk IXs.<sup>[38]</sup> Different wings, featuring a variety of weapons, were fitted to most marks; the A wing used eight .303 in (7.7 mm) machine guns, the B wing had four .303 in (7.7 mm) machine guns and two 20 mm (.79 in) Hispano cannon, and the C, or universal, wing could mount either four 20 mm (.79 in) cannon or two 20 mm (.79 in) and four .303 in (7.7 mm) machine guns. As the war progressed, the C wing became more common.<sup>[136]</sup> Another armament variation was the E wing which housed two 20 mm (.79 in) cannon and two .50 in (12.7 mm) Browning machine guns.<sup>[137]</sup> Although the Spitfire continued to improve in speed and armament, its limited fuel capacity restricted range and endurance: it remained "short-legged" throughout its life except in the dedicated photo-reconnaissance role, when its guns were replaced by extra fuel tanks.<sup>[138]</sup>

The Seafire, a name derived from *sea*, and *Spitfire*, was a naval version of the Spitfire specially adapted for operation from aircraft carriers. Although the Spitfire was not designed for the rough-and-tumble of carrier-deck operations, it was considered the best available fighter at the time. The basic Spitfire design did impose some limitations on the use of the aircraft as a carrier-based fighter; poor visibility over the nose, for example, meant that pilots had to be trained to land with their heads out of the cockpit and looking along the port cowling of their Seafire.

The first Rolls-Royce Griffon-engined Mk XII flew in August 1942, and first flew operationally with 41 Squadron in April 1943. This mark could nudge 400 mph (640 km/h) in level flight and climb to an altitude of 33,000 ft (10,000 m) in under nine minutes.<sup>[148]</sup>

## General characteristics

**Crew:** 1

**Length:** 29 ft 11 in (9.12 m)

**Wingspan:** 36 ft 10 in (11.23 m)

**Height:** 11 ft 5 in (3.48 m)

**Wing area:** 242.1 sq ft (22.49 m<sup>2</sup>)

**Airfoil:** **root:** NACA 2213; **tip:** NACA 2209.4

**Empty weight:** 5,065 lb (2,297 kg)

**Gross weight:** 6,622 lb (3,004 kg)

**Max takeoff weight:** 6,700 lb (3,039 kg)

**Powerplant:** 1 × Rolls-Royce Merlin 45 V-12 liquid-cooled piston engine, 1,470 hp (1,100 kW)<sup>[nb 14]</sup>

**Propellers:** 3-bladed Rotol constant-speed propeller

## Performance

**Maximum speed:** 370 mph (600 km/h, 320 kn)

**Range:** 479 mi (771 km, 416 nmi)

**Combat range:** 248 mi (399 km, 216 nmi)

**Ferry range:** 1,100 mi (1,800 km, 960 nmi) with fuel tank

**Service ceiling:** 36,500 ft (11,100 m)

**Rate of climb:** 2,600 ft/min (13 m/s)

**Wing loading:** 27.35 lb/sq ft (133.5 kg/m<sup>2</sup>)

**Power/mass:** 0.22 hp/lb (0.36 kW/kg)

## Armament

### Guns:

#### A wing

8 × .303 in Browning Mk II\* machine guns (350 rounds per gun)

#### B wing

2 × 20 mm Hispano Mk II (60 rounds per gun)

4 × .303 in Browning Mk II\* machine guns (350 rounds per gun)

#### C wing

4 × 20 mm Hispano Mk II cannon (120 rounds per gun)

#### C wing (Alt.)

2 × 20 mm Hispano Mk II (120 rounds per gun)

4 × .303 in Browning Mk II\* machine guns (350 rounds per gun)

#### E wing

2 × 20 mm Hispano Mk II cannon (120 rounds per gun)

2 × .50 in M2 Browning machine guns (250 rounds per gun)

**Rockets:** 2 RP-3 rockets (1 under each wing)

For a quick repair to the covering on a balsa wood/covered plane, Think about using Cricut Vinyl. There are two types of vinyl you can use. Permanent and removable. For a small hole or tear you can use the vinyl to cover the hole. You may not get a good match on the color but if that sort of thing does not bother you, then you're good. You can use the removable vinyl if you want a quick fix, and then later remove it for a more permanent solution with covering later.



This is the new \$100.90 Stick from Value Hobby.

This is an Almost-Ready-to-Fly sports plane for intermediate modelers. All-balsa wood construction. Pre-covered in classic Ugly Stik trim scheme. This plane features removeable fuselage hatch so you can easily access the inside of the fuselage. The wing is asymmetrical.

This plane includes matching brushless electric motor. Other electronics are not included. You can also use an .40 cu in nitro motor. Nitro motor and accessories are not included.



George has a new beastly he is flying.

Safe Flying jjh