Serious Incident

Aircraft Type and Registration:	Siai Marchetti S.205 22/R (Modified), G-VELA	
No & Type of Engines:	1 Lycoming IO-540-D4A5 piston engine	
Year of Manufacture:	1968 (Serial no: 4-149)	
Date & Time (UTC):	27 April 2025 at 1252 hrs	
Location:	Norwich Airport, Norfolk	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Damage to aircraft underside, propeller and landing gear	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	34 years	
Commander's Flying Experience:	97 hours (of which 8 were on type) Last 90 days – 10 hours Last 28 days – 6 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries made by the AAIB	

Synopsis

As the aircraft was on approach to Knettishall Airfield the landing gear failed to extend. Both the normal and emergency extension and retraction systems had malfunctioned. After discussion with his passenger, the pilot decided that it was prudent to divert to Norwich Airport with its higher level of emergency facilities. He carried out a fly past and the control tower staff at Norwich observed that the landing gear appeared not to have extended correctly. The pilot landed the aircraft in this condition and the aircraft sustained damage to its underside and propeller. The pilot and his passenger were uninjured.

The landing gear malfunction was caused by a steering centring pin which had become worn, misaligned and disengaged from its guide bars. The nosewheel did not centre as a result, and this caused the nose gear to jam on retraction into the nosewheel bay. This led to an overload of the normal landing gear extension and retraction system motor and emergency system seizure.

History of the flight

The pilot had flown a cross-country pleasure flight with a passenger from Knettishall Airfield, Suffolk to Turweston Aerodrome, Buckinghamshire. The flight and the landing at Turweston were uneventful. After a short stay and refuel at Turweston, the pilot took off for the return flight to Knettishall. As the aircraft climbed away from the airfield, the pilot retracted the landing gear. Shortly after he had confirmed the gear was up, he and his passenger, who

was also a PPL holder, detected an electrical burning smell in the cockpit. This subsided in a matter of seconds. They had a short discussion about it and, in the absence of any adverse indications, decided to continue with the flight.

The remainder of the flight was uneventful and as they neared Knettishall the pilot started to configure the aircraft for landing. When he selected the landing gear down there was no response and this was confirmed by the absence of gear down indicator lights. He recycled the landing gear and again there was no movement indication. He attempted this for a second time with no result. At this point he decided to maintain height and turn away from the airfield and manually lower the landing gear. Before doing so he ensured the landing gear was selected down and pulled the circuit breaker to open. He then wound the manual crank handle to lower the landing gear. He was aware the handle requires 29 rotations to fully lower the landing gear but after 10 or 11 turns the handle jammed and would not move. The pilot was now unclear as to the landing gear position and was also concerned that additional attempts would cause system damage and more of a problem. After further discussion with his passenger, the pilot decided that it was prudent to divert to Norwich Airport with its higher level of emergency facilities. He declared a PAN and flew to Norwich. In addition, while in transit, he made an assessment, as far as possible, of the aircraft electrical system in case the landing gear problem was caused by an electrical power generation or distribution malfunction. He requested, and carried out, a low pass at Norwich and observers in the control tower informed the pilot the landing gear appeared to be only partially down (Figure 1).

Figure 1

Landing gear partially extended as seen by the observers at Norwich

At the pilot's request, the staff in the tower also called and consulted a flying instructor, who had experience on type, to determine whether anything else could be done to lower the landing gear. It was concluded there were no other possible actions available to the pilot.

The pilot concluded that the safest option was to land at Norwich. The aircraft came to a stop on its underside and after making the aircraft safe, the pilot and his passenger vacated the cockpit. The aircraft sustained damage to the fuselage underside, propeller and landing gear.

Technical cause

The aircraft was recovered and the landing gear system examined. The nose landing gear assembly was jammed but partially protruding from its bay. It appeared to have been pushed back into its bay on landing. The nosewheel was also off-centre (Figure 2).

Figure 2
Off-centre jammed nosewheel

This was found to have been caused by the steering centring pin, within the steering control quadrant becoming mis-positioned outside its guide bar mechanism so that it did not properly engage in the quadrant, meaning the nosewheel was not centred correctly.

The nose gear appeared to have partially extended in flight on approach to Knettishall. However, the uncentred nosewheel, on retraction after takeoff from Turweston, is suspected to have adversely affected the electrical actuation system linkages and motor. This caused the seizure and overload, which explained the electrical overheating smell of burning.

The nose gear had to be manually forced into the correct position to release it. After its release, the left and right main landing gear legs operated correctly on the ground during the examination. However, they had been hindered in the air by the loss of the actuator and the emergency lowering system being unable to overcome the nose landing gear system restriction.

Pilot's assessment

The pilot had relatively low hours but described how he used his training to carefully assess the situation, maintain flight in a safe condition and make use of the fact that his passenger was also a qualified pilot, to aid his decision process. He also described how his recent training had focused on the handling of emergency situations. He was of the opinion that this preparation led to a safe outcome.

Having determined the technical cause after the accident, he also was content with his decision not to force the manual lowering system which would have wasted time, potentially caused more damage and may have distracted him from concentrating on safely flying the aircraft.

Conclusion

Misalignment of the nosewheel centring linkage caused the landing gear extension and retraction system to seize during the takeoff, becoming apparent on approach to the destination airfield.

The pilot's recent training enabled him to remain calm and prioritise maintaining a stable flight path, while he considered available options and attempted to resolve the problem. As the situation developed, and the landing gear configuration remained unclear, he took decisive action to divert to a more suitable airfield. These aspects contributed to the successful outcome.