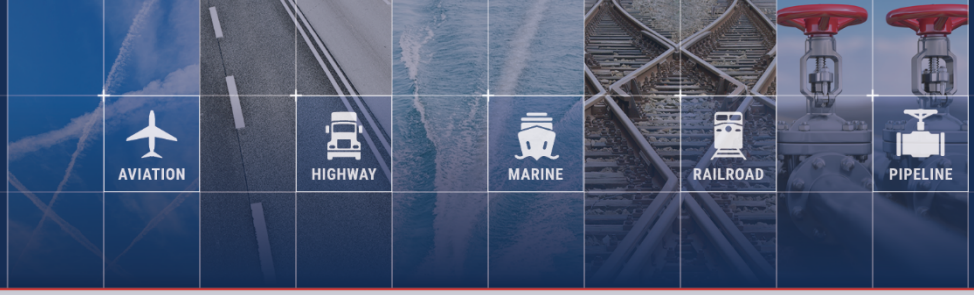

Aviation Investigation Final Report

Location:	CASA GRANDE, Arizona	**Accident Number:**	LAX00LA196
Date & Time:	May 13, 2000, 13:00 Local	**Registration:**	N4148R
Aircraft:	Piper PA-32R	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The pilot was on a practice instrument approach to the airport and completing the landing checklist procedure. Part of this procedure was to switch to the tank with the most fuel. The student switched the fuel selector to the "off" position inadvertently. The engine lost power and the instructor directed the student to then read off the emergency checklist. Engine power did not return because the student omitted the checklist item to place the fuel selector in the fullest tank, having already switched to the fullest tank. A forced landing off the airport ensued and the fuel selector remained off. The investigation revealed a bend in the fuel selector stop arm, which allowed the selector to travel to the off position.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The student pilot's inadvertant movement of the fuel selector to the "off" positon when selecting the alternate tank, and the flight instructor's lack of verification that the fuel selector was in the proper position during the emergency procedure checklist. A factor was the worn fuel selector "off" detent that allowed inadvertent movement of the fuel selector to the "off" position.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: APPROACH

Findings
1. (C) FUEL SYSTEM,SELECTOR/VALVE - WORN
2. (C) FUEL TANK SELECTOR POSITION - IMPROPER - PILOT IN COMMAND(CFI)

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
3. (C) CHECKLIST - NOT FOLLOWED - PILOT IN COMMAND(CFI)
4. (C) FUEL TANK SELECTOR POSITION - NOT VERIFIED - PILOT IN COMMAND(CFI)

Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT
Phase of Operation: EMERGENCY LANDING

Findings
5. (C) TERRAIN CONDITION - ROADWAY/HIGHWAY

Factual Information

On May 13, 2000, at 1300 hours mountain standard time, a Piper PA-32R, N4148R, lost engine power and made a forced landing on a highway near Casa Grande, Arizona. The aircraft sustained substantial damage; however, the certified flight instructor and student were not injured. The aircraft was being operated as an instructional flight by Sabena Airline Training Center, Inc., under 14 CFR Part 91 when the accident occurred. The flight originated from Scottsdale airport in Scottsdale, Arizona, about 1145. Visual meteorological conditions prevailed at the time and no flight plan was filed.

In a telephone interview, the flight instructor said that the student, who was under the hood, was preparing to execute an approach to Casa Grande Municipal Airport. Part of the landing checklist included switching the fuel selector to the fullest tank; however, the student inadvertently switched the selector to the "off" position. When the engine quit, the student verbalized the emergency checklist items sequentially to the instructor who performed the required actions. The student omitted the first item (switch to fullest tank) because of having already switched.

The instructor was unable to restart the engine within the time and altitude remaining and executed a forced landing on Highway 84 near the intersection with Bianca Road. During the landing, the right flap struck a cement bridge stanchion and the left wing struck a tree.

Once on the ground, the instructor identified the fuel selector as having been in the "off" position.

A recommendation for accident prevention was prepared by the Federal Aviation Administration (FAA) Flight Standards Division Manager in Arizona. According to the FAA report, the fuel selector stop is mounted on a plastic center fuel panel on the floor between the pilot and co-pilot seats. Upon removal of the panel, it was found that the stop for the steel spring arm was bent, allowing the selector to travel to the "off" position. No action to press it down as a separate and distinct action resulted. The bend was not evident while the panel was mounted in place. The design of the fuel selector, part number 69654-22, for the Piper Saratoga and all like components were to be evaluated. The current design provided a positive stop, but was not designed to prevent improper use and eventual wear.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	24,Female
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	November 2, 1999
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	830 hours (Total, all aircraft), 69 hours (Total, this make and model), 711 hours (Pilot In Command, all aircraft), 190 hours (Last 90 days, all aircraft), 70 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Student pilot Information

Certificate:	Private	**Age:**	Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	April 7, 2000
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	March 26, 2000
Flight Time:	116 hours (Total, all aircraft), 17 hours (Total, this make and model), 50 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N4148R
Model/Series:	PA-32R PA-32R	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	Continuous airworthiness	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	I0-540-KIG-5
Registered Owner:	SABENA	**Rated Power:**	300 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:	SABENA AIRLINE TRAINING CENTER	**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	CGZ	**Distance from Accident Site:**	
Observation Time:	12:55 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	230°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.92 inches Hg	**Temperature/Dew Point:**	31°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	SCOTTSDALE, AZ (SDL)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	11:45 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Scottsdale SDL	**Runway Surface Type:**	Asphalt
Airport Elevation:	1510 ft msl	**Runway Surface Condition:**	Dry
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	Crispin, Robert
Additional Participating Persons:	LAWRENCE M JONES; FAA FSDO; SCOTTSDALE, AZ
Original Publish Date:	December 6, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49191